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Operating manual Volume I
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Table Of Contents

Volume I

Chapter 1 About this Guide	5
Chapter 2 Introduction to the Application	7
Chapter 3 Installation	29
Chapter 4 Getting Started	39
Chapter 5 Getting to Know the Application Studio	79
Chapter 6 Building a Project	157
Chapter 7 Security and User Management	187
Chapter 8 Communication Drivers	251
Chapter 9 Tags	299
Chapter 10 Tag Filter Module	393
Chapter 11 Tag Mapper	409
Chapter 12 Multiple Tags	431
Chapter 13 Tag Generator Module	441
Chapter 14 Tag Templates	455
Chapter 15 Alarms	461
Chapter 16 Alarm Filters, Printers & Printer Targets	545
Chapter 17 Advanced Alarm Management	571
Chapter 18 Users Timetable	629
Chapter 19 The Application Network	647
Chapter 20 Introduction to the Image Module	689
Chapter 21 Image Editor	709
Chapter 22 Image Animation	1033

Volume II

Chapter 23 RePlay Module	1129
Chapter 24 Event Summaries	1137
Chapter 25 Events Summary Profiles & Popups	1225
Chapter 26 Charts	1269
Chapter 27 Trends	1369
Chapter 28 Generating HTML Pages	1411
Chapter 29 Secure HTML File Generation	1457
Chapter 30 Application Language	1483
Chapter 31 Scheduler	1545
Chapter 32 Recipes	1595
Chapter 33 History Viewers	1617
Chapter 34 Reports	1639
Chapter 35 Macros	1691
Chapter 36 Network Application Update	1707
Chapter 37 Application SQL Support	1711
Chapter 38 Application DDE Support	1799
Appendix A Application Files	1833
Appendix B Advanced Network and Internet Options	1837
Appendix C VFI5FST (VFI Fast)	1849
Appendix D Installing SQL Server database	1855
Appendix E Application ASCII (ILS) File Format	1859

Table Of Contents

Appendix F Wpack/Wunpack	1903
Appendix G Errors Log File	1909
Appendix H System Tags.....	1913
Appendix I Application Migration.....	1947
Appendix J Glossary	1949
WizTune	1989
WizOPC	2145
Converting projects to WizPLC 3	2223
Using SQL Server for User Management	2235
Migrating images.....	2241
Installing BACnet.....	2249
IIS Issues with Windows 2003 Server	2257
Index	2261

Chapter 1 About this Guide

About this Manual	5
What You Should Know	5
Registering Your Product	5
Customer Support	5

About this Manual

This User's Guide provides developers and system integrators with the necessary information for building process and control applications with this software product.

If you are using this application for the first time, you may proceed in one of the following ways:

- Read this guide from cover to cover, exactly as it is presented.
- Read Chapters 1 through 6. These chapters provide you with basic information on the installation procedure, guidelines for designing an application, and a description of the Application Studio. Then, read the chapters you need, depending on the tasks you want to perform.
- If you are an experienced user, read Chapter 2 to learn about the available features, and then use the Table of Contents to find the information you need.

Note: In this manual the names WizSQL, WizLanguage, WizDDE and WizDDES have been named: Application SQL, Application Language, Application DDE and Application DDES. When writing code substitute the word application for Wiz.

What You Should Know

Before you start using the application and working through this guide, you should be familiar with the Windows operating systems. You should also know how to operate an IBM-PC or compatible.

Registering Your Product

You are important to us, and it's important for us to know who our customers are. Registering your product enables us to provide you with better services and important notifications about the product. Please take a minute to complete the Licensing Agreement included with your product and send it to Wizcon Systems.

Customer Support

You can receive technical support by contacting your Sauter agency.

Chapter 2 Introduction to the Application

About this chapter.....	8
Introduction to the Application	8
Introduction to the Application.....	8
Typical Application SCADA Configuration	9
Main Features.....	10
Main Features	10
Advanced Alarm Management.....	10
Alarms.....	11
Alarm Filters.....	11
Automatic Network Optimization.....	12
Background Processing	12
Built-in Report Generator	13
Charts and Reports.....	13
Database Connectivity	13
Easy Maintenance	14
Events Summaries.....	14
Events Summary Profiles.....	15
Events Summaries Viewer.....	15
Hot Backup Support.....	15
Image	16
Language	17
Macros	17
Milli-second Time Stamping.....	18
Networking	18
Network Application Update.....	18
Online Design	19
Open Architecture	19
PLCs Sampler	20
Printers.....	20
Printer Target.....	21
Recipes	21
RePlay Module.....	21
Security	22
Security on the Web.....	22
Scheduler.....	23
Tags	23
Tag Filter.....	24
Tag Generator.....	24
Tag Mapper.....	25
Trend Profiles.....	25
Trend Viewer.....	26
User Management	26
Zone Navigator	27

Other Topics	27
Application SCADA Station	27
Application SCADA View Station	27
Management View Station	28
Management View Station Configuration.....	28

About this chapter

This chapter describes the application and its features.

Introduction to the Application discusses this software program and the SCADA concept.

Main Features discusses the main features of this application.

Introduction to the Application

Introduction to the Application

This software program is an advanced Supervisory Control and Data Acquisition (SCADA) system used as an applications development tool that enables system integrators to create sophisticated supervisory and control applications for a variety of industries.

This system is an application generator. This means that all the control and monitoring facilities are already built into the system, and only project definitions need to be provided by the system integrator. Minimal computer or programming skills are required.

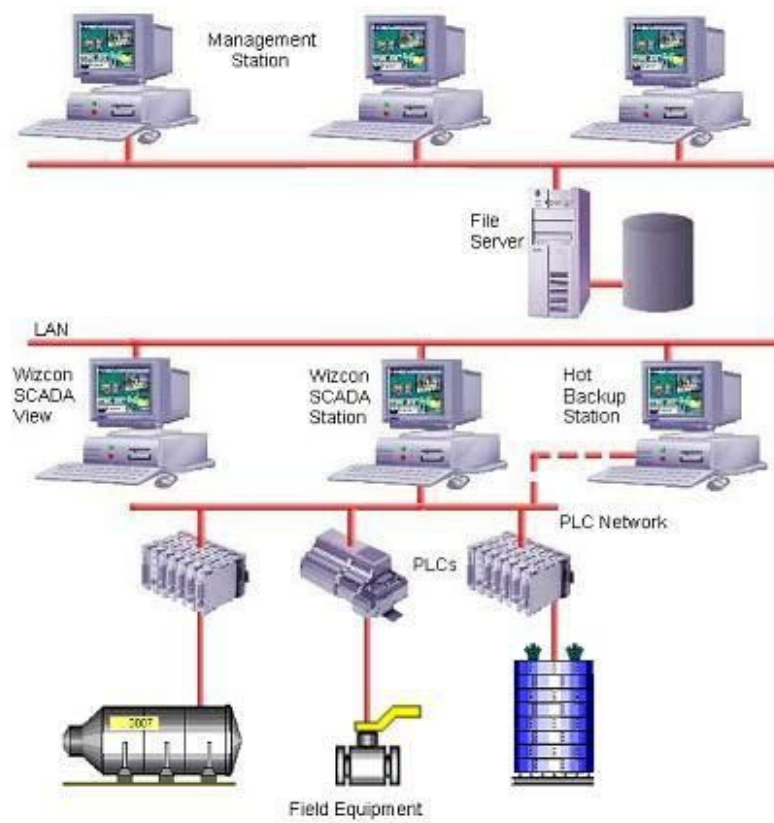
The application takes advantage of the powerful, preemptive, multi-tasking capabilities of the latest Windows operating systems and a built-in event-driven mechanism to achieve utmost performance and data integrity. It also uses its interface mechanisms to implement clear and efficient visualization of its components.

The software enables you to integrate your application with your Internet/Intranet network, promoting real-time supervisory and control using real-time graphics and event-driven information updates from any computing platform. It combines the benefits of SCADA, Java, HTML and Internet.

The production floor can be safely monitored and controlled through a standard web browser. Both factory data and corporate information can be viewed through a common interface, from any desktop or laptop.

An application communicates with control equipment in the field such as Programmable Logic Controllers (PLCs), measuring instruments, and other devices. As the equipment is monitored and data is recorded, the application responds according to system logic requirements or operator requests.

Typical Application SCADA Configuration



Main Features

Main Features

This section describes the application's main features and concepts. A Glossary appears at the back of this book in which you can find descriptions of additional terms and concepts.

Advanced Alarm Management

Advanced Alarm Management (AAM) uses a multi-service communications platform providing alarm transmission over various communication channels including Internet, SMS, email, fax and voice.

Alarms can be defined according to hierarchy, be filtered, appear on the user's screen as a pop-up message with/without voice, sent to a single user or when defined sent to groups and teams or to a backup user. Additionally, alarms can be defined as system alarms, be delayed, inhibited, locked or defined according to zones.

Authorized users can add comments or instructions to an alarm for future reference. Alarms can be imported/exported to/from previous versions or other files.

Operators can acknowledge the reception of alarms and automatically receive instructions for handling them. Alarms can also be recorded to a history file for reference purposes. See **Chapter 17, Advanced Alarm Management**.

Alarms

Alarms are configured application messages used to notify operators of exceptional conditions at the workplace. The application generates automatic system messages that provide operators with information about internal system events, such as communication driver failure, network communication errors and others.

Application alarms can be targeted to and be displayed in the Events Summary, appear in a popup window, or be printed out.

Alarms can be defined in order of hierarchy. New alarms can be added (or existing alarms modified) to different levels of the hierarchy tree. Alarms can be defined according to attributes, inhibited, delayed, have Help messages containing instructions on how to handle the cause of the alarm and have comments attached to them. They can also be recorded to history for report purposes. See **Chapter 15, Alarms**.

Alarm Filters

The **Alarm Filters** module filters alarms and reports before they are printed out or written to the Events Summary. Alarm filters are displayed in the Alarm Filters table and defined or modified in the Filter Properties dialog box. Filter properties can be updated, however the name of a filter cannot be changed.

The Alarm Filter filters the alarms sent when parameters defined in tag variants are not met.

After alarms and reports outside the defined categories have been filtered out by the Alarms Filter, the remaining alarms are sent to the Printers defined in the Printer Targets module. (See **Chapter 16, Alarm Filters, Printers & Printer Targets. Defining Alarm Filters**).

Automatic Network Optimization

When there are very fast tag changes at the workstation and the server is too loaded to send all tag changes, this functionality sends the newest tag values to the web client.

If the web client cannot keep up with tag changes from the application for the Internet station it will process the latest tag thereby insuring that the information displayed is always updated.

Background Processing

The application enables you to process heavy jobs without temporarily disabling the system. While background processing is in progress other operations can be performed.

Background processing operates when:

- Loading an image file that is larger than 30K
 - Printing an image
 - Generating Events Summary and History Viewer reports
 - Using MultiAdd, List, and Use functions in the Tag Definition dialog box. See **Chapter 9, Tags**.
-

Built-in Report Generator

The built-in report generator keeps you continuously informed and up to date on all plant activities.

Designed specifically for supervisory and control systems, the report generator can produce customized daily shift reports, periodical reports, and event-driven reports.

Charts and Reports

The system's charts provide graphical views of process behavior and operational trends over a period of time. A single chart can display historical and real-time trends in distinctive colors and styles. Charts can also be defined to display a tag's bit.

An X-Y chart can be configured with up to 16 related process parameters. The user can scroll along the X and Y axis while zooming in and out to view the required details. See **Chapter 26, Charts** and **Chapter 34, Reports**.

Database Connectivity

The application's SQL module allows application designers to build event driven SQL queries to read and write system data from and to database tables. This simplifies the exchange of information with other applications. See **Chapter 37, Application SQL Support**.

Note: The application's database files are saved in Microsoft Access where they can be opened and modified.

Easy Maintenance

The software program reduces operating costs by enabling users to build a single application instead of a network solution of multiple applications. In addition, it eases the administrative burden tremendously, since it is Java based and Java is already an integral part of the web browser installed on most desktops.

The application does not need to be installed locally on each station. Updates can be distributed centrally through web servers.

The application's functionality does not introduce new configuration, resource or compatibility issues; nor does it require extra administrative or maintenance effort for each machine. In addition, the application relies on Java's portability and eliminates the need to support different versions of applications on different platforms. The system can be viewed online with a browser.

Events Summaries

The Events Summaries interface displays alarms according to the user's specifications. The user can apply filters to display only alarms from a defined zone range, severity range, family prefix, station, class and more. Alarms such can also be sorted in the Events Summary.

The Events Summaries also provides multi filtering and alarm inhibition. The Go to Zone feature enables connecting predefined zones to alarms. This means that an alarm can be attached to an image of a problematic zone enabling the user receiving the alarm to easily identify the alarm's whereabouts. See **Chapter 24, Event Summaries**.

Events Summary Profiles

Events Summary Profiles determine how active alarms and history are displayed in a browser according to the definitions defined by the System Integrator. See **Chapter 25, Events Summary Profiles & Popups**.

Events Summaries Viewer

The Events Summary Viewer features real-time monitoring of alarms and history according to the definitions specified in the Events Summary Profile. This enables the user to monitor and acknowledge alarms in real-time, adjust alarm display, resize columns, change alert sorting and view alarm history.

Alarm filters can also be changed to view only specific alarms, for example, from a certain zone or according to priority. Filters can also be added and removed without affecting the server side. Html alarm files can be used and the alarm background and text colors can be set according to alert severity and zone.

Similar to the Events Summary display, this viewer shows the following lists; In History Mode, Load Picture, Inhibit, Ack Selected, Force End, Assist, Columns, Filter List and Add Comments.

Hot Backup Support

The system enables one station to serve as a backup to other stations. If the main SCADA system fails, the backup station immediately takes over and continues to function.

Image

The application uses the most advanced techniques for presenting images. They include:

- Drawing a single large image representing the entire plant and then zooming in on a selected area to obtain detailed views of small and even hidden elements. An image can consist of more than 64 layers, with each layer representing specific information. Operators can then choose and mix layers, accessing only the information they need and are authorized to see.
- Defining dynamics so that as parameters in the field change, so do graphical drawings and textual displays.
- Zone Navigator which can be used to navigate through the various application's image zones.
- Defining any object in the image as a trigger, so that whenever the object is selected, one of several operations, such as activating a macro will be automatically performed.
- Designing an image using the powerful, Image Editor that includes a variety of drawing tools designed specifically for the application's requirements. This unique editing feature enables you to easily modify any object and simultaneously apply the changes to all the applications' diagrams. Objects in an image file can be locked (and unlocked) to prevent them from being modified or deleted.

In addition to drawing images within the application framework, graphic files generated using other software programs can be imported to the Image Editor.
- The Clusters Library holds a variety of prebuilt objects, including valves, pumps, and other industry-standard components. The user can define or change the parameters of each object and save the changes in the application's database. When a new library is created it can be saved to the Global Cluster Library and used in other applications.
- The Fast Actions triggers are predefined built-in macros that enable you to easily trigger routine operations. Among the available actions are: load/close window, load/close image, load/close chart, load/close events summary.
- Copy and Paste attributes supporting object (line and fill color) and text (font style, size, color and background).

See **Chapter 20, Introduction to the Image Module, Chapter 21, Image Editor and Chapter 22, Image Animation.**

Language

Application Language is a built in control language, which can be used to automate plant tasks, augment control capabilities, and enhance system flexibility.

This language enables application engineers with little programming expertise to write useful command programs. Each system function, such as access to control devices, can be expressed in symbolic form in application Language, so that any application engineer can customize the application to meet specific plant design requirements. See **Chapter 30, Application Language**.

Macros

Macros are shortcuts that can be used to execute predefined actions, commands, or programs, whenever designated keys or key combinations are activated. This enhances overall application functionality, and saves you the time and effort of having to execute operations in several stages.

Up to 65 535 application macros can be defined. See.

Milli-second Time Stamping

The system samples PLCs at up to a 50 milliseconds resolution and can receive data with a time stamp of up to 1 millisecond resolution. This data is registered in the application's history files according to the time stamp. It allows operators to trace the sequence of plant events exactly as they occur.

Networking

The application provides a smooth growth path from a standalone workstation through the plant floor configuration to plant-wide network architecture connecting the plant floor with existing file servers and other management systems.

The system network uses client-server architecture. The application can be connected to other workstations or stations using NetBIOS or TCP/IP protocol that have the software program installed. Thus, tags and alarms defined on any application workstation can be used on the same network as the application. See **Chapter 19, The Application Network**.

Network Application Update

The Network Application Update module enables an application developer to quickly and easily update far station application files remotely. To the station operator this action is invisible. However a record of the update will appear in the station's error.dat file.

An unlimited number of network stations using the application can be defined in the Remote Update Settings dialog box. This dialog box, by default, holds all the files within the application. See **Chapter 36, Network Application Update**.

Online Design

Changes can be made during runtime and the user can view the results immediately.

Open Architecture

The system integrates seamlessly with existing databases, spreadsheets or other customized applications, allowing you to focus on productivity rather than compatibility.

- The application's Virtual File Interfaces (VFIs) enable the designer to select different file formats to be used for application historical data logging and report generation. The system engineer can use a combination of different file systems and databases with the application, for data manipulation convenience and optimum performance.
- A comprehensive Application Programming Interface (API) is included with every application package to enable smooth integration with customized programs and application modules.
- The application supports two-way Dynamic Data Exchange (DDE) links for exchanging data with other DDE-compatible applications.
- The application's SQL interface enables application designers to build event-driven SQL queries to read and write system data from and to database tables, simplifying the exchange of information with other applications.
- The application is managed by a real-time, event-driven kernel. This module includes an API that can be used to write supplemental application programs in C and Visual Basic language, to meet the specific requirements of any project. For further information, refer to the Read Me file in the Toolkit.
- The application is compatible with a wide variety of PLCs and other control system components. Custom adaptation is supported through a fully documented toolkit.
- All definitions of alarms and tags are saved in a Microsoft Access Database (MDB). A database can be opened and modified by the user in MS Access.
- A history of tag changes can be saved and viewed/opened in a database that supports ODBC.

- OPC capabilities enable system integrators to create a common interface for exchanging data with hardware field devices or other software that can be reused by this client program, and other HMI, SCADA and custom applications. novaPro Open can be now OPC DA Server & Client, OPC HDA Server and OPC AE Client.
 - A complete BACnet driver with a totally integrated user interface.
 - A Centralized User Management option is enabled with a SQL Server database.
-

PLCs Sampler

The application samples PLCs at up to a 50 milliseconds resolution and can receive data with a time stamp of up to 1 millisecond resolution. Up to 32 networks of PLCs and other field devices can be sampled.

Printers

Alarms and their history, tag history, AHP formatted Help files and reports can be printed both on local and network printers. Printing definitions such as color or different text fonts and backgrounds can be defined.

There are two printing modes:

- Graphical printout, which can appear as a page holding a list of events or alternatively, each event is printed on a separate page.
- Line mode printing where each alarm is printed separately in real-time and is added to the list already printed on the page.

See Chapter 16, Alarm Filters, Printers & Printer Targets.

Printer Target

A Printer Target is a collection of predefined filters and printers specifying the conditions under which the targeted printer is activated. The Printer Target dialog box holds a list of all the printer targets that have been defined. Each printer target is identified by a unique name and description. See **Chapter 16, Alarm Filters, Printers & Printer Targets page 2**.

Recipes

Recipes are lists of tag values that are applied to specific control processes such as groups.

Operators can edit, load and save recipes for convenient handling of production processes and setting control programs. Recipe management and downloading production recipes from management systems is simple and straightforward. See **Chapter 32, Recipes**.

RePlay Module

The RePlay module is used to display/view previous history tag values in images.

When this module is activated a screen opens displaying an image and its tag values as they appeared at a selected time. The application reads and displays the tag values from the application's history.

Only tags that have Write to History defined during Tag Definition can be used.

Chapter 23, RePlay Module.

Security

The system integrator responsible for the application can, using the User Management module, grant access permission to users. Users can have full or partial access to the various modules. Access can be defined according to users, groups and teams.

A user password can hold up to 20 characters that can be changed by the user (if defined so the system integrator). Access to the system can also be through a token or PIN number. See **Chapter 7, Security and User Management, Security Overview.**

Security on the Web

The application takes full advantage of the security features provided by the web server, enabling user access control according to selected web pages. In addition, an Internet firewall can be used to limit access according to IP addresses. The TCP port 3028 should be open to enable dynamic control from remote.

The program also offers the system integrator the power to limit the operations that the user is able to perform. Only authorized users with specific access permission can login to the application.

Scheduler

The Internet based Scheduler enables you to easily create daily or weekly task orientated schedules remotely. Accessed through an Internet browser or by clicking on an icon, the Scheduler is extremely user friendly, efficient and economical.

Being both task and time orientated the Scheduler can be used to create unlimited tasks, actions and states. Tasks can be modified, enabled/disabled and have many states such as On/Off attached to them. An unlimited number of actions, which are basic operations, can be attached to each task. See **Chapter 31, Scheduler**.

Tags

An application tag is used as an internal variable for calculations and display and communication with PLCs to represent data from PLC memory, or to send commands to PLCs.

Tag values can be scanned and recorded to historical files according to several parameters specified by the user. Tags can also be assigned an application DDE link definition and can therefore receive or send data to/from other applications.

Predefined built-in System Tags (see Appendix G, **System Tags - Overview**) that provide information about the system can be created. System tags can be for example, time, date, hour etc parameters. The list of System tags can be viewed in the All Container tree.

A tag can also be locked/unlocked according to pre-defined time. This is useful during maintenance enabling the system integrator to lock tags and prevent irrelevant alarms from being sent. A list of all the tags defined in the Lock Tag can be viewed in run-time.

Tags can be imported/exported to/from other applications or previous versions. See **Chapter 9, Tags**.

Tag Filter

The Tag Filter module holds a list of tag filters that can be selected and used for tag lock visualization. This option is accessed in the Application Studio Control Panel or from the Tag Lock dialog box. Tag filters can be selected or created, saved and loaded.

Tag filters are stored in the application in the file TFM.XML that is created in the Docs or appropriate directory of the application and can be accessed through Java applets. Up to 10 tag filters can be selected simultaneously. See **Chapter 10, Tag Filter Module**.

Tag Generator

The Tag Generator module is an engineering tool designed to quickly and easily generate or update tags in the novaPro Open database.

The Tag Generator allows you to update any existing Wizcon PLC or dummy tags into addressed PLC tags through a mapping process. If tags do not exist in Wizcon database, the Tag Generator will create them.

Tag Mapper

The Tag Mapper is a data file of tags and tag values that can be used to considerably reduce workload during application creation. Tag values of tags held in a Tag Mapper table are mapped by the Tag Mapper into a list of other tags.

There are two types of Tag Mapper tags:

- Source: These are tags whose values are directed to target tags. More than one source tag can be pointed to the same target tag.
- Target: This tag type receives the values of the source tag. All target tags must have the WIZTGM_ prefix.

An unlimited number of tags can be mapped. The Tag Mapper is bidirectional. All Tag Mapper dialog boxes are resizeable. See **Chapter 11, Tag Mapper**.

Trend Profiles

The Trend module provides a real time and historical graphical view of tag values over time.

System architecture provides additional benefits for remote control applications and applications where frequent causal access is required. For these applications historical display of data is critical. The Trend features include:

- Historical cache mechanism: Offers improved performance with minimum load on the server.
 - Asynchronous historical data download: As a result the Trend is always responsive to the user.
 - Performance: On a local area network, trends can be used over a dial-up connection.
 - Display of multiple tags over time.
 - Historical and on-line data support.
 - X and Y axis labeling.
 - Different line colors and line types.
 - The Trend component takes less than 800kb.
-

Trend Viewer

A Trend Viewer displays online activities and history recorded by the application system according to definitions specified in the Trend Profile.

The Trend Viewer functionality enables modification of the chart's tag setup over the Internet without affecting the server side. The Setup menu enables updates to Tags, Time and the Grid, whereas the Options menu enables Axis Orientation, Print and Show Grid. See **Chapter 27, Trends**.

User Management

The User Management module enables management of all the users of the application both locally and remotely. This module enables definition of user groups and teams and their access permission to the various application modules. A timetable can be set for each user/group/team and alarms, when necessary can be sent to the appropriate personnel. This management methodology allows for easy scheduling of personnel for various tasks. Linked to a SQL Server database, the User Management module can be centralized for a common and unique access between several Wizcon stations.

Alternatively, you can link the user management to a corporate IT network, using Active Directory to handle setting up of users and groups and password management.

Providing full backwards compatibility, User Management enables import/export of groups created in/for previous/new versions. See **User Management - Overview**.

Zone Navigator

The Zone Navigator window enables quick and efficient navigation through the list of zones defined in the application's various image objects. Using the Zone Navigator you can define a number of navigators each of which can contain a number of zones from one or more different image files.

The Zone Navigator can be applied to images through either Button or Action type triggers or by configuring an Action type macro. A digital tag representing the zone's status can be added to each Zone Navigator. Additionally, color indicators can also be defined. The multi-image zone navigator can be activated from the Application Studio control panel, from the Studio Design menu or at runtime from the image using a button or action trigger. See **Chapter 21, Image Editor, Zone Navigator**.

Other Topics

Application SCADA Station

Application SCADA station is an operations station that can communicate with up to 16 networks of PLCs simultaneously. This station performs functions such as sampling PLCs, generating alarms, collecting historical data and performing control operations. The operator can view the process through the Application user-interface and interact with on-going activities. The Application SCADA station can receive and send data to other network stations.

Application SCADA View Station

The Application SCADA View station is a full operational station that allows operators to view and control the process. This station automatically receives all the online and historical data from the SCADA stations, as required. The operator can transparently interact with the process using Application's Images, Charts and other standard modules. The Application SCADA View serves as a mirror of the real-time and historical data from one or more SCADA stations. The SCADA View Station is not connected to a PLC, it is connected to SCADA Stations via a network

Management View Station

The Application's Management View stations are stations that bring real-time and historical data from the plant floor to any desktop in the organization. Management View stations can display data collected by one or more SCADA stations. In addition to displaying the data in forms of images, graphs and reports, Management View stations provide the necessary functions for interacting with on-going activities. Each command for changing process parameters or downloading a recipe is immediately transferred to the appropriate Application SCADA stations. Since the Application Server handles the communication, this process does not affect time-critical operations on the plant-floor. A Management View Station cannot operate without a Server station.

Management View Station Configuration

Note: *Management View Station is not supported on the Web.*

To configure your station as a management view station load the Application without a plug, follow the same procedure as when defining a **SCADA station** Then in the local station definition dialog box set the Management View station check box, and Select **A Server station** to indicate that requests for data from the local station will be directed to the Application Server.

Chapter 3 Installation

System Requirements	29
System Requirements.....	29
Hardware	30
Software	30
Installation	30
Caution.....	30
Previous Versions	31
Additional Installations	31
Installation	31
Uninstall / Modify / Repair the program.....	36
Starting the Application.....	38

About this chapter:

This chapter describes system requirements and the installation procedure.

System Requirements discusses the requirements of the system.

Installation instructs you how to install the application and lists the additional software components installed during application installation.

Starting the Application instructs you how to start the application.

System Requirements

System Requirements

Before you install the application verify that you have at least the following:

Hardware

Computer: Pentium III 800 MHz (recommended 2 GHz and up).

Memory: 256MB (recommended 512MB).

Hard Disk: 500MB minimum free (recommended 3 Go). This is required for both installing the program and for developing an application.

Monitor Adapter: 8MB (Recommended 32MB)

Monitor: Resolution 800X600 or higher.

Display: VGA, SVGA, or any graphic adaptor that supports the operating system desktop. The display should be set at 65000 colors (16 bits) or higher and the screen resolution should be set at 800 x 600 or higher.

Mouse : Any PC compatible mouse.

Parallel or USB Port: Required for the system's security plug.

Software

Operating System: Microsoft's Windows 2000 SP4, Windows XP SP2, Windows 2003 Server SP1, and Windows Vista. Please check the release notes for any updates.

Correctly configured TCP/IP: IP address can be fixed or provided by a DHCP server, except for HotBackup stations which should have a fix IP address set manually

Web server: A web server that owns an ASP engine is required for publishing the application. It is strongly recommended to use Microsoft IIS version 5.0 and higher (Internet Information Server).

Browser: Microsoft Internet Explorer 6 SP1 (or higher).

Java enabled browser is required. Sun Java 6 Update 2 (1.6.0_02) is installed with the product.

HTML Editor: Any HTML editor may be used. (Optional)

Installation

Caution

It is strongly recommended that Microsoft IIS 5.0 or higher be installed on the computer prior to installation.

If the above software components are not installed, a dialog box opens informing you that Setup has detected that the version of Internet Information Server required have not been installed. Click Yes to exit system setup so that you can install the missing IIS. On

Microsoft Windows Vista system, IIS7 can be automatically installed by setup if end-user click on the corresponding option.

Previous Versions

If you have a previous version of the product installed a message box opens reminding you to uninstall it.

Additional Installations

The following components are installed during the system's installation if they are not already installed.

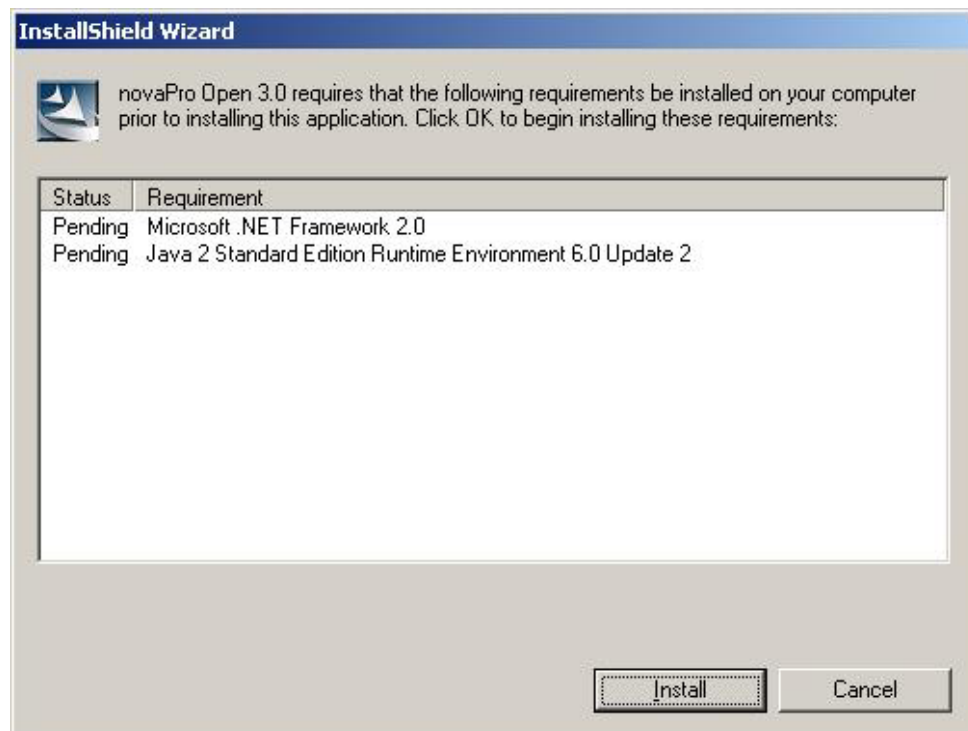
- MDAC (Microsoft Data Access Component) 2.7 / 2.8 SP1
- JET40 SP3
- MFC 6.0
- MFC 7.0
- MFC 7.1
- VC 80 SP1
- Sun Java 6 Update 2
- Microsoft .NET Framework 2.0
- HASP driver version 5.22
- OPC Core Components 3.00

Installation

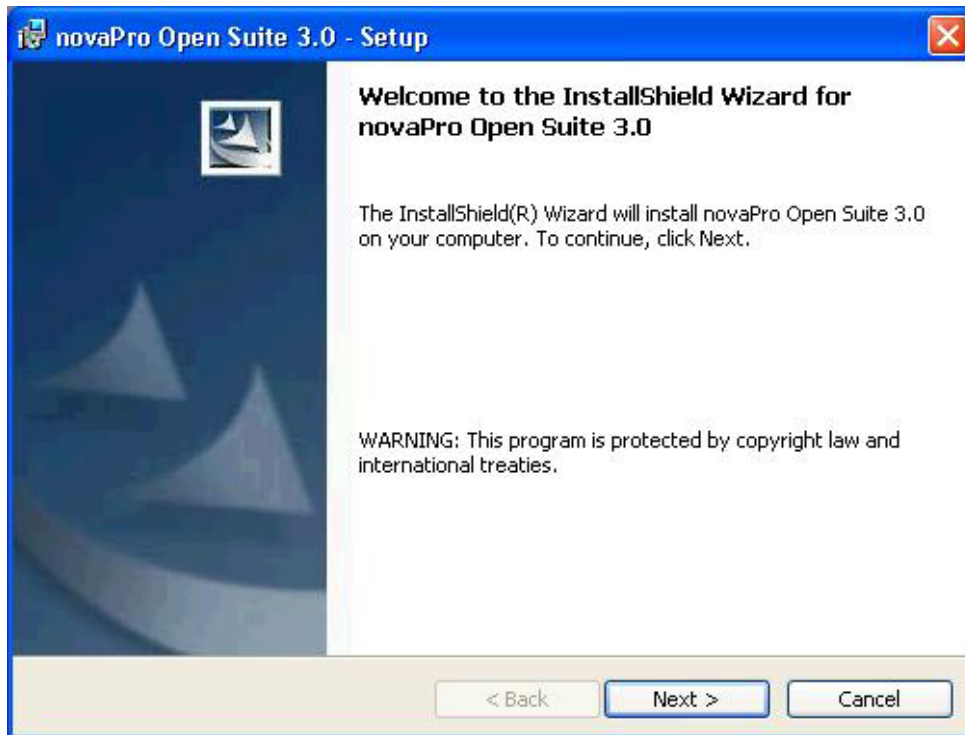
It is strongly recommended that you close and exit all Windows programs before running the installation procedure.

- To install the application:

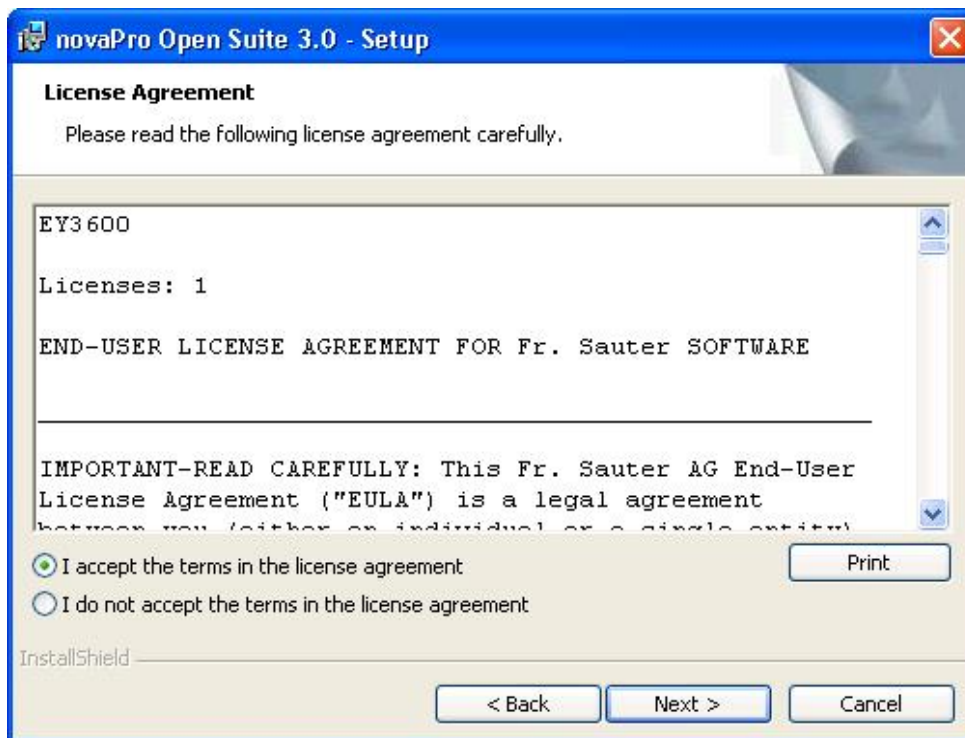
1. Insert the CD-ROM into the CD-ROM drive. The Requirements dialog box is displayed. Click Install



2. The Welcome dialog box is displayed.

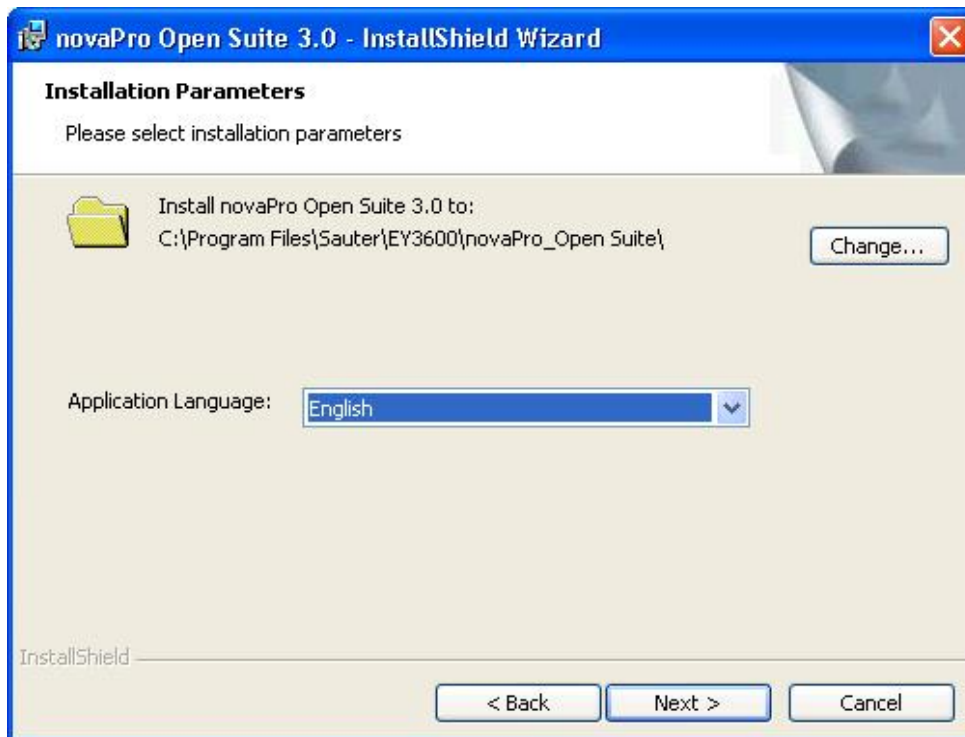


3. Click Next to open the License Agreement window.

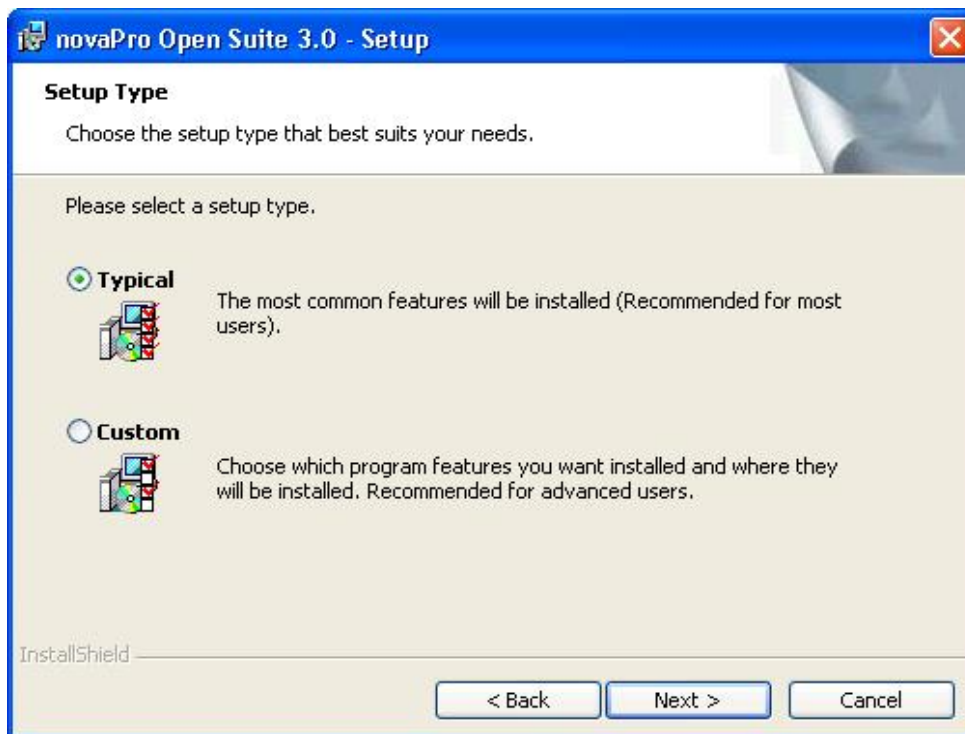


4. Read and accept the Agreements and then click Next.

The Installation parameters dialog box opens enabling you select the Destination Folder location and the Application language.



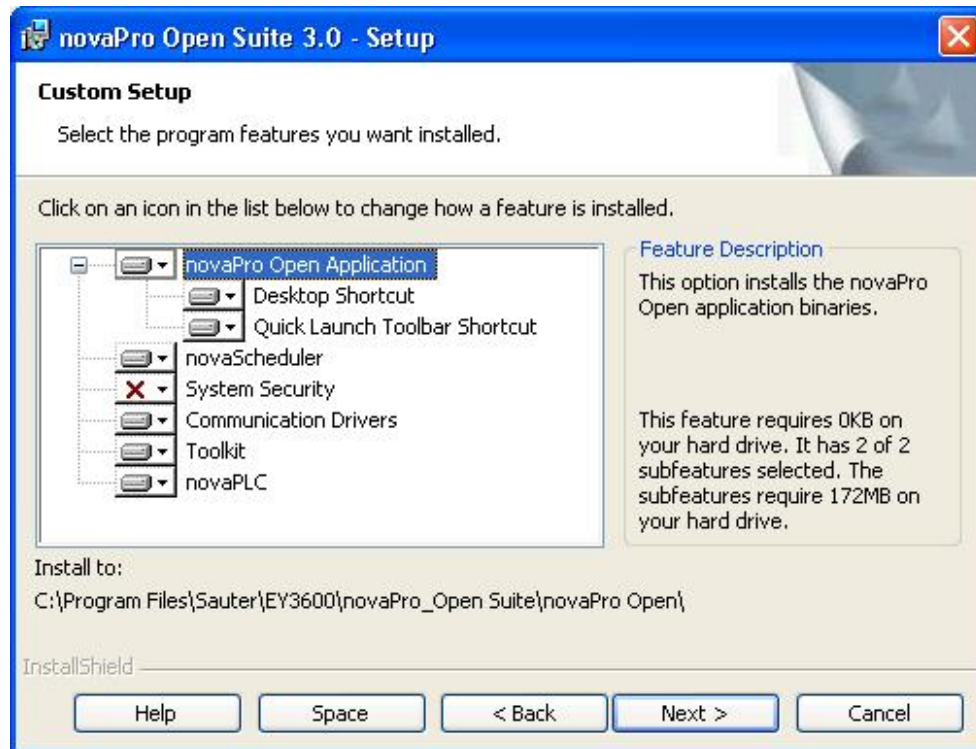
5. Click Next to open the Setup Type dialog box.



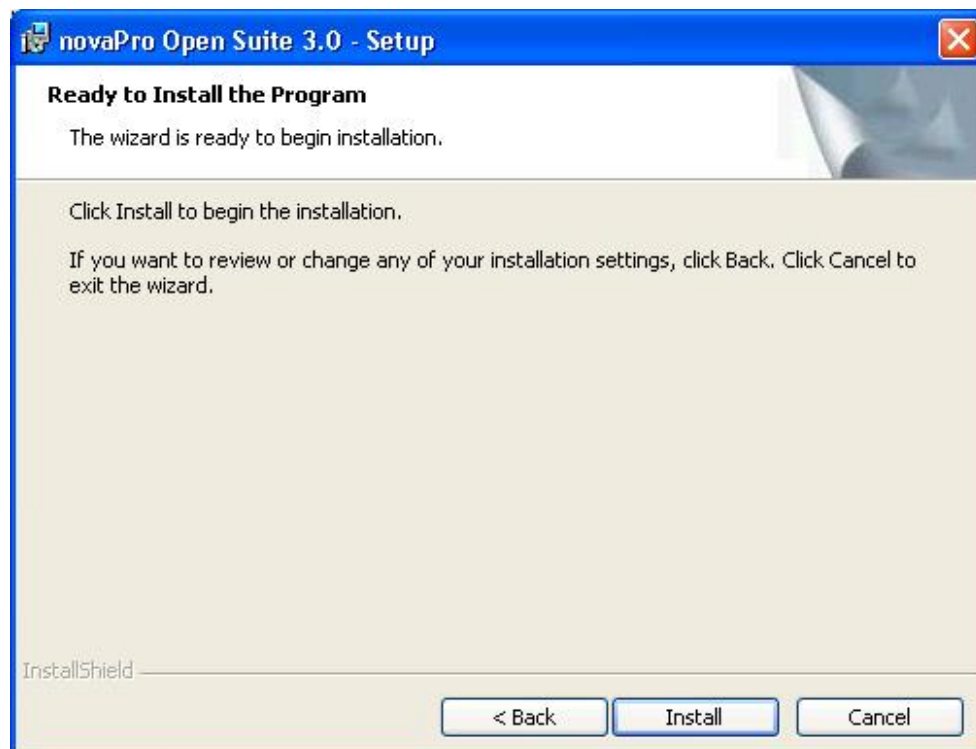
The Setup Type dialog box has the following options:

Typical	If Typical is selected the product will be installed with the most common features.
---------	---

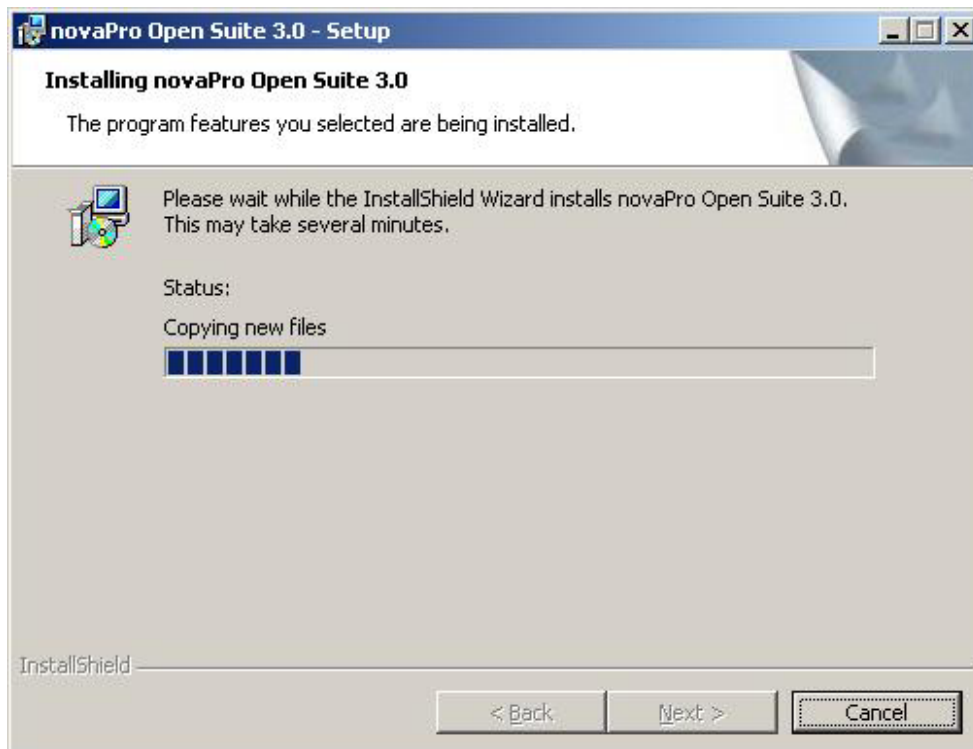
Custom If Custom is selected a new Custom Setup dialog box opens where the user can select only the relevant components required for the installation.



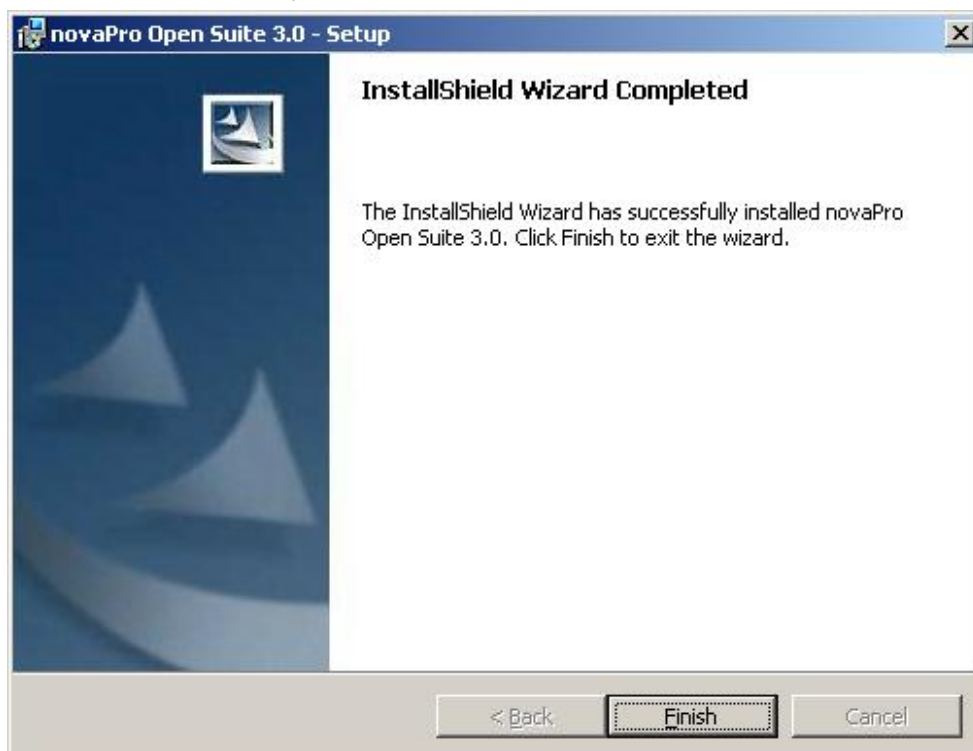
6. Make your selection and then click Install to perform the installation procedure.



7. The installation process is performed ...



8. Once the installation procedure is finished, a final dialog box is displayed. Click the Finish button to end setup



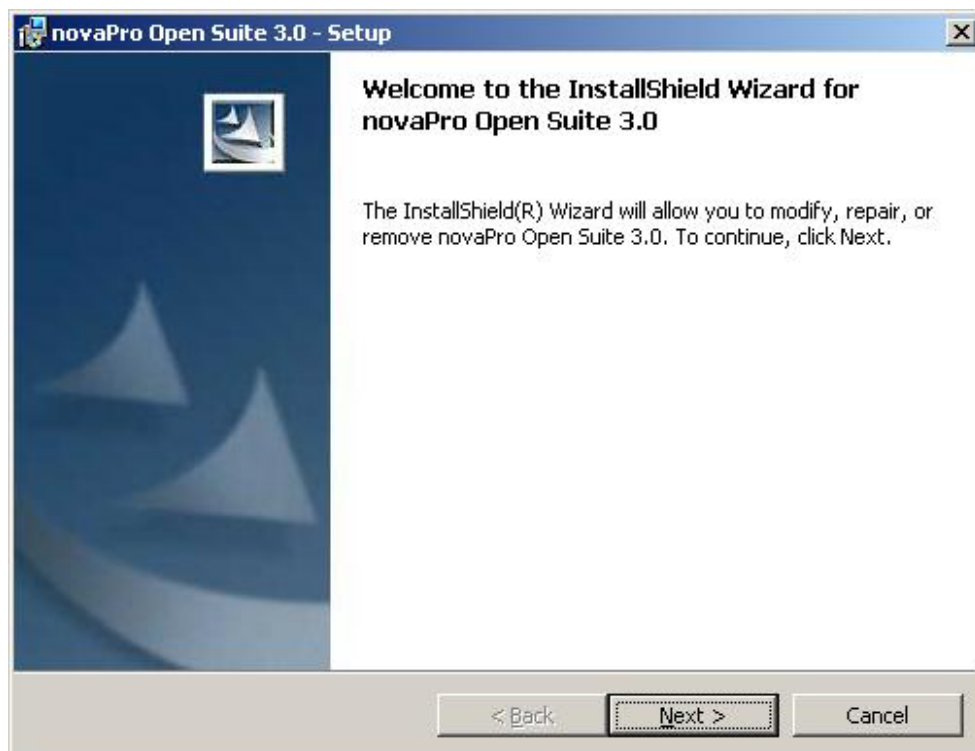
Uninstall / Modify / Repair the program

The Uninstall function can be used to remove the program from your computer. Only the directories, files, folders, icons and registration originally created by the system's installation program will be removed.

To achieve the best results, exit the application and make sure that the system is not running in the background before using the Uninstall program. If it is working, some files and icons may not be removed.

To launch the application uninstall program:

1. Click the Start button on your desktop, point to Settings and then click on Control Panel. The Control Panel folder is displayed.
2. Double-click on the Add/Remove Programs icon. The Add/Remove Program Properties dialog is displayed.
3. Select the application from the list of available programs and click the Add/Remove button. The Modify or Remove Program dialog box opens. Click Next

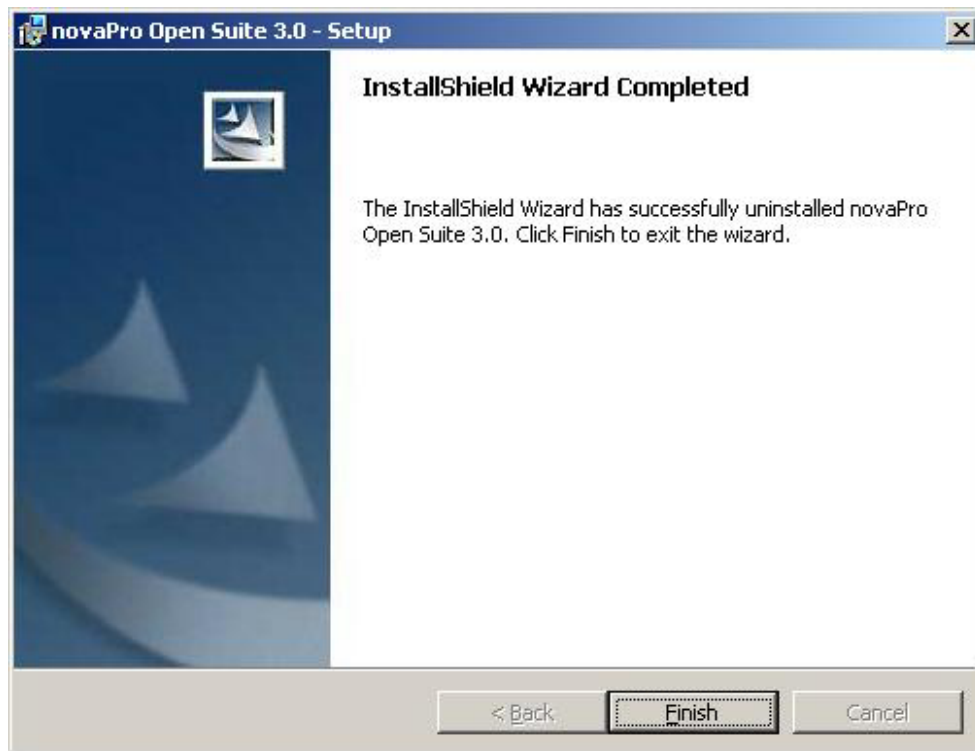


4. Make your selection to Modify/Repair/Uninstall and then click Next to perform the selected option.



- | | |
|-----------|--|
| Modify | If Modify is selected the product can be modified and features can be installed / uninstalled on demand. |
| Repair | If Repair is selected all corrupted or deleted files are automatically repaired by installation procedure. This option avoid reinstalling the product. |
| Uninstall | If Uninstall is selected the product is uninstalled |

7. Once the operation is finished, click on Finish button



Starting the Application

To start the application, click on the Start button on your desktop, point to Programs, to NovaPro Open and then to the application. Click on the application to open the Studio.

Or, Double-click on the shortcut application icon on your desktop.

- To create a shortcut to your application (without going through the Project Wizard):

1. Right-click on your desktop, and select New/ Folder from the popup menu.
2. Type in the name of the application and select Shortcut from the popup menu.
3. Type the location and name of your application (*.Wpj) or search for the application by clicking on the Browse button.
4. Click Next and select a name for the shortcut.
5. Click Finish to complete the operation.

Chapter 4 Getting Started

Accessing the Application.....	40
Accessing the Application	41
Application Getting Started Wizard	42
Application On-Line Help	42
Quick Access Bar.....	43
Application Quick Access Bar	45
Show or hide the Quick Access Bar.....	46
Show/Hide Application Studio Window	46
User Login	46
User Login.....	46
Operator Login	48
Login	49
Remote User Login	50
Login/Logout Quick Access Bar	51
Default User.....	52
Default User Dialog.....	52
Specifying Remote User Login Parameters	53
Specifying Remote User Login Parameters	53
Users.....	54
Customizing the Login/Logout Procedure	54
Designing an Application	55
Designing an Application	55
Designing Multiple Applications	56
Typical Application Requirements.....	56
Workflow	57
Workflow	58
Step 1: Building a Project, the Wizard and Station Properties	58
Station Properties	60
Step 2: Defining Network	67
Step 3: Defining Communication Drivers and Blocks.....	68
Step 4: Defining User Groups	68
Step 5: Defining Tags and Alarms	69
Defining Tags.....	69
Defining Alarms.....	69
Step 6: Building the Application Image	70
Step 7: Defining Application Language	70
Step 8: Testing the Application	71
Step 9: Defining Charts, Reports and Recipes	71
Defining Charts	71
Defining Reports	71
Defining Recipes.....	72
Step 10: Fine-Tuning the Application	72
Shutting Down	73

Shutting Down.....	73
Logout.....	73
Exiting the Application.....	73
Operator / Logout.....	73
Logout.....	74
Other Topics	74
Default values in the Application for different countries:	74
Load Events Summary.....	75
Load Chart	75
File / Load	75
Load Image	76
Load Layout	76
Load History Viewer	76
Load Recipe.....	77
Show or hide done bar	77

About this chapter:

This chapter describes how to access the system and also suggests a workflow for building an application.

Accessing the Application describes how to open the application and the Application Studio and also describes the Quick Access bar.

User Login describes how to log in to the application.

Designing an Application describes what to do before you begin designing an application, as well as typical application requirements.


Workflow describes a typical workflow for application design.

Shutting Down describes how to logout of the system and how exit the application.

Accessing the Application


Accessing the Application

You can access the application and all its working components by either:

- Clicking the  application icon.
- Opening the Application Studio that holds all the components you need to design as application.
- To open the application, do the following:
 1. Click on Start and point to Programs/NovaPro Open, and then to the Application and select it from the popup menu. The Getting Started Wizard is displayed. This wizard enables you to open applications from the Application Studio.



The Getting Started window has three tabs:

- **New** - creates a new application or opens a template application
 - **Existing** - searches and opens an existing application
 - **Recent** - lists recently used applications
2. After you select and open your application the Quick Access Bar appears on your screen. Click the  Application Studio icon in the Quick Access bar to access the Application Studio.

Note: For further details on the Wizard see **Chapter 6, Building a Project**.

Application Getting Started Wizard

The Application Getting Started Wizard is a simple way of organizing applications and creating new ones.

From the Application Getting Started Wizard you can:

Create a new application.

Create a template application.

Open an existing application

Select one of the recently used applications.

Double click on the application's .exe file or launch the application from the Windows Start menu.

The Application Getting Started Wizard dialog appears.

Application On-Line Help

You are now in the Studio Application

To get started with application design or to use an existing application, click on the desired menu title, or press the Alt key together with the key of the underlined letter of that menu.

To obtain help for any menu title at any time, simply click on the desired menu title and press F1.

For help with any menu item, click on the desired menu, move down to the item you want, and, while still holding down the mouse button, press F1.

Alternatively, open the desired menu by pressing the Alt key together with the key of the underlined letter in the menu that you want to open, move to the item you want using the arrow keys, and then press F1.

Quick Access Bar

The Quick Access Bar holds the following icon options:



Show Studio



Load Layout



Capture Layout



Load Image



Load Events Summary



Load Chart



Load History Viewer



Load Recipe



Save Recipe



Multiple Tags



Single Tag



WizPLC Development



WizPLC Runtime



Advanced Alarm Management



Users Timetable



Shift Management Timetable



Users/Groups



Scheduler Configuration



Login to the Application



Logout of the Application



Exit the Application

Application Quick Access Bar

The developer can minimize or hide this window and thus obtain true run time behavior.

The operator can use Application's Quick Access Bar for various actions made available to him during run time.

The Quick Access Bar has various icons from which the operator can activate different dialogs. The Access Bar is customized based on Group Authorization. Each action is available only for a user that belongs to a group authorized to use the specific task.

The **Application Quick Access Bar** provides access to a set of Application actions that are customizable such as:

Show/Hide Application Studio Window

Load Layout

Capture Layout

Load Image

Load Events Summary

Load Chart

Load History Viewer

Load Recipe

Save Recipe

Multiple Tags

Single Tag

Advanced Alarm Management

Users Timetable

Users / Groups

Scheduler

Login

Logout

Exit Application

Show or hide the Quick Access Bar

Selecting the Show Quick Access Bar determines whether or not the Quick Access Bar appears when the Application is loaded.

This is useful in applications where there is one layout, and no operator login/logout activity is required, except for a default user.

Show/Hide Application Studio Window

Press the application icon from the Application's Quick Access Bar to show or hide Application's Studio.

User Login

User Login

Local User Login

To login to the system locally, click the Login icon in the **Quick Access Bar**. The User Login dialog box will open on your screen.



If you know your user name and password type them in the relevant fields and click OK.

Note:

A default login name and password can be defined by the System Integrator and used by all users to login to the system.

*A user can also be a member of a group or team. In which case the group/team login name and password are used. (See **Chapter 7, Security and User Management**).*

Remote User Login

The system enables remote users to login and access application options in much the same way as local users.

A remote user can access the same group-assigned options available when logged in as a local user. The definitions behind these options are stored on the server, enabling remote users to access their application from any computer.

The login option has the added flexibility of being enabled or disabled. Users can then either:

- Login using their user name and password and access their group assigned options

Or,

- Login using a default user name and password and access the options specified for default users

Web Smart Card Login

Presentation

This features aims to support the Smart Card Login on the Web. The **LDAP/smartcard login Documentation** defines the prerequisites of this features.

Access means

In order to use the web smart card authentication you need to open the login dialog (by clicking on the applet or on the *login* button). This dialog offers a new button called *Smart card* if the smart card authentication is allowed.



How To

First insert the smart card then click on the *Smart card* button. A few seconds later, the Aladdin eToken dialog is opened, it asks for the smart card pin number. The connection will be established if:

- There is a valid certificate on the smart card
- The user is defined inside NovaPro Open
- The user is allowed to connect to the web.



Operator Login

This **dialog box** is used to enter your operator name and password to log into the Application.

After you select this item, the Login User dialog box will appear for you to specify the name and password of the operator.

The name and password must be identical to those defined by the system engineer in the User Setup definition procedure.

Note that when you enter the password, it will appear as asterisks (*) to maintain secrecy.

The fields in this box are as follows:

Name The operator name defined by the system engineer in the User Setup dialog box.

The User Setup dialog box is invoked by selecting the Authorization item from the Design menu in the Application manager, and then selecting the Users item from the Authorization menu.

Password The corresponding operator password. Note that when a password is entered, it appears as asterisks (*) to maintain secrecy.

When an operator name is entered and confirmed, that name will appear in the Manager Banner.

Login

Press the Login icon to login to the Application.

To log in to the Application the first time

1. Click on the Login Icon. The Login User dialog opens.
2. Enter in the Name field: User
3. Enter in the Password field: Password
4. Click OK to activate.

To log in to the Application from the Start Programs Menu

The User name and Password are:

The user's name

The user's password

Remote users can login through their browser.

Remote User Login

The application now supports the login of remote users through a browser so they can access Application options in much the same way as local users.

A remote user can access all the same group-assigned options as available when logged in as a local user. The definitions behind these options are stored on the server, enabling remote users to access their application from any computer.

This login option has the added flexibility of being enabled or disabled. Users can then:

- Login using their user name and password and access their group-assigned options, or
- Login using a default user name and password and access the options specified for default users.

Login/Logout Quick Access Bar

The Application provides the **Login/Logout Quick Access** bar to enable you to quickly login and out of the system. This Quick Access bar appears when the browser is opened.

The Application enables you to replace the **Login/Logout Quick Access** bar, and design your own login/logout interface using HTML script. Remote user options will still run in the background.

- To login:

1.Start the system and access your application. The browser is launched. A typical browser will display the icon which you can click to begin login. You can also click **Login** on the **Login/Logout Quick Access** bar displayed in the top left corner of the window. The *Login user* window is displayed:

2.Enter your user name in the **Name** field.

3.Enter your password in the **Password** field.

4.Click **OK**. Login is initiated and your application is accessed.

- To logout:

Click the **Logout** button on the **Login/Logout Quick Access** bar, or close your browser.

See also:

Specifying Remote User Login Parameters

Customizing the Login/Logout Procedure

Login/Logout Quick Access Bar

The Login/Logout Quick Access Bar, which appears when the browser is opened, enables you to quickly login and out of the system.

The application enables you to replace the Login/Logout bar, and design your own login/logout interface using HTML script. Remote user options will still run in the background.

- To login:

1. Start the system and access your web application. The browser is launched.
2. A typical browser will display the application icon, which you can click to begin login.



3. You can also click Login on the Login/Logout Quick Access bar displayed in the top left corner of the window to open the User Login.
4. If you know your user name and password type them in the relevant fields and click OK.

Note: A user can also be a member of a group or team. In which case the group/team login name and password are used.

- To logout:

Click the Logout button, or close your browser.

Default User

The application enables you to create a default user. When a Default User is assigned, after a user logs out of the application, the application automatically opens using the name and password of the Default User.

A default user is created in the User Management module (see **Chapter 7, Security and User Management, Creating Users**) by selecting Users to open the List of Users and then right clicking on a specific user name and selecting the Default User option. The



Users icon will appear next to the selected user name.

Note: Only users that are members of the Administrator group can add users to the application.

Default User Dialog

This tab is used to define the name of the user that is automatically logged in whenever the application is opened.

1. In the User field type in the User's name. Enter an (*) to specify the last user that logged out. Changes are implemented online.
2. In the Password field type in the user's unique password.
3. Click OK to confirm and then reset the application.

Note: Remote users login parameters are defined by right clicking Html/Properties/Users and then checking either: Enable login Quick Access Bar, Automatically login with default user.

Specifying Remote User Login Parameters

The Html Properties dialog box is used to change the properties of the Html module (see **Chapter 28, Generating HTML Pages**).

u To access the Html Properties Dialog Box, do the following

In the All Containers section of the Application Studio, right-click HTML and select Properties from the popup menu. The HTML Properties dialog box is displayed.

This dialog box has three tabs:

- Popup - where you can specify whether or not a Popup Event Summary window is displayed in a browser
- Users - where remote user login parameters are defined
- Trend - where you can specify information related to web trends.

The Popup and Trend tabs will be treated further in the user guide.

Specifying Remote User Login Parameters

You can specify the following remote user login parameters:

Enable only authorized users remote access.

Enable all users remote access by enabling them to login in as a default user. This way any user can login and access the options specified for default users.

To specify remote user login parameters:

1. In the **All Containers** list, right-click on **HTML** and select **Properties** from the popup menu. The *HTML Properties* dialog is displayed.
 2. Select the **Users** tab.
 3. Select **Enable Login Quick Access Bar in browser** so that a user must enter a user name and password to login.
 4. Select **Automatically login with default user** to enable any user to login with a default user name and password. This means that any user can access the application and use the options that are assigned to default users.
 5. Click **OK** to save your options and close the dialog.
-

Users



This dialog box enables you to define remote user login parameters.

1. Check the Enable Login Quick Access Bar in Browser checkbox to enable this option. The user can then login to the Web application by pressing the Login button.
2. Check the Automatically Login with Default User checkbox to enable any user to login with a default user name and password. This means that any user can access the application and use the options that are assigned to default users. When this option is not checked the user will be forced to login with a user name and password.
3. Check the Auto-logout to enable the automatic disconnection of a web client from the web server. The Auto-logout period can be set in minutes.
4. Click OK to save these definitions.

Customizing the Login/Logout Procedure

Experienced HTML users can customize the login/logout procedure on their computers by creating buttons in HTML and attaching HTML script, as follows:

HTML Script

Action

<code>scriptLoginUser()</code>	Displays the Login user dialog box used to login to the system
<code>scriptLoginUser(user,password)</code>	Login automatically with the user and password specified between the brackets ^A . User name and password can be provided by a Java Script form.
<code>scriptLogoutUser()</code>	Logout
<code>scriptGetCurrentUserName()</code>	Displays the currently logged in user

^AIt is possible to make the login dialog box visible or not by setting the size (height and width) in the applet to 0.

After customizing the login/logout procedure, deselect the remote user login parameters described on the previous page, so that the Login/Logout Quick Access bar is replaced by your own login interface. See **Custom Web Login interface**

Note: Remote system mechanisms will continue to run in the background.

Designing an

Application

Designing an Application

Before you start designing your application, you need to know some basic, but necessary details about the process for which you are creating the application:

- Obtain a list of variables that the application will read and write from and to a PLC (I/O list or Tag list).
- Look at the control drawings to study the design and use of certain equipment.
- Look at the plant drawings to examine the layout of the plant for which you are designing the system.

Chapter 4 Getting Started

- Find out the type of reports users and managers wish to receive, in what format and in which fields.
- Find out the type of network you have, if it uses the NetBIOS or TCP/IP protocol, and the name of your network station.
- Determine any authorization definitions.
- Determine PLC definitions, such as blocks and addresses.

Once you have this background information, you can build an application that fully uses the resources of the plant's equipment. Remember that if you are not aware of the limitations of the equipment, you may cause damage.

If you are creating an application for a networking environment, refer to **Chapter 19, The Application Network** before you start designing the application.

Designing Multiple Applications

If you are designing multiple applications, you need to decide where to store your history files this could be on the local disk or on the server.

Using system network tags, the same application can run on many stations. The application can be designed on one station and copied to another station. The only difference will be the station name definition (and number).

Note: The tag, alarm and communication driver definitions should not be copied. It is recommended to define the station name and number before you begin to build your application (Images, Charts and so on).

Typical Application Requirements

A successful application takes into account the following:

Consistent Display Design

Process visualization accurately represents an on-going plant process, enabling a user to clearly understand the process status at any given time.

It is recommended that displays in the visualization remain consistent throughout the application. For example, if a tank's fill status is represented in percentage form, then all fill status should be represented in percentages. See **Chapter 20, Introduction to the Image Module**, **Chapter 21, Image Editor** and **Chapter 22, Image Animation**.

Alarm Design

Alarms represent one of the most significant occurrences in a process. It is important to design alarms with different severity levels, zones and characteristics. This way, a user will recognize each alarm and react quickly and correctly. It is important to mark all alarms that are not targeted to an Events Summary with an Auto Ack attribute so that they will not have to be acknowledged by the operator. See **Chapter 24, Event Summaries**.

Charts Design

Charts visually represent the process's progress. When designing charts, you should take into account user requirements. For example, if a user needs to compare two tags to perform a certain task, it is recommended to include both tags on the same chart. Up to 16 tags may be represented on a single chart. See **Chapter 26, Charts**.

Tag Naming Conventions

Make sure that the name you assign to each tag clearly indicates what the tag represents. For example, all the tags that represent Flow Transmitters may be called FTxxx. This naming method is also convenient when adding a list of tags that are of the same type.

It is also recommended to name the stations in a predetermined manner. For example, according to plant area. See **Chapter 9, Tags**.

Logic

You can use the system's Application Language (see **Chapter 30, Application Language**) to create an application that can enhance the capabilities of control equipment working with the software program such as PLCs, and establish the connectivity interface between the system and external computer applications.

Compound tags can also be defined in the system. A compound tag is a linear calculation based on values of other tags.

WizPLC, the NovaPro Open softlogic component can be used for application which requires PLC language programming.

Application scripting language can also be used to implement logic. In addition to providing connectivity to SQL databases, Application SQL (see **Chapter 37, Application SQL Support**) has powerful language functions and its event driven architecture provides excellent performance.

Workflow

Workflow

This section describes the workflow for building an application.

1. Building a project: The application wizard and Station Properties
2. Defining network
3. Defining Communication Drivers and Blocks
4. Defining User Management
5. Defining Tags, Alarms, Event Summaries
6. Building the application Image
7. Defining application logic
8. Testing the application
9. Defining Charts, Reports, Recipes, Printers
10. Fine Tuning

You can merge steps 3 and 4 into one, and complete the step in four stages, define some of the tags, build part of the image, complete the image, define the remaining tags.

Step 1: Building a Project, the Wizard and Station Properties

The Getting Started Wizard enables you to create projects either using a template or blank application. The Wizard has three tabs:

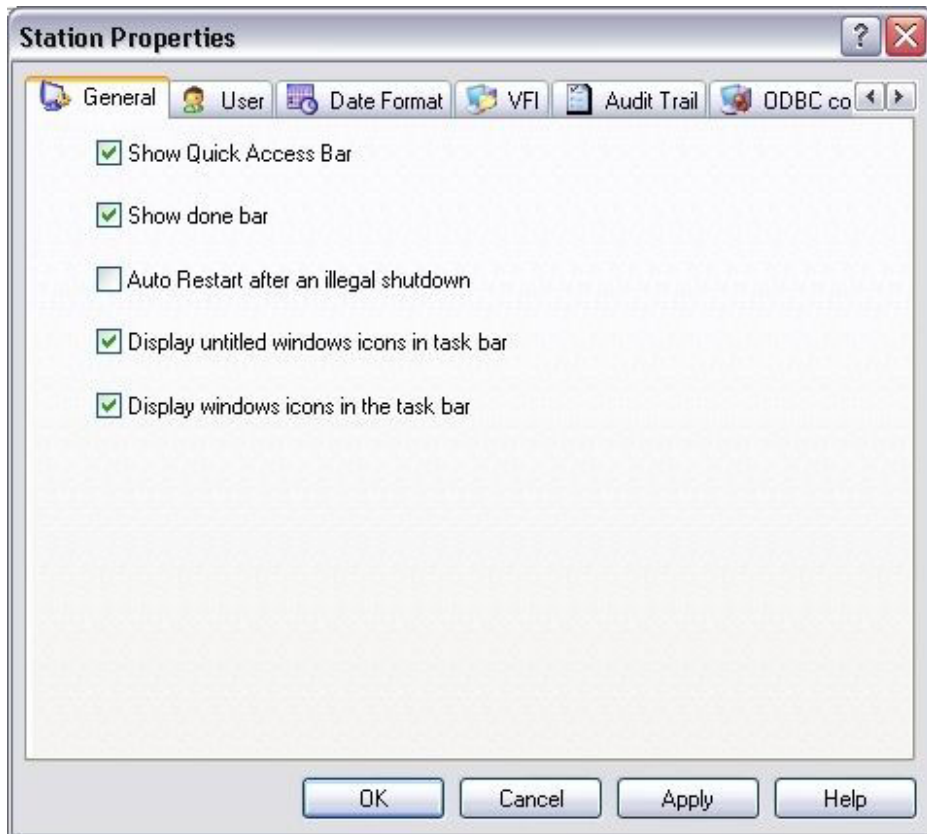
- **New** - for building new projects either as a blank application or a template application
- **Existing** - listing all projects created in the application
- **Recent** - listing the most recently used projects

A new project file is saved with the suffix *.Wpj. When the Application Studio opens on your screen the name of the project appears at the route of the All Containers pane.

After the project is saved, Station Properties, which enable your to adjust system parameters to optimize your application working environment can be defined.

- To open the Station Properties dialog box:

In the All Containers pane right clicking the project name and select Station Properties from the popup menu.



The Station Properties dialog box has the following tabs:

General	Used to customize the application workplace
User	Defines the default user name and password
Date Format	Defines the date style and separator used
VFI	Defines history files format by selecting Virtual File Interface DLL
Audit Trail	Used to log operator actions to a database via an ODBC data source
ODBC Connectivity	Enables application historical data to be saved to various databases through ODBC drivers
Advanced Alarm Management	Enables connection to the AAM, a multi service communication platform providing alarm transmission over various channels
Scheduler	Enables connection to the Scheduler where tasks, actions and states can be created and modified over the Internet

User Management	Enables you to select the User Management database source (MS ACCESS or MS SQL Server) and to define the synchronization properties. This tab will be used for Centralized User Management settings.
Limitation of Log Files	Allows you to define the file size limits for the Online log file (errors.dat) and Historical log file (errors)

Note: For further details on Station Properties see the **Chapter 6, Building a Project**.

Station Properties

Station Properties - Advanced Alarm Management

Advanced Alarm Management (AAM) uses a multi-service communication platform to provide alarm transmission over various communication channels including SMS, email, fax and vocal messages.

AAM is comprised of two design mode components:

AAM channels and **AAM pager** services

Advanced Alarm Viewer – a runtime component

To enable Advanced Alarm Management:

1. If the communication lines used by AAM are already defined then do the following:
 2. Right-click New Application in the All Containers list of the Application Studio to open the Station Properties dialog box.
 3. Using the arrows scroll to open the Advanced Alarm Management tab.
 4. Check the Enable Advanced Alarm Management checkbox and click OK.
 5. Click OKstartRestart the application.
-

Station Properties - Audit Trail

The application enables you to log operator actions to a database via an ODBC data source. The operator actions are stored in a system file in the form of tag values. The file can be accessed and the values viewed. This option is called **Audit Trail**.

Audit Trail is a useful security feature for applications. For example, when a user operates a trigger or logs in, you can access the database file and view the user name of the user, where the action took place (in an Image or through a browser) and at what time.

The application logs all manual operations, but not those made using Add-on programs, such as script language and application PLC. In addition, the application does not record **Smooth Type** trigger actions.

Audit Trail provides data recovery for users connected to a remote ODBC data source in instances of network failure.

When a network problem is discovered, the Application ends the session with the remote database and creates a temp file in the temp directory of Windows NT in text format. The file, a CSV type file, is called BCK*.tmp.

The Application then scans the network connection once a minute, and when connection to the server is re-established, writes the temp file to the audit trail file. If the information is written correctly, the Application then deletes the temp file. If the information is not written correctly, the Application will notify you of possible data loss.

Note: It is not recommended to work with a remote database due to possible connection failures.

To enable audit trail:

1. 1. Right-click **Station Properties** in the **All Containers** list of the Application Studio. The *Station Properties* dialog is displayed. Select the **Audit Trail** tab
1. 2. Select **Audit Trail Enable**.
1. 3. To save to a predefined database, enter the name of the predefined database in the **Current Data Source** field or click to the right of the field and select a database from a list of predefined sources.
1. 4. To set up a new database, click the **Add Data Source** button. The standard Windows *Create New Data Source* wizard window is displayed, in which you can define a database. The data source can be any valid predefined ODBC data source.

Caution: *The application does not support the **File Data Source** (Machine independent) option.*

3. A table (named *AuditTrail*) is added to the database. The fields in this table are described on the following page.
4. Click **Apply** to select the data source as the default source, then click **OK** to close the dialog.

Station Properties - Default user

Note: Not applicable on the Web.

The instructions below apply to both Default User and Logout User fields:

1. In the User field type in the user's name. Enter an asterisk (*) to specify the last user that logged out. Changes are implemented online.
2. In the Password field type in a unique password for the user.
3. Click OK to confirm and reset the application to actually save the changes.

Activate the option, "Auto Logout on Inactivity" if you want the current user to be logged out from the application after a defined period of inactivity. Inactivity is defined as no keyboard or touch-screen presses and no mouse movement during the specified time.

Use the text box or the buttons to define the logout time. Note that this is expressed in minutes.

Station Properties - General

The application workplace can be customized in the General tab of the Station Properties dialog box.

The following options are available:

Show Quick Access Bar	Determines whether or not the Quick Access bar appears when the program is loaded.
Show done bar	Displays a background processing dialog box when large tasks such as loading a large image are being executed. Changes are made online.
Auto Restart after an illegal shutdown	Specifies if the application automatically recovers its last state. For example after power failure. Changes are implemented online.
Display untitled windows icons in task bar	When checked the word untitled appears in the task bar for new items that have not been saved.
Display windows icons in the task bar	When this option is checked and after reset, no icons are displayed in the task bar.

Station Properties - ODBC Connectivity

The ODBC connectivity dialog box enables you to save Application historical data to various databases through Microsoft's ODBC (Open Database Connectivity).

To enable and configure Application ODBC connectivity

1. Right-click **Station Properties** in the All Containers list of the Application Studio. The **Station Properties** dialog is displayed. Select the ODBC Connectivity tab to display the ODBC Connectivity page:
 2. Select the **Enable ODBC** connectivity checkbox.
 3. In the Current Data Source field, select the database type to which you want to save Application historical data.
 4. Click the **Add Data Source** button to open the Create New Data Source wizard, where you can select and configure additional databases.
 5. To create a cross reference table including tag definition parameters, type the name of the table and click the **Create cross reference table** button.
 6. If you intend to use a protected database, such as Oracle, type the user name and password in the Identification field.
 7. Under **History table**, type the name of the historical data table. Select the **Enable tag name logging** checkbox to write tag names to the historical data table as well.
-

Station Properties - Scheduler

The Internet based Scheduler enables you to easily create daily or weekly task orientated schedules remotely. Being both task and time orientated the Scheduler can be used to create unlimited tasks, actions and states. Tasks can be modified, enabled/disabled and have many states attached to them. An unlimited number of actions, which are basic operations, can be attached to each task.

Before the Scheduler is accessed the Scheduler module must first be enabled in the Station Properties dialog box.

To enable the Scheduler module:

1. 1. In the All Containers side of the Application Studio right click the application's name to open the Station Properties dialog box.
1. 2. Using the arrow, scroll and open the Scheduler tab.

1. 3. Check the Enable Scheduler checkbox and then click OK to actually define this option.
 1. 4. Restart the application.
-

Station Properties - VFI

Setting a Format for History Files

The format for history files is set in the VFI tab of the Station Properties dialog box.

VFI enables the designer to select different file formats to be used by the application for historical data logging and report generation. The system engineer can use a combination of different file systems and databases with the application for data manipulation convenience and optimum performance.

VFI uses a unique driver for each database, thereby taking advantage of the database's structure and characteristics. The application supplies drivers to support specific databases.

This dialog box Tags and Alarms fields have the following options:

VFI5CB, that enables writing/reading tag and alarm historical files in FoxPro format. This format is readable by most database programs. This is the default option and can be used for both tag and alarm history files.

Note: Restart the application for changes to take affect.

VFI FAST Mode (VFI5FST) does the following:

Records values with old time stamps. This enables backup to complete data to the Master. All values can be read, and displayed in a Chart. To enable this option, set the following environment parameter.

VFI5FST_MODE_TIMESTAMP=YES

This parameter should be set in the Master only. It can also be set in the backup, however from a performance point of view it is better to set it only in the Master.

Note: This option affects the performance of the Fast VFI. The more scattered the recording means that values will not be written in order of time.

Concurrent writing of history from more than one client.

There is a gap in logging data between the time the Master is up, and when the Backup starts updating it until the Master logger starts working. This gap is between 20 sec to 2 min depending on the overall load of the system.

Updating from the Backup to the Master may take a few minutes (if it logged a few Mb while it was active). Updating is performed while the Master is already active and sampling or logging the current process.

Custom which when selected enables you to enter a customized format for history files.

Station Properties - Date Format

The Date Format option allows you to set the date style and date separator you wish to use.

To Set Date Format

1. In the Stations Properties dialog select the Date Format tab. The **Date Format Dialog** opens.
2. From the **Date Style list** select a predefined date style.
3. From the **Date Separator** list select the way you want the date to be separated.
4. Press OK key to enter your selection.

When loading for the first time, the Application sets **default values** for these parameters using country code, defined in Control Panel Regional Settings.

Station Properties - User Management

This dialog box allows you to choose whether to use WizUM.mdb or SQL Server for centralized user management.

Centralized user management using SQL Server allows all stations on the application network to be immediately informed when there is a change in user/group profiles.

If you select to use SQL Server, you can also choose to keep the local Access database (WizUM.mdb) synchronized with this database (the "Synchronize" checkbox). The advantage of this is that, if for any reason you are unable to connect to the central

database, the application will automatically switch to using the local WizUM.mdb and you can carry on working as before.

Once the connection to the central database is restored, you will be able to update either the local database or the central database with changes that have been made in the meantime.

It is strongly recommended to use the "Overwrite Local Database" option in order to avoid overwriting the data stored on other stations.

Note that you will not be able to make changes to tag and alarm definitions while you are disconnected from the central database.

There is a system tag, WIZSYS_UMCENTRALDATABASE which tells you whether you are connected to the SQL Server database or not.

You can synchronize the local and central databases at any time by clicking the "Synchronize Now" button.

Station Properties - Limitation of Log Files

The log file, errors.dat, can become very large when, for example, an application is running for long periods of time or the parameter WIZINFORM=YES is set in WizTune.dat.

Each time the application starts, the errors.dat file from the previous session is appended to the file, errors.

This file can also become very large.

To avoid this situation, you can use this dialog box to either:

1. Limit the size of errors.dat, or
 2. Limit the number of errors.dat files stored in errors
 3. Limit the number of historical errors.dat files that will be stored in errors. This is first-in, first-out queuing mechanism; when the limit of stored files is reached, the oldest errors.dat file will be the first one to be removed.
-

This parameter enables you to select the name of the user you want to be logged in whenever you start the application (default user). Use an asterisk(*) for the last user. If a password is missing, the user will be prompted to enter it. The format is User. Password

1. 1. Fill in the User Field: User's name
1. 2. Fill in the Password Field: Your password.

If a password is missing, the user will be prompted to enter it.

Step 2: Defining Network

When configuring a Wizcon station, specify a unique name and a unique ID number for your station. It is recommended to keep a 10 number gap between different station IDs. For instance, if one ID is 80, the next ID should be 90, and so on. The range for ID numbers is 1 through 999.

Before configuring a station verify the station's name so that you can give your station a unique name.

Note: Networking require a security plug.

- To define your computer as a network station:
 1. From the Studio Control Panel, double click on Wizcon Network icon. In the Network dialog box scroll to open the Local Station tab.



2. In the Station Name field, specify a unique name for the station.
3. In the Station ID field, specify a unique ID number for the station.
4. Leave the Backup station field empty. For more details about Hot Backup configuration see **Configuring a Hot Backup Station**.
5. Click OK to save your definitions and to close the dialog box.
6. Restart the application to implement the changes.

Step 3: Defining Communication Drivers and Blocks

Blocks are defined logically to maximize the efficiency of the application. This is implemented by defining blocks according to common sampling rates and consecutive addresses in the PLC. After defining communication drivers and blocks restart the application for the changes to take effect. When defining blocks, avoid:

- ❏ Leaving gaps of more than 20 addresses within the block.
- ❏ Defining blocks with a sampling rate that is different from the individual tag sampling rate.
- ❏ Defining the same tags in more than one block.
- ❏ Defining large blocks.

Note: For further details on Communication Blocks see the **Chapter 8, Communication Drivers**.

Step 4: Defining User Groups

Defining user groups is important at this stage because each subsequent design level may call for user authorization. Once you define the user groups, you can add individual users at any time to any group.

Defining user groups later on in the design process is possible, but not recommended. For example, in a car production plant, engineers, managers and floor workers have different levels of authorization. If you assign authorization rights early in the design process, you will save valuable time in later stages of the design.

Note: For further details on **Creating Groups** see **page 18** in **Chapter 7, Security and User Management**.

Step 5: Defining Tags and Alarms

Defining Tags

Tags are I/O points that are mapped from PLCs to the application as well as to internal (dummy) and calculated (compound) variables. You can use tags in images, charts, alarms and all application functions.

When defining tags, make sure that tag and block sample rates do not conflict with each other.

Note: For further details see **Chapter 9, Tags**.

Defining Alarms

Once you define the tags, continue by defining the alarms. Alarms notify a user of an event in the process. They can:

- Indicate the beginning of a process.
- Warn of a failure in part of the process.
- Give instructions on how to handle the alarm.
- Hold user messages about the alarm.

When defining alarms it is possible to:

- Set different severity levels to control grouping and display of the alarms.
- Target serious alarms to a pop-up window, ensuring that users will not perform any systematic function before clearing the alarm. This is recommended.
- Group alarms in families.
- Assign an alarm to an object in an image. This object will then change its graphical attributes whenever the alarm conditions are met.
- Assign a Help file to each alarm so the user will know what to do when an alarm begins.
- Assign the print function
- Assign macros to start
- ...

Note: For further details see **Chapter 15, Alarms**.

Step 6: Building the Application Image

The Image is a graphical representation of the application process and represents the feedback that the user receives from the plant. The Image is the main part of the application that a user views. Therefore, it should be informative, yet easy to understand.

When designing images, take advantage of the following features:

- The Image Editor that features many different toolboxes to enable you to build your application.
- Zones, different areas of the image that can be viewed in close up. Each zone can represent a different part of a plant process.
- Layers that can be compared to transparent sheets with the same coordinates, which lay on top of each other. You can enable group access to certain layers and thereby control sensitive information.
- Cluster libraries that use object-oriented technology to simplify and speed up application design and maintenance. A cluster is an object with pre-defined behavior patterns and can be linked to existing tags and alarms, or can be used to automatically create new tags and alarms.
- The Image Editor that features many different toolboxes to enable you to build your application.

Note: For further details on Images see **Chapter 20, Introduction to the Image Module**, **Chapter 21, Image Editor** and **Chapter 22, Image Animation**.

Step 7: Defining Application Language

Language commands are used to make logic calculations that you do not want the PLC to perform. Language is written and implemented according to If and Then conditions. For example:

IF: @FLAG =1

THEN: REPORT "Shift"

Some examples of Application Language commands include:

- Starting and stopping a process.

- Loading a recipe.
- Writing to a tag value based on another tag value.
- Writing to a file or printer.

Note: For further details on Language see **Chapter 30, Application Language**.

Step 8: Testing the Application

At this stage of the design process, it is recommended that you test your application to check your image, alarm, tag and block definitions.

After completing the test and implementing the necessary changes, you can continue to define your reports, charts, recipes and fine tune the application.

Step 9: Defining Charts, Reports and Recipes

Defining Charts

Charts (see **Chapter 26, Charts**) provide graphical views of past and current tag values. You can use charts to follow a trend or compare values. You can define up to 16 tags on a single chart.

When defining a chart, it is possible to:

- Define a unique color to each chart that is also used by the scales of the chart.
- Determine that charts show online or historical activities.

Defining Reports

You can define reports (see **Chapter 34, Reports**) for different users such as: operators, engineers, and managers. Make sure that each report includes the required information for the designated user.

Reports can be:

- Triggered in the application language.
- Written to a file.
- Sent directly to the printer.

When designing reports, it is possible to:

- Place fields in different positions and include any text, such as a header or short explanation at the end of the report. The fields can represent runtime values and a number of calculations performed on the historical tag values, such as averages, integrals, sums and more.
- Choose the range calculation, such as start day, start time, end day and end time.
- Define compound fields that are based on two other fields according to a specific formula. Multiple fields allow you to receive a value based on a group of other fields.

Defining Recipes

Recipes are specified sets of tag values that you can store for future use.

When defining recipes, remember that:

- Each recipe must belong to a model that includes tags for certain processes or production modes. The recipe uses the tags in the model to which it belongs, but can also include tags that are not defined in the model.
- Each model and recipe has a unique name.
- The same tag can belong to more than one recipe.
- You can save the current values of any tags at any time as a recipe. This means that at the end of a process, you can save its values as a recipe and reload the recipe when the process is resumed.

Note: For further details see **Chapter 32, Recipes**.

Step 10: Fine-Tuning the Application

Once you have completed these steps, it is recommended to check all your definitions. Use the Single Tag Value and:

- Activate system language commands.
- Initiate dynamic behavior in an image.
- Activate reports.
- Check alarms.

Once you are satisfied with the results, fine-tune your entire application, by:

- Adding users to the user groups.
- Saving layouts that can be loaded upon login.
- Setting the menus that will be displayed for the different user groups.

Shutting Down

Shutting Down

This section describes how to logout and how to exit the system.

Logout

After initiating logout, you will not have access to the system until you login again.

- To logout:

Click the Logout icon button in the **Quick Access Bar**.

Exiting the Application

You can exit the system from the **Quick Access Bar** or from the Application Studio.

- To exit the application:

Click the Exit button in the **Quick Access Bar**.

Or,

From the File menu in the Application Studio, select Exit.

Operator / Logout

Select this **dialog box** to log out of the system.

After you select this item, you will no longer have access to the Application, until you log in again.

Logout

Press the Logout icon from the Quick Access Bar to close the application.

Other Topics

Default values in the Application for different countries:

<u>Country</u>	<u>Date Style</u>	<u>Date Separator</u>
----------------	-------------------	-----------------------

USA	MMDDYY	/ (slash)
-----	--------	-----------

Japan	YYMMDD	/ (slash)
-------	--------	-----------

Netherlands	DDMMYY	- (dash)
-------------	--------	----------

Denmark	DDMMYY	- (dash)
---------	--------	----------

Germany	DDMMYY	. (dot)
---------	--------	---------

Austria	DDMMYY	. (dot)
---------	--------	---------

Russia	DDMMYY	. (dot)
--------	--------	---------

All others	DDMMYY	/ (slash)
------------	--------	-----------

Load Events Summary

Press the Load Event Summary icon from the Quick Access Bar to load an Event Summary file (*.ann).

Load Chart

Press the Load Chart icon from the Quick Access Bar to load a chart file. (*.chr)

File / Load

Select this item to open an existing window layout.

If you select this item when a layout is already loaded, you will be prompted to verify whether you want to save or discard the existing layout. If you then want to proceed, all windows on the screen will be closed, and a new layout will be started.

Load Image

Press the LOAD IMAGE from the Quick Access Bar to load an image file. (*.vim)

Load Layout

Press the Load LAYOUT icon from the Quick Access Bar to load a layout file. (*.lay)

Load History Viewer

Press the Load History Viewer icon from the Quick Access Bar to load an History Viewer file. (*.anl)

Load Recipe

Press the Load RECIPE icon from the Application's Quick Access Bar to load a recipe file.

Show or hide done bar

Select this option to show a background processing dialog box when large tasks such as loading a large image are being executed.

Default: YES

Chapter 5 Getting to Know the Application Studio

Overview.....	81
Overview	81
Studio / ToolBar	83
All Containers Section.....	84
The Control Panel	87
Menu Options.....	89
Modules	92
Communication Drivers.....	92
Printers.....	93
Multiple Tags.....	93
Single Tags	94
DDE Blocks	94
Macros	95
Application Network	96
Application Language	96
WizPLC Development and Runtime	97
Tag Filters	97
Alarm Filters.....	98
Printer Targets	98
Zone Navigator	99
Advanced Alarm Management.....	99
Channels.....	99
AAM Pager.....	99
Scheduler	100
RePlay	100
Tag Mapper.....	101
Tag Generator.....	101
Network Application Update.....	102
Defining System Options	102
Defining System Options	102
Application Setup	103
WizPro Options	106
Changing Default File Paths	107
Set Default Paths	109
Design / Options / Paths	109
Multi Language Support	109
Multi Language Support.....	110
Multilanguage Support.....	110
MultiLanguage / Export	111
MultiLanguage / Import	112
MultiLanguage / Select	112
Strings.....	112

Defining Multi-language Support.....	113
Selecting a Language	114
Loading System Files Created in Another System Application	115
Layouts	116
Layouts	116
Capturing and Saving Layouts	116
Layout / Capture Layout.....	116
Saving Layouts (by Default).....	117
Assigning Layouts to Users	118
Closing all Open Windows	119
Object Oriented Model.....	119
Object Oriented Model Presentation	119
Object Oriented Model Access means	120
Object Oriented Model Description	123
Object Template.....	126
Other Topics	129
Enables you to give the program's parameters if there are any.....	129
Enables you to give the full path for the program to run	130
Check this option if you want to run the user program before or after the Application interface	130
Check this option if you want to wait that this program will end before running the next program.....	130
An option to open the program with a window.	131
Capture Layout	131
Creating a New Application.....	132
Creating a Template Application.....	133
A Layer is a specific part of an image used to provide a more detailed view of a particular section of the plant or facility.	133
A Layout is a set of Application windows saved in a file.	134
Layout / Close All Windows	134
Check this option to determine if the application will prompt you to save the layout when you exit the Application.	134
Layout Properties	134
Layout Property.....	135
Layouts Overview	135
Application Studio	136
Set Default Paths	137
Using the application.....	138
Layout	155

About this chapter:

This chapter describes the Application Studio, which is the operational framework of the system.

Overview describes how to open and exit the Application Studio and its components.

Modules describes the various application container icons.

Defining System Options discusses system options and how to modify the default application file path.

Multi Language Support describes how to define multi-language support in an application.

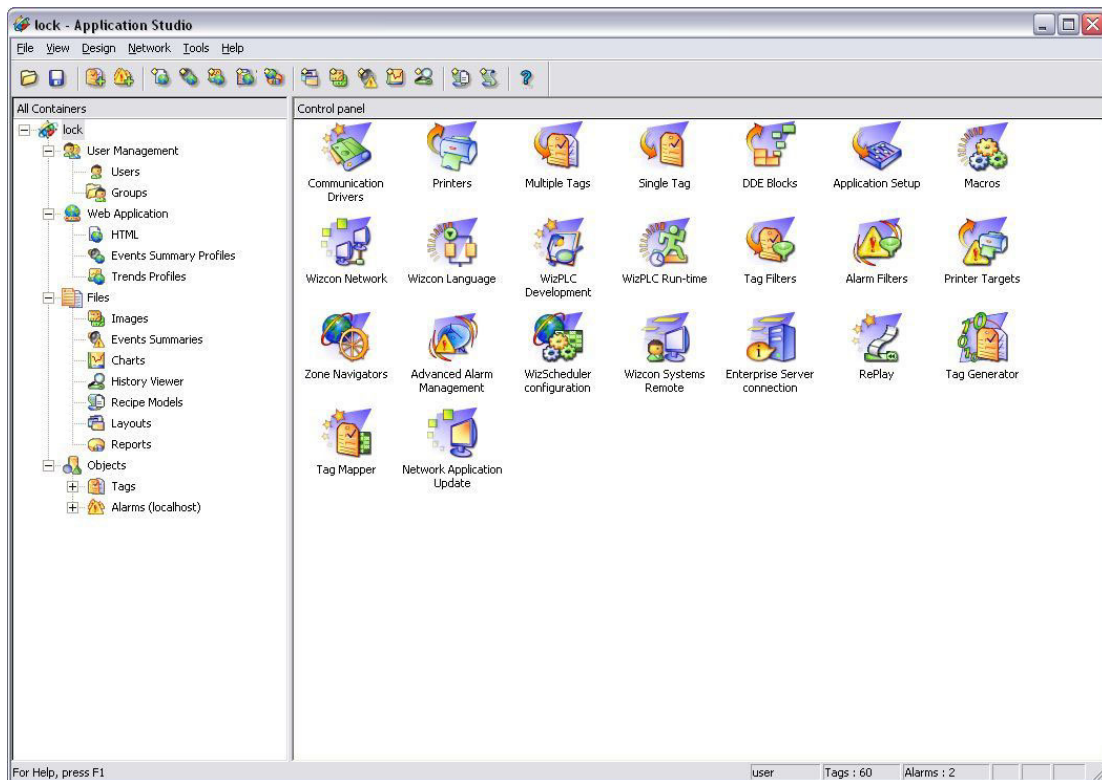
Layouts describes how to capture and save layouts and how to assign them to users.

Object Oriented Model describes a new way to organize and access data.

Overview

Overview

The Application Studio is opened from the Quick Access bar that is displayed when the application is accessed. The Application Studio has an explorer-like interface and offers full control and access to all parts of the system during application development. The interface has two panes:









- All Containers
- Control Panel










The Application Studio window also contains:

- A menu bar through which you can access application operational menus.
- A toolbar that enables quick access to the Application Studio's most frequently used functions.
- A status bar showing the number of tags and alarms in the application.

Note: The status bar will not be displayed in the Events Summary when in the Window Attributes dialog box the Size Border option is unchecked.

Toolbar

-  Open application
-  Save application
-  Add Tag
-  Add Alarm Definition
-  New HTML file
-  New Events Summary Profile

	New Trend Profile
	Capture Layout
	New Image
	New Events Summary
	New Chart
	New History Viewer
	New Recipe
	New Report
	Help

Studio / ToolBar

The Application Studio Toolbar is located under the Studio's Main menu. It includes shortcuts to menu items found in the Containers list. From this Toolbar you can access such items as the Application Image Windows, Save an application, open Chart and History Viewer Windows and so on.

The Studio Toolbar consists of the following menu shortcuts.

- Open Image File (*.vim)
- Save your application (*.wpj)
- Open New Tag Definition dialog
- Open New Alarm Definition dialog

- Opens a New HTML File
 - Open a New Events Summary Profile
 - Open a New Trend Profile
 - Open the Capture Layout dialog
 - Open the Image Window together with its toolbars
 - Open New Events Summary Window
 - Open New Chart Window
 - Open New History Viewer Window
 - Open New Recipe Dialog
 - Open New Report Dialog
 - Display the copyright and software version of the Application Studio
 - Access to Application's Online help topics
-

All Containers Section

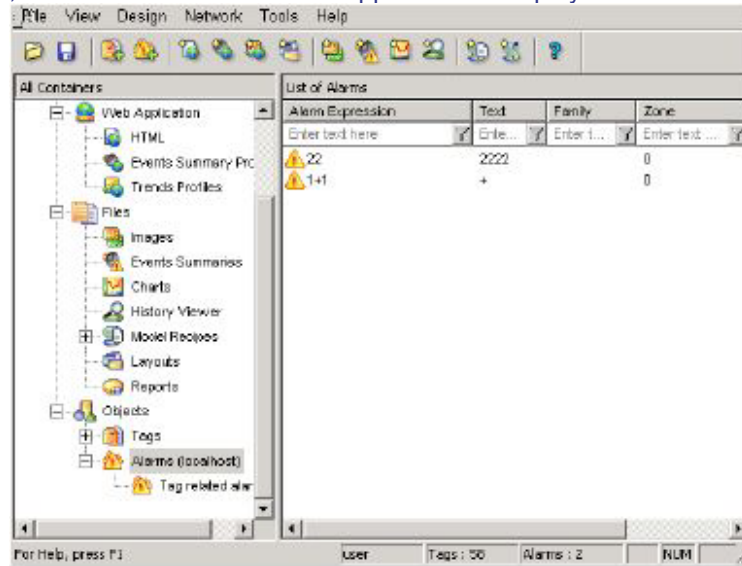
The All Containers pane displays a hierarchical structure (tree) of the containers from which an application is built. Containers can be thought of as the building blocks of the application. The tree is made up of four main folders of containers with the current application as its root.

- **User Management** lists all the users and groups defined in a project. This module also defines the user's access permission and level. Access can be given per user, group and team. Backup users can also be defined. User Management also enables the System Integrator to create a user timetable and schedule workplans.
- **Web Application** contains the elements that are used to publish an application, such as HTML pages for the Image, Events Summary Profile, and Trend Profiles.
- **Files** contain the elements that are stored as files, such as: Images, Events Summaries, Charts, History Viewer, Model Recipes, Layouts and Reports.
- **Objects** holding the elements that are stored as objects, such as: Tags and Alarms.

Right clicking on a container opens a popup menu that displays related options. For example, right-clicking on Alarms displays a popup menu with the following options: Add Alarm, Add Level, Modify Level, Import Alarms, Export Alarms and Properties.

When a container is selected in the All Containers section on the left, a list of its contents is displayed in the List Zone on the right. For example when Alarms is selected in the All

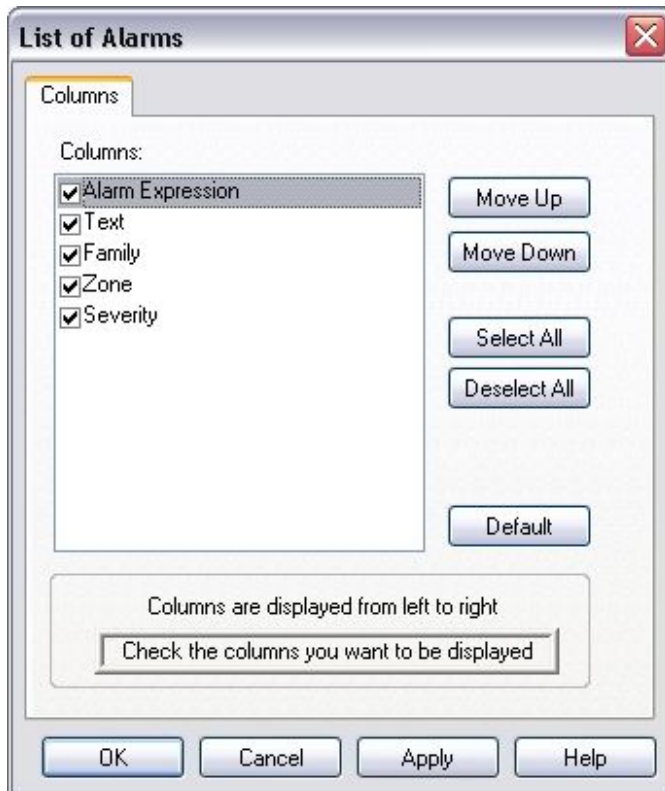
Containers list, a list of all the alarms in the application is displayed in the List of Alarms, as



shown below.

All lists, for example the List of Alarms share the following common features:

- Right clicking anywhere in the list displays a popup menu with context sensitive options.
- Clicking on a column header sorts the list within the column. The information for each list is displayed under columns that are relevant to the list.
- A number/character written with an * means filter according to the character and a number of additional characters.
For example, 1* will show the following 1,12, 122, 1A etc.
- A number/character written with an ? means filter according to the character and an additional character.
For example, 1? will show the following 1,12, 13, 1A etc.
- A list can be duplicated in a separate window by right clicking in the list window, pointing to View and selecting Duplicate from the popup menu. A list can be duplicated only once. For example, the List of Alarms.
A list can be customized by right clicking in the list window, pointing to View and selecting Settings from the popup menu. A dialog box is displayed in which you can set the order and the type of fields to be displayed in the List Zone. For example, the List of Alarms dialog box.



To specify the columns to be displayed in the List of Alarms, click the checkbox next to a column name to select it. The following columns are available:

- Alarm Expression
- Text
- Family
- Zone
- Severity

You can determine the order by which the columns appear in the Application Studio by selecting a column and activating the Move Up or Move Down buttons.

You can select all the columns by activating the Select All button, and deselect them by activating the Deselect All button. Clicking the Default button selects all the columns.

This is a list tree that represents the various elements of the Application. The containers Tree area is made of two main groups: Files and Objects. The root of the Tree is the station or application name. Whenever a tree item is selected, a list of the container's content is displayed in the right hand side of the Studio window.

The Control Panel

The Control Panel, on the right of the Application Studio, is displayed when the root of the tree (the current application) is selected.



Communication Drivers



Printers



Multiple Tags



Single Tags



DDE Blocks



Application Setup



Macros



Network



Application Language



WizPLC Development



WizPLC Runtime



Tag Filters



Alarm Filters



Printer Targets



Zone Navigator



Advanced Alarm Management



Scheduler



RePlay



Tag Generator



Tag Mapper



Network Application Update

Menu Options

The following menu options are available in the Application Studio

Menu	Option	Action
File	New	Open a new file
	Open	Open an existing file
	New Application	Display the New Application Wizard
	Open Application	Open an existing application
	Save	Save the current project
	Save As	Save the current project with a specific name
	Exit	Exit the application

View	Toolbar	Show/hide the toolbar
	Status Bar	Show/hide the status bar
	Disable non-web features	Disable non-web features in the Image
	Window system menu	Show/hide the icon in the top left corner of the image window. This overrides the System menu property of the image window attribute
Design	Add Object	Add a new tag or new alarm
	Communication Drivers	View the drivers defined for the application, add a new driver, remove a driver and define driver properties
	Macros	Define macros
	DDE Blocks	View the DDE blocks defined for the application, add a new block, delete a block and define block properties
	Application Setup	Setup additional add-ons and programs to run while starting the application
	Alarm Parameters	This option enables you to define the Class Name and the user given Field Names to an alarm
	Alarm Filter	This option contains a list of all the alarm filters defined in the project
	Printer Targets	A combination of alarm filters and printers. When an alarm is issued it is channeled through the Alarm Filters according to predefined parameters and sent to the printer targeted for it
	Zone Navigators	The Zone Navigator is a global, multi-image zone navigation window that enables you to quickly and efficiently navigate through a list of zones defined in your application's various image files
	Language	This is used to define the settings used in the application language.
	Options	This is used to configure options such as; WizPro, Paths and Printers.

	Authorization	This option enables you to configure operator access to the application
	Advanced Alarm Management (AAM)	There are two sub-menu options: AAM channels - enabling definition and configuration of the communication lines by AAM AAM pager services - displays a list of all installed drivers (drivers can be added). The parameters of each driver can be configured
	Scheduler Configuration	Where the Scheduler can be configured.
Network	Local Station and Network Properties	Configure your computer as a SCADA or Hotbackup and set your network environment and establish application performance
	Record Remote Data	Record remote tags and alarms
Tools	Single Tag	Assign an immediate value to a tag. This is useful for testing tag performance.
	Multiple Tags	Define multiple tags to optimize performance.
	Add System Tags	Assign an immediate value to a tag. This is useful for testing tag performance
	Tag Generator	Generate automatically tags in the tag database
	Import	Import a list of tags or a list of alarms
	Export	Export a list of tags or a list of alarms
	Find	Search for already existing tags and alarms.
	Multi language Support	Define language support
	WizPLC	This menu option is used to run the WizPLC program while the application is running. There are two modes, Development (for developers using the application) and Runtime. Tag export is available from this menu.

	Advanced Alarm Viewer	Displays the number of alarms that have already been or that are being processed and how they are processed by AAM.
	Application Upgrade	Allows you to install new components after an upgrade of an application (installing a new version or a patch)
	View Log File	Click to open the Errors Log dialog box.
Help	Help Topics	Displays Help topics
	Tip of the Day	Displays the Tip of the Day dialog box
	About the Studio	Displays information about the Application Studio
:		

Modules

Communication Drivers

Communication drivers handle communications with external devices, such as PLCs, industrial instruments, remote computers and field buses. These drivers are separate program files, which are installed when installing the application. Communication driver file names have the format VPIWN??.DLL , in which ?? is the two or three-letter code of the driver. Since each communication driver is different, the driver information documentation should be consulted for specific communication driver details.

You can define communication blocks to improve driver performance when working with large quantities of tags. These blocks enable you to transfer large blocks of information instead of individual data items.

The first step in designing an application is to define the communication drivers and blocks. You then define the tags, which are control values monitored by the system. They are used as internal variables for:

- Calculations and display.
- Communication with PLC's to represent data from PLC memory or to send commands to PLC's.

Note: In fast Pentium PCs with a 16550 UART (serial interface chip), Windows 2000 default settings may cause communication errors on serial communication drivers. To overcome this problem, lower the buffer sizes on the UART in the following menu: Start/Setting/Control Panel/ System/Device Manager/Port/ Communication Port 1.4/Port Settings/Advanced.

Use a trial and error method to reach the optimum setting.

For further details read **Chapter 8, Communication Drivers**.

Printers

The Printers dialog box enables enhanced printing capabilities. Each printer added to a system can be set to print reports, alarms or both. In addition a definition can be made where many alarms are printed on a full page or whether only one alarm is printed on each page. Page orientation and font can also be defined. Alarm properties that are printed can also be set together with different colors, text and background.

For further details read **Chapter 16, Alarm Filters, Printers & Printer Targets**.

Multiple Tags

The Multiple Tags feature can be used to optimize performance and enhance functionality. This utility enables you to adjust system parameters and establish the correct environment for working with the application.

Multiple Tags display tag lists which enable you to read and write tag values, as well as change several tag attributes. In addition, Multiple Tags provides options to save the tag list as a recipe or a tag list file.

Tag list files are ASCII files that contain lists of tags and their attributes. These files have the extension .GLS and can be used in the application to generate tag lists in the tag definition procedure. For further details read **Chapter 12, Multiple Tags**.

Single Tags

The Single Tag dialog box is used to assign an immediate value to a specific tag.

In the Single Tag dialog box parameters such as the Station Name, Tag Name, Description, Current Value, New Value and Suggested Value slider are used to simulate the tag's value.

For further details refer to **Chapter 9, Tags**.

DDE Blocks

The DDE Client Block enables the system to receive many tag values from the server in one update message. This improves the communication between the application and the DDE server. The DDE Client Block is built from a matrix of rows and columns in which each cell of the matrix contains the value of one data item.

Note: Not all programs support block messages. Check the documentation of the DDE server application.

A common use for DDE client blocks is a setup in which a DDE server simultaneously updates a block of items that make up a recipe. The system, the client, receives all the items, and the tag values are changed immediately.

Define DDE client blocks only if data items in the server change simultaneously (within milliseconds). The system receives the whole block of data whenever one of the items in

the block changes. Therefore, if items change one at a time, the application will receive a whole block of values, many of which have not changed.

For further details refer to **Chapter 38, Application DDE Support**.

Macros

Macros are shortcuts that can be used to execute predefined actions, commands, or programs whenever designated keys or key combinations are activated. This enhances overall application functionality and saves you the time and effort of having to execute application operations in several stages.

You can define up to 65 535 application macros. Application macros are defined by the following attributes:

- Accelerator keys that invoke the macros (F1 to F12, A to Z, ALT alone, or in combination with Ctrl, Shift, and others)
- A unique name and description
- Authorization groups
- Confirm before Execute option

Application macros include the following types:

- Actions
- Commands
- Sequence
- DDE Command Macros
- Trigger Macros (described in the **Triggers** section of **Chapter 21, Image Editor**).

Macros will only be executed when:

An application window, including the Application Studio, or the Single Tag Input dialog box is the active window. If any other window is active the macro will not be executed.

If the application is used locally (for example, if a trigger macros is invoked through a web browser) it will not be executed.

Application Network

Application stations operating in a network environment can share objects, such as alarms and tags. Direct access to remote tags and alarms can be implemented through a simple station definition procedure. Once the station is defined to support application network activities, any operation involving tags and alarms on a local station can include remote tags and alarms as well.

The application network system operates in a manner similar to other network systems. The application kernel, handles all network operations and transfers data from/to local and remote stations.

The application supports various network components, including Novell Requester, LAN Server and TCP/IP.

Installation in a TCP/IP environment enables application workstations on one network to communicate with application stations on other networks. Through TCP/IP, the application Network offers a complete enterprise-wide solution.

For further details refer to **Chapter 19, The Application Network**.

Application Language

Note: This feature is not available on the web.

Application Language is a simple but powerful tool used to create programs that can enhance the capabilities of control equipment working with the application, such as PLCs, and establish the connectivity interface between this application and external computer applications.

Note: Application Language runs on your local PC, it is not supported on the Web.

WizPLC Development and Runtime

WizPLC enables you to write control logic programming. There are two modes:

- **Development** which is a programming, monitoring and debugging tool, integrated with the application SCADA system and enables project management
- **Runtime** that runs compiled code on a Windows NT real-time processor. It communicates with I/Os and exchanges data with the application and WizPLC Development.

For further details refer to the WizPLC manual.

Tag Filters

The Tag Filter module is used to filter, view and manage a list of tags and their status (locked/unlocked) in the application. This is useful for the development and maintenance of an application.

The Tag Filters List is stored in the application's TFM.XML filter that is created in the .\docs directory (or another appropriate directory of the application).

When accessed through Java applets the Tag Filters List can be defined/modified/viewed in the Image module during runtime. Up to 10 tag filters can be selected simultaneously.

Tags can be sorted according to:

- Source
- PLC - tags associated with external devices and mapped on the external device variables.
- Dummy - tags representing internal variables used for a variety of calculations, control and other application related needs.
- Compound - tags which are linear calculations based on values of other tags.
- System - tags that are predefined and built to provide system status information
- Type
- Analog - tags that have numeric values represented in various formats.
- Digital - discrete logic tags that have a boolean value of True (1) or False (0).
- String - tags that are defined to receive alphanumeric strings.
- Locked - which filters only locked tags. A locked tag can be either analog, digital or string.

For further information read **Chapter 10, Tag Filter Module**.

Alarm Filters

The Alarm Filter module filters alarms and reports before they are printed out or written to the Events Summary. Alarm filters are displayed in the Alarm Filters table and defined or modified in the Filter Properties dialog box. Filter properties can be updated, however the name of a filter cannot be changed.

The Alarm Filter, filters the alarms sent when parameters defined in tag variants are not met.

For further details refer to **Chapter 16, Alarm Filters, Printers & Printer Targets**.

Printer Targets

A Printer Target is a combination of alarm filters and printers. When an alarm is issued it is filtered according to predefined parameters and sent to the printer targeted for it.

The Printer Target dialog box holds a list of all the printer targets that have been defined. Each printer target is identified by a unique name and description.

For further details refer to **Chapter 16, Alarm Filters, Printers & Printer Targets**.

Zone Navigator

The Zone Navigator is a global, multi-image zone navigation window that enables you to quickly and efficiently navigate through a list of zones defined in the application's various image files. A number of navigators each of which can contain a number of zones from one or more different image files can be defined in the Zone Navigator module.

For further details refer to **Zone Navigator** in **Chapter 21, Image Editor**.

Advanced Alarm Management

Channels

Advanced Alarm Management communication lines (TAPI modem or modem connected to COM port) are defined in the Channels dialog box where channels can be added, removed, deactivated or be modified.

The following configurations are available:

- Channels Setup (Tapi modem or modem connected to COM port).
- Pager Services Setup.
- Vocal Server Setup.

During runtime the real time Advanced Alarm Viewer shows statistics and an Events Summary.

For further details refer to **Chapter 17, Advanced Alarm Management**.

AAM Pager

The AAM Pager Services module enables definition of a list of paging drivers and Call Management parameters. New drivers can be added, existing drivers removed and driver setup can be configured.

For further details refer to **Chapter 17, Advanced Alarm Management**.

Scheduler

The Internet based Scheduler enables you to easily create daily or weekly task orientated schedules remotely. Accessed through an Internet browser or by clicking on an icon, the Scheduler is extremely user friendly, efficient and economical.

Being both task and time orientated the Scheduler can be used to create unlimited tasks, actions and states. Tasks can be modified, enabled/disabled and have many states such as On/Off attached to them. An unlimited number of actions, which are basic operations, can be attached to each task.

For further information read **Chapter 31, Scheduler**.

RePlay

The RePlay module is used to view a graphical display of previous history tag values in images. The application reads and displays the tag values from the application's history.

The RePlay module is activated from the Application Studio Control Panel. An application image cluster controls the RePlay itself.

Note: Only tags that have Write to History defined during Tag Definition can be used. For further details see **Chapter 23, RePlay Module**.

Tag Mapper

The Tag Mapper is a data file of tags and tag values that can be used to considerably reduce workload during application creation. Tag values of tags held in a Tag Mapper table are mapped by the Tag Mapper into a list of other tags.

There are two types of Tag Mapper tags:

- **Source:** These are tags whose values are directed to target tags. More than one source tag can be pointed to the same target tag.
- **Target:** This tag type receives the values of the source tag.

A single image can be used to display different source tags values in the same target tags (depending on the index value entered by the user).

To define the source tags that update a specific target tag the user must first create the tables used by the Tag Mapper. Each table has a unique Id (Index) that is later used in the image as the index value.

Each image can use one table only at a specific time. The table that is used is defined by the index value.

An unlimited number of tags can be mapped. The Tag Mapper is bidirectional. For further details see **Chapter 11, Tag Mapper**.

Tag Generator

The Tag Generator module is an engineering tool designed to quickly and easily generate or update tags in the NovaPro Open database.

This tool requires the application to be based on communication drivers with network browsing capabilities such as BACnet or OPC drivers. Future NovaPro Open versions will support additional drivers with browsing features.

The Tag Generator allows you to update any existing Wizcon PLC or dummy tags into addressed PLC tags through a mapping process. If tags do not exist in Wizcon database, the Tag Generator will create them.

A mapping rules interface helps to define the information required for the tag generation, such as, tag record settings, address format, prefix or suffix related to the automated tag naming. All information related to the last used mapping rules is stored in a setup file (WizTagGen.ini) and reloaded at the next use of the Tag Generator.

In order to begin the tag generation, the communication drivers need to be connected to the related devices.

Additional information on **Chapter 13, Tag Generator Module**.

Network Application Update

The Network Application Update module enables an application developer to quickly and easily update far station application files remotely. To the station operator this action is invisible. However a record of the update will appear in the station's error.dat file.

An unlimited number of network stations using the application can be defined in the Remote Update Settings dialog box. This dialog box, by default, holds all the files within the application. For further details see **Chapter 36, Network Application Update**.

Defining System

Options

Defining System Options

Note: Changes to application paths and printers options are implemented online.

Application Setup

The Application Setup dialog box enables you to set up or modify the additional add-ons and programs you wish to run when starting the application.

- To open the Application Setup dialog box:

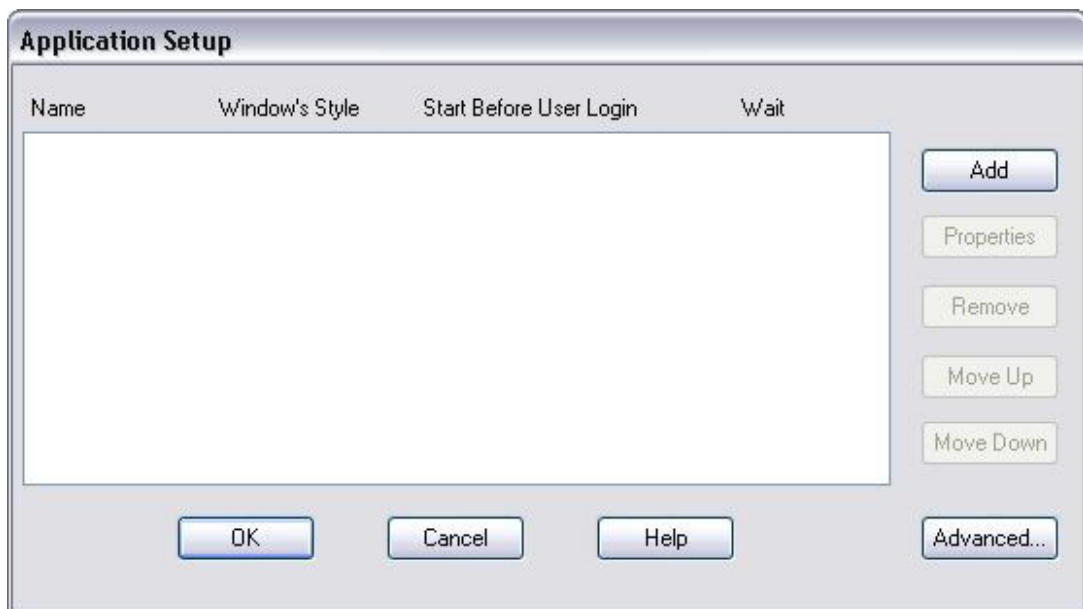
In the Control panel of the Application Studio, double-click the Communication Driver



icon.

Or,

From the Design menu, select Application Setup. The Application Setup dialog box is displayed.



The following options are available:

Add	Sets up the additional program you wish to run while starting the system.
Properties	Displays the properties of the selected program.
Remove	Removes the selected program from the list of programs.

Move up	This enables the user to move a program file up in the list box. Highlight the program in the list box you wish to move up one line and press the Move Up button.
Move down	This enables the user to move a program file down in the list box. Highlight the program in the list box you wish to move one line and press Move Down button.
Advanced	Open a dialog box " Advanced Setting" that specifies that the default Application Language is run.

Note: When adding a list of programs, write the list in the order that you want them to run. Do not place a program that should run before the application interface following a program that should run after it.

- To setup a program you wish to run while starting:

Click the Add button in the Application Setup dialog box. The Programs Specification dialog box is displayed:

Programs Specification

Program

Program to Run:

Parameters:

Window

☐ Open a Window ☒ Default ☐ Minimized ☐ Maximized

☐ Start the program before User Login

☐ Wait for this program to end before running the next program

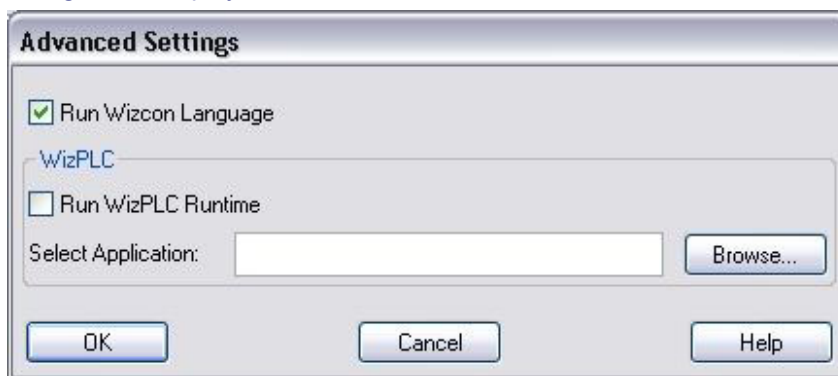
The following options are available:

Program to Run	Specifies the full path of the program. Click the Browse button to access the DDE server and client settings (Bin/WizDDEs/c.exe).
----------------	---

Parameters	Specifies the program parameters, if there are any.
Open a Window	<p>Opens the program in a window. The following window styles are available:</p> <p>Default: Opens the window in a default size.</p> <p>Minimize: Opens the window minimized.</p> <p>Maximize: Opens the window maximized.</p>
Start the Program before User Login	Specifies whether to run the user program before or after user login.
Wait for the program to end before running the next program	Specifies whether to wait until the current program will end before running the next program.

- To select the setting environment for an application:

Click the Advanced button in the Application Setup dialog box. The Advanced Settings dialog box is displayed:



The following options are available:

Run Application Language	Specifies that the default Language runs.
Run WizPLC Runtime	Specifies that WizPLC runs.
Select Application	Browse to select an application.

WizPro Options

WizPro is the application programming interface kernel. It provides mechanisms through which application PLC and external device communication can be implemented, maintains an on-line database, and services all inter-process requests and messages.

- To set WizPro options:

From the Design menu, point to Options and select WizPro from the popup menu. The Set WizPro Options dialog box is displayed:



The following options are available:

Tag Sampling	Enables the WizPro tag sampling mechanism. Tags are sampled according to the rate defined for the tag in the Analog Tag Definition dialog box or the Digital Tag Definition dialog box as described in the Defining Tags section in Chapter 9, Tags . Tag sampling will not occur if this option is deselected.
Write to HIS File	Enables the recording mechanism to record sampled tags in historical files. Historical sampling will not occur if this option is deselected.
Alarm Module	Enables WizPro to generate alarms based on the condition defined in the alarm module.
Collapse Alarms	Enables WizPro to collapse alarms in the Events Summary. This means that repeated identical alarms will be displayed on a single line in the Events Summary. If this option is not selected, each alarm will be displayed on a separate line until the condition defined for the alarm ceases to exist.

Enable Multi-language Support	Enables the Multi-language support in Wizcon.
Perform Compress on Next Restart	Physically removes all deleted tags and alarms from the system's database and renumbers their ID numbers. When tags or alarms are removed from the application, they are not physically deleted, but only marked as deleted so as not to affect the internal ID numbers of the remaining tags and alarms. Enable this option in applications where it is necessary for tags and alarms to have sequential ID numbers.

Note:

If the ID number of tags or alarms changes, the data in the history files may not be processed. Therefore, it is strongly recommended that you keep a backup of the tag definition files (table tags and alarms in Wizdata MDB) deleting any tags from the database.

If the ID number of tags changes save the application's Language commands again in the application **Language Definitions** dialog box, as described in **Chapter 30, Application Language**. This is necessary so that the commands will correspond to the new, internal tag IDs.

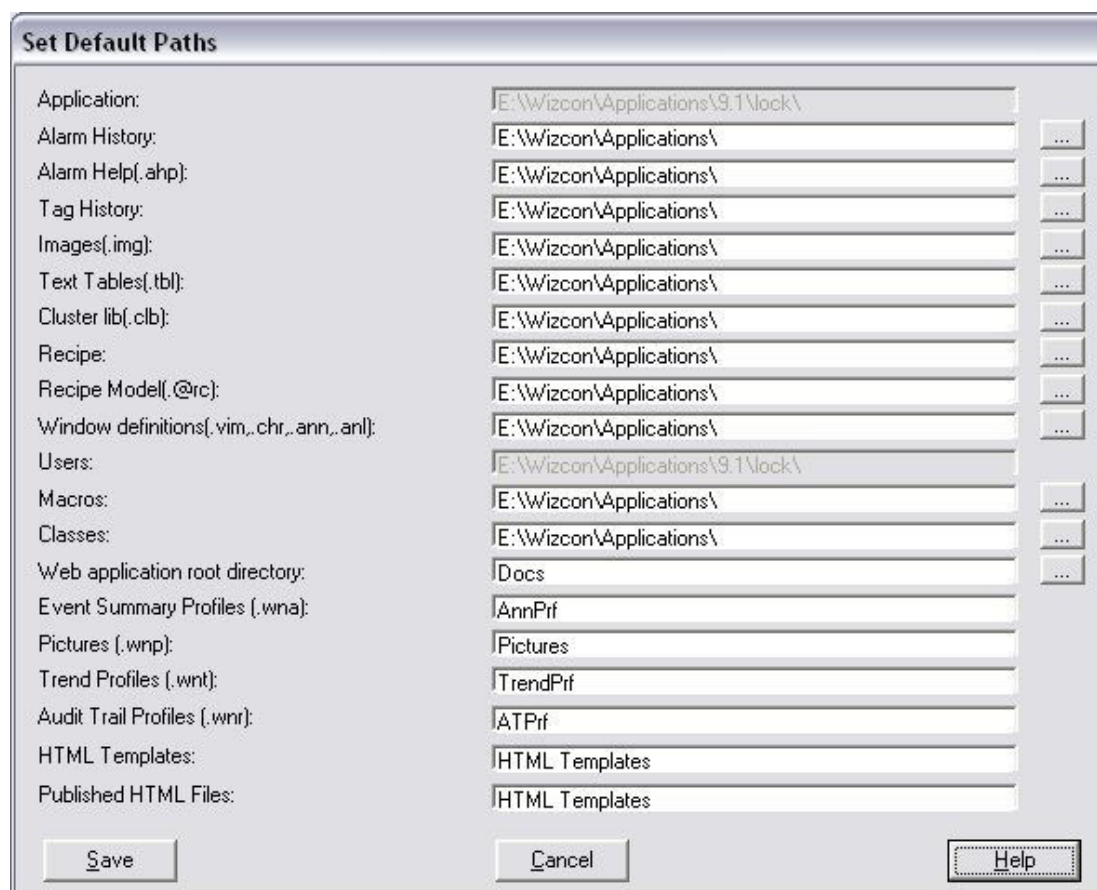
Deleted tags count as defined tags when the application checks that the number of defined tags is less than the amount allowed by the security key.

Changing Default File Paths

Default paths can be defined for each file type to enable the system to keep track of files and their locations.

- To define file paths:

From the Design menu, point to Options and select Paths from the popup menu. The Set Default Paths dialog box is displayed:



The dialog box displays the application file types with their current path specifications.

Note: You cannot use this dialog box to change the user path and the application path. If you want to do this, you must modify the `Wizcfg.dat` file directly.

- To change the path of a specific file type:

1. Click in the relevant line and either type in the new path or click the Browse button to open the Browse for Folder dialog box where you can search for the correct file path. A path must be specified with a terminating backslash (\).
2. Click Save to confirm the new path locations.

Note: Restart the application for changes to take effect. It is not recommended to change the path of Users, Macros, Classes, Web Applications, Event Summary Profiles, Pictures and Trends.

Set Default Paths

In this dialog box, you can specify the default path name locations of Application design and operational elements. To enable the system to keep track of files and their locations you can define paths for each file type.

In this dialog box, all the file types are listed with their current path specifications. to change the path of a specific file type, simply click in the line that you want to change, and specify the new path.

To set the default path:

1. Select the Design Menu from the Studio Application
2. Select the Option menu
3. Select the Paths option.

The elements appear in the left column, the path names are entered in the middle column, and the filename format of the element appears in the right column.

Note that the Application item refers to any application component that is not represented in this dialog box. A path must be specified with a terminating backslash.

For example, .\ refers to the current directory, and img\ refers to the image subdirectory in the current directory. Note that the LRM path (for alarm files) will not be changed on-line.

To cause the Application to save alarm files in a new path, you must first exit the Application and then restart Application again.

Design / Options / Paths

Select the **Paths** item to specify the path names of Application files.

Multi Language Support

Multi Language Support

Using Multi-language support, the tag description, alarm text and the text field in an image can be developed in one language and translated to another. During runtime, a user can choose the required language.

Support for different languages is dependent on the operating system and its support for that language. Far Eastern languages, such as Japanese, are supported in the application only in their native operating system. Latin languages are supported in any operating system.

All texts for specific languages are kept in files. The size of this file is proportional to the size of the application. For small applications, this can take as much as 10 kbyte. A larger application can take as much as several mbytes.

Multilanguage Support

Note: Not applicable on the Web.

The applications enable the user to switch online, from one language to another, in the application level. Using this feature, application can be developed in one language, then all texts can be translated to another language, and at run time the user can choose the language he wants to use. A full list of application strings, such as tag descriptions or image texts, that are ready for translation will be included in the documentation.

Support for different languages is dependent on the operating system and its support for that language. Far eastern languages such as Japanese are supported only on their native operating system. Latin Languages are supported on any operating system.

All texts for specific languages are kept in files. The size of the file is proportional to the size of the application. For small application this can take as much as 10k byte, while for a very larger application can take as much as several Mega bytes.

If you have a multi language application with strings in two or more languages, it is possible that not all the strings will be present in all languages after importing. If string is absent in selected language, the missing string will appear on the screen in the following format:

<??string ID?>

Where string ID is number, that is <??0000000005?> etc.

Operating procedures, when using Multilanguage for the first time:

To work with the Multilanguage feature for the first time you must first set language definition:

1. Select the menu item Export language. Path : Studio menu \ [application name]Tools \ Multilanguage \ Export Language.

2. In the Export field dialog box write the name of the text file you wish to create for the language strings used for translation.
3. You must then import this text file. Select the Multilanguage \ Import path. Select the available language from the list. In the Import file field enter the name of the text file that contains the language string. (The file you created in the export field).

Note that the above procedure is for first time user of Multilanguage

To set the language, follow the next path

[application name]Tool \ Multi language \ Select Language.

Loading files created in another application

If you try to load image or [application name]GATES.DAT file created in another application, Multilanguage support module may discover that the file was not created in the current application. In this case we have two situations:

- Current application without language definition, work with default.
- Current application is multilanguage application with two or more defined application languages.

In case of default, multilanguage support module will attach the loaded file to the current application.

In case of multilanguage application, the Language Database Selection dialog box appears and user can browse through the language database directory. When finding the directory from the where the file was copied or loaded, press "OK" button to continue loading. If selected database does not match the loaded file, the language database selection dialog will reappear. If you do not want or do not know path, you can select one of the two possibilities - press the "Ignore" button to attach loaded file to the current language database, or press the "cancel" button to prevent file loading.

MultiLanguage / Export

Note: The multilanguage feature is not supported on the Web.

Use this dialog box to define the name of the text file you wish to create for the language string used for translation.

MultiLanguage / Import

Note: The multilanguage feature is not supported on the Web.

For first time procedure, use this dialog box to enter the name of the text file that contains the language string (The file which was created in the export field)

MultiLanguage / Select

Note: The multilanguage feature is not supported on the Web.

Applications will enable the user to switch online, from one language to another, in the application level. Use this dialog to set the Language.

Strings

If you have a multi-language application with strings in two or more languages, it is possible that not all the strings will be present in all languages after import. If a string is absent in a selected language the missing string will appear on the screen in the following format:

<??string ID?>

Where the string ID is a number, such as <??0000000005?>.

Defining Multi-language Support

This section describes how to define multi-language support in an application. The following steps need to be repeated for each language used.

First of all, you must check if the feature is enabled in the Wizpro Options dialog box (see **WizPro Options**)

1. Export the language strings into a file.
2. Select the language in which the application was written and import the file into the application.
3. Open the file with a text editor, translate the language strings into the required language and save the file with a new name.
4. Select the required language and import the translated file into the application.

After you have defined multi-language support for a language, you can then select it to determine that the application texts will appear in that language.

- To export a file:

1. From the Tools menu, point to Multi-language Support and select Export Language from the popup menu. The Export Language dialog box is displayed:



2. In the Export to file field, enter the name of the text file you wish to create for the language strings.
3. Click OK to save your definitions and close the dialog box. It is recommended to save the file in the same directory as your application.

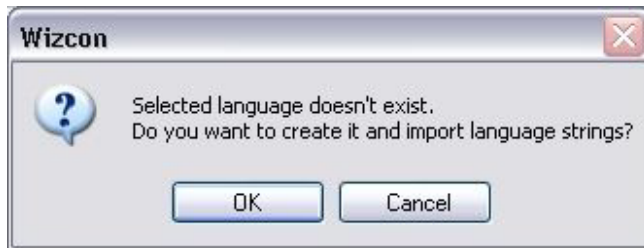
Note: If multi-language support has already been defined in your application, the last language you imported will appear in the Export language field.

- To import the text file:

1. From the Tools menu, point to Multi-language Support and select Import Language from the popup menu. The Import Language dialog box is displayed:



2. Click in the Import Language field to display a list of available languages. Select the language in which the application was written.
3. In the Import from file field, enter the name of the text file that contains the language string (this is the file you created in the Export to file field in the Export Language dialog box on the previous page), or click Browse to locate the file.
4. Click OK to import the file. The following message appears:



5. Click Yes to establish a link between the language and its file.
 - To translate the file:
 1. Open the language file using any text editor.
 2. Translate the language strings into the required language and save the file as a new file.
 3. Access the Explorer and remove the extension (.txt) from the file.
 4. Follow step 1 on the previous page to open the Import Language dialog box and enter the required language in the Import language field.
 5. In the Import from file field, enter the name of the file that contains the translated language strings, or click Browse and locate the file.
 6. Click OK to import the file. A message box opens.
 7. Click Yes. The language is now supported.
-

Selecting a Language

After you have defined multi-language support, you can select the language in which you want the application to display the application texts.

- To set a language:

From the Tools menu, point to Multi-Language Support and select Select Language from the popup menu. The Select Language dialog box is displayed:



1. Click in the Select the language for the application field, and select the required language from the list of supported languages.

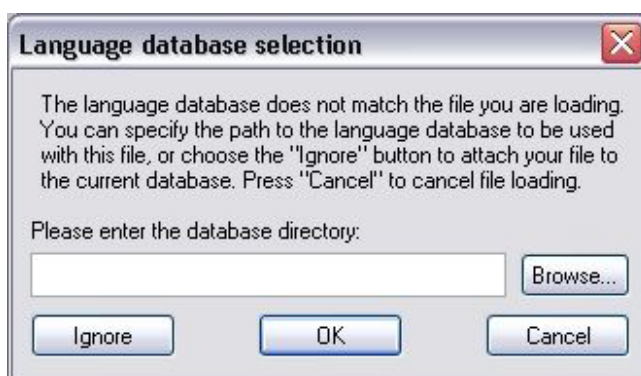
2. Click OK to save your definitions and close the dialog box. The language strings are now displayed in the selected language.

Note: The language strings are displayed in another language only after refreshing the required container in the All Containers section. For example, to display the alarms language strings in the selected language, click the + sign to the left of Objects. The objects list collapses and the + changes to a -. Click the - sign to expand the objects list and then click Alarms to display the List of Alarms. The alarm text is displayed in the Text column of the List of Alarms in the selected language.

Loading System Files Created in Another System Application

If you try to load (import) an image, or the wizgates.dat and alerts.dat file created in another application, the multi language support module may detect that the file was not created in the current application. The following may occur:

- If a language has not been defined for the application, the application will work with the default language. The multi-language support module will attach the loaded file to the current application.
- If the current application is a multi-language application with two or more defined application languages, the Language database selection dialog box is displayed:



If the selected database does not match the loaded file, the Language Database Selection dialog box will reappear. You can either click Ignore to attach the loaded file to the current language database, or click Cancel to prevent file loading.

Layouts

Layouts

Note: This feature is not available on the web.

A layout is the position of an open window in an application. This section describes how to capture and save layouts and how to assign them to users.

You can assign a layout to a user, so that when the user logs on, the windows included in the layout will automatically be displayed in the position in which they were saved.

You can also close all the open windows in your application, as described below.

Capturing layouts, assigning them to users and user log on is for local use only. Layouts are not used when interacting with the application through a browser.

Capturing and Saving Layouts

You can open Image, Events Summaries, History Viewers and Chart windows, position them on your screen and save their position.

Layout / Capture Layout

Note: The Layout feature is not supported on the Web.

Any current layout with all its settings, can be saved for later use, this is done by the Capture layout option.

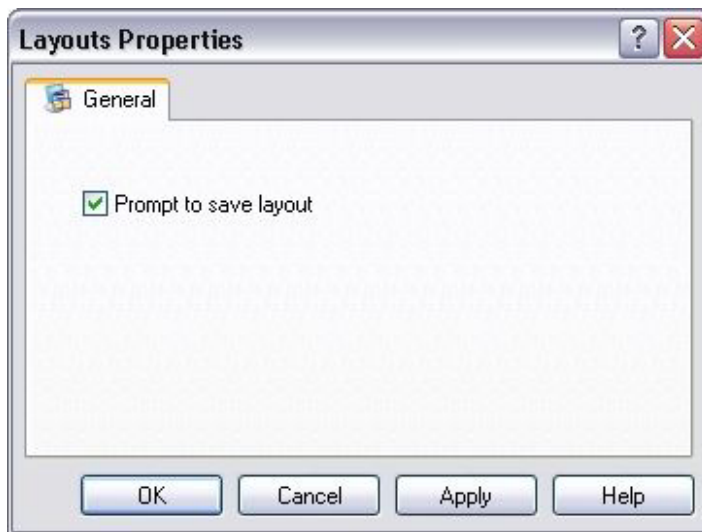
To save a layout with its current name, select the Save item.

Saving Layouts (by Default)

You can configure the layout property so that you are prompted to save the layout of any open windows before you exit the application.

- To save a layout by default:

1. Right-click Layouts and select Properties from the popup menu. The Layouts Properties dialog box is displayed:



2. Select Prompt to save layout. When you exit the application you are prompted to save the current layout. This change can be implemented online.

- To save a layout:

In the All Containers section of the Application Section, right click Layouts and select Capture Layout from the popup menu. A standard Save As dialog box is displayed in which you can save the layout. The layout is displayed in the List of Layouts.

- To add additional window positions to an existing layout:

Specify the existing layout file name in the Save As dialog box.

- To load a layout:

In the List of Layouts in the Application Studio, right click the required layout and select Load Layout from the popup menu.

- To delete a layout:

In the List of Layouts in the Application Studio, right-click the layout you want to delete and select Delete Layout from the popup menu.

Assigning Layouts to Users

When you have captured and saved a layout, you can assign it to a user, so that when the user logs in, the layout is automatically displayed on the screen. A layout is assigned to a user in the User Management module. See **Chapter 7, Security and User Management, User Management - Overview**.

- To assign a layout to a user:
 1. In the User Management container in the All Containers pane click Users. The List of Users opens in the Control Panel.
 2. Select a user and then right click and select Modify from the popup menu. The User Properties: User dialog box opens.



3. In the Layout field click the arrow to open a dropdown list and select the relevant layout. The selected layout will be attached to the User and will open on the User's station.

Note: Users can also be assigned a layout when defining new users and following the instructions above.

Closing all Open Windows

You can use the Close All windows feature to close all the windows open in your application.

- To close all windows:

In the All Containers section, right click Layouts and select Close All windows from the popup menu.

Object Oriented Model

Object Oriented Model Presentation

The Object Oriented Model provides a new way to organize and access data.

It is introducing the notion of objects.

An object is defined by its type.

Object types are defined by a set of properties.

These properties can be simple values like integers, strings, etc... or another user-defined object type, or a link to a tag (or alarm).

Tags and alarms are objects too. They are predefined, built-in objects. So they are also described with a set of properties: tag description, tag address, alarm text, alarm family, etc...

When creating an object of a specified type, a new instance is created. This instance must be given a unique name.

After, in order to use these objects, it is possible to address any instance and its properties with a name.

For example, you can now display a tag description in an image specifying:
HEATER001.Description

As another example, you can choose a tag for a chart specifying:
Building01.Floor[0].ServiceRoom.AirConditionSupply

This notion of object is a layer above existing tag and alarm notions. Tags or alarms are still usable as before. This object layer brings new possibilities to the user without breaking legacy behaviour.

Access Means

Description

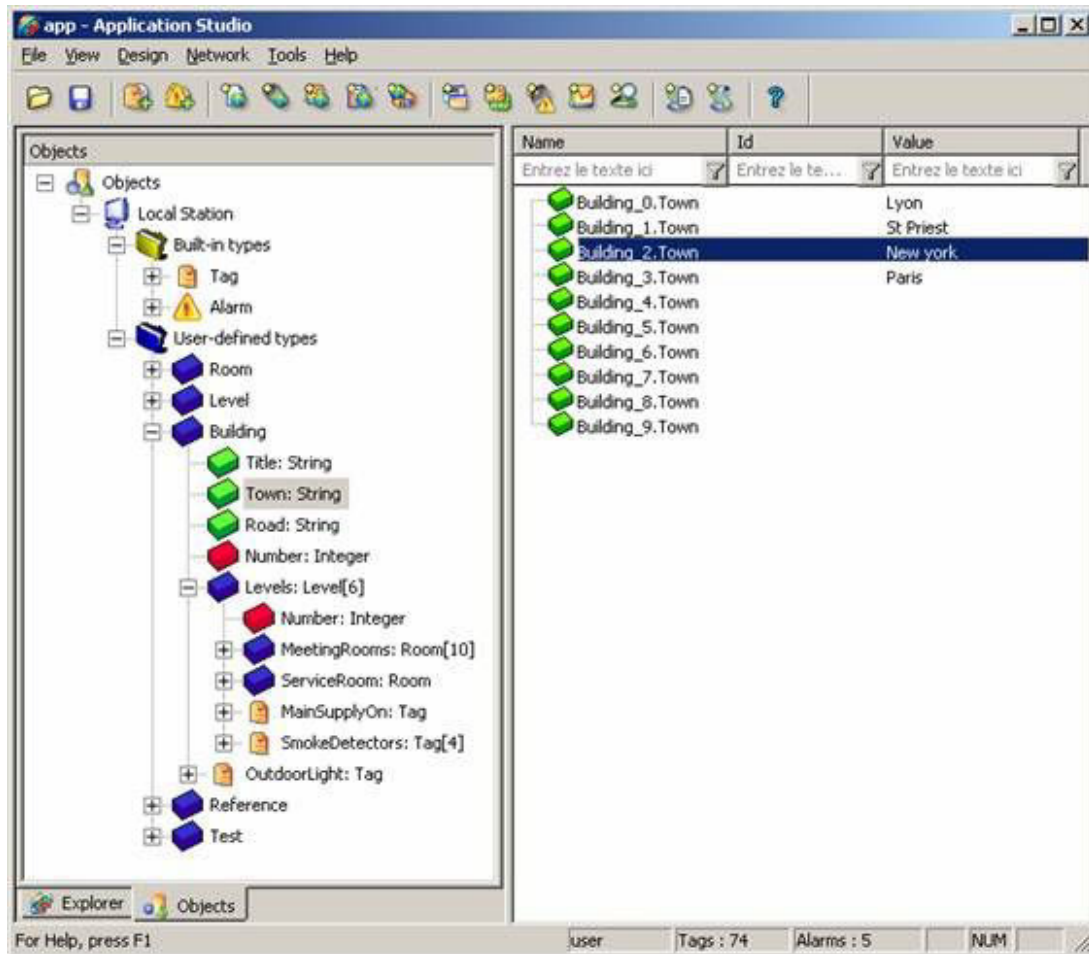
Object Template

Object Oriented Model Access means

Creating and editing object types

A new tab has been added in the studio to display objects and handle all related operations.

This tab is accessible at the bottom of the main studio window:



This view will display, on the left, a tree with all objects structures that are defined. A contextual menu on these tree items gives access to all object types related operations:

- creating a new type
- modifying an existing type
- deleting an existing type
- creating an object instance
- exporting object types
- importing object types

On the right side, object instances and property values are listed.

This list is following the object type and property selected on the left tree.

It is also possible to filter the list by instance name and property value.

A contextual menu on these object instances gives access to the following functions:

- renaming an object
- changing a property value
- deleting an object

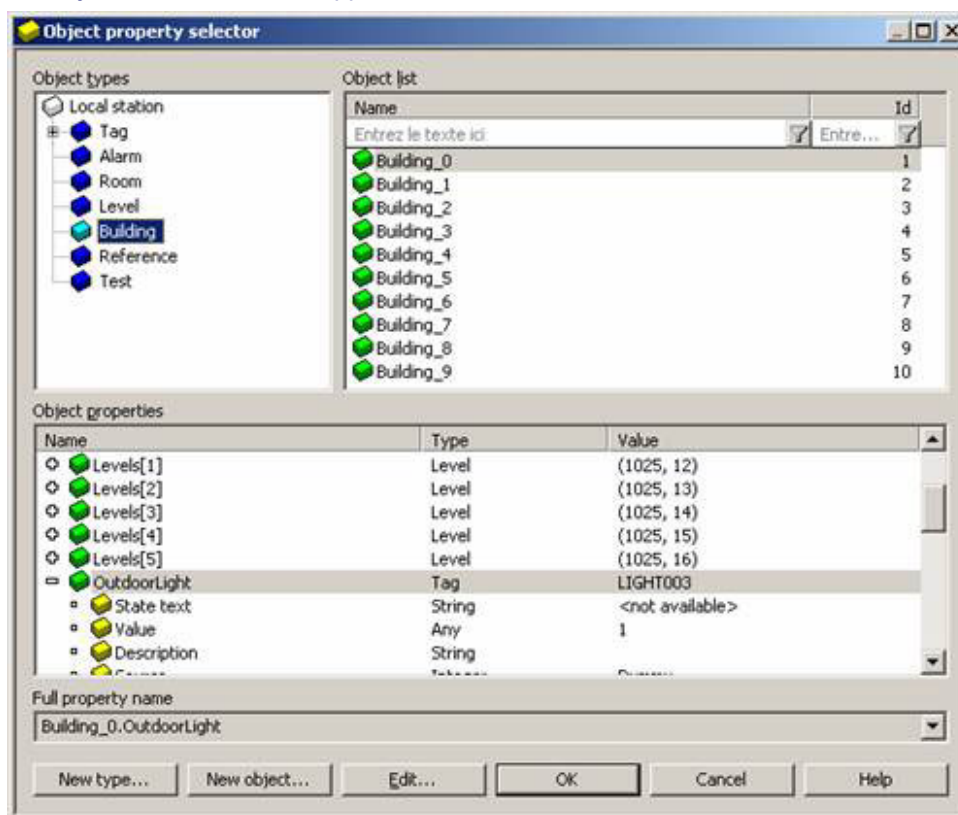
Using objects and properties

When you want to use an object or a tag defined in an object, it is done in a very similar way as you did before when selecting a tag.

You can type a tag name, a full property name of an object or choose it with the object browser that is accessible when clicking on the [...] button on the right.



This opens the object property selector that allows quick and easy browsing and filtering of the objects available in the application:



It is possible, if needed, to create a new object type, or a new object instance. You can also modify a property of an object.

Depending on what's requested, the object selector can eventually refuse your selection. It is typically the case when you can only choose a tag, or a specific tag type.

Object Oriented Model Description

Object types

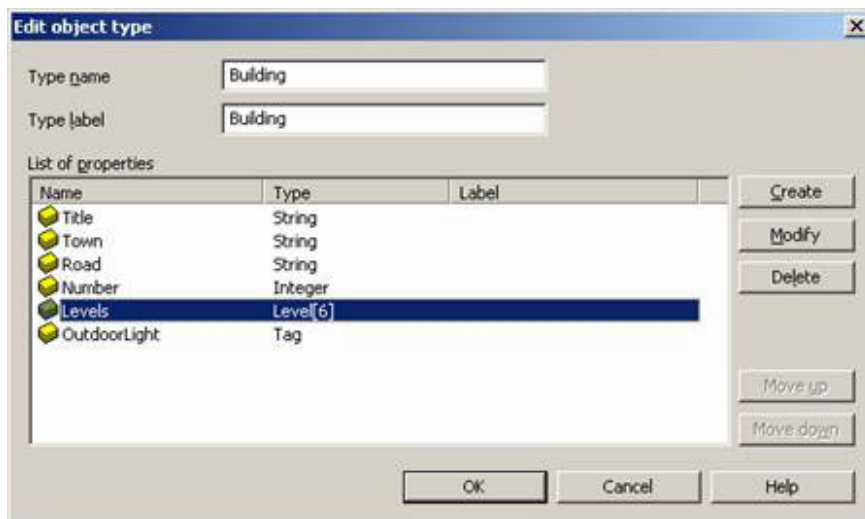
All object types have a name, a label and a set of properties.

The name can contain only letters, numbers or underscore character. It cannot start with a number.

It is not possible to use built-in type names like “tag”, “alarm” or “integer” or a name that is already used by a user-defined type.

The label can contain a friendly name displayed to the operator to designate this type. It is free and can be empty. It can be changed or translated without any implication in the application’s behaviour.

The list of properties is defining the structure of the type. There is no limit to the number of properties.



It is possible to control the order of properties only during creation. This order affects only the display and input order.

Object properties

All object properties have a name, a label and a type.

The name can contain only letters, numbers or underscore character. It cannot start with a number.

Property names must be unique inside their type.

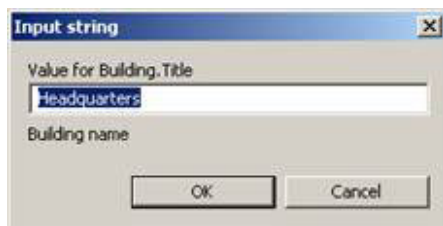


The label can contain a friendly name displayed to the operator to designate this property. It is free and can be empty. It can be changed or translated without any implication in the application's behaviour.

The type defines the nature of information that will be store in this property.

It can be a simple predefined type:

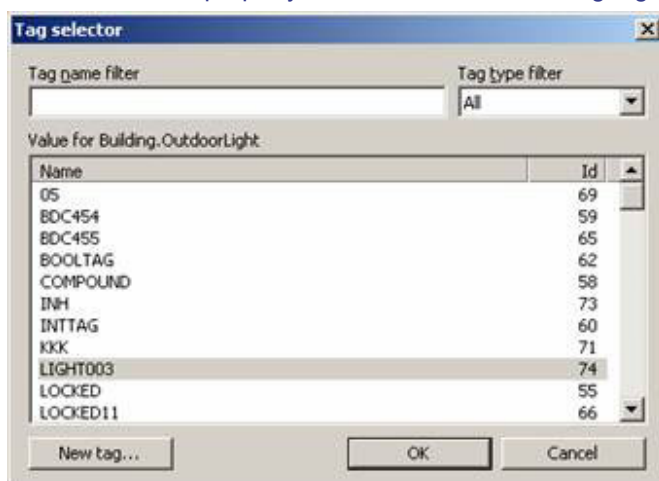
- a boolean value (also called "logical" or "digital")
- an integer value
- a real value (floating point)
- a string (limited to 255 characters)
- a time



... Or a built-in type:

- a tag
- an alarm

The value of this property will be a link to an existing tag or alarm.



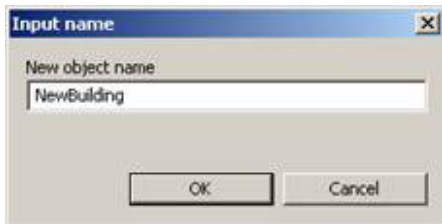
... Or any other previously defined type.

Finally, it is possible to declare any property as an array. In this case the array size must be specified. An array property can be addressed with a numerical index from zero to the array size minus one.

Object instances

All object instances must have a unique name. All tags are considered as objects, so tag names cannot be used for new object names and vice-versa. Alarms have an automatically generated name based on their type, family and id that is always unique.

Once created, it is not possible to change the type of an object.



The name can contain only letters, numbers or underscore character. It can start with a number.

It is possible to rename an object after creation.

When an object is created, all properties are set to a default empty value. All user-defined type properties are created too. Tag and alarm properties of this new empty object are not linked to any tag or alarm.

Restrictions

Properties other than tags are not tags. It means they cannot be used in place of a tag because they do not support what tag does. For example: it is not possible to choose an integer property in a chart because no history is maintained for its value.

Naming

A full property name always starts with an object name (that can be a tag name):

Building01

If you want to point to the property named "OutdoorLight" of this building you must type it after a point:

Building01.OutdoorLight

This property is a tag. Since a tag is an object you can access to its description like this:

Building01.OutdoorLight.Description

If a property is an array you can access a specific array item with brackets like this:

Building01.Floor[0].ServiceRoom.Number

Networking

As for tags, objects of other stations are accessible if you start the name with a station name followed by colon:

STATION04:Building01.Floor[0].ServiceRoom.AirConditionSupply

Also note that the tag property of an object can only refer to tags on the same station. On the previous example it means that “AirConditionSupply” is always linked to a tag on STATION04.

Exporting/importing object types definitions

It is possible to export and import type definitions to easily exchange them between applications.

In the object view of the studio, if you right-click on “User-defined types” in the type’s tree, you have access to a contextual menu that allows you to export all types to an xml file or to import the type definitions from an xml file.

If you right-click on one type you will be able to export only the desired type (and any other that is used by its properties).

If you import a file that contains a type definition that already exists in the application, it will be checked that the imported definition is compatible with the existing. If it’s not the case, an error will be displayed and the existing type is not modified.

A type definition is compatible with another if all of its properties exist and if they both have the same type.

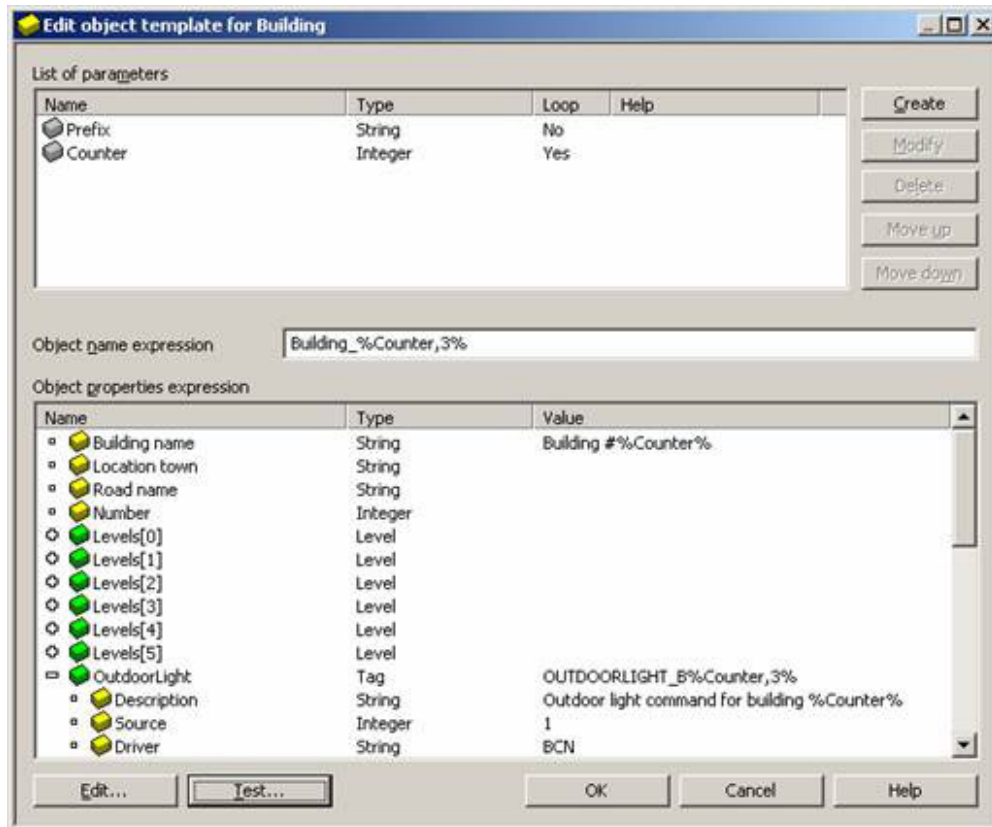
Object Template

Defining an object template

To provide a way to create series of object with fewer inputs, an object template can be defined.

An object template is based on a specific object type and is defined with two parts:

- a set of parameters that will be prompted to the user for creation
- a set of expression that will used these parameter values to assign value to object properties that are created



Parameters

Parameters are the values that will be prompted to user for creation. As object properties, they can be boolean, integer, real, string or time.



If a parameter is an integer, it can be defined as a “loop”. In this case the user will be able to define a range of values to create a set of objects.

The parameters order is important. All parameters declared after a loop will be prompted to user for each iteration. That also means that loops are nested.

Expressions

Expressions are the values to put in the property value of the object that will be created.

An expression can be a simple constant value like any number or any string.

It can also be a reference to a parameter of the template. The syntax is the following:

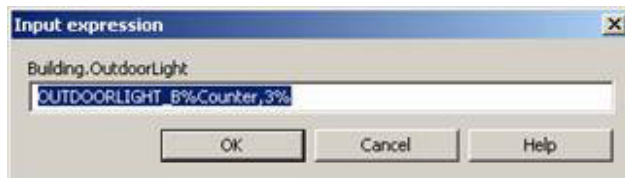
%parameter_name%

where “parameter_name” is the name of one of the parameters of the template.

When the property is a string (or a tag name), the expression can be more complex and can contain several parameter references to build a full string.

OUTDOORLIGHT_%Prefix%_%Counter%

Here, “Prefix” has been declared as a string and “Counter” as an integer (that can be a loop).



In case of integer parameters, it is possible to force the number of digits with this syntax:

TAG_%Counter,3%

This will produce strings like this: TAG_001, TAG_002, TAG_003, etc...

Creation process

The process of object creation when using object templates starts with parameter inputs:

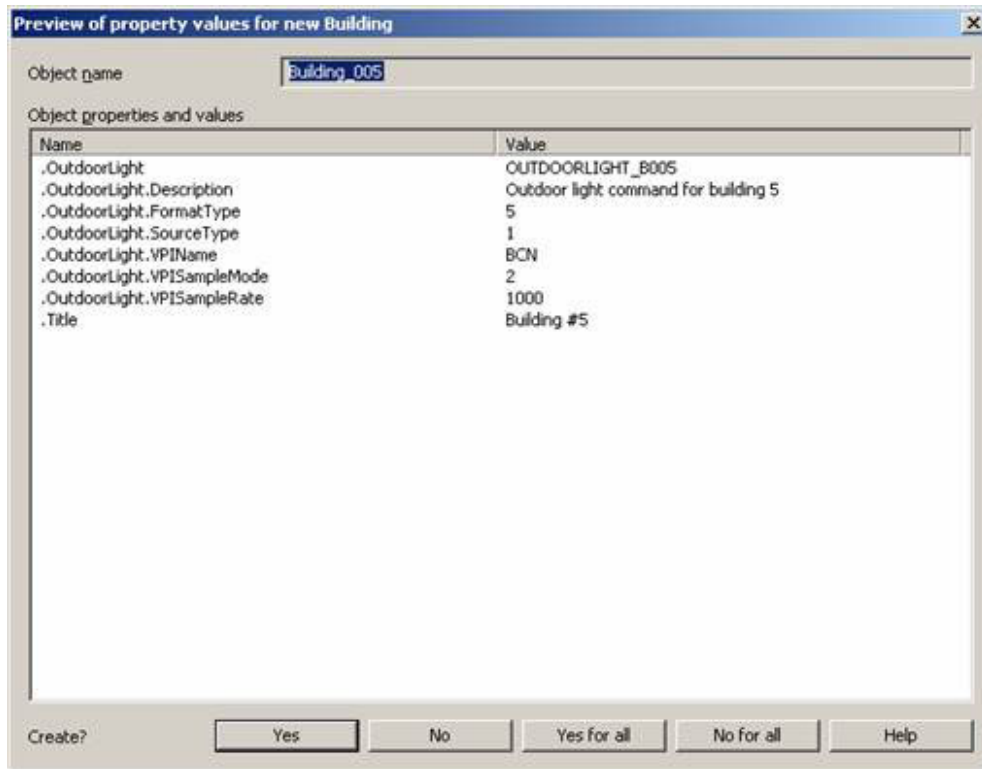
Example of string parameter input:



Example of loop integer parameter input:



Before creation, a preview is displayed in order to check values generated for all the different properties:



It is possible to confirm, to skip or to accept all creation.

Once accepted, an empty object is created and all property values are then written in it.

Specific case of tags

If the tag name exists, the property will be linked to this tag.

If not, the tag will be created. It is possible to define tag properties by expression, so that this tag will require minimal adjustment to be usable in the application.

Other Topics

Enables you to give the program's parameters if there are any.

Enables you to give the full path for the program to run

Check this option if you want to run the user program before or after the Application interface

Check this option if you want to wait that this program will end before running the next program

An option to open the program with a window.

The studio is an Explorer like interface from which the application developer has full control and access to all parts of the application.

Capture Layout

Click the CAPTURE LAYOUT icon from Application's Quick Access Bar to capture a layout in your image and save it. (*.lay)

Note: Not applicable for the Web.

This is a list tree that represents the various elements of the application. The containers Tree area is made of two main groups: Files and Objects. The root of the Tree is the station or application name. Whenever a tree item is selected, a list of the container's content is displayed in the right hand side of the Studio window.

This is a zone located in the "Application studio" dialog box to the left of the Containers tree. It displays icons that represent various elements of the application that do not appear in the tree list. These include: Application language definition, Communication Driver definition Single tag dialog, Multiple Tags utility and setting such as Authorization and Network.

Creating a New Application

You can create a new application using the **Application Getting Started Wizard**.

To Create a New Application

1. Double-click on the *Blank Application* icon located in the Application Getting Started Wizard. The Set Application dialog opens:

In this dialog, you provide two items for defining a new application:

- a) An application folder, in which files of your application will be located, and
- b) A name of .wpj file in the folder, which will keep the details about the application. Note that the application's name **IS** the name of this .wpj file.

3. In the *Application name* field, type the name of your new application.

4. Specify a new folder name and click on the Create button. This will be your application's folder. You can also create your folder using Windows Explorer.

Note: The folder you assign your new application should be empty. The application detects files from another application, an error message will appear and you will have to repeat the process.

5. Click OK to save your choices. The Application Studio opens.

Creating a Template Application

You can create a template application using the Getting Started Wizard. A template application is an application which is based on an existing application.

To Create a Template Application

1. 1. Double-click on the Template Application icon located in the **Getting Started Wizard**.
1. 2. Double-click on the Template-based Application icon and the *Choose Template Application* dialog opens.
1. 3. Select a template application by selecting a *W.wpj* file which represents an existing application.
1. 4. Click the Open button and the **Set Application Dialog** appears.
1. 5. In the Set Application dialog give your application a name and set the folder.
1. 6. Click OK and the Application Studio opens. You now can work on your new application which is based on an existing one.

When you have set the above information the application Wizard copies all contents of the template application into the new folder, renames the file in the new folder to the new application's name.

Note: *When the Getting Started Wizard copies a template application into a new one, it takes **ALL** contents of the template directory, **including all subdirectories**. Therefore, if a subfolder of the template folder was assigned for the new application, Wizard will attempt to copy this subfolder as well. You cannot copy a folder unto itself because every subfolder of the application folder may be considered as a part of the application. Therefore, do not use a subdirectory as the target folder.*

A Layer is a specific part of an image used to provide a more detailed view of a particular section of the plant or facility.

Each layer can be assigned its own scale range so the Elaborating Zoom can be used to view the layer in the specified range.

A Layout is a set of Application windows saved in a file.

Layout / Close All Windows

Note: The multilanguage feature is not supported on the Web.

This option is used to clear all layouts from showing in the Window.

Check this option to determine if the application will prompt you to save the layout when you exit the Application.

Layout Properties

Note: Not applicable for the Web.

This parameter determines if the Application will prompt you to save the layout when you exit the Application.

If this box is checked then the layout will be saved when you exit the Application.

Layout Property

Use this option to define the layout tuning parameters.

Note: Not applicable for the Web.

Layouts Overview

Note: Not applicable for the Web.

A window layout is a set of windows in the Studio Application saved in a file. Window layout can be saved, loaded and selected.

Layouts enable you to maintain continuous control of the plant. By saving a particular layout. You can ensure that specific window combination will be available whenever you need them.

Each layout should be assigned a unique name for filing operations. Remember that whenever you specify layout names for filing operations, the default layout path will always be used. The default path is defined in the Paths dialog box (Design/Option/Paths).

Note that you can cause a specified layout to be loaded automatically whenever specific operators log in to the system.

Capture Layout

Any current layout with all its settings, can be saved for later use, this is done by the Capture layout option.

To save a layout with its current name, select the Save item.

Clear layout

To clear the current layout screen and create a new layout, select this option.

If a window layout already exists on the screen, the operator will be prompted to verify whether to save or discard the existing layout. All overviews on the screen will then be closed and a new layout can be started.

Application Studio

The Application includes all relevant objects and files needed to run your application.

To manage the Application use the Application Studio.

The Studio is an Explorer-like interface from which the application developer has full control and access to all parts of the application.

The Studio is your application workplace.

Application Studio consists of the following elements:

Menu Bar

Tool Bar

Containers Tree

Control Panel

File Lists

Object List

Status Bar

Applications Main Menu

Application's Main Menu bar contains the following menus: File, View, Design, Network, Tools and Help.

Containers Tree List

In the left hand side of the Studio window there is a tree list that represents the various elements of the Application.

The Containers tree area is made up of two main groups: Files and Objects. Each item is a collection list of objects or files.

The root of the tree is the station or application name. When any of the tree items is selected, a list of the container's contents is displayed in the right-hand side of the Studio window.

Clicking the right mouse button on any item in the tree opens a content sensitive pop up menu with options relevant to the selected item.

All lists share the following common features:

Right click the mouse opens content sensitive pop up menu.

- List columns can be customized by the user by using the *View Setting* pop up menu item.
- List can be sorted by any column by clicking on its header.
- Any list can be filtered by entering a text under each column header.
- Any list can be duplicated in a separate window for ease of use by using the *Duplicate view* pop up menu item.

Control Panel

When the root of the tree is selected the right-hand list displays icons that represent various elements of the Application that do not appear in the tree list.

These include: Application Language definition, Communication Driver definition, Single tag dialog, Multiple Tags utility, and settings such as Authorization and Network.

File Lists

Under the Files branch you can find Application elements that are stored as files. These include the Windows, Images,

Charts, Events Summarys and History Viewer, Recipes, Layout and Reports.

You can add Window, as Image, to its list by dragging and dropping the file from Windows Explorer. Double-clicking on a Window in the list opens it. To open a new Window use the *New* pop up menu item.

Object Lists

The Objects branch includes lists of Tags, Alarms and Macros. Double clicking on any object opens its properties; you can modify and save the changes. New objects can be defined using the *New* pop up menu item.

Status Bar

The status line appears at the bottom of the Studio window and displays temporary information and quick help, such as, menu option commands, the name of the user, Num Lock, Caps Lock and SCRL lock.

Set Default Paths

In this dialog box, you can specify the default path name locations of Application design and operational elements. To enable the system to keep track of files and their locations you can define paths for each file type.

In this dialog box, all the file types are listed with their current path specifications. to change the path of a specific file type, simply click in the line that you want to change, and specify the new path.

To set the default path:

1. Select the Design Menu from the Studio Application
2. Select the Option menu
3. Select the Paths option.

The elements appear in the left column, the path names are entered in the middle column, and the filename format of the element appears in the right column.

Note that the Application item refers to any application component that is not represented in this dialog box. A path must be specified with a terminating backslash.

For example, .\ refers to the current directory, and img\ refers to the image subdirectory in the current directory. Note that the LRM path (for alarm files) will not be changed on-line.

To cause the Application to save alarm files in a new path, you must first exit the Application and then restart Application again.

Using the application

Application 's Internet Capabilities

The Application is the industry's first Intranet Supervisory & Control Application Generator. Java-based Application brings the easy to use, open technology of the Internet to Supervisory and Control.

The Application allows you to integrate your application with your Intranet or Internet network.

Through event-driven, bandwidth friendly data distribution techniques, the Application enables real-time graphics and information updates from any computing platform. All of this, without the need for any platform-specific software, client software installation, or plug-ins.

For updated information about Application, news, new releases and links to other related resources please check our web site at <http://www.Wizcon.com> frequently.

1st thing

Application Studio

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Charts, Events Summaries and History Viewer, Recipes, Layout and Reports.

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Customizing your working

environment

Set Window Attributes

Note: *Setting Window Attributes is not applicable on the Web.*

In this dialog box, you can assign default attributes to all windows of the type you selected (Image, Charts, Events Summary, or History Viewer).

The fields in this dialog box are as follows:

Title Bar: The line in the window that contains the title, name in Title The window name that appears in the title. This component is relevant only if the Title Bar appears.

Name in Title: The text to appear in the title bar, if the title bar option was selected.

System Menu: The menu that appears when you click on the small box at the top left corner of a window. This menu contains items that can be used to manipulate windows (move, size, close, etc.).

Min/Max Button: The buttons that appear in the upper right corner of a window. These buttons can be used to shrink or enlarge the window to predetermined sizes.

Size Border: Window borders that when clicked on, can be dragged to change the window size.

Menu Bar: The line in which the window menus appear.

Always onTop: Select to display the window viewport) on top of other open applications.

Pos: The window X and Y position coordinates in pixels.

Size: The window size in pixels.

Studio environment

View - Duplicate

The list of the elements, exposed by the List Zone of the Studio may be duplicated to a separate frame. This feature allows user to observe lists of different items simultaneously (without navigation via the Containers Tree).

The feature is accessible via popup menu, invoked by clicking of right mouse button, whenever the mouse cursor is present inside the List Zone

View Setting

Used to set the order and the type of fields to be displayed in the chosen **List Zone**

The feature is accessible via popup menu, invoked by clicking of right mouse button, whenever the mouse cursor is present inside the List Zone

Tuning Parameters

Alarms

Alarm Properties General Tab

This dialog box has the following tabs:

General where the message that appears when a user logs in and out is defined. This message can by default be acknowledged and ended and be viewed in the Events Summary and History. Alarms can also be ended by the user by using the User Defined status feature.

Time Format where the time and date format of the message is defined.

Hotbackup used when an application that has master backup is run.

Network Communications used during network communications failure.

VPI Communication Error used during communication failure between the application and communication drivers.

User Login defines how and where an alarm issued during user login/logout is written to.

Wil Diskfull defines when and how an alarm is sent when the computer disk is xxx full.

Tag Lock defines that a tag is locked when an alarm is issued.

The following options are available:

Avoid generating alarms using tag set values on system startup

When this is checked no alarms using tag set values are generated during system startup.

Avoid generating new alarms Specifies that logins and logouts are not logged. Restart the application for changes to take effect.

Login Alarm Text Specifies the text you want to appear when a user logs in. This change can be implemented online.

Logout Alarm Text Specifies the text you want to appear when a user logs out. This change can be implemented online.

Allow user defined status This feature is optional. Names are limited to hold up to 20 characters. Check this option to enable the user to define alarm states.

Status names This feature is optional. Alarm states are given in the States.dat file in the application's directory. When the application is loaded this file is read and information in it is used where applicable. Status names are local and therefore are not transferred to other stations. Alarm messages, however are transferred to other stations where they can be handled. You can move an alarm to another user-defined status only if it has not already been acknowledged. However, if the alarm has been moved to another status it cannot be moved back to its previous status. If the user has already been authorized to acknowledge an alarm further authorization is not required when alarm status appears.

Notes:

If no names are defined then the default names AlarmStatus0 and AlarmStatus1 are given. If in the Alarm Properties dialog box Allow User Defined Status is not checked then none of these column options are available.

The default status names are language dependant.

Alarm Properties Time format

In this dialog box the user can define the Alarm time format.

This page is used to select between four different alarm time formats for the Alarm printer. The possible options are:

Day+Time - Day in month and time.

Date+Time - Full date and time.

Date+Time +Milliseconds - Full date plus Time plus Milliseconds

Day+Time+Milliseconds - Day in month plus Time plus Milliseconds.

Note After defining the time format, make sure to restart the Application.

History Viewer

History Viewer Properties

This dialog box is used to define the History Viewer window attributes.

The History Viewer Property dialog box could be initiated in two ways:

From the History Viewer file situated in the **Containers tree**

1. Right click the History Viewer file from the Containers tree
2. Select the property option from the rolling menu.

OR

From the Pop-up menu in situated in the **List Zone**

1. Select the History Viewer file from the Containers tree
 2. Right click an existing History Viewer or anywhere in that Zone.
 3. As a result a Pop-up menu will show up, click it and select the Property option.
-

Recipes

Recipe Properties

The following options are available:

Startup Recipe: Determines the name of a recipe that will be loaded during system startup.

Process each value according to its tag:

Enables the processing of values according to the tag associated with the appropriate address in the recipe block.

Notes:

Restart the application for changes to take effect.

The application logger and alarm generator are activated only after the specified recipe is loaded.

If the load fails, see the file called error.rcp for a description of the failure.

Event summaries

Events Summary Properties

Use this dialog box to define the Events Summary tuning parameters (locally). The following options are available:

New alarm (not acknowledged/ended) blinking: Select this option and new alarms that arrive in the event summary will blink

Handler name required before acknowledge: With this option selected, if a user tries to acknowledge an alarm, they will have to enter a name before continuing.

Alarm help text status The following options are available:

Assist: Enables the user to obtain alarm help text from alarm Help files.

Ack: Acknowledges alarms.

Assist and Ack: Enables both the Assist and Ack options. This change can be implemented online.

Scroll alarm list Enables the Events Summary to scroll and display alarms at the top of the list. If this option is checked, this parameter determines that when a new alarm arrives the Events Summary automatically scrolls to show the top alarms in the list. This ensures that if the new alarm is important, it will not be missed if the operator scrolled the list too far. Restart the application for changes to take effect.

Show Force End User implements the Force End field, which helps the user to know whether the name that appears in the User field is the name of the person who ended or acknowledged the Alarm.

Standard Printing If this option is checked, a "Print to..." menu item will be available in the File menu and the Wiztune parameter ANN_STANDARD_PRINTING will be set to YES. This menu item is used for printing Event Summary with Windows standard dialogs.

Advanced Defines Events Summary window attributes.

Tag

Tag Properties

Used to determine the logger buffer size for history files and the logger flush to disk rate.

Buffer Size:

This parameter determines the logger buffer size for history files, in lines (records). Maximum is 2048 records. Increase the value of this option, if it is anticipated that a large number of changes will occur at once at any time during the session.

Note after you have determined the size, make sure to restart the application.

Flush Size:

This parameter determines a value that will represent the application logger flush to disk rate, in seconds (for history files). Maximum is 3600 seconds.

Note after you have determined the size, make sure to restart the application

Image

Image Property - Dynamic

Note: Not applicable on the Web.

Used to determine the blinking rate values for dynamic objects.

The values you specify for fast, medium and slow are in milliseconds and can be from 50 (1/20 second) to 30000 (30 seconds). If you specify a value that exceeds these limits, the Application will automatically apply the maximum and minimum values instead.

It is recommended to increase the values for this option, if it is anticipated that a large number of dynamic objects on the screen will be updated at once

Image Property - Pictures

Note: Not applicable on the Web.

The Image properties box allows you to set the location of picture files folder, relative to the web application root directory.

The Pictures folder is located underneath the **DOCS directory**. (Default).

To access the Events Summary Profiles properties:

1. From the **Containers List** select Files Images.
2. Right-click on the highlighted Images icon and select the Properties option.
3. The Image Properties dialog appears (as shown below).
4. The Default folder name **Pictures** appears in the field.
5. Press OK or Apply to enter your selection.

You can also access this from the Web Application Properties Pictures tab

Image Property- Fast Zone

Note: Not applicable on the Web.

This parameter determines the period of time (in ms) for "slow" zones. A zone is "slow" if it has a background that takes more than a given period of time to draw. This parameter improves the drawing time for "Goto Zone" operations by using a cache of memory bitmaps for drawing the background of slow zones.

If the **Fast zone threshold** is set to be 2500, that means that the zone is considered to be "slow" if its background takes 2500ms or more to draw.

Notes

After the zone threshold was defined make sure to restart the Application

It only affects the background of the image, dynamic elements are drawn as before.

Operate only when NOT is Edit mode.

Maximum fast zone - This parameter determines the limit of the number of fast zones bitmaps that can be kept in a single Window's memory cache. When a window reaches this limit, the least recently used fast zone bitmap is removed from the cache in order to make room for the new bitmaps.

Note After the Max fast zone was defined make sure to restart the Application.

Image Property - Loading

Note: Not applicable on the Web.

This tab determines the amount of memory available for image objects. It also enables/disables tag name parsing when loading images and determines the mode in which the image will open.

Notes:

Setting the amount of memory available for image objects is not applicable on the Web.

Always restart the program after updating this tab.

The following options are available:

Images memory pool size	Enables large images with many objects to be created, but allows only 10 (+-) Image windows to be open at one time. The lower the value, the more Image windows that can be opened simultaneously (they must be smaller in size). The value for the parameter can be set from 60 to 200.
Parse each image when loading	<p>Enables or disables tag name parsing when loading in the Images module. Disable this option to shorten image load time for images that contain network tags.</p> <p>When this option is disabled network tags validity is not checked. Therefore, use this option after all tag definitions in the network station are complete.</p>
Open new image in Navigation mode	This checkbox defines that the new image will be opened in Navigation mode.

Image Property - Rates

Note: *Not applicable on the Web.*

Used to determine the image update performance in milliseconds as well as determine the size of the internal message buffer that images use to collapse tag/alarm notification message received by the application.

To access the Property dialog box:

1. Follow the next Path: Studio / Image / Right click the Image Files
2. Select the Properties option
3. The Image property dialog box will appear

Image update rate Max/Min Rates:

These parameters determine the image update performance in milliseconds.

The default values are: Maximum = 2000 and Minimum= 10.

Note After those parameters were defined restart the Application.

Message Buffer size:

Determines the size of the internal message buffer that images use to collapse tag/alarm notification message received by the application. When tag values change, an image receives message in a buffer from the application and updates graphical objects accordingly.

The default range is 5 to 500 messages.

A high value for this parameter improves the performance of images with rapidly changing dynamic objects, so that images will not have to make graphical updates for each value message.

Image Property - Trigger

Note: Not applicable on the Web.

This tab defines trigger objects and onmouseover properties.

This tab holds the following fields:

Trigger object	Determines whether trigger objects are highlighted when selected. If this option is checked, trigger objects will be outlined (with dashed lines) when they are selected. The default option is not selected.
Mouse pointer on triggers	Determines whether the mouse pointer will be highlighted when it is moved on top of a trigger object in an image. The default option is not selected.
Trigger small input box	When checked, the input box when defining data entry for triggers, will be small and will only have a field for entering the value.
State	Determines which trigger object is activated when overlapping triggers are clicked. This could be either; Top (default) or Bottom.

Note: Always restart the program after updating this tab.

Image Property - View

Note: Not applicable on the Web.

This tab is used to define the properties of the Image window, repaint and resolution level.

The following options are available:

Image position remains when adding/removing toolbars and menus	When this dialogbox is checkbox is checked, Image objects do not change position when either the image modules attributes (defined in the Image Window Attributes dialog box) change
Repaint images after editing operations	When checked this field defines that an image will be repainted automatically after actions that may alter the

	image (such as, moving, copying) are performed. This option is useful in small and medium zones.
Resolution factor	Sets global stretching or shrinking factors applicable to all images. This is required to solve display differences caused by replacing an operating system, monitor or other H/W or to move between resolutions.
Number of gradient color steps	This field determines the number of steps used when drawing objects filled with gradient color. The default is 16. Drawing large gradient surfaces in many steps may be slow therefore, develop using few steps and then increase for run-time.
Advanced button	Displays the Image Window Attributes dialog box where window attributes are defined.

Note: *When changing the Resolution Factor the window remains the same size in pixels. However a centimeter in one image will not be a centimeter in another. The image remains unchanged when the value is 1. Values greater than 1 expand the image.*

- To set correct application values:

1. Load the image in a PC and measure an object's length in the image (a line will do).
2. Load the same image in another PC and measure the same object's length.
3. Divide the first length by the second length and the result is the xx.xx value.
4. Enter the IMG_RESFACTOR with the value you found and reload the application.

The range is $0.1 \leq \text{IMG_RESFACTOR} \leq 10$.

0 The default value: 1

5. Restart the application for changes to take effect. The range of the factor is $0.1 \leq \text{IMG_RESOLUTION_FACTOR} \leq 10$.

Setting Image Window Attributes:

Click the Advanced button in the View tab of the Properties dialog box.

Note: *Image Windows Attributes is not applicable on the Web.*

Each listed attribute can be set to On or Off. When confirmed, the selected attributes will apply to all future windows of the type specified. The following options are available:

Title bar	The line in the window holding the title. This is relevant only if the Title bar is active.
Name in title	Title bar text.
System menu	The menu that opens when clicking on the top left corner of a menu. The menu options are: Move, Size, Close.
Min/Max button	This option defines whether the min/max buttons will appear in the Image window.
Size Border	Specifies that window border size can be changed by clicking and dragging.
Menu Bar	Specifies that the menu bar will open in the Images window.
Always on Top	When selected the image is displayed on top of other applications.
Pos	Specifies X and Y coordinate in pixels.
Size	Specifies window size in pixels.
Title Bar Text	Specifies the name appearing in the title bar.

Notes:

1. 1. The system menu is title bar dependent. Its corresponding checkbox is unchecked and disabled.
 2. 2. If the menu bar is not selected but the system menu is, the menus and items included in the Menu bar will appear in the system menu.
-

Charts

Charts Properties

Note: *Charts are not supported on the Web. For the Web use Trends Profiles.*

Use chart multi markers

This parameter affects the style of the markers in the "Line with marker" and "Marker only" graphs. When checking this parameter a different marker will be drawn for different colors, so graph with two different colors will be drawn with two different markers. There are 10 markers available.

Advanced Button

Used to define the Chart window attributes.

Internet Enhancements

Remote Popup Events Summaries

Designing a Popup Events Summary that is displayed in a browser is identical to designing a standard Popup Events Summary.

Popup Display Options

The application supports the following display options. These options are defined by selecting **Popup Settings** from the *Design* menu of the Application Studio, and include:

Filter Assigns values to each of the alarm classifications so that the Popup Events Summary will display only the alarms that meet these specifications.

Sort Specifies the categories and their order, according to which the alarms will be sorted in the Popup Events Summary.

Display Specifies which alarm components are displayed in the Popup Events Summary.

Color Assigns alarm text and background colors according to their severity level or zone.

Options Specifies Popup Events Summary window parameters. (**Title bar** and **List Length** are not available.)

Important: The application supports all available popup options except for **Buzz**.

Viewing Alarms in History Mode

The Application provides two modes for alarm display in an Events Summary Viewer. In addition to the online mode, which features realtime monitoring of alarms, the application provides a history mode that displays a report of historical alarms. This shows a list of alarm activities for a specified period of time. For example, alarm information one week ago from the current date.

The Application enables you to define filters for the Events Summary Viewer to specify what type of alarm information is displayed. For example, you can define a filter that will display only the start time of the alarms that were activated one week ago from the current date.

Online Mode

The following Events Summary Viewer is displayed in online mode. Clicking **History**, on the left of the menu bar, displays the Events Summary Viewer in history mode.

History Mode

The Events Summary Viewer is displayed in history mode.

The following options are available:

Online Displays the Events Summary Viewer in online mode.

Columns Specifies filters for the Events Summary Viewer that determine what type of alarm information it displays.

Report Configures historical alarm reports, as described on the following page.

Note: Any changes you make to the Events Summary Viewer are available until you refresh. The next time you login, the default Events Summary Viewer parameters are displayed.

Configuring Alarm Reports

The Application provides the following filters to configure the information that is displayed in an alarm report.

The range of date and time an alarm was activated.

The range of date and time an alarm was acknowledged.

The range of date and time an alarm ended.

To configure an alarm report:

1. Select **History** in the Events Summary Viewer. The Events Summary Viewer is displayed in **History** mode.
2. Select **Report**. The *Alarm Report* dialog is displayed. This dialog is similar to the standard *Alarm Report Definition* dialog.
3. Click **OK** when you have specified the required filters. The *Alarm Report* dialog closes and a progress dialog is displayed while the application connects to the server. A system file with an adb extension is created in the Docs/History folder of your application.
4. (Optional) You can stop the application from transferring the history information to this file at any time by pressing **Cancel**. The Application then displays a message in the Events Summary Viewer, notifying that the history reading has been cancelled.

When the query is complete, the Application reads the history file prior to displaying the alarm report. A progress dialog appears displaying how much of the file has been read

5. (Optional) You can click **Cancel** at any time to stop the Application from reading the history prior to displaying the report in your browser. This is useful if the report is larger than you expected.

When the history reading is complete, the report is displayed in your browser.

Miscellaneous

Alarm Objects

The Application supports alarm object attributes in a browser. They are defined in the *Alarm Object Definition* dialog

The Application now supports the following alarm object attributes in a browser:

Blink

Specifies that an object will blink when the value is within the specified value range.

Fill color

Sets the fill color of an object when the value is within one of several specified value ranges.

Line color

Sets the line color of an object when the value is within one of several specified value ranges.

Acknowledge

Causes the alarm associated with the object to be acknowledged whenever the object is selected in the **Trigger** mode.

Acknowledge with confirm

Prompts the operator before acknowledging the alarm

Assist

Provides textual assistance when the object is selected.

Remote users should create an HTML file with the same name as the assist file and save it in the directory which contains the application's HTML files. When the alarm object is activated, the HTML file is opened together with the assist file.

Accessing Images with Layers

The Application supports the use of layers in Images that are remotely accessed. Users can access specific layers of an Image according to group authorization.

Note: Remember that Images accessed remotely have only scale.

Layout

Layout / Close All Windows

Note: The multilanguage feature is not supported on the Web.

This option is used to clear all layouts from showing in the Window.

Chapter 6 Building a Project

Overview.....	157
Overview	158
New Tab.....	159
Creating a New Application.....	160
Creating a Template Application.....	161
Default Wiztune.dat File	162
Existing Tab	162
Opening an Existing Application	163
Recent Tab	164
Opening a Recent Application	164
Optimizing Application Performance	165
Optimizing Application Performance.....	165
Setting General Station Parameters	166
Selecting a Default User	167
Setting the Date Format.....	169
Setting a Format for History Files	171
Setting a Format for Audit Trail	172
Data Recovery	174
Database Fields	175
Formatting ODBC Connectivity	176
Formatting Advanced Alarm Management.....	178
Formatting the Scheduler.....	179
Formating User Management	180
Limitation of Log Files	182
Data Protection	184

About this chapter:

This chapter describes how to create an application project using the Getting Started Wizard and how to define Station Properties as follows:

Overview describes the first steps in creating an application Project.

Optimizing Application Performance discusses the system's Station Properties, which optimize application performance and enhance functionality.

Overview

Overview

After the program is activated the Getting Started Wizard opens on your screen. Through the Wizard you can create new projects, either using a template or blank template, search for existing projects or open the most recently used project.

When a new project is created all files are copied from the NewWizAPP folder to your new application folder. These are the WizUM.mdb file containing a user name and password (default = user.password) and the Wigtune.dat File. This file can be opened by right clicking the project name and selecting the Open Tuning Parameters File option.

A new project file is saved with the suffix *.Wpj. (This may change in future software versions). When the Application Studio opens on your screen, the name of the project appears at the route of the All Containers pane.

After the project is saved, Station Properties, which enables you to adjust system parameters to optimize your application's working environment can be defined. The Station Properties dialog box can be opened by right clicking the project name.

The Getting Started Wizard enables you to open existing applications from the Application Studio or to create new applications. There are three tabs: New, Existing and Recent.



New Tab

This tab enables you to open new applications. There are two options:

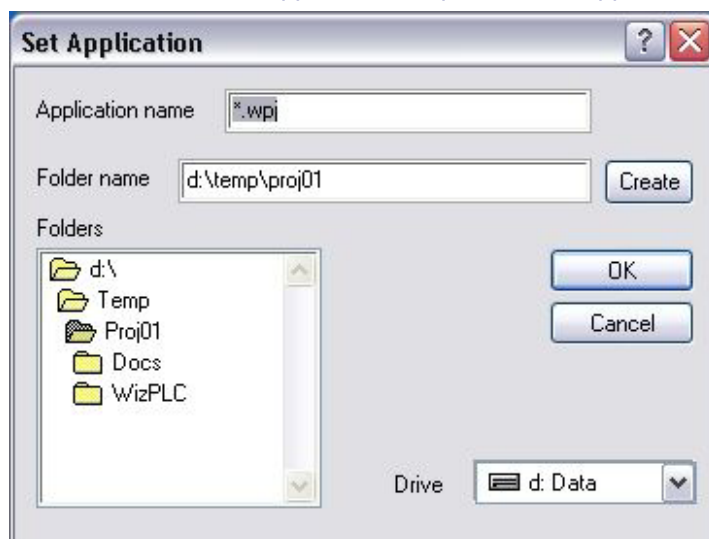
- Blank Application
- Template Application

To open a blank application:

Click the Blank Application icon to open the Set Application dialog box.

Or,

If you have already accessed an existing project and wish to open a new one. From the File menu select New Application to open the Set Application dialog box.



1. In the Folder Name field, at the end of the folder's location, type in the name of your folder. Click the Create button. The new folder name will be added to the folder location and also appear in the Folders list.
2. In the Application Name field, type in the name of the application. The suffix *.Wpj will be added by default.
3. Click OK to confirm.
4. Before the new application opens the Create System Tags message box will open on your screen.
5. Select either Yes or No accordingly. The Quick Access Bar will open on your screen.

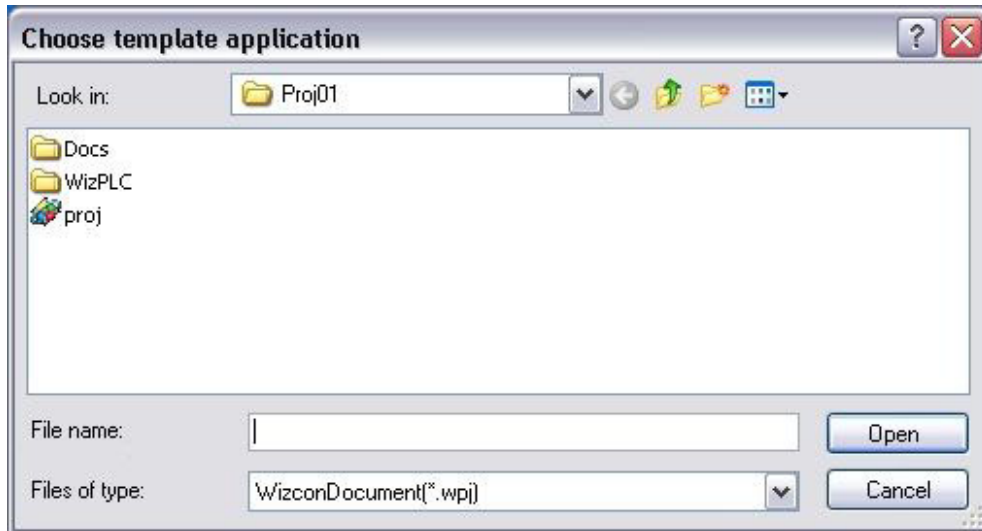
Note: To open the Application Studio, click the Show Studio icon. The new project will appear at the root of the All Containers pane. If you created a folder for the application before opening the program this will appear in the Folders list.

To create a template application:

Click the Template Application icon to open the Choose Template dialog box.

Or

If you have already accessed an existing project and wish to open a new one. From the File menu select New Application to open the Choose Template dialog box.



1. Select the *. Wpj file of the application on which the new application is based, and click Open. The Set Application dialog box is displayed.
2. In the Folder Name field, at the end of the folder's location, type in the name of your folder. Click the Create button. The new folder name will added to the folder location and also appear in the Folders list.
3. In the Application Name field, type in the new name of the application.
4. Specify a new name for the application in the Application Name field.
5. Click OK to confirm. The application closes and then reopens with the default settings of the selected application.
6. Before the new application opens the Create **System Tags** message box will open on your screen.
7. Select either Yes or No accordingly. The Quick Access Bar will open on your screen.
8. To open the Application Studio, click the application icon. The new project will appear at the root of the All Containers pane.

Note: A short cut for creating a new application is to right click in the required location and creating a new folder and then right clicking and selecting the application.

Creating a New Application

You can create a new application using the **Application Getting Started Wizard**.

To Create a New Application

1. Double-click on the *Blank Application* icon located in the Application Getting Started Wizard. The Set Application dialog opens:

In this dialog, you provide two items for defining a new application:

- a) An application folder, in which files of your application will be located, and
 - b) A name of .wpj file in the folder, which will keep the details about the application.
- Note that the application's name **IS** the name of this .wpj file.

3. In the *Application name* field, type the name of your new application.

4. Specify a new folder name and click on the Create button. This will be your application's folder. You can also create your folder using Windows Explorer.

Note: The folder you assign your new application should be empty. The application detects files from another application, an error message will appear and you will have to repeat the process.

5. Click OK to save your choices. The Application Studio opens.

Creating a Template Application

You can create a template application using the Getting Started Wizard. A template application is an application which is based on an existing application.

To Create a Template Application

1. Double-click on the Template Application icon located in the **Getting Started Wizard**.
2. Double-click on the Template-based Application icon and the *Choose Template Application* dialog opens.
3. Select a template application by selecting a *W.wpj* file which represents an existing application.
4. Click the Open button and the **Set Application Dialog** appears.
5. In the Set Application dialog give your application a name and set the folder.
6. Click OK and the Application Studio opens. You now can work on your new application which is based on an existing one.

When you have set the above information the application Wizard copies all contents of the template application into the new folder, renames the file in the new folder to the new application's name.

Note: When the Getting Started Wizard copies a template application into a new one, it takes **ALL** contents of the template directory, **including all subdirectories**. Therefore, if a subfolder of the template folder was assigned for the new application, Wizard will attempt to copy this subfolder as well. You cannot copy a folder unto itself because every subfolder of the application folder may be considered as a part of the application. Therefore, do not use a subdirectory as the target folder.

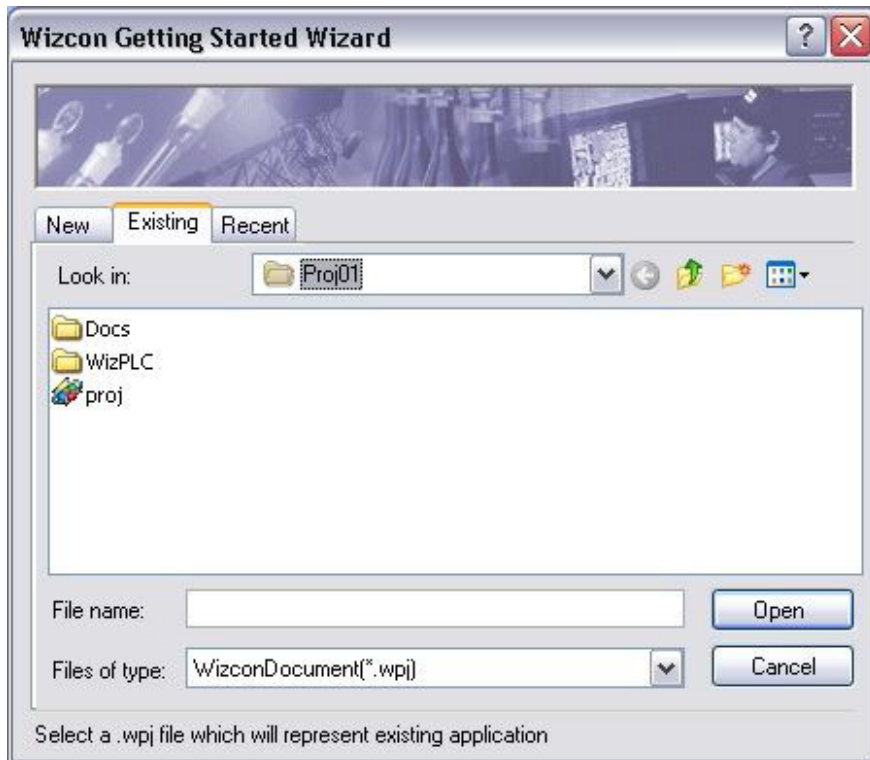
Default Wigtune.dat File

When a new application is created all files are copied from the NewWizAPP folder to your new application folder. The WIZUM.mdb file contains a user name and password (default = user.password) and the default Wigtune.dat file contains the following parameters:

```
DEFAULTUSER=user.password ----> (password is encrypted)
NET_PROTOCOL=NPITCP
VFI=VFI5FST,VFI5CB
TRG_FEEDBACK=YES
IMG_NEW_OPEN_NAVIGATE=NO
RECIPEPERGATE=YES
OLD_NET_USER_AUTH=YES
ALARM_IGNORE_TAG_SET_VALUES=NO
IMG_KEEP_POSITION=YES
VFI5FST_MODE_TIMESTAMP=YES
```

Existing Tab

This tab holds a list of all existing system applications.



- To open an existing application:

Click the Existing tab and select the relevant application.

Or,

From the File menu select Open Application to open the Open dialog box.

Select the *.wpj file of the application you want to open and click Open. The system closes and then re-opens displaying the specified application.

Opening an Existing Application

You can open an existing application using the Application Getting Started Wizard.

To Open an Existing Application

1. Click on the *Existing* tab in the **Application Getting Started Wizard**.
2. Select a *.wpj application file. The selected application name appears in the File Name field.
3. Click Open.
4. Application **Studio** opens with the selected application.

Recent Tab

This tab holds a list of all existing system applications.



- To open a recent application:

Click the Recent tab and select the relevant application.

Opening a Recent Application

You can open a recently used application using the **Getting Started Wizard**.

In the Recent tab of the Application Getting Started Wizard you can find a list of full paths to several files, each of which represents one of the recently used applications.

To Open a Recent Application

1. Click on the *Recent* tab in the Application Wizard.

The Recent Application screen appears:

The full paths of recent applications appear in the dialog.

2. Double-click on the file you want, or Press OK.

The recent application you selected opens with the Application Studio.

Optimizing Application

Performance

Optimizing Application Performance

The Station Properties enable you to optimize application performance and enhance functionality. System parameters can be adjusted to establish an optimal working environment for your application.

u To define Station Properties:

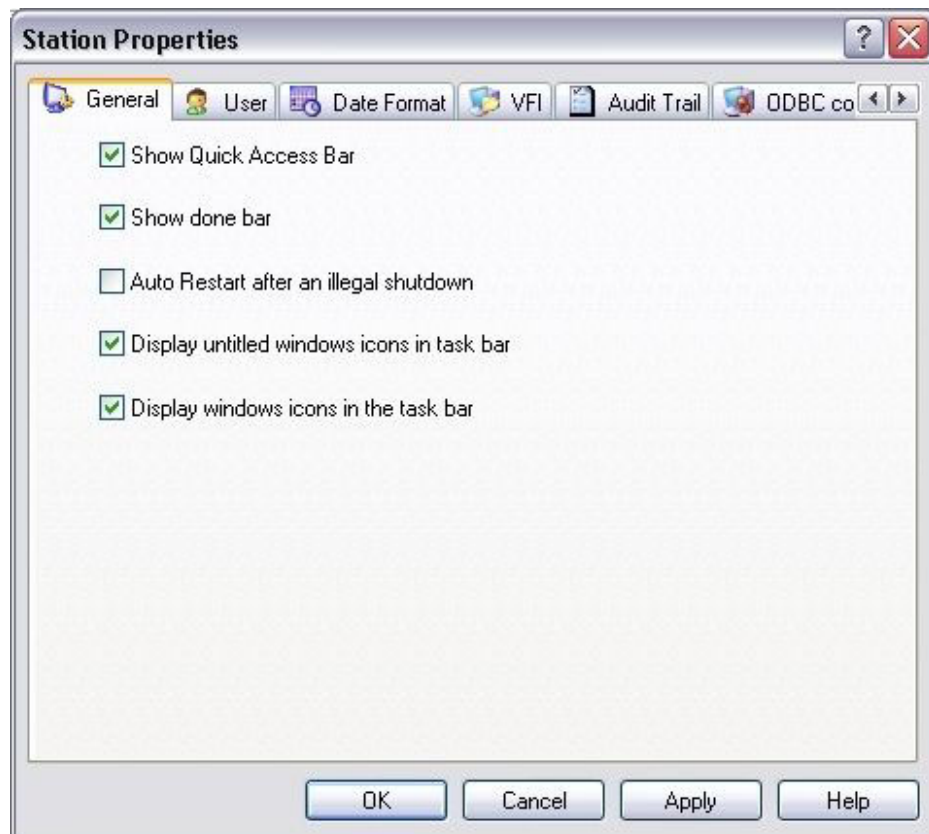
Right click the application in the root of the container list in the All Containers section (if you have saved your application, the application name will appear in the root), and select Station Properties. The Station properties dialog box opens. This dialog box has the following tabs:

- **General** - where the application workplace can be customized.
- **User** - where a default user that will be logged in when you start the application is defined.
- **Date Format** - where the date format is defined.
- **VFI** - where the format for history files by selecting Virtual File Interface DLLs is defined.
- **Audit Trail** - where an Audit Trail is added or enabled to view operator actions stored in an application system file in the form of tag values.
- **ODBC Connectivity** - to enable the Open Database Connectivity (ODBC) dialog box to save the application's historical data to various databases through Microsoft's ODBC.

- **Advanced Alarm Management** - where the Advanced Alarm Management module is enabled.
 - **Scheduler** - where actions, tasks and states can be defined over the Internet
 - **User Management** - where the User Management database source (MS ACCESS or MS SQL Server) is defined and the synchronization properties are set. This tab will be used to define the Centralized User Management.
 - **Limitation of Log Files** - where the file size limits for Online log file (errors.dat) and the Historical log file (errors.) are defined.
-

Setting General Station Parameters

The application workplace can be customized in the General tab of the Station Properties dialog box.

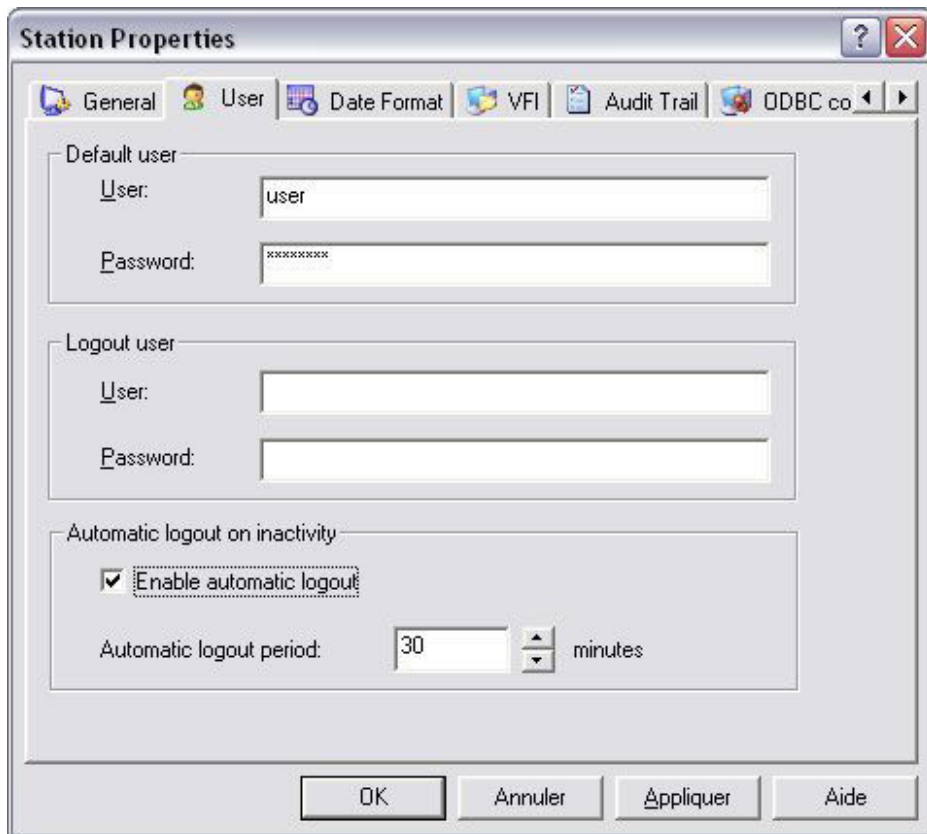


The following options are available:

Show Quick Access Bar	Determines whether or not the Quick Access bar appears when the program is loaded.
Show done bar	Displays a background processing dialog box when large tasks such as loading a large image are being executed. Changes are made online.
Auto Restart after an illegal shutdown	Specifies if the application automatically restarts and recovers its last state after an illegal shutdown (for example after power failure). Changes are implemented online. Note that after an illegal shutdown, a system alarm will be generated to inform all other stations.
Display untitled windows icons in task bar	When checked the word untitled appears in the task bar for new items that have not been saved.
Display windows icons in the task bar	When this option is checked and after reset, no icons are displayed in the task bar.

Selecting a Default User

You can specify the name of the user you want automatically logged in whenever you start the application in the Default User tab of the Station Properties dialog box. This is enabled after defining a user name and password.



The image shows a Windows-style dialog box titled "Station Properties". It has a tabbed interface with tabs for "General", "User", "Date Format", "VFI", "Audit Trail", and "ODBC co". The "User" tab is selected. Inside the dialog, there are three main sections: "Default user", "Logout user", and "Automatic logout on inactivity".

Default user section:

- User:** A text field containing the text "user".
- Password:** A text field containing a series of asterisks "xxxxxxxx".

Logout user section:

- User:** An empty text field.
- Password:** An empty text field.

Automatic logout on inactivity section:

- Enable automatic logout:** A checkbox that is checked.
- Automatic logout period:** A numeric spinner box set to "30", followed by the text "minutes".

At the bottom of the dialog are four buttons: "OK", "Annuler", "Appliquer", and "Aide".

Note: You only log on to the system when using the application locally.

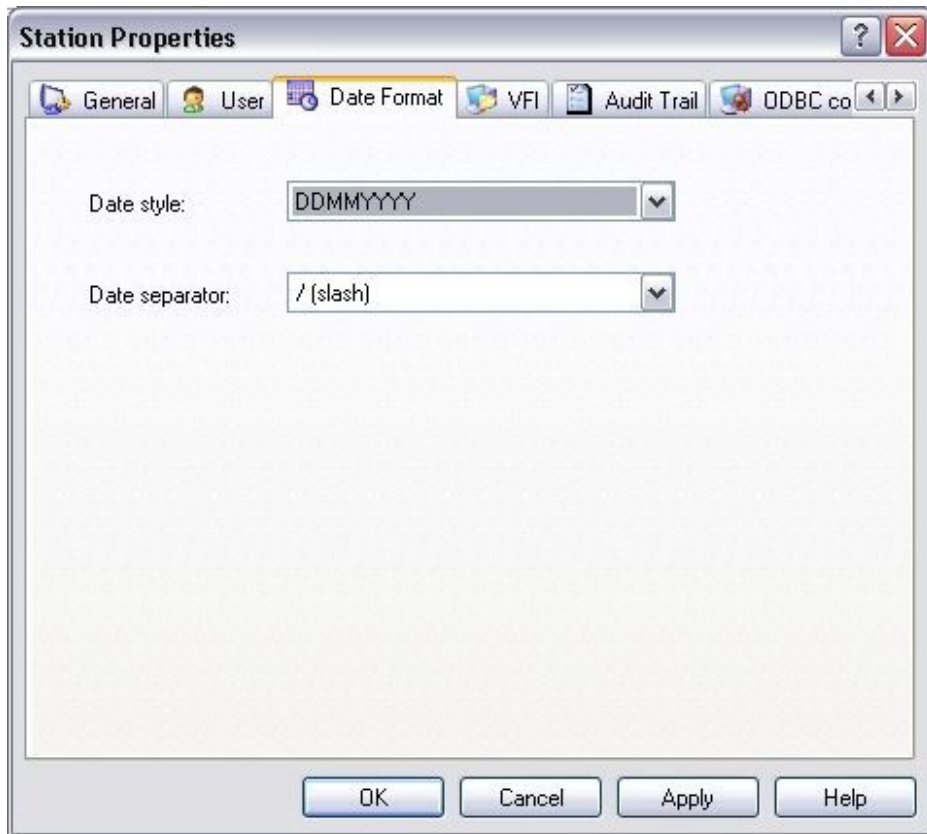
The instructions below apply to both Default User and Logout User fields:

1. In the User field type in the user's name. Enter an asterisk (*) to specify the last user that logged out. Changes are implemented online.
2. In the Password field type in a unique password for the user.
3. If you want the currently logged in user to be logged out after a specified period of time, click the automatic logout and select the time period. For example here, the logged in user will be logged out to the default logout user after the specified period of time **if** there is no mouse (click or movement) or keyboard activity during this time.
4. Click OK to confirm and reset the application to actually save the changes.

Note: Remote users login parameters are defined by right clicking Html/properties/users and checking either: Enable login Quick Access Bar in browser, or Automatically login with default user.

Setting the Date Format

You can set the date style and date separator in the Date Format tab of the Station Properties dialog box.



The following options are available:

	Specifies a date style from a list of predefined date styles.
	Listed below are the Date styles:
	DDMMYY
	MMDDYY
Date style	YYMMDD
	DDMMYYYY
	MMDDYYYY
	YYYYMMDD

Date separator	<p>Specifies a date separator from a predefined list of date separator styles. The date separator files are:</p> <p>/(slash)</p> <p>.(dot_)</p> <p>(dash)</p>
----------------	---

○ To Set Date Format

1. In the Stations Properties dialog box select the Date Format tab. The Date Format Dialog opens.
2. From the Date Style list select a predefined date style.
3. From the Date Separator list select the way you want the date to be separated.
4. Click OK key to enter your selection.

When loading for the first time, the application sets default values for these parameters using country code, defined in Control Panel/Regional Settings.

The table below lists the default values in the application for different countries

Country	Date Style	Date Separator
USA	MMDDYY	/ (slash)
Japan	YYMMDD	/ (slash)
Netherlands	DDMMYY	/ (dash)
Denmark	DDMMYY	/ (dash)
Germany	DDMMYY	. (dot)
Austria	DDMMYY	. (dot)
Russia	DDMMYY	. (dot)
All others	DDMMYY	/ (slash)

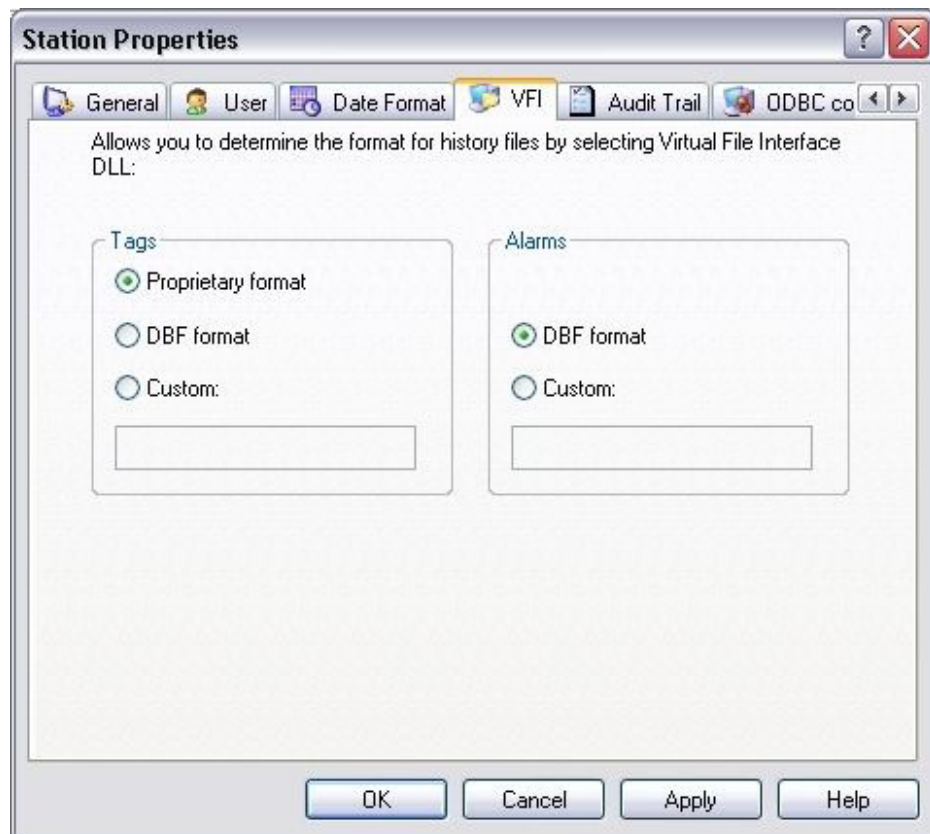
.

Setting a Format for History Files

The format for history files is set in the VFI tab of the Station Properties dialog box.

VFI enables the designer to select different file formats to be used by the application for historical data logging and report generation. The system engineer can use a combination of different file systems and databases with the application for data manipulation convenience and optimum performance.

VFI uses a unique driver for each database, thereby taking advantage of the database's structure and characteristics. Wizcon Systems supplies drivers to support specific databases.



This dialog box Tags and Alarms fields have the following options:

- Proprietary format
- DBF format
- Custom

Setting a Format for Audit Trail

Audit Trail is a useful security feature for applications. This tab enables you to log operator actions to a database via an ODBC data source.

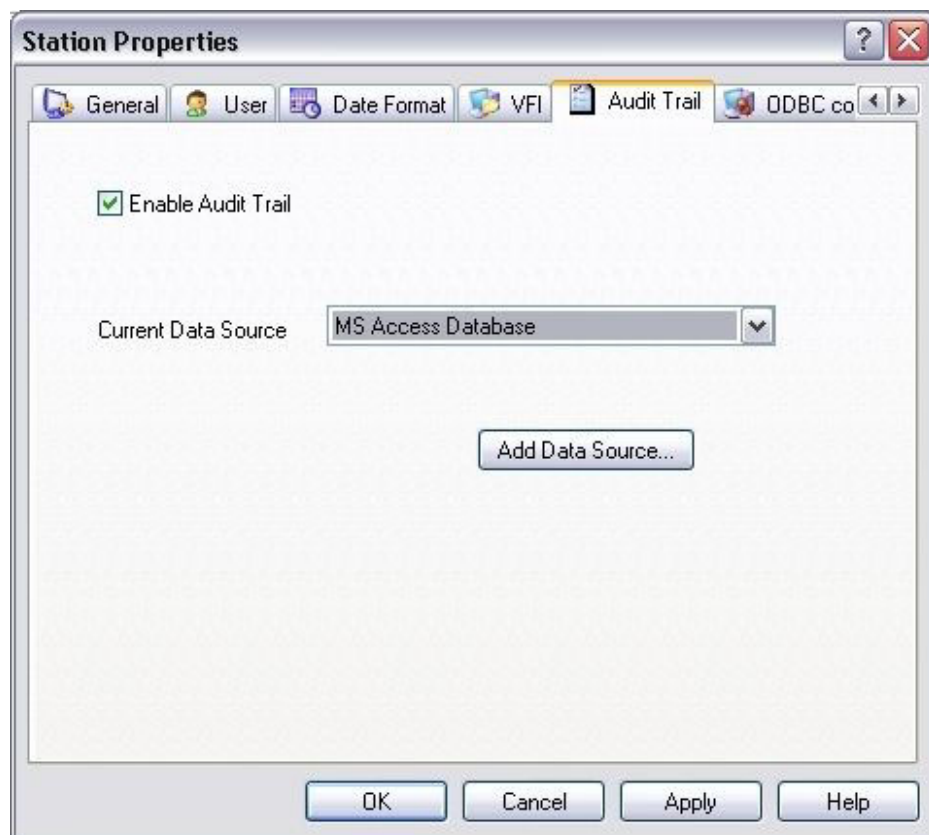
Operator actions are stored in an application file in the form of tag values that can be accessed and viewed.

The application logs all manual operations, with exception to those made using Add-on programs, such as script language and application PLC. Additionally, the application does not record Smooth Type trigger actions.

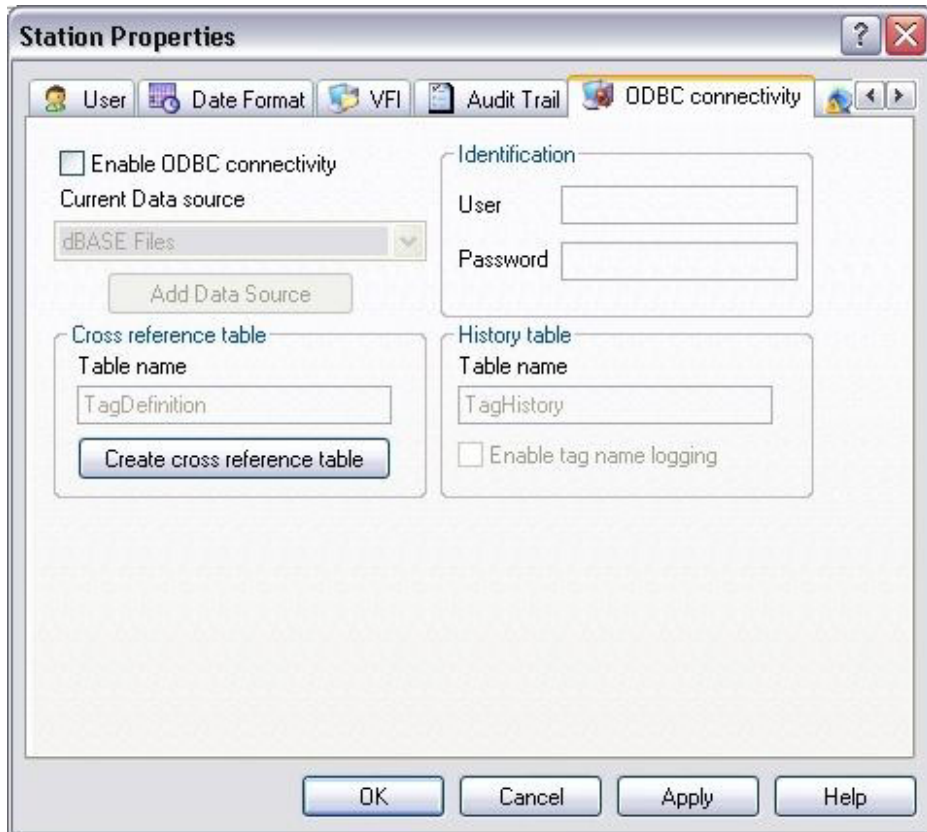
Audit Trail provides data recovery for users connected to a remote ODBC data source in instances of network failure.

Note: It is not recommended to work with a remote database due to possible connection failures.

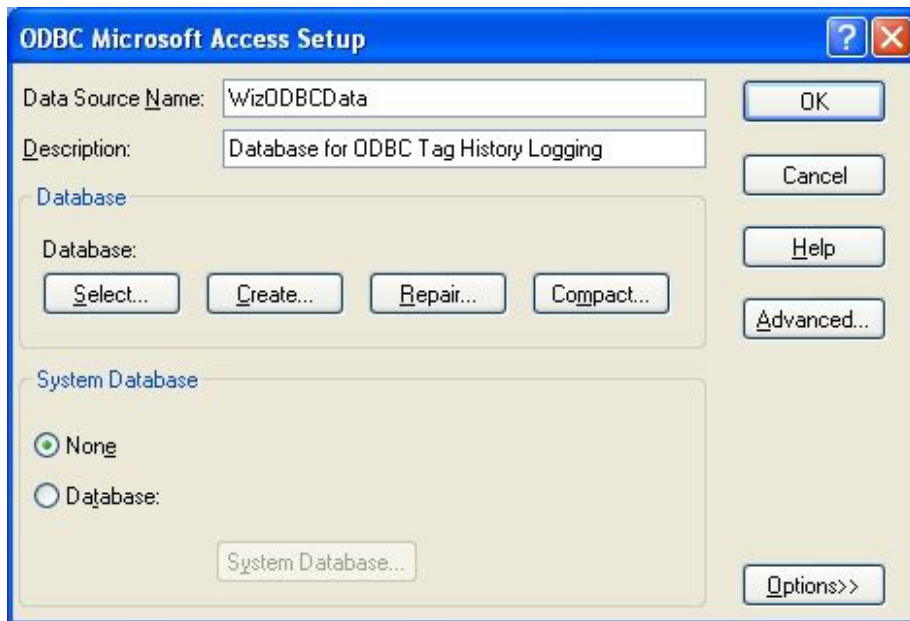
- To enable audit trail:
- 1. Right-click New Application in the All Containers list of the Application Studio to open the Station Properties dialog box.
- 2. Using the arrows scroll to open the Audit Trail Enable tab.



3. Check the Enable Audit Control checkbox to activate the Current Data Source field. When the database source is predefined, click the Current Data Source field's drop down list and select the database. If it is not predefined click the Add Data Source button. The standard Windows Create New Data Source wizard window is displayed, in which a database source can be defined. The data source can be any valid predefined ODBC data source.



4. In the Select a Type of Data Source section click User Data Source (applies to this machine only) and then click Next to open the next dialog box.
5. Select the driver for which you want to set up a data source and click next to open the Finish dialog box.
6. Verify that the information in this dialog box is correct. If it is, click Finish, if not click Back to make any corrections. The ODBC Microsoft Access Setup dialog box opens.
7. Complete the Data Source Name and Description fields.



8. In the Database section you have four options:

Select - click to open an existing location

Create - click to create a new database

Repair - click this option targets the specific database for repair

Compact - click to save the database and to remove unused space from it

9. In the System Database field click either None or Database and then click OK.

10. The Database Successfully Created notification will appear on your screen. Click Apply and OK to close the dialog box and then restart your computer.

Note: The application does not support the File Data Source (Machine independent) option.

Data Recovery

Audit Trail provides data recovery for users connected to a remote ODBC data source in instances of network failure.

When a network problem is discovered, the application ends the session with the remote database and creates a temporary file in the Temp folder of Windows . This file, a text file in CSV format, is called BCK*.tmp.

The application then scans the network connection once a minute, and when connection to the server is re-established, writes the temp file to the audit trail file. If the information is written correctly, the application then deletes the temp file. If the information is not written correctly, the application will notify you of possible data loss.

Note: It is not recommended to work with a remote database due to possible connection failures.

Note: **Chapter 29, Secure HTML File Generation** shows how you can configure Audit Trail profiles that mean allow you to view the contents of the audit trail database via a Web interface.

Database Fields

The following fields and variables are added to a database file.

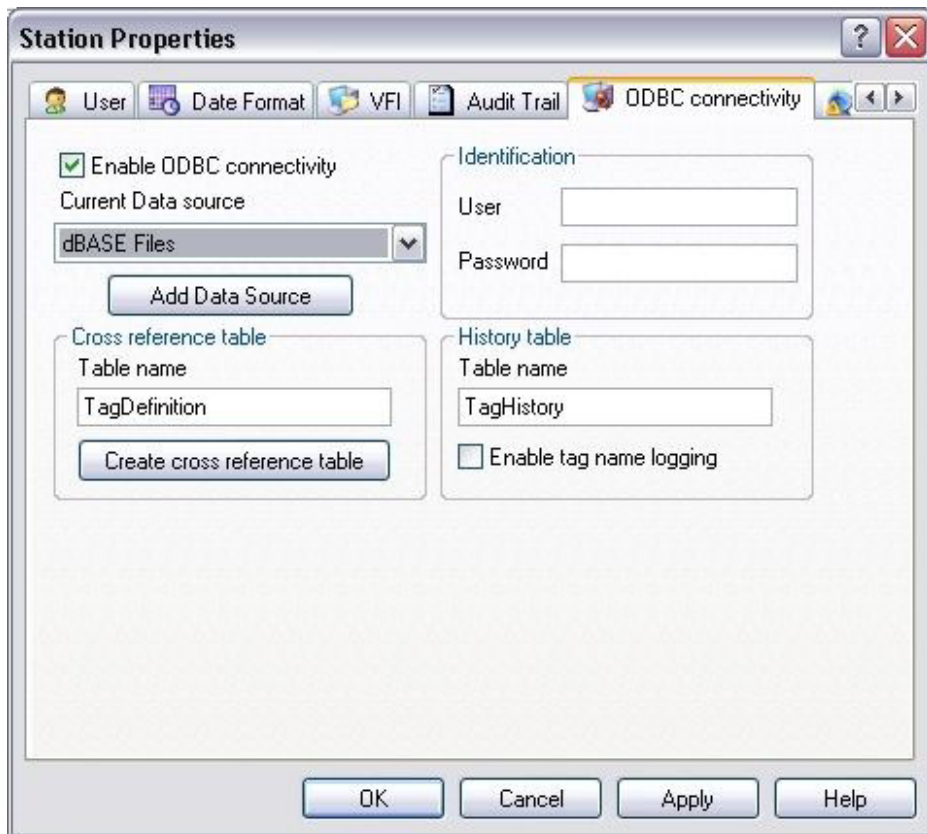
Field	Variable
UserName Specifies which user name performed the action.	SQL_VARCHAR 20
SourceType Specifies the Image or browser.	SQL_VARCHAR 10
SourceName Specifies the Image or picture name.	SQL_VARCHAR 200
SourceID Specifies the IP address of the browser.	SQL_VARCHAR 50
Action Specifies one of the following actions: tag assign, zone, macro.	SQL_VARCHAR 10
TagName Specifies the name of the tag.	SQL_VARCHAR 50

TagValue Specifies the tag value.	SQL_DOUBLE	
ZoneName Specifies the name of the zone.	SQL_VARCHAR	20
MacroName Specifies the name of the macro.	SQL_VARCHAR	10
TimeAction Specifies the time and date the action took place. When accessed through a browser, the time and date will be that of the server.	SQL_VARCHAR	20

Formatting ODBC Connectivity

The ODBC Connectivity dialog box enables you to save application historical data to various databases through Microsoft's ODBC connectivity.

- To enable ODBC Connectivity:
 1. Right-click New Application in the All Containers list of the Application Studio to open the Station Properties dialog box.
 2. Using the arrows scroll to open the ODBC Connectivity tab.



3. Check the Enable ODBC checkbox to activate the dialog box options.
4. In the Current Data Source field select the database type to which you want to save application Historical Data. Or click the Add Data Source button to open the Create New Data Source dialog box.
5. In the Cross Reference Table field, type in the name of the table and click the Create Reference Table button to create a cross reference table including tag definition parameters.
6. If you intend to use a protected database (such as Oracle) type the user name and password in the identification field.
7. Under the History Table field type in the name of the historical data table. Check the Enable Tag Name Logging checkbox to write tag names to the historical data table.
8. Click Apply and OK to confirm.

Formatting Advanced Alarm Management

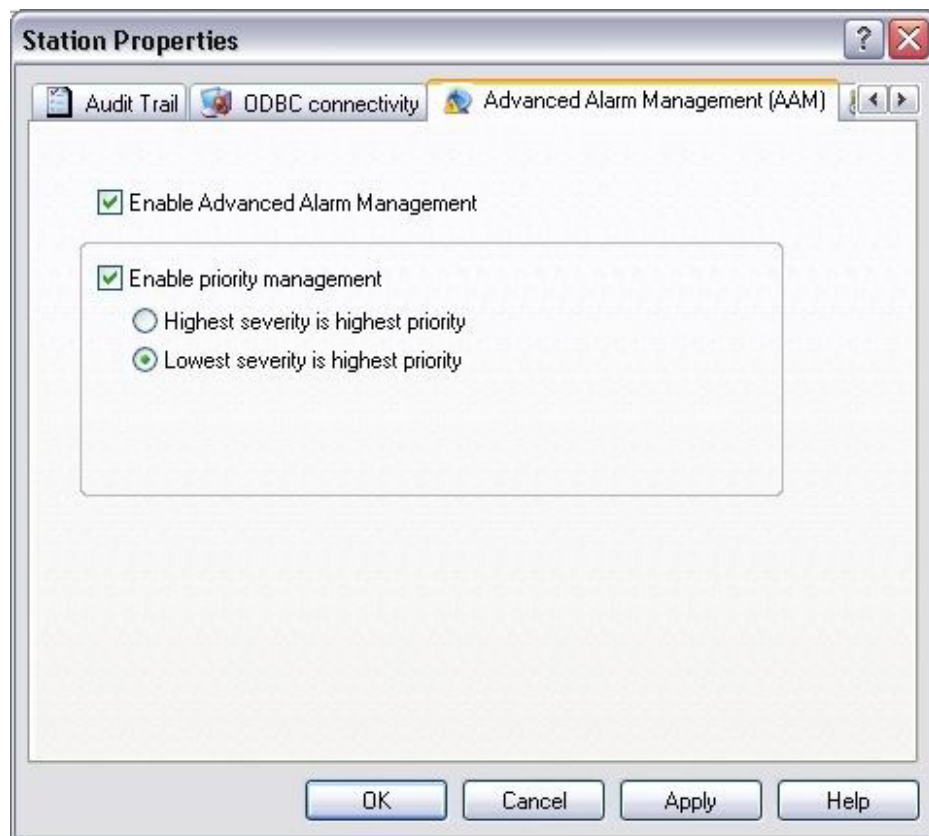
Advanced Alarm Management (AAM) uses a multi-service communication platform to provide alarm transmission over various communication channels including SMS, email, fax and vocal messages.

AAM is comprised of two design mode components:

- AAM channels and AAM pager services
- Advanced Alarm Viewer - a runtime component
- To enable Advanced Alarm Management:

If the communication lines used by AAM are already defined then do the following:

1. Right-click New Application in the All Containers list of the Application Studio to open the Station Properties dialog box.
2. Using the arrows scroll to open the Advanced Alarm Management tab.



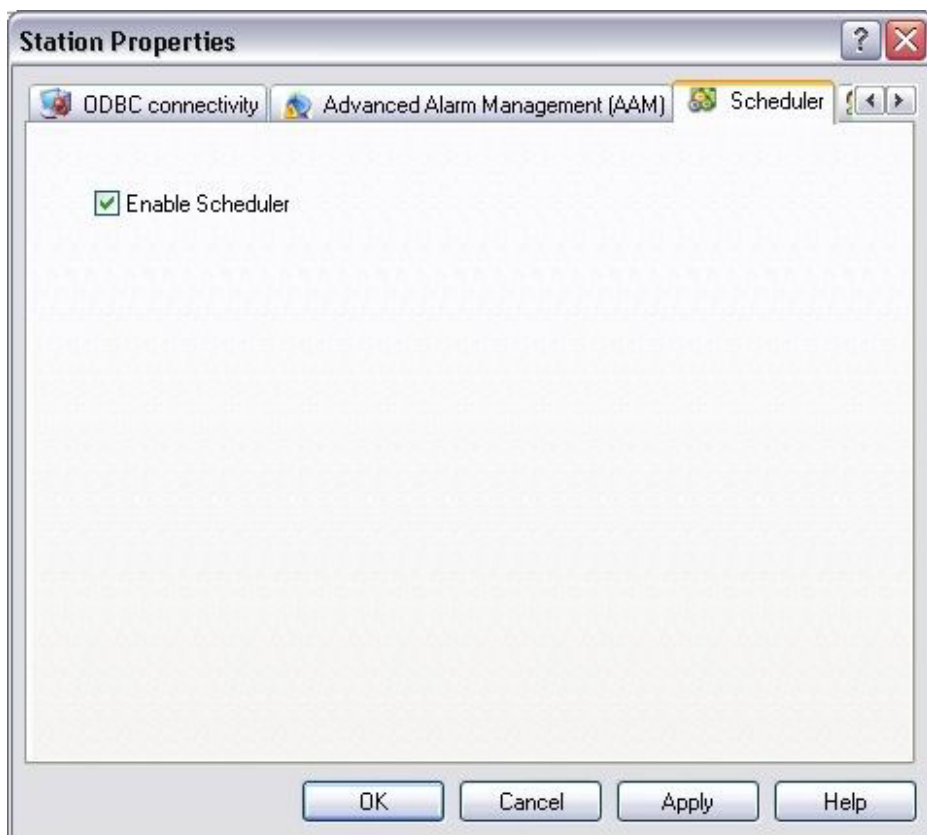
3. Check the Enable Advanced Alarm Management checkbox and click OK.
4. If needed, check the Enable Priority Management button checkbox. You can then select either Highest priority or Lowest priority. This allows you to define the order in which alarms in a queue will be sent. For example, if you select Highest Severity is Highest Priority, this means that, if two alarms are waiting to be sent, the alarm that was defined with the highest severity will be sent first.
5. Restart the application.

Formatting the Scheduler

The Internet based Scheduler enables you to easily create daily or weekly task orientated schedules remotely. Being both task and time orientated, the Scheduler can be used to create unlimited tasks, actions and states. Tasks can be modified, enabled/disabled and have many states attached to them. An unlimited number of actions, which are basic operations, can be attached to each task.

Before the Scheduler is accessed the Scheduler module must first be enabled in the Station Properties dialog box.

- To enable the Scheduler module:
 1. In the All Containers side of the Application Studio right click the application's name to open the Station Properties dialog box.



2. Using the arrow, scroll and open the Scheduler tab.
3. Check the Enable Scheduler checkbox and then click OK to actually define this option.
4. Restart the application.

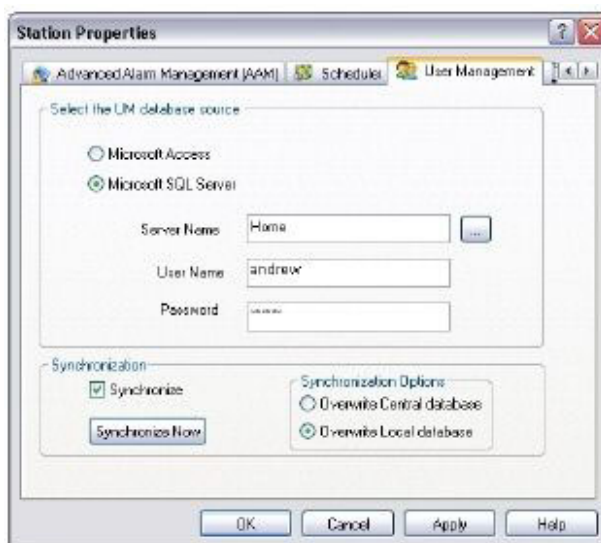
Formating User Management

By default, user management in NovaPro Open is provided by a local MS ACCESS database (WizUM.mdb). The Centralized User Management gives you the possibility to make changes on one station and have them immediately available to all other stations on the network. This is particularly useful in large-scale configurations.

In this case, user management is provided by an MS SQL Server database located on a central computer. See **Appendix D, Installing SQL Server database** for details of how to setup this centralized database architecture.

- Setting up Wizcon to use SQL Server database

Once the Centralized User Management database has been installed, the Wizcon stations must be set up to use this database instead of their local one.



1. In the “User Management” tab as show on the screen capture, select “Microsoft SQL Server” by clicking on the related radio button.
2. Complete the additional information required, as :
 - Server name hosting the User database. A browse button helps if name is not known.
 - The login name and password of the database owner which was defined when creating the database (**Appendix D, Installing SQL Server database**).
 - “Synchronize at startup” option which allows the station to initiate a synchronization process after a disconnection between User database server and the related station.
 - If “Synchronize at startup” option is checked, then it is possible to choose the way to synchronize databases.

n from Local database to the Central database. In this case, you “Overwrite Central database” with the Local database informations.

n from Central database to the Local database. In this case, you “Overwrite Local database” with the Central database informations.

- A “Synchronize Now” button can initiate an immediat synchronizaton.

The centralized User database is now available from the configured Local station. Each time a change is done on Local station database, the information will automatically be updated in Central database, in a background process.

u In case of disconnection

If the connection between station and Centralized User database is broken :

1. a message box appears



2. Wizcon switches from Centralized database to its local Access user database and will continue to work as before the disconnection.

Once the network connection is back :

1. Wizcon will attempt to connect the central database
2. Then, the synchronization process starts *silently* in the choosen direction as pecified in the previous paragraph (**Setting up Wizcon to use SQL Server database**)
3. However, a Witztune parameter (See Witztune User Guide) `UM_SHOW_DIALOG_ON_RECONNECT` can be set to 1 to inform the user that connection has been restored and select the synchronization process he wants. This parameter is set to 0 by default, meaning that the dialog box shown below will not appear. Wizcon recommends that this option remains disactivated.



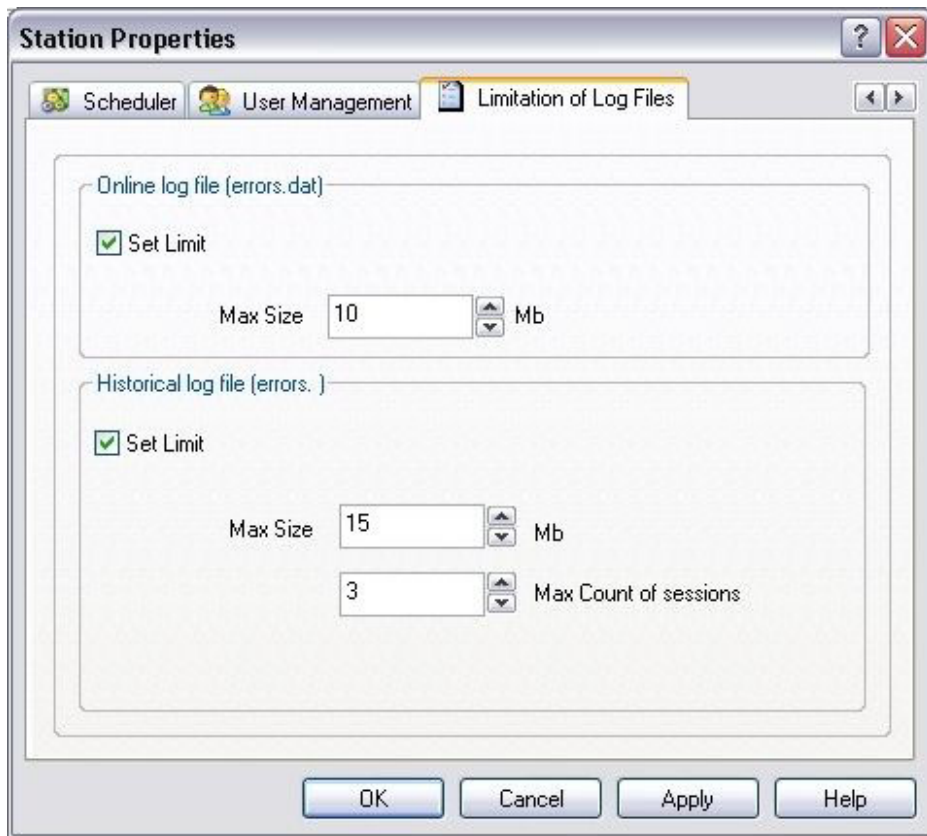
4. A **System Tags** (`WIZSYS_UMCentralDatabase`) is available to inform the user which database is in use, Local or Central.

You will not be able to modify tag and alarm definitions or menu authorisations while you are disconnected from the centralised user management database.

Limitation of Log Files

NovaPro Open generates log files in order to inform the advanced users about any problems which happened in the application. Those files can be limited in term of size. The file size limites for Online log file (errors.dat) and Historical log file (errors.) are defined as follow :

- To limit the Online log (errors.dat) file
 1. By default, the Online log file is not limited. To enable the file size limitation, check the related check box,
 2. A default size limit applies. You can increase or decrease this value.
 3. Once the file reaches the predefined value, the file content is copied to the errors file (historical), and then the errors.dat file is erased. A blank errors.dat is started.



- To limit the Historical log file

Each time Wizcon is closed, the errors.dat file is copied to the end of the errors file, which is storing all the previous errors.dat files.

1. By default, the Historical log file is not limited. To enable the file size limitation, check the related check box,
2. A default size limit applies. You can increase or decrease this value.
3. Once the file size reaches the defined value, the oldest information are erased.
4. The Max Count of Sessions can be used to limit the amount of sessions logged into the historical errors. file. Once the amount of sessions logged into the errors file is reached, the oldest session is erased.

Data Protection

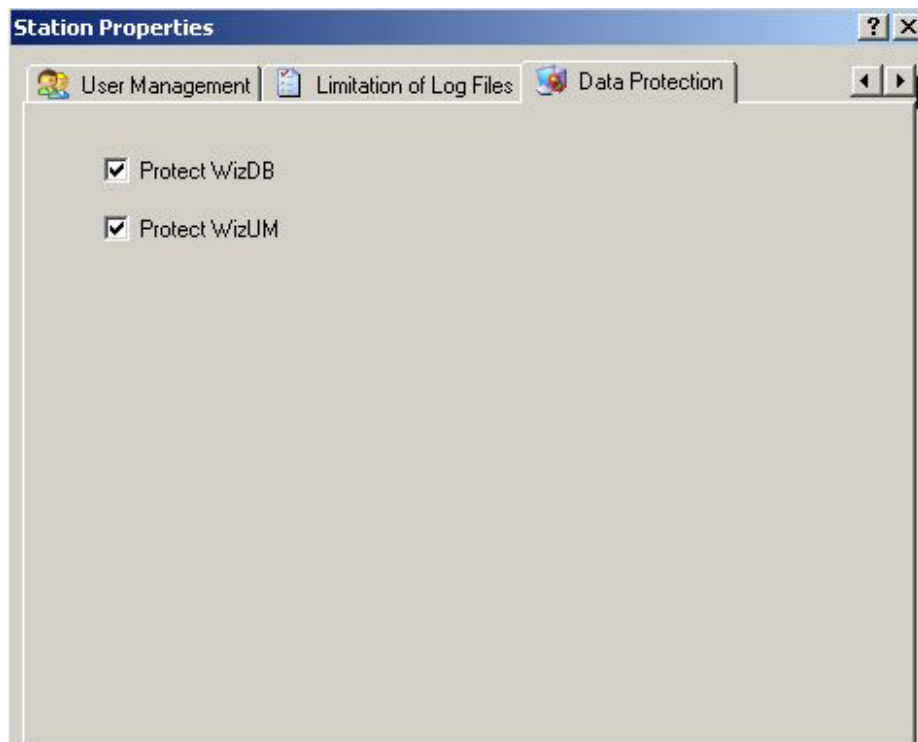
Presentation

The purpose of this feature is to protect Wizcon data from external modification.

Description

When data protection is active, a hash is created from WizUM data and WizDB data. At start up the application verify the data integrity using those hashes. If the data is corrupted, a specific alarm is generated.

How to use Wizcon data protection



In the station property sheet, select the Data protection page. You can then select the database you want to protect.

Chapter 7 Security and User Management

User Management - Overview	189
Authorization Overview.....	189
Authorization Overview	190
Menu Access Authorization	191
Authorization Menu Items	193
Action Permission Manager	193
Access Permission Manager	195
Security Overview.....	195
Application Dialog Boxes.....	196
Application Dialog Boxes	196
System Definition	198
The following options are available:	200
Design / Authorization / System	201
System Authorization Management	202
Disable System Authorization Option.....	202
User Management - Overview.....	202
User Management - Overview	203
User Management - Overview	203
Steps for Creating Users, Groups and Teams	204
Creating Users.....	204
Creating Users	205
Defining Users	207
Users / Groups Management.....	207
General Tab	208
User Definition - General	210
Groups Tab	210
User Definition - Groups	212
Messenger Tab	213
User Definition - Messenger	215
Information Tab	215
User Definition - Information	216
Creating Groups	217
Creating Groups.....	217
Defining Groups	218
Group Definition - General.....	219
Users / Groups Management.....	219
Group Definition - General.....	220
General Tab	220
Users Tab	221
Group Definition - Users	223
Group Definition - Teams.....	223
A group administrator is authorized to add and remove users to his group, and to modify his group name and description.	224

Creating Teams	225
Creating Teams	225
Creating New Teams	225
Team Members	227
Group Definition - Teams	227
Station Access Restrictions	228
Presentation	228
How to use Station Access Restriction	228
Shift Management	231
User Password Security	232
User Management Properties	233
Biometric Login	234
Presentation	234
Description	234
How to use Wizcon Biometric Login	234
LDAP/smartcard login Documentation	238
Presentation	238
1-Importing active directory users into NovaPro Open	239
2-Smartcard authentication	243
Centralized User Management	245
Other Topics	247
Set User Class	248
Set Group Access	248
Set User Class	249
Users / Groups	249
Alarm Recipients	250

About this chapter:

This chapter describes application security, user authorization and also discusses User Management, as follows:

Authorization Overview discusses application Authorization using the Menu Items and System options.

Security Overview discusses the Security module with a reference to the Installation for further details.

Application Dialog Boxes discusses the dialog boxes that replace the standard Windows dialog boxes when the application's system security is installed.

User Management - Overview discusses definition of users, groups and teams.

Creating Users discusses how to create new users.

Creating Groups discusses how to create new groups.

Creating Teams discusses how to create new teams.

Shift Management describes how you control who logs into the application and when.

Centralized User Management discusses how to manage a centralized user database.

User Management - Overview

User Management provides you with an advanced security system, enabling you to manage the security of an application both locally and remotely. In the User Management you can create and manage users, groups and sub-groups, called teams. You can define as many groups and users as you need.

The security groups and users are then assigned with access permission for changing tags value so that only authorized operators can set the tag value, activating a macro, or changing an alarm definition and status. For example, by assigning authorization groups to each tag, an operator who does not belong to any of the assigned groups will not be authorized to change tag values. Note that all operators can read tag values, only authorized operators can change them.

Groups and users are easily defined from the application studio. The User Management tool was added under the tree root and contains two items: Groups and Users.

Clicking the Groups item displays the list of all the groups in the studio's right hand. The Administrators group is the default group installed by applications. This group cannot be removed nor modified.

Clicking the Users item displays the list of all the users in the studio's right hand, including a user named "user" default user.

The User Management tool can also be accessed from the quick access bar by clicking on the User Management icon.

Defining Users

Defining Groups

Defining Teams

Authorization Overview

Authorization Overview

Authorization in the application refers to the ability to limit operator access to system facilities. This powerful feature enables the system engineer to control access to the various application components and modules, such as menu items, tags, macros, and graphical objects.

The components, to which access can be limited, include:

- Menus and menu items
- Writing Tag values
- Macro activation
- Graphic element layers in images
- Alarm acknowledgement

System authorization is assigned according to users, groups and teams. An unlimited number of groups can be defined in the system, each with its own unique name. Each operator can be assigned to one or more groups. For example, once a group is assigned to a tag, any operator that belongs to the group can perform tag value operations on the tag. Operators not assigned to a group matching any of the tag groups will not be able to set new tag values.

Note: User Management defines users and their passwords and also assigns users to groups or teams. The name of the currently logged-in operator is displayed in the Title bar of the Quick Access bar.

- To define authorization settings:

Select the Design menu and point to Authorization and then select either Menu Items or System.

- **Menu Items** - Assign an authorized group to each menu item in the application
- **System** - Set system authorization options to security groups and users.

Authorization in the application refers to the ability to limit operator access to system facilities. This powerful feature enables the system engineer to control access to the various application components and modules, such as menu items, tags, macros, and graphical objects.

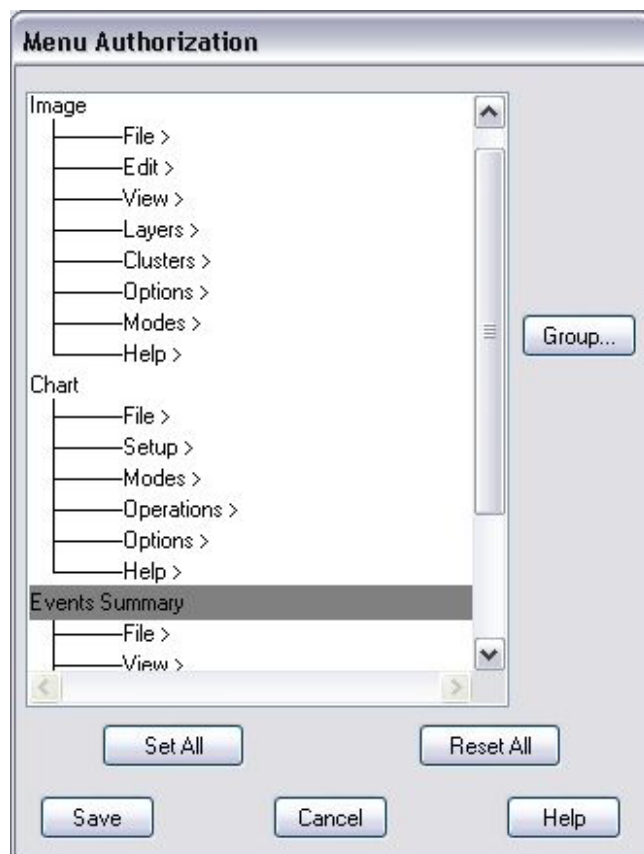
Menu Access Authorization

Each menu item in the system can be assigned authorized users/groups/teams, whereby only their defined operators have access to these items.

For example, if an operator belongs to the groups called MANAGER, SYSTEM, and USERS, and a menu item is assigned the groups TECH, SYSTEM, and ENGIN, this item will be accessible to the operator (since both have a common group).

- To assign menu item authorization:

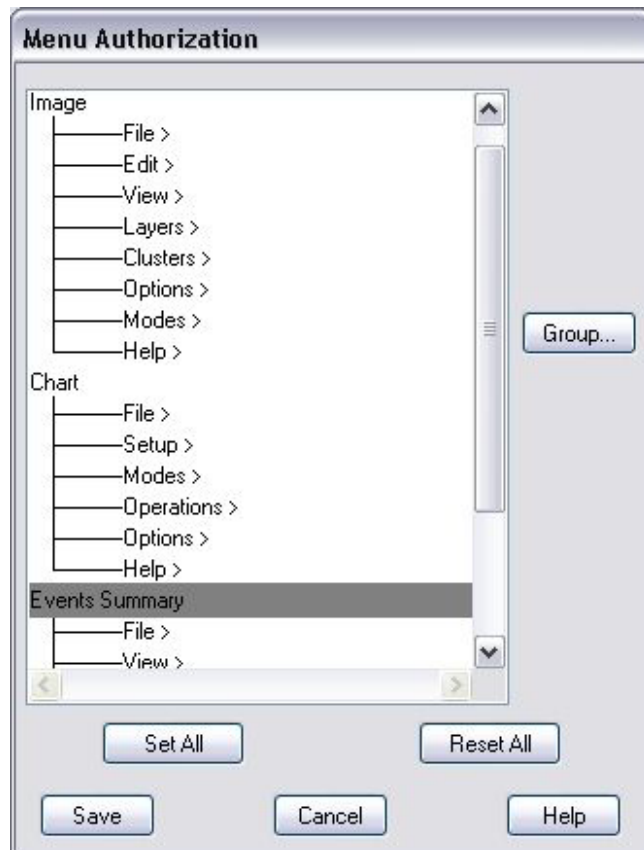
From the Design menu, point to Authorization and select Menu Items. The Menu Authorization dialog box is displayed:



This dialog box contains a list of the application views such as: Image, (See **Chapter 20, Introduction to the Image Module**) Chart (See **Chapter 26, Charts**), Events Summary, (See **Chapter 24, Event Summaries**) History Viewer (See **Chapter 33, History Viewers**), and the Quick Access bar.

The menus of these items are displayed in a tree arrangement. Menu branches are expanded and contracted by double-clicking on them. An item that holds sub-items is indicated by an arrow (>). When you double-click on such an item, the sub-item list

appears. For example, double-clicking on Events Summary displays the following sub-item list:



Double-click on Events Summary to close the sub-item list.

- To assign specific groups to an item:
 1. Select the item and click the Group button. The **Action Permission Manager** dialog box is displayed in which you can select groups to be assigned to the menu item. Only operators assigned to the specified groups will have access to the menu item.
 2. Click the Set All button to assign all the groups to the item.
 3. Click the Reset All button to reset all the groups assigned to the item to their original settings.
 4. Click Save to actually save these definitions.

Note: If you assign groups to menus that include sub-menus and sub-items, all the sub-menus and sub-items are affected. However, if you assign groups to a sub-menu or sub-item, the parent menu is not affected.

When you select a sub-menu or sub-item that belongs to the menu, you can only reset and set the groups that were defined for the parent menu, unless you return to the parent menu and change the settings.

Authorization Menu Items

Note: *Authorization Menu Items is not supported on the Web.*

Each menu item in the application system can be assigned with authorization groups (whereby only operators belonging to the groups will have access to the items) and individual users.

In this dialog box, for each window the menus are organized in a tree view. Menu branches are expanded and contracted by double clicking on them. An item that includes sub-items is indicated by an arrow. When you double click on such an item, the sub item list appears. Double click on the item again to close the sub items list.

To assign menu item authorization

1. Select the Menu items from the Design/Authorization menu. The Menu Authorization dialog box opens.
 2. Double click the window you want to define the menu authorization for to display the list of that window's menus.
 3. Double click a menu to view its menu items.
 4. Select (click) the menu item for which you want to set authorization and click the Groups button to open the Access Permission Manager dialog box, where you can select the groups and users authorized to operate the selected menu item.
 5. To assign all the authorization groups and users to an item without entering the Access Permission Manager dialog box, click the Set All button.
 6. To reset all the groups and users assigned to an item without entering the Access Permission Manager dialog box, click the Reset All button.
 7. Click Save to save your changes, or cancel to abort.
-

Action Permission Manager

The Action Permission Manager dialog box is used to define authorized users and/or groups.



Add Click here to add a user/group to the Access Members list

Remove Click here to remove a user/group from the Access Members list

Add all Click here to add all users/groups to the Access Members list

Remove all Click here to remove all users/groups from the Access Members list

There are four buttons:

- To assign access permission:
- 1. Click the arrow in the dropdown list and select the type of list you want to view. There are three options:
 - **List all Groups Users** - Select this option to display a list of your application's defined groups and users
 - **List all Groups** - Select this option to display a list of your application's defined groups
 - **List all Users** - Select this option to display a list of your application's defined users
- 2. From the Groups/Users column select a group/user and click the Add button. The selected groups/users are now displayed in the list of Access Members.
- 3. Click OK to confirm.

Note: The option buttons are deactivated when the All groups and users have the access permission checkbox is checked.

Note: To assign global access permission, check the All groups and users have access permission checkbox.

Access Permission Manager

In this dialog box you select the authorized users and / or groups.

To assign access permission

1. Select the type of list you want to view:

List all Groups&Users - select this option to display a list of your application's defined groups and users.

List all Groups - select this option to display a list of your application's defined groups.

List all Users - select this option to display a list of your application's defined users.

2. Select the groups/users to whom you want to assign with access permission and click the Add button. The selected groups / users are now displayed in the list of Access Members.

Click the Add All button to assign access permission to all the groups and or users.

3. Select the All groups and users have access permission checkbox to assign access permission to all your application's groups and users.

Security Overview

Note: The system's security module must be installed to enable the Security option.

The application provides additional system security by ensuring that users access only those parts of the Windows system to which they have authorization.

When the system's security is installed it replaces the standard Windows system control. The NovaPro Open dialog boxes overwrite the Windows 2000/XP or 2003 Server dialog boxes.

When turned on, computers that have the security module installed will open with the NovaPro Open window. After clicking the Start button users will have to enter their user name and passwords in order to gain computer access.

Application Dialog

Boxes

Application Dialog Boxes

This section describes the application's dialog boxes that replace the standard Windows 2000/XP or 2003 Server dialog boxes when the application's system security is installed.

The NovaPro Open Welcome dialog box is displayed when Windows is initiated:



The NovaPro Open Logon Information dialog box is displayed for user logon:



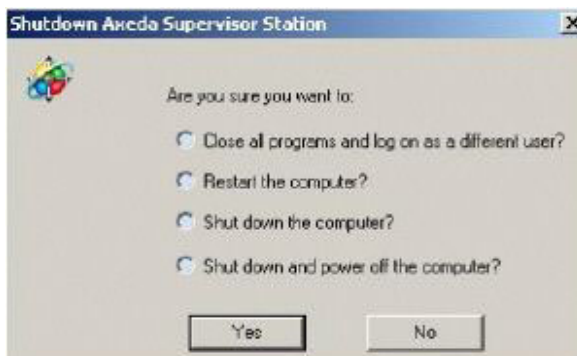
The NovaPro Open Options dialog box is displayed when Ctrl+Alt+Delete is pressed after logon:



The Logoff NovaPro Open Station dialog box is displayed when the user logs off:

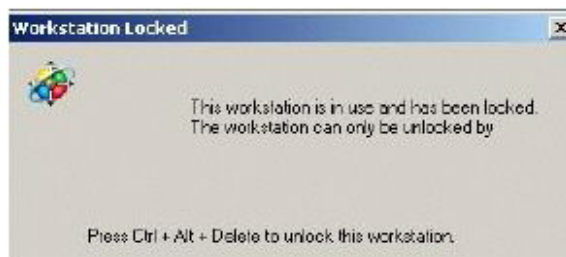


The Shutdown NovaPro Open Station dialog box is displayed when shutdown is initiated:



Note: The above four options are accessible only to authorized users.

The Workstation Locked dialog box is displayed when the station is locked:



The Unlock Workstation dialog box is displayed when a user unlocks the station:



The Change Password dialog box is displayed when a user changes a password:



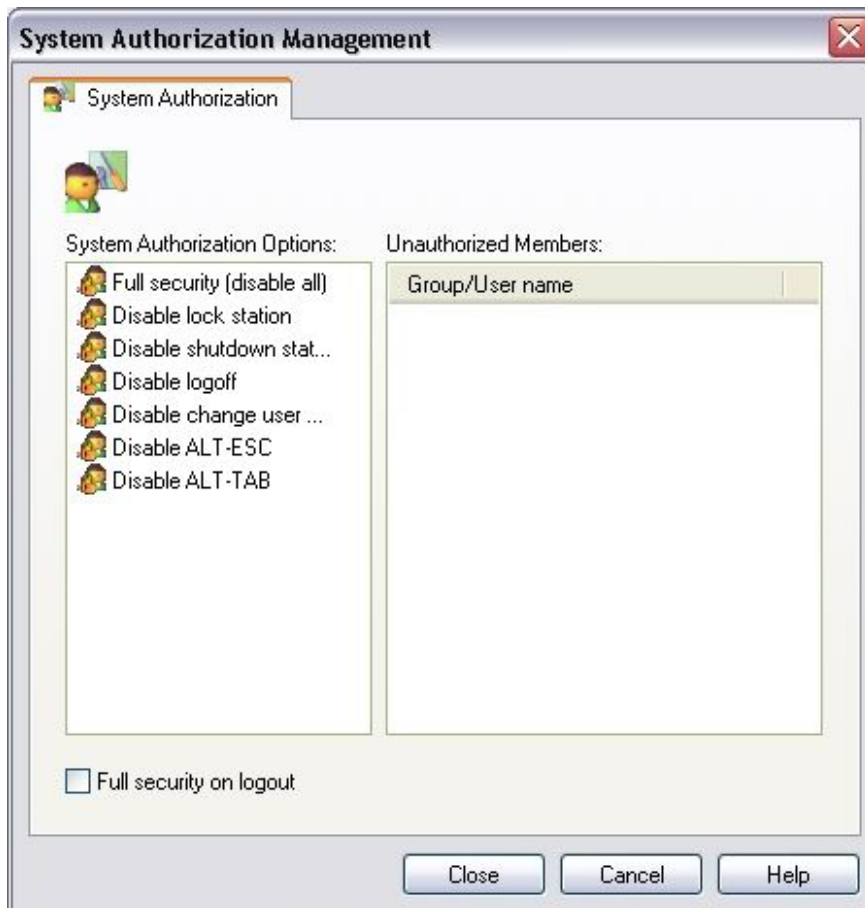
System Definition

This option defines the level of access the user/group has to the application. The following access levels are available:

Full security (disable all)	Specifies that users will be unable to access other programs.
Disable lock station	Specifies that a user cannot block access to a computer by applying a password
Disable shutdown station	Specifies that a user will be unable to shut down a station
Disable logoff	Specifies that a user cannot logout of the system
Disable changing user password	Specifies that users cannot change their passwords
Disable ALT-ESC	Specifies that a user cannot access the Start Menu
Disable ALT-TAB	Specifies that a user cannot navigate between the programs open on the computer using the Alt Tab keys

- To define operator system settings:

1. From the Design menu, point to Authorization and select Systems. The System Authorization dialog box is displayed.



2. To define authorization level, select an option from the System Authorization Options column and then click Add. The name user/group will appear in the Unauthorized Members column.
3. If there are no users defined for an option, double click the option to open the options definition dialog box. Select the name of the user/group/team and click Add and then OK to return to the System Authorization dialog box.
4. Check the Full Security on Logout checkbox to define this option.

The following options are available:

Full security (disable all)

Specifies that users will be unable to access functions such as the Task Manager and the Start menu (with Alt-Esc), run new applications or use a screen saver.

Disable lock station

Specifies that a user will be unable to block access to a computer by applying a password.

Disable shutdown station

Specifies that a user will be unable to shut down a station.

Disable logoff

Specifies that a user will be unable to log out of the system.

Disable changing user password

Specifies that a user will be unable to change his or her password.

Disable ALT-ESC

Specifies that a user will be unable to access the *Start* menu.

Disable ALT-TAB

Specifies that a user will be unable to navigate between the programs open on a computer using the Alt and Tab keys.

Design / Authorization / System

Note: *This option is available only for Windows NT/ 2000 users.*

Select this item to access the Application security system.

The Application provides an additional system security by ensuring that users access only those parts of the system to which they have authorization.

Note: *The Application system security must be installed to enable this option. When the Application system security is installed, it replaces the standard Windows system control. The Application dialogs overwrite the Windows NT dialogs.*

Selecting this item opens the System Authorization Management dialog box where you can define the access permission to Application security system.

System Authorization Management

In this dialog box you set System authorization options to security groups and users..

To assign system options to users and groups:

1. Select **Authorization** and then **System** from the Design menu. The System Authorization Management dialog box opens.
 2. Select a **System Authorization option** and double click on it to display the **Disable System Authorization** dialog box where you can disable users and groups authorization.
 3. Select **Full Security when logout** to reinstate full system security when the current logged in user logs out of the system.
 4. Click **OK** to close the System Authorization Management dialog box and save your changes.
-

Disable System Authorization Option

In this dialog box you define which users and groups are not authorized to perform the selected System Authorization Option.

By default these System Authorization options are enabled for all groups. Deselect a group to disable the selected **System Authorization** option.

To disable a system authorization option for groups / users

1. Select the type of list you want to view:
 - List all Groups&Users** - select this option to display a list of your application's defined groups and users.
 - List all Groups** - select this option to display a list of your application's defined groups.
 - List all Users** - select this option to display a list of your application's defined users.
 2. Select the group / user whose authorization you want to disable.
 3. Click the Add button to add the selected group / user to the list of Unauthorized Members.
 4. Click the OK button to return to the System Authorization Management dialog box.
-

User Management - Overview

User Management enables management of an application's users both locally and remotely (**Centralized User Management**). Users can be a single user, groups or teams built from users in the same groups.

The application's management methodology, using the **Users Timetable** module, enables simple and efficient scheduling of users, groups and teams.

By default, User Management has a group called Administrators. Users in this group are authorized to modify user properties (including their password). However, the group name cannot be modified or deleted. Users belonging to this group cannot remove themselves from it. An authorized user can access a user/group and modify its parameters. The User Management feature provides full backwards compatibility with earlier versions of Wizcon. Groups (see **Groups Tab**) created in previous versions can be imported.

Note: The default user can be deleted only after a new default user is defined in Station Properties. Only a user logged in under a different name and with Administrator rights can delete the default user. An Administrator must have at least one user in order to access the application.

The following basic activities can be performed through User Management:

- Definition of users, groups and teams
- Additional user information such as address can be added
- Access permission definition
- Definition of how alarms are transferred and received by users using **Advanced Alarm Management**
- Backup user definition

User Management - Overview

User Management provides you with an advanced security system, enabling you to manage the security of an application both locally and remotely. In the User Management you can create and manage users, groups and sub-groups, called teams. You can define as many groups and users as you need.

The security groups and users are then assigned with access permission for changing tags value so that only authorized operators can set the tag value, activating a macro, or changing an alarm definition and status. For example, by assigning authorization groups to each tag, an operator who does not belong to any of the assigned groups will not be authorized to change tag values. Note that all operators can read tag values, only authorized operators can change them.

Groups and users are easily defined from the application studio. The User Management tool was added under the tree root and contains two items: Groups and Users.

Clicking the Groups item displays the list of all the groups in the studio's right hand. The Administrators group is the default group installed by applications. This group cannot be removed nor modified.

Clicking the Users item displays the list of all the users in the studio's right hand, including a user named "user" default user.

The User Management tool can also be accessed from the quick access bar by clicking on the User Management icon.

Defining Users

Defining Groups

Defining Teams

Steps for Creating Users, Groups and Teams

This section describes how users, groups and teams are created in the following steps.

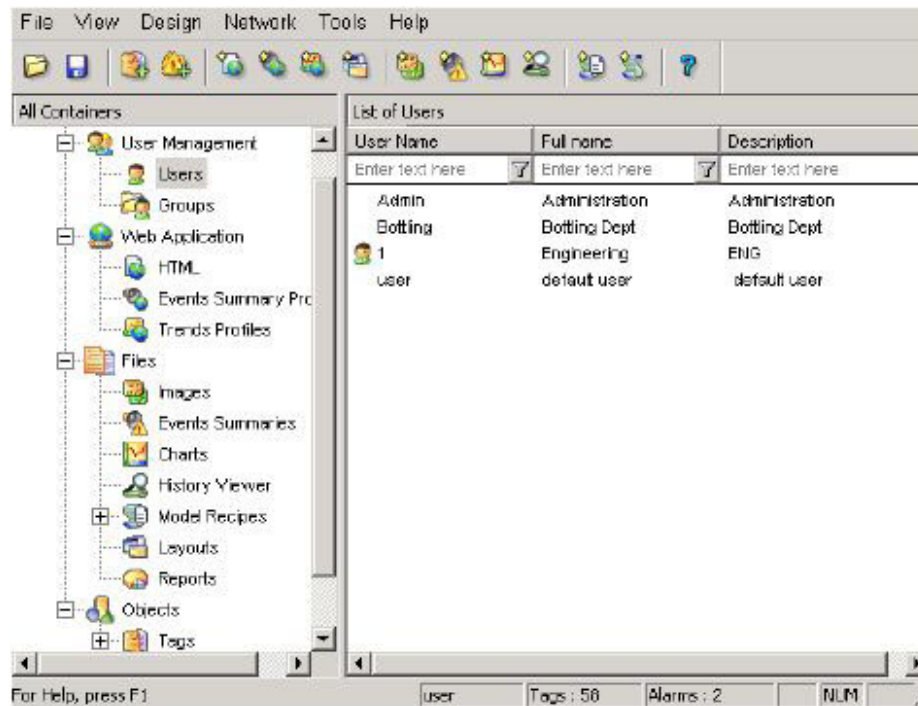
- Create new users. **See Users Tab** .
 - Create new groups or add users to existing groups. New users can also be created and added in the Groups dialog box. **See Groups Tab** .
 - Create new groups and add teams to them. **See Creating New Teams** .
-

Creating Users

Creating Users

- To define a user:

In the All Containers section of the Application Studio click User Management and then click Users. A List of All Users opens in the Control Panel.



Note: If no users are defined in the project then the list will still open with the application's default user displayed.

1. In All Containers right click Users and then click New or right click anywhere in the Control Panel and click New. The New Users dialog box opens.

New User

General Groups Messenger Information

User name: jean

Full name: Jean-François Viennot

Description: Maintenance

Password: xxxxxx

Confirm: xxxxxx

Layout: [dropdown menu]

☐ Allow user to change password

☐ Allow user to change general information

☒ Allow web access

☒ Password never expires

☐ User must enter password

OK Annuler Appliquer Aide

The New User dialog box has four tabs:

General	Where the user's basic general properties are defined
Groups	Where the group(s) that the user is a member of are defined
Messages	Where the user's communication methods for Advanced Alarm Management services are defined
Information	Containing information such as the user's address, PIN and other comments

Defining Users

Users can be defined as individual security entities as well as members of groups and teams.

To define a user

In the All Containers tree right click Users then select New.

Or, Click the Users/Groups icon in the Quick Access Bar, then click the new icon in the Users tab. The New User dialog box opens.

A user definition is comprised of several components:

- **General parameters** - including user's unique name, brief description, password, layout association and functional permissions.
 - **Group association** - selecting the group(s) the user is associated with, and defining whether he is the administrator of the associated group(s).
 - **Messenger specifications** - selecting the dynamic communication methods, such as SMS, e-mail and Fax, the user can be addressed by
 - **Additional Information** - including user's address, PIN code and comments.
-

Users / Groups Management

Users are individual security entities that can be selected from any application module that requires access permission.

In this dialog box you can view your application's defined users, add new users and modify existing users definition.

To create a new user

1. Click the New icon or right click the list of users area and select New User from the popup menu. The New User dialog box opens.
2. Create a new user as explained in **Defining Users**

To edit a user's properties

1. Select the user whose properties you want to modify.
2. Click the Modify icon or right click the selected user and choose Modify User from the popup menu. The **User Properties** dialog box opens.

To remove a user

1. Select the user you want to delete.

2. Click the Delete icon or right click the selected user and choose Delete User from the popup menu. A message prompting you whether you want to delete the selected user is displayed.
 3. Click Yes to delete the selected user. Click No to abort.
-

General Tab


This tab holds fields that define a user's name, description, password and the layout of the user's computer screen. The lower section of the tab enables the system manager to define access permission both locally and on the Web.

1. In the Name field type the name of the user.
2. In the Full Name field type in the user's full name.
3. In the Description field type in a short description about the user. For example, the name of the user's department or job.
4. In the Password field type the user's unique password.
5. In the Confirm field type the user's password again.
6. In the Layout field click the arrow to open the dropdown list and select the relevant layout. The user's computer will always open in this view.
7. To enable a user to change passwords check the Allow Changing Password checkbox.
8. To enable the user to update information check the Allow Changing Information checkbox.
9. To enable the user to access the Web module check the Allow Web Access checkbox.
10. If you don't want the user's password to expire, check "Password Never Expires"
11. If you want to make sure that the user always has a password defined, check "User must have a password."
12. Click OK to actually create the user. The new user's name will be added to the Users List. Or, click Apply and then click the Group tab in this dialog box.
 - To modify existing users:
 1. In All Containers click User Management then click Users to open the List of Users.
 2. Right click the specific user to open a popup menu and click modify. Or, double click the specific user. The User Properties dialog box will open.
 3. Modify the users properties and then click OK to confirm.
 - To delete existing users:
 1. In All Containers click User Management then click Users to open the List of Users.
 2. Right click the specific user to open a popup menu and click delete. The Delete User message will open.

3. Click Yes to delete the user. The User will be deleted from the List of Users.

u To set a default user:

1. In All Containers click User Management and then click Users to open the List of Users.

2. In the list right click the relevant user and select Set as Default. The  Users icon will appear next to the selected user name.

- o To change a user's password:

1. In All Containers click User Management then click Users to open the List of Users.

2. Right click the specific user to open a popup menu and click Change Password. The Change Password dialog box will open.

3. Type in the new password in the New Password field.

4. In the Confirm Password field type the new password again.

5. Click OK to confirm.

Note: The User Name field cannot be changed.

- o To view the List of Users:

This option has three sub-options Duplicate, Settings and Clear Filters described below:

- o **Duplicate** - This option opens a duplicate copy of the List of Users. When right clicking and/or selecting a user in the list the same options as for User are available.

- o **Settings** - This option defines the List of Users settings. There are three columns; Full Name, Description and User Name. Columns can be deleted and their order changed.

1. To delete/activate a column click the checkbox next to the specific column name.

2. To change the order the columns appear in the List of Users, select a column name and click either Move up or Move down.

3. Clicking Select All activates all columns. These columns will be displayed in the List of Users.

4. Clicking Deselect All de-activates all columns. No columns will be displayed in the List of Users.

5. Click Default to return to the application settings.

6. Click OK to confirm.

- o **Clear Filters** - The List of Users table can be filtered alphabetically or numerical as follows:

1. Type the filter number or letter in the textbox under the List of Users columns. The list will be filtered accordingly.

2. To clear the filter, right click in the List of Users, select View and then Clear Filters. The complete List of Users will open on your screen.

User Definition - General

In this dialog box you define the user's basic and general properties.

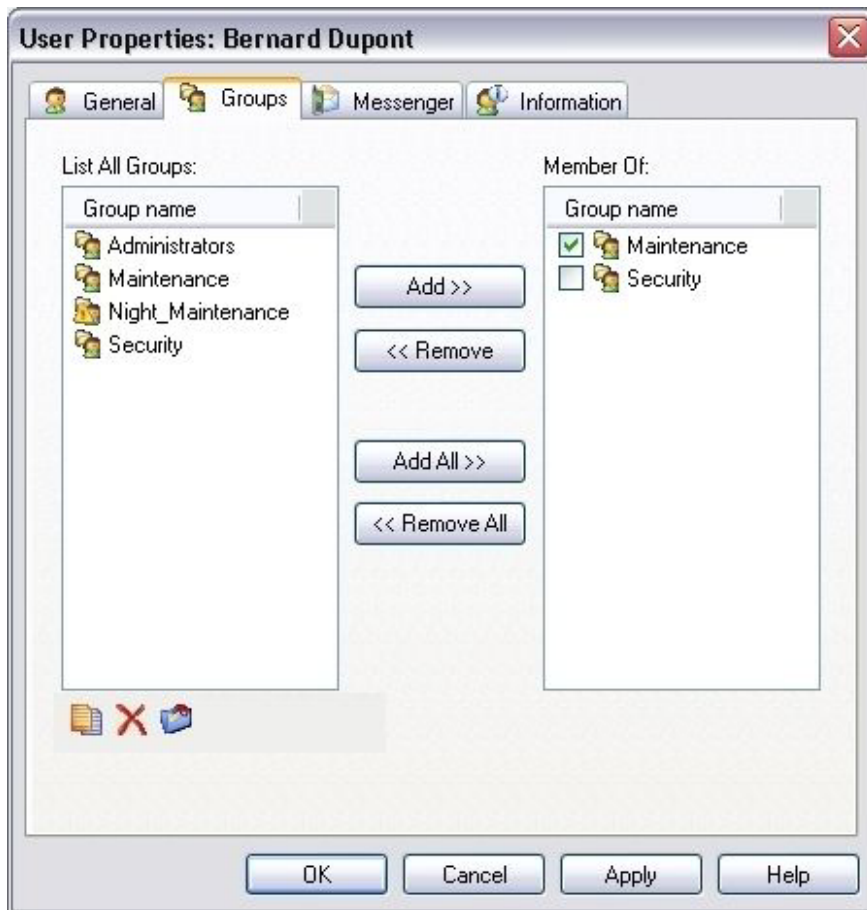
To define the user's general parameters

1. Type the name of the user in the User name field.
 2. In the Full name field, type the user's full name.
 3. Enter additional details (such as user's position) in the Description field.
 4. Type the User's password. The password can be up to 20 characters.
 5. Type the password again in the **Confirm** field.
 6. Select whether the user is allowed to:
 - Change password.
 - Change general information.
 - Access the Web application.
-

Groups Tab


Groups can be created for new users by clicking the Groups tab. However, existing users can also be added to groups by opening the List of Users and double clicking the specific user to open the User Properties dialog box.

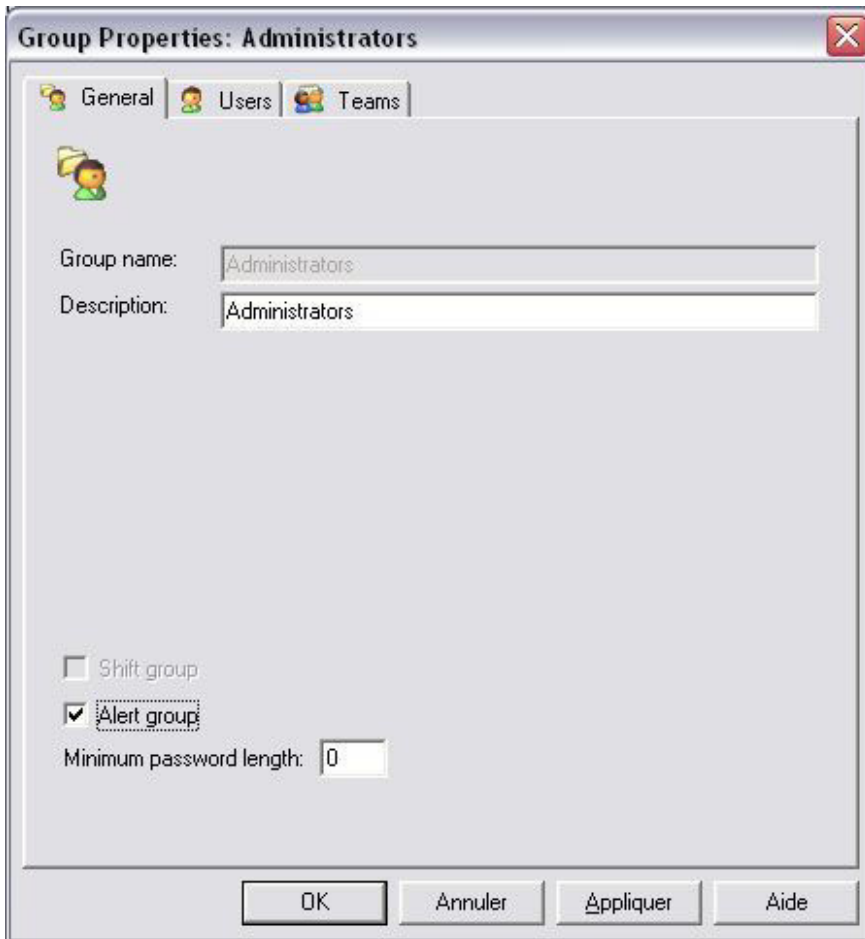
This tab is divided into two sections, List of Groups and Member Of. The user (see **Users Tab**) can be added or removed to a group or added or removed from all the groups listed. Additionally, groups can be created, deleted viewed or modified. A user's properties can also be viewed and updated.



- To add a user to a/all group(s)
 1. Select the relevant group/s from the List of All Groups column.
 2. Click the Add button. The name of the Group/s will be added to the Member of column.
 3. Click OK to confirm. The user's name will be added to the Group/s. This can be viewed when selecting Groups in All Containers to open the Groups List in the Control Panel, double clicking the group name and then checking the Users tab.
- To remove a user from a/all group(s)
 1. Select the relevant group from the List of All Groups column.
 2. Click the Remove/Remove All button. The name of the Group will be removed from the Member Of column.
 3. Click OK to confirm. The user's name will be removed from the Group/s.
- To modify groups
 1. Select the relevant group from the List of All Groups column.
 2. Either right click to open a popup menu and select Modify or click Modify button located under the List all Groups column.
 3. Click OK. The Group Properties dialog box will open.
 4. Make your modifications and click OK to confirm. For further instructions read **To add new groups**.
- To delete groups
 1. Select the relevant group from the List of All Groups column.
 2. Either right click to open a popup menu and select Delete or, click the delete button located under the List all Groups column.
 3. Click OK to confirm.

- To add new groups

1. Click the  New icon located under the List all Groups column. The New Group dialog box opens. This dialog box has two tabs; General and Users. A third tab opens after the General tab has been filled, Alert Group checked and the Apply button clicked.



The image shows a Windows-style dialog box titled "Group Properties: Administrators". It has three tabs: "General" (selected), "Users", and "Teams". In the "General" tab, there is a group icon (a person with a star) and two text fields: "Group name:" containing "Administrators" and "Description:" containing "Administrators". Below these fields are three checkboxes: "Shift group" (unchecked), "Alert group" (checked), and "Minimum password length:" followed by a text box containing "0". At the bottom of the dialog are four buttons: "OK", "Annuler", "Appliquer", and "Aide".

2. Follow the instructions on **Creating Groups** to complete this dialog box.

User Definition - Groups

In this dialog box you select the group(s) that the user is a member of and define whether the user is the administrator of the selected group(s).

To assign the user's group membership

1. Click the Groups tab to open the Groups page.
2. Select the group to which you want to add the user as a member.
3. Click the Add button. The group is added to the Member Of list. To add the user as a member to all the groups, click the Add All button.

To appoint the user to the selected group(s) administrator

Click the checkbox to the left of the group name.

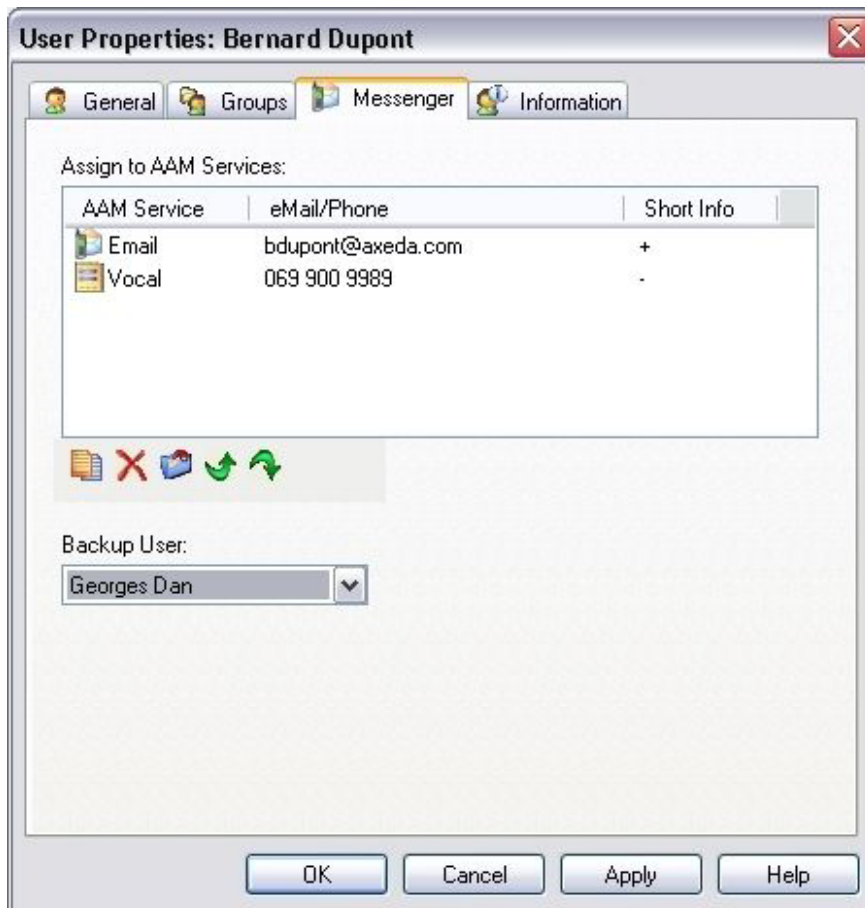
Messenger Tab

This tab is used to define how alarms are sent to a user/group/team. The **Advanced Alarm Management** (AAM) messenger service enables the following modes:

- Generic Beep
- Fax
- Cell phone
- Email

To define an AAM messenger service:

1. Click the Messenger tab to open the Messenger dialog box. This dialog box enables new services to be defined and attached to user/groups/teams.



AAM Services can be created, deleted, modified and moved up and down within the list. To do so either right click in the Assign to AAM Services window or click the relevant button located under the window. In addition back up users can be defined.

1. To define a new AAM service either right click in the Assign to AAM Services window or click the button to open Messenger menu.



2. In the AAM Service Name field click the dropdown list and select the type of service.
3. In the E-mail/Phone field type in the relevant number/address.
4. If alarms are to be sent in short format check the Short AAM Info checkbox (see **Message Formatting**).
5. Click OK to return to the user Messenger tab.
6. In the Backup user field click the arrow to open the dropdown list and select a user.
7. Click OK to confirm.

Note: In this version the only service that can be supported by the Backup User is Vocal.

User Definition - Messenger

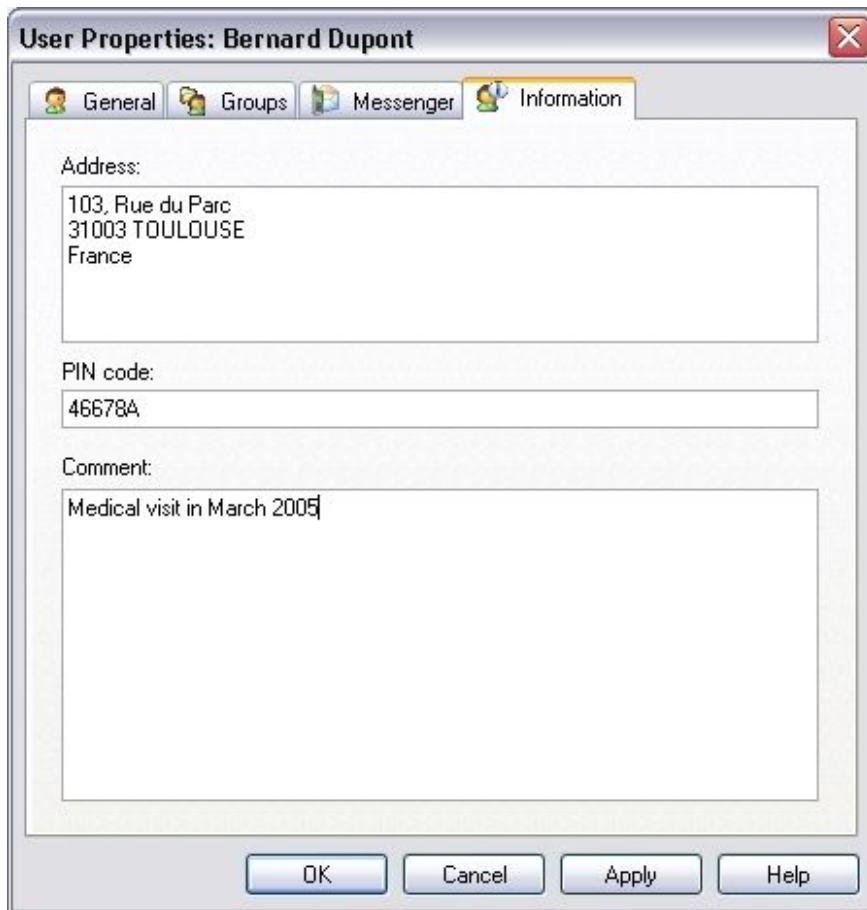
In this dialog box you can select the dynamic communication methods the user can be addressed by using the Advanced Alarm Management services.

To define the user messenger parameters

1. Click the Messenger tab to open the Messenger page.
 2. Click the New icon to open the Messenger dialog box.
 3. Select the AAM Service Name from the drop-down list.
 4. Type a phone number or an e-mail address if you selected a service of type that requires an e-Mail address or a phone number.
 5. Check the Short AAM Info checkbox if the user is to receive alarm messages in short (limited) formatting.
 5. Click OK. The service you added now appears in the list of AAM services.
-

Information Tab

Additional information regarding the defined user can be written in the Information tab. This information includes address, PIN number (for security/accessing the program) and comments.



The image shows a Windows-style dialog box titled "User Properties: Bernard Dupont". It has four tabs: "General", "Groups", "Messenger", and "Information". The "Information" tab is selected. Inside the dialog, there are three text input fields. The first is labeled "Address:" and contains the text "103, Rue du Parc", "31003 TOULOUSE", and "France" on three lines. The second is labeled "PIN code:" and contains the text "46678A". The third is labeled "Comment:" and contains the text "Medical visit in March 2005". At the bottom of the dialog, there are four buttons: "OK", "Cancel", "Apply", and "Help".

- To add information:
 - 1. Click the Information tab.
 - 2. In the Address field type in the user's address.
 - 3. In the PIN code field type in the user's PIN code.
 - 4. In the Comments field type in any comments that may be required.
 - 5. Click OK. The new user's name and information appears in the List of Users.
-

User Definition - Information

In this dialog box you can add additional information about the defined user. This information includes the User's address, PIN (Personal Identification Number) code and free text comments.

To define the user's Information parameters

1. Click the Information tab to open the Information page.
2. Type the user's address in the Address box.

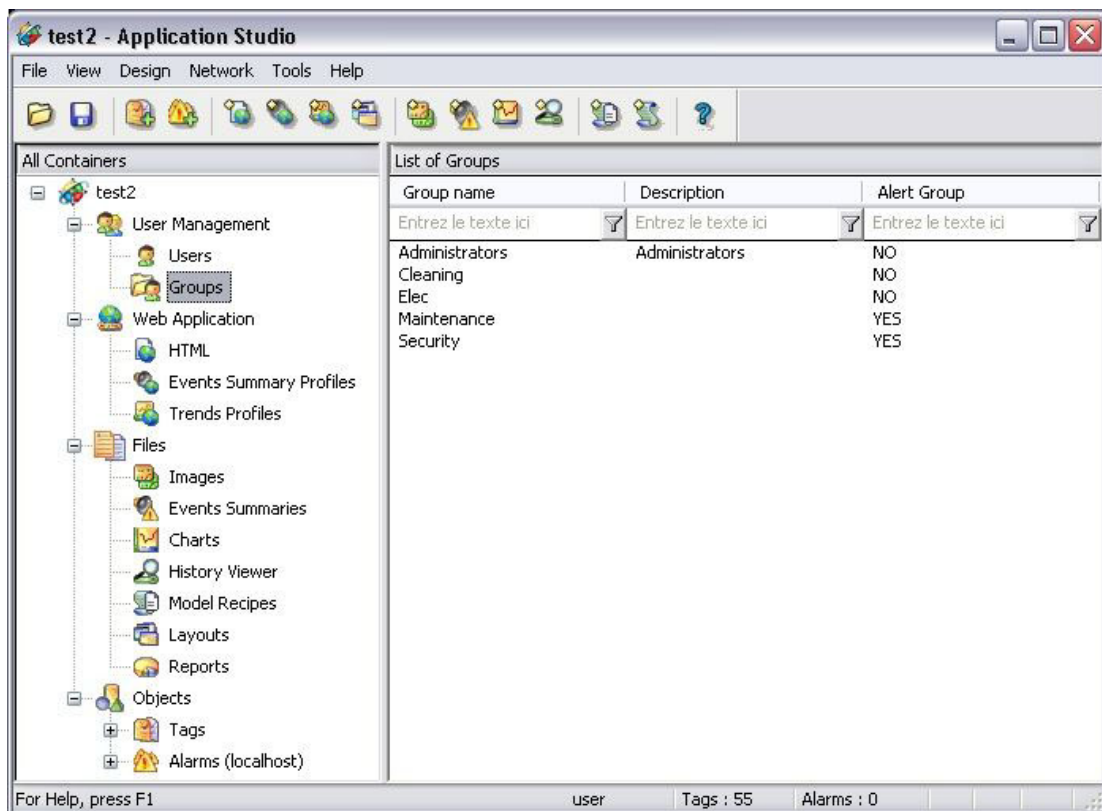
3. Type the user's PIN code.
4. Type the user's additional information.

Creating Groups

Creating Groups

- To create a new group:

In the All Containers section of the Application Studio click User Management and then click Groups. A List of Groups opens in the Control Panel.



Note: If no groups are defined in the project then the list will still open with the application's default Administrator displayed.

1. In All Containers right click Groups and then click New or right click anywhere in the Control Panel and click New. The New Group dialog box opens.

When the New Group dialog box opens it has two tabs General and Users however, there is a third tab called Teams which only opens after the General tab has been filled, Alert group clicked and the Apply button clicked

General	Where the group's basic general properties are defined See General Tab.
Users	Where the users that are members of the group are defined See Users Tab.
Teams	Where the groups that are members of the team are defined See Creating New Teams.

Defining Groups

A group definition is comprised of general parameters and users association.

To define a group:

In the All Containers tree right click **Groups** then select New.

Or, Click the Users/Groups icon in the Quick Access Bar, then click the new icon in the Groups tab. The New Group dialog box opens.

A group definition is comprised of several components:

- General parameters - including the group's unique name and description.
 - Users association - selecting the users who belong to this group.
 - Teams - creating sub-groups for easy scheduling in the Users Timetable.
-

Group Definition - General

In this dialog box you define the group's basic and general properties.

To define the group's general parameters

1. Type the name of the group in the Group name field. The name of each group has to be unique.
 2. Type a general description of the group in the Description field.
 3. Check the Alert group checkbox to enable alarm transmission to the group members and scheduling of the group members.
-

Users / Groups Management

Groups are security entities containing one or more users, that can be selected from any application module that requires access permission.

In this dialog box you can view your application's defined groups, add new groups and modify existing groups definition.

To create a new group

1. Click the New icon or right click the list of groups area and select New Group from the popup menu. The New Group dialog box opens.
2. Create a new group as explained in **Defining Groups**

To edit a group's properties

1. Select the group whose properties you want to modify.
2. Click the Modify icon, or right click the selected group and choose Modify Group from the popup menu. The **Group Properties** dialog box opens.

To remove a group

1. Select the group you want to delete.
2. Click the Delete icon, or right click the selected group and choose Delete Group from the popup menu. A message prompting you whether you want to delete the selected group is displayed.
3. Click Yes to delete the selected group. Click No to abort.

Group Definition - General

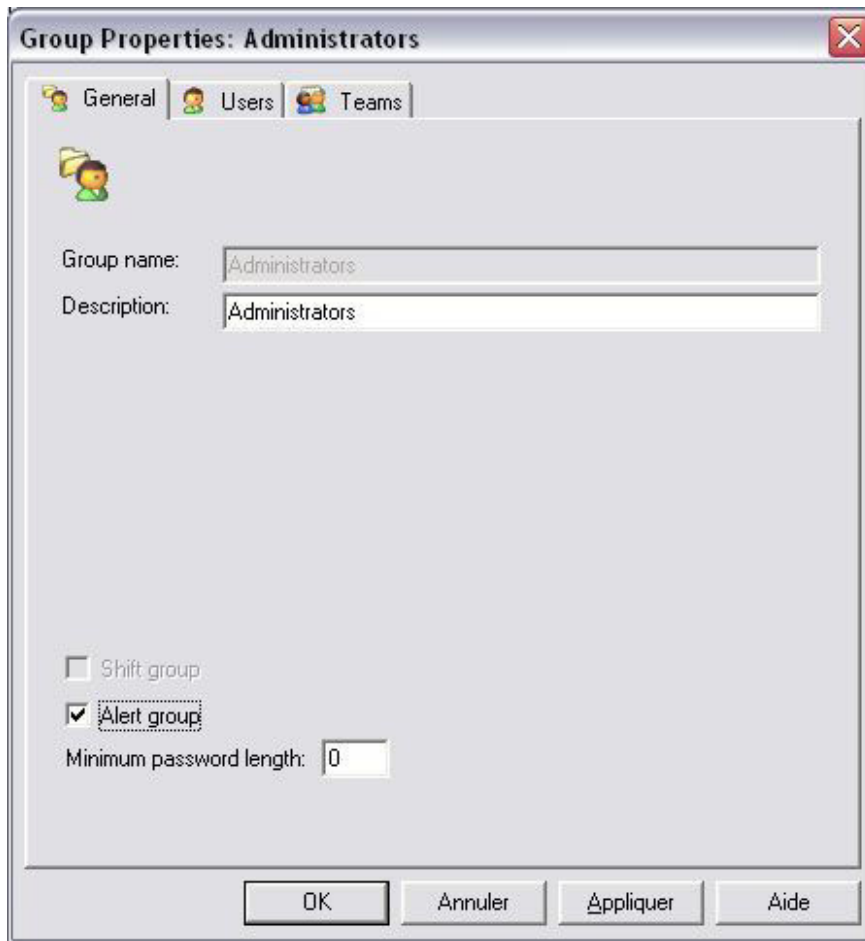
In this dialog box you define the group's basic and general properties.

To define the group's general parameters

1. Type the name of the group in the Group name field. The name of each group has to be unique.
 2. Type a general description of the group in the Description field.
 3. Check the Alert group checkbox to enable alarm transmission to the group members and scheduling of the group members.
-

General Tab

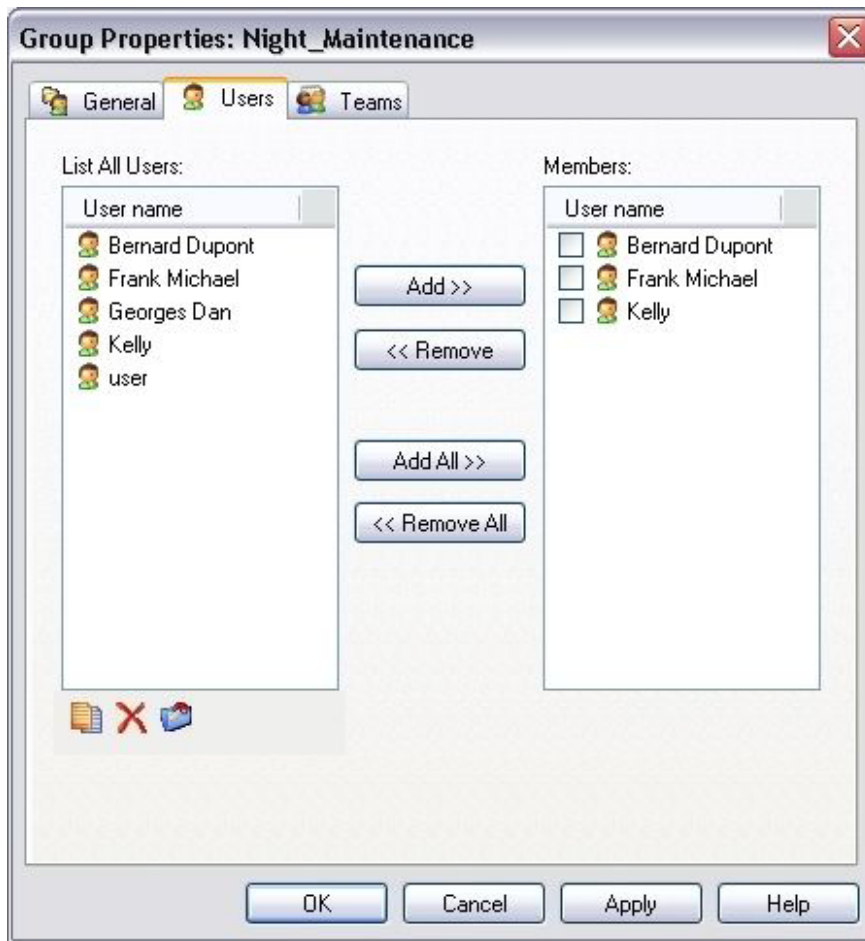
The General tab defines the name of the group and a description of it, for example Maintenance, or Security.





1. In the Group Name field type in the name of the Group.
2. In the Description field type in a description of the group.
3. In order to use this group with the AAM module and to create teams in the group, check the Alert Group checkbox.
4. In order to define this as a shift group, check the shift group checkbox. Note that only one group can be defined as a shift group.
5. Define the minimum password length for members of this group.
6. Click Apply. The Teams tab is added to the dialog box.

Users Tab

The Users tab defines the users that are members of the group. This tab is divided into two sections, List of Users and Member. Users can be modified, added or removed from groups.



1. To add a user to a group, select a user from the List all Users column and click the Add button. Alternatively, select all the users in the column and click the Add all button. The users will appear in the Members column.
2. To remove a user, select a user from the Members column and click the Remove button. Alternatively, select all the users in the column and click the Remove all button. The users will be removed from the Members column.
3. Click Apply.
 - To add new users
 1. Either right click to open a popup menu and then click New or click the  button located below the List of Users column. The New User dialog box will open.
 2. Follow the instructions above for creating a new user. Click OK to confirm.
 - To define a group administrator
 1. In the Members column check the checkbox next to the relevant user's name.
 2. Click OK to confirm.
 - To modify existing users
 1. In the Group Properties Users tab select a specific user from the List all Users column.
 2. Either right click to open a popup menu and then click Modify or click the  button located below the List of Users column. The User Properties dialog box will open.
 3. Modify the relevant properties and click OK to confirm.
 - To delete existing users

1. Right click the specific user to open a popup menu and click delete. The Delete User message will open.
 2. Click Yes to delete the user. The user will be deleted from the List of Groups.
 3. Click OK to confirm.
-

Group Definition - Users

In this dialog box you select the members of the group and select the group's administrator(s).

To select the group members

1. Click the Users tab to open the Users page.
2. Select the user(s) you want to be members of the group.
3. Click the Add button to add the selected users to the group.
4. Click the Add All button to add all the users to the group.

To define the group administrator(s)

Check the box to the left of the user name in the Members list.

To remove group members

1. Select the user(s) you want to remove from Members list.
 2. Click the Remove button.
 3. Click the Remove All button to remove all the users from the group.
-

Group Definition - Teams

Security teams are created within a defined group. The definition of a team enables you to easily schedule your group members.

***Note** that a team can be created only after the group general parameters and members were defined.*

To create a team

1. Click the Teams tab to open the Teams page.
 2. Click the New icon or right click the teams list area and select New Team from the popup menu.
A new team icon with an empty text box is displayed in the list of all teams.
 3. Type the name of the new team in the text box.
 4. Click the Members icon or right click the team you created and select Team Members from the popup menu. The **Team Members** dialog box opens.
-

A group administrator is authorized to add and remove users to his group, and to modify his group name and description.

The Administrators group is the default group provided by the application. Users in this group are authorized to modify users properties (including name and password). The Administrators group parameters cannot be modified nor deleted, and a user who is a member of the Administrators group cannot exclude themselves from this group.

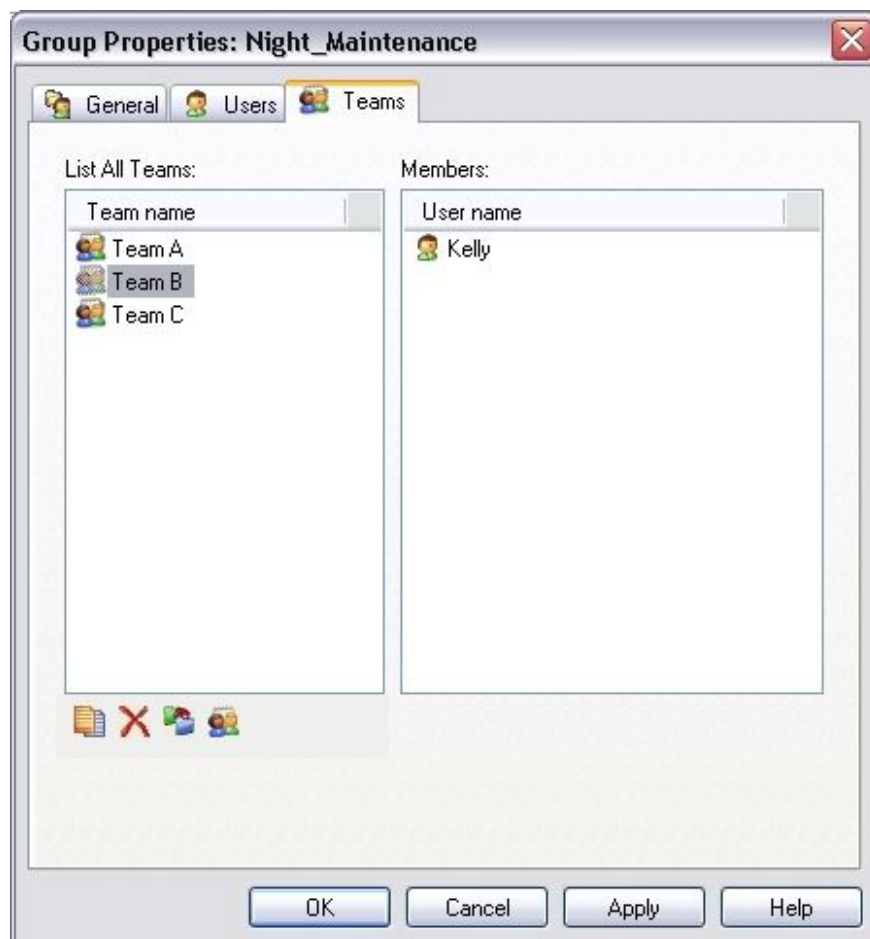
Creating Teams

Creating Teams





The users can be grouped into teams in order to schedule in a calendar (see **Users Timetable**) at what time they can be reached once an alarm occurs.





Each alarm can be linked to a user group. According the user timetable, NovaPro Open is able to route the alarm to the on duty team.

Creating New Teams








The Teams tab has two columns; List All Teams and Members.

Teams can be  created,  deleted,  renamed and  new members can be added to them. To do so either right click the team name to open a popup menu and select your option or, click the relevant button located under the List all Teams column.

1. To create a new team either right click in the List All Teams column and click New Team, or click the New icon . A textbox with a team icon will open in the List all Teams column.
2. Type in the team's name and then click Apply.
 - To add users to teams
1. To add members to the team, select the team in the List all Teams column and then either right click to open a popup menu and select Team Members or click the  button. The Team Members dialog box will open.
2. From the List all Group Members column select the relevant groups that will be added to the team and then click Add. Click OK to confirm. The name of the user will appear in the Members column.
 - To delete teams
1. Right click the specific user to open a dropdown list and click Delete or click the  button. The team will be removed from the List of Teams.
2. Click OK to confirm.
 - To rename teams
1. Right click the specific user to open a popup menu and click Rename or click the  button.
2. Type in the new team name.
3. Click OK to confirm.

The Teams tab has two columns List All Teams and Members.

Teams can be  created,  deleted,  renamed and  new members can be added to them. To do so either right click the team name to open a dropdown list and select your option or, click the relevant button located under the List all Teams column.

1. To create a new team either right click in the List All Teams column and click New Team, or click the  New icon.
2. Type in the team's name and then click Apply.
3. To add members to the team, select the team in the List all Teams column and then either right click to open a popup menu and select Team Members or click the button. The Team Members dialog box will open.
4. From the List all Group Members (**page**) column select the relevant groups that will be added to the team and then click Add. Click OK to confirm. The name of the user appears in the Members column. Click OK to confirm.

Team Members

Use this dialog box to add members to the team.

To add members to the team

1. From the list of **All Group Members** select the users to be the members of the team and click the Add button.
2. Click the Add All button to add all the group members to the team.
3. Click OK when done.

To remove team members

1. Under Team Members, select the user(s) you want to delete from the team.
 2. Click the Remove button.
 3. To delete all the team members, click the Remove All button.
-

Group Definition - Teams

Security teams are created within a defined group. The definition of a team enables you to easily schedule your group members.

***Note** that a team can be created only after the group general parameters and members were defined.*

To create a team

1. Click the Teams tab to open the Teams page.
2. Click the New icon or right click the teams list area and select New Team from the popup menu.
A new team icon with an empty text box is displayed in the list of all teams.
3. Type the name of the new team in the text box.
4. Click the Members icon or right click the team you created and select Team Members from the popup menu. The **Team Members** dialog box opens.

Station Access Restrictions

Presentation

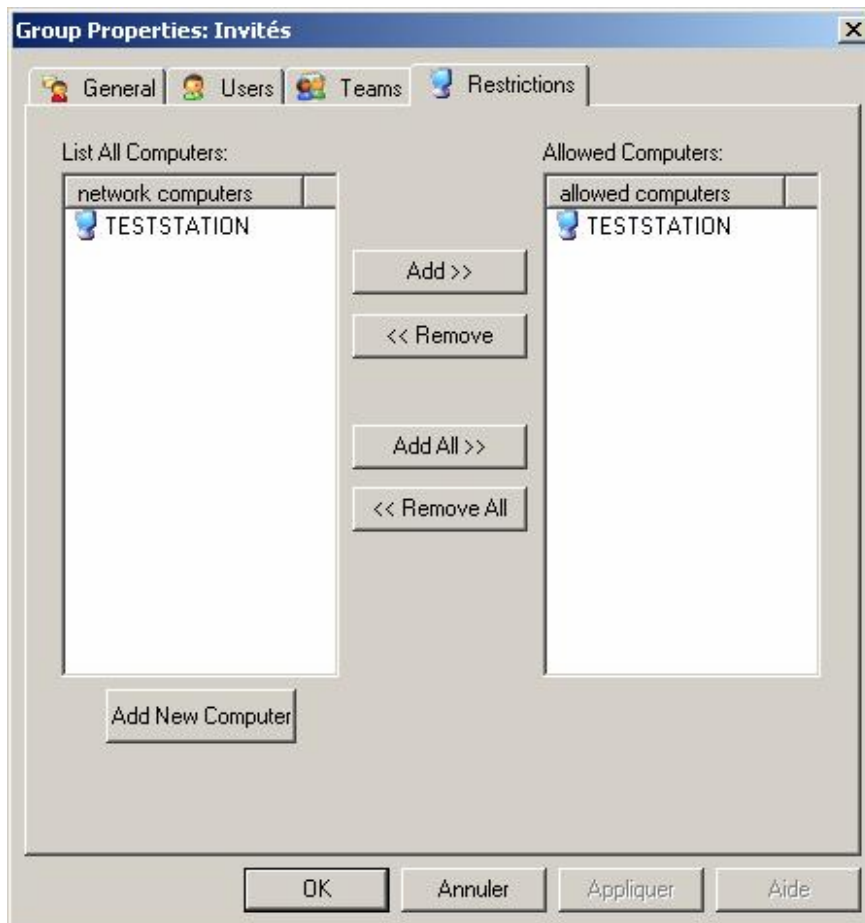
This feature enables the customer to restrict access to a specific station of a wizcon network.

This module is originally developed in WizUM.dll (user management) and is design to work with centralized user management.

How to use Station Access Restriction

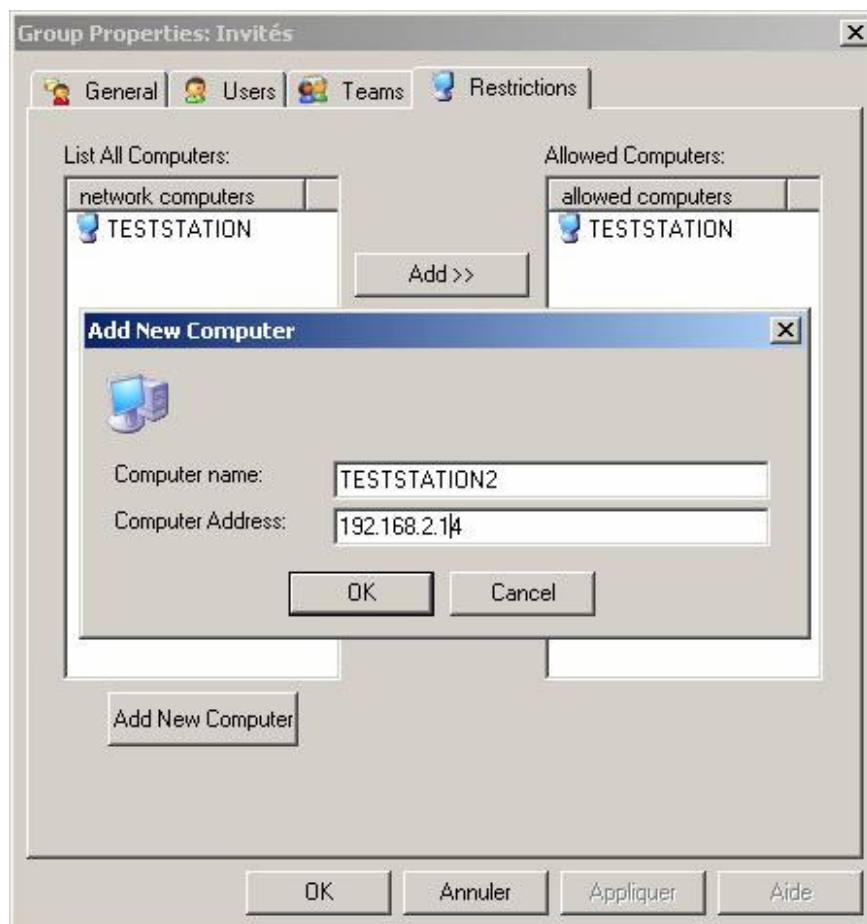
1-configuring station access restriction

It is possible to grant or revoke access to a station for a specific user or group. This function is accessible via the **user property dialog** and the **group property dialog**. Note that in case of conflict between group and user access right, the **most restrictive** solution will be effective.



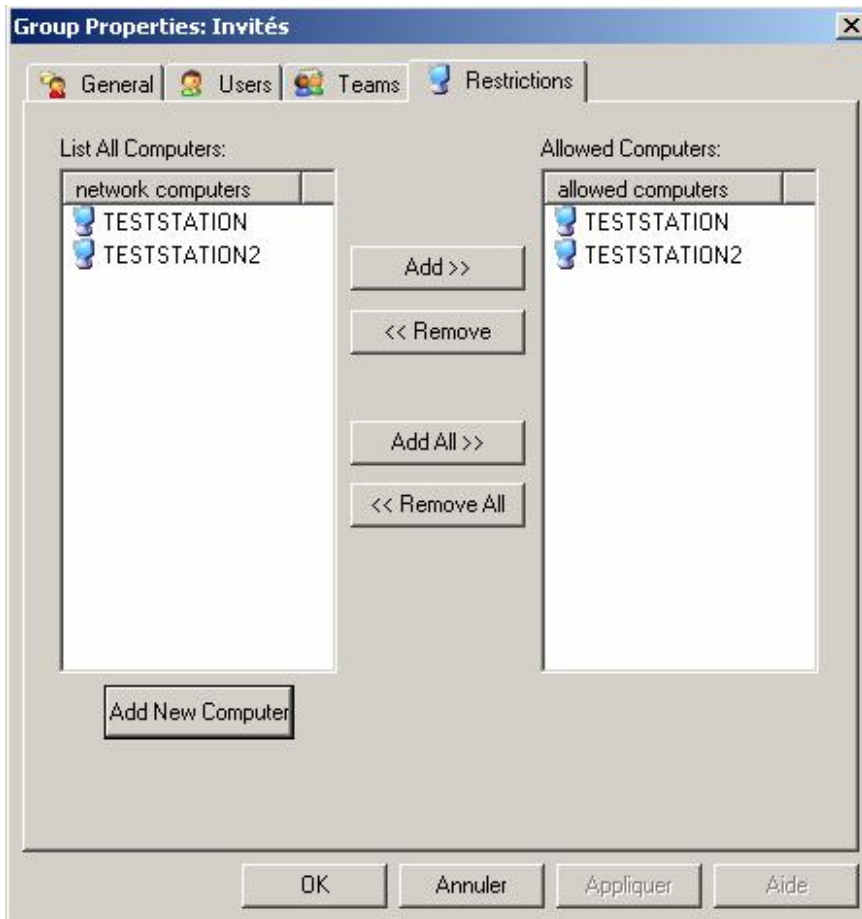
The computer restriction sheet

Every online station of the Wizcon network is automatically listed in the left list control, and each authorized station is listed in the right. The Wizcon administrator may add station to the list by clicking the **“add new computer”** button.



Adding manually a new station to the network


By default, each new station is accessible to every user. Be sure to keep your access rights up to date.



The station was added to the list.

Shift Management

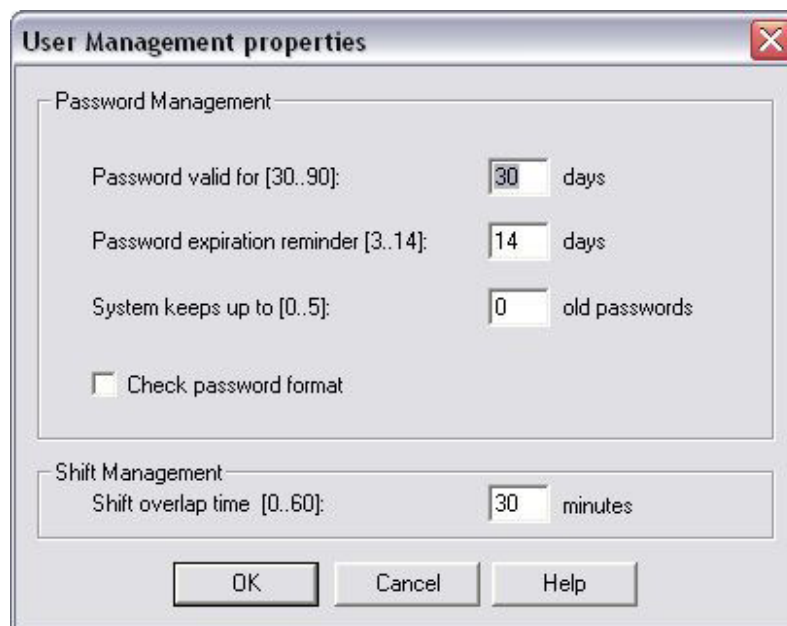
One and only one group in the system can be defined as a shift group. You can use this group to define when users can logon to the system. For this group you must define a set of teams and, as with any other team, add users to the team. You can now use the shift management dialog box to define the timetables for when the members of each team are

allowed to enter the system. Press the  button on the Quick Access bar. This will open a dialog box that is identical in every respect to the User Timetable dialog box. The only differences are that, in this case, the teams included in the shift group are pre-selected and instead of defining the times at which alarms are sent to members of the teams, you are defining the times at which users of each team can logon to the system. If you want to know how to use this dialog box, please refer to the chapter that describes user timetables, keeping in mind these differences.

Once the shift management timetable has been completed, users will only be allowed to login to the system during the specified time period. Once this time period has expired, they will be logged out of the system. Note however, as described in the section below, a shift overlap time can be defined, allowing a small amount of flexibility into the system.

User Password Security

You can define a set of rules that define how passwords are managed by the system. To define a set of rules, you open the following dialog box. To do this, right-click on the user management tab on the left of the studio, then choose “Properties”.



Use this dialog box to specify rules for password management.

1. Password valid for: You can specify for how many days a password will be valid. The limits are displayed.
2. Password expiration reminder: Use this option to give a reminder to the user when their password is about to expire.
3. System keeps up to: You can force the system to remember several old passwords so that the user cannot simply switch between known passwords. This enhances security of the password checking system.
4. Check password format: You can force the user to enter a password with a given set of rules. If this option is checked, the user's password must contain at least one letter, one

digit and one special symbol from !, @, #, \$, %, &, _ , -. If this rule is not followed, the user will not be able to change the password next time it needs to be changed.

5. **Shift overlap time:** If you have enabled shift management you can specify an "overlap time". This means that users from the current shift can continue to login to the system for up to the specified amount of time after their shift is supposed to end or that users from the next shift can login to the system for the specified amount of time before their shift is due to start.

User Management Properties

Use this dialog box to specify rules about password management.

Password valid for: You can specify for how many days a password will be valid. The limits are displayed.

Password expiration reminder: Use this option to give a reminder to the user when their password is about to expire.

System keeps up to: You can force the system to remember several old passwords so that the user cannot simply switch between known passwords. This enhances security of the password checking system.

Check password format: You can force the user to enter a password with a given set of rules. If this option is checked, the user's password must contain at least one letter, one digit and one special symbol from !, @, #, \$, %, &, _ , -. If this rule is not followed, the user will not be able to change the password next time it needs to be changed.

Shift overlap time: If you have enabled shift management (see the user guide), you can specify an "overlap time". This means that

- users from the current shift can continue to login to the system for up to the specified amount of time after their shift is supposed to end
- users from the next shift can login to the system for the specified amount of time before their shift is due to start.

Biometric Login

Presentation

This feature enables the customer to replace old login/password authentication method by biometric (fingerprint in fact) mechanisms. This new functionality enhances overall security.

Description

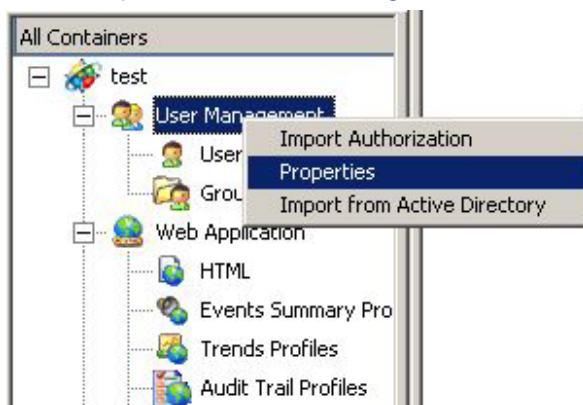
This function enables enrollment of users fingerprints, and user authentication (1-1 and 1-n) using body specificities.

- 1-1 or authentication process is an operation that consists in validating a user login with a fingerprint.
- 1-n or identification process is an operation that consists in identifying a user thanks to his fingerprint.

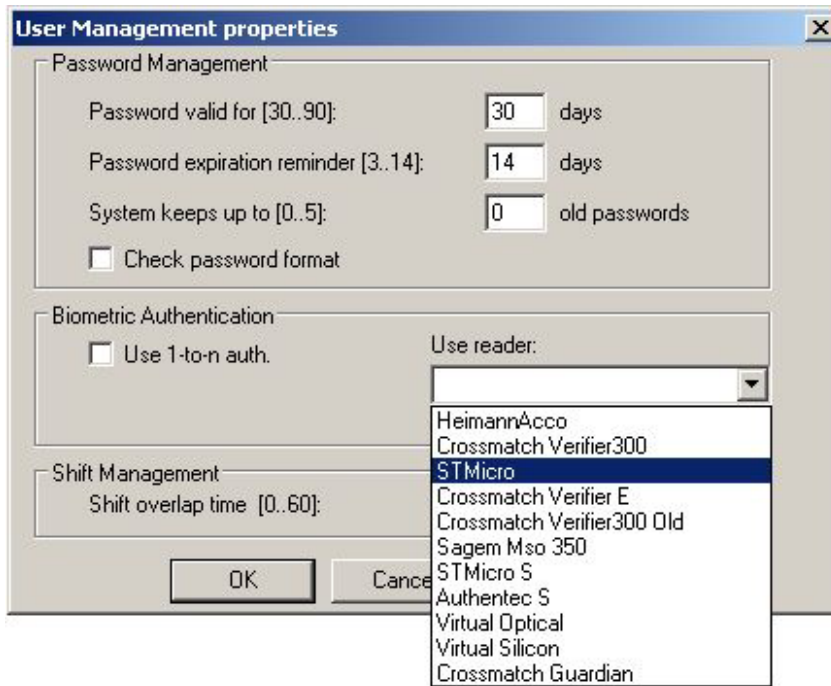
How to use Wizcon Biometric Login

1-configuring biometric login

To access biometric login, right click on the user management item in Studio tree and select Properties. The user management configuration dialog opens.



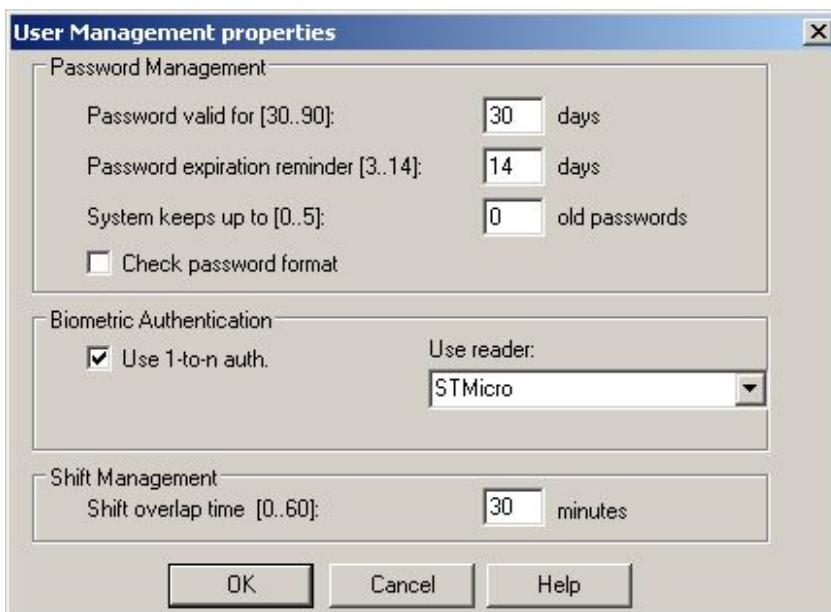
To set up biometric login, you just have to select the biometric device you want to use on this station. All available drivers are listed in the combo box; select the device installed on your computer.



You also have the possibility to choose between to different login strategies:

- 1-to-many or Identification: if you choose this strategy, biometric information is used to identify your identity and, if available, your account.

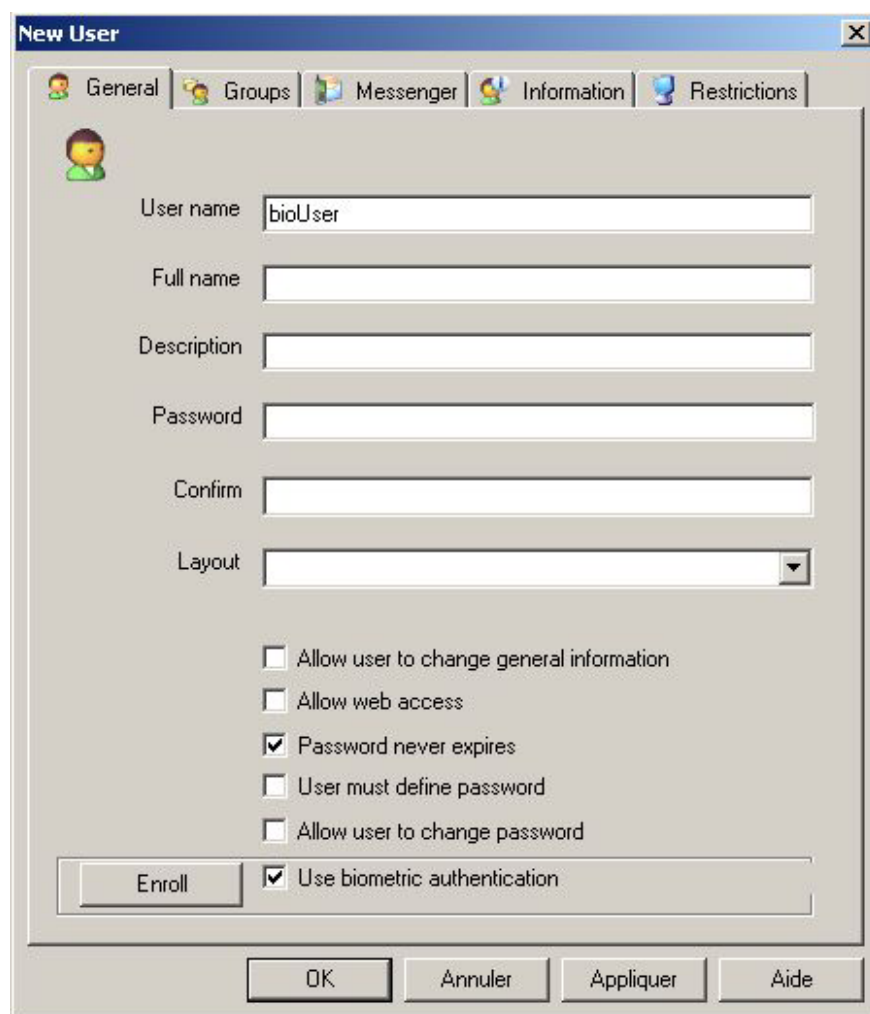
1-to-1 or Authentication: if you choose this strategy, the login flow remains as usual excepts that, to finalize your login with a specific account, you have to provide biometric information that matches with account you are login with.



To use 1-to-many, you have to check the use 1to-n auth check box, otherwise the system is using 1 to 1 strategy.

2-Enrolling a user

To enrol a new user or an existing user, check the use biometric login check box and press the enroll button.



The 'New User' dialog box features a tabbed interface with 'General', 'Groups', 'Messenger', 'Information', and 'Restrictions'. The 'General' tab is active, showing a user icon and several input fields: 'User name' (containing 'bioUser'), 'Full name', 'Description', 'Password', 'Confirm', and a 'Layout' dropdown menu. Below these fields are five checkboxes: 'Allow user to change general information', 'Allow web access', 'Password never expires' (checked), 'User must define password', and 'Allow user to change password'. At the bottom of the tab is an 'Enroll' button and a checked checkbox for 'Use biometric authentication'. The main dialog has 'OK', 'Annuler', 'Appliquer', and 'Aide' buttons at the bottom.

If your device is correctly installed, the biometric enrollment dialog appears; you can now put your finger on the fingerprint reader.



The 'Biometric Enrollment' dialog box includes a user icon and the title 'Biometric Enrollment'. It contains instructional text: 'Please put your finger on the fingerprint reader. Your finger must be placed so that the cross is inside the target circle. A green screen indicate that your fingerprint has been correctly scanned.' To the right of the text is a grayscale image of a fingerprint with a magenta circle and a magenta crosshair indicating the correct placement. At the bottom are 'Cancel' and 'Help' buttons.

In order to validate your fingerprint for enrollment, your finger must be placed so that the cross is inside the target circle. A green screen indicates that your fingerprint has been validated.

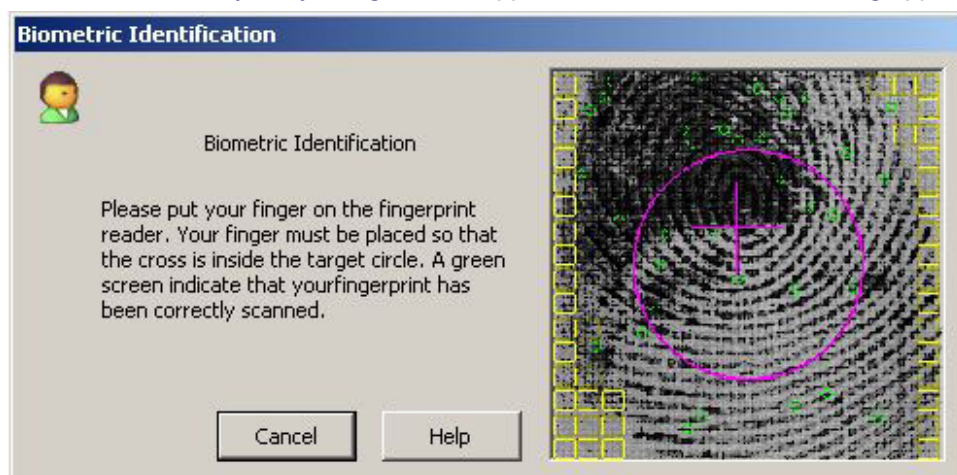


To validate the setting, you only have to save user configuration.

NB: You cannot enroll two different users with the same biometric information.

3.Using identification

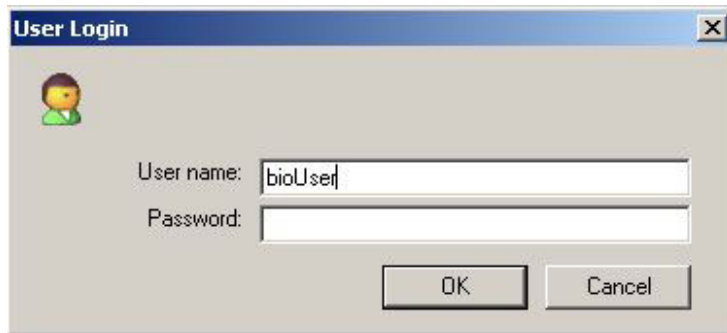
If you have selected the use 1-n auth during biometric login setup, you are using identification. Once you try to login to the application, the identification dialog appears.



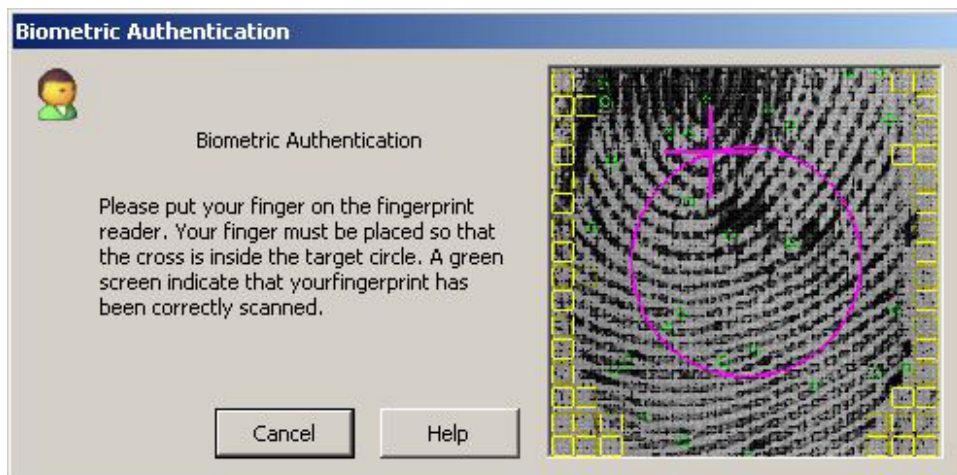
The system will search in its database for corresponding biometric information, and you are logged automatically to the right account.

4.Using authentication

If you have not selected the use 1-n auth during biometric login setup, you are using authentication. Once you try to login to the application, the usual login dialog appears.



Once you provide information regarding to a user account, if this user has been enrolled, you are prompted to authenticate your identity.



If the biometric information provided is correct, you are logged to the system.

LDAP/smartcard login Documentation

Presentation

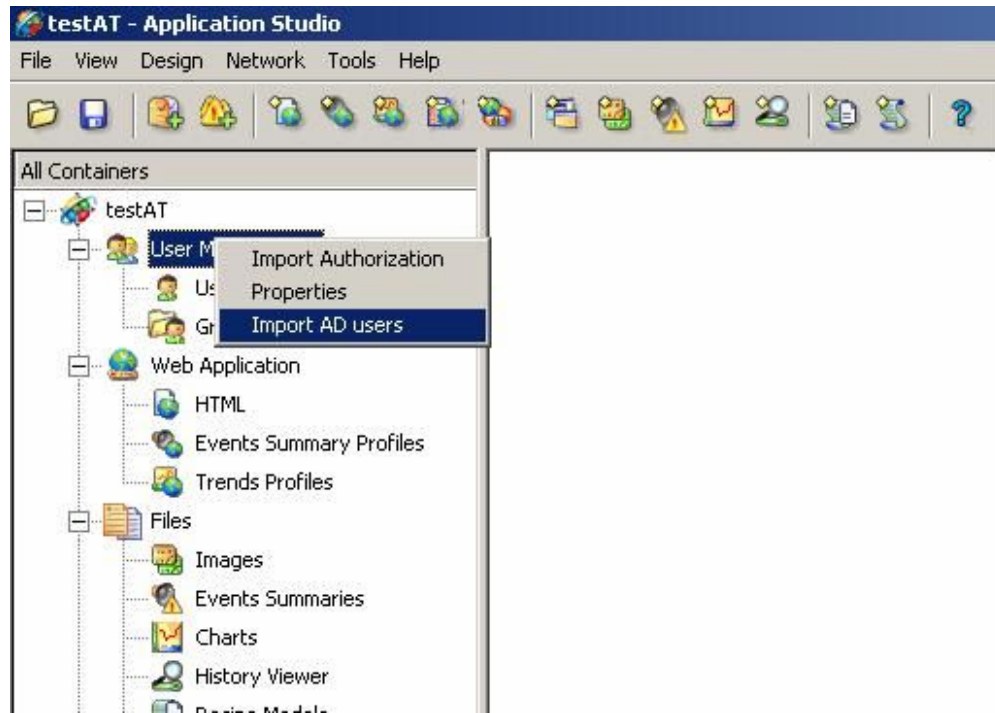
This feature aims to import Active Directory users and groups into NovaPro Open user management database. Active Directory is then in charge of user authentication for imported users. This feature also enables the customer to replace old login/password

authentication method by PKI (using smartcard/token) mechanisms. This new functionality enhances overall security.

This module is originally developed in WizUM.dll (user management) and a new module loaded statically (WizADSync.dll) handle data from Active Directory. Two drivers are loaded dynamically: a LDAP driver (WizLDAPDrv.dll) and a smartcard driver (WizSCDrv.dll).

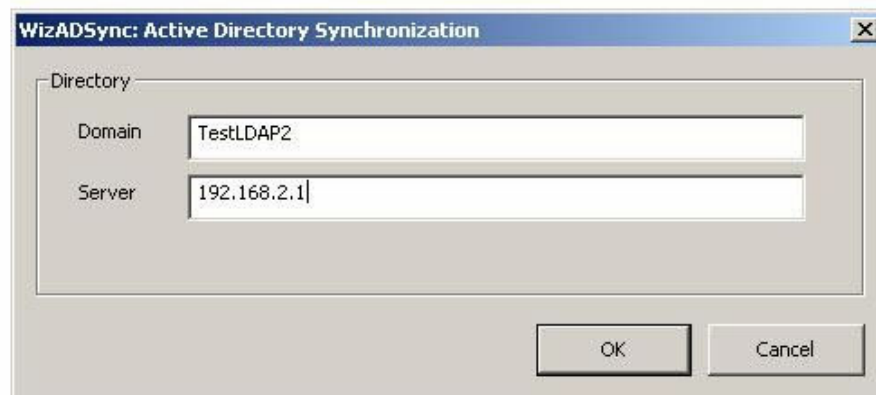
1-Importing active directory users into NovaPro Open

The import users/groups function is accessible by right-clicking the user management item in the studio tree control.



Click the "import AD users" item to launch the import tool.

The import tool then asks for Domain name and Domain controller address (IP address or DNS Name).



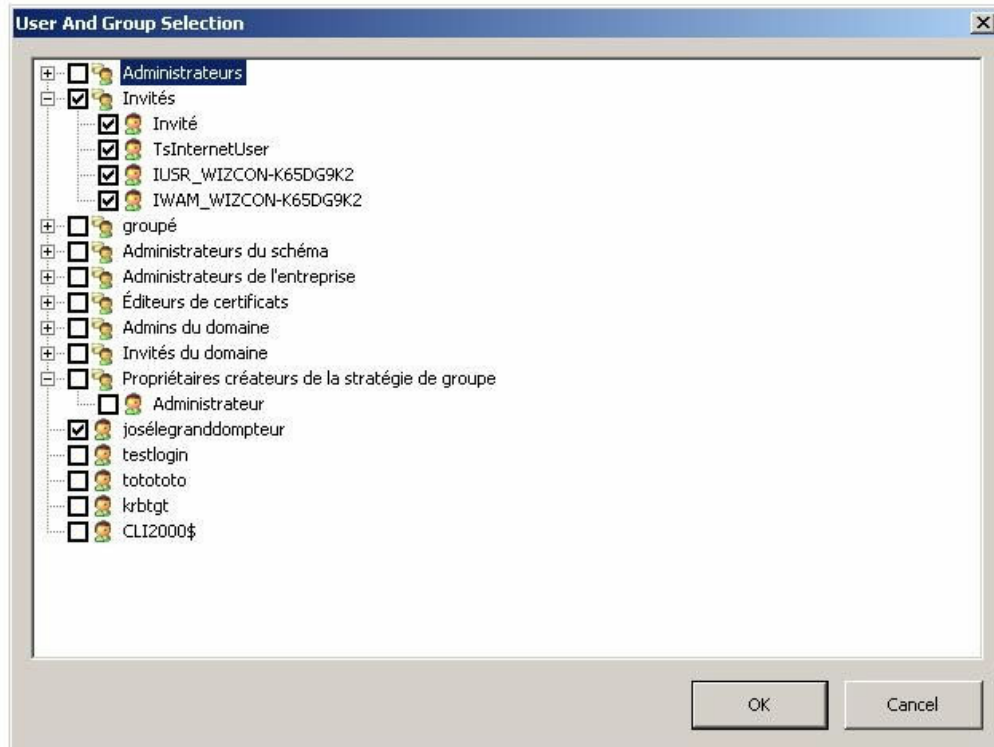
Enter the domain name and Domain controller address.

The tool then asks for a user account with which it will bind to the server. This user must have read access to the directory.



Enter your AD user name and password.

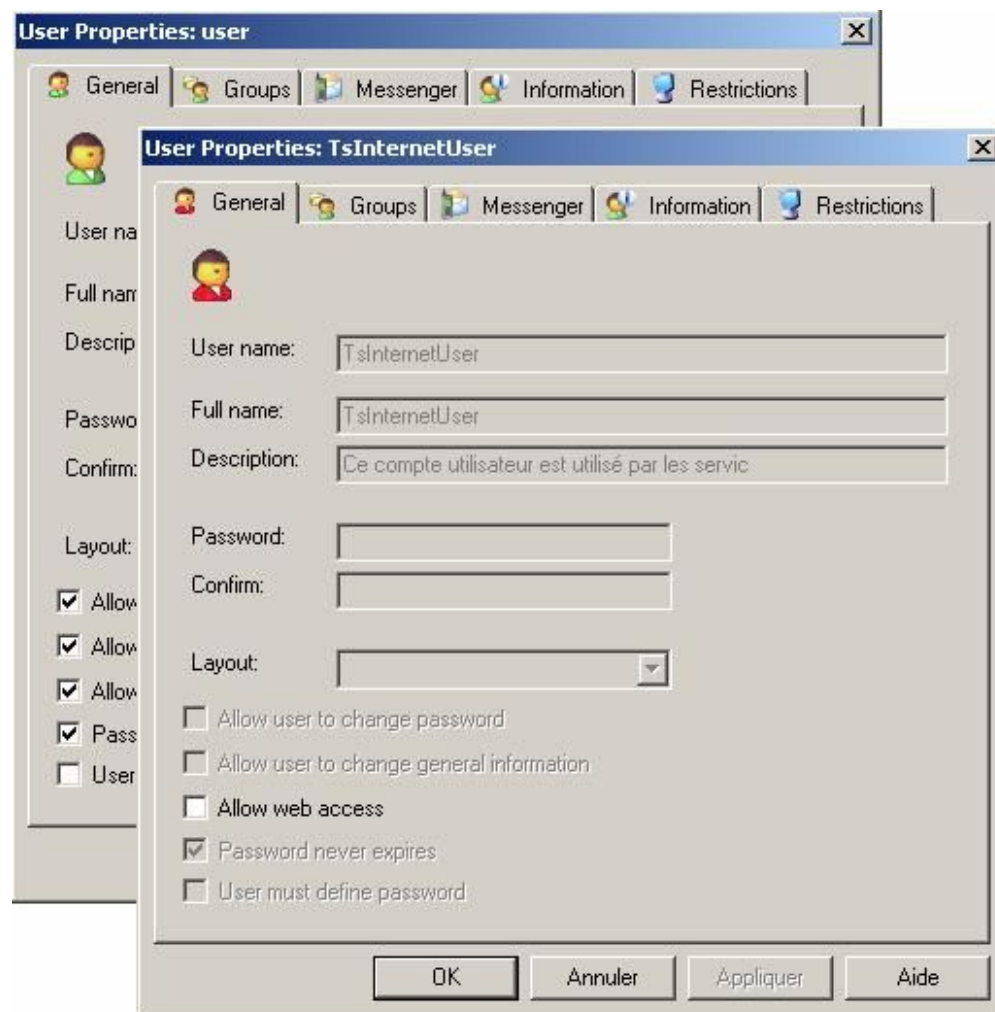
The import tool produces a tree view containing a hierarchical view of Active Directory users and groups. We can see that imported groups and users are already selected. The user will now select groups and users he wants to add to its Wizcon project.



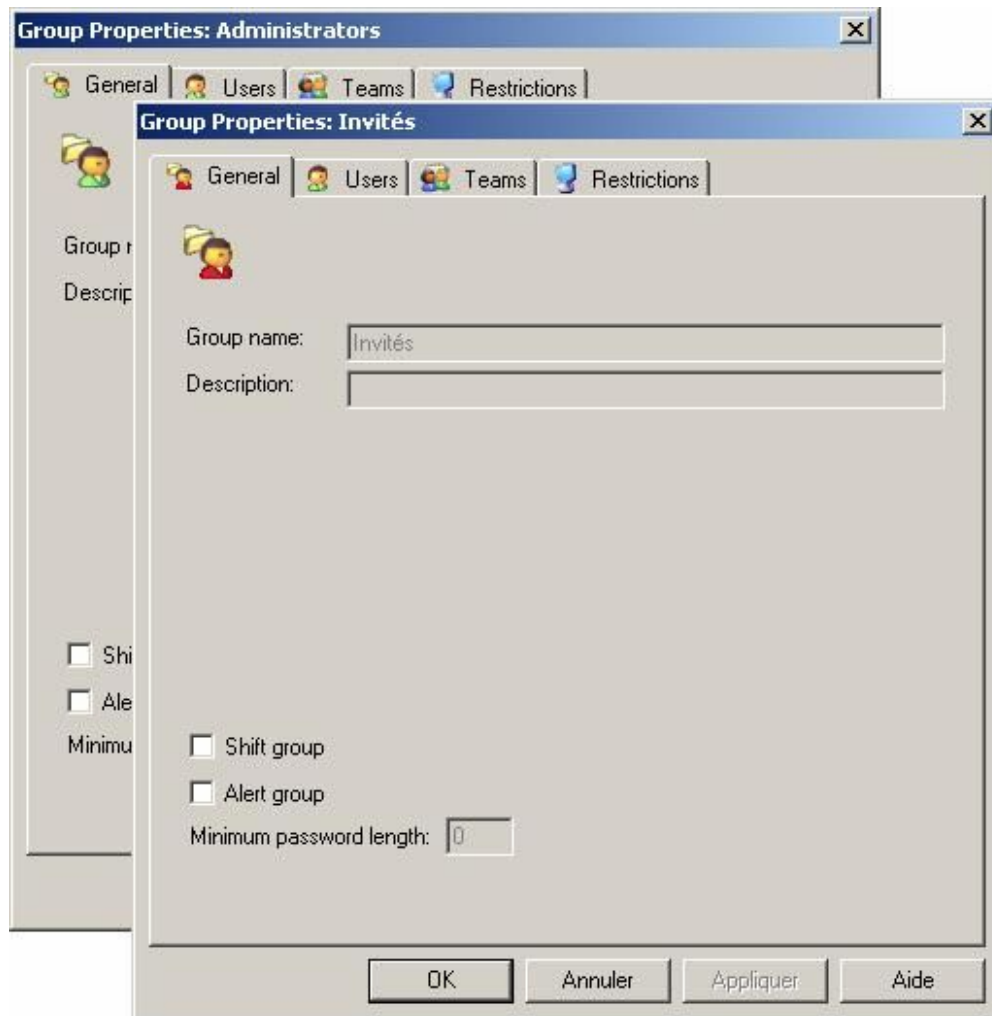
Tree view with selected users and group.

Now, users and groups are imported, and the credential authentication will be transparently handled by the domain controller.

While running Wizcon in studio mode, Active directory users/groups will be recognizable to their specific red icons.



AD users and Wizcon users are graphically different.



AD groups and Wizcon groups are graphically different

2-Smartcard authentication

2-1-User requirements

Smartcard authentication, simply put, allows Wizcon users that have been imported from an Active Directory that supports smart card login to login into Wizcon using smartcards. The user will be logged out of Wizcon when smart card is removed.

Smart card authentication is handled natively by Windows and Wizcon will take advantage of this support. This smartcard support is done using the standard Microsoft PKI (Public Key Infrastructure) architecture. Wizcon X will support the eToken smartcard solution from Aladdin. These smartcards are USB sticks with integrated readers – these were chosen because they are an industry proven, secure and low-cost solution

Note that this functionality will also be available via the Web interface.

2-2-System requirements

Handling of the details of the login process is an IT task, performed at the enterprise level. In order to support Microsoft PKI the user must have access to a proper Domain Controller

(DC) running Active Directory (AD) 2000 or 2003. A Certificate Authority (CA) must be set up and trusted by the DC.

The trust of the CA is established by importing the CA certification path, the CA certificate and the CA revocation list into active directory.

In order to the setup the PKI, an enrolment station certificate template and a smartcard user certificate template must be activated at CA level.

Enrollment is the process of identifying a user to the system. In order to enroll a Wizcon user, the enrolment station must possess an enrolment station X509 certificate delivered by the trusted CA and an Administrator signature certificate. The Enrolment station must also have an eToken RTE driver installed. Smartcard enrolment can then be performed by a system administrator.

In order to perform login at a Wizcon station, it must have the eToken RTE installed and network access to the Domain Controller.

During login to a Wizcon station, the user will insert the smartcard when requested and must enter his pin code. User is then authenticated against the smartcard. The smartcard user certificate delivered during enrolment can be retrieved and authenticated against the DC.

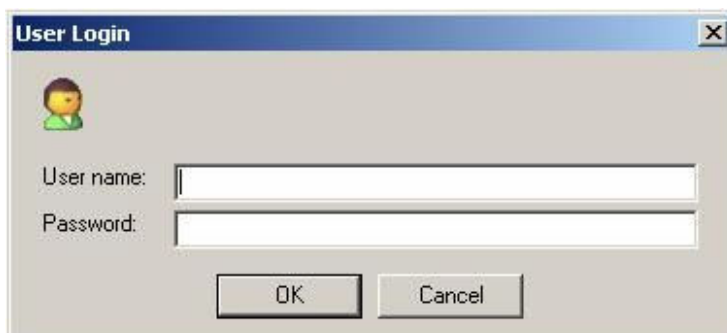
2-3-smartcard login

When trying to login to Wizcon, the user is asked to insert their Smartcard by the following dialog.



Smartcard login dialog

As soon as the token is inserted; the authentication process is handled by AD and if the user has access, they will be logged in automatically. If however, the user presses ctrl + L, the standard login dialog is opened and they can login using the standard login and password mechanism (which of course will use Active Directory if the user has been imported from Active Directory).



Standard login dialog

Centralized User Management

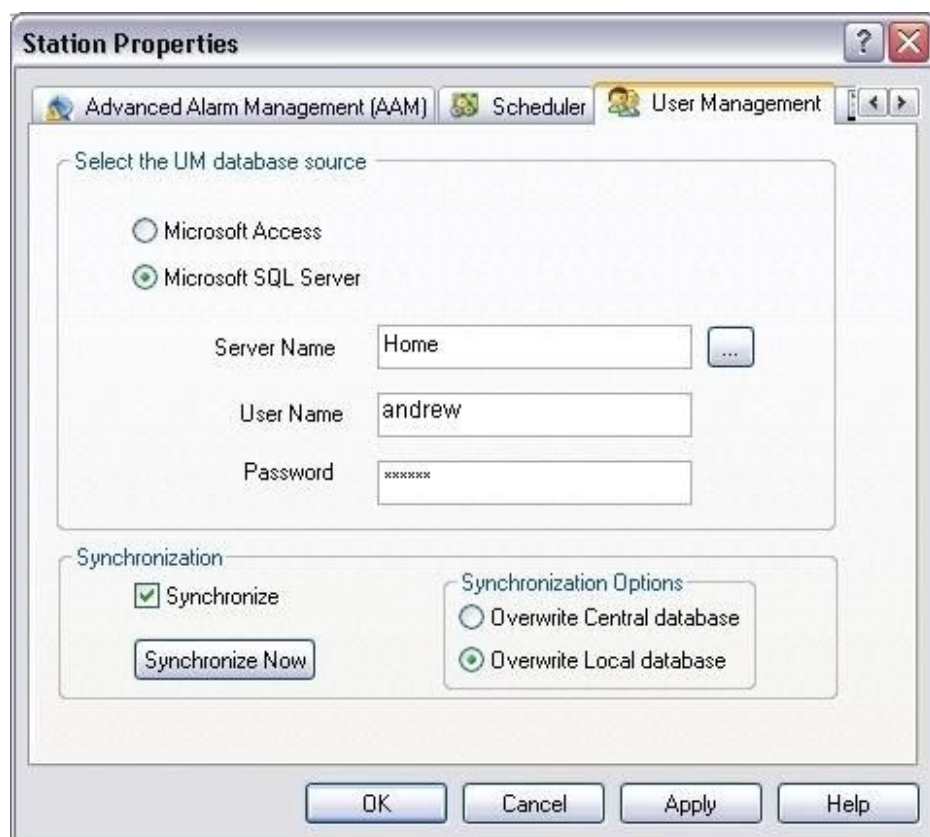
By default, user management in NovaPro Open is provided by a local MS ACCESS database (WizUM.mdb). The Centralized User Management gives you the possibility to make changes on one station and have them immediately available to all other stations on the network. This is particularly useful in large-scale configurations.

In this case, user management is provided by a MS SQL Server database located on a central computer. See **Appendix D, Installing SQL Server database** for details of how to setup this centralized database architecture.

- Setting up Wizcon to use SQL Server database

Once the Centralized User Management database has been installed (see **Appendix D, Installing SQL Server database**), the Wizcon stations must be set up to use this database instead of their local one.

1. In Wizcon Studio, right-click on project name and select "Station Properties".



2. In the “User Management” tab as show above, select “Microsoft SQL Server” by clicking on the related radio button.
3. Complete the additional information required :
 - The server name that hosts the centralized user database. A browse button helps if the name is not known.
 - The login name and password of the database owner which was defined when creating the database (**Appendix D, Installing SQL Server database**).
 - “Synchronize” option which allows the station to keep the local and central databases synchronized.
 - If the “Synchronize”option is checked and there is a loss of connection between the station and the server hosting the central database, Wizcon will switch to use the local user management database. Once the connection is restored, Wizcon will reconnect to the central database. However, it may be that either the local or the central database has changed during the period of disconnection. You must define in which direction to synchronize the databases after the reconnection. There are two options:
 - From the Local database to the Central database. In this case, you choose the “Overwrite Central database” and this will overwrite the central database with the local database information.
 - From the Central database to the Local database. In this case, you “Overwrite Local database” and this will overwrite the local database with the central database information. Wizcon strongly recommends that this option is chosen on all stations.
 - A “Synchronize Now” button can initiate an immediate synchronization in the direction specified above.

The centralized user database is now available from the configured local station. Each time a change is made on the central database, the information will automatically be updated in local database.

- In case of disconnection

If the connection between station and Centralized User database is broken :

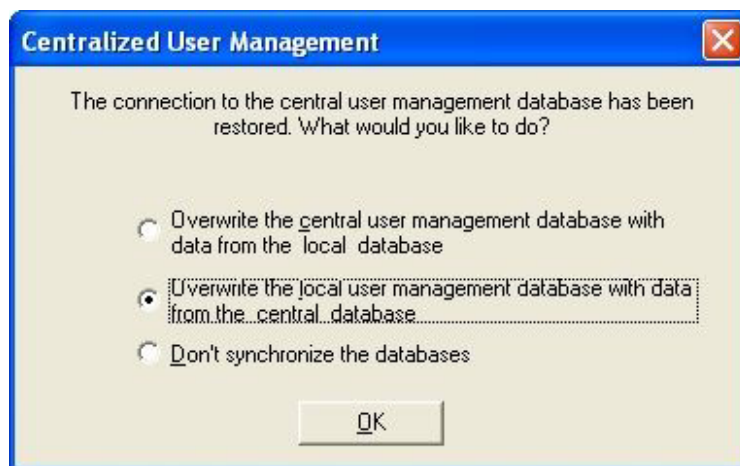
1. a message box appears



2. Wizcon switches from the centralized database to its local Access user database and will continue to work as before the disconnection.

Once the network connection is restored :

1. Wizcon will attempt to connect the central database
2. The synchronization process starts *silently* in the chosen direction as specified in the previous paragraph (**Appendix D, Installing SQL Server database**).
3. However, a Witztune parameter (See Witztune User Guide), UM_SHOW_DIALOG_ON_RECONNECT can be set to 1 to inform the user that connection has been restored and select the synchronization process he wants. This parameter is set to 0 by default, meaning that the dialog box shown below will not appear. Wizcon recommends that this option remains disactivated.



4. A System tag, WIZSYS_UMCentralDatabase, is available to inform the user which database is in use, Local or Central (see **System Tags**).

Note: You will not be able to modify tag and alarm definitions or menu authorizations while you are disconnected from the centralized user management database.

Other Topics

Set User Class

In this dialog box, you can select user classes that will be assigned to the alarm.

User classes are used in the events summary to filter and display alarms. Note that only one user class can be assigned per alarm.

To define user classes for alarms.

1. Select an Alarm from the Alarms list.
 2. Check the User Class box, this will enable the Classes combo box.
 3. Choose the classes wanted.
-

A dialog box is used by the operator to enter data for different system functions. They are similar to forms that act as interfaces between the Application operator and the system. The contents of each dialog box are different, although many dialog boxes contain several common fields.

Set Group Access

The Application allows you to define security groups for changing tags value by an operator, so that only authorized operators can set the tag value. This is implemented by assigning authorization groups to each tag. Operators that do not belong to any of the assigned groups will not be authorized to change tag values. Note that all operators can read tag values, only authorized operators can change them.

Once a group is assigned to a tag, any operator that belongs to that group can perform tag value operations on that tag. Operators not assigned to a group that matches any of the tag groups, will not be able to set new tag values.

In this dialog box, you can assign groups to a tag. each group which was selected is assigned to the tag. Operators not assigned to a group that matches any of the tag groups, will not be able to set new tag values.

Set all - provide all defined group with the access permission.

Reset all - disable all groups from setting new tag values.

As an example of how group authorization works, if an operator is assigned the groups Engineer and Operator, and a layer is assigned the groups Engineer and Manager, that operator will be able to access the image layer. However, if the operator was assigned the groups

Operator and Maintenance, that operator will not be able to access the layer.

Set User Class

Use the set user class to select an alarm user class from a list of predefined classes. Each alarm can be assigned to only one class. Alarm classes enable you to identify the alarm more easily and classify alarms in online and historical events summary

In this dialog box, select a class and activate the OK button.

To cause no class to be selected, activate the Reset All button.

Note that each class that appears in this dialog box was defined by the operator in the User Class Definition procedure.

Users / Groups

Click the User Management icon to open the Users / Groups Management dialog box where you can define your applications security groups and users.

Alarm Recipients

In this dialog box you select the recipients of the alarm.

- To defined the **Groups&Users** - select this option to display a list of your application's defined groups and users.
 - **List all Groups** - select this option to display a list of your application's defined groups.
 - **List all Users** - select this option to display a list of your application's defined users.
-

Chapter 8 Communication Drivers

Overview.....	252
Defining Communication Drivers	253
Design / Communication Drivers	259
Design / Communication Drivers	259
Communication Driver Properties.....	260
Communication Drivers Dialog box.....	260
Communication Driver Properties	260
Communication Drivers - General.....	261
Communication Drivers - Block Definition.....	264
Converting Communication Block Definitions	265
Communication Drivers Information.....	266
General Tab	266
Serial Tab.....	268
Blocks Tab	268
Information Tab.....	271
Converting Communication Block Definitions.....	272
Converting Communication Block Definitions	272
Importing and Exporting Definitions Using an External Application	273
Importing Communication Block Definition Files.....	273
Exporting Communication Block Definition Files.....	274
Defining OPC (Application Client)	274
Defining OPC (Application Client)	274
OPC.....	275
OPC Driver Properties	275
OPC Driver Properties	277
BACnet Configuration Console.....	277
General	278
Object Browser	279
Time Synchronisation	279
Alarms.....	280
History.....	282
Log Files	284
VPI.....	285
Serial Communication Drivers	289
Defines the operation attribute of the driver.....	290
Serial Communication Drivers Parameters	291
WizModbusSlave.....	291
What is WizModbusSlave	291
How to	292
Other Topics	293
Select the station name.	293
Type the device ID.	294
Click to modify a selected tag.	294

Editing a Mapped Tag.....	294
Type the address	295
How to Contact eMation.....	295
Select the Tag name.....	295
Click to add the tag to the list.....	295
Select the address type	296

About this chapter:

This chapter describes how to define communication drivers in the application, as follows:

Overview is an overview of communication drivers and communication blocks.

Defining Communication Drivers describes how to add and remove communication drivers to and from your application.

Communication Driver Properties describes how to define general driver properties, serial port parameters and communication blocks. It also describes how to view general driver information.

Converting Communication Block Definitions describes the conversion utility used for communication block definitions.

Defining OPC (Application Client) provides an overview of OPC (OLE for Process Control).

OPC Driver Properties describes defining OPC driver properties.

Overview

Communication drivers handle communications with external devices, such as PLCs, industrial instruments, remote computers and field buses. These drivers are separate program files, which are installed when installing the application. Communication driver file names have the format VPIWN??.DLL , in which ?? is the two- or three-letter code of the driver. Since each communication driver is different, the driver's information documentation should be consulted for specific communication driver details.

You can define communication blocks to improve driver performance when working with large quantities of tags. These blocks enable you to transfer large blocks of information instead of individual data items.

The first step in designing an application is to define the communication drivers and blocks. You then define the tags, which are control values monitored by the system. They are used as internal variables for:

- Calculations and display.
- Communication with PLC's in order to represent data from PLC memory or to send commands to PLC's.

Note: In fast Pentium PCs with a 16550 UART (serial interface chip), Windows 2000/XP default settings may cause communication errors on serial communication drivers. To overcome this problem, lower the buffer sizes on the UART in the following menu: Start/Settings/ Control Panel/System/Device Manager/Ports/Communication Port 1.4/ Port Settings/Advanced. Use a trial and error method to reach the optimum setting.

Defining Communication Drivers

Communication drivers are defined in the Communication Drivers dialog box, in which you can add and remove drivers and define driver properties.

- To add/remove a communication driver:

In the Control Panel of the Application Studio, double-click the  icon.

Or,

In the Design menu of the Application Studio, select Communication Drivers. The Communication Drivers dialog box is displayed:



This dialog box has the following fields:

Logical Name	Specifies the communication driver's unique name
Device	Specifies the name of the physical device. The standard name is COMn, where n is a number that refers to the serial port of the computer. Drivers that use standard TCP/IP, or proprietary network, do not require this parameter.
Name	Specifies the name of the communicating driver. For example; SIEMENS, SIMATIC S7.
Parameters	Specifies the Device access rights. For example, Read/Write and 'Out of Block'.

- To add a driver

Click the Add button. The Communication Driver Setup Wizard is displayed.



1. To install a driver from the List (installed with the application) double click the name of a communication driver and then click Next.



2. Type in a unique logical name for the driver in the relevant field.

3. Click the up/down arrows to define communication time-out or type directly the value in the related field.
4. Click the relevant text box to define the driver's attributes. This can be either Write, Read or Sample tags outside of blocks.
5. To modify the Init File, click the Edit Init File button to open a text editor where the file can be created/edited.
6. Click Next. The Communication Driver Setup Wizard - Serial dialog box opens.



This dialog box enables you to define the driver's Com port connection and communication parameters.

7. To define the Com port click the field's arrow to open a dropdown list and make your selection.
8. Fill the Baud Rate, Data Bits, Parity and Stop Bits fields according to the default parameters.
9. Click Next to open the Communication Driver Setup Wizard - Blocks dialog box.



The following options are available:

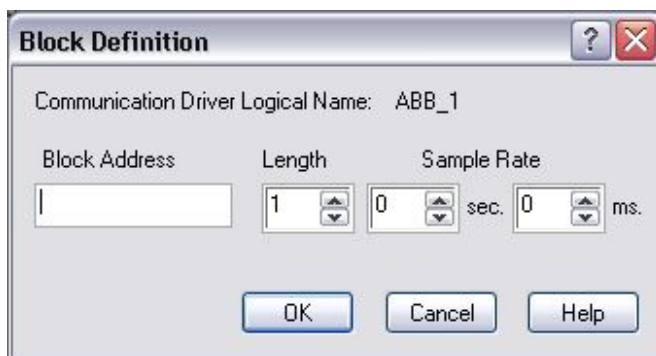
Add Click to add a new communication block to the selected driver

Delete Delete a communication block from the list

Modify Modify an existing communication block

Files This option has two sub-options Import and Export

10. Click the Add button. The Block Definition dialog box is displayed.



The following options are available:

Block Address The starting address of the block in the device. For address format specifications, see the relevant communication driver section in the Wizcon Systems Driver documentation.

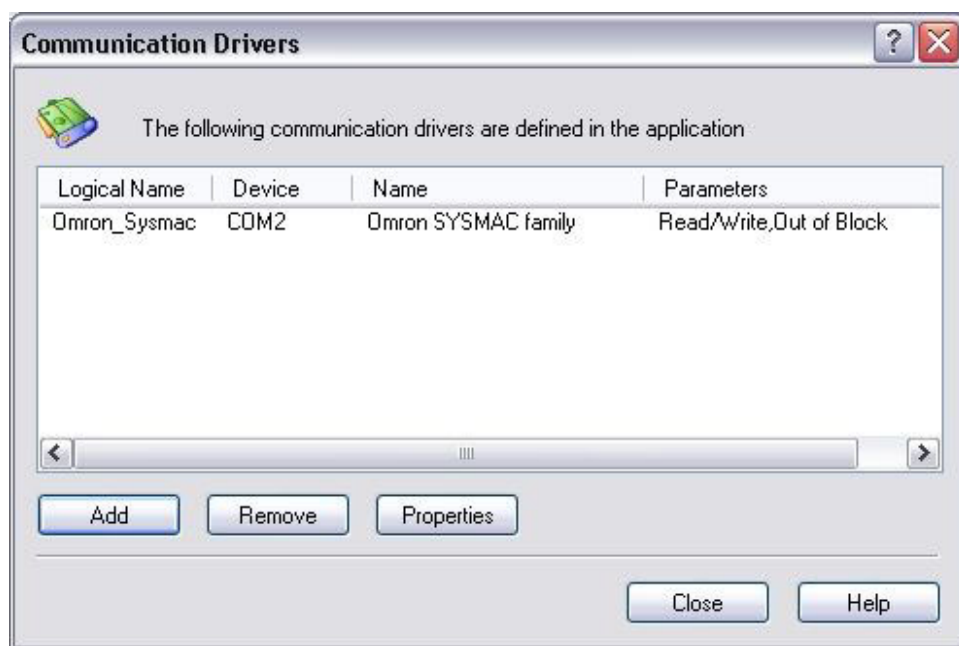
Length Number of items in the block.

Sample Rate Sampling rate of the block in seconds and milliseconds.

Note: After defining communication drivers restart the application to enable the new definitions.

- To remove a driver:

1. Select the driver you want to remove and click the Remove button. The driver is deleted from the list of drivers.



Note: After removing a communication drivers, restart the application to enable the new definitions.

Design / Communication Drivers

Select this item to define Application Communication Drivers.

Communication Drivers are drivers used for communications with external devices such as PLCs, industrial instruments, remote computers, and network stations. Defining a Communication Driver is equivalent to defining a communications channel to a device. In the applicaiton, once a channel is defined, it will be referenced only by its assigned Communication Drivers.

Communication Drivers are implemented as separate program files called Drivers, which are loaded into the application folder during Application installation. Each Communication Driver is identified by a two-letter code which appears in the driver filename as Communication Driver??,DLL, where ?? is the Communication Driver identification code.

After you select this item, the **Communication Drivers Definition** dialog box appears enabling you to enter the Communication Drivers specifications.

Design / Communication Drivers

Select this item to define Application Communication Drivers.

Communication Drivers are drivers used for communications with external devices such as PLCs, industrial instruments, remote computers, and network stations. Defining a Communication Drivers is equivalent to defining a communications channel to a device. In the application once a channel is defined, it will be referenced only by its assigned Communication Drivers.

Communication Drivers are implemented as separate program files called Drivers, which are loaded into the application directory upon Application installation. Each Communication Driver is identified by a two-letter code which appears in the driver filename as Communication Driver??,DLL, where ?? is the Communication Driver identification code.

After you select this item, the Communication Drivers Definition dialog box will appear for you to enter the Communication Drivers specifications.

Communication Driver Properties

Communication Drivers Dialog box

This dialog box has the following fields:

- **Logical Name** Specifies the name give to the driver for application identification purposes
 - **Device** Specifies the name of the physical device. The standard name is COMn, where **n** is a number that refers to the serial port of the computer. Drivers that use standard TCP/IP or proprietary network, do no require this parameter.
 - **Name** Specifies the name of the communicating driver.
 - **Parameters** Specifies the device access rights.
-

Communication Driver Properties

Communication driver properties are defined in the Communication Driver dialog box.

- To define communication driver properties:
 1. In the Design menu of the Application Studio, select Communication Drivers. The Communication Drivers dialog box is displayed.
 2. Select a driver and then click the Properties button to display a dialog box in which you can define communication driver properties.

In this dialog box you can define the following:

- General driver properties, in the **General Tab**.
- Serial port parameters, in the **Serial Tab**.
- Communication blocks, in the **Blocks Tab**.
- View information about the driver in the **Information Tab**.

Communication Drivers - General

Used to define the communication parameters.

Logical name- Any name for personal identification purposes.

Time out - Defines the period of time (in hundreds of seconds) during which the system waits for response from a device before indicating a communication failure.

Attributes

- Checking the **Read** option enables read only operations with the device.
 - Checking the **Write** option enables write only operation with the device.
 - Checking the **Out block** option enables the referencing of elements not included in the blocks. If you do not select this option, communications will be limited to elements within the blocks.
-

Communication Drivers - General

This dialog box is used to define the communication drivers parameters.

Logical name --Any name for personal identification purposes.

Time out - Defines the period of time (in hundreds of seconds) during which the system waits for response from a device before indicating a communication failure.

Attributes

Read - select to enable read only operations with the device.

Write - select to enable write only operations with the device.

Sample tags Outside of blocks - select to enable referencing elements that are not included in the blocks. If you do not select this option, communications will be limited to elements within the blocks.

Communication Drivers Definition

This dialog box has the following fields:

Logical Name Specifies the unique name of the Communication Driver

Device Specifies the name of the physical device. The standard name is **COMn**, where **n** is a number that refers to the serial port of the computer. Drivers that use standard TCP/IP, or proprietary network, do not require this parameter.

Name Specifies the name of the communicating driver. For example; SIEMENS, SIMATIC S7.

Parameters Specifies the Device access rights. For example, Read/Write and out of block.

1. Click the Add button to open the Communication Driver Setup Wizard.
 2. Select a driver and then click the Remove button to delete this from the list.
 3. Select a driver and then click the Properties button to view/edit the driver's properties.
-

Communication Drivers Setup

This dialog box enables you to select a communication driver from the given list (the list is originated in the Install Process).

To access this dialog box:

1. Press the Add button from the Communication Drivers dialog box. The Communication Driver setup opens
2. Select a name of a driver from the list and press Next to continue.

Communication Drivers - Add Block

Used to define a communication block.

To define a communication block, follow the next steps:

Press the Add button in the Communication Drivers Property block dialog box (VPI Icon/ Properties button/Block Tab).

Complete the following fields:

- **Address** - The starting address of the block in the device.
 - **Length** - Number of items in the block
 - **Sample rate** - Sampling rate of the block in seconds and milliseconds
-

Communication Drivers - Block Definition

In this dialog box, you can define contiguous communication blocks in the address space of the external device.

Communication blocks can be transferred in single communication transactions, which can greatly improve data transfer speed and system performance.

To define a block, follow the next steps

1. Select the communication drivers from the Design menu.
2. Select a driver from the drivers list
3. Press the properties button
4. Select the Blocks Tab.

The fields in this box are as follows:

Address The starting address of the block in the device. For address format specifications, see the relevant section in the PLC Technical Information manual.

Length Number of items in the block. In other words, this is the region from Address to Address+(Length-1) in the external device that will be accessed. Note that when blocks of discrete items (single bits) are transferred, and comprise single words in the external device, it may be necessary to define Length as the number of bits divided by 16 (and rounded).

Sample Rate The sample rate of the block in seconds and milliseconds.

Add Activate this button to add the block definition to the list.

Modify this button to change the current block definition with the new specifications.

Delete Activate this button to delete a block definition from the list.

Communication Drivers - Block Definition

In this dialog box, you can define contiguous communication **blocks** in the address space of the external device.

Communication blocks can be transferred in single communication transactions, which can greatly improve data transfer speed and system performance.

You can also **export communication block definitions to external sources in fixed or CSV file format, and Import them to the Application in fixed or CSV file format.**

To define a block follow the next steps

1. Select the communication drivers from the Design menu.
2. Select a driver from the drivers list
3. Press the properties button
4. Select the Blocks Tab.

The fields in this dialog box are as follows:

Address The starting address of the block in the device. For address format specifications, see the relevant section in the PLC Technical Information manual.

Length The number of items in the block. In other words, this is the region from Address to Address+(Length-1) in the external device that will be accessed. Note that when blocks of discrete items (single bits) are transferred, and comprise single words in the external device, it may be necessary to define Length as the number of bits divided by 16 (and rounded).

Sample Rate The sample rate of the block in seconds and milliseconds.

Add Activate this button to add the block definition to the list.

Modify this button to change the current block definition with the new specifications.

Files Click to export/import communication block definitions.

Delete Activate this button to delete a block definition from the list.

Converting Communication Block Definitions

The application provides a conversion utility for communication block definitions. You can:

Export communication block definitions to external sources in fixed or CSV file format.

Import communication block definitions to the application in fixed or CSV file format.

To import/export communication block definitions:

To convert communication block definition:

1. In the **Design** menu of the Application Studio, select **Communication Drivers**. The *Communication Driver* dialog is displayed.
2. Select a driver from the list of available drivers, click the **Properties** button and then select the **Blocks** tab. The communication driver properties are displayed:
3. Click the **Files** button. This displays a popup menu in which you can select **Export** or **Import**.
4. **To export:**
 - a. Select **Export** from the popup menu. The *Open block file for export* dialog is displayed. This is similar to the standard *Open* dialog.
 - b. In the **Files of type** field, select one of two export options: **BLS** or **CSV**.
 - c. Locate the file you want to import and click **Open**. The file is exported.
5. **To import:**
 - a. Select **Import** from the popup menu. The *Choose block file* dialog is displayed.
 - b. In the **Files of type** field, select the type of file you want to import. You can choose between **BLS** or **CSV**.
 - c. Locate the file you want to import and click **Open**. The imported file will replace previous block definitions.

Note: Restart after importing files for changes to take effect.

Communication Drivers - Information

Used to present the overall information available on a specific driver.

Type - This field could have one of two parameters:

Serial - Defines parameter for serial communication (RS-232C protocol).

NUL- Any driver which is not of a Serial type. When the NUL value appears in this field, it means that the specific communication driver is not meant to communicate with any field device.

Support - Describes the functions the driver supports.

Communication Drivers Information

This dialog box is used to present the overall information available on a specific driver.

Type this field may contain one of two parameters:

Serial defines parameter for serial communication (RS-232C protocol).

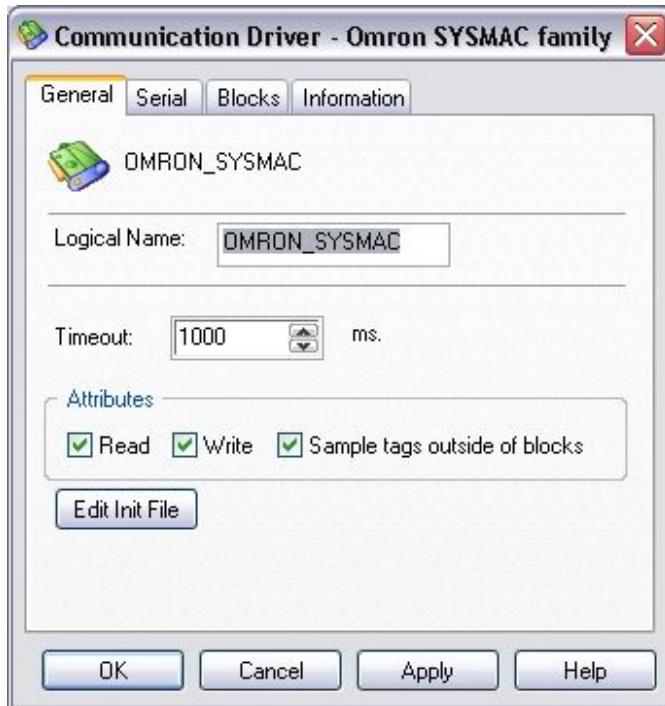
NUL any driver which is not of a Serial type. When the NUL value appears in this field, it means that the specific communication driver is not meant to communicate with any field device.

Supports describes the functions supported by the driver.

Description provides the PLC and protocol name.

General Tab

You can define general driver properties in the General tab of the Communication Driver dialog box.

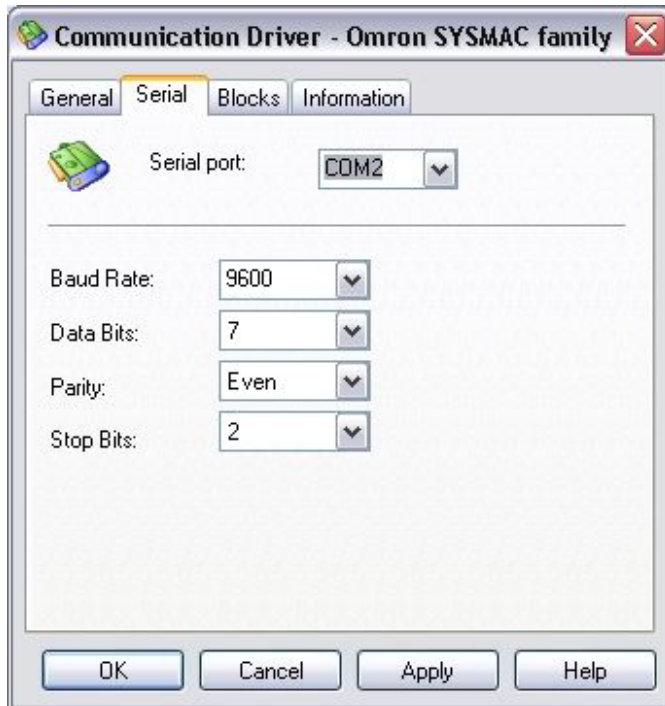


The following options are available:

Logical Name	Specifies a name for identification purposes.
Time-out	Defines the period of time (in milliseconds) during which the system waits for response from a device before indicating a communication failure.
Attributes	<p><i>Read</i>: Check to enable Read operations with the device.</p> <p><i>Write</i>: Check to enable Write Only operation with the device.</p> <p><i>Sample tags outside of blocks</i>: Check to enable the sampling of tags not included in the communication blocks. If you do not select this option, communications will be limited to tags within the blocks.</p>

Serial Tab

You can define serial port parameters in the Serial tab, of the Communication Driver dialog box.



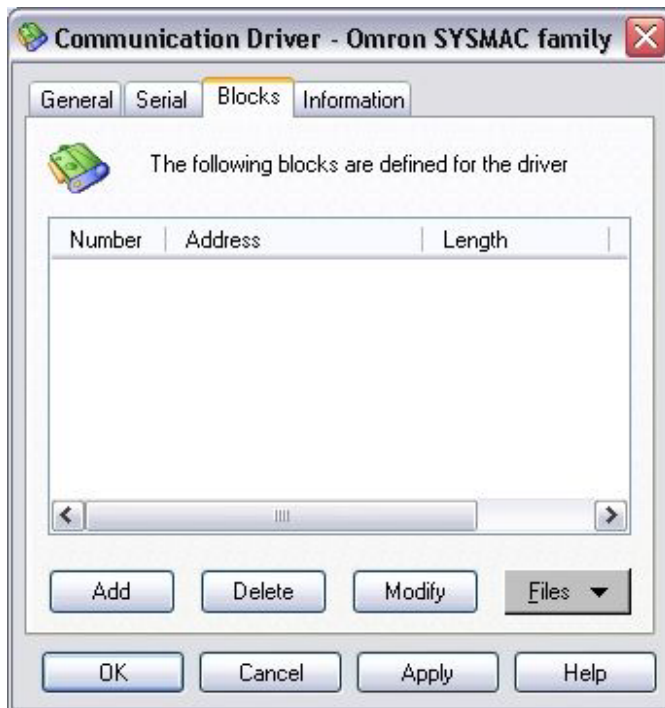
The following options are available:

Serial port	Enter the appropriate device name. The standard name is COMn , where n is a number that refers to the serial port of the computer. For example, COM1 for port 1.
-------------	--

The Baud Rate, Data Bits, Parity and Stop Bits fields are set to the default setting determined by the PLC or manufacturer. (If they have been defined they will automatically be displayed).

Blocks Tab

You can define communication blocks in the Blocks tab, of the Communication Driver dialog box, as described below.



You can define communication blocks to improve driver performance when working with large quantities of tags. These blocks enable you to transfer large blocks of information instead of individual data items.

The rationale for assigning communication blocks is the reduction in transmission overhead. In serial communications (RS-232C), the serial bit rate is relatively slow and 10 to 20 bytes are required just to address the items to be transferred. Thus, while approximately 20 extra bytes are required to transfer one single item, large blocks containing several items can be assigned instead, using the same addressing overhead.

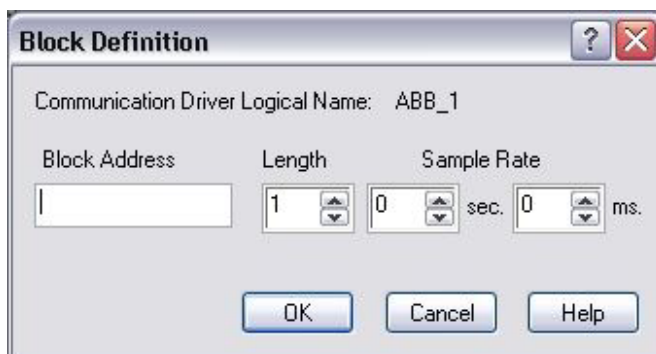
It should be noted, however, that not all devices support block transfers, and those that do may impose restrictions on block size or item types.

For more details, see the relevant application Driver documentation.

The application enables you to define contiguous blocks in the address space of the external device. Each block can then be transferred in a single common transaction.

- To define a communication block:

Click the Add button in the Communication Driver dialog box. The following dialog box is displayed.



The following options are available:

Block Address The starting address of the block in the device. For address format specifications, see the relevant communication driver section in the Driver documentation

Length Number of items in the block

Sample Rate Sampling rate of the block in seconds and milliseconds

Note: In most of the case, the maximum number of blocks that can be defined for each driver is 1024. In certain circumstances blocks may be defined differently. For more information, refer to the Driver documentation.

- Though blocks are efficient in terms of transfer rate, defining large blocks that cover unnecessary items may degrade system performance.
- It is better to define small blocks with fast sampling rates for items that are monitored frequently, and leave the remaining data in larger blocks with slower sampling rates.
- Although blocks may overlap each other, this situation is undesirable since identical tags that belong to two overlapping blocks will be sampled twice (which is insufficient).
- The relationship between the block and tag sampling rates (specified in the Block Definition and Analog/Digital Tag Definition dialog boxes respectively is such that the slower of the two rates will always override the other.
For example, if you define a communication block for five tags with a block sample rate of 30 seconds. Three of the tags will be assigned a tag sample rate of 20 seconds, and the remaining two tags assigned a tag sample rate of 10 seconds. The following illustration will clarify the example:

```
G1 G2 G3  G4 G5
20 sec    10 sec
+-----+
|
|
30 sec
```

The tags will be sampled only after 30 seconds have elapsed since the last time the block was sampled.

However, if you define a sampling rate for a tag group slower than the block sampling rate, as in the following illustration.

```
G1 G2 G3  G4 G5
40 sec    10 sec
+-----+
|
|
30 sec
```

The tags in the group (40-second group in the example above) will be sampled whenever the amount of time specified by the slower rate has elapsed.

It is therefore recommended to group tags into blocks according to their sample rate.

Information Tab

You can view driver information in the Information tab of the Communication Driver dialog box:



The following information is available:

File name	The driver file name.
Type	<p>This field can contain one of two parameters:</p> <p><i>Serial</i> which defines parameter for serial communication (RS-232C protocol).</p> <p><i>NULL</i> which is not serial and can use an external library, or device drivers, supplied by an external provider.</p>
Supports	Describes the function that the driver supports.
Description	The name of the driver.

Converting

Communication Block Definitions

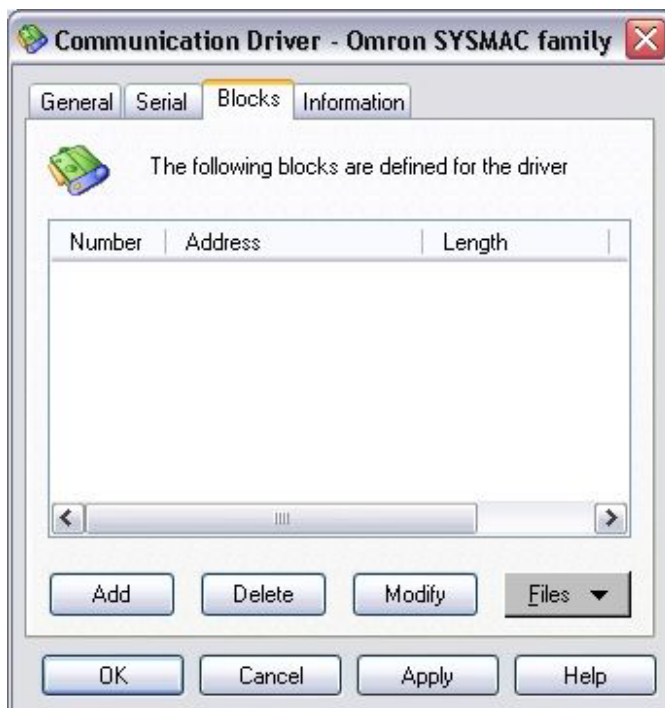
Converting Communication Block Definitions

The application provides a conversion utility for communication block definitions. You can:

- Export communication block definitions to external sources in fixed or CSV file format.
- Import communication block definitions to the application in fixed or CSV file format.

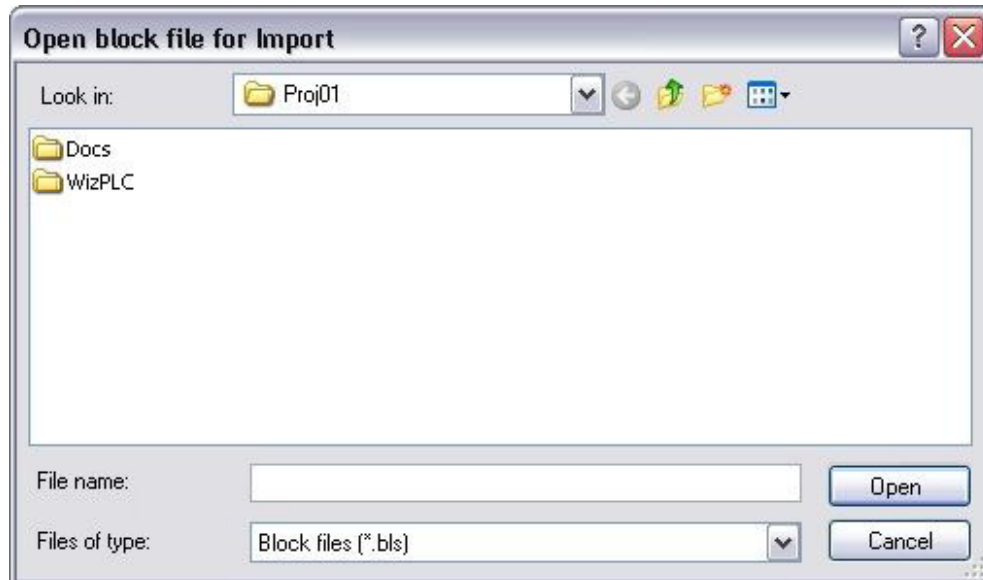
To import/export communication block definitions:

1. In the Design menu of the Application Studio, select Communication Drivers. The Communication Driver dialog box is displayed.
2. Select a driver from the list of available drivers, click the Properties button and then select the Blocks tab. The communication driver properties are displayed:



3. Click the Files button. This displays a popup menu in which you can select Export or Import.
4. To export:

- Select Export from the popup menu. The Open block file for export dialog box is displayed. This is similar to the standard Open dialog box.
 - In the Files of type field, select one of two export options: BLS or CSV. Then locate the file and enter a filename. Click Save. The file is exported.
5. To import:
- Select Import from the popup menu. The Choose block file dialog box is displayed:



- In the Files of type field, select the type of file you want to import. You can choose between BLS or CSV. Then locate the file you want to import and click Open. The imported file will replace previous block definitions.

Note: Restart the application after importing files for changes to take effect.

Importing and Exporting Definitions Using an External Application

If you are using an external application you can import and export communication block definition files using the command line.

Importing Communication Block Definition Files

- To convert a csv file to a communication block definition file:

Type the following in the command line:

```
csv2bls [fromfile] [tofile]
```

Note: The application can run in the background. Restart the application for the changes to take effect.

Exporting Communication Block Definition Files

- To convert a communication block definition file to csv format:

Type the following in the command line:

```
bls2csv [fromfile] [tofile]
```

- To convert a communication block definition file to a dat file:

Type the following in the command line:

```
bls2dat [fromfile] [tofile]
```

Defining OPC (Application Client)

OPC (OLE for Process Control) is an industry software standard designed to provide business applications with easy access to industrial plant floor data.

Using OPC technology, a system integrator can create a common interface for exchanging data with hardware field devices or other software that can be reused by this client program, and other HMI, SCADA and custom applications.

This client program uses OPC technology to exchange data with HMI and SCADA software and OPC servers.

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OPC

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OPC Driver Properties

Communication drivers are defined in the Communication Drivers dialog box, in which you can add and remove drivers as described on the following page, and define driver properties.

- To add/remove a communication driver:

In the Control Panel of the Application Studio, double-click the Communication Drivers icon.

Or,

In the Design menu of the Application Studio, select Communication Drivers.

- To define communication driver properties:

1. In the Design menu of the Application Studio, select Communication Drivers. The Communication Drivers dialog box is displayed.
2. Select the driver and then click the Properties button to display The Communication Driver - OPC Client dialog box in which you can define communication driver properties.



In this dialog you can define the following:

Logical Name	Specifies the name given to the driver for application identification purposes.
OPC Server Name	<p>Name of a specific interface.</p> <p>OPC Servers are provided by different vendors. The code written by the vendor determines the devices and data to which each server has access, the way in which data items are named and the details about how the server physically accesses that data.</p> <p>For this reason, we expect that the OPC Server will generally be a local or remote program which includes code that is responsible for data collection from a physical device.</p>
Node Name	<p>Specifies the name of the computer hosting the server.</p> <p>If your OPC is running from a remote site you must make sure that DCOM™ is configured correctly to provide networking.</p>

OPC Driver Properties

OPC Communication drivers are defined in the **Communication Drivers** dialog, in which you can add and remove drivers, and define driver properties.

To add/remove a communication driver

In the Control Panel of the **Application Studio**, double-click the Communication Drivers icon.

or,

In the Design menu of the Application Studio, select Communication Drivers. The Communication Drivers dialog opens.

To define communication driver properties:

In the Design menu of the Application Studio, select Communication Drivers. The Communication Drivers dialog is displayed. Select a driver and then click the Properties button to display The Communication Driver - OPC Client dialog in which you can define communication driver properties.

In this dialog you can define the following:

Logical Name - Specifies the name given to the driver for application identification purposes.

OPC Server Name - Name of a specific interface.

OPC Servers are provided by different vendors. The code written by the vendor determines the devices and data to which each server has access, the way in which data items are named and the details about how the server physically accesses that data.

For this reason, we expect that the OPC Server will generally be a local or remote program which includes code that is responsible for data collection from a physical device.

Node Name - Specifies the name of your computer.

If your OPC is running from a remote site you must make sure that DCOM™ is configured correctly to provide networking.

BACnet Configuration

Console

General

Start up Settings

There are 3 options available:

1. **Synchronise time on start-up.** Activation of this option will synchronise the clock settings based on preset configuration in the “Time Synch” dialog box. For more details about time synchronisation, see the dedicated dialog box.
2. **Transfer history on start-up.** Activation of this option will import history from the BACnet devices into the application when it is starting up. See the “History” dialog box for full details.
3. **Refresh alarms on start-up.** Select this option if you want to transfer all active alarms from the devices when starting the application. See the dedicated dialog box for details on how BACnet alarms are interpreted in the application.

Init. File Import/Export

The settings that you have defined for the different options on the BACnet Configuration Console can be stored in an external ASCII file. You can modify and /or transfer this file between different applications. To save the settings, press the Export Init. File button and select the file that you want to write to. To load the settings from a previous session or a different application, press the Import Init. File button and select the previously exported ASCII file.

Network

You can select the BACnet networks to which you want to connect the application. Use the Connect and Disconnect button to choose which networks you want to use. The list of currently connected networks is displayed in the combo-box list BACnet networks. For a given network, you can control the connection by using a digital tag (a control tag). If the selected tag is set to 1 when the application starts, a connection to the associated network will be made. Likewise, if the tag value is 0, the associated network will not be connected and its devices therefore inaccessible.

Note: *If a network appears in the list of BACnet networks, but with no associated control tag, the network will be connected by default at application start-up.*

Object Browser

This dialog box allows you to browse all the connected BACnet networks and all the devices on each of the networks.

The list on the left shows the available networks based on control tags conditions. Clicking on each “node” expands the list, allowing you to see the connected devices.

Clicking on the device allows you to see the list of data objects in the device.

When you have clicked on a data object, the list on the right shows you the values for each of the properties of the data object.

Use the “Refresh All” button to update the device list in all networks at any time. The date of the last refresh is shown underneath this button.

Use the “Remove Device” button if you want to hide the device from the list of accessible devices and from system integration during the tag declaration phase in your SCADA application. The device will be hidden until the next “refresh all” operation is performed.

Likewise, use the refresh button underneath the list of properties in order to refresh this list.

Time Synchronisation

Use this dialog box to ensure that all devices on the BACnet network have the same clock time and that they remain synchronised.

At the top of the page is the date and time on the local station with the offset from GMT.

Select Time Master

When you are synchronising the time on the whole network, one device or computer must act as the “master” – the reference from which all other times are taken.

- Use local system as Time Master – all other devices will be updated from the time on the current PC
- Use BACnet device as Time Master – all other selected devices (see below) will use the specified device as the reference for their time settings. If you choose this option, you must specify the device; use the “Master BACnet Device” list to specify the master.

The “Select Device” button shows a list of all devices on the network. Select the ones that you want to update (hold down the “shift” or “control” button to select several devices). The “Synchronise All” button will select all devices on the network.

When you are ready to synchronise the devices, press the “Synchronise Now” button.

Cyclic Synchronisation

You can synchronise the devices on a regular (cyclic) basis. Check the “Enable Cyclic Synchronisation” button to activate this option.

Once you have selected this option, you can define the time period for the synchronisation, e.g. selecting 24 hours means that once every 24 hours, the device times will be synchronised. The synchronisation options are those defined elsewhere on this dialog box.

Note: BACnet synchronisation mechanism supports UTC time format. Please make sure that your devices are switched to that mode as well.

Alarms

BACnet devices generate alarms. However, the format and meaning of these alarms are not necessarily interpreted in the same way in the SCADA application. This dialog box will allow you to define how to interpret BACnet alarms, convert them into software alarms and present them to the user.

The mapping rules are simple. The table below shows how the BACnet object properties are converted into alarm properties.

BACnet Object Property		SCADA Alarm Property
Description	maps to	Text
Alarm generating Object Name	maps to	Family
Priority	maps to	Severity

Alarm Property Management

You can define a set of filters. All alarms who meet the criteria defined in each filter will be transferred to the software.

This group of controls allows you to define a set of filters. These filters intercept the BACnet alarms, and use the filter rules to convert them into software alarms.

These filters are based either on the name of the alarm object or on its priority.

Priority Range

As shown in the table above, BACnet alarm priorities are converted into Severity properties. Use the “From” and “To” buttons to define the range of priorities that will be accepted by this filter. The priority will be converted into the Severity of the alarm.

Object Name Rule

You can base the filter on the name of the object that generated the alarm. Use the box to give a pattern match. If a name matches the filter, it will be converted into an alarm and, as shown above, the name will be converted into the Family of the alarm.

Once you have defined the filter, you can add it to the list.

Note: The order of the items in the list is important. When an alarm arrives, it is matched against all filters in the list starting from the top of the list. The first filter that matches is the one that is used to convert and transfer the alarm to the software.

Use the “Move Up”, and “Move Down” buttons to change the order of the filters in the list.

Use the “Remove” button to remove filters from the list.

Targets

For the currently selected filter in the list, you can define the target of the alarm. You can choose to send the alarm to one or more of the “Default Printer”, “Event Summary”, “Popup” or “Popup Buzzer”.

Attributes

For the currently selected alarm in the list, you can select the attributes of the alarms that will be generated. You can choose from one or more of “System Wide”, “Auto Acknowledge”, “Auto END”, “Record to File”, “Discard” or “Inhibit”.

User Attributes

You can define which users or groups have access to the alarm. Press the “Groups” button and you will be presented with a standard dialog box to do this.

Alarm Family

Choose the family for the alarms generated by the currently selected filter. By default, the family name will be prefixed with “BACNET_” in order to help identify it.

Alarm Zone

Define the alarm zone for the alarms that will be generated by the currently selected filter.

Action on Alarm and AAM (Advanced Alarm Management)

Press the “Action on Alarm” button to launch a dialog box that will allow you to define a set of actions to perform when an alarm is generated:

- Goto Zone
- Execute macros on alarm
 - o Started
 - o Acknowledged
 - o Ended
- Select AAM recipients

These are the same options as you find in the standard product. Refer to the online help therein for further details.

History

This dialog box helps you to import BACnet historical data into the software.

BACnet history is stored in objects known as Trend Logs (TR). A TR is linked to a Data Object in the device and its role is to collect historical data for the data object.

Select BACnet device

You can select the BACnet device for which you want to import history using the dropdown list. This shows a list of all devices on the network.

Select Objects

Once you select the device, you see a list of all objects in the device that can generate historical data. Use the “Definition Mode” button to decide whether the list should show,

- The data objects themselves, or,
- The trend objects that are linked to the data objects.

You can select which of the objects you want to import history. Use the shift and control buttons to make multiple selections. However, you can select all objects with the “Select All” or deselect all with the “Unselect All”.

Limit History Transfer Session

In order to limit network traffic or overloading the software, it may be desirable to limit the rate of transfer of the historical data. Click the checkbox to activate this option.

There are two ways to limit the transfer:

1. Limit the number of records that are transferred in one go (By record count). If you choose this option, you must select the number of records to select in any one go (“Limit to” option) and choose the number of records.
2. Limit the time for any one transfer session. In this case, use the Limit to option to select the time period for any one transfer session.

Remember that these settings apply only to the selected device.

Select Tag for History Log

You can use a digital tag in order to control the transfer of the records. If the tag is set to 1, the history transfer will begin, respecting the other options selected (rate of transfer etc.)

You will also see the time of the last transfer.

Manual Mode

You can also force a manual transfer of historical data. If you do this, you can choose the start and end time of the historical data you want to retrieve.

In each case, you can choose the Date and Time and specify whether this information is,

- Absolute. i.e. this is the date and time from which you want to retrieve data
- Relative Date. i.e. The date specified is relative to the current date but at a specified time (e.g. 1 day back from today, beginning at 2pm.)
- Relative. i.e. both the specified date and time are relative to the current date and time.

When you want to start the transfer, press the “Get History” button.

Log Files

Two types of log file are used:

- Online Log: Records events from the current session. This data is stored in a file, BACnet.log
- Historical Log File: Keeps an archived collection of old online log files.

Online Log File

You can enable or disable logging as required (it is advised to log data) by selecting the Enable Online Log option.

If you choose to log data, you have the choice to limit the size of the log file. This means that, if the file gets bigger than the limit specified, the oldest data in the file will be removed as more data is logged. The size is specified in megabytes.

Historical Log File

You can keep a backlog of previous online log files by selecting the option Enable Historical Log.

You may want to limit the scope of this file in 2 different ways:

1. Limit by Size. This is the same option as described above for the current online log file. If you choose this option, you can set of the maximum size of the file. Once the limit is reached, the oldest data will be removed as new data is added.
2. Limit by number of sessions. You can select to keep the limited number of sessions in History log file. If you choose this option, you can choose the maximum number of sessions for which you want to keep data. Once the maximum number of sessions is reached, the oldest session will be removed as new session is added.

Set Information Level

There are 4 levels of information, each more detailed than the previous:

- LowInfo - Critical errors only will be recorded into the log file
 - Info - All errors occurred during the working session will be recorded into the log file
 - Normal - All errors and warnings information level
 - Trace - All information that mentioned above and additional debug information according the flags setup in Filter dialog box.
-

VPI

Communication Drivers Setup

This dialog box enables you to select a communication driver from the given list (the list is originated in the Install Process).

To access this dialog box:

1. Press the Add button from the Communication Drivers dialog box. The Communication Driver setup opens
 2. Select a name of a driver from the list and press Next to continue.
-

Communication Drivers - Add Block

Used to define a communication block.

To define a communication block, follow the next steps:

Press the Add button in the Communication Drivers Property block dialog box (VPI Icon/ Properties button/Block Tab).

Complete the following fields:

- **Address** - The starting address of the block in the device.
 - **Length** - Number of items in the block
 - **Sample rate** - Sampling rate of the block in seconds and milliseconds
-

Communication Drivers - Block Definition

In this dialog box, you can define contiguous communication blocks in the address space of the external device.

Communication blocks can be transferred in single communication transactions, which can greatly improve data transfer speed and system performance.

To define a block, follow the next steps

1. Select the communication drivers from the Design menu.
2. Select a driver from the drivers list
3. Press the properties button
4. Select the Blocks Tab.

The fields in this box are as follows:

Address The starting address of the block in the device. For address format specifications, see the relevant section in the PLC Technical Information manual.

Length Number of items in the block. In other words, this is the region from Address to Address+(Length-1) in the external device that will be accessed. Note that when blocks of discrete items (single bits) are transferred, and comprise single words in the external device, it may be necessary to define Length as the number of bits divided by 16 (and rounded).

Sample Rate The sample rate of the block in seconds and milliseconds.

Add Activate this button to add the block definition to the list.

Modify this button to change the current block definition with the new specifications.

Delete Activate this button to delete a block definition from the list.

Communication Drivers - Information

Used to present the overall information available on a specific driver.

Type - This field could have one of two parameters:

Serial - Defines parameter for serial communication (RS-232C protocol).

NUL- Any driver which is not of a Serial type. When the NUL value appears in this field, it means that the specific communication driver is not meant to communicate with any field device.

Support - Describes the functions the driver supports.

Presents a list all drivers and their communication parameters.

Logical Name: Any name for personal Identification purposes.

Name:The VPI identification name

Device The name of the device. The standard name is COM n , where n is a number that refers to the Serial port of the computer

Parameters : Describes the operation available with the device

Communication Drivers Definition

This dialog box has the following fields:

Logical Name Specifies the unique name of the Communication Driver

Device Specifies the name of the physical device. The standard name is **COMn**, where **n** is a number that refers to the serial port of the computer. Drivers that use standard TCP/IP, or proprietary network, do not require this parameter.

Name Specifies the name of the communicating driver. For example; SIEMENS, SIMATIC S7.

Parameters Specifies the Device access rights. For example, Read/Write and out of block.

1. Click the Add button to open the Communication Driver Setup Wizard.
 2. Select a driver and then click the Remove button to delete this from the list.
 3. Select a driver and then click the Properties button to view/edit the driver's properties.
-

Communication Drivers - General

Used to define the communication parameters.

Logical name- Any name for personal identification purposes.

Time out - Defines the period of time (in hundreds of seconds) during which the system waits for response from a device before indicating a communication failure.

Attributes

- Checking the **Read** option enables read only operations with the device.
- Checking the **Write** option enables write only operation with the device.
- Checking the **Out block** option enables the referencing of elements not included in the blocks. If you do not select this option, communications will be limited to elements within the blocks.

Serial Communication Drivers

In this dialog box, you can define parameters for VPI application serial communications (RS-232C protocol).

Serial Port - Enter the appropriate device name. The standard name is COMn , where n is a number that refers to the serial port of the computer.

For example, COM1 for port 1.

Serial Communication Drivers

In this dialog box, you can define parameters for VPI-Application serial communications (RS-232C protocol).

Serial Port - Enter the appropriate device name. The standard name is COMn , where n is a number that refers to the serial port of the computer.

For example, COM1 for port 1. For information about the Baud Rate, Word Size, Parity, and Stop Size options for a particular VPI, see the PLC Technical Information manual.

Defines the operation attribute of the driver.

- Checking the **Read** option enables read only operations with the device.
 - Checking the **Write** option enables write only operation with the device.
 - Checking the **Out block** option enables the referencing of elements not included in the blocks. If you do not select this option, communications will be limited to elements within the blocks.
-

Defines the period of time (in hundreds of seconds) during which the system waits for response from a device before indicating a communication failure.

Virtual PLC Interfaces which handle communications with external devices, such as PLCs, industrial instruments and remote computers.

Serial Communication Drivers Parameters

In this dialog box, you can define parameters for VPI-Application serial communications (RS-232C protocol).

Serial Port - Enter the appropriate device name. The standard name is COMn , where n is a number that refers to the serial port of the computer.

For example, COM1 for port 1. For information about the Baud Rate, Word Size, Parity, and Stop Size options for a particular VPI, see the PLC Technical Information manual.

WizModbusSlave

What is WizModbusSlave

WizModbusSlave Overview

WizModbusSlave is an add-on client application based on the Slave – Master architecture, which simulates an application station to a Modbus Slave PLC thus enabling a Modbus Master compliant application direct access to any application Tag over the network.

WizModbusSlave communicates via RS232 with up to 16 local application stations (master stations) through serial Communication ports, COM1 to COM16 (or any other 16 consecutive numbers in the range of 1 – 99), and with up to 1000 remote application stations through TCP/IP. Using this architecture the WizModbusSlave station functions like a virtual PLC and intermediates between the remote and the local stations.

WizModbusSlave has a user-friendly interface, allowing you to easily map and manage any application tag from any application remote station and any Modbus Slave I/O. The online connection is bi-directional (read and write) and event-driven. This means that whenever a value or the state of any application tag changes – it will be reported to all the master stations in the system.


This help will guide you through the steps necessary to **install WizModbusSlave** and then **configure** it to read and write data from / to tags located in any application station in the network.


How to ...

Installing the WizModbusSlave Application

WizModbusSlave cannot run independently, it is an add-on application. You should therefore run the application before running WizModbusSlave.

Before you install WizModbusSlave in your system:

 Make sure the system folder (in Windows 95/98 WIN\System and in Windows NT WINNT\System32) of your operating system contains the following files: Mfc42.dll, Mfc42d.dll, Mfc42d.dll, Msvcrt.dll.

 Build and run an application and define a station name and ID in the Local station configuration in the Network menu.

Compatible Equipment

WizModbusSlave can communicate with any equipment connected to a Modbus master station.

To install WizModbusSlave

- Activate the WizModbusSlave setup file, and follow the steps as prompted.
 - The WizModbusSlave application files ModbusSlave.exe and Modbusl.dll are installed in the WizFactory\wizcon\Bin folder.
 - A shortcut to the WizModbusSlave application is created on your desktop.
-

Configuring a WizModbusSlave Station

The WizModbusSlave application supports up to 16 local master stations. For each of the 16 local stations you have to open a WizModbusSlave window, where you select the COM port through which the master station communicates with the WizModbusSlave station. You can run up to 16 WizModbusSlave applications simultaneously, each application will be assigned with a number between 1 and 16: The first application you open will be named WizModbusSlave1, the second application you open will be named WizModbusSlave1 and the 16th application you open will be named WizModbusSlave16.

To configure a WizModbusSlave station

1. Run your application.
 2. Select Local Station Configuration from the Network menu of the application studio and define the station name and ID.
 3. Activate the WizModbusSlave.exe file from your desktop or from the application Bin folder to open the WizModbusSlave application window.
-

Mapping Application Tags to the WizModbusSlave Station

Other Topics

Select the station name.

Type the device ID.

.

Click to modify a selected tag.

Editing a Mapped Tag

Type the address

How to Contact eMation

Select the Tag name.

Click to add the tag to the list.

Select the address type

Chapter 9 Tags

Overview.....	301
Overview	302
Tags Overview	302
Basic Principles.....	303
Tag Icons	304
Tag Icons	305
Tags Type	305
Tag Source	307
Defining Tags	309
Defining Tags.....	309
Tag Specification	310
General Tab	313
Tag Definition - General	314
PLC Tag Source Parameters	318
Dummy Tags.....	320
PLC Tags	320
Compound Tag Source Parameters	323
Compound Tags	324
Analog Tag Type.....	327
Analog Tag.....	328
Format.....	329
Digital Tag Type.....	331
Digital Tag.....	332
String Tag Type	333
String Tag	334
Authorization Groups	334
Record Tab	336
Tag Definition- Record	337
Tag Definition- Record	338
Dynamic Data Exchange (DDE) Link Tab.....	341
Tag Definition- DDE Link	342
DDE Type - Single	342
DDE Tag Link- Single	343
DDE Type - Block	344
DDE Tag Link- Block.....	344
Lock Tag	346
Tag Definition - Lock	348
WizPLC Tab.....	348
Tag Definition - WizPLC.....	350
Alarms Tab.....	351
Tag Definitions Tag Related Alarms	353
Tag Definitions Tag Related Alarms	354
MultiState Tags	355

Single Tag Input	359
Single Tag	360
Single Tag	360
Tool / Single tag.....	361
MultiAdd Tags.....	361
Multi Add Tag Definition	363
Tag Management	364
Tag Modify.....	365
Delete Tag	365
Tools / Find / Tag.....	366
Locating Tags	366
Find Tag	367
System Tags.....	367
System Tags.....	368
Tools / Add System Tags	370
Exporting Tags	370
Exporting Tags.....	370
Export / Tag	372
Tag Export	372
Export Tags to WizPLC.....	372
Export Tags to WizPLC.....	373
Fixed (GLS File) Format	374
Tag Export	375
Exporting Tag Definition Files Using an External Application	376
Importing Tags	376
Import Tags.....	377
Importing Tag Definition Files Using an External Application	377
Defining Tag Properties.....	378
Tag Properties	379
Tag Properties	380
Tag Property.....	380
Other Topics	381
Design / Add Object / Tags	381
Cluster - Tag Definition	382
Tag - Special Tokens	382
Tag Assignment.....	383
Tag Cluster Definition	385
Tag Field Definition	386
Tags Properties: Mandatory Fields	387
Modify the Tag List.....	388
Retain Tag Options	389
Tags	389
Defining Tags.....	390

About this chapter:

Overview gives a short overview of application tags.

Defining Tags discusses how to define application tags.

General Tab discusses the General tab options.

Record Tab discusses the Record tab options.

Lock Tag discusses the Lock tab options.

WizPLC Tab discusses how to define tags in WizPLC.

Alarms Tab discusses the Alarm tab options.

Fixed (GLS File) Format discusses Fixed Formatted tags

Single Tag Input describes how to assign an immediate value to a specific tag.

MultiAdd Tags discusses how to automatically generate a group of tags according to a user-defined pattern format.

System Tags discusses predefined system tags.

Exporting Tags discusses how to generate a tag list file (list of tag definitions) in two formats

Importing Tags discusses how to import a tag list file into the system.

Defining Tag Properties discusses how to define properties for the tag buffer size and the flush rate.

A Tag is a contact point through which the Application receives data from the controller and / or outputs data to it. Tags can be analog, digital or compound.

Compound Tags are tags for which the values are the result of a combination of two other tags.

In addition you can define Dummy Tags, which is not an actual contact points with the PLC, but can be used to store specific values.

Overview

Overview

The term Tags in the application refers to control values monitored by the system. These values are similar to variables in a programming language such as BASIC, PASCAL, and C. Like their programming counterparts, each value is identified by a unique name and can be one of several data types, such as integer, real, or Boolean.

PLC tags are distinguished from other variables in that they can be associated with external device components, such as registers or I/O points in PLCs, memory locations in remote devices. A tag value represents the value of an external component or device, so that referencing the tag is equivalent to referencing the component or device itself.

Updating a tag causes the external component or device to also be updated. Thus, an application PLC tag is actually a link to external devices.

Once tags are defined in the Tag Definition dialog box, they can be used in other modules for displaying, calculating and control functions.

For quick reference, the number of tags within the application is listed Application Studio Status Bar.

Note: Tags have now to be linked to the WizPLC, by an export option. It means all the Wizcon tags you want to use within WizPLC need to be declared one by one in this section, or globally in the WizPLC tag export interface.

Tags Overview

The term Tags in the application refers to control values monitored by the system. These values are similar to variables in a programming language such as BASIC, PASCAL, and C. Like their programming counterparts, each value is identified by a unique name and can be one of several data types, such as integer, real, or Boolean.

PLC tags are distinguished from other variables in that they can be associated with external device components, such as registers or I/O points in PLCs, memory locations in remote devices. A tag value represents the value of an external component or device, so that referencing the tag is equivalent to referencing the component or device itself.

Updating a tag causes the external component or device to also be updated. Thus, an application PLC tag is actually a link to external devices.

Once tags are defined in the application tag definition module, they can be used in other modules for displaying, calculating and control functions.

Basic Principles

In the application, a tag can be associated with one of the following sources: PLC, Dummy or Compound:

- **PLC Tags** These tags are associated with external devices and mapped to the external device variables (for example, PLC registers). The application samples these tags periodically through the communication driver so that value changes in the field device variable are automatically transferred to the associated tag. PLC tag value changes in the application are recognized in the external device.
- **Dummy Tags** These tags represent internal variables and are used for a variety of calculations, control and other application-related needs. Dummy tags are updated by user input or changed by other application modules. These tags are set to 0 upon system initialization.
- **Compound Tags** Tags that are linear calculations based on values of other tags.
- **System Tags** Tags that are pre-defined and built to provide system status information. These tags can be added to an application only once either when the application is activated or anytime afterwards. Once added, System Tags will appear under the Tags icon in the All Containers pane. When double clicked a list of all the System Tags in the application will open in the Control Panel.
- **RePlay Tags** The RePlay Tags list is held in the Application Studio, All Containers pane under the Tags container. This list contains seven application dummy WIZRPL tags and the dummy WIZRPL tags that are generated during image RePlay.
In the RePlay module the list of WIZRPL Tags appears in the RePlay Image field. Dummy RePlay tags have the same attributes as the original tags used in the original image.

According to their data types, tags can be one of the following:

- **Digital** Discrete logic tags that have Boolean values of TRUE (1) or FALSE (0).
- **Analog** Tags that have numeric values represented in various formats (signed or unsigned integer, floating point, BCD).
- **String** Tags which are defined to receive alpha-numeric strings.

Basic Principles

An application tag can be associated with one of the following sources: PLC, Dummy or Compound:

- **PLC:** These tags are associated with external devices and mapped to the external device variables (for example, PLC registers). The application samples these tags periodically through the communication driver so that value changes in the field device variable are automatically transferred to the associated tag. PLC tag value changes in the application are recognized in the external device.
- **Dummy Tags:** These tags represent internal variables and are used for a variety of calculations, control and other application-related needs. Dummy tags are updated

by user input or changed by other application modules. These tags are set to 0 upon system initialization.

- **Compound:** Tags that are linear calculations based on values of other tags.
- **System Tags:** Tags that are predefined and built to provide system status information. These tags can be added to an application only once either when the application is activated or anytime afterwards. Once added, System Tags will appear under the Tags icon in the All Containers pane. When double clicked a list of all the System Tags in the application will open in the Control Panel.
- **RePlay Tags:** The RePlay Tags list is held in the Application Studio, All Containers pane under the Tags container. This list contains eight application dummy WIZRPL tags and the dummy WIZRPL tags that are generated during image RePlay. In the RePlay module the list of WIZRPL Tags appears in the RePlay Image field. Dummy RePlay tags have the same attributes as the original tags used in the original image.
- **Tag Mapper:** The Tag Mapper is a data file of tags and tag values that can be used to considerably reduce workload during application creation. Tag values of tags held in a Tag Mapper table are mapped by the Tag Mapper into a list of other tags.

There are two types of Tag Mapper tags:

- **Source:** These are tags whose values are directed to target tags. More than one source tag can be pointed to the same target tag.
- **Target:** This tag type receives the values of the source tag. All target tags must have the WIZTGM_ prefix.

According to their data types, tags can be one of the following:

- **Digital Tag Type** (see [page](#)) Discrete logic tags that have Boolean values of TRUE (1) or FALSE (0).
- **Analog Tag Type** (see [page](#)) Tags that have numeric values represented in various formats (signed or unsigned integer, floating point, BCD).
- **String Tag Type** (see [page](#)) Tags which are defined to receive alpha-numeric strings.

Tag Icons

The application marks the different tag types with icons. Below are the Analog, Digital and String icons used to mark tags in the Studio Tag List.

-  Analog
-  Digital
-  String

Tag Icons

The application marks tag-type with icons. Below are the Analog, Digital and String icons used to mark tags in the Studio Tag List.

 Analog Tag

 Digital Tag

 String Tag

Tags Type

Analog Tag

Analog tags have numeric values represented in various formats (signed or unsigned integer, floating point, BDC).

Click in the Tag Type field of the Tag Definitions: New Tag dialog box and select Analog from the drop-down list. The Tag Type parameters will appear as follows:

Format This field is used to specify the data format of the external device. The options include:

Unsigned 16: Unsigned 16-bit integer.

Signed 16: Signed 16-bit integer.

BCD: 4-digit BCD format.

Float: 4-byte IEEE single-precision, floating point format.

Signed 32: Signed 32-bit integer.

Unsigned 32: Unsigned 32-bit integer.

Tolerance Specifies the minimum amount of change that must occur to a tag value, since the last change, for an event to be recognized. Using this parameter is a convenient way of smoothing sensor fluctuations.

Tolerance applies to analog PLC tags only. The value is in the external device measurement units (raw PLC units) and not engineering units (ref Conversion).

Tag Scale Low/High Limit These fields specify the upper and lower limits of the tag's value. This option is only relevant when the Set to Default option is not checked.

Set Default When this option is checked the Low/High limits are default according to the format limits.

Conversion External devices normally generate values according to their internal format and in order to obtain the maximum accuracy. For instance, a temperature measured in the field, which is in the range between 0 and 600 degrees, may be presented as a numerical range of between 0 to 65535. To convert the field measured value in engineering units, the application uses the linear conversion.

Value 1 Measured: Measured raw value sample.

Value 1 Engineering: Corresponding engineering value sample.

Value 2 Measured: Another measured raw value sample.

Value 2 Engineering: Another corresponding engineering value sample.

For example, if you specify the following:

Value 1 Measured = 0.

Value 1 Engineering = 0.

Value 2 Measured = 1.

Value 2 Engineering = 2.

The converted value would be the raw PLC value multiplied by two.

Note: When converting a float tag value the result will always be a float number even if the tag format is WORD or DWORD.

Digital Tag

What is a Digital Tag?

Discrete logic tags that have boolean values of TRUE (1) or FALSE (0).

How to define a Digital Tag?

Select the Digital option from the Tag Type field in the Tag Definition dialog box..

The filter field applies to digital PLC tags only. Specifies the minimum amount of time during which a tag value should remain stable. In this field define the amount of time the Application will wait after a tag value change is detected, before continuing to sample the tag.

String Tag

A string tag can receive an alphanumeric string as a tag value.

To define a string tag type:

1. 1. Click in the Tag Type field of the Tag Definitions: New Tag dialog box and select String from the drop-down list. The Tag Type parameters will appear as follows:
1. 2. In the Width field, specify the maximum number of characters that you want the string to include. The maximum length of a string tag is 255 characters.

Tag Source

PLC Tags

PLC Tag Source Parameters

Note: If drivers have not been previously defined then do so now. For further information refer to the Communication Drivers chapter.

To open the Tag Source parameter fields:

In the Tag Definitions dialog box click the arrow in the Tag Source field and select PLC. The Tag Source field opens.

Note: The following parameters are available both when creating and modifying a tag.

The following options are available:

Driver Specifies the name of the driver responsible for communication with the relevant external device. The available communication drivers should be previously defined in the communication driver definition module. For a list of currently defined communication drivers, click on the arrow to the right of the field.

Address The address string specifies the location of the tag data source in the PLC or other field device. Generally, the address represents combination of a PLC unit and PLC register number and type. The exact address format is specific for each PLC and depends on the driver used for the communication. For more details, refer to the driver on-line reference.

Sample External devices are sampled periodically to update the values of their associated tags. Therefore, a tag value always reflects the state of its associated device. Each tag is assigned its own sampling rate. However, if the device component, with which the tag is associated is included in a communications block, the block will ultimately determine the sampling rate. The following options are available:

Never: The external device is never sampled to update its respective tag.

In Monitor: The device is sampled to update its respective tag only when the tag's value is requested by one of the application's modules (for example, displayed in an Image). This option is useful for minimizing communications traffic, thereby improving system

performance. Select this option for tags that are used for monitoring field activities and do not record into history files. Do not select this option for tags that are used for alarm definition.

Always: The device is always sampled to update its respective tag. If you select this option, specify the sample rate in seconds and/or milliseconds.

Note: If the tag is included in a communication block, the block will ultimately determine the sampling rate. Tags can be sampled at a rate of upto 40 milliseconds.

.

Dummy Tags

What are Dummy Tags?

These tags represents internal variables and are used for a variety of calculations, control and other application related needs. Dummy tags are updated by user input or changed by other application modules. These tags are set to 0 upon system initialization.

Result on the Source Parameters:

Once the Dummy Tag was chosen the Source Parameters Section will remain close since no parameter need to be defined for dummy tags.

Compound Tags

A compound tag is an analog tag, the value of which is a combination of two other tags.

Note: The following parameters are available both when creating and modifying a tag.

Click in the Tag Source field of the Tag Definitions: NEW Tag dialog box, and select Compound from the drop-down list. The Tag Source parameters will appear:

The compound tag formula is as follows:

Constant1 * Tag1 *oper* Constant2 * Tag2

Where *oper* is one of the following operators: +, -, / (division), or * (multiplication). Operators can be selected by clicking on the relevant operator.

Note: In the tag field click on the arrow to the right of the fields, to obtain a list of available tags.

Define the compound tag in the Calculate field as either In Monitor or Always. Select Always if you want the compound tag to be calculated always (also when the tag is not In Monitor).

After you define the formula, whenever the individual tags are sampled, the compound tag will be assigned a value according to the evaluated formula.

Defining Tags

Defining Tags

- To define a tag:

Click the Tag icon in the application toolbar to open the Tag Definition dialog box.

Or,

From the All Containers section of the Application Studio, right-click Tags and select Add Tag to open the Tag Definition dialog box.

The Tag Definition dialog box has five tabs:

- **General Tab** used to create new tags and modify existing ones
- **Record Tab** defines how tag value changes will be recorded to history
- **Dynamic Data Exchange (DDE) Link Tab** used to define the online communication method for other applications (such as Excel)
- **Lock Tag** enables tag values to be locked for a predefined period of time. The Status Tag (digital) option indicates the locked tag status
- **WizPLC Tab** defines if the tag will be used or not in WizPLC, and to define the general attributes of this softlogic tag.
- **Alarms Tab** where the following tag related alarms can be defined:
 - LoLo
 - Low
 - High
 - HiHi
 - Rate of Change
 - Deviation

Tag Specification

In this dialog box, you can select the tag type and all the relevant specifications for the tag you want to define.

Except for Compound tags, if no address is specified for a tag, it is assumed to be a Dummy tag. Name: The unique tag name that identifies it and represents its value. In the Name field, you can specify the name of the tag that you want to add, or modify the name that exists, for a change operation. The tag name should be unique and is limited to 32 characters.

Description:

In the Description field, you can enter a brief description of the tag that you want to add, or modify the existing description for a change operation.

The remaining fields in the dialog box are described in the following sections.

Source: As shown in the Tag Specifications dialog box that, the Source field is divided into two sections: source options and source parameters. The source parameters section is context-sensitive and contains different fields and options, depending on the source that you select (PLC, Dummy, or Compound). Each of the source options is described below.

PLC To associate the tag you want to define or modify with a PLC, select the PLC option in the Source field of the Tag Specifications dialog box. The fields in this section are:

VPI Specify the VPI name which is responsible for communication with the relevant external device. The available VPIs should be previously defined in the VPI definition module. For a list of currently defined VPIs, click on the arrow to the right of the field.

Address The address string specifies the location of the tag data source in the PLC or other field device. Generally, the address represents combination of a PLC unit and PLC register number and type. The exact address format is specific for each PLC and depends on the VPI used for the communication. (For more information see the VPI on-line reference). Note that it is recommended to

define the tag address in the boundaries of a communications block.

Sample External devices are sampled periodically to update the values of their associated tags. Thus, a tag value always reflects the state of its associated device. Each tag is assigned its own sampling rate. However, if the device component the tag is associated with is included in a communications block, that block will ultimately determine the sampling rate.

The Sample options include:

Never The external device is never sampled to update its respective tag.

In Monitor The device is sampled to update its respective tag only when the tag's value is requested by one of Application modules (for example, displayed in an Image window). This option is useful for minimizing communications traffic, thereby improving system performance. Select this option for tags that are used for monitoring field activities and not recorded into history files or used in alarm definition.

Always The device is always sampled to update its respective tag. If you select this option, specify the sample rate in seconds and/or milliseconds. Note: If the tag is included in a

communication block, the block will ultimately determine the sampling rate. Note: The fastest rate at which Application will sample a tag is 50 milliseconds.

Dummy To define a tag as a dummy tag, select the Dummy option in the Source field of the Tag Specifications dialog box. After you select this option, the Source field in the dialog box will be empty, since no parameters need to be defined for dummy tags.

Compound A compound tag is an analog or digital tag, the value of which is a combination of two other tags. To define compound tags, select the Compound option in the Source field of the Tag Specifications dialog box. The compound tag formula is as follows:
 $\text{Constant1} * \text{Tag1} \text{ oper } \text{Constant2} * \text{Tag2}$ Where oper is one of the following operators: +, -, / (division), or * (multiplication). Note: In the tag and operator fields, you can click on the arrow to the right of the fields, to obtain a list of available tags and operators. After you define the formula, whenever the individual tags are sampled, the compound tag will be assigned a value according to the evaluated formula.

Type As shown in the Tag Specifications dialog box, the Type field is divided into two sections: type options and type parameters. Depending on the type that you select (Analog, Digital, or String), the parameters section contains different fields and options. Each of the type options is described below.

Analog To define analog tags, select the Analog option in the Type field of the Tag Specifications dialog box. The fields in this section are:

Format This field is used to specify the data format of the external device. The options include: Unsigned 16 Unsigned 16-bit integer Signed 16 Signed 16-bit integer BCD 4-digit BCD format Float 4-byte IEEE single-precision, floating point format Signed 32 Signed 32-bit integer Unsigned 32 Unsigned 32-bit integer

Tolerance Specifies the minimum amount of change that must occur to a tag value since the last change, for an event to be recognized. Using this parameter is a convenient way of smoothing sensor fluctuations. Tolerance applies to analog tags only. The value is in the external device measurement units (raw PLC units) and not engineering units (ref Conversion).

Low/High Limit These fields specify the upper and lower limits of the tag's value. If the low limit you specify is greater than the high limit, the low value will be the minimum and the high value will be the maximum in engineering units, according to the PLC value type.

Conversion External devices normally generate operational values according to their internal format and in order to obtain the maximum accuracy. For instance, a temperature measured in the field is in the range between 0 and 600 degrees may be presented as a numerical range of between 0 to 65535. To convert the field measured value in engineering units, the Application uses the automatic linear conversion. The conversion procedure is applied only to Analog tags, as described below:

Measured Measured raw value sample

Engineering Corresponding engineering value sample

Measured Another measured raw value sample

Engineering Another corresponding engineering value sample

For example, suppose you specify the following: First measured value is 0. First engineering value is 0. Second measured value is 1. Second engineering value is 2. In this case, the converted value would be the raw PLC value multiplied by two. Digital To define digital tags, select the Digital option in the Type field of the Tag Specifications dialog box. The Type field in the dialog box appears:

String A string tag is a tag that can receive alpha-numeric string as a tag value. To define string tags, select the String option in the Type field of the Tag Specifications dialog box. In the Length field, specify the maximum number of characters that you want the string to include.

Record The Record field contains options that you can select to determine whether tag value changes will be recorded.

The options include:

Never The tag value will never be recorded.

Changes The tag value will be recorded whenever it is sampled and is found to have changed since the previous sample.

Every ... The tag value will be recorded each specified time interval. Note that the fastest rate at which Application samples a tag for recording is 50 milliseconds.

DDE Links the Application can communicate online with other applications (such as Excel) through the DDE (Dynamic Data Exchange) interface.

The DDE is a common protocol that allows applications to exchange data freely, using either one-time data transfers, or ongoing transfers in which applications send updates to each other whenever new data is available.

The DDE Link to Tag section in the Tag Specifications dialog box contains options that enable you to specify that the tag will be linked to another application through the DDE. This will cause the tag value to be updated immediately, whenever a change occurs in the object to which the tag is linked. Note: Once you link a tag to another application through the DDE, the format of the address will be the standard DDE format. For tags that will not be part of a DDE Client Block, select the 'single' option.

The fields in this section are:

Application The application to which you want the tag to be linked.

Topic The topic in the application that contains the object to which the tag will be linked.

Item Name The name of the item to which you want the tag to be linked. The name is taken from the application and topic to which the tag is linked (Excel cell number, Application image object, etc.).

To connect a tag to one item from a DDE block, select the Block option In the DDE section of the Tag Specification dialog box. The DDE section then appears with the following fields:

Block Name The block to which the tag will belong.

Row The row number of the item in the block with respect to the start position.

Column The column number of the item in the block with respect to the start position. Remember that you specified the start position in the Address field when you defined the DDE block.

Important Notes

- PLC tags linked to DDE items will actually cause the DDE application to update the PLC, and the updated value sampled from the PLC will be automatically transferred to the DDE application. However, if any Application module reads or writes tag values, it will first access the PLC and then update the DDE link.
- A sign indicates when a DDE connection to an application terminates.
- Group Assignment
- Authorization Groups: the Application allows you to define security groups for changing tags value by an operator, so that only authorized operators can set the tag value. This is implemented by assigning authorization groups to each tag. Operators that do not belong to any of the assigned groups will not be authorized to change tag values. Note that all operators can read tag values; only authorized operators can change them.

General Tab

The General tab defines a tag's general properties. This tab is dynamic and changes when either the Tag Source or Tag Type fields are defined.

Tag Definition: TANK401_LEVEL

General | Record | Start-up value | DDE Link | Lock | WizPLC | Alarms

Tag Name: TANK401_LEVEL Groups...

Description: Level Tank 401 Sector 34

Tag Source: PLC

Driver: Address: Sample

☒ Never ☐ In Monitor ☐ Always Sample Rate: 1 sec. 0 ms.

Tag Type: Analog

Format: Unsigned-16 Tolerance: 0

Tag scale Low Limit: 0 High Limit: 65535 ☒ Set Default

Conversion Measured Engineering

Value 1 0 0

Value 2 1 1

OK Annuler Appliquer Aide

The following options are available:

- | | |
|-------------|---|
| Tag Name | Enter a unique tag name with no more than 31 characters. |
| Description | Enter a brief description of the tag with no more than 255 characters. |
| Groups | Click to display the Access Permission Manager dialog box in which you can define authorized users and security groups so that only authorized operators can set tag value. |

	<p>This field is divided into two sections:</p> <p>Tag source option: Click to display a drop-down list in which you can choose the source to work with. Your choice will determine the available tag source parameters.</p>
Tag Source	<p>Tag source parameters: There are three types of source parameters.</p> <ul style="list-style-type: none">• Dummy: select for internal application-related processing and needs. The Dummy tag has no tag source parameters.• PLC: select to associate with a PLC driver.• Compound: select for automatic calculations based on tag values.
	<p>This field is divided into two sections:</p> <p>Tag Type and Tag Parameters.</p> <p>Click to display a drop-down list in which you can choose the tag type to work with. There are three tag types:</p>
Tag Type	<ul style="list-style-type: none">• Analog (the default tag type). See Analog Tag Type for further details.• Digital see Digital Tag Type for further details.• String see String Tag Type for further details. <p>Your choice will determine the available tag type parameters.</p>

Tag Definition - General

The General tab defines a tag's general properties. This tab is dynamic and changes when either the Tag Source or Tag Type fields are defined.

The following options are available:

Tag Name Enter a unique tag name with no more than 32 characters.

Description Enter a brief description of the tag with no more than 254 characters.

Groups Click to display the Access Permission Manager dialog box in which you can define authorized users and security groups so that only authorized operators can set the tag value.

Tag Source This field is divided into two sections:

Tag source option

Tag source parameters

Click to display a drop-down list in which you can choose the source to work with: Your

choice will determine the available tag source parameters. **Dummy**: select for internal application-related processing and needs. The Dummy tag has no tag source parameters. **PLC**: select to associate with a PLC driver. **Compound**: select for automatic calculations based on tag values.

Tag Type This field is divided into two sections:

Tag type

Tag type parameters

Click to display a drop-down list in which you can choose the tag type to work with. Your choice will determine the available tag type parameters.

Analog (the default tag type)

Digital

String

The default tag type is Analog.

PLC Tag Source Parameters

Note: *If drivers have not been previously defined then do so now. For further information refer to the Communication Drivers chapter.*

To open the Tag Source parameter fields:

In the Tag Definitions dialog box click the arrow in the Tag Source field and select PLC. The Tag Source field opens.

Note: *The following parameters are available both when creating and modifying a tag.*

The following options are available:

Driver Specifies the name of the driver responsible for communication with the relevant external device. The available communication drivers should be previously defined in the communication driver definition module. For a list of currently defined communication drivers, click on the arrow to the right of the field.

Address The address string specifies the location of the tag data source in the PLC or other field device. Generally, the address represents combination of a PLC unit and PLC register number and type. The exact address format is specific for each PLC and depends on the driver used for the communication. For more details, refer to the driver on-line reference.

Sample External devices are sampled periodically to update the values of their associated tags. Therefore, a tag value always reflects the state of its associated device. Each tag is assigned its own sampling rate. However, if the device component, with which the tag is associated is included in a communications block, the block will ultimately determine the sampling rate. The following options are available:

Never: The external device is never sampled to update its respective tag.

In Monitor: The device is sampled to update its respective tag only when the tag's value is requested by one of the application's modules (for example, displayed in an Image). This option is useful for minimizing communications traffic, thereby improving system performance. Select this option for tags that are used for monitoring field activities and do not record into history files. Do not select this option for tags that are used for alarm definition.

Always: The device is always sampled to update its respective tag. If you select this option, specify the sample rate in seconds and/or milliseconds.

Note: *If the tag is included in a communication block, the block will ultimately determine the sampling rate. Tags can be sampled at a rate of upto 40 milliseconds.*

To Define OPC Source Parameters

You can associate the tag you want to define with an OPC driver by clicking in the Tag Source field of the Tag Definition: New Tag dialog box and selecting the driver from the drop-down list. The Tag Source parameters will appear.

Note: *The following parameters are available both when creating and modifying a tag.*

1. 1. From the Driver drop-down list select the OPC driver.
1. 2. In the Address field click on the Browse button. The Add Item dialog box opens.

Note that this dialog box opens only if your OPC Server supports Browsing. If not you must enter the address manually.

1. 3. From the Browse Items list, select the name of the item that you want to be linked to and click OK to complete the operation.

Compound Tag Source Parameters

A compound tag is either an analog or digital tag, the value of which is a combination of two other tags.

Note: *The following parameters are available both when creating and modifying a tag.*

To define compound tags:

Click in the Tag Source field of the Tag Definitions: NEW Tag dialog box, and select Compound from the drop-down list. The Tag Source parameters will appear.

The compound tag formula is as follows:

Constant1 * Tag1 *oper* Constant2 * Tag2

Where oper is one of the following operators: +, -, / (division), or * (multiplication). Operators can be selected by clicking on the relevant operator.

Note: *In the tag field click on the arrow to the right of the fields, to obtain a list of available tags.*

Define the compound tag in the Calculate field as either In Monitor or Always. Select Always if you want the compound tag to be calculated always (also when the tag is not In Monitor).

After you define the formula, whenever the individual tags are sampled, the compound tag will be assigned a value according to the evaluated formula.

Analog Tag Type

Analog tags have numeric values represented in various formats (signed or unsigned integer, floating point, BDC).

To define an analog tag type:

Click in the Tag Type field of the Tag Definitions: New Tag dialog box and select Analog from the drop-down list. The Tag Type parameters will appear.

The following options are available:

Format This field is used to specify the data format of the external device. The options include:

Unsigned 16: Unsigned 16-bit integer.

Signed 16: Signed 16-bit integer.

BCD: 4-digit BCD format.

Float: 4-byte IEEE single-precision, floating point format.

Signed 32: Signed 32-bit integer.

Unsigned 32: Unsigned 32-bit integer.

Tolerance Specifies the minimum amount of change that must occur to a tag value, since the last change, for an event to be recognized. Using this parameter is a convenient way of smoothing sensor fluctuations.

Tolerance applies to analog PLC tags only. The value is in the external device measurement units (raw PLC units) and not engineering units (ref Conversion).

Tag Scale Low/High Limit These fields specify the upper and lower limits of the tag's value. This option is only relevant when the Set to Default option is not checked.

Set Default When this option is checked the Low/High limits are default according to the format limits.

Conversion External devices normally generate values according to their internal format and in order to obtain the maximum accuracy. For instance, a temperature measured in the field, which is in the range between 0 and 600 degrees, may be presented as a numerical

range of between 0 to 65535. To convert the field measured value in engineering units, the application uses the linear conversion.

Value 1 Measured: Measured raw value sample.

Value 1 Engineering: Corresponding engineering value sample.

Value 2 Measured: Another measured raw value sample.

Value 2 Engineering: Another corresponding engineering value sample.

For example, if you specify the following:

Value 1 Measured = 0.

Value 1 Engineering = 0.

Value 2 Measured = 1.

Value 2 Engineering = 2.

The converted value would be the raw PLC value multiplied by two.

Note: When converting a float tag value the result will always be a float number even if the tag format is WORD or DWORD.

Digital Tag Type

A digital tag type is a discrete logic tag with Boolean values of TRUE (1) or FALSE (0).

To define a digital tag type:

Click in the Tag Type field of the Tag Definitions: New Tag dialog box, and select Digital from the drop-down list. The Tag Type parameters will appear.

The following option is available:

Filter Used for debouncing, which is filtering out oscillations. This option is only available for PLC tags.

String Tag Type

A string tag can receive an alphanumeric string as a tag value.

To define a string tag type:

Click in the Tag Type field of the Tag Definitions: New Tag dialog box and select String from the drop-down list. The Tag Type parameters will appear. In the Width field, specify the maximum number of characters that you want the string to include. The maximum length of a string tag is 255 characters.

Enter the unique tag name that identifies it and represents its value. The name should be unique and is limited to 31 characters.

You can enter a brief description of the tag that you want to add, or modify the existing description for a change operation.

PLC Tag Source Parameters

Note: If drivers have not been previously defined then do so now. For further information refer to **Chapter 8, Communication Drivers**.

- To open the Tag Source parameter fields:

In the Tag Definitions dialog box click the arrow in the Tag Source field and select PLC. The Tag Source field opens.

Tag Source: PLC ▼

Driver: OPC_LON ▼

Address: TE_T45_ZA ...

Sample

☐ Never

☐ In Monitor

☒ Always

Sample Rate: 1 sec. 0 ms.

Note: The following parameters are available both when creating and modifying a tag. The following options are available:

Driver	Specifies the name of the driver responsible for communication with the relevant external device. The available communication drivers should be previously defined in the communication driver definition module. For a list of currently defined communication drivers, click on the arrow to the right of the field.
Address	The address string specifies the location of the tag data source in the PLC or other field device. Generally, the address represents combination of a PLC unit and PLC register number and type. The exact address format is specific for each PLC and depends on the driver used for the communication.

External devices are sampled periodically to update the values of their associated tags. Therefore, a tag value always reflects the state of its associated device. Each tag is assigned its own sampling rate. However, if the device component, with which the tag is associated is included in a communications block, the block will ultimately determine the sampling rate. The following options are available:

Sample	<p>Never: The external device is never sampled to update its respective tag.</p> <p>In Monitor: The device is sampled to update its respective tag only when the tag's value is requested by one of the application's modules (for example, displayed in an Image). This option is useful for minimizing communications traffic, thereby improving system performance. Select this option for tags that are used for monitoring field activities and do not record into history files. Do not select this option for tags that are used for alarm definition.</p> <p>Always: The device is always sampled to update its respective tag. If you select this option, specify the sample rate in seconds and/or milliseconds.</p>
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Note: If the tag is included in a communication block, the block will ultimately determine the sampling rate. Tags can be sampled at a rate of up to 50 milliseconds.

- To Define OPC Source Parameters

You can associate the tag you want to define with an OPC driver by clicking in the Tag Source field of the Tag Definition: New Tag dialog box and selecting the driver from the drop-down list. The Tag Source parameters will appear.

Note: The following parameters are available both when creating and modifying a tag.

1. From the Driver drop-down list select the OPC driver.
2. In the Address field click on the Browse button. The Add Item dialog box opens.

Note: This dialog box opens only if your OPC Server supports browsing. If not you must enter the address manually.

3. From the Browse Items list, select the name of the item that you want to be linked to and click OK to complete the operation.

You can select the Source Options you wish to work with. The choice you make will affect the Source parameters section. there are 3 types of source tags: PLC, Dummy, Compound.

Dummy Tags

What are Dummy Tags?

These tags represent internal variables and are used for a variety of calculations, control and other application related needs. Dummy tags are updated by user input or changed by other application modules. These tags are set to 0 upon system initialization.

Result on the Source Parameters:

Once the Dummy Tag was chosen the Source Parameters Section will remain close since no parameter needs to be defined for dummy tags.

PLC Tags

PLC Tag Source Parameters

Note: If drivers have not been previously defined then do so now. For further information refer to the Communication Drivers chapter.

To open the Tag Source parameter fields:

In the Tag Definitions dialog box click the arrow in the Tag Source field and select PLC. The Tag Source field opens.

Note: The following parameters are available both when creating and modifying a tag.

The following options are available:

Driver Specifies the name of the driver responsible for communication with the relevant external device. The available communication drivers should be previously defined in the communication driver definition module. For a list of currently defined communication drivers, click on the arrow to the right of the field.

Address The address string specifies the location of the tag data source in the PLC or other field device. Generally, the address represents combination of a PLC unit and PLC register number and type. The exact address format is specific for each PLC and depends on the driver used for the communication. For more details, refer to the driver on-line reference.

Sample External devices are sampled periodically to update the values of their associated tags. Therefore, a tag value always reflects the state of its associated device. Each tag is assigned its own sampling rate. However, if the device component, with which the tag is

associated is included in a communications block, the block will ultimately determine the sampling rate. The following options are available:

Never: The external device is never sampled to update its respective tag.

In Monitor: The device is sampled to update its respective tag only when the tag's value is requested by one of the application's modules (for example, displayed in an Image). This option is useful for minimizing communications traffic, thereby improving system performance. Select this option for tags that are used for monitoring field activities and do not record into history files. Do not select this option for tags that are used for alarm definition.

Always: The device is always sampled to update its respective tag. If you select this option, specify the sample rate in seconds and/or milliseconds.

Note: If the tag is included in a communication block, the block will ultimately determine the sampling rate. Tags can be sampled at a rate of upto 40 milliseconds.

.

If this option is checked then the device is always sampled to update its respective tag. If you select this option, specify the sample rate in seconds and / or milliseconds.

Specify the address string specifies the location of the tag data source in the PLC or other field device. The address represents a combination of a PLC unit and PLC register number and type. The exact format is specified for each PLC and depends on the VPI used for the communication.

Specify the VPI name which is responsible for communication with the relevant external device. The available VPIs Should be previously defined in the VPI definition modules.

If chosen then the device is sampled to update its respective tag only when the tag's value is requested by one of Application module.

If choose then the external device is never sampled to update its respective tag.

You can select the Source Options you wish to work with. The choice you make will affect the Source parameters section. There are 3 types of source tags: PLC, Dummy, Compound.

If the Always sampling rate is chosen then define the sampling rate in milliseconds.

If the always option is chosen define the sample rate in seconds.

These fields specify the upper and lower limits of the tag value. If the low limit you specify is greater than the high limit, the low limit value will be the minimum and the high will be the maximum in engineering unites, according to the PLC value type.

Compound Tag Source Parameters

A compound tag is either an analog or digital tag, the value of which is a combination of two other tags.

Note: The following parameters are available both when creating and modifying a tag.

- To define compound tags:

Click in the Tag Source field of the Tag Definitions: NEW Tag dialog box, and select Compound from the drop-down list. The Tag Source parameters will appear:

The screenshot shows the 'Tag Definitions: NEW Tag' dialog box. The 'Tag Source' dropdown is set to 'Compound'. Below this, there are two rows for defining the compound tag formula. Each row has a 'Constant' field (containing '1.'), an operator dropdown (showing 'X' for multiplication), and a 'Tag Name' dropdown (showing 'TAG1001.COILS.IN1' and 'START_PUMP_TK400' respectively). To the right of these fields is a 'Calculate' section with two radio buttons: 'In Monitor' (selected) and 'Always'.

The compound tag formula is as follows:

Constant1 * Tag1 oper Constant2 * Tag2

Where oper is one of the following operators: +, -, / (division), or * (multiplication). Operators can be selected by clicking on the relevant operator.

Note: In the tag field click on the arrow to the right of the fields, to obtain a list of available tags.

Define the compound tag in the Calculate field as either In Monitor or Always. Select Always if you want the compound tag to be calculated always (also when the tag is not In Monitor).

After you define the formula, whenever the individual tags are sampled, the compound tag will be assigned a value according to the evaluated formula.

Compound Tags

A compound tag is an analog tag, the value of which is a combination of two other tags.

Note: The following parameters are available both when creating and modifying a tag.

Click in the Tag Source field of the Tag Definitions: NEW Tag dialog box, and select Compound from the drop-down list. The Tag Source parameters will appear:

The compound tag formula is as follows:

Constant1 * Tag1 oper Constant2 * Tag2

Where oper is one of the following operators: +, -, / (division), or * (multiplication). Operators can be selected by clicking on the relevant operator.

Note: In the tag field click on the arrow to the right of the fields, to obtain a list of available tags.

Define the compound tag in the Calculate field as either In Monitor or Always. Select Always if you want the compound tag to be calculated always (also when the tag is not In Monitor).

After you define the formula, whenever the individual tags are sampled, the compound tag will be assigned a value according to the evaluated formula.

If this option is chosen then the device is always calculated to update its respective tag.

Choosing this option will make the device always sampled to update its respective tag. If you select this option, specify the sample rate in seconds and /or milliseconds.

Specify the numeral value to be multiplied by the tag name field.

Represents the constant number which will be used in the compound tag formula.

if this option is chosen then the device is calculated to update its respective tag only when the tag's value is requested by one of Application modules.

Choosing this option will sample the sample to update its respective tag only when the tag's value is requested by one Application modules.

The Type field is divided into two sections: type options and the parameters. Depending on the type that you select (Analog, Digital, string) the parameters will change.

Analog Tag Type

Analog tags have numeric values represented in various formats (signed or unsigned integer, floating point, BDC).

- To define an analog tag type:

Click in the Tag Type field of the Tag Definitions, New Tag dialog box and select Analog from the drop-down list. The Tag Type parameters will appear as follows:

Tag Type: Analog

Format: Unsigned-16

Tag scale

Low Limit: 0

High Limit: 65535

☒ Set Default

Tolerance: 0

Conversion

Measured

Value 1: 0

Value 2: 65535

Engineering

Value 1: 0

Value 2: 100

The following options are available:

Format	This field is used to specify the data format of the external device. The options include:	
	Unsigned 16: Unsigned 16-bit integer.	
	Signed 16: Signed 16-bit integer.	
	BCD: 4-digit BCD format.	
	Float: 4-byte IEEE single-precision, floating point format.	
	Signed 32: Signed 32-bit integer.	
Tolerance	Unsigned 32: Unsigned 32-bit integer.	
	Specifies the minimum amount of change that must occur to a tag value, since the last change, for an event to be recognized. Using this parameter is a convenient way of smoothing sensor fluctuations.	
Tag Scale	Tolerance applies to analog PLC tags only. The value is in the external device measurement units (raw PLC units) and not engineering units (ref Conversion).	
	Low/High Limit These fields specify the upper and lower limits of the tag's value. This option is only relevant when the Set to Default option is not checked.	
Set Default	When this option is checked the Low/High limits are default according to the format limits.	

Conversion	<p>External devices normally generate values according to their internal format and in order to obtain the maximum accuracy. For instance, a temperature measured in the field, which is in the range between 0 and 600 degrees, may be presented as a numerical range of between 0 to 65535. To convert the field measured value in engineering units, the application uses the linear conversion.</p> <p>Value 1 Measured: Measured raw value sample.</p> <p>Value 1 Engineering: Corresponding engineering value sample.</p> <p>Value 2 Measured: Another measured raw value sample.</p> <p>Value 2 Engineering: Another corresponding engineering value sample. For example, if you specify the following:</p> <p>Value 1 Measured = 0.</p> <p>Value 1 Engineering = 0.</p> <p>Value 2 Measured = 1.</p> <p>Value 2 Engineering = 2.</p> <p>The converted value would be the raw PLC value multiplied by two.</p>
------------	--

Note: When converting a float tag value the result will always be a float number even if the tag format is WORD or DWORD.

Analog Tag

Analog tags have numeric values represented in various formats (signed or unsigned integer, floating point, BCD).

Click in the Tag Type field of the Tag Definitions: New Tag dialog box and select Analog from the drop-down list. The Tag Type parameters will appear as follows:

Format This field is used to specify the data format of the external device. The options include:

Unsigned 16: Unsigned 16-bit integer.

Signed 16: Signed 16-bit integer.

BCD: 4-digit BCD format.

Float: 4-byte IEEE single-precision, floating point format.

Signed 32: Signed 32-bit integer.

Unsigned 32: Unsigned 32-bit integer.

Tolerance Specifies the minimum amount of change that must occur to a tag value, since the last change, for an event to be recognized. Using this parameter is a convenient way of smoothing sensor fluctuations.

Tolerance applies to analog PLC tags only. The value is in the external device measurement units (raw PLC units) and not engineering units (ref Conversion).

Tag Scale Low/High Limit These fields specify the upper and lower limits of the tag's value. This option is only relevant when the Set to Default option is not checked.

Set Default When this option is checked the Low/High limits are default according to the format limits.

Conversion External devices normally generate values according to their internal format and in order to obtain the maximum accuracy. For instance, a temperature measured in the field, which is in the range between 0 and 600 degrees, may be presented as a numerical range of between 0 to 65535. To convert the field measured value in engineering units, the application uses the linear conversion.

Value 1 Measured: Measured raw value sample.

Value 1 Engineering: Corresponding engineering value sample.

Value 2 Measured: Another measured raw value sample.

Value 2 Engineering: Another corresponding engineering value sample.

For example, if you specify the following:

Value 1 Measured = 0.

Value 1 Engineering = 0.

Value 2 Measured = 1.

Value 2 Engineering = 2.

The converted value would be the raw PLC value multiplied by two.

Note: When converting a float tag value the result will always be a float number even if the tag format is WORD or DWORD.

Format

This field is used to specify the data format of the external device. The options include:

Unsigned 16 Unsigned 16 bit integer

Signed 16 Signed 16 bit integer

BDC 4 digit BCD format

Float 4 byte IEEE single precision, floating point format

Signed 32 Signed 32 bit integer

Unsigned 32 Unsigned 32 bit integer

The low and the high fields specify the upper and lower limits of the tag value. If the low limit you specify is greater than the high limit, the low limit value will be the minimum and the high will be the maximum in engineering unites, according to the PLC value type.

Specifies the minimum amount of change that must occur to a atag value since the last change, for an event to be recognized.

Specifies the minimum amount of change that must occur to a atag value since the last change, for an event to be recognized.

The value is in the external device measurement units (raw PLC units) and not engineering units (ref Conversion).

Used to measure raw values.

Represents the Corresponding (to the measured) engineering value sample.

Digital Tag Type

A digital tag type is a discrete logic tag with Boolean values of TRUE (1) or FALSE (0).

- To define a digital tag type:

Click in the Tag Type field of the Tag Definitions: New Tag dialog box , and select Digital from the drop-down list. The Tag Type parameters will appear:

The screenshot shows a dialog box for defining a Digital tag type. At the top, there is a label 'Tag Type:' followed by a dropdown menu currently displaying 'Digital'. Below this, there is a section labeled 'Filter:' which contains two numeric input fields with up/down arrows. The first field is set to '0' and is followed by the unit 'sec.'. The second field is also set to '0' and is followed by the unit 'ms'.

The following option is available:

Filter	Used for debouncing, which is filtering out oscillations. This option is only available for PLC tags. See PLC Tag Source Parameters .
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Digital Tag

What is a Digital Tag?

Discrete logic tags that have boolean values of TRUE (1) or FALSE (0).

How to define a Digital Tag?

Select the Digital option from the Tag Type field in the Tag Definition dialog box..

The filter field applies to digital PLC tags only. Specifies the minimum amount of time during which a tag value should remain stable. In this field define the amount of time the Application will wait after a tag value change is detected, before continuing to sample the tag.

The filter field apply to digital PLC tags only. Specifies the minimum amount of time during which a tag value should remain stable. In this field define the amount of time the Application will wait after a tag value change is detected, before continuing to sample the tag.

Determines the "always" sample rate in milliseconds units.

Determines the "always" sample rate in seconds units.

String Tag Type

A string tag can receive an alphanumeric string as a tag value.

- To define a string tag type:

Click in the Tag Type field of the Tag Definitions, New Tag dialog box and select String from the drop-down list. The Tag Type parameters will appear as follows:



The screenshot shows a dialog box for defining a new tag. The 'Tag Type' field is set to 'String'. Below it, the 'Width' field is set to '10' with up and down arrow buttons next to it.

In the Width field, specify the maximum number of characters that you want the string to include. The maximum length of a string tag is 255 characters.

String Tag

A string tag can receive an alphanumeric string as a tag value.

To define a string tag type:

1. 1. Click in the Tag Type field of the Tag Definitions: New Tag dialog box and select String from the drop-down list. The Tag Type parameters will appear as follows:
1. 2. In the Width field, specify the maximum number of characters that you want the string to include. The maximum length of a string tag is 255 characters.

Specify the maximum number of characters that you want the string to include.

Authorization Groups

Security authorization can be added during tag definition. This enables the group/user to sample tag value changes.

This is implemented by assigning authorization groups/users to each tag. Operators who do not belong to any of the assigned groups will not be authorized to change tag values.

Note: All operators can read tag values, but only authorized operators can change them.

Operator authorization is discussed in more detail in **Chapter 7, Security and User Management**.

Once a group is assigned to a tag, any operator who belongs to the group can perform tag value operations on that tag.

- To assign groups to a tag:

Click the Groups button to open the Access Permission Manager where authorized users and/or groups can be selected.

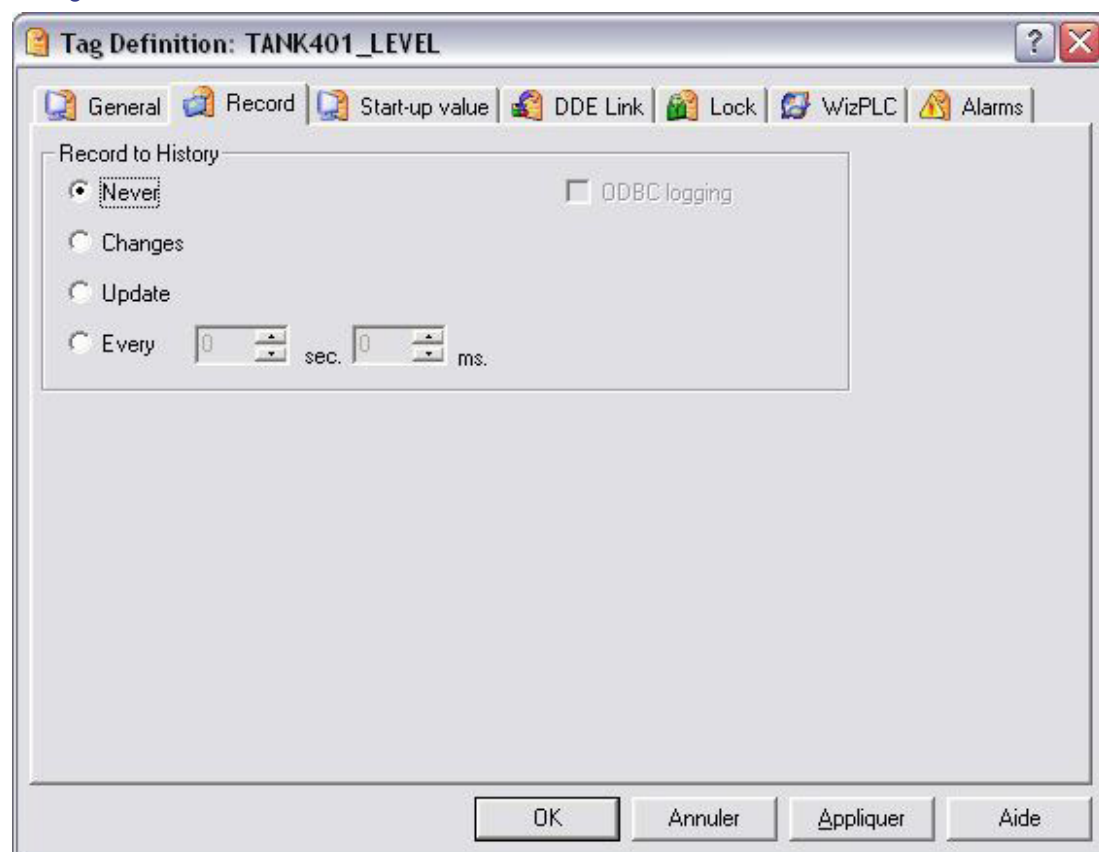


1. Click the dropdown list above the Groups/User Name field and select the type of list required. There are three list modes:
 - List all Groups&Users - displaying a list of the application's defined groups and users
 - List all Groups - displaying a list of the application's defined groups.
 - List all Users - displaying a list of the application's defined users.
2. To actually assign access permission select the relevant groups/users and click the Add button, or, click the Add All button to assign all groups/users. The selected groups users are now displayed in the list of Access Members.
3. To delete users/groups from the Access Members List, select the relevant groups/users and click Remove, or click the Remove All button.
4. Check the All groups and users have access permission checkbox to assign access permission to all your application's groups and users.
5. Click OK to confirm.

Allows you to define security groups for changing tags value by an operator, so that only authorized operators can set the tag value. Operators can then be added to any group that is defined, to provide them with access to different Application elements (such as tags, menu items, etc.).

Record Tab

Click the Record Tab to access the Record tab dialog box to determine how tag value changes are both initialed and recorded.



The following options are available for defining the recording:

Never	Specifies that tag value changes will never be recorded.
Changes	Specifies that the tag values will be recorded whenever it is sampled and is found to have changed by more than the tolerance since the previous sample.
Update	Specifies that the tag value will be recorded whenever a driver is set to update the values (even if no changes were detected.)
Every	Specifies that the tag value will be recorded each specified time interval.
ODBC Logging	Specifies that tag value changes will be written in the same format both to the ODBC and to application history. This option is available when either Changes, Update or Every is selected.

Tag Definition- Record

In this dialog box you can decide whether tag value changes will be recorded or not.

The options include:

Never The tag value will never be recorded.

Changes The tag value will be recorded whenever it is found to have changed since the previous sample.

Update The tag value will be recorded whenever a driver is set to update the values (even if no changes were detected.)

Every The tag will be recorded each specified time interval.

Tag Definition- Record

In this dialog box you can decide whether tag value changes will be recorded or not.

The options include:

Never The tag value will never be recorded.

Changes The tag value will be recorded whenever it is found to have changed since the previous sample.

Update The tag value will be recorded whenever a driver is set to update the values (even if no changes were detected.)

Every The tag will be recorded each specified time interval.

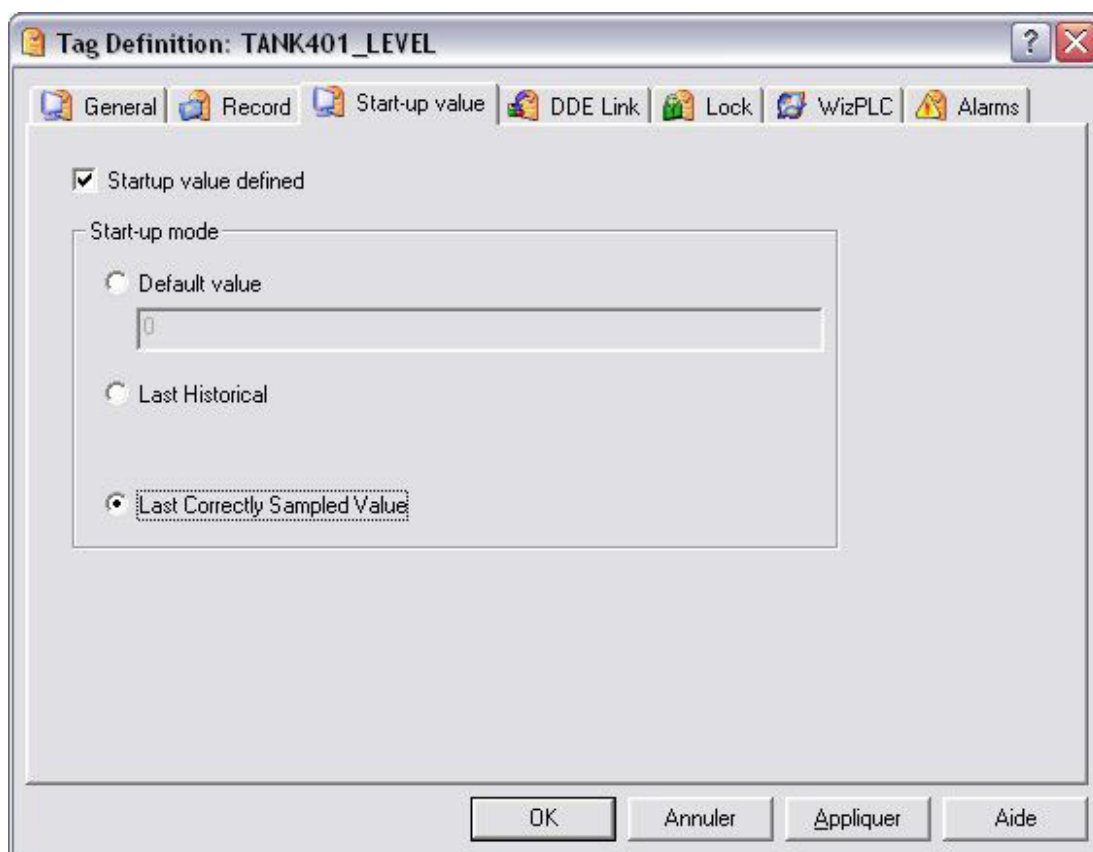
If this option is chosen the tag value will be recorded whenever it is found to have changed since the previous sample.

If this option is chosen the tag will be recorded each specified time interval.

If this option is checked then the tag value will never be recorded.

If this option is chosen the tag value will be recorded whenever a driver is set to update the values (even if no changes were detected.)

Startup Values Tab

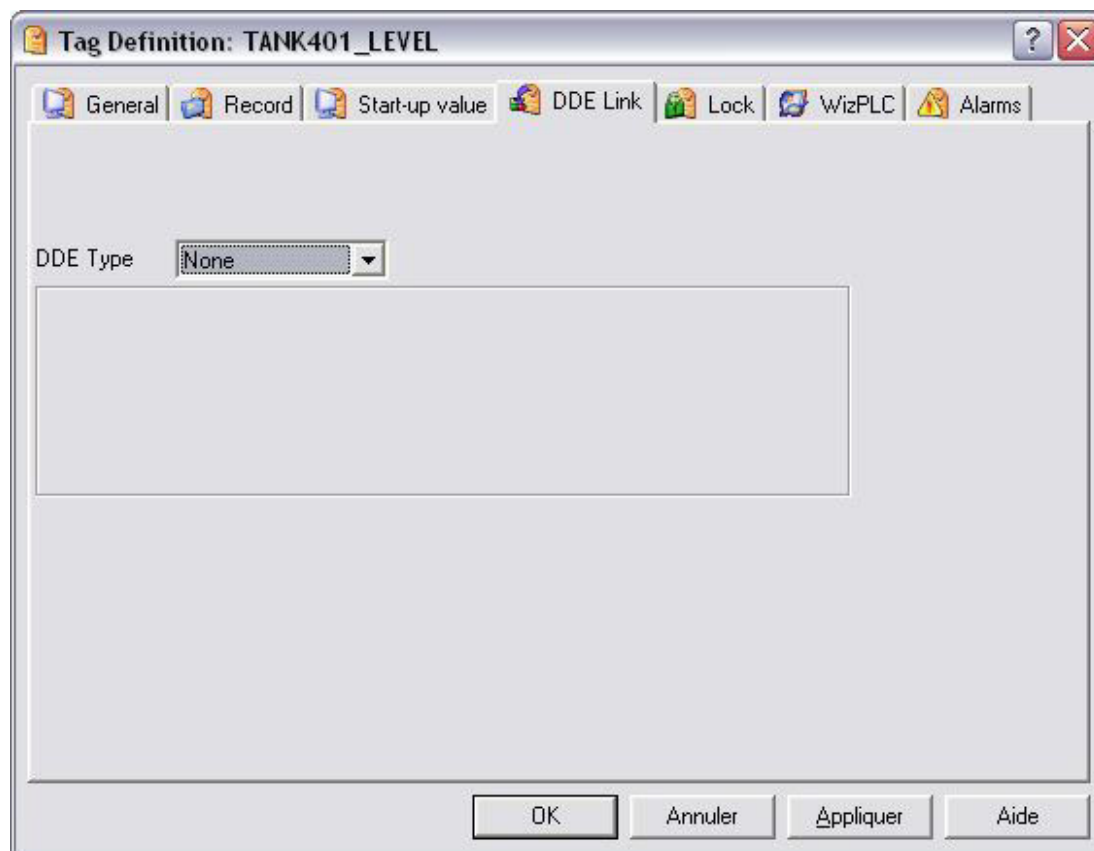


The following options are available for defining the startup values of the tag:

Startup Value Defined	Specifies whether a startup value will be defined.
Default	A hard-coded value typed into the Value field.
Last Historical	Takes the initial value from the recorded history (see below). Be careful: this can reduce performance if the search for the last value takes a long time.
Last correctly sampled value	This allows you to set the startup value for tags that are not recorded to history

Dynamic Data Exchange (DDE) Link Tab

Click the DDE Link tab to access the DDE Link dialog box where how the application communicates with other applications (such as Excel) can be defined.



DDE is a common protocol that allows applications to exchange data freely, using either one-time data transfers, or ongoing transfers in which applications send updates to each other whenever new data is available.

The DDE Link tab contains options that enable you to specify that the tag will be linked to another application through the DDE. This will cause the tag value to be updated immediately, whenever a change occurs in the object to which the tag is linked.

There are three options:

In the DDE Type field click the arrow in the dropdown list and select either:

None	Specifies that no DDE link is associated with the tag. This is the default option.
Single	Specifies the application, topic, item name and type of link.
Block	Specifies the block name, row, column and type of link.

Tag Definition- DDE Link

The Application can communicate online with other application (such as Excel) through the DDE interface.

The DDE is a common protocol that allows to exchange data freely, using either one- time data transfer in which applications send updates to each other whenever new data is available.

The DDE link to tag section in the **Tag Definition dialog box** contains options that enable you to specify that the tag will be linked to another application through the DDE. This will cause the tag value to be updated immediately, whenever a change occurs in the object to which the tag is linked.

In the DDE field you can select one of three options: **Block**, **None**, **Single**.

DDE Type - Single

Select Single from the Tag Definition dialog box for tags that will not be part of a DDE client block.



DDE Type: Single

Application:

Topic:

Item Name:

Link

☒ In Monitor

☐ Always

The following fields define the DDE connection:

Application The application to which you want to link the tag.

Topic	The topic in the application that contains the object to which the tag will be linked.
Item Name	The name of the item to which you want to link the tag. The name is taken from the application and topic to which the tag is linked. For example, an Excel cell number.
Link	<p>Enables you to define the DDE Link as: Always linked to the DDE server or In Monitor. When selecting Always, every change will be passed by application DDEC to WizPro, even if the tag is not In Monitor.</p> <p>Application DDEC enables your application to run as a DDE client and receive information from server applications. Refer to Chapter 38, Application DDE Support for more details about application DDEC.</p>

DDE Tag Link- Single

If you choose **Single** option in the DDE type, the following parameters will be requested:

Application - The application that you want the tag to be linked to. For a list of available applications click on the arrow to the right of the field.

Topic The Topic in the application that contains the object to which the tag will be linked.

Item Name The name of the item that you want the tag to be linked you the name is taken form the application and topic to which the tag is linked (Excel cell number...).

Link Allows you to define the DDE Link as wither always linked to the DDE server or in Monitor. When selecting Always, every change will be passed by the application DDEC to the application, even if the tag is not in monitor.

DDE Type - Block

Select Block from the Tag Definition dialog box to connect a tag to one item from a DDE block.

DDE Type: Block

Block name:

Row:

Column:

Link:

☒ In Monitor

☐ Always

The following options are available:

Block Name	The block to which the tag will belong.
Row	The row number of the item in the block relative to the start position.
Column	The column number of the item in the block relative to the start position.
Link	Enables you to define the DDE Link as: Always linked to the DDE server or In Monitor. When selecting Always, every change will be passed by application DDEC to WizPro, even if the tag is not In Monitor.

The application DDE block mechanism enables the application to receive many tag values from the server in one update message. This improves the communication between the application and the DDE server.

A common use for DDE client blocks is a setup in which a DDE server immediately updates a block of items building a recipe. Define DDE client blocks only if data items in the server change simultaneously (within milliseconds). For more details, refer to the DDE Support chapter.

PLC tags linked to DDE items will actually cause the DDE application to update the PLC, and the updated value sampled from the PLC will be automatically transferred to the DDE application. However, if any application module reads or writes tag values, it will first access the PLC tags and then update the DDE link.

DDE Tag Link- Block

If you choose **Block** in the DDE type, the following parameters will be requested:

Block Name The block to which the tag will belong.

Row The row number of the item in the block relative to the start position

Column The column number of the item in the block relative to the start position.

Link Allows you to define the DDE Link as whether always linked to the DDE server or in Monitor. When selecting **Always**, every change will be passed by the application DDEC to the application, even if the tag is not in monitor.

Specify the internal name of the block being defined.

When selecting Always, every change made will be passed by WizDDEC to WIZPRO, even if the tag is not in monitor.

Specify the column number of the item in the block relative to the start position.

If chosen the device is sampled to update its respective tag only when the tag's value is requested by one of Application modules.

Specify the row number of the item in the block relative to the start position

Lock Tag

Click the Lock tab to access the Lock dialog box. Tag values can be locked for a predefined period of time. This could be for a short time or permanently.

Tag Definition: TANK401_LEVEL

General | Record | Start-up value | DDE Link | **Lock** | WizPLC | Alarms

Value Definition

☐ Lock Tag Tag format is unsigned 16

Tag Value in locked state : 0

Time Definition

☒ Never expire

Tag value must be locked until : 02/02/2006 17:28:08

Status Definition

☐ Status Tag

Station: STUART

Tag:

OK Annuler Appliquer Aide

The following options are available:

Lock Tag	This field when checked enables the Lock Tag option.
Tag value in locked state	Specifies the value of the tag in its locked state. The tag remains with this value until the date/time limits expire.
Never expire	When checked defines that the tag will remain permanently locked.
Lock until	Defines the time and date when the defined Lock Tag option expires.
Status Tag	Defines the status of the locked tag (digital only).
Station	Specifies a tag station.
Tag	Specifies a tag name.

Tag Definition - Lock

This dialog box enables you to lock a tag value for a predefined time.

To lock a tag value

1. Check the Lock Tag checkbox to enable the Lock feature.
2. Type the value of the tag in its locked state. The tag remains with this value until lock expires.
3. Under Time Definition, check the Never expire checkbox if you want the tag to remain locked permanently; or, select the date and time after which the lock feature will expire.
4. Under Status Definition, check the Status Tag checkbox to define a status tag (a digital tag) to indicate the locked tag status.

To change lock definitions at run-time, define a **Fast Action** trigger using the LockTagsValues function to display a list of all your application tags that were defined with the Lock Tag feature and change lock tag status and values.

WizPLC Tab

The WizPLC tab allows to define if the tag will be used in WizPLC program and to set some of the softlogic tag attributes.

Tag Definition: TANK401_LEVEL

General | Record | Start-up value | DDE Link | Lock | WizPLC | Alarms

☒ Export as a WizPLC variable

WizPLC variable name: TANK401_LEVEL

☐ Has an IO Address

Data update:

☒ Sampling frequency: 1 sec. 0 msec.

☐ No PLC sampling

☐ Retain

☐ Read-only

☒ Variable is initialized by Wizcon

OK Annuler Appliquer Aide

Export as a
WizPLC variable

This field, when checked, enables the Export of the current tag as a WizPLC variable.

WizPLC variable
name

Specifies the tag name^A which will be used in WizPLC, but with some naming rules and restrictions^B

Has an IO address

When checked, this field defines the address^C of the IO on the WizPLC fieldbus.

Sampling
Frequency

Specifies the sample rate for the data update - reading rate of Wizcon in WizPLC^D. The maximum sampling rate is 50ms.

No PLC Sampling

The value will not be read by the PLC. Use this option only if the PLC will never modify the value - it will give you better performance.

Retain

When checked specifies to WizPLC this tag will use the retain data feature.

Read-only

When checked specifies that the related WizPLC variable will be read-only.

Variable is initialized by Wizcon

When checked specifies to WizPLC that Wizcon will provide the starting values to the WizPLC runtime.

When unchecked, the WizPLC runtime will use the default values delivered by the program.

^A By default, Wizcon will put the Wizcon tag name in this field.

^B Some characters are forbidden and some names are reserved as :

- no number as first character
- no double underscore character in the name
- all IEC 61131-3 reserved names

^C Addresses must respect the IEC 61131-3 format and must fit with the PLC configuration (See WizPLC user guide).

^D We do not recommend that you define too many different rate values. It is preferable to re-use as much as possible the sample rates already used for other tags. In the WizPLC log file (SoftPLCDx.log), a message will inform you if there are too many different sample rate values.

- How to modify tags and IO address

1. If you changed a previously defined tag name or IO address, in order to have them available within the WizPLC database file, you need to perform a 'Build' (or 'Login') command in WizPLC.
2. Then, if you want this modification to be available in the runtime, an 'online change' of the WizPLC runtime is required.
3. Any modification of the sample rate requires a reset of the WizPLC runtime.

Note: In order to declare several Wizcon tags into WizPLC, you can use the WizPLC tag Export tool. This tool is accessible when launching the WizPLC development tool. Moreover, this tool allows you to export network and system tags.

Note: When the tag conversion settings are defined, WizPLC will set the tag type as real.

Tag Definition - WizPLC

If you want your Wizcon tags to be available in WizPLC, you must define how you want them to be used in WizPLC. This dialog box helps you to do this.

The following options are available:

- **WizPLC variable name:** The name of the variable when used in WizPLC. This name must be IEC 61131-3 Compliant.

- **Has an IO Address:** Check this option and you can then define the address of the variable
 - **Sampling frequency:** The time interval between sampling of the variable. The maximum sampling frequency is 50ms.
 - **No PLC Sampling:** The value will not be read by the PLC. Use this option only if the PLC will never modify the value - it will give you better performance.
 - **Retain:** Whether the value of the tag is to kept between sessions of WizPLC
 - **Read-only:** Whether Wizcon can change the value of the variable or not.
 - **Variable is initialized by Wizcon:** Whether the initial value comes from Wizcon or WizPLC
-

Alarms Tab

The Alarms tab is used to define Tag Related Alarms and their properties. The following apply to all Tag Related Alarms:

- **Alarms** definition are automatically generated with the correct condition and text that is a combination of the tag description and the alarm type.
- If the combination of the tag description and the alarm type is longer than the maximum permitted number of alarm text characters then the alarm text is a combination of the tag name and the alarm type. Other parameters such as Zone, Family,..., are set to default.
- The user can edit text and other properties, however the alarm condition cannot be modified.
- An alarm can be deleted from the Tag Definition dialog box only.
- An automatic alarm is marked as such and the link to the tag is saved. The tag contains a link to each alarm definition. If the properties of the above setting change the conditions also change and as a result the alarm definition is updated.
- In the Alarms tab when an alarm in the Alarms Value field is checked the user can modify the definition of this specific alarm by clicking the relevant alarm button.
- Un-checking the relevant checkbox removes the alarm definition.
- If a tag definition is deleted all alarms related to this tag will be removed automatically.
- To access the Tag Definition Alarms Tab

In the Tag Definition dialog box click the Alarms tab to access the Alarms dialog box.

Or

In the All Containers list right click Tags, select Add Tag and after defining the tag name and other general properties click the Alarms tab.

This dialog box has the following fields:

Alarms Values	There are four alarm values:
	LoLo - critically low process values. The tag value must fall below this limit to generate an alarm.
	Low - low process values. The tag value must fall below this limit to generate an alarm.
	High - high process values. The tag value must exceed this limit to generate an alarm.
	HiHi - critically high process values. The tag value must exceed this limit to generate an alarm.
	These values are independent of each other. For example LoLo can be defined as 1000 and HiHi can be defined as 5.
Rate Alarm	Processes values that change too quickly. When a process value fluctuates by more than the rate of change limit in the given time interval the tag generates an amount per unit of time.

Deviation Alarm

Processes values that deviate from the optimum value. Deviation alarms require a definition of a target value and range. If the process exceeds the range, a Deviation Alarm occurs. For example, if the optimum value is 100 and the range (dead band) is +/-5%, the process can vary from 95 to 105 without generating an alarm. The Deviation Dead Band is given as a percentage of the value. Deviation alarms can be according to:

Type which is according to %.

Fixed which is fixed according to a set size.

- To define Tag Related Alarms do the following:
 1. In the Alarm Values field check the alarm type, which could be either LoLo, Low, High or HiHi and then type in the value in the relevant field. If an option is not checked an alarm cannot be defined. Only when a checkbox is selected the can alarm exists.
 2. Click the Alarm button opposite the checked Alarm Value to open the Alarm Definition dialog box. Modify the alarm accordingly and then click OK to return to this dialog box.
 3. In the Rate Alarm field fill in the Rate of Change and then click the Alarms button to open the Alarm Definition dialog box. Modify the alarm accordingly and then click OK to return to this dialog box.
 4. In the Deviation Alarm field do one of the following:
 - To define the Optimal Value check this checkbox and then type in its value. This is the basic value.
 - In the Dead Band % field check either the Percentage or Fixed and then type in the value.
- Click the Alarms button to open the Alarms dialog box and modify the alarm accordingly. Click OK to return to this dialog box.
5. Click OK to confirm and save your changes.

Tag Definitions Tag Related Alarms

This dialog box has the following fields:

Alarm Values There are four alarm values:

LoLo – critically low process values. The tag value must fall below this limit to generate an alarm.

Low – low process values. The tag value must fall below this limit to generate an alarm.

High – high process values. The tag value must exceed this limit to generate an alarm.

HiHi – critically high process values. The tag value must exceed this limit to generate an alarm.

These values are independent of each other. For example LoLo can be defined as 1000 and HiHi can be defined as 5.

Rate Alarm Process values that change too quickly. When a process value fluctuates by more than the rate of change limit in the given time interval the tag generates an amount per unit of time.

Deviation Alarm Process values that deviate from the optimum value. Deviation alarms require a definition of a target value and range. If the process exceeds the range, a Deviation Alarm occurs. For example, if the optimum value is 100 and the range (dead band) is +/-5%, the process can vary from 95 to 105 without generating an alarm. The Deviation Dead Band is given as a percentage of the value. Deviation alarms can be according to:

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To define Tag Related Alarms do the following:

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 2. 2. Click the Alarm button opposite the checked Alarm Value to open the Alarm Definition dialog box. Modify the alarm accordingly and then click OK to return to this dialog box.
 3. 3. In the Rate Alarm field fill in the Rate of Change and then click the Alarms button to open the Alarm Definition dialog box. Modify the alarm accordingly and then click OK to return to this dialog box.
 4. 4. In the Deviation Alarm field do one of the following:
 - To define the Optimal Value check this checkbox and then type in its value. This is the basic value.
 - In the Dead Band % field check either the Percentage or Fixed and then type in the value.
 5. 5. Click the Alarms button to open the Alarms dialog box and modify the alarm accordingly. Click OK to return to this dialog box.
 6. 6. Click OK to confirm and save your changes.
-

Tag Definitions Tag Related Alarms

This dialog box has the following fields:

Alarm Values There are four alarm values:

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Rate Alarm Process values that change too quickly. When a process value fluctuates by more than the rate of change limit in the given time interval the tag generates an amount per unit of time.

Deviation Alarm Process values that deviate from the optimum value. Deviation alarms require a definition of a target value and range. If the process exceeds the range, a Deviation Alarm occurs. For example, if the optimum value is 100 and the range (dead band) is +/-5%, the process can vary from 95 to 105 without generating an alarm. The Deviation Dead Band is given as a percentage of the value. Deviation alarms can be according to:

Type which is according to %.

Fixed which is fixed according to a set size.

To define Tag Related Alarms do the following:

1. 1. In the Alarm Values field check the alarm type, which could be either LoLo, Low, High or HiHi and then type in the value in the relevant field. If an option is not checked an alarm cannot be defined. Only when a checkbox is selected the can alarm exists.
 2. 2. Click the Alarm button opposite the checked Alarm Value to open the Alarm Definition dialog box. Modify the alarm accordingly and then click OK to return to this dialog box.
 3. 3. In the Rate Alarm field fill in the Rate of Change and then click the Alarms button to open the Alarm Definition dialog box. Modify the alarm accordingly and then click OK to return to this dialog box.
 4. 4. In the Deviation Alarm field do one of the following:
 - To define the Optimal Value check this checkbox and then type in its value. This is the basic value.
 - In the Dead Band % field check either the Percentage or Fixed and then type in the value.
 5. 5. Click the Alarms button to open the Alarms dialog box and modify the alarm accordingly. Click OK to return to this dialog box.
 6. 6. Click OK to confirm and save your changes.
-

MultiState Tags

Presentation

A multistate Tag is a tag which can take many states (in fact text values) according to the current value of the tags and the list of defined states. This an enhancement of text tables that exist in Image module.

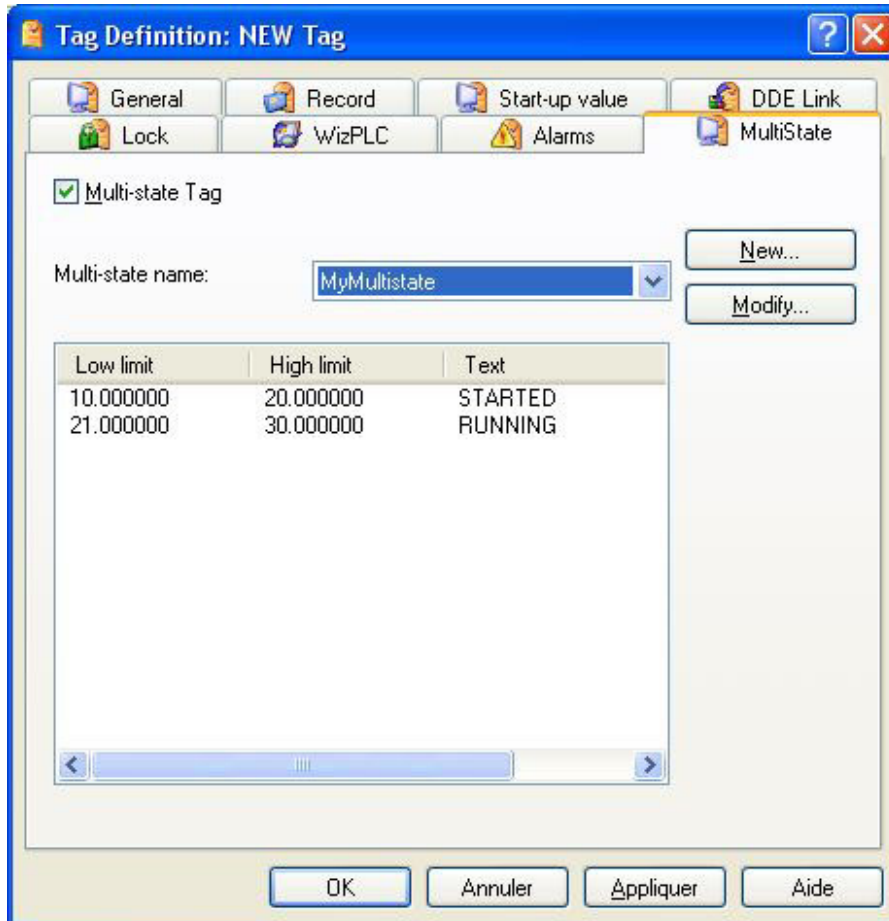
Access means

- Multistates tags can be accessed via Tag definition dialog.

- Multistates can also be handled via the tags tree in multistates folder.

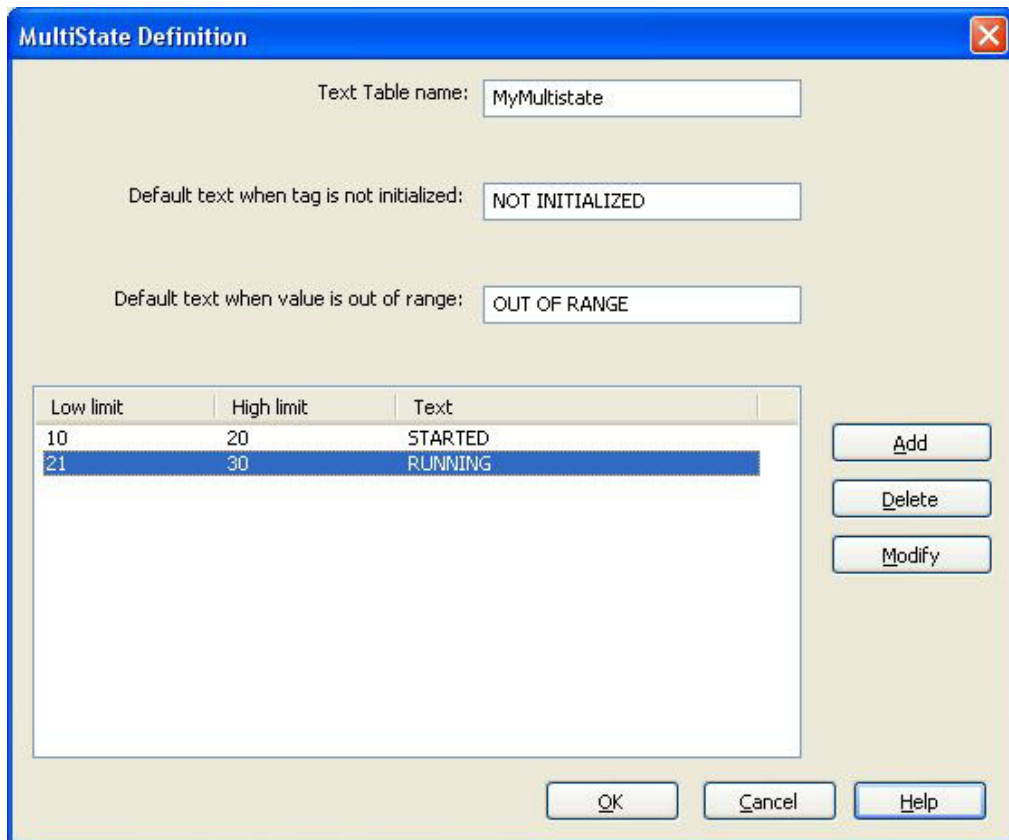
How To

- A new property page has been added to Tag definition dialog:



If you want the current tag to be a multistate tag, check the Multi-state tag checkbox. You can then select an existing multistate or create a new one. If a multistate is selected, the list displays all the states included in the multistate. Each state is defined as an interval with a low value (Value1), a high value (Value2) and the corresponding text. When the tag value will be between the low and high values defined in this state, then the corresponding text value will be available in the tag content. Typically, this multistate value will be displayed in image.

- Define a new multistate:



The dialog box titled "MultiState Definition" contains the following fields and controls:

- Text Table name:** A text box containing "MyMultistate".
- Default text when tag is not initialized:** A text box containing "NOT INITIALIZED".
- Default text when value is out of range:** A text box containing "OUT OF RANGE".
- Table:** A table with three columns: "Low limit", "High limit", and "Text".

Low limit	High limit	Text
10	20	STARTED
21	30	RUNNING
- Buttons:** "Add", "Delete", and "Modify" are located to the right of the table. "OK", "Cancel", and "Help" are at the bottom right.

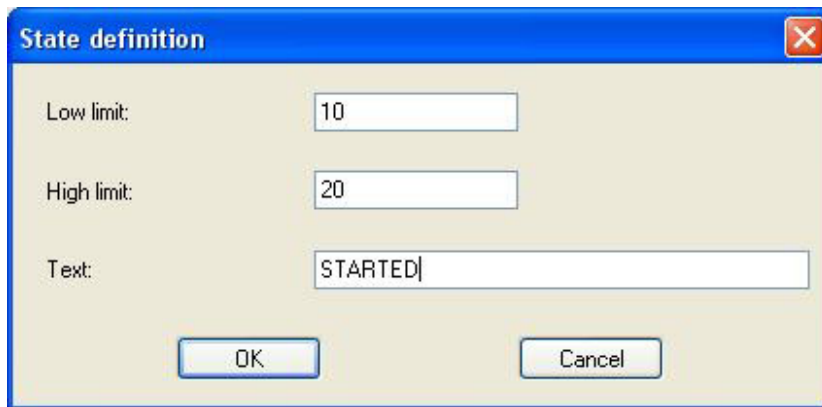
==> Text table name: enter the name of the multistate

==> Default text when tag is not initialized: enter the text that will be displayed if the tag is not yet initialized

==> Default text when value is out of range: enter the text that will be displayed when the tag value doesn't correspond to one of the defined states.

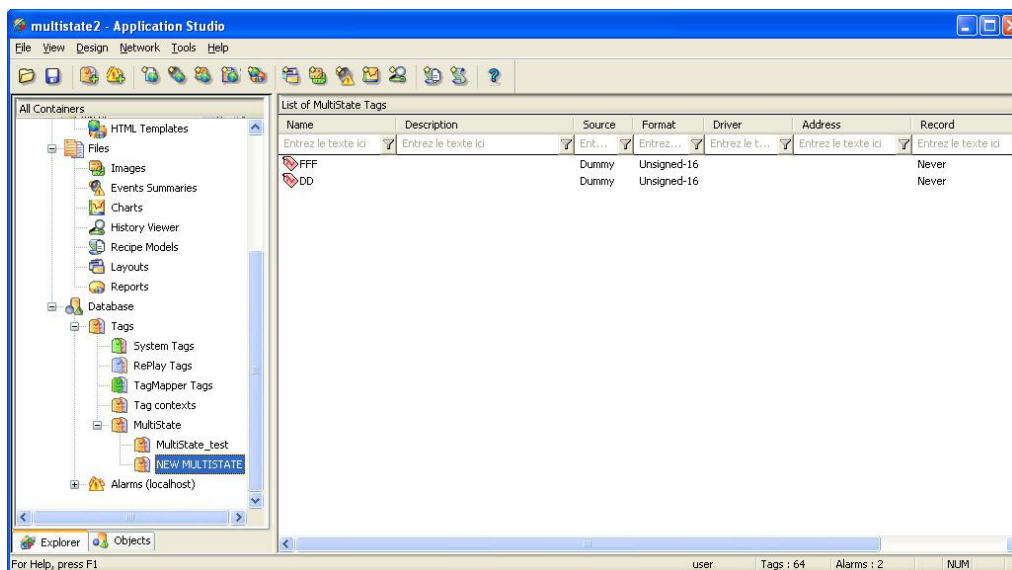
Then you can add new states. A state includes a low limit , a high limit and a text. This text will be updated in multistate text value when the tag value is between low limit and high limit (included).

- Define or modify a new state:



- Displaying the list of multistates in Wizcon Studio

You can use the tags tree to display the list of defined multistates. When you select a multistate, all the multistate tags that are related to this multistate are displayed. By selecting a multistate, you can access to the right-click menu to modify or delete it. But be careful: if you modify it, it will be modified for all the tags that use it!!



Single Tag Input

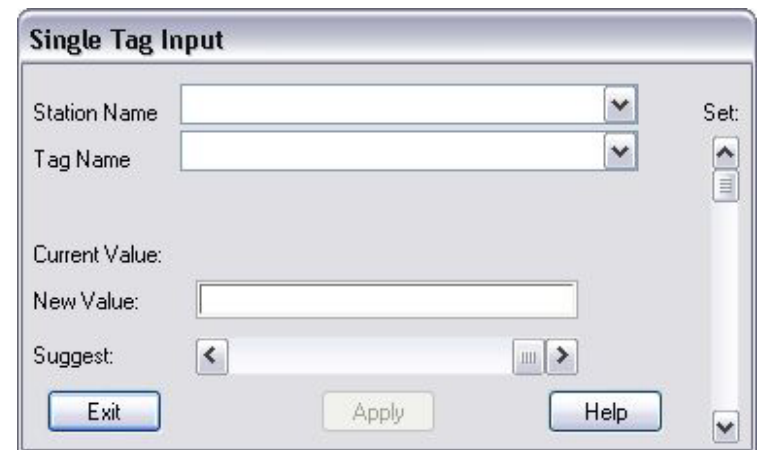
This section describes how to assign an immediate value to a specific tag.

- To define single tag input:

In the Control Panel of the Application Studio, double-click the Single Tag icon.

Or,

From the Tools menu of the Application Studio, select Single Tag. The Single Tag Input dialog box is displayed:

The image shows a 'Single Tag Input' dialog box. It has a title bar with the text 'Single Tag Input'. Inside, there are two dropdown menus: 'Station Name' and 'Tag Name'. To the right of these is a 'Set:' label and a vertical scrollbar. Below the dropdowns, there is a 'Current Value:' label and a text field. Below that is a 'New Value:' label and a text field. At the bottom left is a 'Suggest:' label and a slider control with left and right arrows. At the bottom right are three buttons: 'Exit', 'Apply', and 'Help'.

The following options are available:

Station Name	The application network station to which the tag belongs.
Tag Name	The tag for which the value is to be modified. Click on the arrow on the right side of the field to display a drop-down list of tags. When a tag is selected, its description is displayed underneath the Tag Name field and its value is displayed in the Current Value field.
Current Value	Specifies the current value of the selected tag.
New Value	Enter the new tag value, or click on the arrows in the Suggest field slider, to determine a new tag value.
Set	Specifies a new current value that is written immediately.
Suggest	Specifies a new current value that is displayed in the New Value field and written by clicking Apply.

Single Tag

To define single tag input:

In the Control Panel of the Application Studio, double-click the Single Tag icon.

Or,

From the Tools menu of the Application Studio, select Single Tag. The Single Tag Input dialog box is displayed:

The following options are available:

Station Name The application network station to which the tag belongs.

Tag Name The tag for which the value is to be modified. Click on the arrow on the right side of the field to display a drop-down list of tags. When a tag is selected, its description is displayed underneath the Tag Name field and its value is displayed in the Current Value field.

Current Value Specifies the current value of the selected tag.

New Value Enter the new tag value, or click on the arrows in the Suggest field slider, to determine a new tag value.

Set Specifies a new current value that is written immediately.

Suggest Specifies a new current value that is displayed in the New Value field and written by clicking Apply.

Single Tag

Press the Single Tag icon from the Application's Quick Access Bar to open the **Single Tag Input dialog box**.

Tool / Single tag

Select this item to modify a single tag value.

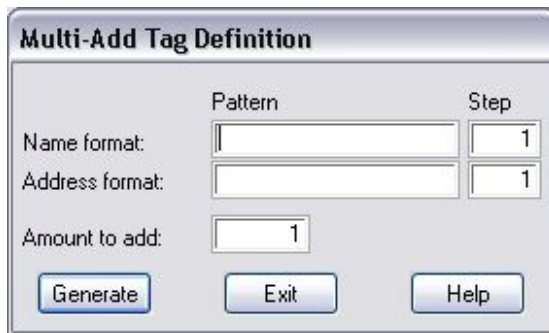
This method is useful when you want to change a specific tag's value instantly for practical and testing purposes.

After you select this item, the **Single Tag** dialog box will appear with several fields that you can use to specify the tag that you want to write a value to, and the value that you want to apply.

MultiAdd Tags

The MultiAdd operation is used to automatically generate a group of tags according to a user-defined pattern format.

- To define tag pattern format:
 1. In the All Containers section of the Application Studio, click on Tags to display the List of Tags.
 2. In the List of Tags section, right-click the tag you want to add to a group and select MultiAdd from the popup menu. The MultiAdd Tag Definition dialog box is displayed:



The dialog box titled "Multi-Add Tag Definition" contains the following fields and buttons:

	Pattern	Step
Name format:	<input type="text"/>	<input type="text" value="1"/>
Address format:	<input type="text"/>	<input type="text" value="1"/>
Amount to add:	<input type="text" value="1"/>	

At the bottom of the dialog are three buttons: "Generate", "Exit", and "Help".

3. This dialog box is used to generate a pattern for tags to be added to the existing tag list. Once a pattern is defined for the Name format and Address format fields, you can activate the Generate button to add tags to the list according to the pattern you defined.

The following options are available:

	<p>The contents of this field can be any of the following characters:</p> <p>*: This character will remain as is in the next tag.</p>
Name format	<p>A: This character will be incremented alphabetically.</p> <p>D: This character will be incremented in decimal numeric order.</p> <p>H: This character will be incremented in hexadecimal numeric order.</p> <p>O: This character will be incremented in octal numeric order.</p> <p>#: This character will cause whatever character appears in that position to be incremented according to its specific character type. If the character is alphabetical, it will be incremented alphabetically; if the character is numerical, it will be incremented numerically. Any other character will remain as is.</p> <p>Note: The MultiAdd operation increments only the tag name and address.</p> <p>For example, if the current tag name is WATER39X and the next name format was defined as *****DHA, the MultiAdd operation will cause the tag name WATER39Y to be generated.</p> <p>Note that if the format length is less than the current name/address length, the format will affect the right part of the name/address. For example, if the name format was defined as **HHH, and the current name is WATER001, the next name will be WATER002.</p>
Address format	<p>The contents used for the Name format field can also be used for the Address format field.</p>
Pattern and Step	<p>Specifies incremental amounts. You can enter any numerical value from 1 to 7. The Name and Address of the next tag will be incremented according to the amount specified in these fields. For example, in the Name format field, if you entered AA for the Pattern and 2 for the Step, the next tag will be called AC.</p>

Amount to add	Specify the number of tags that will be added to the list when the Generate button is activated.
---------------	--

After you set the MultiAdd definition, click the Generate button to generate the specified tag pattern. See **Chapter 12, Multiple Tags** for further information.

Multi Add Tag Definition

Note: Not applicable on the Web.

This dialog box is used to generate a pattern for tags to be added to the existing tag list. Once a pattern is defined for the Name format and Address format, you can activate the Generate button to add tags to the list, according to the pattern you defined.

In this dialog box, the values for the Pattern field can be:

- * This character will remain as is in the next tag.
- A** This character will be incremented alphabetically.
- D** This character will be incremented in decimal numeric order.
- H** This character will be incremented in hexadecimal numeric order.
- O** This character will be incremented in octal numeric order.
- #** This character will cause whatever character appears in that position to be incremented according to its specific character type. If the character is alphabetical, it will be incremented alphabetically; if it is numerical, it will be incremented numerically. Any other character will remain as is.

In the **Step field**, specify the increment step (1 -) by which to advance the Name and Address of each tag. For example, assume the tag selected in the list box is called '**tag01**', if you define '******DD**' as the Pattern for the Name format and **4** for the Step, the next tag generated will be '**tag05**'.

In the **Amount to add** field specify the number of tags that will be added to the list when the **Generate** button is activated.

Tag Management

- To modify a tag:
 1. In the All Containers section of the Application Studio, click on Tags to display the List of Tags.
 2. In the List of Tags section, right-click the tag you want to modify and select Modify Tag from the popup menu.Or,
Double-click on the tag in the List of Tags section. The Tag Definition dialog box is displayed in which you can modify the tag.
- To delete a tag:
 1. In the All Containers section of the Application Studio, click on Tags to display the List of Tags.
 2. In the List of Tags, right click the tag you want to delete and select Delete Tag from the popup menu. A dialog box is displayed in which you can confirm your request or cancel it.
- To find a tag:
 1. In the List of Tags right-click anywhere and select Find Tag from the popup menu. The Find Tag dialog box opens.
 2. In the Find What field type in the name of the tag, its description or address.



3. In the Conditions field select either; Tag Name, Description or Address (your selection will depend on the information you typed in the Find What field).
4. Click Find. The tag is highlighted in the List of Tags.
5. To close the dialog box click Exit or anywhere in the Application Studio.

Tag Modify

This option allows the user to Modify the Tag definition.

To initiate this option:

1. Select a Tag from the List Tag
2. Right Click it and select the Modify option from the Pop-up Menu.

OR

Double click a chosen Tag.

Delete Tag

This option enables you to delete the selected tag.

To delete a Tag:

1. Select a tag from the list tags
 2. Click your mouse right button and choose the Delete option form the Pop up menu.
-

Tools / Find / Tag

The application enables you to locate tags in the List of Tags in the Application Studio. This is especially useful if you have an application with many tags.

To locate a tag:

1. Click anywhere in the List of Tags and select **Find** from the *Tools* menu. The *Find Tag* dialog is displayed.
 2. In the **Find what** field, enter the name of the tag you want to locate, its description or its address.
 3. In the **Conditions** area, select either **Tag name**, **Description** or **Address** depending on the tag criteria you entered in the **Find what** field.
 4. Click **Find**. The tag is located in the List of Tags.
 5. Click **Exit** or anywhere in the Application Studio outside the List of Tags to close the dialog.
-

Locating Tags

The Application enables you to locate tags in the List of Tags.

To locate a tag:

1. Click anywhere in the List of Tags and select **Find** from the *Tools* menu. The *Find Tag* dialog is displayed.
 2. In the **Find what** field, enter the name of the tag you want to locate, its description or its address.
 3. In the **Conditions** area, select either **Tag name**, **Description** or **Address** depending on the tag criteria you entered in the **Find what** field.
 4. Click **Find**. The tag is located in the List of Tags.
 2. Click **Exit** or anywhere in the Application Studio outside the List of Tags to close the dialog.
-

Find Tag

In this dialog box, enter the name prefix of any tag that you want to search for in the tag list. Then, activate the Find button to perform the search.

System Tags

System Tags are predefined, built-in tags providing system status information. These tags can be added to an application only once either when the application is activated or anytime afterwards. Once added, System Tags will appear under the Tags icon in the All Containers pane. When double clicked a list of all the tags in the application will open in the Control Panel.

System Tags also hold information for the application PLC integrated application. For a list of System Tags see Appendix H **System Tags**.

- To define Systems tags when opening the program:

If global tags have not been defined in your project then during application start-up the following message box will open on your screen.



6. Click Yes to add system tags or No not to.
7. Check the Never ask again checkbox to define this option. The System Tags icon will appear in the All Containers pane as a sub item of Tags.

8. Double click the System Tags icon to view the List of System Tags.
 - To define System Tags using the Tools menu:
 1. From the Tools menu select Add Systems Tags. A Warning message will appear on your screen.
 2. Click Yes to add System Tags. The System Tags icon will appear in the All Containers pane as a sub item of Tags.
 3. Double click the System Tags icon to view the List of System Tags.
-

System Tags

Application system tags are pre-defined, built-in tags that provide system status information.

To add system tags

Select Add System Tags from the Tools menu. Once added, a new icon for System Tags is added to the All Container tree under Tags, and all the available system tags are displayed in a list.

Note: System tags can be added to your application only once and cannot be removed.

System Tags Names

All system tags have the prefix WIZSYS followed by an underscore and a name indicating the tag's function.

System Tags Type

There are three types of system tags: Digital tags, Analog tags and String tags.

Most system tags are read only, and return system data as stated in the tag's description. Some tags, such as tags indicating system time and date can be modified.

List of System Tags

The following is a list of System tags:

WIZSYS_TAGSAMPLING

WIZSYS_WRITE2HISFILE

WIZSYS_ALARMMODULE

WIZSYS_COLLAPSEALARMS

WIZSYS_COMPRESSDEFINITION

WIZSYS_WIZPLCCYCLETIME

WIZSYS_WIZPLCCYCLES
WIZSYS_WIZPLCMAXTIME
WIZSYS_WIZPLCSTATE
WIZSYS_DAYS1970
WIZSYS_DATE
WIZSYS_DAY
WIZSYS_HOUR
WIZSYS_MINUTE
WIZSYS_MONTH
WIZSYS_OPERATOR
WIZSYS_SECOND
WIZSYS_MILLISECMIDNIGHT
WIZSYS_TIME
WIZSYS_YEAR
WIZSYS_DISKFREE
WIZSYS_DISKUSED
WIZSYS_MINUTEMIDNIGHT
WIZSYS_DAYS1980
WIZSYS_BACKUP
WIZSYS_PLUGMODEL
WIZSYS_PLUGTAGS
WIZSYS_TAGCOUNT
WIZSYS_STATIONNAME
WIZSYS_STATIONID
WIZSYS_NETWORKACTIVE
WIZSYS_MEMFREE
WIZSYS_MEMUSED
WIZSYS_WDAY
WIZSYS_WILRUNNING
WIZSYS_WIZPLCRTRUNNING
WIZSYS_WIZPLCDEVRUNNING
WIZSYS_COLLAPSEALARMS
WIZ SYS_IMAGEX
WIZ SYS_IMAGEY
WIZ SYS_SCHEDULERENABLE
WIZ SYS_SCHEDULERLASTERR
WIZ SYS_SCHEDULERSTART
WIZ SYS_SCHEDULERSTATUS

Tools / Add System Tags

Select this item to add system tags to your application. System tags are pre-defined, built-in tags that provide system status information.

Note: System tags can be added to your application only once and cannot be removed. Adding system tags is also available when starting the application.

Exporting Tags

Exporting Tags

The Export Tags option enables you to generate a tag list file (list of tag definitions) in two formats:

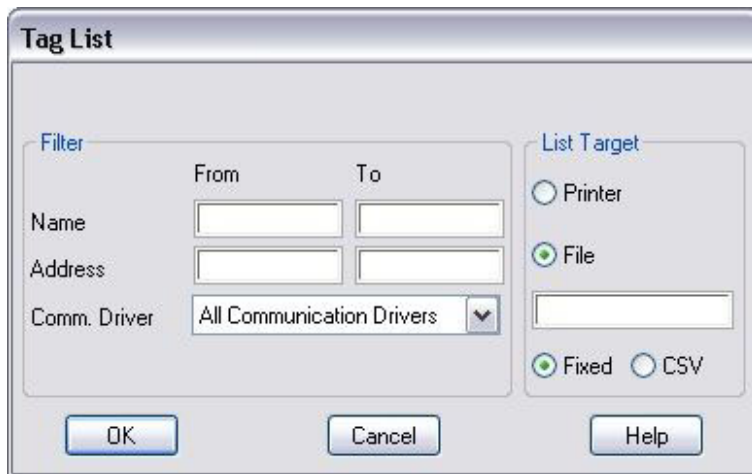
- ASCII - where files can be added. The list files are saved with a GLS extension
- CSV as Excel files - limited to numbers beginning with 0, for example tag addresses. This is a convenient tool for editing.

You can edit the file to add, modify or delete tags. You can then import the file back into the system.

Note: The Excel program deletes the digit 0 before a number. To overcome this problem use ASCII format.

- To generate a list of tag definitions:

In the All Containers pane right click on Tags and select Export Tags from the popup menu. The Tag List dialog box opens:



The 'Tag List' dialog box is divided into two main sections: 'Filter' and 'List Target'. The 'Filter' section on the left contains three rows: 'Name' with 'From' and 'To' input fields, 'Address' with 'From' and 'To' input fields, and 'Comm. Driver' with a dropdown menu currently set to 'All Communication Drivers'. The 'List Target' section on the right has three radio buttons: 'Printer', 'File' (which is selected), and 'Fixed' (which is also selected). Below the 'File' radio button is a text input field for the filename. Below the 'Fixed' radio button is another radio button for 'CSV'. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

This dialog box is divided into two fields: Filter and Tags:

Filter

- Name - Specifies the tag you want to filter.
- Address - Specifies the address you want to filter.
- Comm. Driver - Specifies the name of the communication driver.

List Target

Specifies the target destination of the generated list:

- Printer - the generated list will be sent to the defined printer.
- File (.GLS) - the generated list will be sent to file which can be either:
 - Fixed format
 - CSV

Filter conditions can be set so that only specific tags will appear in the generated tag list.

4. The Filter and Address fields in this dialog box are in From/To format and are used to set the tag list filter. In addition, you can specify the tag list target.

5. If File is selected as the target, the filename, without the path or extension, must be specified and then select Fixed or CSV. The file will be placed in your application directory.

Export / Tag

Use this dialog box to set filter conditions so that only specific tags will appear in the generated tag list.

Tag Export

This dialog box is used to set filter conditions so that only specific tags will appear in the generated tag list.

This option opens up a dialog box that allows the user to produce a **Tags List file**. A Tag list file is an ASCII file with GLS extension. It describes all or some of the tags available in the system (depends on the filter which is being used). You can edit the Tags list file to Add, Modify and delete Tags. you can then Import the file back into the system.

For each item in the **Filter field**, you can specify the range for the tags that you want to appear in the list.

For **Target**, you can select Printer, to send the generated list to the printer, or File, to send the list to a file.

If you select File, do not specify the path or extension of the file. The extension can be .GLS, CSV or Fixed format, and the file will be placed in your application directory.

This option could be initiated by:

1. Right click the Tags Object from the Container tree.
 2. Select the Export Tags option from the Pop-Up menu.
-

Export Tags to WizPLC

You can export tags to WizPLC at the moment at which you define the tag. However, this dialog box allows you to export tags *en masse* before launching the WizPLC development studio.

In the listbox on the left, you can see the list of tags in Wizcon. Note that you can select tags from any Wizcon station.

Underneath, you have the set of options available to define how the tags will be handled in WizPLC.

The following options are available:

- **WizPLC variable name:** The name of the variable when used in WizPLC. This name must be IEC 61131-3 Compliant.
- **Has an IO Address:** Check this option and you can then define the address of the variable
- **Sampling frequency:** The time interval between sampling of the variable. The maximum sampling frequency is 50ms.
- **No PLC Sampling:** The value will not be read by the PLC. Use this option only if the PLC will never modify the value - it will give you better performance
- **Retain:** Whether the value of the tag is to kept between sessions of WizPLC
- **Read-only:** Whether Wizcon can change the value of the variable or not.
- **Variable is initialized by Wizcon:** Whether the initial value comes from Wizcon or WizPLC

You can select one or more tags, and apply the above options to the selected tags. Once you have chosen the options, use the Add button between the two listboxes to export the tags to WizPLC.

The listbox on the right shows the list of WizPLC tags. If you want to remove the tags from WizPLC, use the Remove button between the two listboxes.

Export Tags to WizPLC

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In the listbox on the left, you can see the list of tags in Wizcon. Note that you can select tags from any Wizcon station.

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The listbox on the right shows the list of WizPLC tags. If you want to remove the tags from WizPLC, use the Remove button between the two listboxes.

Fixed (GLS File) Format

Tag list files (.GLS) are ASCII files that you edit, or create and add to or replace the existing application tag list.

Note: Long tag names, address strings and additional parameters in tag definitions make length of a line in a GLS file over 256 bytes. In order to work with GLS files, use any Standard Windows Editor and set the Wrap option to OFF.

Any line that begins with a semicolon (;) will be ignored.

Tag descriptions appear inside the characters < >. Addresses have the format driver address or empty spaces for dummy tags.

For DDE-Params, the parameters are Link (Y/N), and <Application:Topic:Item>.

For Source-Params, the parameters are:

PLC	Driver address Smp Smp-Rate
-----	-----------------------------

Dummy	No parameters
-------	---------------

Compound	Const1 Tag1 Oper Const2 Tag2
----------	------------------------------

For Type-Params, the parameters are:

Analog	Format Tol Conversion Min./Max.
--------	---------------------------------

Digital	Filter
String	Length

The lines following the title line contain the tags and their corresponding tag information.

GLS files are ASCII files that you edit, add to or replace with the existing Application tag list. The title line of the Tag list file has the following format: No., Name, Description, Groups, Red, Rcd- Rate, **DDE-Params**, Source, Source Params, Type, **Type Params**.

Tag Export

This dialog box is used to set filter conditions so that only specific tags will appear in the generated tag list.

This option opens up a dialog box that allows the user to produce a **Tags List file**. A Tag list file is an ASCII file with GLS extension. It describes all or some of the tags available in the system (depends on the filter which is being used). You can edit the Tags list file to Add, Modify and delete Tags. you can then Import the file back into the system.

For each item in the **Filter field**, you can specify the range for the tags that you want to appear in the list.

For **Target**, you can select Printer, to send the generated list to the printer, or File, to send the list to a file.

If you select File, do not specify the path or extension of the file. The extension can be .GLS, CSV or Fixed format, and the file will be placed in your application directory.

This option could be initiated by:

1. Right click the Tags Object from the Container tree.
2. Select the Export Tags option from the Pop-Up menu.

Exporting Tag Definition Files Using an External Application

If you are using an external application you can export tag definition files using the 'gls2csv' tool through a command line or, save the option in the dialog box in a CSV file format.

- To convert a tag definition file to CSV format:

Type the following in the command line:

```
gls2csv [fromfile] [tofile]
```

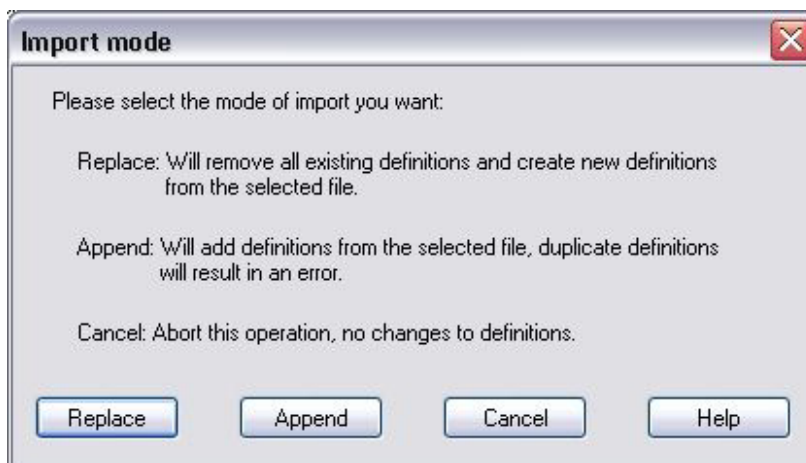
Importing Tags

The Import Tags option enables you to import a tag list file into the system. The imported file can replace the current list of tag definitions.

- To import tag definitions:

In the All Containers section of the Application Studio, right-click on Tags and select Import Tags from the popup menu. The List to Tags dialog is displayed:

1. In the Files of type field, select the type of file you want to import. You can choose between CSV and GLS. Locate the file you want to import and click Open. The Import Mode dialog is displayed.



2. Click **Replace** to replace the tags in the tag list with the imported tags, **Append** to add the specified tags to the tag list, or **Cancel** to cancel the import.
-

Import Tags

This option is used to import a Tag List file into the system.

1. From the *Tools* menu of the Application Studio, select **Import** and then **Tags**. The *Open Tag file for Import* dialog is displayed.
 2. In the **Files of type** field, select the type of file you want to import. You can choose between **CSV** and **GLS**. Locate the file you want to import and click **Open**. The *Import Mode* dialog is displayed.
 3. Click **Replace** to replace the alarms in the alarm list with the imported alarm, **Append** to add the specified alarm to the alarm list, or **Cancel** to cancel the import.
-

Importing Tag Definition Files Using an External Application

If you are using an external application you can import tag definition files using the command line.

- To convert a csv file to a tag definition file:

Type the following in the command line:

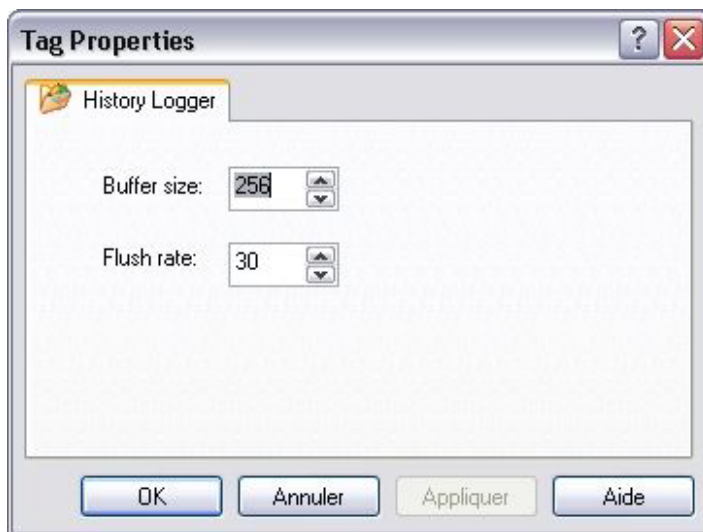
```
csv2gls [fromfile] [tofile]
```

Defining Tag Properties

You can define properties for the tag buffer size and the flush rate.

- To define tag properties:

In the All Containers section of the Application Studio, right click Tags and select Properties from the popup menu. The Tag Properties dialog is displayed:



The following options are available:

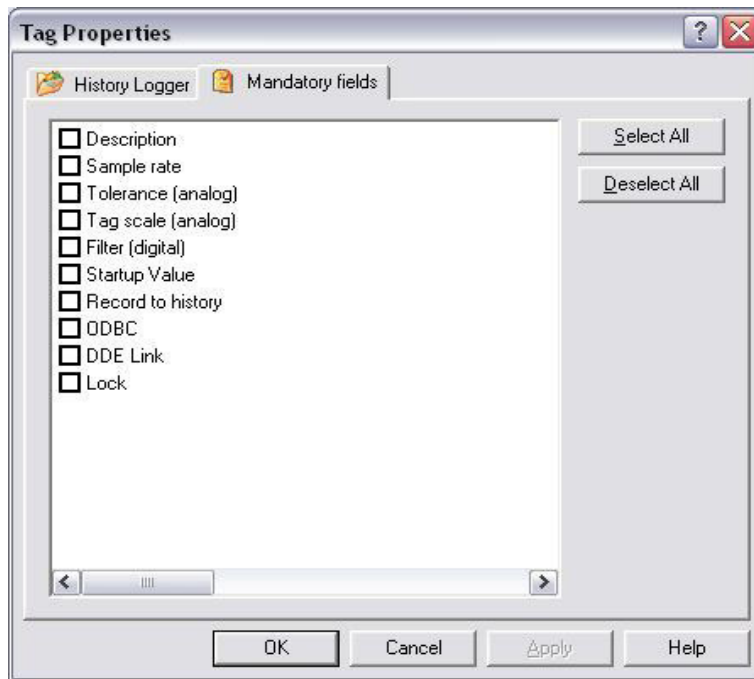
Buffer size	Determines the WizPro logger buffer size for history files, in lines (records). The maximum is 2048 records. Increase the value of this option if you anticipate that a large number of changes will occur at any time during the working session.
-------------	--

Flush rate:	Determines a value that will represent the WizPro logger flush to disk rate in seconds (for history files). The maximum is 3600 seconds.
-------------	--

Note: Restart the application for changes to take place.

Mandatory Tag Definition Parameters

You can also define a set of mandatory fields for tag definitions as shown in the following dialog box. This dialog box allows you to define a set of mandatory fields when defining a tag. For each of the selected options, the user will not be able to define a tag unless the selected fields have been defined



Tag Properties

Used to determine the logger buffer size for history files and the logger flush to disk rate.

Buffer Size:

This parameter determines the logger buffer size for history files, in lines (records). Maximum is 2048 records. Increase the value of this option, if it is anticipated that a large number of changes will occur at once at any time during the session.

Note after you have determined the size, make sure to restart the application.

Flush Size:

This parameter determines a value that will represent the application logger flush to disk rate, in seconds (for history files). Maximum is 3600 seconds.

Note after you have determined the size, make sure to restart the application

Tag Properties

Used to determine the logger buffer size for history files and the logger flush to disk rate.

Buffer Size:

This parameter determines the logger buffer size for history files, in lines (records). Maximum is 2048 records. Increase the value of this option, if it is anticipated that a large number of changes will occur at once at any time during the Application session.

Note after you have determined the size, make sure to restart the Application.

Flush Size:

This parameter determines a value that will represent the logger flush to disk rate, in seconds (for history files). Maximum is 3600 seconds.

Note after you have determined the size, make sure to restart the Application

Tag Property

Use this option to define the Tag tuning parameters

Check this option to determine the logger buffer size for history files, in lines (records). Maximum is 2048 records. Increase the value of this option, if it is anticipated that a large number of changes will occur at once at any time during the Application session.

Note after you have determined the size, make sure to restart the Application.

Check this to determine a value that will represent the logger flush to disk rate, in seconds (for history files). Maximum is 3600 seconds.

Note after you have determined the size, make sure to restart the Application.

Other Topics

Design / Add Object / Tags

Select this item to define **Tags** and assign their Authorization groups.

In the application, tags represent control values monitored by the system. These values are similar to variables in a programming language (such as BASIC, PASCAL, and C), or to the names of registers in a PLC. Like variables, each tag is identified by a unique name and can be one of several data types, such as integer, real, or Boolean. However, tags are distinguished from other variables, in that they can be associated with external devices, such as registers, I/O nodes in PLCs, memory locations in remote devices, or tags in other application stations.

A tag value represents the value of an external component or device, so that referencing the tag is equivalent to referencing the component or device itself. Updating a tag causes the external component or device to be updated as well. Thus, an application tag serves as a link between the system and the external device.

After you select the Tags item from the menu, the **Tag Definition dialog box** will appear for you to enter the tag specifications.

Cluster - Tag Definition

The Tag definition dialog box is used to manipulate existing tags. The list displays tag names and descriptions for already defined application tags.

Change- To change the selected tag's attribute only. you can not change the original tag's name.

List- To export tag definition in to an ASCII file.

Tag - Special Tokens

In the Tag Definition dialog box, you can use special tokens to enable customized tag creation and identification upon object Instantiation. These tokens can be used in the Tag Name, Address, and Description fields to enable customized tag attribute generation.

"[.]" brackets specify an optional parameter.

The following tokens can be used:

\$ID([from-to])

The **from-to** variable represents characters from the data supplied by the operator upon instantiation. The following methods can be used for the **From-To** parameter:

#-# For example, if the string is ABCDE, and you specify 2-4 for From-To, the letters BCD will be displayed

The character located at the number you specify will be displayed. For example, if the string is ABCDE, and you specify 3 for From-To, the letter C will be displayed.

+#- All the characters from the number you specify and on will be displayed. For example, if the string is ABCDE, and you specify 3- for From-To, the letters CDE will be displayed.

-# All the characters up to the number you specify will be displayed. For example, if the string is ABCDE, and you specify -3 for From-To, the letters ABC will be displayed.

For example, If you specify the tag name ANA\$ID(2-3) in the Tag Definition dialog box, if the operator instantiates the object for which this tag was defined and enters the instance name I02, a tag called ANA02 will be created for that object (the count for 2-3 in I02, is I=1, 0=2, and 2=3).

For tag address, if, for example, you want the address constant to be 0000, in the Address field in the Tag Definition dialog box, you can choose 0000\$ID(2-3). Then if, for example, the operator enters A10 in the instance name, the address of the tag generated upon instantiation of the object would be 000010.

The same applies for description. For example, if you want the constant Valve to appear in the description followed by the valve number, you could use Valve\$ID() (where the empty parentheses indicate that all the characters in the operator-supplied name should be used). If the operator enters 12 for the instance name while instantiating the object, the description of the generated tag will be Valve12.

Different combinations of the **\$ID** variable can be used to customize generated tag attributes upon object instantiation, for example:

`$ASK("text"[,from-to])`

For text, specify the text that will appear in the prompt upon instantiation. The from-to parameter is optional and can be used in the same way as described in \$ID token. If you entered `$ASK("Tag Name")` in the Tag Name field of the Tag Specifications dialog box and `$ASK("Enter Description")` in the Description field, when you instantiate the object in the image another dialog box will appear and prompt you for the instance parameters.

Tag Assignment

Note: *ApplicationSQL is not applicable on the Web.*

Tag Assignment

In Application tag assignment operations, the value assigned to the tag can be any expression in 'C' format (as in the condition expression), or the result of a historical function on a tag. For example:

syntax:

@tag-name = expression

@tag-name = historical expression

Expression

You may assign one of the following expression types to a tag:

- If @tag_name is a numerical tag, a numerical expression as described earlier in the condition section.
- If @tag_name is a string tag, a string expression as described earlier in the SQL command section.
- **\$SQLRC**: This is a variable containing the SQL completion code. It is a predefined variable that indicates the status of the last SQL command executed.

Historical Functions

Much like the Application Report module, ApplicationSQL supports historical operations on tag values in historical files. The results of these operations can be assigned to tags. The ApplicationSQL historical functions are split into two groups.

The functions in the first group perform a calculation on values within a specified time interval:

WMIN returns the lowest value recorded during the specified interval.

WMAX returns the highest value recorded during the specified interval.

WAVERAGE returns the arithmetic average of all the values recorded during the interval.

WWAVERAGE returns the average of recorded values of the tag, relative to the time the value occurred in the tag.

WTEGRAL returns the sum of recorded values, multiplied by the time the value occurred in the tag, until the next recording of the same tag.

WSUM returns the sum of all the values recorded during the interval.

The syntax for this group of commands is as follows:

FUNCTION(@tag-name, from-time, to-time)

example:

WMIN(@ANA01, REL(1, 10:0:0), REL(1, 0:0:0));

The functions in the second group perform calculations based on a value range given:

WINTIME returns the total amount of time that tag values were in the range specified.

WINCOUNT returns the number of times that tag values were recorded for a specified value range.

The syntax for this group of commands is as follows:

FUNCTION(@tag-name, from-time, to-time, low-value, high-value)

example:

@DURATION = WINTIME(@TEMP, REL(0, 10:0:0), REL(0, 0:0:0), 90, 100);

Note: For more information on each ApplicationSQL historical command, please refer to the Reports chapter of the Application 5 User's Guide.

From/To Parameter

For every applicationSQL historical function, you must specify the From/To parameter to define the time interval for which historical values will be analyzed. A time indicator can be absolute or relative.

syntax:

indicator(date, time)

- § The **Indicator** part is used for indicating whether the date-time is absolute or relative. Specify one of the following:

ABS Absolute date & time: A full date and time with minutes & seconds must be specified.

REL Relative date & time: The number of days back and number of hours back are specified.

RELD Relative date & Absolute time: The number of days back and a specific time are specified.

- § The full format for the **date** and **time** parameters is as follows:

date day-month-year

time hour:minutes:seconds

examples:

ABS(12-10-89, 12:30:00)

This specifies 12:30 on October 12, 1989

RELD(10, 12:30:00)

This specifies 12:30 10 days ago.

REL(10, 1:0:0)

This specifies 10 days and 1 hour ago.

Tag Cluster Definition

In the Define Cluster dialog box, click the Tags or Alarms button. A new tag/alarm with the modified original tag/alarm definition will be generated during cluster instantiation in the image. The Tag Definition dialog box is displayed. Only tags/alarms that are associated with the cluster objects will appear in the tags/alarms list and only the Change button is enabled.

1. Click the Change button to open the Tag/Alarm Specification dialog box.
1. 2. Complete the fields in this dialog box according to instructions in the Tags and Alarms chapters.

Note: You can also access this dialog by double-clicking on a line in the list.

External devices normally generate operational values according to their internal format and in order to obtain the maximum accuracy.

Tag Field Definition

In this dialog box, specify the tag and its station for which the field will be defined.

For Days and Hours, specify the days and hours of the tag records that you want to use for the calculations in the report.

Select the **Given at Run Time** option to cause the values to be determined by the Application Language

Last Value Returns the tag value at the end of the specified interval. This value will be the last value that was recorded in the interval you specified.

Minimum Returns the lowest value recorded in the interval you specified.

Maximum Returns the highest value recorded in the interval you specified.

Average Returns the arithmetic average of all the values recorded during the interval you specified.

Sum Returns the sum of all the values recorded during the interval you specified.

Integral Returns the sum of the products of each recorded value, multiplied by the time until the next recording.

Weighted Average Returns the average value of the tag, relative to the time the value occurred in the tag.

Total Time for Range Returns the total amount of time that tag values were in the range specified.

Count for Range Returns the number of times that tag values were recorded for a specified range.

Time of Logging No. Returns the time of the nth recording after the beginning of the interval. (For example, if you want the hour at which the th recording occurred, type for this option.)

Value of Logging No. Returns the value of the nth recording after the beginning of the interval. (For example, if you want the value of the 4th recording, type 4 for this option.)

Repetition --- of Value --- (Time) Returns the time of a specific occurrence of a specific value (for example, this function can return the hour at which a value of 1.0 was recorded for the second time).

For Repetition, type 0 to obtain the last time the value you specified appeared for that period.

For example, Repetition 0 of value 100 will return the last time the tag had the value 100. Current Value Returns the current value of the tag. This function will cause the Application to force-read the tag when generating the report.

Tags Properties: Mandatory Fields

When defining a tag, you can force the user to specify a value for zero or more of the fields that constitute the tag description.

The list box allows you to specify which fields are mandatory. For example, clicking on the "Description" item, will not allow the user to add or modify a tag if a description has not been provided.

Use the "Select All" or "Deselect All" to check or uncheck all of the items in the listbox.

User Management: Properties

Use this dialog box to specify rules about password management.

Password valid for: You can specify for how many days a password will be valid. The limits are displayed.

Password expiration reminder: Use this option to give a reminder to the user when their password is about to expire.

System keeps up to: You can force the system to remember several old passwords so that the user cannot simply switch between known passwords. This enhances security of the password checking system.

Check password format: You can force the user to enter a password with a given set of rules. If this option is checked, the user's password must contain at least one letter, one digit and one special symbol from !, @, #, \$, %, &, _ , -. If this rule is not followed, the user will not be able to change the password next time it needs to be changed.

Shift overlap time: If you have enabled shift management (see the user guide), you can specify an "overlap time". This means that

- users from the current shift can continue to login to the system for up to the specified amount of time after their shift is supposed to end
 - users from the next shift can login to the system for the specified amount of time before their shift is due to start.
-

Modify the Tag List

The Application enables you to add tags, modify current tag specifications and remove the tags that are displayed in the Trend Viewer. These changes are made online and are in effect until you refresh the browser. The Trend Viewer is then displayed according to its default settings.

To add a tag:

1. Select **Edit Tags** from the *Setup* menu of the Trend Viewer. The *Tag definition* dialog is displayed:
2. Click **Add**. The *Tag definition* dialog is displayed in which you can add a tag. This tag is similar to the standard *Add the new tag* dialog used during Trend Viewer definition.
3. Click **OK** to close the dialog and save your changes.

To modify current tag specifications:

1. Select **Edit Tags** from the *Setup* menu. The *Tag definition* dialog is displayed.
2. Select the tag you want to modify and click **Edit**. The *Tag definition* dialog is displayed in which you can change the current tag specifications.
3. Click **OK** to save your changes and close the dialog.

To remove a tag:

1. Select **Edit Tags** from the *Setup* menu. The *Tag definition* dialog is displayed.
 2. Select the tag you want to remove and click **Remove**. The tag is removed from the Tag list.
-

Retain Tag Options

Periodic Saving:

Activate a periodic saving for the Retain tags. The Retain values correspond to the latest value of each Retain tag and is dump into a file on shutdowns. They are used for setting the value at next start-up. It is possible to force a periodic saving of the values for extra security.

Note after you have determined the periodic saving, make sure to restart the Application.

On communication error:

If the last value of a Retain tag is not sure due to communication error, you can decide what to do with it.

Note after you have determined it, make sure to restart the Application

Sublevel	Tags

Tag Context Definition

A tag context is used by images and charts to change tags dynamically. It is used in conjunction with a tag template ID, which is a normal tag ID with 2 special '#' delimiters.

When a tag context is chosen for a window (image, chart), all tag template IDs are modified by replacing the delimited text with this context.

Choose a name for the context. This name will be used as a title for this context. Choose a context string. This will be the part that will be switched in tag template ids.

When such a context is defined, it opens a new tag tree in your tag list, listing all tags that contain your chosen context as a substring.

Defining Tags

Tag - Special Tokens

In the Tag Definition dialog box, you can use special tokens to enable customized tag creation and identification upon object Instantiation. These tokens can be used in the Tag Name, Address, and Description fields to enable customized tag attribute generation.

"[.]" brackets specify an optional parameter.

The following tokens can be used:

\$ID([from-to])

The **from-to** variable represents characters from the data supplied by the operator upon instantiation. The following methods can be used for the **From-To** parameter:

#-# For example, if the string is ABCDE, and you specify 2-4 for From-To, the letters BCD will be displayed

The character located at the number you specify will be displayed. For example, if the string is ABCDE, and you specify 3 for From-To, the letter C will be displayed.

+#- All the characters from the number you specify and on will be displayed. For example, if the string is ABCDE, and you specify 3- for From-To, the letters CDE will be displayed.

-# All the characters up to the number you specify will be displayed. For example, if the string is ABCDE, and you specify -3 for From-To, the letters ABC will be displayed.

For example, If you specify the tag name ANA\$ID(2-3) in the Tag Definition dialog box, if the operator instantiates the object for which this tag was defined and enters the instance name I02, a tag called ANA02 will be created for that object (the count for 2-3 in I02, is I=1, 0=2, and 2=3).

For tag address, if, for example, you want the address constant to be 0000, in the Address field in the Tag Definition dialog box, you can choose 0000\$ID(2-3). Then if, for example, the operator enters A10 in the instance name, the address of the tag generated upon Instantiation of the object would be 000010.

The same applies for description. For example, if you want the constant Valve to appear in the description followed by the valve number, you could use Valve\$ID() (where the empty parentheses indicate that all the characters in the operator-supplied name should be used). If the operator enters 12 for the instance name while instantiating the object, the description of the generated tag will be Valve12.

Different combinations of the **\$ID** variable can be used to customize generated tag attributes upon object Instantiation, for example:

\$ASK("text"[,from-to])

For text, specify the text that will appear in the prompt upon Instantiation. The from-to parameter is optional and can be used in the same way as described in \$ID token. If you entered \$ASK("Tag Name") in the Tag Name field of the Tag Specifications dialog box and

`$ASK("Enter Description")` in the Description field, when you instantiate the object in the image another dialog box will appear and prompt you for the instance parameters.

Chapter 10 Tag Filter Module

Tag Filter Module Overview	393
Accessing the Tag Filter	395
Accessing the Tag Filter	395
Tag Filter Properties	397
Tag Filter Properties - General Tab	399
Tag Filter Properties - Network Tab	400
Tag Filter in the Image Module	401
Tag Filter in the Image Module	402
Tag Value Lock	403
Modifying Tag Lock Values	405
Running the Tag Lock on the Web	406

About this chapter:

This chapter describes the Tag Filter module.

Tag Filter Module Overview on the following page, discusses the basic Tag Filter options.

Accessing the Tag Filter discusses how to access this module.

Tag Filter Properties discusses the Tag Filter General and Network tabs.

Tag Filter in the Image Module takes you through the necessary steps required to open this list in the Image.

Running the Tag Lock on the Web takes you through the necessary steps required to run the Tag Lock using the Html module.

The Tag Filter module is used to filter, view and manage a list of tags and their status (locked/unlocked) in the application. This is useful for the development and maintenance of an application.

The Tag Filters List is stored in the application's TFM.XML filter that is created in the .\docs directory (or another appropriate directory of the application).

When accessed through Java applets the Tag Filters List can be defined/modified/viewed in the Image module during runtime. Up to 10 tag filters can be selected simultaneously.

In this version upto 1000 tags can be defined.

Tags can be sorted according to:

- **Source**
 - **PLC** - tags associated with external devices and mapped on the external device variables.
 - **Dummy** - tags representing internal variables used for a variety of calculations, control and other application related needs.
 - **Compound** - tags which are linear calculations based on values of other tags.
 - **System** - tags that are predefined and built to provide system status information
- **Type**
 - **Analog** - tags that have numeric values represented in various formats.
 - **Digital** - discrete logic tags that have a boolean value of True (1) or False (0).
 - **String** - tags that are defined to receive alphanumeric strings.
 - **Locked** - which filters only locked tags. A locked tag can be either analog, digital or string.

Note: There is the option to select all sources and all types or only one or more source or type.

Tag Filters

The Tag Filter is used to view and manage a list of locked tags in the control application.

This module contains a list of tag filters that are stored in the application in the TFM.XML file that is created in DOCs or another appropriate directory of the application and can be accessed through Java applets. Up to 10 tag filters can be selected simultaneously.

The Tags Filters list can be viewed in the Image module during runtime.

This dialog box has the following fields:

- **Name:** Displays the Tag Filter name as defined in the Tag Filter Properties dialog box
- **Description:** Displays a description of the Tag Filter as defined in the Tag Filter Properties Filters dialog box
- **Add:** Click this button or, right click and select Add to open the Tag Filter Properties dialog box. Complete the relevant fields and click OK to save your definitions
- **Change:** Select a tag filter and then either click this button or, right click and select Change to open the Tag Filter Properties dialog box. Update the selected tag and click OK to save your modifications
- **Delete:** Select a tag filter and then either click this button or, right click and select Delete. The selected tag will be removed from the list

For further information see **Tag Filter Properties** and **Select Tag Filters**.

Accessing the Tag Filter

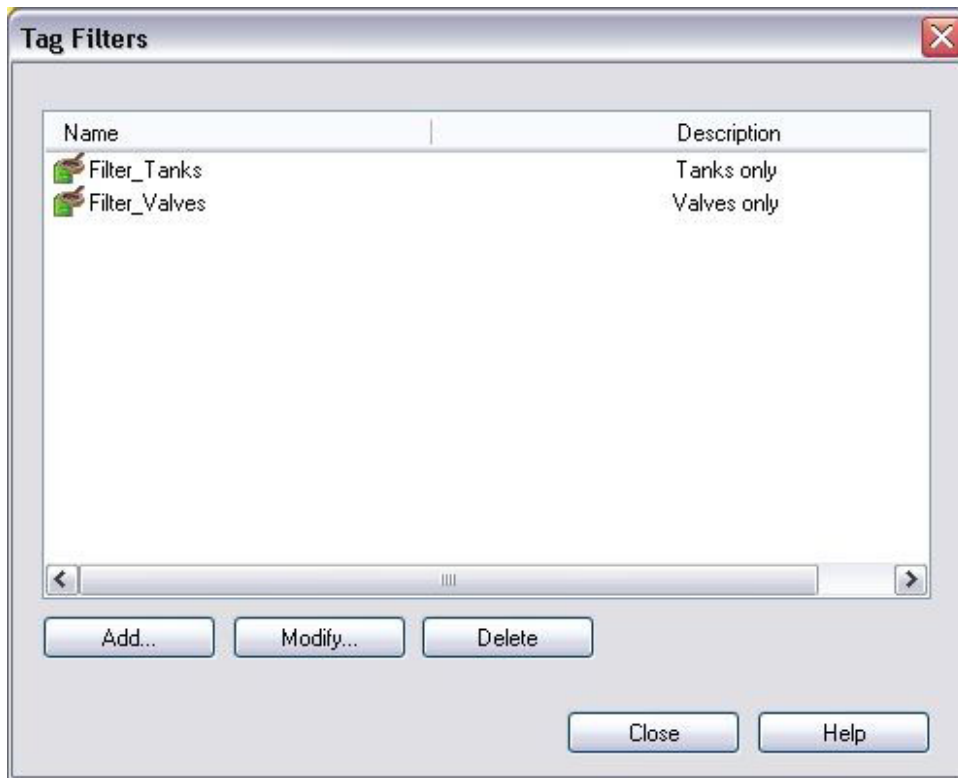
Accessing the Tag Filter

- To access the Tag Filter:

In the Application Studio Control Panel click the  Tag Filters icon to open the Tag Filters dialog box.

Or,

Select Design in the menu bar and then Tag Filters to open the Tag Filters dialog box.



The Tag Filters dialog box has the following columns and fields:

- | | |
|-------------|--|
| Name | This column holds the logical name of the Tag Filter as defined in the Tag Filter Properties dialog box. |
| Description | This column holds a description of the type of tag the filter should display as defined in the Tag Filter Properties dialog box. |
| Add | This button when clicked opens the Tag Filter Properties dialog box where new tag filters can be created. |
| Modify | Select a Tag Filter and then click the modify button to open the Tag Filter Properties dialog box and modify either the General properties or Network properties of the Tag Filter. |
| Delete | Select a Tag Filter and then click this button to delete it from the list. |

Note: The Add, Modify and Delete options can also be accessed by right clicking in the Tag Filters dialog box.

Select Tag Filters

In this dialog box tag filters can be created, modified and added/removed to/from the Selected Filters list.

This dialog box has the following fields:

- **New:** Click this button to open the Tag Filter Properties dialog box where new Tag Filters can be created.
- **Modify:** Select a filter from the All Defined Filters list and then click this button to open the Tag Filter Properties dialog box where modifications can be made.
- **Delete:** Select a filter from the All Defined Filters list and then click this button. A message box will open, click Yes to delete this filter or No not to.
- **Add:** Select a filter from the All Defined Filters list and then click this button to add it to the Selected Filters list.
- **Remove:** Select a filter from the Selected Filters list and then click this button to remove it from the list.

For further information see **Tag Filter Properties** and **Tag Filters**.

Tag Filter Properties

This dialog box has two tabs:

- General **page** - where the general criteria of the Tag Filter are defined.
- Network **page** - where a list of all the available application stations on the network are held and can be selected and defined for the Tag Filter.

Note: For a tag to appear in the Tag Filters list it must comply with all the requirements in the Tag Filter Properties dialog box fields.

Tag Filter Properties

This dialog box is used to define the Tag Filter Properties that can be viewed in the Tag Filters list in the Image module during runtime.

When the Filter Tags list is opened in the Image module, tags that are out of the defined boundaries will not be displayed.

The Tag Filter Properties dialog box has two tabs:

- **General** where the general details of the Tag Filter are held.
- **Network** where stations are selected and added to the Selected Stations list.

General Tab

This tab has the following fields:

- **Name:** Type in a unique name for the Tag Filter
- **Description:** Type in a description of the Tag Filter
- **Tag Name:** Type in the name of the tag to which this tag filter applies (*? can be used)
- **Tag Address:** Type in the address of the tag to which this tag filter applies (*? can be used)
- **Driver No:** Complete the boundaries (1-32) in the From and To fields
- **Source:** This field has the following options. Check the relevant one
 - **PLC** - Tags associated with external devices and mapped on the external device variables
 - **Dummy** - Tags representing internal variables used for a variety of calculations, control and other application related needs
 - **Compound** - These tags are linear calculations based on values of other tags
 - **System** - These tags are predefined and built to provide system status information
- **Type:** This field has the following options. Check the relevant one:
 - **Analog** - Tags that have numeric values represented in various formats
 - **Digital** - Discrete logic tags that have Boolean values of True (1) or False (0)
 - **String** - Tags that are defined to receive alphanumeric strings
- **Locked Tag:** When this field is checked only locked tags will be filtered

Network Tab

This tab is used to define the Filter Tag network station. The stations appearing in the Filter Tag Stations list are active in the Network menu.

1. In the List All Stations field type in the name of the station.

2. Click the forward arrow icon to add the new station to the Selected Stations list.
3. To remove a station from the list select the station and click the back arrow button.
4. Click OK to save your definitions.

For further information see **Tag Filters** and **Select Tag Filters**.

Tag Filter Properties - General Tab

This tab when filled defines the general properties of the Tag Filter.

Tag filter properties

General Network

Name:

Description:

Tag name:

Tag address:

Driver No: From To

Source

☐ PLC

☐ Dummy

☐ Compound

☐ System

Type

☐ Analog

☐ Digital

☐ String

☐ Locked Tags

OK Cancel Help

1. In the Name field type in the logical name of the user.
2. In the Description field type in the type of tag that the Tag Filter should display.
3. In the Tag Name field type in the name of the tag as defined in the Tag Definition dialog box.

4. The Tag Address field refers to PLC tags that are filtered according to their address. (This is defined during tag definition in the Tag Definition dialog box see **Chapter 9, Tags page**).
5. The Driver No. From and To fields refer to the driver's serial number which is defined in the communication source type.
6. In the Source field check the relevant source. In this field any number of source types can be selected. See **Source**.
7. In the Type field check the relevant tag type. In this field any number of tag types can be selected. See **Type**.
8. Click OK to confirm and save your definitions.

Note:

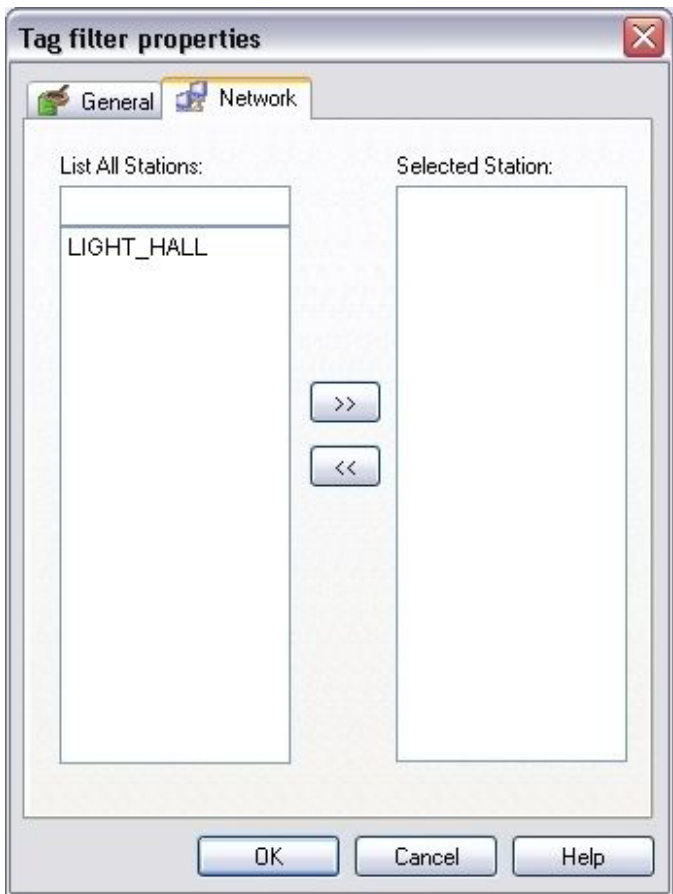
A* can be written in the Tag Name and Tag Address fields to display tags beginning with A. Other letters of the alphabet can be used in the same way.

A? can be written in the Tag Name Address to display tags whose name begins with an A and one other character for example AB, A1. Other letters of the alphabet can be used in the same way.

A?B can be written to display all tags whose name is made up of three characters beginning with A and ending with B with any character in the middle. Other letters of the alphabet can be used in the same way.

Tag Filter Properties - Network Tab



This tab lists all the available application stations on the network.



The Network tab has two columns:

List all Stations This column lists all the application's network stations.

Selected Stations This column lists all the selected network stations.

1. To add a Network station to the Selected Stations list, in the List of all Stations select a station and then click the  button.
2. To remove a network station from the Selected Stations list, in the Selected Station list select the relevant station and then click the  button.

Module Tag Filter in the Image

Tag Filter in the Image Module

The Tag Filters List can be defined/modified/viewed in the Image module during runtime.

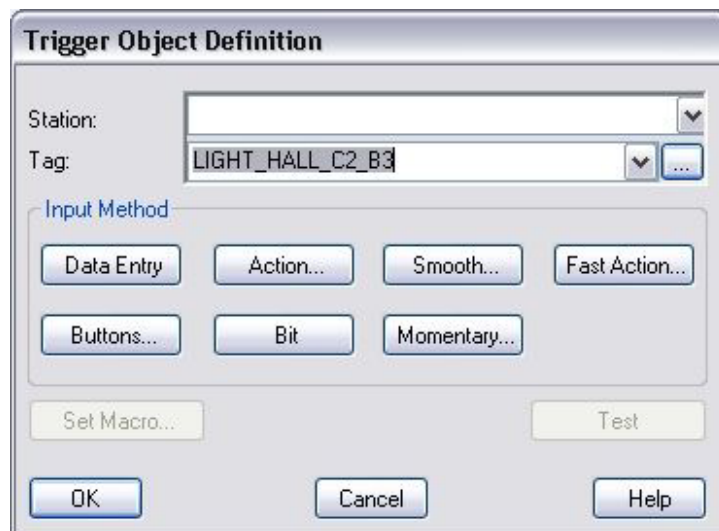
- To access the Tag Filter module from an Image object, do the following:

In the All Containers side of the Application Studio click Images (**Chapter 20, Introduction to the Image Module**) and then select an image from the List of Images on the right side of the Application Studio. An image will open on your computer screen.

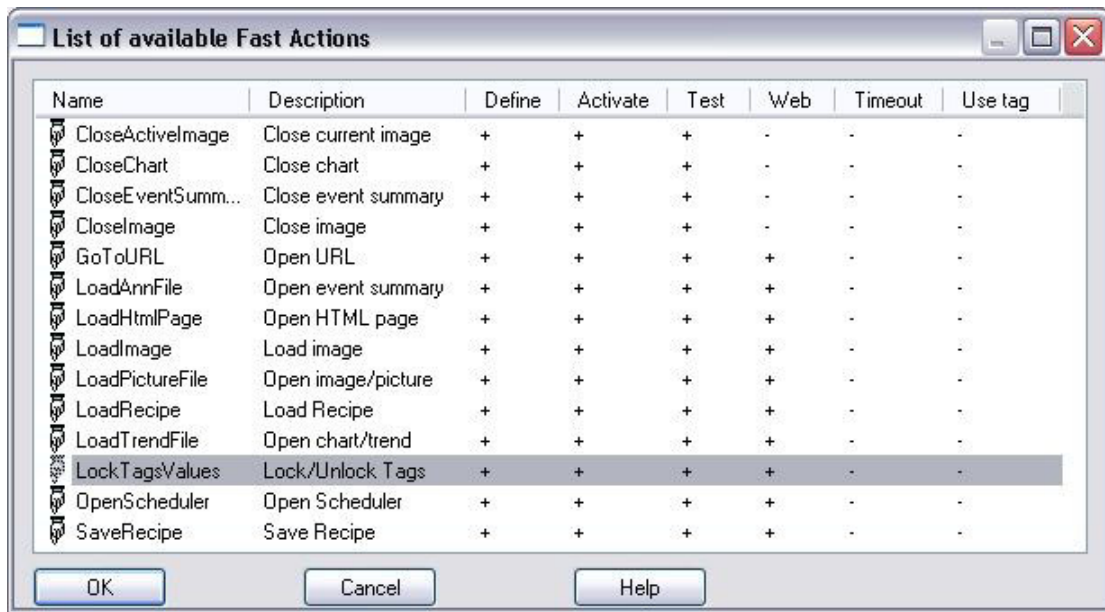
Or,

In the Quick Access bar click the Load Image icon and select the relevant image from the list in the Open dialog box.

1. When the Image module is open and when in Edit mode draw an object using one of the drawing tools.
2. Select the object and then right click and select Trigger Definition. The Trigger Object Definition dialog box will open.



3. Click the Fast Actions button to open the List of Available Fast Actions dialog box.



4. Scroll down the list and double click on LockTagValues. The Tag Lock Option dialog box opens. There are two options:



- **From the Current Image** - which when clicked opens the Tag Lock Trigger opens displaying a list of tags and their states from the current image.
- **From the Filter List** - when this option is defined and the Select Filters button clicked the Select Tag Filters dialog box opens.

Tag Value Lock

The Tag Value Lock window enables you to modify the application's tag lock definitions in the Image module at runtime. When this trigger next opens it will be in the mode defined during Trigger creation.

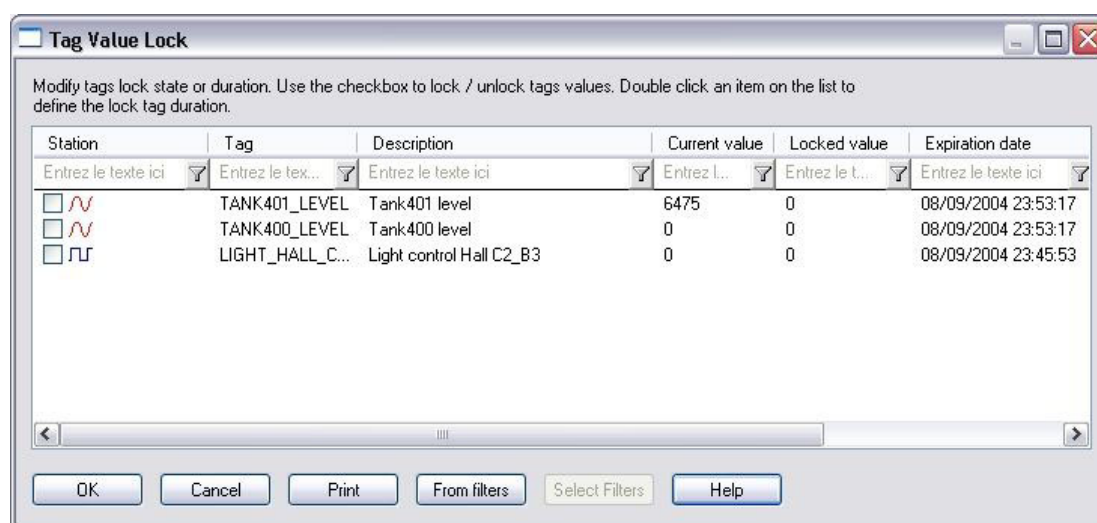
- To access the Tag Value Lock in an Image object, do the following:

In the All Containers side of the Application Studio click Images and then select an image from the List of Images on the right side of the Application Studio. An image will open on your computer screen.

Or,

In the Quick Access bar click the Load Image icon and select the relevant image from the list in the Open dialog box.

In the Image module during runtime (trigger mode) using the trigger hand click on the object to open the Tag Value Lock dialog box where a list of all locked/unlocked tags are listed.



The Tag Value Lock trigger has the following options:

- | | |
|-------------------------|---|
| Lock/Unlock | Where filtered tags can be locked/unlocked without exiting the dialog box. Each unlocked tag receives a continuous current value update. |
| Print ^A | Which prints to reports printer defined in the application. |
| From Image/From Filters | This toggle button moves between the From Image and From Filter List modes. |
| Select Filters | Which when clicked opens the Select Tag Filters dialog box where new Tag Filters can be defined, modified and added to the Selected Filters List. |

^AThis feature is enabled on Web only with the SUN JAVA plug-in.

Modifying Tag Lock Values

The lock tag definition dialog box enables the filter tags to be both locked/unlocked. This dialog box also enables tag value modification READ/WRITE.

- To access the Lock Tag Definition in an Image object, do the following:

 1. Double click a tag in the Tag Values Lock list to open the Lock Tag Definitions dialog box.

Lock Tag definitions on : LIGHT_HALL_C2_B3

Value Definition

Tag type is digital

Tag value in locked state : ☐ Lock

0

Time Definition

Tag value will be locked until : ☐ Never expire

9/ 8/2004 11:45:53 PM

Value Modification

Current value:0

Value: 0

Read Write

OK Cancel Apply

2. The Value Definition fields are defined in the Tag Definition dialog box during tag creation.
3. To lock a tag check the Lock checkbox.
4. In the Tag Value in the Locked State field type in the new value of the tag when in locked state. This value will apply only when the tag is locked.
5. If the tag is to always remain locked check the Never Expire checkbox to enable this option. When this option is selected the Tag Value will be Locked Until fields are unavailable.
6. If the tag is to be locked for a specific period in the Tag Value will be Locked Until fields scroll and define the To and From times.
7. To enable this tag for READ or WRITE click the relevant button.
8. To add a new value to a tag, do the following. In the Value Modification Value field, type in the new tag value. To write this value to the tag, click the WRITE button. The current value field will be updated to the new number.
9. To read a current value from a tag, click the READ button. The current tag value will appear in the Current Value field.

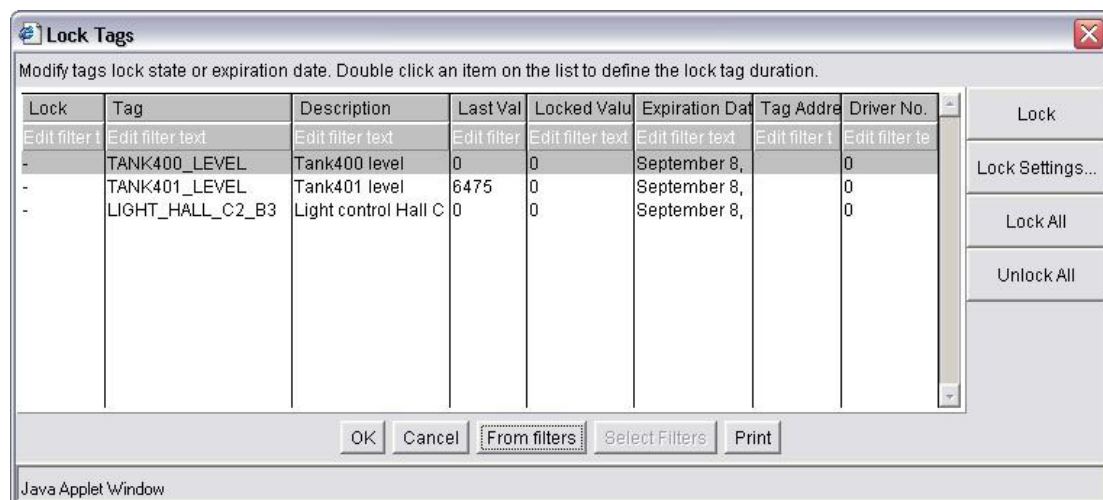
Note: For more details see **Chapter 9, Tags** and **Chapter 20, Introduction to the Image Module**, **Chapter 21, Image Editor** and **Chapter 22, Image Animation**.

Note: You will only be able to modify tags to which you are allowed access.

Running the Tag Lock on the Web

To run the defined trigger Tag Lock on the web follow the instructions on **page** to access the tag lock from an Image object.

- To access the Lock Tag Definition dialog box in an Image object over the Web, do the following:
1. In the All Containers side of the Application Studio click Html to open the List of Html Files.
 2. Double click the relevant image to open the Tag Locks dialog box over the web.



This dialog box has the following buttons:

- Lock Settings** The Lock Setting button is activated by double clicking the relevant tag. When clicked this button opens the Lock Tag Definitions dialog box.
- Lock/Unlock** The Lock button is activated by clicking the relevant tag. When clicked this button will lock the selected tag.
- Lock All** This button locks all the tags in the Lock Tags window.

Unlock All	This button unlocks all the tags in the Lock Tags window.
From Image/From Filters	This toggle button moves between the From Image and From Filter List modes.
Select Filters	When clicked opens the Select Tag Filters dialog box where new Tag Filters can be defined, modified and added to the Selected Filters List.

Note: + indicates that the tag is locked. - indicates that the tag is unlocked.
The Tag Filters List can be modified/viewed on the Web during runtime. However, any Tag Filter changes will not be saved to the application.

Chapter 11 Tag Mapper

Tag Mapper - Overview	410
Tag Mapper Overview	410
Accessing the Tag Mapper	411
Accessing the Tag Mapper	411
Tag Mapper.....	413
Creating a Tag Mapper Table	414
Set Tag Mapper Table	422
Creating a Table Record	423
Set Tag Mapper Table Record.....	424
Editing a Tag Mapper Table.....	424
Deleting a Tag Mapper Table	425
Creating Multiple Records.....	425
Multi Records	425
Import.....	426
Tag Summary	427
Online List.....	427
Customizing Tag Mapper Dialog Boxes.....	428
Tag Mapper Tags in the Image Module.....	428

About this chapter:

This chapter describes the Tag Mapper module.

Tag Mapper - Overview discusses the basic options of this module.

Accessing the Tag Mapper discusses how to access this module and describes the dialog box options.

Creating a Tag Mapper Table instructs you on how to create a Tag Mapper Table.

Customizing Tag Mapper Dialog Boxes instructs you how to customize this features dialog boxes.

Tag Mapper Tags in the Image Module instructs you how to use this module in the Image.

Tag Mapper - Overview

The Tag Mapper is a data file of tags and tag values that can be used to considerably reduce workload during application creation. Tag values of tags held in a Tag Mapper table are mapped by the Tag Mapper into a list of other tags. See **Creating a Tag Mapper Table**.

There are two types of Tag Mapper tags:

Source: These are tags whose values are directed to target tags. More than one source tag can be pointed to the same target tag.

Target: This tag type receives the values of the source tag. All target tags must have the WIZTGM_ prefix.

To define the source tags that update a specific target tag first create the tables used by the Tag Mapper. Each table has a unique Id (Index) that is later used in the image as the index value. Each image can use one table only at a specific time. The table that is used is defined by the index value. A single image can be used to display different source tags values in the same target tags (depending on the index value entered by the user). An unlimited number of tags can be mapped. The Tag Mapper is bidirectional. All Tag Mapper dialog boxes are resizeable.

Dialog boxes can be accessed by either clicking the relevant button, from the menu bar options, or by right clicking and selecting an option.

Tag Mapper Tables can be imported and exported to/from other applications.

Note: Only one WIZTGM_INDEX tag can be used in an image.

Tag Mapper Overview

The Tag Mapper is a data file of tags and tag values that can be used to considerably reduce workload during application creation. Tag values of tags held in a Tag Mapper table are mapped by the Tag Mapper into a list of other tags.

There are two types of Tag Mapper tags:

Source: These are tags whose values are directed to target tags. More than one source tag can be pointed to the same target tag.

Target: This tag type receives the values of the source tag. More than one source tag can be pointed to the same target tag.

A single image can be used to display different source tags values in the same target tags (depending on the index value entered by the user).

To define the source tags that update a specific target tag the user must first create the

tables used by the Tag Mapper. Each table has a unique Id (Index) that is later used in the image as the index value.

Each image can use one table only at a specific time. The table that is used is defined by the index value.

An unlimited number of tags can be mapped. The Tag Mapper is bidirectional.

Note: All Tag Mapper dialog boxes are resizeable. Dialog boxes can be accessed by either clicking the relevant button or by right clicking and selecting an option.

Tag Mapper Tags in the Image Module

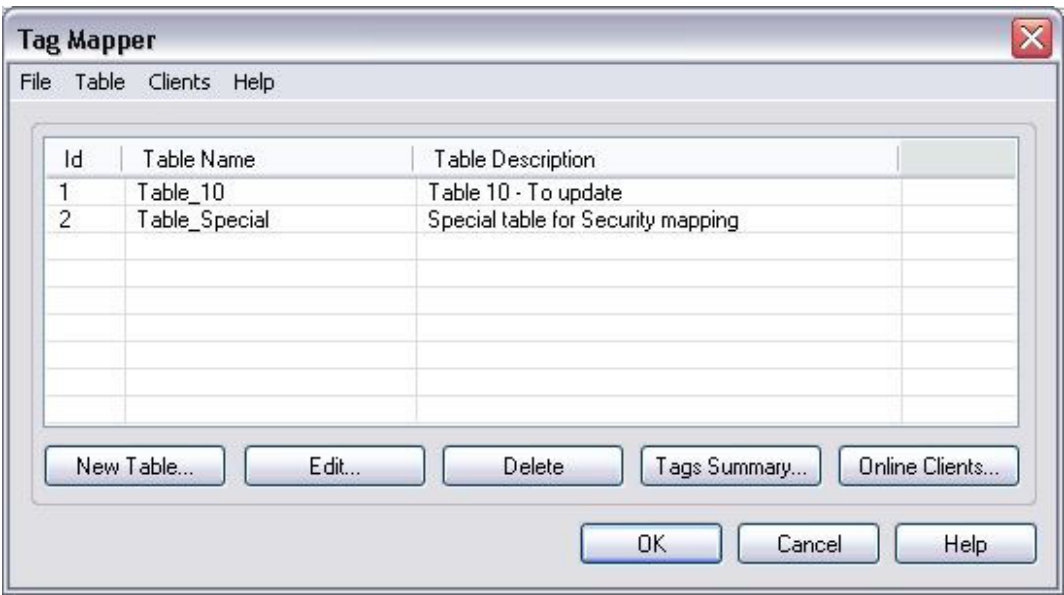
Accessing the Tag Mapper

Mapper

Accessing the Tag Mapper

- To access the Tag Mapper do the following:

Double click the  Tag Mapper icon in the Application Studio Control Panel to open the Tag Mapper dialog box.



This dialog box has the following Menu bar options:

Field	<p>Export: This option is used to export either:</p> <ul style="list-style-type: none">• All tables• Selected tables <p>to the open or other applications. This option can also be accessed by right clicking in the dialog box and selecting Export from the dropdown list.</p>
-------	--

Import: This option is used to import Tag Mapper Tables from the open or other applications. This option can also be accessed by right clicking in the dialog box and selecting Import from the dropdown list.

Exit: This option is used to exit the Tag Mapper.

Table

New Table: This option is used to open the Set Tag Mapper Table dialog box. This option can also be accessed by right clicking in the dialog box and selecting New Table from the dropdown list.

Edit: This option is used to edit a selected Tag Mapper Table. This option can also be accessed by right clicking in the dialog box and selecting Edit from the dropdown list.

Tags Summary: This option opens the Tag Mapper Tables Tag Summary dialog box. This dialog box can also be opened by clicking the Tag Summary button.

Delete: This option is used to delete a selected Tag Mapper Table. A Tag Mapper Table can also be deleted using the Delete button.

Clients: This option opens the Online Clients dialog box where remote users are listed. This dialog box can also be opened by clicking the Online Clients button.

Help	This option is used to open the Help project for this module.
------	---

This dialog box has the following fields:

ID	This is the Id of the Tag Mapper table where the tags are held. This number is generated by the system and cannot be modified.
Table Name	This is the name of the Tag Mapper table.
Table Description	This is a short description of the Tag Mapper table.
New Table	This button when clicked opens the Set Tag Mapper Table where a new table can be created. A record of the new table will appear under the last entry in the Tag Mapper.

Edit	Select a table record line and then click on this button to open the Set Tag Mapper Table where modifications can be made. This dialog box can also be accessed through the menu bar's Table Edit option, or by right clicking and selecting Edit.
Delete	Select a table record line and then click on this button to remove the table from the Tag Mapper. A Tag Mapper Table can also be deleted through the menu bar's Table Delete option, or by right clicking and selecting Delete.
Tags Summary	This button when clicked opens the Tag Mapper Table Tags Summary dialog box. This dialog box can also be opened by selecting Tag Summary from the menu bar's Table options.
Online Clients	This button when clicked opens the Online Clients viewer where a list of all the clients that are clients of the Tag Mapper can be seen. This dialog box can also be opened by selecting Online Clients in the menu bar's Client options.

Tag Mapper

This dialog box has the following menu bar options:

Field	Export: This option is used to export either: All tables or Selected tables to the open or other applications. Import: This option is used to import Tag Mapper Tables from the open or other applications. Exit: This option is used to exit the Tag Mapper.
Table	New Table: This option is used to open the Set Tag Mapper Table dialog box. Edit: This option is used to edit a selected Tag Mapper Table. Tags Summary: This option opens the Tag Mapper Tables Tag Summary dialog box. Delete: This option is used to delete a selected Tag Mapper Table.
Clients:	This option opens the Online Clients dialog box where remote users are listed.
Help	This option is used to open the Help project for this module.

This dialog box has the following field options:

ID	This is the Id of the Tag Mapper table where the tags are held. This number is generated by the system and cannot be modified.
Table Name	This is the name of the Tag Mapper table.
Table Description	This is a short description of the Tag Mapper table.
New Table	This button when clicked opens the Set Tag Mapper Table where a new table can be created. A record of the new table will appear under the last entry in the Tag Mapper.
Edit	Select a table record line and then click on this button to open the Set Tag Mapper Table where modifications can be made.
Delete	Select a table record line and then click on this button to remove the table from the Tag Mapper.
Tags Summary	This button when clicked opens the Tag Mapper Table Tags Summary dialog box.
Online Clients	This button when clicked opens the Online Clients viewer where a list of all the clients that are clients of the Tag Mapper can be seen.

Overview Customizing Tag Mapper Dialog Boxes Tag Mapper Tags in the Image Module

Creating a Tag Mapper Table

- To create a new table do the following:

1. In the Tag Mapper dialog box click the New Table button

Or,

Right click and select New Table

Or,

From the menu bar Table option select New Table to open the Set Tag Mapper Table dialog box.

Set Tag Mapper Table

Table name: Table_10

Table description: Table 10 - To update

Table Id: 1 ☒ Bidirectional update

Id	Source Tag	Factor	Target Tag
1	TANK400_LEVEL	1.000...	WIZTGM_MAP10
2	TANK401_LEVEL	1.000...	WIZTGM_MAP20

New record... Edit... Delete Multi records... Import...

OK Cancel Help

This dialog box has the following fields:

Table Name	This is the name of the Tag Mapper table.
Table Description	This is a short description of the Tag Mapper table.
Table Id	This serial number is automatically generated by the system and cannot be modified.
Bidirectional Update	When checked enables automatic bidirectional source and target tag update.
Id	This is the number of the table where the tags are held.
Source Tag	These are tags whose values are directed to target tags. More than one source tag can be pointed to the same target tag.
Factor	This is the number by which the target tag is multiplied. The default is 1.
Target Tag	This tag type receives the values of the source tag. More than one source tag can be pointed to the same target tag.
New Record	Click this button to open the Tag Mapper Table Record dialog box where a new record line can be created.
Edit	Select a record line and then click this button to open the Tag Mapper Table Record dialog box where this line can be edited.

Delete	Select a record line and then click this button to remove it from the list.
Multi Records	This button when clicked opens the Multi Records Setup dialog box where may records can be defined and added the table at one time.
Import	This button when clicked opens the Import Table where files from external files can be imported.

2. Type in the Table Name and Table Description.
3. Check the Bidirectional Update checkbox to enable this option.
4. Click the relevant button and complete the dialog box fields.
5. Click OK to confirm.

- To create a table record do the following:

1. In the Set Tag Mapper dialog box click the New Record button

Or,

Right click and select New Record to open the Tag Mapper Record Table dialog box.

The screenshot shows a Windows-style dialog box titled "Set Tag Mapper Table Record". It has a standard title bar with a close button (X). The dialog contains the following fields and controls:

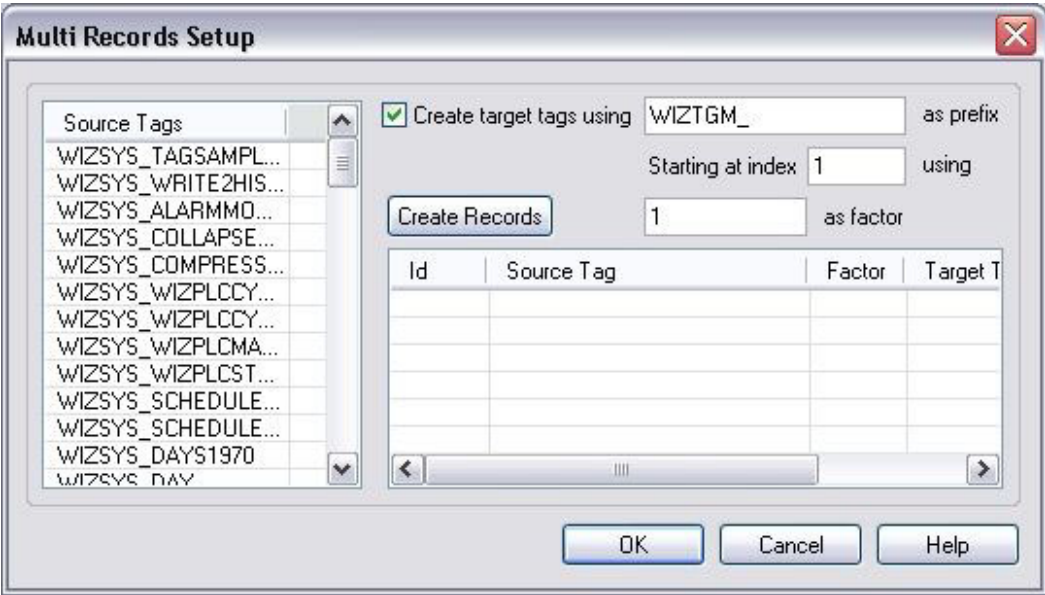
- Local station:** A text input field that is currently empty.
- Source Tag:** A section containing two dropdown menus. The "Station" dropdown is empty, and the "Tag" dropdown is set to "TANK400_LEVEL". There is a small "..." button next to the "Tag" dropdown.
- Target Tag:** A section containing two dropdown menus. The "Station" dropdown is empty, and the "Tag" dropdown is set to "WIZTGM_MAP10". There is a small "..." button next to the "Tag" dropdown.
- Factor:** A text input field containing the number "1".
- Buttons:** At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

This dialog box is used to define/select source and target tags and to define the factor by which the target tag is multiplied. It has the following fields:

Local Station This field is automatically filled by the application when applicable.

Source Tag Which has the following sub fields:
Station where the station is selected
Tag where the specific source tag is selected

- Which has the following sub fields:
- Target Tag **Station** where the station is selected
 Tag where the specific target tag is selected
- Factor This is the number by which the target tag is multiplied. The default is 1.
2. Complete the dialog box fields and then click OK to confirm and to return to the Set Tag Mapper Table dialog box.
- To Modify a Tag Mapper Table
- In the Tag Mapper dialog box select the relevant table entry and then click the Edit button
- Or
- Right click and select Edit
- Or
- From the menu bar Table option select Edit to open the Set Tag Mapper Table.
- To Delete a Tag Mapper Table
- In the Tag Mapper dialog box select the relevant table entry and then click the Delete button
- Or,
- Right click and select Delete
- Or,
- From the menu bar Table option select Delete.
- To define multi records
1. In the Set Tag Mapper Table dialog box click the Multi Records button.



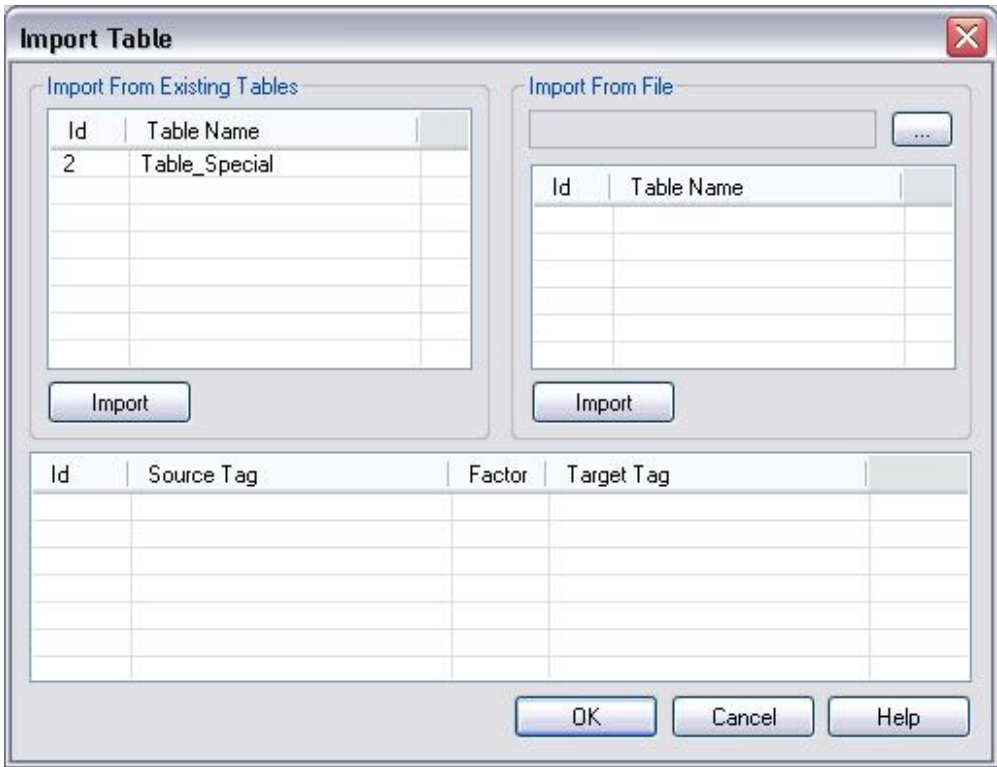
This dialog box is used to define/select multiple source and target tags. Each new record added will have a factor of the value created in the table.

In this dialog box the user can select an unlimited number of source tags which are automatically inserted by the application.

This dialog box has the following fields:

Source Tags	This list is automatically inserted by the application. An unlimited number of source tags can be selected.
Create Target Tag using XX as prefix	Check this option and then type in the target tag prefix to which an index will be added starting at the value defined in the Start at Index field.
Start at Index	This is the first consecutive Index number.
Create Records as Factor	When this button is filled the Multi Records table is filled with the source tags definitions
ID	This is the Id of the selected source tag.
Source Tag	This is a list of the source tags selected from the main source tags list.
Factor	This is the factor by which the target tag is multiplied.
Target Tag	This tag type receives the values of the source tag. More than one source tag can be pointed to the same target tag.

2. In the main Source Tags fields select the relevant tags.
3. Check the Create Target Tags Using checkbox and type in the target tag prefix.
4. In the Starting at Index and As Factor fields type in the relevant numbers.
5. Click the Create Records button. The Multi Records table is filled.
6. Click OK to confirm and to return to the Set Tag Mapper Table dialog box.
 - To import Tag Mapper Table files from external applications
1. In the Set Tag Mapper Table dialog box click the Import button to open the Import Table dialog box.



This dialog box has the following fields:

Import from Existing
Tables

ID: This is the ID of the imported table

Table Name: This is the name of the table required

Import from File

ID: This is the ID of the imported file

Table Name: This is the name of the imported table

Import Buttons

When these button are clicked the respective table/file is imported.

ID

ID of the imported table/file record.

Source Tag

This is a list of the source tags

Factor

This is the factor by which the target tag is multiplied

Target Tag

This tag type receives the values of the source tag. More than one source tag can be pointed to the same target tag.

- To view the Tag Mapper Tables Tags Summary dialog box

1. In the Tag Mapper Table dialog box click the Tags Summary button or from the menu bar Table option select Tags Summary.



This dialog box displays a list of all the tags that are used by the Tag Mapper. It has the following fields:

Filter table	The displayed information in this dialog box can be filtered according to a specific table or to display all the tables in the Tag Mapper
Tag Name	This is the name of the tag defined in the Tag Mapper table.
Tag type	This is the type of tag which can be either source or target.
Table	This is the name of the table.
Table Properties	When a table record is selected and this button clicked the Set Tag Mapper Table dialog box opens displaying this entry. Modifications can be made.

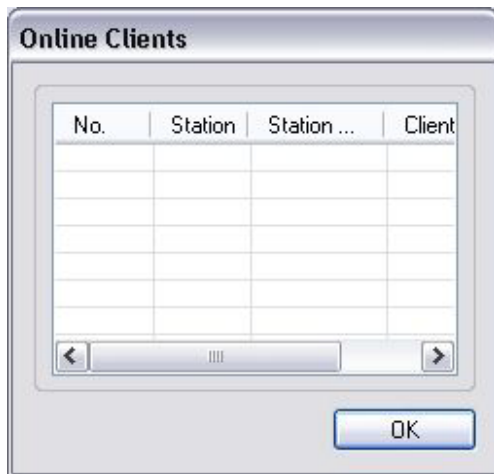
- To view the Online Clients list:

In the Tag Mapper dialog box click the Online Clients button

Or,

From the menu bar Clients option select Online Clients.

The Online Clients viewer will open listing all the stations that are clients of the Tag Mapper.

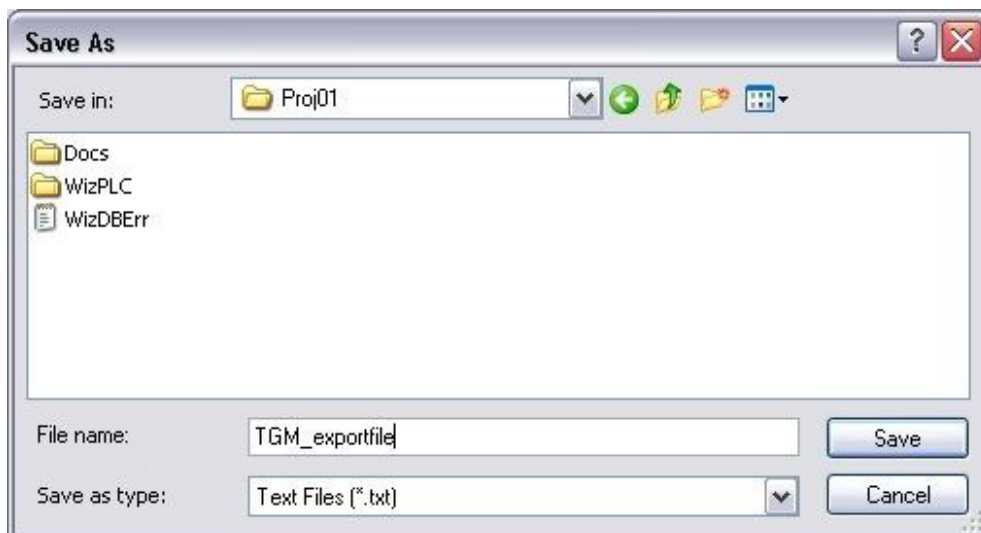


- To export all Tag Mapper Tables:

1. In the Tag Mapper dialog box either right click and select Export All

Or,

From the menu bar File options select Export All. The Save As dialog box opens.



2. Select the relevant file and click the Save button.

- To export selected Tag Mapper Tables:

1. In the Tag Mapper dialog box select the relevant Tag Mapper Table from the list and then either right click and select Export Selected

Or,

From the menu bar File options select Export Selected. The Save As dialog box opens.

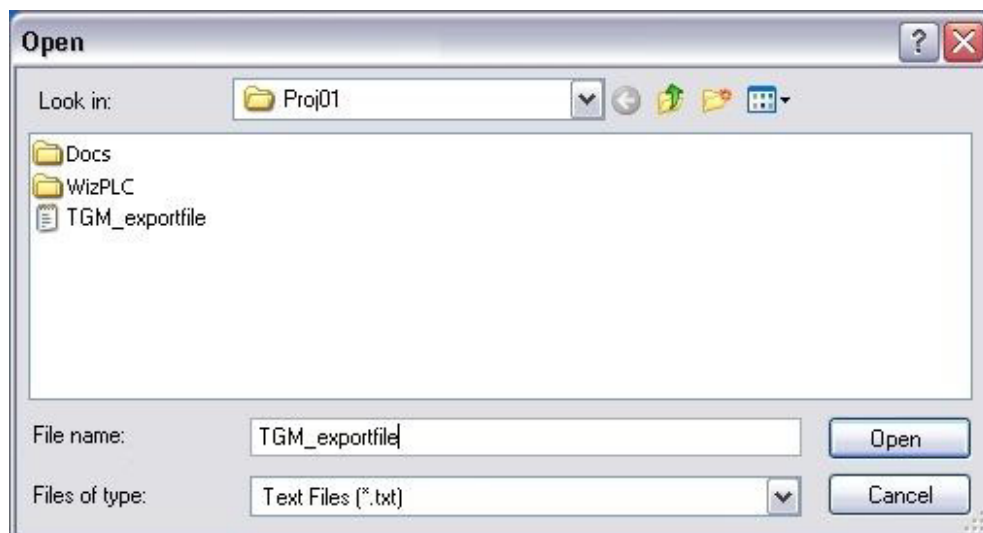
2. Select the relevant file and click the Save button.

- To import Tag Mapper Tables:

1. In the Tag Mapper dialog box either right click and select Import

Or,

From the menu bar File options select Import. The Open dialog box opens.



2. Select the relevant file and click the Open button. The Import Tag Tables From dialog box opens.



This dialog box has the following options:

- Replace all tables
 - Replace only existing tables
 - Add no existing tables
3. Check the relevant option and click OK to confirm.

Set Tag Mapper Table

This dialog box has the following fields:

Table Name	This is the name of the Tag Mapper table.
Table Description	This is a short description of the Tag Mapper table.
Table Id	This serial number is automatically generated by the system and cannot be modified.
Bidirectional Update	When checked enables automatic bidirectional source and target tag update.
Id	This is the number of the table where the tags are held.
Source Tag	These are tags whose values are directed to target tags. More than one source tag can be pointed to the same target tag.
Factor	This is the number by which the target tag is multiplied. The default is 1.
Target Tag	This tag type receives the values of the source tag. More than one source tag can be pointed to the same target tag.
Table Record	Click this button to open the Tag Mapper Table Record dialog box where a new record line can be created.
Edit	Select a record line and then click this button to open the Tag Mapper Table Record dialog box where this line can be edited.
Delete	Select a record line and then click this button to remove it from the list.
Multi Records	This button when clicked opens the Multi Records Setup dialog box where may records can be defined and added the table at one time.
Import	This option is used to import Tag Mapper Tables from the open or other applications. This option can also be accessed by right clicking in the dialog box and selecting Import from the dropdown list.

Overview Tag Mapper Multi Records Tag Summary Record Tags Creating a Tag Mapper Table

Creating a Table Record

In the Set Tag Mapper dialog box click the New Record button or, right click and select New Record to open the Tag Mapper Record Table dialog box. This dialog box is used to define/select source and target tags and to define the factor by which the target tag is multiplied.

Overview

Set Tag Mapper Table Record

This dialog box is used to define/select source and target tags and to define the factor by which the target tag is multiplied. It has the following fields:

- Local Station** This field is automatically filled by the application when applicable.
 - Source Tag** Which has the following sub fields:
 - Station** where the station is selected
 - Tag** where the specific source tag is selected
 - Target Tag** Which has the following sub fields:
 - Station** where the station is selected
 - Tag** where the specific target tag is selected
 - Factor** This is the number by which the target tag is multiplied. The default is 1.
- Complete the dialog box fields and then click OK to confirm and to return to the **Set Tag Mapper Table** dialog box.

Tag Mapper Set Tag Mapper Table Multi Records Tag Summary Overview

Editing a Tag Mapper Table

In the Tag Mapper dialog box select the relevant table entry and then click the Edit button or right click and select Edit to open the **Set Tag Mapper Table** where you can make the relevant modifications.

Deleting a Tag Mapper Table

In the **Tag Mapper** dialog box select the relevant table entry and then click the Delete button or right click and select Delete.

Overview

Creating Multiple Records

- 1. In the main Source Tags fields select the relevant tags.
- 2. Check the Create Target Tags Using checkbox and type in the target tag prefix.
- 3. In the Starting at Index and As Factor fields type in the relevant numbers.
- 4. Click the Create Records button. The Multi Records table is filled.
- 5. Click OK to confirm and to return to the Set Tag Mapper Table dialog box.

Overview

Multi Records

This dialog box is used to define/select multiple source and target tags. Each new record added will have a factor of the value created in the table.

In this dialog box the user can select an unlimited number of source tags which are automatically inserted by the application.

This dialog box has the following fields:

Source Tags	This list is automatically inserted by the application. An unlimited number of source tags can be selected.
Create Target Tag using XX as prefix	Check this option and then type in the target tag prefix to which an index will be added starting at the value defined in the Start at Index field
Start at Index	This is the first consecutive Index number.
Create Records as factor	When this button is filled the Multi Records table is filled with the source tags definitions
ID	This is the Id of the selected source tag
Source Tag	This is a list of the source tags selected from the main source tags list.
Factor	This is the factor by which the target tag is multiplied
Target Tag	This tag type receives the values of the source tag. More than one source tag can be pointed to the same target tag.
Creating Multiple Records Overview Tag Mapper Set Tag Mapper Table Tag Summary Record Tags	

Import

This dialog box has the following fields:

Import from Existing Tables	ID: This is the ID of the imported table Table Name: This is the name of the table required
Import from file:	ID: This is the ID of the imported file Table Name: This is the name of the imported table
Import Buttons:	When these buttons are clicked the respective table/file is imported.
ID	ID of the imported table/file record
Source Tag	This is a list of the source tags .
Factor	This is the factor by which the target tag is multiplied
Target Tag	This tag receives the values of the source tag. More than one source tag can be pointed to the same target tag

Tag Summary

This dialog box displays a list of all the tags that are used by the Tag Mapper. It has the following fields:

Filter table	The displayed information in this dialog box can be filtered according to a specific table or to display all the tables in the Tag Mapper
Tag Name	This is the name of the tag defined in the Tag Mapper table.
Tag type	This is the type of tag which can be either source or target.
Table	This is the name of the table.
Table Properties	When a table record is selected and this button clicked the Set Tag Mapper Table dialog box opens displaying this entry. Modifications can be made.

Overview Set Tag Mapper Table Multi Records Creating a Table Record


Online List

In the Tag Mapper dialog box click the Online button. The Online Clients viewer will open listing all the stations that are clients of the **Tag Mapper**.

Overview

Customizing Tag Mapper Dialog Boxes

Both the column width and the order that information is displayed in a column can be modified.

- Modifying column width:
 1. To modify the column width, place your cursor over the column line. A cross will be displayed.
 2. Move the column line to its new position.
 - Modifying table entry hierarchy:
 1. Click the column title bar to display the 
 2. Click a table line and then click the arrow to move up.
-

Tag Mapper Tags in the Image Module

Each image that is used with the Tag Mapper must have the WIZTGM_INDEX tag that is automatically created by the program.

Only values that are greater than 1 can be used when they have a table that matches this index value.

Other tags that can be used are tags with the WIZTGM_ prefix as defined in the Tag Mapper Tables. These tags will display the relevant source tags values.

Changing the WIZTGM_INDEX tag value in an image will cause the image to display the relevant source tags as defined in the Tag Mapper.

All tags holding the WIZTGM_ prefix including the WIZTGM_INDEX tag have different values in different images. This means that even if the tag name is the same the values in each image will differ. The tags will appear in the application's tags list, however, they cannot be used as regular application tags. For example when a tag value is changed in the Single Tag dialog box, the change will not affect an image that has this tag attached. These tag values can only be changed from within the image.

When an image is opened for the first time, the value assigned to the WIZTGM_INDEX for this image is taken from the application. The value 0 is invalid and cannot be used.

Note: Only one WIZTGM_INDEX tag can be used in an image.
For further information see **Chapter 20, Introduction to the Image Module**, **Chapter 21, Image Editor**, **Chapter 22, Image Animation** and **Chapter 9, Tags**.

Chapter 12 Multiple Tags

Overview.....	431
Accessing Multiple Tags.....	432
Tool / Multiple Tags	432
Tools / Multiple Tags	432
Defining a Tag List File and Defining a Tag Filter.....	433
Defining a Tag List File and Defining a Tag Filter	433
Tags Exerciser Program Window.....	435
Find Tag.....	437
Zoom Tag.....	437
Saving the Tag List	439

About this chapter:

This chapter describes how Multiple Tags are used in the system, as follows:

Overview is an overview of Multiple Tags.

Accessing Multiple Tags discusses how to access this module.

Defining a Tag List File and Defining a Tag Filter, describes how to access multiple tags.

Overview

The Multiple Tags module can be used to optimize performance and enhance functionality. This module enables you to adjust system parameters and establish the correct environment for working with the application.

Multiple Tags displays tag lists and enables you to read and write tag values, as well as change several tag attributes. In addition, Multiple Tags provides options to save the tag list as a recipe or a tag list file.

Tag list files are ASCII files that contain lists of tags and their attributes. These files have the extension .GLS and can be used in the application to generate tag lists in the tag definition procedure.

Read **Chapter 9, Tags** for more information regarding Tags.

Accessing Multiple Tags

The Multiple Tags module is accessed from the Application Studio in two steps:

- Specifying a tag list file to be loaded and defining a tag filter so that only specific tags are loaded from the file.
 - Displaying the Tag List in the **Tags Exerciser Program Window**.
-

Tool / Multiple Tags

Used to open Wtags Exerciser Program.

The Multiple Tags utility can be used to optimize performance and enhance functionality. This utility enables you to adjust system parameters and establish a proper application working environment.

This utility displays tag lists and enables you to read and write tag values, and change several tag attributes. In addition it provides options to save the tag list as recipe or . **GLS file**.

Tools / Multiple Tags

Used to open the Application Tags Exerciser Program.

The Multiple Tags utility can be used to optimize performance and enhance functionality. This utility enables you to adjust system parameters and establish a proper application working environment.

This utility displays tag lists and enables you to read and write tag values, and change several tag attributes. In addition it provides options to save the tag list as recipe or GLS file.

Defining a Tag List File

and Defining a Tag Filter

Defining a Tag List File and Defining a Tag Filter

In the Tag Filter dialog box you can:

- **Define a tag filter:** Only tags that meet the filter requirements specified appear in the generated list.
- **Specify a tag list file:** Select between a standard application tag file and a .GLS file.
- To specify a tag list file and/or define a tag filter:

In the Control Panel of the Application Studio, double-click the  Multi Tags icon.

Or,

From the Tools menu, select Multiple Tags. The standard Tag Filter dialog box is displayed on top of the Tags Exerciser Program window.

The following options are available:

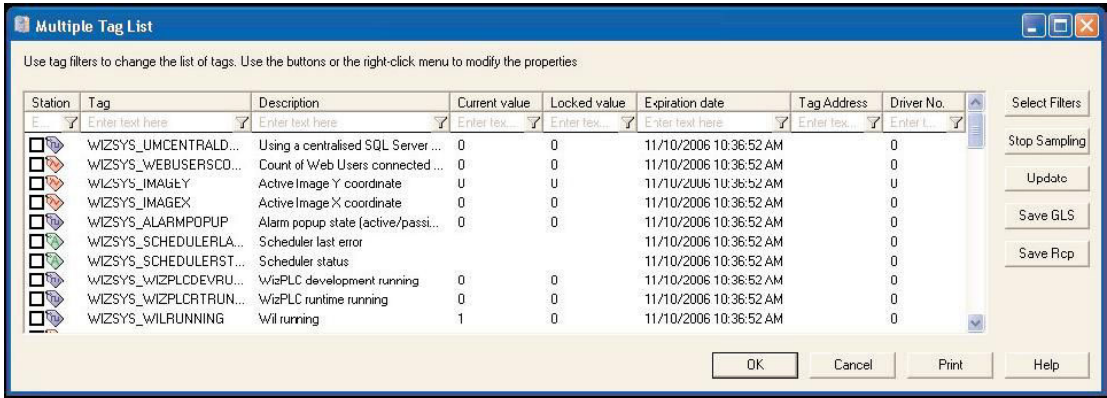
	Specifies filter parameters so that only the tags that meet the filter requirements appear in the generated tag list. The following tag options are available:
	Name
	Driver No.
	Address
	Source (PLC, Dummy, Compound, System)
	Type (Analog, Tag Value, String).

	Specifies a tag list file. The following options are available:
	WizPro: A standard application tag file.
	File (.GLS): A GLS file. Enter the file in the field (without specifying the extension). Click in the field to display a list of existing .GLS files from which you can select a file.

Click OK to save your options. The Tag Filter dialog box closes and the Tags Exerciser Program window is displayed with a list of the tags that meet the filter requirements specified.

Tags Exerciser Program Window

The Tags Exerciser Program window displays a list of the tags that meet the filter requirements specified in the Tag Filter dialog box. The following is an example of a tag list in the Tags Exerciser Program window:



The data in the window is displayed under the following columns.

Name	Tag name
Driver	Driver number associated with the tag
Address	The address of the tag in the PLC
Value	The last read value of the tag
Rate	Tag sampling rate in seconds (specified during tag definition)

Sample Tag sampling attribute that can be:
Y for always
R only is clients are registered for the tag
N for never

Type Tag type which can be:
A for analog
D for digital
A or **D** for Compound
S for string tags
 No character for dummy tags

The dialog box contains a menu bar with the following menus and options:

File	New	Clear the tag list from the Tags Exerciser Program window.
	Open	Open the Tag Filter dialog box to define a tag filter and specify a tag list file.
	Save as Recipe	Save the list as a recipe.
	Save as GLS	Save the list as a tag list file.
Options	Sample Selected	Sample the currently selected tag in the list.
	Sample All	Change the Never sample attribute of all the tags in the list to Request. Tags are then sampled only when clients are registered for them.
	Sample Disable	Select this item to change the sample attribute of all the tags to Never. This will disable the sampling of all the tags.
	Find Tag	Search for a tag.
	Zoom Tag	Modify the tag options.
Help	Using Help	Display the standard Windows Help on how to use Help files.
	Find	Display the Find Setup Wizard in which you can enter key words to find a topic.

[Help Index](#)[Display the Multiple Tags Help topics.](#)

Note: If a communication error occurs, a line of asterisks appears for any tag represented in the tag list that is associated with the VPI to which the error occurred. The line of asterisks is on-going and appears until the error is corrected. When the error is corrected, the tag value appears in the tag list.

Find Tag

After a list is generated, you can search for a specific tag.

- To find a specific tag:

From the Options menu in the Tags Exerciser Program window select Find Tag. The Find Tag By Name dialog box is displayed:



Specify the name of the tag you want to search for and click the Find button. The tag will appear highlighted in the list of tags.

Note: The name you specified is used as a prefix in the name matching process. The search is modeless, meaning that you will not have to close the dialog box to perform any other operation in the window.

Zoom Tag

The Zoom Tag option is used to modify the attributes of a tag in the Tags list. The attributes that can be modified and operations that can be performed include:

- Reading the tag value.

- Writing a value to the tag.
- Changing the sample attribute.
- To modify the attributes of a tag:

Double-click the tag in the list.

Or,

Click a tag in the list to select it, and select Zoom Tag from the Options menu. The **Tags Exerciser Program Window** is displayed:

The screenshot shows a Windows-style dialog box titled "Tags Exerciser". It contains the following elements:
- "Tag Name:" text box with "PUMP202_SECT34"
- "Driver:" text box with "01"
- "Address:" text box with "P202" and a "Change" button to its right
- "Value:" text box with "1" and "Read" and "Write" buttons to its right
- A "Sample" section with three radio buttons: "Always" (selected), "In Monitor", and "Never"
- "Close" and "Help" buttons at the bottom

The following options are available:

Tag Name	The name of the tag.
Driver	The Driver address to which the tag belongs.
Address	Specifies the current tag address. Enter the new address and activate the Change button to confirm the change.
Value	Displays the specified tag value. Click the Read button to display the current value. Enter the new value and activate the Write button.
Sample	<p>The following options are available:</p> <p>Always: The tag will be sampled always.</p> <p>In Monitor: The tag will be sampled only when its value is requested by an application module (displayed in an image window). This mode minimizes communications traffic and improves system performance.</p> <p>Never: Tag sampling is disabled.</p>

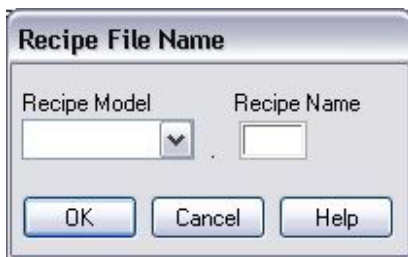
Note: This dialog box is modeless, meaning that you can switch to a different tag without closing it by simply double-clicking on the required tag in the list.

Saving the Tag List

The tag list can be saved in one of two file types:

- Recipe file.
- Tag list (.GLS) file
- To save the current tag list in a recipe file:

1. From the File menu, select Save as Recipe. The Recipe File Name dialog box is displayed:



2. Enter a recipe model to which you want the recipe to belong in the Recipe Model field. Click inside the field to display a list of existing recipe models.
3. Specify the name of the recipe file in the Recipe Name field.
4. Click OK to save your definitions and close the dialog box.

Note: For more details about recipe models and recipes, refer to **Chapter 32, Recipes**.

- To save the current tag list in a tag list file:

1. From the File menu, select the Save as GLS option. The New Tag List File dialog box is displayed:



2. Enter the name of the file in which the list is to be saved without the GLS extension.
3. Click OK to save your definition and to close the dialog box.

Note: You can launch the tag definition dialog box with a double-click or a right-click on the relevant tag.

Chapter 13 Tag Generator Module

Tag Generator Module Overview	442
Accessing the Tag Generator	443
Application Studio Icon	445
Application toolbar	446
Menu	446
Connecting to a Data source	446
Application tag management	447
Wizcon tag management	447
Tag filtering and sorting	447
Generating & converting Wizcon tags	448
Mapping rules	449
Mapping rules	449
Tag Name Format	449
Tag communication & storage parameters	450
History log settings	451
Tag address format	451
Sample rate settings	452

About this chapter:

This chapter describes the Tag Generator module.

Tag Generator Module Overview describes the main purpose of the Tag Generator.

Accessing the Tag Generator discusses how to launch this module and describes the dialog box options.

Connecting to a Data source describes the way to connect a Data source to the Tag Generator.

Wizcon tag management describes the different ways to manage the Wizcon tags in this module.

Mapping rules describes the parameters used by the Tag Generator to name and parametrize the Wizcon tags.

Tag Generator Module Overview

The Tag Generator module is an engineering tool designed to quickly and easily generate or update tags in the NovaPro Open database.

This tool requires the application to be based on communication drivers with network browsing capabilities such as BACnet or OPC drivers. Future NovaPro Open versions will support additional drivers with browsing features.

The Tag Generator allows you to update any existing Wizcon PLC or dummy tags into addressed PLC tags through a mapping process. If tags do not exist in Wizcon database, the Tag Generator will create them.

A mapping rules interface helps to define the information required for the tag generation, such as, tag record settings, address format, prefix or suffix related to the automated tag naming. All information related to the last used mapping rules is stored in a setup file (WizTagGen.ini) and reloaded at the next use of the Tag Generator.

In order to begin the tag generation, communication drivers need to be connected to the related devices.

The following terminology is related to the Tag Generator module :

- Data Source - Communication protocol which will be used to establish communication with a data server and which will be applied to modified or newly created Wizcon tags.
 - DSD - Data Source Driver - module of the Tag Generator which is in charge of connection to a data source, device and browsing for data items.
 - Device - Specific device, which is a part of the data source (Specific OPC server in the case of OPC, BACnet device in the case of BACnet protocol)
 - Data Item - data item or data object, defined on the data server.
 - Wizcon Tag - Wizcon internal variable. Can be a Dummy or PLC source type. Can be any data format.
 - Data Item Mapping - Modification of a dummy tag already defined in a Wizcon project into a PLC tag with properties corresponding to properties of source item.
 - Wizcon Tag generation - Process which generates a new Wizcon tag with a PLC source and maps all data item definition properties into the new Wizcon tag.
-

Tag Generator Overview

The Tag Generator module is an engineering tool designed to quickly and easily generate or update tags in the NovaPro Open database.

This tool requires the application to be based on communication drivers with network browsing capabilities such as BACnet or OPC drivers. Future application versions will support additional drivers with browsing features.

The Tag Generator allows you to update any existing application PLC or dummy tags into addressed PLC tags through a mapping process. If tags do not exist in application database, the Tag Generator will create them.

A mapping rules interface helps to define the information required for the tag generation, such as, tag record settings, address format, prefix or suffix related to the automated tag naming. All information related to the last used mapping rules is stored in a setup file (WizTagGen.ini) and reloaded at the next use of the Tag Generator.

In order to begin the tag generation, communication drivers need to be connected to the related devices.

The following terminology is related to the Tag Generator module :

Data Source - Communication protocol which will be used to establish communication with a data server and which will be applied to modified or newly created application tags.

DSD - Data Source Driver - module of the Tag Generator which is in charge of connection to a data source, device and browsing for data items.

Device - Specific device, which is a part of the data source (Specific OPC server in the case of OPC, BACnet device in the case of BACnet protocol)

Data Item - data item or data object, defined on the data server.

Application Tag - Application internal variable. Can be a Dummy or PLC source type. Can be any data format.

Data Item Mapping - Modification of a dummy tag already defined in an application project into a PLC tag with properties corresponding to properties of source item.

Application Tag generation - Process which generates a new application tag with a PLC source and maps all data item definition properties into the new application tag.

Accessing the Tag Generator

Connecting to a data source

Application Tag Management

Mapping Rules

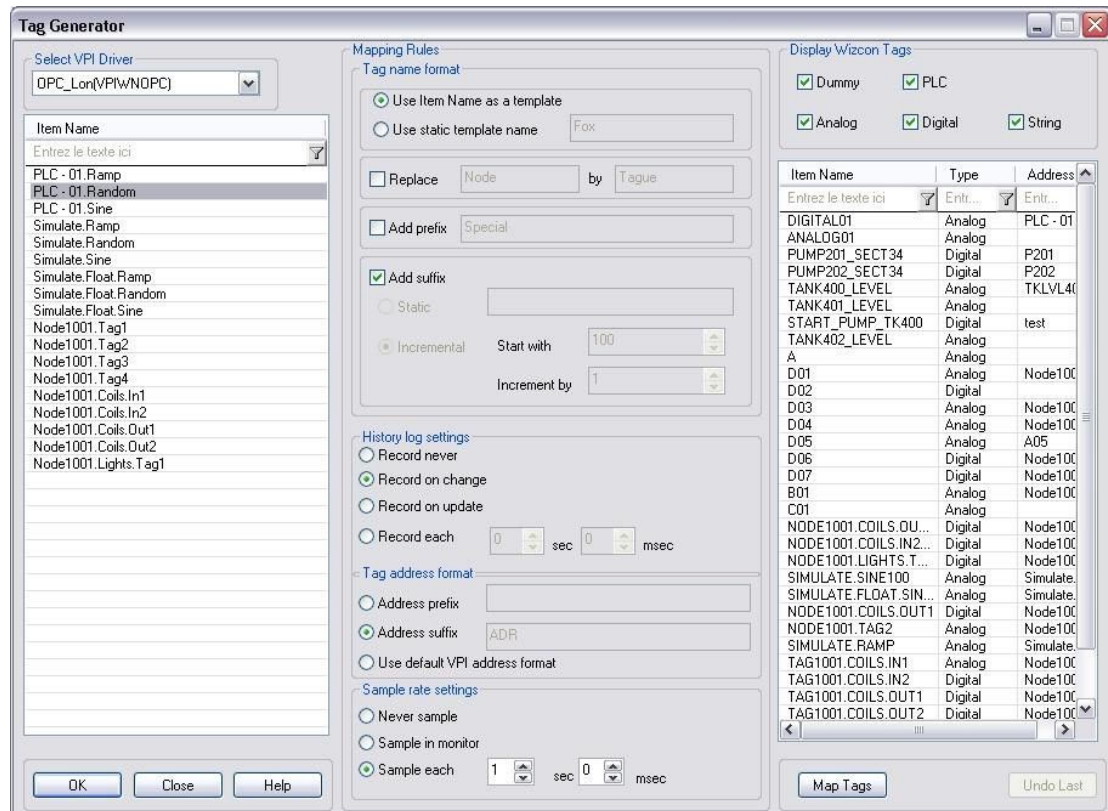
Accessing the Tag Generator

The Tag Generator is accessible by 3 methods :

- Application Studio icon
- Application toolbar
- Menu

- To access the Tag generator through the Application Studio, do the following :

Double click the  Tag Generator icon in the Application Studio Control Panel to open the Tag Generator dialog box.



This dialog box is split in three different areas :

Select VPI Driver In this area the user will define from which VPI tags will be generated in Wizcon database.

Mapping Rules This area is split into 2 main parts, where the developer designs the mapping rules :

- Tag name format
- Tag sampling & addressing information.

Display Wizcon Tags This area is used to visualize and select existing or newly created Wizcon tags.

In addition, this dialog box contains the following command buttons :

OK This button, when clicked, saves the information of the mapping rules in the WizTagGen.ini file.

Close	This button closes the dialog box without any action (mapping rules will not be saved).
Help	Clicking this button calls the related help module.
Map Tags	When mapping rules are defines, this button initiates the tag(s) creation or the tag(s) update.
Undo Last	This command allows to cancel last tag creation/modification directly in Wizcon database

- To access the Tag Generator through the Application Toolbar

The Tag Generator is accessible from the Application Toolbar. Under the Object section, by right-clicking on the Tags item, the following context menu is displayed:

- To access Tag Generator through the Menu bar

To access the Tag Generator module under the menu bar, select Tools and the Tag Generator.

Application Studio Icon

Double click the Tag Generator icon in the Application Studio Control Panel to open the Tag Generator dialog box.

Application toolbar

The Tag Generator is accessible from the Application Toolbar. Under the Object section, by right-clicking on the Tags item, a context menu is displayed. Click on the Tag Generator item in the list.

Menu

To access the Tag Generator module under the menu bar, select Tools and the Tag Generator.

Connecting to a Data source

The Data Source connection is the 1st step in the tag generation process.

Before selecting a data Source for connection, you must have declared a communication driver in Wizcon (see **Defining Communication Drivers**). Only communication drivers with item browsing capabilities, are usable in the Tag Generator.

- To select a communication driver

Once the Tag Generator dialog box is opened, the left part of it is designed to select and visualize the data sources.



- All Wizcon VPI are visible in the dropdown list, but only ones with browsing capabilities are selectable. For others, an error message is displayed.
- When a driver is selected, the Tag Generator module sends a request to the driver in order to get the list of the items available on the network.

- To select a data item / group of data items

The selected VPI Driver displays the list of its Data Items (or Data Objects). This list is displayed with the available items (devices) on the network. Online updates are not supported.

You can then perform :

- single selection of a data item by left clicking on it
- multiple selection by clicking on the first item to select it and then pressing the CTRL key. Clicking on items to select them one by one. Clicking again on a selected item will deselect it.
- a range selection of items by clicking on the first to select and then pressing the SHIFT + click on the last item of the group.

The selected items are now ready to generate or update Wizcon tags.

Application tag

management

Wizcon tag management

The right side of the Tag Generator dialog box displays the list of Wizcon tags related to the application, according to the filter settings.

Tag filtering and sorting

A set of check boxes allows the application developer to define the type of tags to display in the list.

Dummy	Displays all Wizcon dummy tags
PLC	Displays all PLC tags
Analog	Displays tags in Analog format (Dummy and PLC)
Digital	Displays tags in Digital format (Dummy and PLC)
String	Displays tags in String format (Dummy and PLC)

Note: You can combine Dummy and/or PLC types with Analog, Digital and/or String format to cross filter the database.

Additional filters are available by typing the first letters of the searched tag name, type or address.


Once filters are applied, only tags conforming to the filter are displayed.

Generating & converting Wizcon tags

There are several ways to generate Wizcon tags through the Tag Generator user interface.

- Single tag generation

This method consists of three steps:


1. Select one Data Item in the VPI item list.
2. Click the  button,
3. Tag Generator creates a new tag in the Wizcon database.

Note: Tag information such as tag name, tag address, sample rate or record rate, come from the Data item parameters combined with the Mapping Rules fields (see **Mapping rules**). These parameters are available for modification in the Tag user interface (**Defining Tags**)

For example, a Data Item can provide tag name, tag address, and the mapping rules provide the sample rate and record rate. If the 'Tag name format' fields in Mapping rules are checked, they will override the Data Item naming.

- One to one tag conversion


For this method, steps are :

1. Select one Data item in the VPI item list on one side.
2. Select on the other side, a Wizcon tag in tag list.
3. Click the  button,
4. Tag Generator merges the Data item information into the selected Wizcon tag fields.

Note: In this case, the naming rules (in Mapping rules fields) are not applicable. The Wizcon tag can be a Dummy, or a PLC tag. In this case, the Data Item address will override the Wizcon tag address, if any.

- Multiple tag generation


You may want to create a set of tags in one shot. In this case, you must :

1. Select a set of Data items in the VPI item list
2. You can then define Mapping rules (see **Mapping rules**)
3. Click the  button,

4. The Tag Generator creates exactly the same amount of tags in the Wizcon database. The description of these tags is provided by the mapping rules and the selected Data Items.

- Multiple tag conversion

This operation allows you to merge a group of Data Items information into a group of existing Wizcon tags. These tags can be dummy or PLC tags. Tag Generator will check if the format matches between Data Items and the tags before merging. Steps for conversion are :

1. Select a set of Data items in the VPI item list
2. Select a set of Wizcon tags (whatever the format is)
3. Click on the  button.
4. The Tag Generator merges the first Data Item with first Wizcon tag in the list, merges the second Data Item with the second Wizcon tag in the list,...and so on. In this case, the Mapping Rules are applied, and will override Data Item information.

Note: In general, tag naming in Mapping Rules only applies in the case of tag creation, not during tag conversion.

Mapping rules

Mapping rules

During the conversion or the creation phase, the Tag Generator uses the settings defined by the user in the Mapping Rules fields. Settings are split into two parts :

- Tag name format
- Tag communication & storage parameters

When the Tag Generator module is launched, the initialization file restores the settings of the last Tag Generator session.

Tag Name Format

This section of the mapping rules allows the user to specify the rules for Wizcon tag naming. These settings apply once the  button is clicked.

The following settings are available :

Use Item Name as a template	The item name will be used as the Wizcon tag name, with prefixes & suffixes added according to the other mapping rules (not applicable for tag conversion).
Use static template name	The specified string will be used as the Wizcon tag name, with prefixes & suffixes added according to the other mapping rules.
Replace...by...	This function replaces the string provided in the 1st field by the string provided in the 2nd field.
Add Prefix	This string is prepended to the item name or the static template.
Add Suffix Static	This static string is appended to the item names
Add Suffix Start with... Increment by...	This variable value is appended to the Item names. The start value is added to the 1st tag, and incremented with the value in the “Incremented by” field.

Tag communication & storage parameters

These parameters are required in tag definition as mentioned in **Defining Tags**.

History log settings

Those settings define how tags are recorded in regular Wizcon archive files (see Appendix **Application Files**)

History log settings

☐ Record never

☒ Record on change

☐ Record on update

☐ Record each sec msec

Record never	Specifies that tag value changes will never be recorded.
Record on change	Specifies that the tag values will be recorded whenever it is sampled and is found to have changed by more than the tolerance since the previous sample.
Record on update	Specifies that the tag value will be recorded whenever a driver is set to update the values (even if no changes were detected).
Record each	Specifies that the tag value will be recorded during each specified time interval.

Tag address format

These settings define how addresses are assigned to Wizcon tags.



Tag address format

☐ Address prefix

☒ Address suffix ADR

☐ Use default VPI address format

Address prefix Specifies the prefix to add to the Data Item address.

Address suffix Specifies the suffix to add to the Data Item address

Use default VPI address format Specifies to duplicate 'as is' the Data Item address format to the Wizcon tag.

Sample rate settings

These settings define how tags are sampled.



Sample rate settings

☐ Never sample

☐ Sample in monitor

☒ Sample each 1 sec 0 msec

Never sample The external device is never sampled to update its respective tag. (some VPIs require this type of setting)

Sample in monitor	The device is sampled to update its respective tag only when the tag's value is requested by one of the application's modules (for example, displayed in an Image). This option is useful for minimizing communication traffic, thereby improving system performance. Select this option for tags that are used for monitoring field activities and do not record into history files. Do not select this option for tags that are used for alarm definition.
Sample each	The device is always sampled to update its respective tag. If you select this option, specify the sample rate in seconds and/or milliseconds.

Chapter 14 Tag Templates

Tag Template Overview	455
Tag Template Overview	455
Tag Templates in Action - defining a context	456
Creating a tag context	456
Using Tag Templates	458

About this chapter:

This chapter describes the Tag templates.

Tag Template Overview describes the purpose of tag templates and how they can help reduce application development.

Tag Templates in Action - defining a context shows how to define a context

Using Tag Templates describes how to use the tag templates

Notes: adds several points to bear in mind when using Tag Templates

Tag Template Overview

Tag Template Overview

Early versions introduced the concept of a Tag Mapper. This feature is designed to allow you to reduce application development time. In this chapter, we discuss a powerful feature, the Tag Template, which allows great flexibility in defining and changing *at runtime* the tag that is used in charts, images, event summaries and history viewers.

In the following pages we will see how we can use tag templates to change the name of a tag that is used anywhere in an image (including different zones) or in a chart. We will see that this concept is particularly interesting in applications where you have several charts or images which are identical in many respects apart from the tags that they display. A good example of this is an application in building automation where you may have similar images or charts per floor in a building, but the tags that are displayed are different.

Tag Templates in Action - defining a context

In order that we can dynamically change the name of a tag at runtime, we need to identify the name, or part of a tag name, that we may wish to change. We do this by defining special markers in the name, for example, MY_BUILDING_#FLOOR1#. The # symbols are used to define the dynamic part of the name. Now, we can use a tag context to change the part of the name between the # symbols.

In the above example, FLOOR1 is the dynamic part of the tag name. If no context is defined (see below), the normal tag name without the # markers will be used. Therefore, in this case, the tag MY_BUILDING_FLOOR1 will be used if no context is defined. However, if we define a context, say, FLOOR2, and we assign this tag to, for example, animate an object in an image, the name of the tag will be calculated as MY_BUILDING_FLOOR2 at runtime.

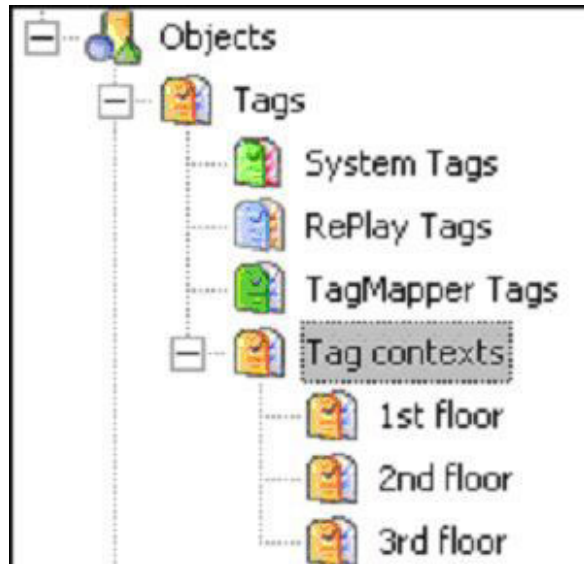
To summarise, a tag context is used to define the dynamic part of the tag name. It consists of a name which helps to identify the context, and a string of characters that will be used to change the name of the tag (i.e. the string of characters that will be placed between the # markers as defined above).

Creating a tag context

Tag contexts can be defined in several places:

- In the application studio.
- When using the context in an image or chart.

The most common is to define them in the application studio. The figure below shows a branch on the tag tree, "Tag Contexts"



A right-click on Tag Contexts will allow you to add, modify or delete a tag context. In this case, we are going to add a context. If you do this, you will see the following dialog box:



The "Context Name" is what you will use to identify the context when we use it later. The "Tag Context" contains the actual string that will be used to modify the tag names. You can add as many tag contexts as you like. As you add Tag contexts, and select a context by clicking on it, in the main part of the studio window you will see a list of all tags that would match that context - this is a kind of filter that is shown for information only. It is telling you that if you were to use the selected context in an image or a chart, then these are the tag names that would match the context.

Note that, if a context is defined, you can modify it (change the name or the string), or delete it at any time.

Using Tag Templates

The following sections will give you an overview, via examples, of how you can use tag templates to speed up application development and to bring your applications to life.

Using Tag Templates in Images

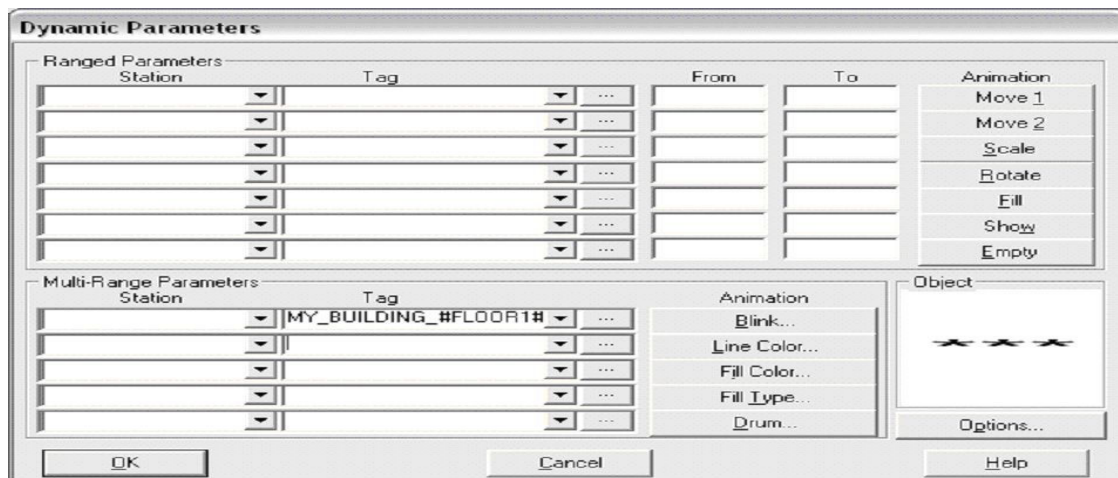
Before we can explain in more detail how tag templates can be used, you need to understand about image animation. If you don't, then you should read the relevant chapter before continuing.

Tag templates can be used in all dynamic, static and trigger objects in an image. You can change the context by:

- Associating a zone in an image with a context using the zone definition dialog box,
- Using an action macro (LoadImage, GotoZone)
- Using a fast action:
 - LoadImage - Loads an image into a given zone
 - LoadTrendFile - Loads a chart
 - Change Tag Context - changes the current context for the image

Example 1: Dynamically changing the tag that is used to animate an image object

Below; we can see that we have used the tag, MY_BUILDING_#FLOOR1# to cause an object to blink depending on the value of the tag contextt

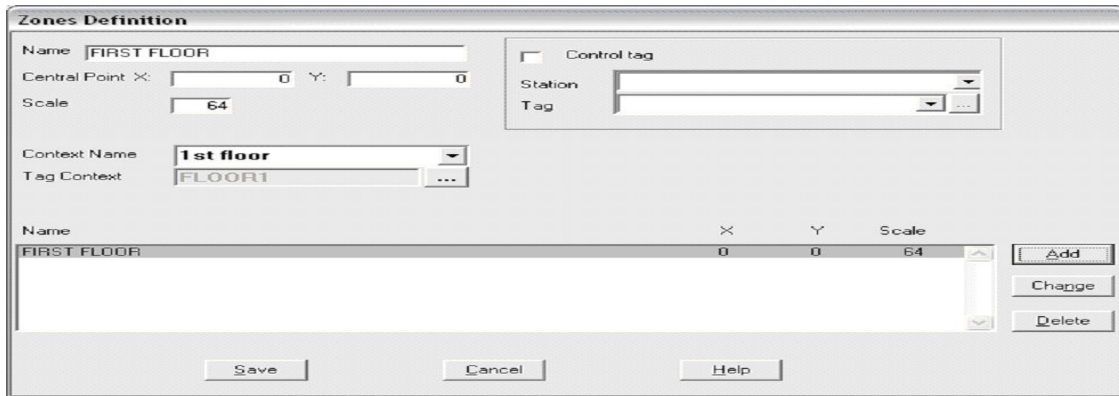


Here we can see that part of the tag name has been enclosed by the # symbols. This means that if no context has been applied to the image, then the usual tag name, MY_BUILDING_FLOOR1 will be used to drive the animation.

Now imagine that we have changed the context (using one of the methods described above for example), and have set the context to be FLOOR2. This means that, in this case, it is tag MY_BUILDING_FLOOR2 which is driving the animation.

Example 2: Assigning a context to an image zone

The dialog box shown below allows you to assign a tag context to each zone that you use in an image. If you do this, every time that you change to a given zone in an image, the given context will be used by default.



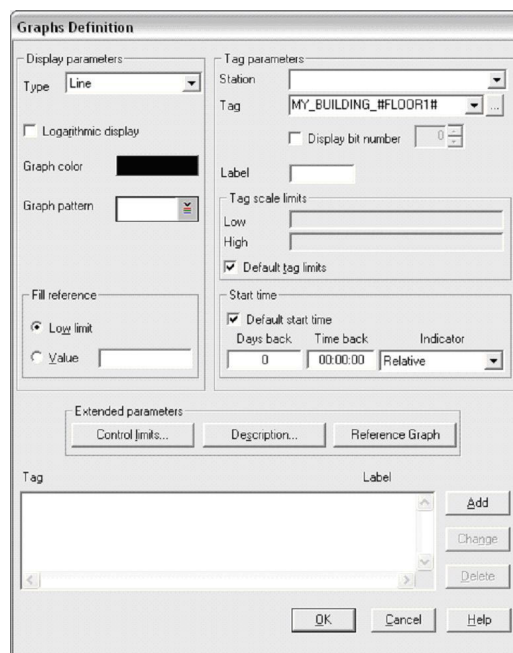
The **Zones Definition** dialog box is used to define zones for tag templates. It contains the following fields and controls:

- Name:** FIRST FLOOR
- Central Point X:** 0, **Y:** 0
- Scale:** 64
- Context Name:** 1st floor
- Tag Context:** FLOOR1
- Control tag:** (checkbox, unchecked)
- Station:** (dropdown menu)
- Tag:** (dropdown menu)
- Table:** A table with columns Name, X, Y, and Scale. It contains one row: FIRST FLOOR, 0, 0, 64.
- Buttons:** Add, Change, Delete, Save, Cancel, Help.

This doesn't mean of course that we can never change the context for a given zone. If we want to change the context for a given zone, we can do it dynamically using one of the methods listed above.

Example 3: Loading a Chart

As stated earlier, tag templates can also be used in charts. To see how this works, see the figure below. Here we see that we can choose a set of tags to use for the graph definition. As defined above, we can use the # markers in the name of the tag to define a tag name at the point at which we load the chart. Again, the context can be given in the LoadTrendFile fast action, or the corresponding macro.



The **Graphs Definition** dialog box is used to define parameters for graphs. It contains the following fields and controls:

- Display parameters:**
 - Type:** Line
 - Logarithmic display:** (checkbox, unchecked)
 - Graph color:** (color picker)
 - Graph pattern:** (pattern picker)
- Tag parameters:**
 - Station:** (dropdown menu)
 - Tag:** MY_BUILDING_#FLOOR1#
 - Display bit number:** 0
 - Label:** (text field)
- Tag scale limits:**
 - Low:** (text field)
 - High:** (text field)
 - Default tag limits:** (checkbox, checked)
- Start time:**
 - Default start time:** (checkbox, checked)
 - Days back:** 0
 - Time back:** 00:00:00
 - Indicator:** Relative
- Fill reference:**
 - Lower limit:** (radio button, selected)
 - Value:** (text field)
- Extended parameters:**
 - Control limits...** (button)
 - Description...** (button)
 - Reference Graph** (button)
- Tag and Label list:** A list with columns Tag and Label. It contains one row: MY_BUILDING_#FLOOR1#, .
- Buttons:** Add, Change, Delete, OK, Cancel, Help.

Notes:

- For each image, a special string tag, WIZTAGTMPL_CONTEXT, can be used to display the current context. (Stars (***) will be displayed for this tag if no context is defined).
- Tag templates can be defined for *any* objects in an image or chart that use tag names (e.g. buttons, sliders, dynamic tag displays).
- Tag templates cannot be used in XY graphs.
- Tag templates are also available on the web.

Chapter 15 Alarms

Overview.....	463
Alarms - Overview	464
Basic Principles	465
Basic Principles.....	465
Alarms in Events Summaries.....	465
Alarm Objects in Images.....	465
Alarm Filters.....	465
Defining Alarms	466
Defining Alarms.....	466
Alarms Definition	466
Alarms Overview	468
The name of the group to which the alarm belongs.....	468
General Tab	468
Alarm Conditions.....	471
Alarm Text.....	474
Assigning Names to Alarm Classes	475
Assigning User Field Names.....	476
Alarm Help Files.....	477
Action on Alarm.....	478
Action on Alarms	480
Alarm Levels.....	482
Exporting Alarms	485
Exporting Alarms.....	485
.ALS File Format	487
Alarm Export	488
Exporting Alarm Definition Files Using an External Application	489
Importing Alarms	489
Importing Alarms	490
Import Alarms.....	491
Importing Alarm Definition Files Using an External Application	491
Alarm Properties.....	492
Alarm Properties	492
Specifying a Login/Logout Message	493
Determining a Time Format	496
Determining Hotbackup	497
Determining Network Communications Errors	498
Determining VPI Communication Errors	498
Determining User Login Parameters.....	499
Determining Diskfull	500
Determining Recipe	501
Determining Tag Lock.....	502
Determining Remote ODBC communication error	503
Determining Illegal Login Attempts	504

Determining Illegal Shutdowns	505
Finding Alarms.....	506
Find Alarm	507
Alarms on the Network	508
Other Topics	509
Design / Add Object / Alarms	509
Alarm Cluster Definition	510
Alarm Condition Statement	511
Alarm Condition	513
Alarms Definition	517
Alarms Overview	518
Alarm Export	519
Alarm Modify	520
Alarm Properties Hotbackup Tab	522
Alarm Properties Diskfull Tab	522
Alarm Properties Network Communication Error Tab	522
Alarm Properties - ODBC communication errors	523
Alarm Properties Tag Lock Tab	523
Alarm Properties User Login Tab	524
Alarm Properties VPI Communication Error Tab	524
Alarm Property	524
The alarm operational attribute include the following:.....	524
Alarm Status Names	527
Alarm Text.....	527
Alarm Token.....	528
Alarm User Fields	529
Alarms on the Network.....	530
Alarms - Overview.....	531
Auto Restart after an illegal shutdown	532
Building an Application.....	533
Design / Class Names	534
Cluster Alarm definition.....	534
Columns.....	535
Correct Syntax Errors	535
Delete Alarm	535
Export / Alarm	536
Find Alarm.....	536
Import Alarms.....	537
Alarm Properties General Tab	537
Alarm Properties Time format	538
Tools / Find / Alarm.....	539
Levels Definition.....	540
Locating Alarms	542
A Predefined Alarms	542
Design/ User Class Definition	544

About this chapter:

This chapter describes how to define and use alarms in the system, as follows:

Overview is an overview of application alarms.

Basic Principles describes the basic principles of alarm definition.

Defining Alarms describes how to define alarms, how to define a single action for an alarm and how to assign a name to alarm classes.

Alarm Filters describes how to define filters and apply tag counters to alarms.

Alarm Help Files describes how to create alarm help files.

Alarm Properties describes how to define a login and logout message, the time format that appears in the Events Summary and the alarm printout, and how to overwrite default print sequences.

Exporting Alarms describes how to generate a list of alarms in ASCII format, and describes the ALS file format.

Importing Alarms describes how to import alarm definitions from an ASCII file.

Finding Alarms describes how to locate an alarm in the List of Alarms in the Application Studio.

Overview

Alarms are configured application messages used to notify operators of exceptional conditions at the workplace. The application generates automatic system messages that provide operators with information about internal system events, such as communication driver failure, network communication errors and others.

Application alarms can be targeted to and be displayed in the **Event Summaries**, appear in a popup window, or be printed out.

Alarms can be defined in order of hierarchy. New alarms can be added (or existing alarms modified) to different levels of the hierarchy tree. Alarms can be defined according to attributes, inhibited, delayed, have Help messages containing instructions on how to handle the cause of the alarm and have comments attached to them. They can also be recorded to history for report purposes.

Note: For quick reference, the number of alarms within the application is listed Application Studio Status Bar.

Alarms - Overview

Alarms are application messages used to notify operators about exceptional conditions in the plant. Application alarms can be displayed in the Events Summary window or pop-up window. Using these windows, operators can examine and handle numerous alarms by filtering and sorting them.

Alarms are generated whenever pre-defined conditions exist. Only the system engineer can define alarm conditions.

To provide the operator with online help (such as operational instructions) when an alarm occurs, alarm messages can be linked to help files.

A feature in the application enables you to associate image objects with alarms. Alarm objects in images react to the conditions of the alarm with which they are associated.

Application alarms can be displayed in a hierarchical tree in which an alarm has a parent, child and sibling relations with other alarms. The alarm hierarchic tree is built up of Levels to which alarms can be attached. A level definition can override subordinate levels and alarms defined in these levels.

Alarms and Levels can be initiated:

1. 1. Through the **Alarms Object** located in the **Containers tree**. Right click the Alarms object (selection is observed by shading the chosen item blue).
1. 2. Click the Add Alarm or Add Level option.

Alarms can be added through the Design Menu

1. 1. Click the Design Menu
1. 2. Select Alarm from the Add Object menu.

There are two ways to display a list of all the Alarm objects:

1. 1. Click the Alarm object from the Containers tree. As a result a list of all Alarms is displayed. Each Alarm is described by the following parameters: Tag name, Condition, Text, Family, Zone and severity.

OR

1. 1. Click the Alarm object from the Containers tree
1. 2. Move with the mouse to the **List Zone** area and press the right mouse button.
1. 3. As a result the option of "Duplicate view" will be shown, choose this option.

To set the order of fields to be displayed in the Events Summarys list:

1. 1. Click the Events Summary file form the Containers tree

1. 2. Move with the mouse to the List Zone area and press the right mouse button.
1. 3. As a result the option of "View Setting" will show, choose this option and start the editing.

Defining Alarms

Defining Levels

Basic Principles

Basic Principles

Only users with the appropriate authorization can define alarm conditions. Application alarms are generated whenever predefined conditions exist.

Up to 65,535 alarms can be defined in the application. Each alarm can be assigned different characteristics and properties during the alarm definition procedure. Alarms can be sent to different targets and be checked by different attributes.

Alarms in Events Summaries

Alarms are written to the **Event Summaries**. If previously defined the operator can see a graphical display of the cause of the alarm, check Help for instructions in handling the alarm, acknowledge and end the alarm, add comments or inhibit (on the Internet) the alarm. The Start, End and Acknowledgement time and date of the alarm can also be listed in the Summary Events.

Alarm Objects in Images

The application enables you to visualize alarm conditions graphically by associating image objects with alarms. Alarm objects in images react to the conditions of the alarms in the alarm family with which they are associated. For example, if the alarm condition is true in the alarm family, the object may begin to blink or change colors.

Alarm Filters

The application enables you to define filters and apply tag counters to alarms. Those tags will contain the amount of alarms matching the filter conditions, and can be used in Wizcon modules (e.g. image module,...). The alarm filter is automatically activated when the application is loaded.

Defining Alarms

Defining Alarms

Alarms are defined in the Application Studio. After defining an alarm, you can assign a name to alarm classes, as described below.

- To define an alarm:

Click the  Alarms icon in the Application Studio toolbar

Or,

In the All Containers pane of the Application Studio, right click Alarms and then select Add Alarm from the popup menu. The Alarm Definition dialog box opens.

This dialog box has two tabs:

- **General Tab** - where general alarm properties such as Alarm Condition, Alarm Text, Zone, Family, Target, Attributes and Delay are defined.
 - **Action on Alarm** - where actions such as, Go to Zone, Execute Macro on Alarm and AAM Configuration are defined.
-

Alarms Definition

Alarms are defined in the Application Studio. After defining an alarm, you can assign a name to alarm classes, as described below.

Click the Alarms icon in the Application Studio toolbar

Or,

In the All Containers pane of the Application Studio, right-click Alarms and then select Add Alarm from the popup menu. The Alarm Definition dialog box opens.

This dialog box has two tabs:

General - where general alarm properties such as Alarm Condition, Alarm Text, Zone, Family, Target, Attributes and Delay are defined.

Action on Alarm - where actions such as, Go to Zone, Execute Macro on Alarm and AAM Configuration are defined.

General Tab

This tab is used to define general alarm properties.

Alarm Condition This field defines the alarm conditions.

Alarm Text This field when completed shows a description of the alarm. An alarm message can include tokens.

Family Specifies the name of the group to which the alarm belongs. The name can consist of up to 64 characters and is the link to alarm objects. It is also used for classification and filtering.

Help File Specifies the name of the Help file that contains information for the operator. For more details about creating alarm help files, refer to the section on Alarm Help Files.

Zone You can enter a zone area from 0 to 50,000. This value is used to classify and filter alarms in the Events Summary and application popup windows.

Severity Specifies the priority order of each alarm. For example, a low priority could be 0 and a high priority, 50,000). It is also used for classification and filtering.

User Fields These are customized fields that are defined by the user according to their specific requirements. User fields enable additional alarm filtering. There are five User Fields.

Groups This option is used to assign authorized users and groups of users to the alarm. Alarm recipients can handle the alarm according to user authorization.

Inhibition by Tag Inhibit if a specific tag receives a specific value.

Inhibit Immediate This checkbox when checked means inhibit this alarm immediately.

Targets Specifies the alarm destination. The following options are available:

Default Printer: The alarm message is sent to the printer defined as the alarms printer.

Events Summary: The alarm is displayed in the Events Summary.

Popup: The alarm is displayed in a Popup window.

Popup buzz: The alarm is displayed in a Popup Events Summary that will buzz when the alarm is displayed. If you do not select this option, the Popup Events Summary will not buzz when the alarm is displayed even if it was defined to do so in the PopUp Buzz dialog box.

User class: Enables you to identify an alarm and to classify it online and in historical Events Summaries. Select this option and click on the arrow on the right of the field to select an alarm user class from a drop-down list of predefined classes. Each alarm can be assigned only one class.

Attributes The alarm operational attributes include the following:

System Wide: Alarms can be limited to a single station or distributed among several application stations using application network support facilities.

If this option is selected, the alarm will be distributed to other stations in the network. It can be acknowledged from any station across the network. By default, alarms appear only on the station used by the operator.

Auto Acknowledge: The system automatically acknowledges alarms (as they occur) as if already acknowledged by the operator.

Auto END: The system automatically ends alarms (after they occur) as if the condition that caused the alarm to be generated has already terminated.

Class at Acknowledge: Enables you to re-assign a User Class property to the alarm when the alarm is acknowledged. This means that you can change the routing of an alarm upon its acknowledgment.

Record to File: Records the alarm in the alarm's history file.

Discard: Discards active alarms when the application is terminated.

Exclude from Printing: If this option is selected the alarm will not be printed.

Auto Print AHP File: Help files with the AHP suffix can also be printed. A help file in HTML format is printed manually according to user demand. An alarm line and its AHP file are printed as a set where the AHP file appears directly under the alarm. When working in

a network configuration and an alarm with an AHP file attached is sent to another station this alarm will be printed in the far station only when the AHP file is located in the far station.

Note: If an alarm is defined with both the Auto Acknowledged and Auto End options, it will be considered inactive and will not be displayed in the Events Summary.

Delay Delay intervals can be defined during which time alarms will not be generated. There are three options defining when the alarm will be reset:

Condition is false: Alarms will not be generated when the alarm condition is false (within the time delay).

Delay time ends: If the alarm condition is True, at the end of the defined time delay alarms will be generated. This is without taking into consideration changes in alarm status during the delay period.

Never: The delay feature will not be imposed.

Note: The default is Never.

Alarms Overview

The name of the group to which the alarm belongs.

General Tab

This tab is used to define general alarm properties.

Alarm Definition:

General | Action On Alarm

Alarm Condition:

Alarm Text:

Family: Help File:

Zone:

Severity:

Groups...

User fields

AlarmUserField0 :

AlarmUserField1 :

AlarmUserField2 :

AlarmUserField3 :

AlarmUserField4 :

Inhibition

By Tag : = 0

☐ Immediate

Targets

☐ Default printer

☒ Events Summary

☒ Popup

☐ Popup buzz

☐ User class:

Attributes

☐ System Wide

☐ Auto Acknowledge

☐ Auto END

☐ Class at Acknowledge

☒ Record to file

☐ Discard

☐ Exclude from printing

☐ Auto print AHP file

Delay

Reset when:

☐ Condition is false

☐ Delay time ends

☒ Never

Time Interval: ms.

OK Cancel Apply Help

Alarm Condition	This field defines the alarm conditions
Alarm Text	This field when completed shows a description of the alarm. An alarm message can include tokens and contain up to 253 characters.
Family	Specifies the name of the group to which the alarm belongs. The name can consist of up to 64 characters and is the link to alarm objects. It is also used for classification and filtering.
Help File	Specifies the name of the Help file that contains information for the operator. For more details about creating alarm help files, refer to the section on Alarm Help Files .
Zone	You can enter a zone area from 0 to 50,000. This value is used to classify and filter alarms in the Events Summary and application popup windows.
Severity	Specifies the priority order of each alarm. For example, a low priority could be 0 and a high priority, 50,000). It is also used for classification and filtering.

User Fields	These are customized fields that are defined by the user according to their specific requirements. User fields enable additional alarm filtering. There are five User Fields. See Assigning User Field Names .
Groups	This option is used to assign authorized users and groups of users to the alarm. Alarm recipients can handle the alarm according to user authorization.
Inhibition by Tag	Inhibit if a specific tag receives a specific value.
Inhibit Immediate	This checkbox when checked means inhibit this alarm immediately.
Targets	<p>Specifies the alarm destination. The following options are available:</p> <p>Default Printer: The alarm message is sent to the printer defined as the alarms printer.</p> <p>Events Summary: The alarm is displayed in the Events Summary.</p> <p>Popup: The alarm is displayed in a Popup window.</p> <p>Popup buzz: The alarm is displayed in a Popup Events Summary that will buzz when the alarm is displayed. If you do not select this option, the Popup Events Summary will not buzz when the alarm is displayed even if it was defined to do so in the PopUp Buzz dialog box.</p>
Targets	<p>User Class: Enables you to identify an alarm and to classify it online and in historical Events Summaries. Select this option and click on the arrow on the right of the field to select an alarm user class from a drop-down list of predefined classes. Each alarm can be assigned only one class.</p>
Attributes	<p>The alarm operational attributes include the following:</p> <p>System Wide: Alarms can be limited to a single station or distributed among several application stations using application network support facilities.</p> <p>If this option is selected, the alarm will be distributed to other stations in the network. It can be acknowledged from any station across the network. By default, alarms appear only on the station used by the operator.</p> <p>Auto Acknowledge: The system automatically acknowledges alarms (as they occur) as if already acknowledged by the operator.</p> <p>Auto END: The system automatically ends alarms (after they occur) as if the condition that caused the alarm to be generated has already terminated.</p> <p>Class at Acknowledge: Enables you to re-assign a User Class property to the alarm when the alarm is acknowledged. This means that you can change the routing of an alarm upon its acknowledgment.</p> <p>Record to File: Records the alarm in the alarm's history file.</p> <p>Discard: Discards active alarms when the application is terminated.</p> <p>Exclude from Printing: If this option is selected the alarm will not be printed.</p>

Auto Print AHP File: Help files with the AHP suffix can also be printed. A help file in HTML format is printed manually according to user demand. An alarm line and its AHP file are printed as a set where the AHP file appears directly under the alarm. When working in a network configuration and an alarm with an AHP file attached is sent to another station this alarm will be printed in the far station only when the AHP file is located in the far station.

*Note: If an alarm is defined with both the Auto Acknowledged and Auto End options, it will be considered inactive and will not be displayed in the **Event Summaries**.*

Delay intervals can be defined during which time alarms will not be generated. There are three options defining when the alarm will be reset:

Condition is false: Alarms will not be generated when the alarm condition is false (within the time delay).

Delay

Delay time ends: If the alarm condition is True, at the end of the defined time delay alarms will be generated. This is without taking into consideration changes in alarm status during the delay period.

Never: The delay feature will not be imposed.

Note: The default is Never.

Alarm Conditions

Expressions are displayed in the **Alarm Condition** field in different colors and according to their expression type.

- Red for errors
- Black for operations
- Blue for correct tag names
- Olive green for functions

Alarm Condition options consist of a list of tags, operators and functions from which you can build an expression.

- **Tags** - when selected a field box with an arrow is added to the Alarm Condition field.

Alarm Condition:	@TANK402_LEVEL>2000 AND @D02=1
Alarm Text:	Warning on Tank 402 - Pump D02 Started

The Alarm Condition field is divided into two when the Tag (right click on the field) option is selected from the popup menu. The upper field enables selection of the Station Name whereas the lower field enables selection of a tag from this station's tag list. Clicking the arrow to the right of the field displays a dropdown list of available tags from which you can select the required tag. Only one tag can be added at a time to the Alarm Condition field. Clicking anywhere in the Alarm Condition field removes the tag field box and enters the tag into the expression. Tags can be written manually by first entering a @ and then the required tag name.

- **Numeric Operator** - when selected displays the following options:

+ Add

- Subtraction

/ Division

MOD Integer value of the remainder

- **Relational Operators** - when selected displays the following options:

= Equal

<> Not Equal

<= Less or Equal than

>= Greater or Equal than

< Less than

> Greater than

- Logical Operator when selected displays the following options

AND Combines two conditions logically

OR Combines two conditions logically

NOT Negates the condition that follows it

- Function - when selected displays the following options:

Function	Syntax	Description
Log	LOG(expression)where expression > 0	Calculates base 10 logarithm.
Ln	LN(expression) where expression > 0	Calculates natural logarithm.
Root	ROOT(expression) expression>= 0	Calculates square root.
Min	MIN(x,y)where both x and y are expressions.	Returns the minimum out of the two parameters.
Max	MAX(x,y)where both x and y are expressions.	Returns the maximum out of the two parameters.

Power	POWER(x, y) where both x and y are expressions.	Returns the value of xy.
Sign	SIGN(expression) Calculates the sign.	Returns -1 if expression<0 and 1 if expression >=0.
Floor	FLOOR(expression) Calculates the floor.	Returns a floating-point value representing the largest integer that is less than or equal to expression.
Bit	BIT(B,@tagname)where B is bit number and @tagname is a tag value	Alarm is on when BIT is true value="1"
Abs	Abs (expression) Calculates absolute value.	Returns the absolute value of expression.
Sin	SIN(expression) where expression angle is in radians.	Calculates sine.
Cos	COS(expression) where expression angle is in radians	Calculates cosine.
Tan	TAN(expression) where expression angle is in radians.	Calculates tangent.
ROC		Processes values that change too quickly. If a process value fluctuates by more than the rate of change limit in the given time interval, the tag generates the alarm. The rate is given in percentage per unit of time.
Deviation (%)		Processes values that change from the optimum value. Deviation alarms require a definition of a target value and range. If the process value exceeds the range, a deviation alarm occurs. For example, if the optimum value is 100 and the range (deadband) is +/- 5 the process can vary from 95 to 105 without generating an alarm. The deadband is given by percentage of the value.

Deviation_F
(Fixed)

Process values that change from the optimum value. Deviation alarms require a definition of a target value and range. If the process value exceeds the range, a deviation alarm occurs. For example, if the optimum value is 100 and the range (deadband) is +/- 5 the process can vary from 95 to 105 without generating an alarm. The deadband is given by a constant value of the value.

- Bit Operator - when selected displays the following options:

OR Combines two conditions logically

AND Combines two conditions logically

XOR Exclusive OR

NOT Negates the condition that follows

Alarm Text

The alarm text can include the following tokens:

@tagname	Replaces @tagname with the current tag value when the alarm is started.
@!tagname	Replaces @!tagname with the value of the tag that is force read from the PLC when the alarm is started.
@#tagname	Replaces @#tagname with the value retrieved from the block to which the tag belongs, if the block is fresh. If the tag does not belong to a block, the @# control will function the same as @!.

Note: The above three tagname tokens must be typed in lower case letters. Otherwise the system will not recognize them.

\$TIME	The current time in Hours.Minutes.Seconds format. The value range is from 00.00.00 to 23.59.59.
--------	---

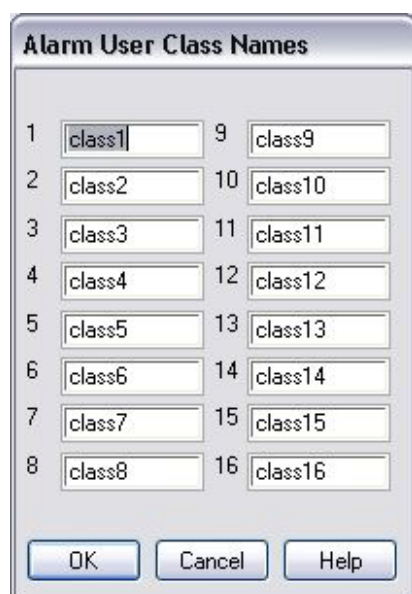
\$DATE	The current date in Day.Month.Year format. The value range is from 01.01.00 to 31.12.99.
\$HOUR	The current hour. The value range is from 0 to 23.
\$MINUTE	The current minute. The value range is from 0 to 59.
\$SECOND	The current second. The value range is from 0 to 59.
\$DAY	The current day. The value range is from 1 to 31.
\$MONTH	The current month. The value range is from 1 to 12.
\$YEAR	The current year. The value range is from 00 to 99.
\$WEEKDAY	The current day of the week. The value range is from 1 to 7, where 1 is Sunday and 7 is Saturday.
\$OPERATOR	The current operator name. The value is a string that represents the operator name.
\$INTIME	The number of minutes that passed since midnight. The value is used for tag comparison and definition. The value range is from 1 to 1439.
\$INDATE	The number of days that passed since January 1, 1980. The value is used for tag comparison and definition. The value range is from 0 and on.

Assigning Names to Alarm Classes

This option is used to assign user-defined names to alarm classes. Alarm classes can be used to categorize alarms to identify them more easily, and to filter them in the system Events Summary. See **General Tab** .

- To assign class names:

From the Design menu, select Alarm Parameters and then Class Names. The Alarm User Class Names dialog box is displayed:



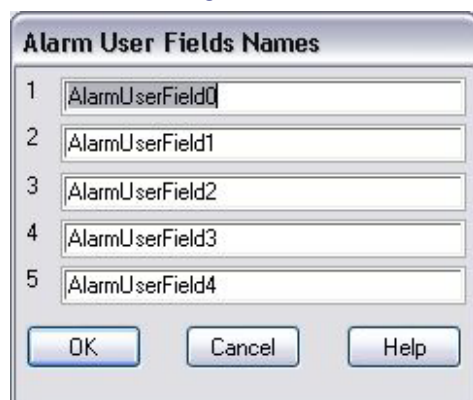
The dialog box displays 16 default class names. Double-click on the default name to select it, and enter the new name.

Assigning User Field Names

These are customized fields that are defined by the user according to their specific requirements. User fields enable additional alarm filtering. There are five User Fields.

- To define User Fields:

From the Design menu, select Alarm Parameters and then Field Names to open the Alarm User Fields dialog box.



1. Type in the unique User Name opposite the relevant number.
2. Click OK to confirm.

Alarm Help Files

Alarm Help files are user-created ASCII files. Each Help File contains handling instructions for an associated alarm. The operator receiving an alarm can open the alarm's Help File in the **Event Summaries** by clicking the assist icon or by right clicking on the alarm and selecting Assist.

Help files can also be saved in HTML format and be sent to the operator via the Internet.

Help Files can be created using any text editor. However the Help File folder must be saved in the same location as the application.

- System Help Files are saved as XXX.AHP
- HTML Help Files are saved in a folder called DOCS as XXX.HTML

After a Help File for an alarm has been created and saved in the application folder it can be attached to an alarm in the Alarm Definition **General Tab**.

- To define a Help File:
 1. In the Help File field click the Browse icon. The Open dialog box opens displaying Help Files folders.
 2. Select the relevant Help File and click Open to return to the General tab.
 3. Click Apply or OK.
-

Used to indicate the name of a file that contains alarm help information for the operator.

Action on Alarm

You can define a single action for an alarm when it reaches one of three states: when it starts, when it is acknowledged and when it ends. When the alarm reaches the selected state, it will trigger a macro.

- To define an action on alarm:

In the Alarm Definition dialog box click the **Action on Alarm** tab. The Action on Alarm dialog box will open.

The screenshot shows the 'Alarm Definition' dialog box with the 'Action On Alarm' tab selected. The 'Go to Zone' section contains four dropdown menus: 'Window' (set to 'GENERAL'), 'Image' (set to 'ROOM'), 'Zone' (set to a blue square icon), and 'Context' (set to '- No change to context -'). Below this is the 'Execute Macro on Alarm' section with three checkboxes: 'Started', 'Acknowledged', and 'Ended', each followed by a dropdown menu. A 'Create macro...' button is to the right of the 'Ended' dropdown. The 'AAM Configuration' section includes a 'Select Recipients:' button labeled 'Groups...', a 'File association' section with 'For Printer/ Fax/ Email' and 'For Voice' dropdowns, and a checked checkbox for 'Synthesized alarm text'. At the bottom are buttons for 'OK', 'Annuler', 'Appliquer', and 'Aide'.

The following options are available

Go to
Zone

When selected an image of the zone specific to the alarm opens on the users screen when the alarm is generated.

Window Defines the window into which the image will be loaded

Image Defines the image file that will be opened when the alarm is generated.

Zone Defines the specific zone in the image file that will be displayed when an alarm is generated.

Context Defines the context that will be used in the loaded image.

Execute
Macro on
Alarm

Started: Enables defining an action when the alarm starts.

Acknowledged: Enables you to define an action when the alarm is acknowledged.

Ended: Enables you to define an action when the alarm ends.

Create Macro: **Macros** can be attached to all three alarm states. Defined actions will be activated automatically by application at run-time. This feature makes building applications easier. The user does not need to use either **Application Language** or an add-on to perform an action when an alarm changes its status.

AAM

Enables configuration of alarm transmission to users and groups via printer, fax, e-mail, SMS, voice messages and other services. Before configuring advanced alarm transmission verify that the appropriate drivers providing this service in Advanced Alarm Management are defined.

Select Recipients: Click Groups to define **Advanced Alarm Management** recipients.

File Association: Add text file for the E-mail message.

Synthesized Alarm Text: If this checkbox is checked this text file is sent as a voice message. When this checkbox is not checked the For Voice WAV file will be defined. The default is checked.

- To define AAM transmission:

In the Alarm Definition dialog box click the **Action on Alarm** tab.

1. In the Select Recipients field click the Groups button to open the Alarm Recipients dialog box. Select the relevant recipients and click Add and then OK.



2. In the File Association field select a text file that will be attached to your e-mail, or will be sent by fax or to the printer.

3. To send a vocal message, click the browse button and select a sound file (file of type *.wav).
4. Check the Synthesized Text checkbox to send the text file as a voice message. When this checkbox is not checked the For Voice WAV file will be defined.

Note: Before configuring advanced alarm transmission, verify that the appropriate drivers providing this service in AAM are defined.

Action on Alarms

You can define a single action for an alarm when it reaches one of three states: when it starts, when it is acknowledged and when it ends. When the alarm reaches the selected state, it will trigger a macro.

In the Alarm Definition dialog box click the Action on Alarm tab. The Action on Alarm dialog box will open.

The following options are available:

Go to Zone When selected an image of the zone specific to the alarm opens on the users screen when the alarm is generated.

Image Defines the image file that will be opened when the alarm is generated.

Zone Defines the specific zone in the image file that will be displayed when an alarm is generated.

Exclude Macro on Alarm

Started: Enables defining an action when the alarm starts.

Acknowledged: Enables you to define an action when the alarm is acknowledged.

Ended: Enables you to define an action when the alarm ends.

Create Macro: Macros can be attached to all three alarm states. Defined actions will be activated automatically by application at run-time. This feature makes building applications easier. The user does not need to use either application Language or an add-on to perform an action when an alarm changes its status.

AAM Configuration Enables configuration of alarm transmission to users and groups via printer, fax, e-mail, SMS, voice messages and other services. Before configuring advanced alarm transmission verify that the appropriate drivers providing this service in Advanced Alarm Management are defined.

Select Recipients: Click Groups to define AAM recipients.

File Association: Add text file for the email message, which could be either a Printer, Fax or email message.

Synthesized Alarm Text: If this checkbox is checked this text file is sent as a voice message. When this checkbox is not checked the For Voice WAV file will be defined.

To define AAM transmission:

1. 1. In the Alarm Definition dialog box click the Action on Alarm tab.

1. 2. In the Select Recipients field click the Groups button to open the Alarm Recipients dialog box. Select the relevant recipients and click Add and then OK.
1. 3. In the File Association field select a text file that will be attached to your e-mail, or will be sent by fax or to the printer.
1. 4. To send a vocal message, click the browse button and select a sound file (file of type *.wav).
1. 5. Click OK to confirm.

Note: Before configuring advanced alarm transmission, verify that the appropriate drivers providing this service in AAM are defined.

Alarms Overview

Macros that will be activated as the alarm changes state can be attached to each of these states. If the alarm is Auto ACK, then the acknowledge state cannot have an action for it. If the alarm is Auto END, then the ended state cannot have an action for it.

Choose the macro you wish to activate once the alarm changes to this state.

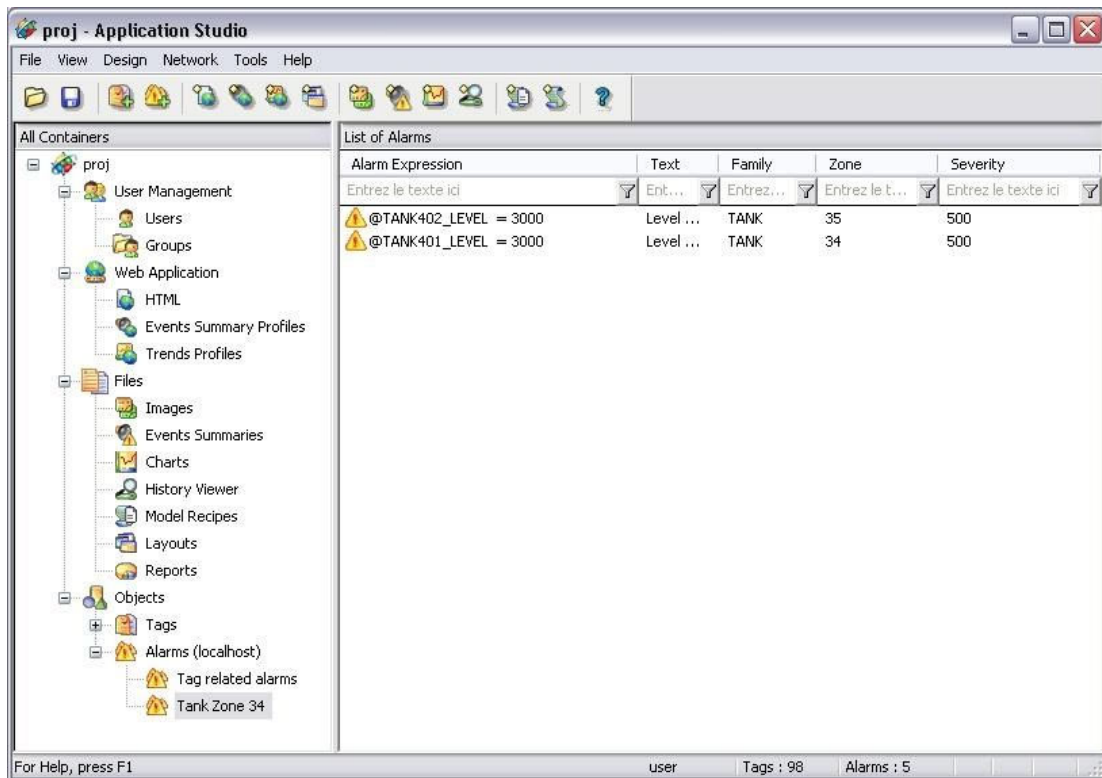
If this option is chosen then the user will be able to attach an action once the Alarm has moved to the started state.

If this option is chosen then the user will be able to attach an action once the Alarm has moved to the acknowledged state

If this option is chosen the user will be able to attach an action once the Alarm state has moved to the ended state.

Alarm Levels

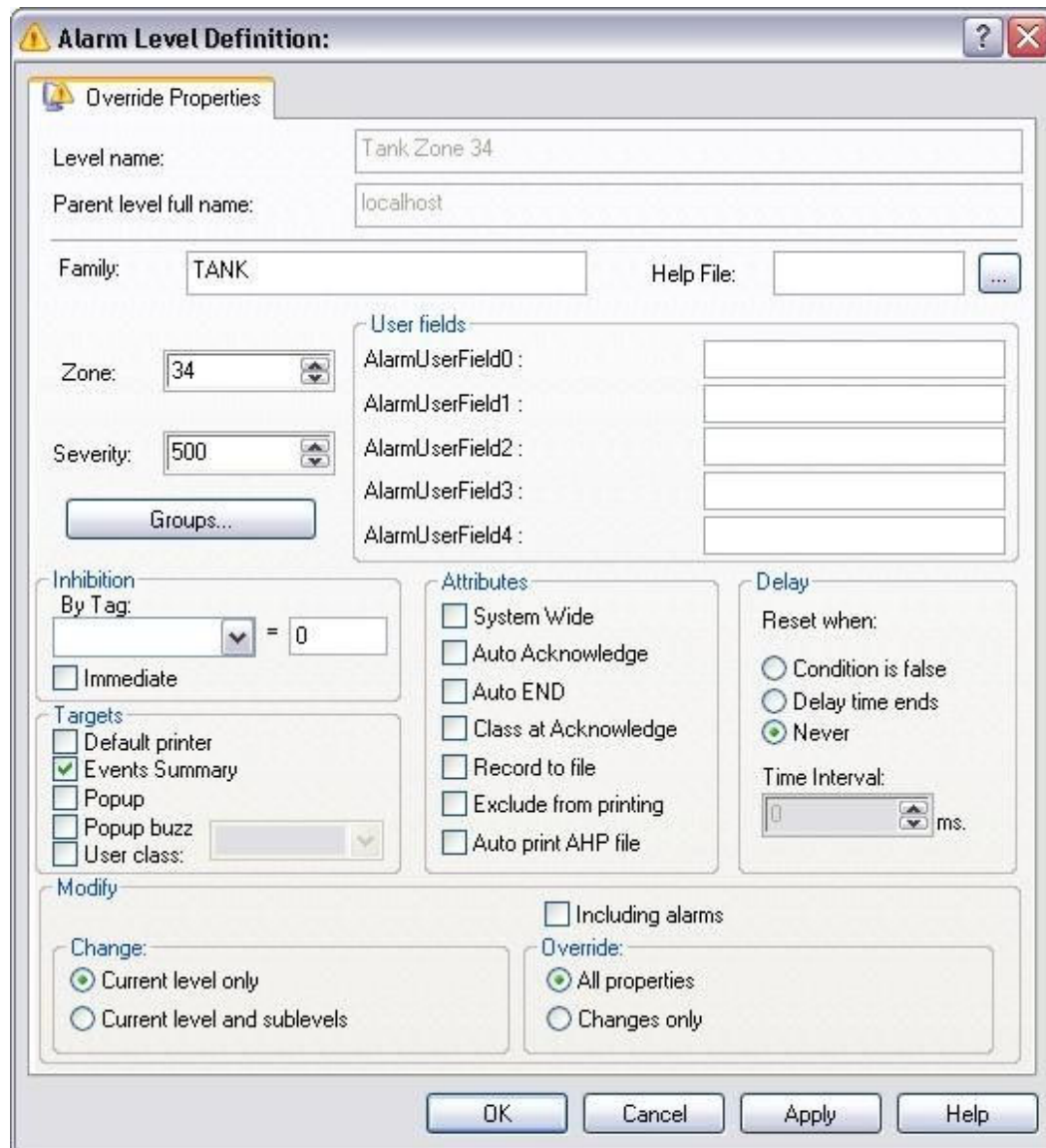
Alarms can be defined according to hierarchy. Each alarm can be defined at a different level in the hierarchical tree. Levels can be modified, added or deleted. Level definition contains most of the parameters used by alarm definition so that when one is defined and then modified its sub-levels also receive the same modifications. Alarm hierarchy is defined and viewed in the All Containers tree.



Note: If at the Alarm Level the inhibit condition is valid, the alarms belonging to this level will not occur even if they are not inhibited.

- To add a level:

In the All Containers pane right click Alarms. From the dropdown menu select Add Level. The Definition dialog box opens.



Alarm Level Definition:

Override Properties

Level name: Tank Zone 34

Parent level full name: localhost

Family: TANK Help File: ...

Zone: 34

Severity: 500

Groups...

User fields:

AlarmUserField0 :
AlarmUserField1 :
AlarmUserField2 :
AlarmUserField3 :
AlarmUserField4 :

Inhibition

By Tag: = 0

☐ Immediate

Targets

☐ Default printer
☒ Events Summary
☐ Popup
☐ Popup buzz
☐ User class:

Attributes

☐ System Wide
☐ Auto Acknowledge
☐ Auto END
☐ Class at Acknowledge
☐ Record to file
☐ Exclude from printing
☐ Auto print AHP file

Delay

Reset when:
☐ Condition is false
☐ Delay time ends
☒ Never

Time Interval: ms.

Modify

Change:
☒ Current level only
☐ Current level and sublevels

☐ Including alarms

Override:
☒ All properties
☐ Changes only

OK Cancel Apply Help

1. Type in the Level Name in the Level Name field of up to 253 characters.
2. The other fields appearing in this dialog box are described in detail in **General Tab** with exception to the Modify field.
3. The Modify field has the following sub-fields: Include Alarms, Change and Override. Make your selection accordingly.
4. Click OK to confirm.

- To modify a level:

In the All Containers pane right click Alarms and select Modify Level from the dropdown menu. The Definition dialog box will open on your screen.

Or,

In the All Containers pane double click the Alarms icon. A List of Alarms opens in the Control Panel. Select an alarm and either right click and select Modify Level or double click. The Alarm Definitions dialog box will open on your screen.

Further instructions appear in **To add a level** and in the **General Tab**.

- To delete a level:

1. In the All Containers pane right click Alarms and select Delete Level from the dropdown menu. A message box opens on your screen.

2. Click Yes to delete the level. The level will be removed from the list.

Exporting Alarms

Exporting Alarms

The Export Alarms option enables you to generate a list of alarms in ASCII or CSV format and send the list to the printer or a file. The generated list can also be filtered to include only specific alarms.

Alarm lists can be generated and then edited using a text editor. Once generated, the list can be printed for project documentation. This is useful in large projects, where thousands of alarms must be defined. In this case, working with a text editor is faster than defining each alarm separately.

- To generate a list of alarms:

In the All Containers section of the Application Studio, right click Alarms and select Export Alarms from the popup menu. The Alarm List dialog appears:



The **Alarm List** dialog box is used to configure the export of alarm data. It includes fields for filtering by number, family, severity, and zone, as well as checkboxes for targets and attributes. The **List Target** section allows selecting the output format (Fixed or CSV) and the destination (Printer or File).

	From	To
No.	0	65535
Family:		
Severity:	0	50000
Zone:	0	50000

Targets

- ☒ Printer
- ☒ Events Summary
- ☒ Popup
- ☒ Popup buzz
- User Class...

Attributes

- ☒ System Wide
- ☒ Auto ACK
- ☒ Auto END
- ☒ Discard
- ☒ Class at Ack
- ☒ Record to file

List Target

- ☐ Printer
- ☒ File
-
- ☒ Fixed ☐ CSV

OK

Cancel

Help

Chapter 15 Alarms

The dialog box contains filter options that you can select to determine which alarms will appear in the list that you want to generate. Each filter field is optional (except for the filename in the List Target field, which must be specified if you select the File option).

The following options are available:

No.	Specifies the range of numbers of the alarms that you want to appear in the generated list.
Tag Name	Specifies the name, or name prefix range of the tags associated with the alarms that you want to appear in the generated list.
Family	Specifies the name or prefix of the family to which the alarm belongs that you want to appear in the generated list.
Severity	The severity range of the alarms that you want to appear in the generated list.
Zone	The zone range of the alarms that you want to appear in the generated list.
Targets	The target specifications of the alarms that you want to appear in the generated list (any, none, or all can be selected).
User Class	<p>Activate this button to select classes to filter the alarms that will appear in the generated list. After you activate this button, the Set User Class dialog box appears. See To assign class names</p> <p>You can select one or more classes, so that only the alarms that belong to the classes will appear in the generated list. Activate the Set All button to select all the classes. Activate the Reset All button to deselect all the classes.</p>
Attributes	The attribute specifications of the alarms that you want to appear in the generated list. You may select any attribute, all of the attributes, or none at all.
List Target	Specifies the target destination of the list to be generated: Printer or File (.ALS). You can select Printer to send the list to the printer, or File (.ALS) to save the list in a file with the extension .ALS. For File (.ALS), specify the name of the file without the extension. This file will be located in the application's directory in the Set Default Paths dialog box.
Fixed	The file is printed in .ALS format.
CSV	The file is printed to an Excel file.

After you complete the dialog box and activate the OK button, an alarm list will be generated according to the filter you specified.

Used to define the alarm destination (printer, events summary, pop-up events summary...)

.ALS File Format

This section describes the field definitions of an .ALS file. An .ALS file can be opened with any text editor.

The format of the file is as follows:

The first line contains the alarm attribute fields. This line begins with a semicolon.

Each remaining line contains one alarm definition.

The fields in the alarm definition lines are as follows:

No.	Specifies the alarm original number.
Tag	Specifies the name of the tag associated with the alarm.
Cond	Specifies the conditional operator of the alarm condition.
Value	Any numerical value for the alarm condition.
Text	The text that will appear when the alarm condition is true. The text appears in brackets < >.
Prt,Ann,Pop,	These fields represent the target specification of the Buz,Fil alarm. The value can be Y for Yes or N for No.
Sys,AAc,AEn,	These fields represent the alarm attributes. The Dis,CIA value can be Y for Yes or N for No.

Sev	Specifies the alarm severity from 0 (lowest level) to 50,000 (highest level).
Zone	Specifies the alarm zone number from 0 to 50,000.
Name	Specifies the alarm name (assigned in the alarm definition). The name appears in brackets <>.
Help	Specifies the name of the help file associated with the alarm (specified in the alarm definition). The name of the help file appears in brackets <>.
User Class	Specifies the user class associated with the alarm. The value 0 represents no user class specification.
Action on Alarm	Specifies the name of the action macro, which can be attached to each state of the alarm.

Alarm Export

The Export Alarms option enables you to generate a list of alarms in ASCII or CSV format and send the list to the printer or a file. The generated list can also be filtered to include only specific alarms. Alarm lists can be generated and then edited using a text editor. Once generated, the list can be printed for project documentation. This is useful in large projects, where thousands of alarms must be defined. In this case, working with a text editor is faster than defining each alarm separately.

In the All Containers section of the Application Studio, right-click Alarms and select Export Alarms from the popup menu. The Alarm List dialog appears:

The dialog box contains filter options that you can select to determine which alarms will appear in the list that you want to generate. Each filter field is optional (except for the filename in the List Target field, which must be specified if you select the File option).

The following options are available:

No. Specifies the range of numbers of the alarms that you want to appear in the generated list.

Tag Name Specifies the name, or name prefix range of the tags associated with the alarms that you want to appear in the generated list.

Family Specifies the name or prefix of the family to which the alarm belongs that you want to appear in the generated list.

Severity The severity range of the alarms that you want to appear in the generated list.

Zone The zone range of the alarms that you want to appear in the generated list.

Targets The target specifications of the alarms that you want to appear in the generated list (any, none, or all can be selected).

User Class Activate this button to select classes to filter the alarms that will appear in the generated list. After you activate this button, the Set User Class dialog box appears: You can select one or more classes, so that only the alarms that belong to the classes will appear in the generated list. Activate the Set All button to select all the classes. Activate the Reset All button to deselect all the classes.

Attributes The attribute specifications of the alarms that you want to appear in the generated list. You may select any attribute, all of the attributes, or none at all.

List Target Specifies the target destination of the list to be generated: Printer or File (.ALS). You can select Printer to send the list to the printer, or File (.ALS) to save the list in a file with the extension .ALS. For File (.ALS), specify the name of the file without the extension. The file will be located in the application directory specified in the Set Default Paths dialog box.

After you complete the dialog box and activate the OK button, an alarm list will be generated according to the filter you specified.

Exporting Alarm Definition Files Using an External Application

If you are using an external application you can export alarm definition files using the command line.

Note: WizPro must not be running during this operation.

- To convert an alarm definition file to CSV format:

Type the following in the command line:

```
als2csv [fromfile] [tofile]
```

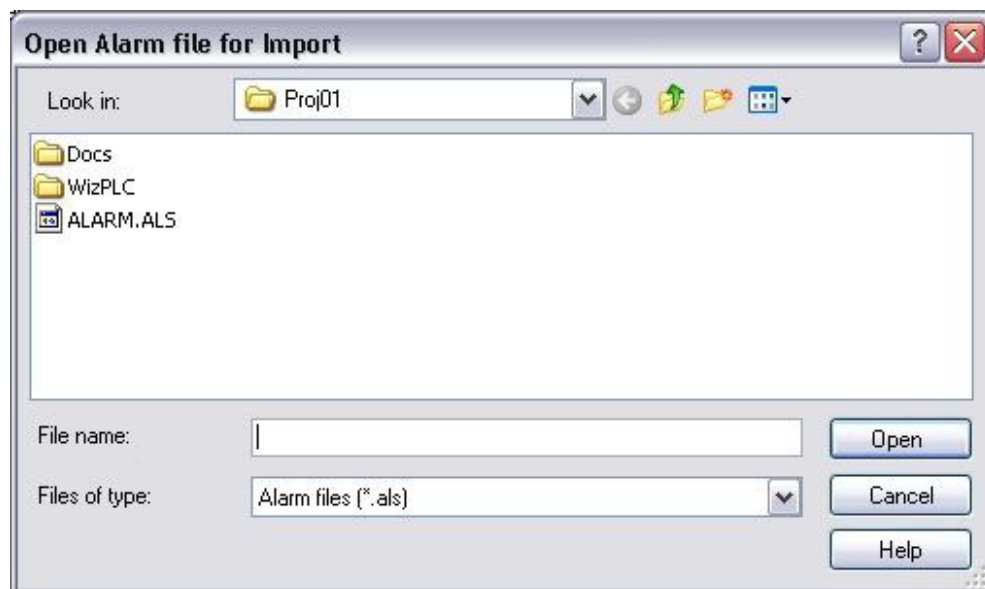
Importing Alarms

Importing Alarms

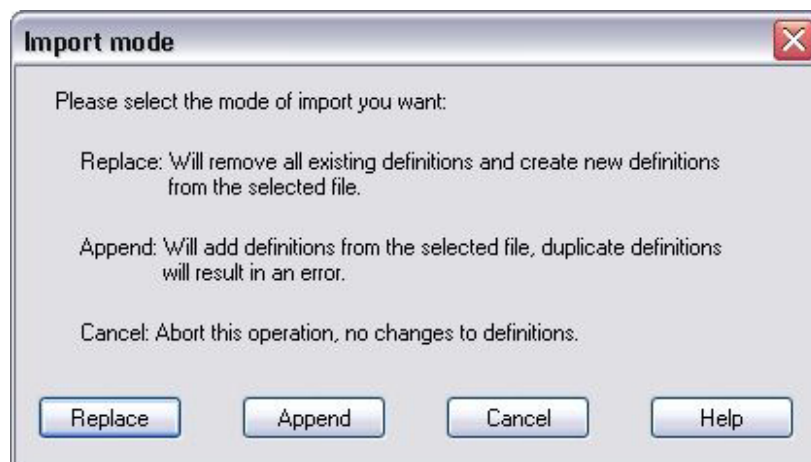
The Import Alarms option enables you to import alarm definitions from an ASCII file. You can use the imported ASCII file to replace the current list with the generated one, or append it to the current list of alarms.

- To import alarm definitions:

In the All Containers section of the Application Studio, right-click Alarms and select Import Alarms from the popup menu. The Open Alarm file for Import dialog box opens on your screen.



1. In the Files of type field, select the type of file you want to import. You can choose between CSV and ALS. Locate the file you want to import and click Open. The Import Mode dialog box is displayed.



2. Click Replace to replace the alarms in the alarm list with the imported alarm, Append to add the specified alarm to the alarm list, or Cancel to cancel the import.

Import Alarms

This option is used to import an Alarm List file into the system.

1. From the *Tools* menu of the Application Studio, select **Import** and then **Alarms**. The *Open Alarm file for Import* dialog is displayed.
 2. In the **Files of type** field, select the type of file you want to import. You can choose between **CSV** and **ALS**. Locate the file you want to import and click **Open**. The *Import Mode* dialog is displayed.
 3. Click **Replace** to replace the alarms in the alarm list with the imported alarm, **Append** to add the specified alarm to the alarm list, or **Cancel** to cancel the import.
-

Importing Alarm Definition Files Using an External Application

If you are using an external application you can import alarm definition files using the command line.

Note: WizPro must not be running during this operation.

- To convert a CSV file to an alarm definition file:

Type the following in the command line:

csv2als [fromfile] [tofile]

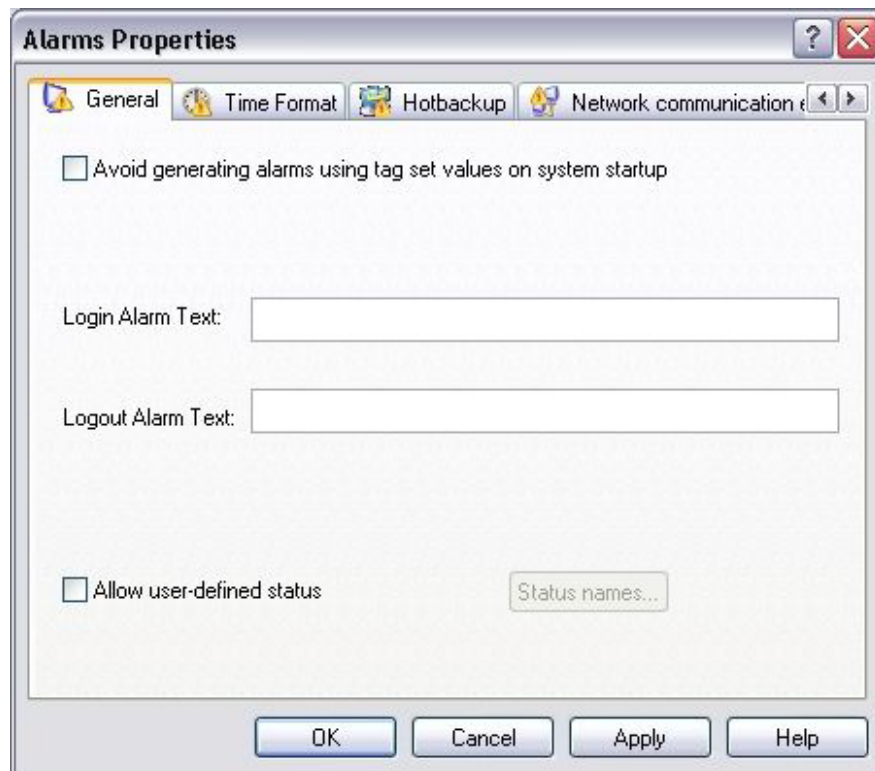
Alarm Properties

Alarm Properties

This section describes how to define alarm properties also for predefined alarms.

- To define alarm properties:

In the All Containers section of the Application Studio, right click Alarms and select then Properties. The Alarms Properties dialog box opens.



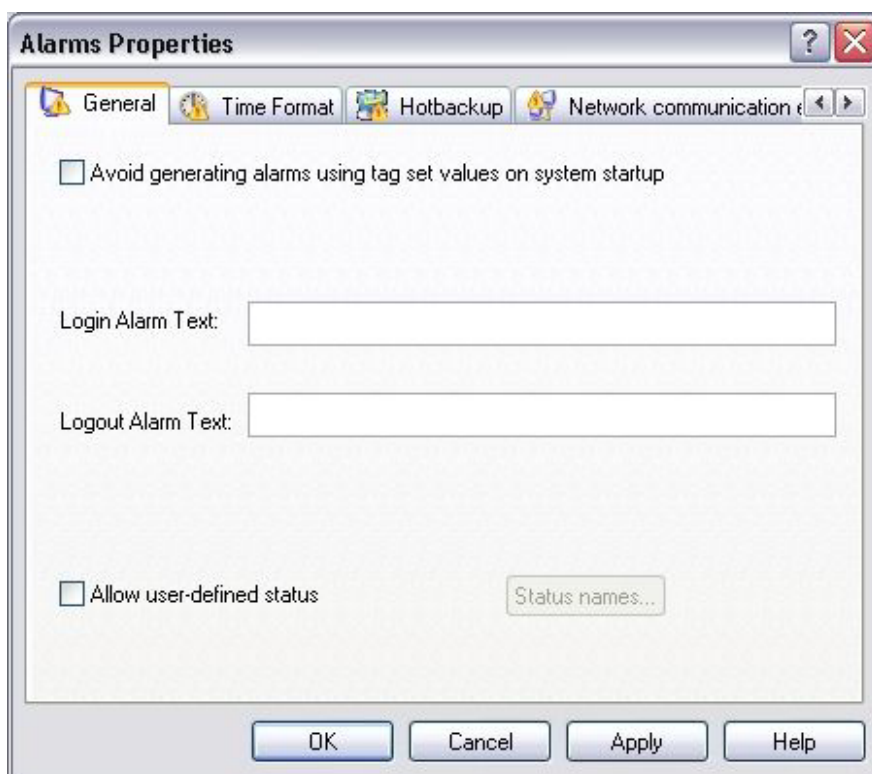
This dialog box has the following tabs:

- **General** - where the message that appears when a user logs in and out is defined. This message can by default be acknowledged and ended and be viewed in the Events Summary and History. Alarms can also be ended by the user by using the User Defined status feature.
- **Time Format** - where the time and date format of the message is defined.
- **Hotbackup** - used when an application that has master backup is run.
- **Network Communication Error** - used during network communications failure.

- **VPI Communication Error** - used during communication failure between the application and communication drivers.
 - **User Login** - defines how and where an alarm issued during user login/logout is written to.
 - **Diskfull** - defines when and how an alarm is sent when the computer disk is xxx% full.
 - **Recipe** - used during recipe errors on loading.
 - **Tag Lock** - defines that a tag is locked when an alarm is issued.
 - **Communication error with remote ODBC database** - used during communication error with ODBC database centralizing the historical data.
-

Specifying a Login/Logout Message

You can specify a message that will appear when a user logs in and logs out in the General tab of the Alarms Properties dialog box.



The following options are available:

Avoid generating alarms using tag set values on system startup

When this is checked no alarms using tag set values are generated during system startup.

Login Alarm Text

Specifies the text you want to appear when a user logs in. This change can be implemented online.

Logout Alarm Text

Specifies the text you want to appear when a user logs out. This change can be implemented online.

Allow user defined status

This feature is optional. Names are limited to hold up to 20 characters. Check this option to enable the user to define alarm states.

Status names

This feature is optional. Alarm states are given in the States.dat file in the application's directory. When the application is loaded this file is read and information in it is used where applicable. Status names are local and therefore are not transferred to other stations. Alarm messages, however are transferred to other stations where they can be handled. You can move an alarm to another user-defined status only if it has not already been acknowledged. However, if the alarm has been moved to another status it cannot be moved back to its previous status. If the user has already been authorized to acknowledge an alarm further authorization is not required where alarm status appear.

Note: If no names are defined then the default names AlarmStatus0 and AlarmStatus1 are given. If in the Alarm Properties dialog box Allow User Defined Status is not checked then none of these column options are available. The default status names are language dependant.

- To define alarm status names:

1. In the Alarm Properties **General Tab** click the Status Names button to open the Alarm Status Names dialog box.



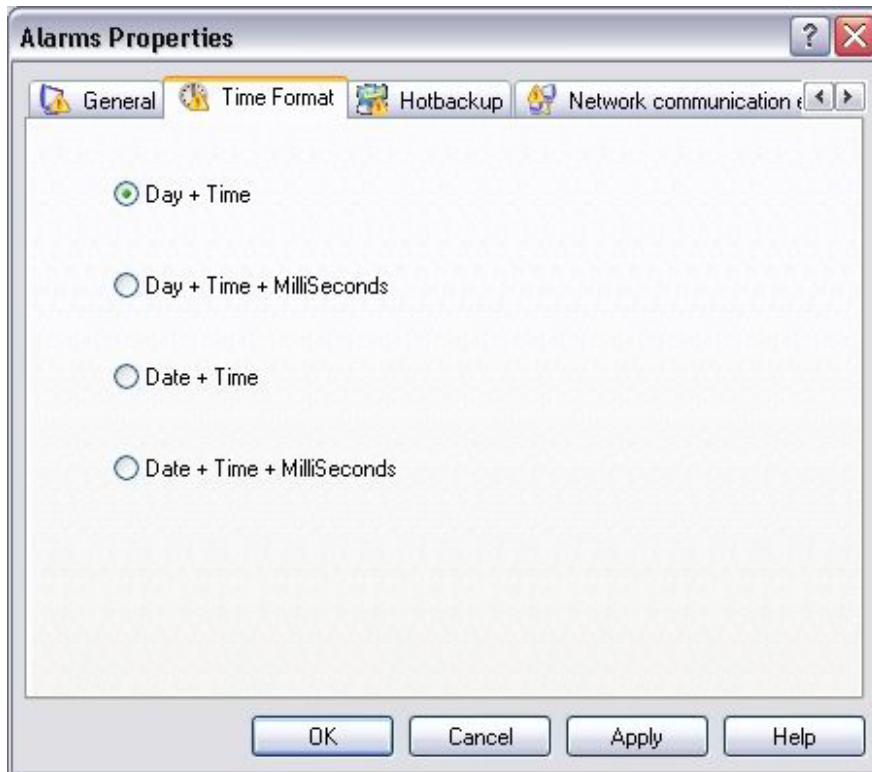
2. Type in the name of the alarm states in the 0 and 1 fields.
3. Click OK to save these definitions.

The new alarm status names appear in the Event Summary Columns dialog box where they can be selected and added as new columns to the **Event Summaries**. The status timestamp and user's name are also logged into the history file when an alarm is logged. Alarms can be assigned to a status by the user either in the Events Summary or Image (see **Chapter 20, Introduction to the Image Module**) modules.

Note: When status names are not defined the default names Alarm Status0 user AlarmStatus0 time and AlarmStatus1 user AlarmStatus1 time are used by default.

Determining a Time Format

You can choose between four different alarm time formats to determine the time format that will appear in the Events Summary and the Alarm printout, in the Time Format tab of the Alarm Properties dialog box.



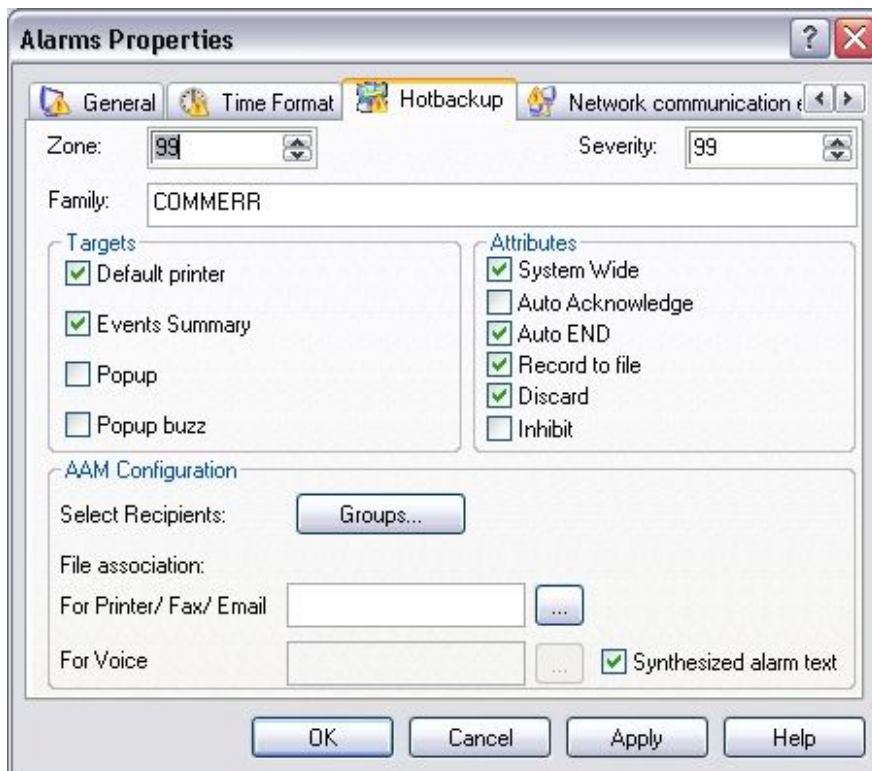
The following options are available:

- | | |
|----------------------------|--|
| Day + Time | Displays a time format of month, time. |
| Day + Time + MilliSeconds | Displays a time format of month, time plus milliseconds. |
| Date + Time | Displays the full date and time. |
| Date + Time + MilliSeconds | Displays the full date and time plus milliseconds. |

Note: Restart the application for changes to take effect.

Determining Hotbackup

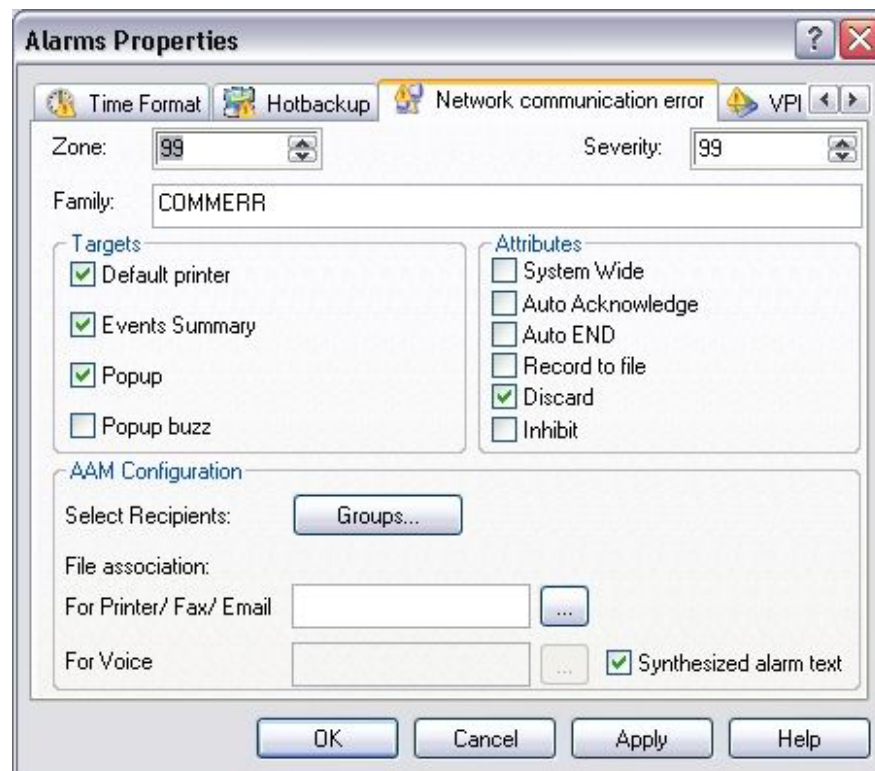
This is a system filter used when an application that has master backup running.



Note: Restart the application for changes to take effect.

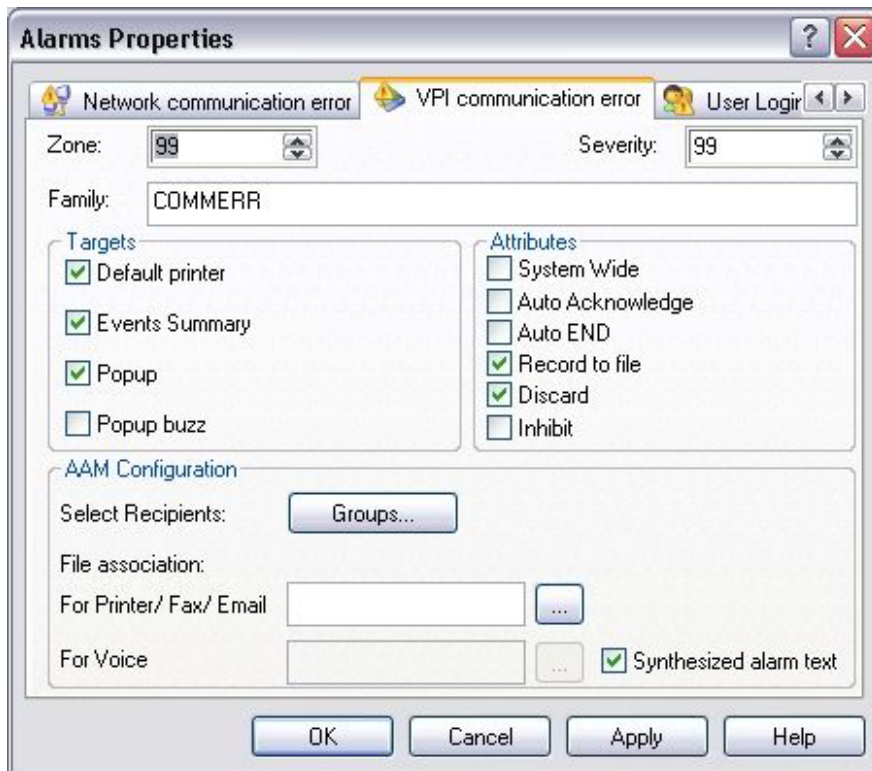
Determining Network Communications Errors

This is a system filter that highlights network communications failure.



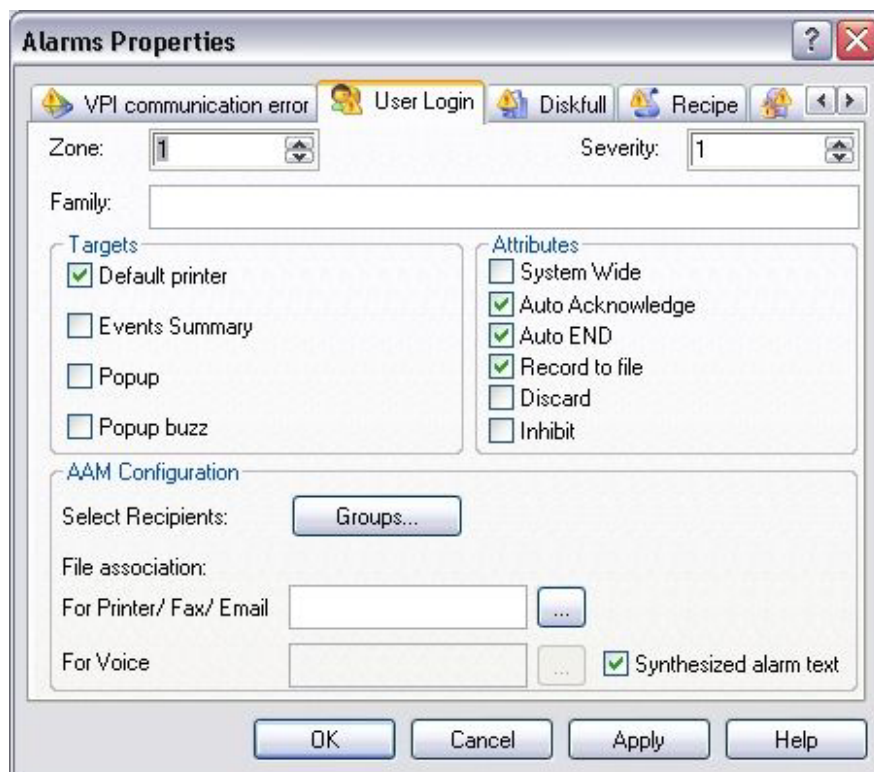
Determining VPI Communication Errors

This is a system filter used to inform about communication driver errors.



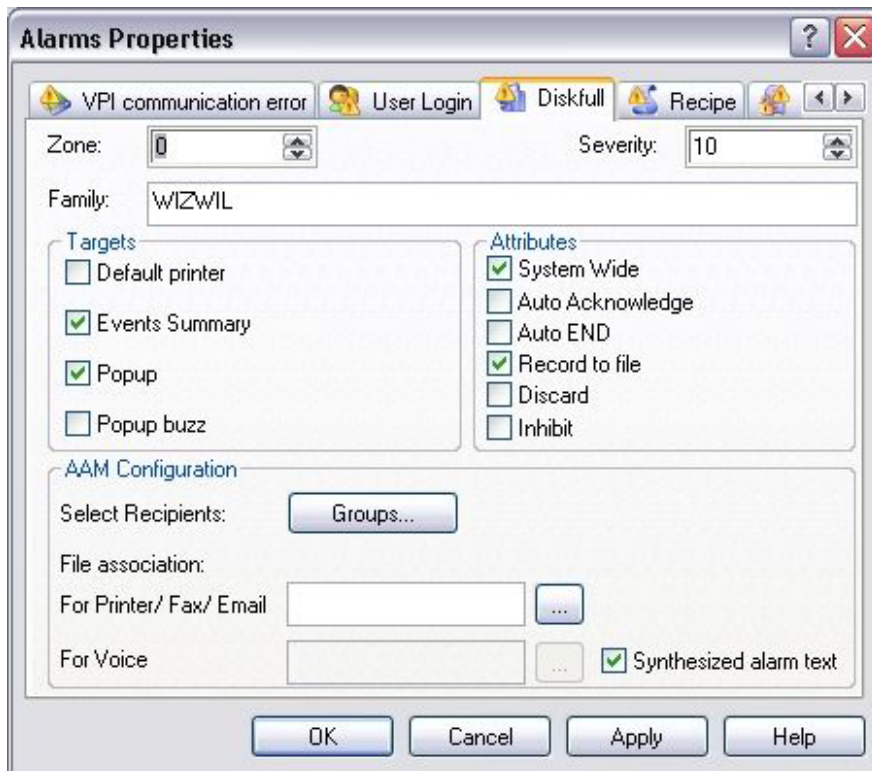
Determining User Login Parameters

This is a system filter used to define how and where an alarm issued during user login/logout is written to.



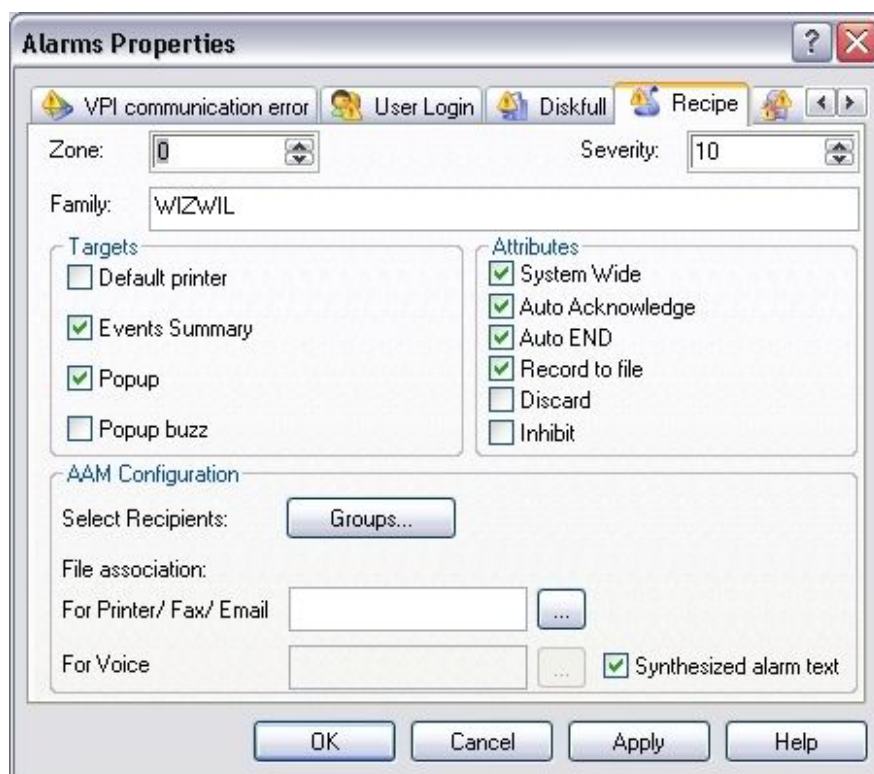
Determining Diskfull

This is a system filter that defines when and how an alarm is sent when the computer disk is xxx% full.



Determining Recipe

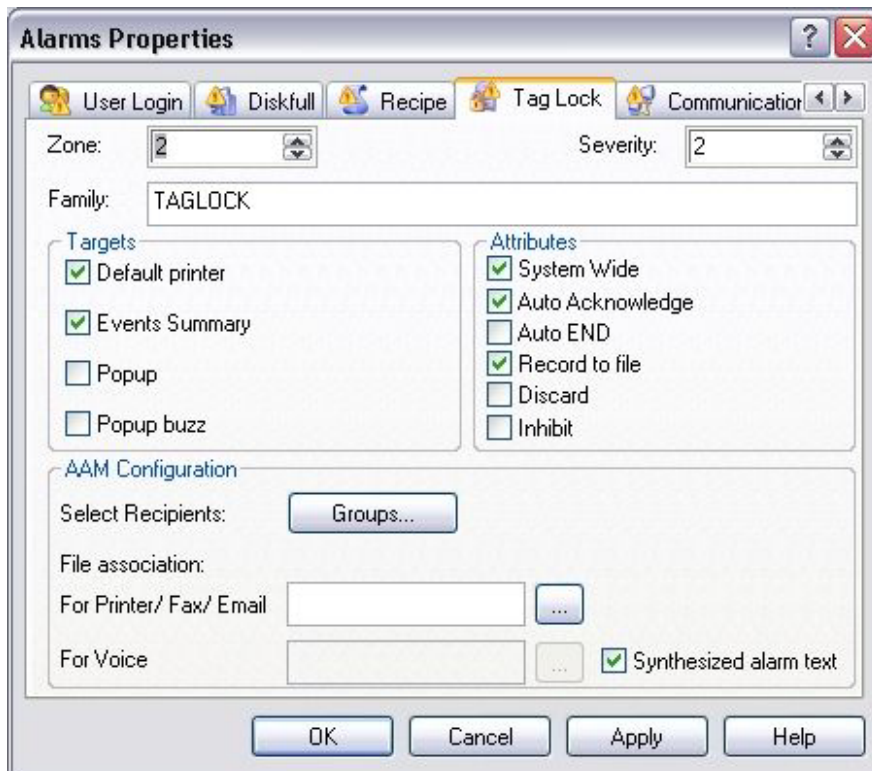
This system filter defines when and how an alarm is sent when an error occurs on the command RLOAD used in Wizcon Language or on macros.



Determining Tag Lock

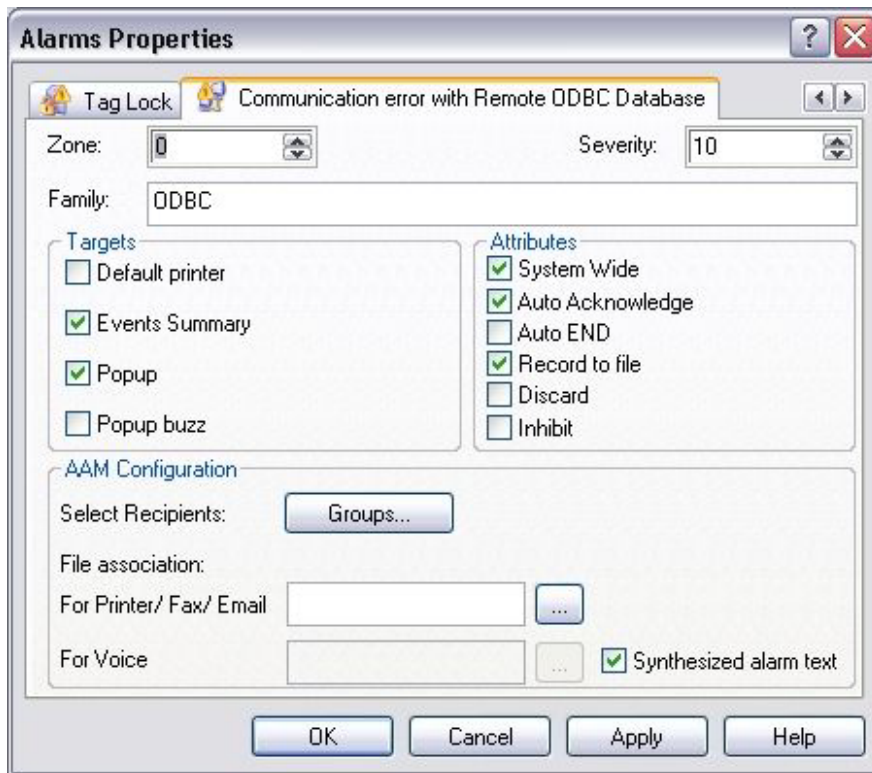
This dialog box is used to define the alarm occurring when a tag is locked.

The default values (2) for Zone and Severity are assigned. A default family name (Taglock) is assigned.



Determining Remote ODBC communication error

This dialog defines the alarm displayed when the remote ODBC database, used for historical data logging, is in communication error.



The parameters of the alarms are tunable however the following parameters are default:

- System Wide
- Auto Acknowledge
- Record to File
- Default Printer

Alarm text always holds the specific locked tag's name. After the tag is unlocked the alarm ends.

In addition, those alarms can be sent to Users and Groups thanks to the AAM module. For detailed setting, see **Action on Alarm**.

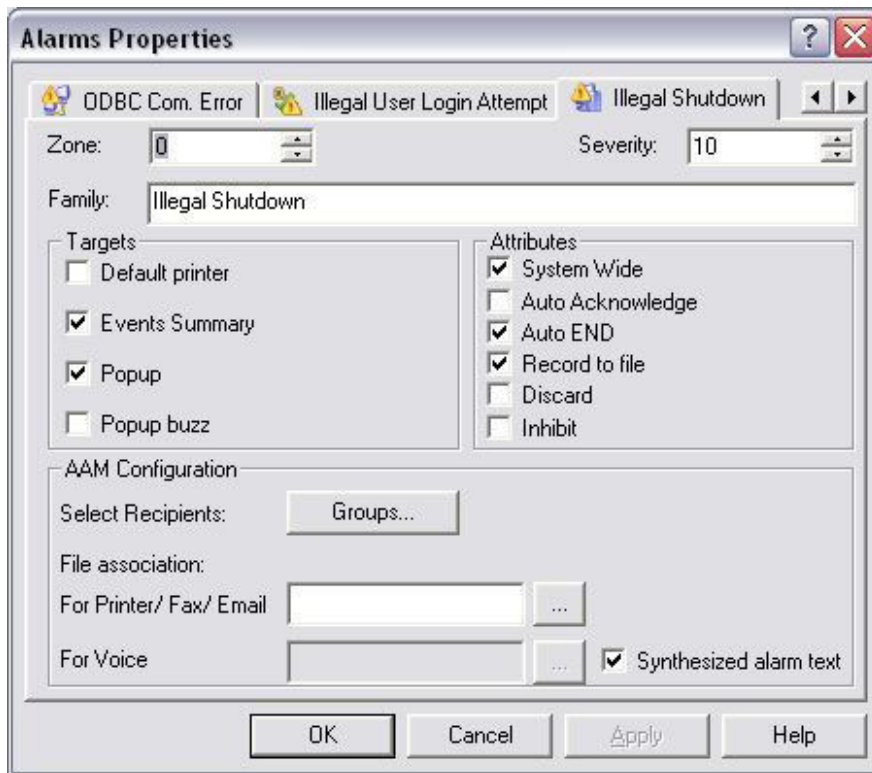
Determining Illegal Login Attempts

This dialog box is used to define the alarm occurring when a user tries but fails to login.



Determining Illegal Shutdowns

This dialog box is used to define the alarm occurring when the application closes down for an unknown reason (for example, a crash).



Finding Alarms

The application enables you to locate alarms in the List of Alarms in the Application Studio. This is especially useful if you have an application with many alarms.

- To locate an alarm:

1. Click anywhere in the List of Alarms and select Find from the Tools menu. The Find Alarm dialog box is displayed:



2. Enter the alarm text in the Alarm Text field.
3. Enter the alarm family in the Family field.
4. Select the condition(s) by which you want to conduct the search in the Conditions area. You can choose between Alarm Text, Family name or Both.
5. Click Find. The alarm is located in the List of Alarms.
6. Click Exit or anywhere in the Application Studio outside the List of Alarms to close the dialog box.

Note: The Alarms List can also be opened using the filter option in the Application Studio.

Find Alarm

In this dialog box, you can enter a value for any of the fields (a value for each field is not necessary) to activate a search.

1. 1. In the **Tag Name** field, specify the name, or partial name, of the tag associated with the alarm you want to find. The characters that you enter will be the prefix of the name for which the application will search.
1. 2. In the **Family field**, specify the family name, or partial family name (assigned to the alarm when it was defined), of the alarm you want to find. The characters that you enter will be the prefix of the family for which the Application will search.
1. 3. In the **Text field**, specify the text, or any part of the text, of the alarm you want to find.
1. 4. To begin the search, activate the Find button. A search will then begin for an alarm with the attributes you specified. If an alarm that meets your filter requirements is found, it will be highlighted in the alarm list.

Alarms on the Network

When an alarm is generated in the active station, the active station informs the passive station that an alarm started. The information includes all the information which is needed to start the same alarm on the backup station.

When the passive station after receiving notification from the active station then starts the alarm using an internal API similar to Application Start Alarm.

Further changes to the alarm performed in the active station are passed to the backup station using the alarm ID and the event that occurred. (Ack/End/Class/Text changed).

When a request to start/ack/end an alarm on the passive station is made, the passive station routes the request to the active station. The passive station will show the result of the request after it receives the notification from the active station.

When the passive station starts it requests the status of all active alarms at the master station, builds the an Alarm id on active station to the Alarm id on passive station translation table and bringa the passive station to the same status.

Failure Detection and Reaction

In automatic switch backup mode the master station periodically checks the connection with the master station. The frequency of the check is user defined. To fine-tune your network go to the Utilities menu Tuning Parameters.

In case of communication test failure with the master station or in case the backup station was switched to active mode (in manual switch backup mode), the backup station broadcasts a *backup is active* message to the network.

When the remote stations receive the message they:

- Update their internal stations database with the information that the master station is now replaced by the backup station.
- Disconnect the session with the master station.
- Reconnect to the backup station.

If the local station was a client of alarms of tags on the master station it re-registers as a client for the alarms and the tags at the backup station.

Other Topics

Design / Add Object / Alarms

Select this item to define Alarms.

In the application an alarm is an internal message that provides the operator with information concerning events that occur in the field, or that are generated by the system.

Application alarms are generated whenever predefined **conditions** are true. These conditions can only be defined by the System Engineer.

After you select the Alarms item, the **Alarm Definition dialog box** will appear for you to define different alarm characteristics and properties, such as condition, target, severity, and others. Once defined, alarms will be displayed once per event in the system events summary or pop-up events summary.

In addition, to provide the operator with on-line help for alarms (such as operational instructions), alarm messages can be linked to the **Help Files**. These are ASCII files that you can create using any text editor. The files can contain any text you want, but the extension must be AHP.

Used to select an alarm user class from a list of predefined classes. Each alarm can be assigned only one class.

Alarm has been acknowledged

Alarm Cluster Definition

In the Define Cluster dialog box, click the Tags or Alarms button. A new tag/alarm with the modified original tag/alarm definition will be generated during cluster instantiation in the image. The Tag Definition dialog box is displayed. Only tags/alarms that are associated with the cluster objects will appear in the tags/alarms list and only the Change button is enabled.

1. Click the Change button to open the Tag/Alarm Specification dialog box.
2. Complete the fields in this dialog box according to instructions in the Tags and Alarms chapters.

Note: You can also access this dialog by double-clicking on a line in the list.

A logical expression or bit value that represents the condition in the alarm statement.

Alarm Condition Statement

In the **Alarm Condition** field, enter the required expression, or right-click and select one of the options (described in the **Alarm Condition Options** section below) from the popup menu.

Expressions are displayed in the **Alarm Condition** field in different colors, according to the expression type.

Red for errors

Black for operations

Blue for tag names

Alarm Condition Options

The **Alarm Condition** options consist of a list of tags, operators and functions from which you can build an expression.

When **Tag** is selected, a field box with an arrow is added to the **Alarm Condition** field. Click the arrow to the right of the field to display a dropdown list of available tags and select the required tag.

You can only add one tag at a time to the **Alarm Condition** field. Clicking anywhere in the **Alarm Condition** field removes the tag field box and enters the tag into the expression. You can also enter tags manually by first entering a @ and then the required tag name.

Numeric Operator

Selecting **Numeric Operator** displays the following options:

Option	Description
+	plus
-	minus
=	equal
/	backslash
%	percentage
Relational Operators	
Selecting Relational Operators displays the following options:	
= =	Equal
!=	Not equal
<=	Less than equal
>=	More than equal
<	Less than
>	Greater than
Logical Operator	
Selecting Logical Operator displays the following options:	
Option	Description

- AND Combines two conditions logically.
- OR Combines two conditions logically.
- NOT Negates the condition that follows it.

Function

Selecting **Function** displays the following options:

Option	Description
Log	Calculates base 10 logarithm. Syntax LOG (expression) expression>0.
Ln	Calculates natural logarithm. Syntax LN(expression) where expression > 0.
Root	Calculates square root. Syntax ROOT(expression) expression>= 0 returns the square-root of x.
Min	Calculates minimum. Syntax MIN(x,y) where both x and y are expressions returns the minimum out of the two parameters.
Max	Calculates maximum. Syntax MAX(x,y) where both x and y are expressions returns the maximum out of the two parameters.
Power	Calculates power. Syntax POWER(x, y) where both x and y are expressions returns the value of xy.
Sign	Calculates the sign. Syntax SIGN (expression) return -1 if expression<0 and 1 if expression >=0.
Floor	Calculates the floor. Syntax FLOOR(expression) return, returns a floating-point value representing the largest integer that is less than or equal to expression.
Bit	Calculates a bit. Syntax BIT(B,I) return the bit B value from the I integer value. Returns 1 if the bit B is set and 0 if the bit is reset.
Abs	Calculates absolute value. Syntax Abs (expression) returns the absolute value of expression.
Sin	Calculates sine. Syntax: SIN (expression) expression angle in radians.
Cos	Calculates cosine. Syntax: COS(expression) expression angle in radians.
Tan	Calculates tangent. Syntax: TAN(expression) expression angle in radians.

Bit Operator

Selecting **Bit Operator** displays the following options:

Option	Description
OR	Combines two conditions logically.
AND	Combines two conditions logically.
XOR	Exclusive OR.
NOT	Negates the condition that follows.

Alarm Condition

Expressions are displayed in the Alarm Condition field in different colors and according to their expression type.

Red for errors

Black for operations

Blue for correct tag names

Olive green for functions

Alarm Condition options consist of a list of tags, operators and functions from which you can build an expression.

Tag when selected a field box with an arrow is added to the Alarm Condition field.

The Alarm Condition field is divided into two when the Tag (right click on the field) option is selected from the popup menu. The upper field enables selection of the Station Name whereas the lower field enables selection of a tag from this station's tag list.

Clicking the arrow to the right of the field displays a dropdown list of available tags from which you can select the required tag. Only one tag can be added at a time to the Alarm Condition field. Clicking anywhere in the Alarm Condition field removes the tag field box and enters the tag into the expression. Tags can be written manually by first entering a @ and then the required tag name.

Numeric Operator – when selected displays the following options:

Option	Description
+	plus
-	minus
=	equal
/	backslash
%	percentage

Relational Operators – when selected displays the following options:

Option	Description
= =	Equal
!=	Not equal
<=	Less than equal
>=	More than equal
<	Less than

> Greater than

Logical Operator when selected displays the following options

Option	Description
AND	Combines two conditions logically.
OR	Combines two conditions logically.
NOT	Negates the condition that follows it.

Function - when selected displays the following options:

Function	Syntax	Description
Log	LOG(expression) where expression > 0	Calculates base 10 logarithm.
Ln	LN(expression) where expression > 0	Calculates natural logarithm.
Root	ROOT(expression) expression >= 0	Calculates square root.
Min	MIN(x,y) where both x and y are expressions.	Returns the minimum out of the two parameters.
Max	MAX(x,y) where both x and y are expressions.	Returns the maximum out of the two parameters.
Power	POWER(x, y) where both x and y are expressions.	Returns the value of xy.
Sign	SIGN(expression)	Calculates the sign. Returns -1 if expression < 0 and 1 if expression >= 0.
Floor	FLOOR(expression)	Calculates the floor. Returns a floating- point value representing the largest integer that is less than or equal to expression.
Bit	BIT(B,@tagname) where B is bit number and @tagname is a tag value	Alarm is on when BIT is true value="1"
Abs	Abs (expression)	Calculates absolute value. Returns the absolute value of expression.
Sin	SIN(expression) where expression angle is in radians.	Calculates sine.
Cos	COS(expression) where expression angle is in radians	Calculates cosine.
Tan	TAN(expression) where expression angle is in radians.	Calculates tangent.
ROC		Process values that change too quickly. If a process value fluctuates by more than

	the rate of change limit in the given time interval, the tag generates the alarm. The rate is given in percentage per unit of time.
Deviation (%)	Process values that change from the optimum value. Deviation alarms require a definition of a target value and range. If the process value exceeds the range, a deviation alarm occurs. For example, if the optimum value is 100 and the range (deadband) is +/-5 the process can vary from 95 to 105 without generating an alarm. The deadband is given by percentage of the value.
Deviation_F (Fixed)	Process values that change from the optimum value. Deviation alarms require a definition of a target value and range. If the process value exceeds the range, a deviation alarm occurs. For example, if the optimum value is 100 and the range (deadband) is +/-5 the process can vary from 95 to 105 without generating an alarm. The deadband is given by a constant value of the value.

Bit Operator – when selected displays the following options:

Option	Description
OR	Combines two conditions logically.
AND	Combines two conditions logically.
XOR	Exclusive OR.
NOT	Negates the condition that follows.

Press this button to enter the browser dialog box which enables you to choose and locate the AHP file name

Alarms can be limited to a single station or distributed among several Application stations. Alarms are distributed to several stations using Application network support facilities. By default the alarm appears only on the station used by the operator.

Used to specify a tag for which the alarm is to be issued.

To test the alarm condition, select the Value field

Used to define a logical operator or bit value that represents the condition in the alarm statement.

Alarms Definition

Alarms are defined in the Application Studio. After defining an alarm, you can assign a name to alarm classes, as described below.

Click the Alarms icon in the Application Studio toolbar

Or,

In the All Containers pane of the Application Studio, right-click Alarms and then select Add Alarm from the popup menu. The Alarm Definition dialog box opens.

This dialog box has two tabs:

General - where general alarm properties such as Alarm Condition, Alarm Text, Zone, Family, Target, Attributes and Delay are defined.

Action on Alarm - where actions such as, Go to Zone, Execute Macro on Alarm and AAM Configuration are defined.

General Tab

This tab is used to define general alarm properties.

Alarm Condition This field defines the alarm conditions.

Alarm Text This field when completed shows a description of the alarm. An alarm message can include tokens.

Family Specifies the name of the group to which the alarm belongs. The name can consist of up to 64 characters and is the link to alarm objects. It is also used for classification and filtering.

Help File Specifies the name of the Help file that contains information for the operator. For more details about creating alarm help files, refer to the section on Alarm Help Files.

Zone You can enter a zone area from 0 to 50,000. This value is used to classify and filter alarms in the Events Summary and application popup windows.

Severity Specifies the priority order of each alarm. For example, a low priority could be 0 and a high priority, 50,000). It is also used for classification and filtering.

User Fields These are customized fields that are defined by the user according to their specific requirements. User fields enable additional alarm filtering. There are five User Fields.

Groups This option is used to assign authorized users and groups of users to the alarm. Alarm recipients can handle the alarm according to user authorization.

Inhibition by Tag Inhibit if a specific tag receives a specific value.

Inhibit Immediate This checkbox when checked means inhibit this alarm immediately.

Targets Specifies the alarm destination. The following options are available:

Default Printer: The alarm message is sent to the printer defined as the alarms printer.

Events Summary: The alarm is displayed in the Events Summary.

Popup: The alarm is displayed in a Popup window.

Popup buzz: The alarm is displayed in a Popup Events Summary that will buzz when the alarm is displayed. If you do not select this option, the Popup Events Summary will not buzz when the alarm is displayed even if it was defined to do so in the PopUp Buzz dialog box.

User class: Enables you to identify an alarm and to classify it online and in historical

Events Summaries. Select this option and click on the arrow on the right of the field to select an alarm user class from a drop-down list of predefined classes. Each alarm can be assigned only one class.

Attributes The alarm operational attributes include the following:

System Wide: Alarms can be limited to a single station or distributed among several application stations using application network support facilities.

If this option is selected, the alarm will be distributed to other stations in the network. It can be acknowledged from any station across the network. By default, alarms appear only on the station used by the operator.

Auto Acknowledge: The system automatically acknowledges alarms (as they occur) as if already acknowledged by the operator.

Auto END: The system automatically ends alarms (after they occur) as if the condition that caused the alarm to be generated has already terminated.

Class at Acknowledge: Enables you to re-assign a User Class property to the alarm when the alarm is acknowledged. This means that you can change the routing of an alarm upon its acknowledgment.

Record to File: Records the alarm in the alarm's history file.

Discard: Discards active alarms when the application is terminated.

Exclude from Printing: If this option is selected the alarm will not be printed.

Auto Print AHP File: Help files with the AHP suffix can also be printed. A help file in HTML format is printed manually according to user demand. An alarm line and its AHP file are printed as a set where the AHP file appears directly under the alarm. When working in a network configuration and an alarm with an AHP file attached is sent to another station this alarm will be printed in the far station only when the AHP file is located in the far station.

Note: If an alarm is defined with both the Auto Acknowledged and Auto End options, it will be considered inactive and will not be displayed in the Events Summary.

Delay Delay intervals can be defined during which time alarms will not be generated. There are three options defining when the alarm will be reset:

Condition is false: Alarms will not be generated when the alarm condition is false (within the time delay).

Delay time ends: If the alarm condition is True, at the end of the defined time delay alarms will be generated. This is without taking into consideration changes in alarm status during the delay period.

Never: The delay feature will not be imposed.

Note: The default is Never.

Alarms Overview

Alarm has been terminated.

Alarm Export

The Export Alarms option enables you to generate a list of alarms in ASCII or CSV format and send the list to the printer or a file. The generated list can also be filtered to include only specific alarms. Alarm lists can be generated and then edited using a text editor. Once generated, the list can be printed for project documentation. This is useful in large projects, where thousands of alarms must be defined. In this case, working with a text editor is faster than defining each alarm separately.

In the All Containers section of the Application Studio, right-click Alarms and select Export Alarms from the popup menu. The Alarm List dialog appears:

The dialog box contains filter options that you can select to determine which alarms will appear in the list that you want to generate. Each filter field is optional (except for the filename in the List Target field, which must be specified if you select the File option).

The following options are available:

No. Specifies the range of numbers of the alarms that you want to appear in the generated list.

Tag Name Specifies the name, or name prefix range of the tags associated with the alarms that you want to appear in the generated list.

Family Specifies the name or prefix of the family to which the alarm belongs that you want to appear in the generated list.

Severity The severity range of the alarms that you want to appear in the generated list.

Zone The zone range of the alarms that you want to appear in the generated list.

Targets The target specifications of the alarms that you want to appear in the generated list (any, none, or all can be selected).

User Class Activate this button to select classes to filter the alarms that will appear in the generated list. After you activate this button, the Set User Class dialog box appears: You can select one or more classes, so that only the alarms that belong to the classes will appear in the generated list. Activate the Set All button to select all the classes. Activate the Reset All button to deselect all the classes.

Attributes The attribute specifications of the alarms that you want to appear in the generated list. You may select any attribute, all of the attributes, or none at all.

List Target Specifies the target destination of the list to be generated: Printer or File (.ALS). You can select Printer to send the list to the printer, or File (.ALS) to save the list in a file with the extension .ALS. For File (.ALS), specify the name of the file without the extension. The file will be located in the application directory specified in the Set Default Paths dialog box.

After you complete the dialog box and activate the OK button, an alarm list will be generated according to the filter you specified.

Alarm Modify

This option enables you to Modify the alarm definition.

To modify the alarms definition:

1. Select an alarm from the List alarms
2. Right Click the alarm and select the **Modify** option from the pop-up menu.

OR

Double click a selected alarm.

Check this button if you don't wish an Alarm to keep on generating on the screen.

The text you insert will be printed at the system insertion.

The message you insert will be printed at system departure.

This parameter contains the escape sequence sent to printer before each alarm. In this line you can type a value that will represents an ASCII escape code used to instruct your printer to condense the alarm text.

If you check this option the alarms will be printed in two lines. The first line will contain the WIZPRO title, time stamp, etc. The second line will contain the alarm text.

Use this option to select between four different alarm time formats for the Alarm printer. The possible options are:

Day+Time Day in month and time

Date+Time Full date and time.

Date+Time +Milliseconds Full date plus Time plus Milliseconds

Day+Time+Milliseconds Day in month plus Time plus Milliseconds.

Alarm Properties Hotbackup Tab

This is a system filter used when an application that has master backup is run.

Note: Restart for changes to take effect.

Alarm Properties Diskfull Tab

This is a system filter that defines when and how an alarm is sent when the computer disk is xxx full.

Alarm Properties Network Communication Error Tab

This is a system filter that defines backup during network communications failure.

The VPI Communication Errors tab is a system filter used to communicate with other drivers.

Alarm Properties - ODBC communication errors

When you define a tag, you can choose to write the tag history to an ODBC data source.

This dialog box allows you to define the properties of an alarm that is issued when a communication error occurs with this data source.

Note that when the communication error occurs, tag history will be logged to a sub folder in the application folder, when the communication is restored, the ODBC database will be updated with the data that was missed.

Alarm Properties Tag Lock Tab

This dialog box is used to define that a tag is locked when an alarm is issued.

The default values (2) for Zone and Severity are assigned. A default family name (Taglock) is assigned.

The parameters of the alarm are tuneable however the following parameters are default:

System Wide

Auto Acknowledge

Record to File

Default Printer

Alarm text always holds the specific locked tag's name. After the tag is unlocked the alarm ends.

Alarm Properties User Login Tab

This is a system filter used to define how and where an alarm issued during user login/logout is written to.

Alarm Properties VPI Communication Error Tab

This is a system filter used to communicate with other drivers.

Alarm Property

Use this option to define the Alarm tuning parameters.

The alarm operational attribute include the following:

System Wide Alarms can be limited to a single station or distributed among several application stations. Alarms are distributed to several stations using application network support facilities. By default the alarm appears only on the station used by the operator.

Auto ACK If this option is selected, alarms will be issued as if already acknowledged by the operator.

Auto END If This option is selected, alarms will be issued as if the condition that caused the alarm to be generated was already terminated.

Discard If this option is selected, active alarms will be discarded when the application is terminated.

Class at ACK If this option is selected, it will be possible to re assign a User Class property to the alarm when the alarm is acknowledged.

This means that you can use this option to change the routing of an alarm upon it acknowledgement.

Record to file If this option is selected, the alarm will be recorded in the alarm history file.

This option enables you to choose the alarm destination (printer, events summary, pop-up events summary...)

Insert the name of the family to which the alarm belongs.

Insert the name of the file that contains alarm help information for the operator

Insert the Alarm severity level from 0 (lowest level) to 50,000(highest level). The severity level value is used to determine the priority order of each alarm.

Insert the alarm message, which can include token.

A Zone is a specific area in an application image marked for navigational purposes. Once defined zones can be used in go to and macro operations, to cause specific image sections to fill the image area of the window immediately.

Zones are defined by selecting the Zones definition item from the Options menu in the image window.

Insert the Alarm zone number from 0 to 50,000. This value is used to classify and filter alarms events summary windows and application pop-up windows.

Alarm has been started.

Alarm Status Names

This optional feature is used to define the name of the alarm status. Names can hold up to 20 characters. When status names are not defined the default names ALARMSTATUS 0 and ALARMSTATUS1 are used by default.

Alarm Text

The alarm text can include the following tokens:

@tagname Replaces @tagname with the current tag value when the alarm is started.

@!tagname Replaces @!tagname with the value of the tag that is force read from the PLC when the alarm is started.

@#tagname Replaces @#tagname with the value retrieved from the block to which the tag belongs, if the block is fresh. If the tag does not belong to a block, the @# control will function the same as @!.

Note: The above three tagname tokens must be typed in lower case letters. Otherwise the system will not recognize them.

\$TIME The current time in Hours.Minutes.Seconds format. The value range is from 00.00.00 to 23.59.59.

\$DATE The current date in Day.Month.Year format. The value range is from 01.01.00 to 31.12.99.

\$HOUR The current hour. The value range is from 0 to 23.

\$MINUTE The current minute. The value range is from 0 to 59.

\$SECOND The current second. The value range is from 0 to 59.

\$DAY The current day. The value range is from 1 to 31.

\$MONTH The current month. The value range is from 1 to 12.

\$YEAR The current year. The value range is from 00 to 99.

\$WEEKDAY The current day of the week. The value range is from 1 to 7, where 1 is Sunday and 7 is Saturday.

\$OPERATOR The current operator name. The value is a string that represents the operator name.

\$GROUP The groups associated with the current operator.

\$INTIME The number of minutes that passed since midnight. The value is used for tag comparison and definition. The value range is from 1 to 1439.

\$INDATE The number of days that passed since January 1, 1980. The value is used for tag comparison and definition. The value range is from 0 and on.

Alarm Token

Used as defined signs to be used in the Alarm text.

The Alarm text can include the following tokens:

@tagname Replaces @tagname with the current tag value when the alarm is started.

@!tagname Replace @!tagname with the value of the tag that is force read from the PLC when the alarms is started.

@#tagname Replaces @#tagname with the value retrieved from the block to which the tag belongs, if the block is fresh. If the tag does not belong to a block, the @# control will function the same as @!.

\$TIME The current time in Hours.Minutes.Seconds format.

\$DATE The current data in Day.Month.Year format.

\$HOUR The current hour.

\$MINUTE The current minute.

\$SECOND The current second.

\$DAY The current day.

\$MONTH The current month.

\$YEAR The current year.

\$WEEKDAY The current day of the week.

\$OPERATOR The current operator name. The value is a string that represents the operator.

\$GROUP The groups associated with the current operator.

\$INTIME The number of minutes that passed since midnight.

\$INDATE The number of days that passed since January 1, 1980.

Alarm User Fields

These are customized fields that are defined by the user in the Alarms Definition dialog box according to their specific requirements. User fields enable additional alarm filtering. There are five User Fields available. User Field names can also be modified in the Application and in the alarm report definition dialog box.

The Alarm Viewer is an application module used to display online and historical alarms. Several operations (such as acknowledge) can be performed on the alarms displayed in the events summary. Events Summary appears in the events summary window, which are invoked by selecting the Events Summary item from the Studio Menu. In addition to the events summary window, a **pop-up events summary** can also be defined to appear on the screen immediately, whenever severe alarms occur.

Alarms on the Network

When an alarm is generated in the active station, the active station informs the passive station that an alarm started. The information includes all the information which is needed to start the same alarm on the backup station.

When the passive station after receiving notification from the active station then starts the alarm using an internal API similar to Application Start Alarm.

Further changes to the alarm performed in the active station are passed to the backup station using the alarm ID and the event that occurred. (Ack/End/Class/Text changed).

When a request to start/ack/end an alarm on the passive station is made, the passive station routes the request to the active station. The passive station will show the result of the request after it receives the notification from the active station.

When the passive station starts it requests the status of all active alarms at the master station, builds the an Alarm id on active station to the Alarm id on passive station translation table and bringa the passive station to the same status.

Failure Detection and Reaction

In automatic switch backup mode the master station periodically checks the connection with the master station. The frequency of the check is user defined. To fine-tune your network go to the Utilities menu Tuning Parameters.

In case of communication test failure with the master station or in case the backup station was switched to active mode (in manual switch backup mode), the backup station broadcasts a *backup is active* message to the network.

When the remote stations receive the message they:

- Update their internal stations database with the information that the master station is now replaced by the backup station.
- Disconnect the session with the master station.
- Reconnect to the backup station.

If the local station was a client of alarms of tags on the master station it re-registers as a client for the alarms and the tags at the backup station.

Alarms - Overview

Alarms are application messages used to notify operators about exceptional conditions in the plant. Application alarms can be displayed in the Events Summary window or pop-up window. Using these windows, operators can examine and handle numerous alarms by filtering and sorting them.

Alarms are generated whenever pre-defined conditions exist. Only the system engineer can define alarm conditions.

To provide the operator with online help (such as operational instructions) when an alarm occurs, alarm messages can be linked to help files.

A feature in the application enables you to associate image objects with alarms. Alarm objects in images react to the conditions of the alarm with which they are associated.

Application alarms can be displayed in a hierarchical tree in which an alarm has a parent, child and sibling relations with other alarms. The alarm hierarchic tree is built up of Levels to which alarms can be attached. A level definition can override subordinate levels and alarms defined in these levels.

Alarms and Levels can be initiated:

1. 1. Through the **Alarms Object** located in the **Containers tree**. Right click the Alarms object (selection is observed by shading the chosen item blue).
1. 2. Click the Add Alarm or Add Level option.

Alarms can be added through the Design Menu

1. 1. Click the Design Menu
1. 2. Select Alarm from the Add Object menu.

There are two ways to display a list of all the Alarm objects:

1. 1. Click the Alarm object from the Containers tree. As a result a list of all Alarms is displayed. Each Alarm is described by the following parameters: Tag name, Condition, Text, Family, Zone and severity.

OR

1. 1. Click the Alarm object from the Containers tree
1. 2. Move with the mouse to the **List Zone** area and press the right mouse button.
1. 3. As a result the option of "Duplicate view" will be shown, choose this option.

To set the order of fields to be displayed in the Events Summarys list:

1. 1. Click the Events Summary file from the Containers tree
1. 2. Move with the mouse to the List Zone area and press the right mouse button.
1. 3. As a result the option of "View Setting" will show, choose this option and start the editing.

Defining Alarms

Defining Levels

If this option is selected, alarms will be issued as if already acknowledged by the operator.

If This option is selected, alarms will be issued as if the condition that caused the alarm to be generated was already terminated.

Auto Restart after an illegal shutdown

Select this option if you want the application to automatically recover the last state after a crash (power failure, etc.).

Default: No

If this option is selected, it will be possible to reassign a User Class property to the alarm when the alarm is acknowledged.

This means that you can use this option to change the routing of an alarm upon it acknowledgement.

Building an Application

Building Applications

To build an application follow the steps described below:

Step 1.

Install the application on your development station.

It is recommended to install an application to a folder named **Application** located under the root of your drive.

The Installation utility automatically initializes an empty Application project in the PROJECT directory under your main Application directory.

Your web application folder for this application is at the **DOCS** folder under that directory (ApplicationET\PROJECT\DOCS).

Step 2

Start Application Studio.

Click the Windows Start button, and then select Programs, Application, Application application studio appears.

Step 3

Define **Tags** and **Alarms**.

For help on how to define tags and alarms please see **Application's on-line help**.

Step 4

Optional, define Application Language program.

Step 5

Draw Images.

Draw the graphical representation of your process by using the application's Image Editor. To create a new Image, select the Images folder on your Project tree. Right click in the List of Images and area and select New... For additional help on how to draw your image using the application's Image editor and Cluster libraries please see Application's online help.

When you Save your Image, each zone that you defined in the image is automatically saved in a separate file in Application Picture format (WNP extension), in your pictures' directory of your Web application.

Pictures' file name is made from the image name concatenated with the zone name.

The current view is also saved as a Picture with the same name as the image name. The current zone and currently selected layer and scale designate this picture.

Later, when you build your HTML file, you can select one of the pictures as the first to appear, by using the Visualizer.

You can set web application directories through the Web Application properties by right clicking on the Web application folder in the studio tree.

Design / Class Names

Note: Not supported on the Web.

Select the **Class Names** item to assign class names for alarms.

Class names are assigned to alarms for filter purposes.

Any alarm class name you define, can be used later to filter alarms in the Events Summary or Pop-up Events Summary window.

After you select this item, the Alarm **User Class Names** dialog box will appear for you to enter the class names.

Cluster Alarm definition

In this dialog box you can change the definition of existing alarms and generate and use filter alarm lists.

List Export alarm definition into an ASCII file according to the specified filter.

Change Changes the definition of an existing alarm.

Columns

You can define which of the alarms content fields will be displayed in the Events Summary and in the Popup Event Summary windows.

To define the alarm columns

1. 1. Check the alarm columns you want to display. A check mark to the left of the field indicates that this field will be displayed.
 1. 2. The selected fields are displayed from left to right, meaning that the topmost field in this list will be displayed in the leftmost part of the window.
 1. 3. You can define the order in which the selected fields will be displayed:
 1. 4. Select the field you want to relocate. Click on the Move Up / Move Down buttons to place the selected field in the desired location.
 1. 5. To reset the columns to the default configuration, click the Default button. This will check the Start Time and the Zone fields only.
-

Correct Syntax Errors

This dialog box appears if you indicate that you want to correct an error that was detected in the alarm or tag list file.

In this box, enter the correction to the error. For example, if the error is a non-existing tag or alarm, delete the tag or alarm and type a valid tag or alarm name in its place.

Delete Alarm

Chapter 15 Alarms

This option enables you to delete the selected alarm.

To delete an Alarm:

1. Select (highlight) an alarm from the alarms list
 2. Click your mouse right button and choose the Delete option form the Pop up menu.
-

If this option is selected, active alarms will be discarded when the application is terminated

Export / Alarm

Use this dialog box to set filter conditions so that only specific tags will appear in the generated tag list.

Find Alarm

In this dialog box, you can enter a value for any of the fields (a value for each field is not necessary) to activate a search.

1. 1. In the **Tag Name** field, specify the name, or partial name, of the tag associated with the alarm you want to find. The characters that you enter will be the prefix of the name for which the application will search.

1. 2. In the **Family field**, specify the family name, or partial family name (assigned to the alarm when it was defined), of the alarm you want to find. The characters that you enter will be the prefix of the family for which the Application will search.
 1. 3. In the **Text field**, specify the text, or any part of the text, of the alarm you want to find.
 1. 4. To begin the search, activate the Find button. A search will then begin for an alarm with the attributes you specified. If an alarm that meets your filter requirements is found, it will be highlighted in the alarm list.
-

Import Alarms

This option is used to import an Alarm List file into the system.

1. From the *Tools* menu of the Application Studio, select **Import** and then **Alarms**. The *Open Alarm file for Import* dialog is displayed.
 2. In the **Files of type** field, select the type of file you want to import. You can choose between **CSV** and **ALS**. Locate the file you want to import and click **Open**. The *Import Mode* dialog is displayed.
 3. Click **Replace** to replace the alarms in the alarm list with the imported alarm, **Append** to add the specified alarm to the alarm list, or **Cancel** to cancel the import.
-

Alarm Properties General Tab

This dialog box has the following tabs:

General where the message that appears when a user logs in and out is defined. This message can by default be acknowledged and ended and be viewed in the Events Summary and History. Alarms can also be ended by the user by using the User Defined status feature.

Time Format where the time and date format of the message is defined.

Hotbackup used when an application that has master backup is run.

Network Communications used during network communications failure.

VPI Communication Error used during communication failure between the application and communication drivers.

User Login defines how and where an alarm issued during user login/logout is written to.

Wil Diskfull defines when and how an alarm is sent when the computer disk is xxx full.

Tag Lock defines that a tag is locked when an alarm is issued.

The following options are available:

Avoid generating alarms using tag set values on system startup

When this is checked no alarms using tag set values are generated during system startup.

Avoid generating new alarms Specifies that logins and logouts are not logged. Restart the application for changes to take effect.

Login Alarm Text Specifies the text you want to appear when a user logs in. This change can be implemented online.

Logout Alarm Text Specifies the text you want to appear when a user logs out. This change can be implemented online.

Allow user defined status This feature is optional. Names are limited to hold up to 20 characters. Check this option to enable the user to define alarm states.

Status names This feature is optional. Alarm states are given in the States.dat file in the application's directory. When the application is loaded this file is read and information in it is used where applicable. Status names are local and therefore are not transferred to other stations. Alarm messages, however are transferred to other stations where they can be handled. You can move an alarm to another user-defined status only if it has not already been acknowledged. However, if the alarm has been moved to another status it cannot be moved back to its previous status. If the user has already been authorized to acknowledge an alarm further authorization is not required when alarm status appear.

Notes:

If no names are defined then the default names AlarmStatus0 and AlarmStatus1 are given.

If in the Alarm Properties dialog box Allow User Defined Status is not checked then none of these column options are available.

The default status names are language dependant.

Alarm Properties Time format

In this dialog box the user can define the Alarm time format.

This page is used to select between four different alarm time formats for the Alarm printer. The possible options are:

Day+Time - Day in month and time.

Date+Time- Full date and time.

Date+Time +Milliseconds - Full date plus Time plus Milliseconds

Day+Time+Milliseconds - Day in month plus Time plus Milliseconds.

Note After defining the time format, make sure to restart the Application.

Tools / Find / Alarm

The application enables you to locate alarms in the List of Alarms in the Application Studio. This is especially useful if you have an application with many alarms.

1. Click anywhere in the List of Alarms and select **Find** from the *Tools* menu. The *Find Alarm* dialog is displayed:
 2. Enter the alarm text in the **Alarm Text** field.
 3. Enter the alarm family in the **Family** field.
 4. Select the condition(s) by which you want to conduct the search in the **Conditions** area. You can choose between **Alarm Text**, **Family name** or **Both**.
 5. Click **Find**. The alarm is located in the List of Alarms.
 6. Click **Exit** or anywhere in the Application Studio outside the List of Alarms to close the dialog.
-

The alarm severity level form 0 (lowest level) to 50,000 (highest level). The severity level value is used to determine the priority order of each alarm.

Levels Definition

Alarms can be defined according to hierarchy. Each alarm can be defined at a different level in the hierarchical tree. Levels can be modified, added or deleted. Level definition contains most of the parameters used by alarm definition so that when one alarm level is defined and then modified its sub-levels also receive the same modifications. Alarm hierarchy is defined and viewed in the All Containers tree.

To add a level:

In the All Containers pane right click Alarms. From the dropdown menu select Add Level. The Alarm Level Definition dialog box opens.

This dialog box has the following fields and options:

Level Name Where the name of the level can be typed in. A level name can hold up to 235 characters.

Parent Level Full Name: This is the path of the alarm's level and is automatically generated by the application.

Family Specifies the name of the group to which the alarm belongs. The name can consist of up to 16 characters and is the link to alarm objects. It is also used for classification and filtering.

Help File Specifies the name of the Help file that contains information for the operator. For more details about creating alarm help files, refer to the section on Alarm Help Files.

Zone You can enter a zone area from 0 to 50,000. This value is used to classify and filter alarms in the Events Summary and application popup windows.

Severity Specifies the priority order of each alarm. For example, a low priority could be 0 and a high priority, 50,000). It is also used for classification and filtering.

Groups This option is used to assign authorized users and groups of users to the alarm. Alarm recipients can handle the alarm according to user authorization.

User Fields These are customized fields that are defined by the user according to their specific requirements. User fields enable additional alarm filtering. There are five User Fields.

Targets Specifies the alarm destination. The following options are available:

Default Printer: The alarm message is sent to the printer defined as the alarms printer.

Events Summary: The alarm is displayed in the Events Summary.

Popup: The alarm is displayed in a Popup window.

Popup buzz: The alarm is displayed in a Popup Events Summary that will buzz when the alarm is displayed. If you do not select this option, the Popup Events Summary will not buzz when the alarm is displayed even if it was defined to do so in the PopUp Buzz dialog box.

User class: Enables you to identify an alarm and to classify it online and in historical Events Summaries. Select this option and click on the arrow on the right of the field to select an alarm user class from a drop-down list of predefined classes. Each alarm can be assigned only one class.

Attributes The alarm operational attributes include the following:

System Wide: Alarms can be limited to a single station or distributed among several application stations using application network support facilities.

If this option is selected, the alarm will be distributed to other stations in the network. It can be acknowledged from any station across the network. By default, alarms appear only on the station used by the operator.

Auto Acknowledge: The system automatically acknowledges alarms (as they occur) as if already acknowledged by the operator.

Auto END: The system automatically ends alarms (after they occur) as if the condition that caused the alarm to be generated has already terminated.

Class at Acknowledge: Enables you to re-assign a User Class property to the alarm when the alarm is acknowledged. This means that you can change the routing of an alarm upon its acknowledgment.

Record to File: Records the alarm in the alarm's history file.

Discard: Discards active alarms when the application is terminated.

Exclude from Printing: If this option is selected the alarm will not be printed.

Inhibit: If this option is selected, the alarm will not be generated, even if the alarm conditions are true. This enables the operator to de-activate an alarm temporarily and then reactivate it. Alarms can be inhibited in the Events Summary during runtime.

Auto Print AHP File: Help files with the AHP suffix can also be printed. A help file in HTML format is printed manually according to user demand. An alarm line and its AHP file are printed as a set where the AHP file appears directly under the alarm. When working in a network configuration and an alarm with an AHP file attached is sent to another station this alarm will be printed in the far station only when the AHP file is located in the far station.

If an alarm is defined with both the Auto Acknowledged and Auto End options, it will be considered inactive and will not be displayed in the Events Summary.

Delay Delay intervals can be defined during which time alarms will not be generated. There are three options defining when the alarm will be reset:

Condition is false: Alarms will not be generated when the alarm condition is false (within the time delay).

Delay time ends: If the alarm condition is True, at the end of the defined time delay alarms will be generated. This is without taking into consideration changes in alarm status during the delay period.

Never: The delay feature will not be imposed. The default is Never.

Modify This field has the following options:

Change where you can select either;

Current level only

Current level and sublevels

Including alarms when this is checked the changes defined in this dialog box will apply to the alarms also.

Override where you can select either:

All properties

Changes only

To delete a level:

1. 1. In the All Containers pane right click Alarms and select Delete Level from the dropdown menu. A message box opens on your screen.
1. 2. Click Yes to delete the alarm level. The alarm level will be removed from the list.

Locating Alarms

The Application enables you to locate alarms in the List of Alarms in the Application Studio. This is especially useful if you have an application with many alarms.

1. Click anywhere in the List of Alarms and select **Find** from the *Tools* menu. The *Find Alarm* dialog is displayed:
 2. Enter the alarm text in the **Alarm Text** field.
 3. Enter the alarm family in the **Family** field.
 4. Select the condition(s) by which you want to conduct the search in the **Conditions** area. You can choose between **Alarm Text**, **Family name** or **Both**.
 5. Click **Find**. The alarm is located in the List of Alarms.
 6. Click **Exit** or anywhere in the Application Studio outside the List of Alarms to close the dialog.
-

A Predefined Alarms

Application predefined alarms are alarms generated by the Application without user intervention, in special situations. All these alarms have no interface.

Below is a list of such alarms, descriptions of the situation for generation and values of different alarm attributes for each of them.

Network communication error

Alarm text: *"Communication error with station StationName"*

Generating condition: Alarm generated on Application network station when communication error is detected with another Application network station.

Application module generating alarm - WIZpro

Alarm symbolic name in Application - "COMMERR"

Severity – 99

Zone – 99

Class (target) – events summary, popup, alarm printer

History - No

System Wide - No

Network alarms notification

Alarm text: *"All alarms from station StationName are uncertain."*

Generating condition: Alarm generated on one Application network station which is a client of another Application network station's alarms that is down.

Application module generating alarm - WIZpro

Alarm symbolic name in Application - "COMMERR"

Severity – 99

Zone – 99

Class (target) – events summary, popup, alarm printer

History - No

System Wide - No

Communication error with PLC (VPI)

Alarm text – *"Communication Error: VPI VpiName station StationName"*

Generating condition: Alarm generated on an Application station when communication error with PLC is detected.

Application module generating alarm - WIZpro

Alarm symbolic name in Application - "COMMERR"

Severity – 99

Zone – 99

Class (target) – events summary, popup, alarm printer

History - Yes

System Wide – No

Hot backup

Alarm text – *"Backup of StationName is active."*

Generating condition: Alarm generated on Application backup station when detected communication error with master station (master is down) and Application backup station replaces the master.

Application module generating alarm - WIZpro

Alarm symbolic name in Application - "HOTBACKUP"

Severity – 99

Zone – 99

Class (target) – events summary, alarm printer

History - No

System wide - Yes

Evaluation Plug Model

Alarm text – *"WIZpro shutdown in 5 minutes."*

Generating condition: Alarm generated on Application station when used evaluation plug model and evaluation plug working time (2 hours) will elapse in 5 minutes.

Application module generating alarm - WIZpro

Alarm symbolic name in Application - "PLUG"

Severity – 99

Zone – 99

Class (target) – events summary, popup, alarm printer

History - Yes

System Wide - No

Login / Logout alarms

Alarm text – Text defined in *"Login Alarm Text"* or *"Logout Alarm Text"* (depends on alarm)

Generating condition: Alarm generated on Application user login and logout according to setting in Objects / Alarms / Properties / General . If nothing set in "Login Alarm Text" or "Logout Alarm Text", corresponding alarm is not generated.

Application module generating alarm – Application STUDIO

Alarm symbolic name in Application - "LOGIN_TEXT" or "LOGOUT_TEXT" (according to situation)

Severity – 1

Zone – 1

Class (target) –alarm printer

History - Yes

System Wide - No

Application language alarm - Disk Full:

Alarm text –*"Station StationName: Disk DiskName Percent% full. Backup or delete files"*

Generating condition: Alarm generated when disk is 5% full every hour. When 9 % of disk capacity is reached, alarm history files deleting attempt will be performed.

Application module generating alarm – Application Language

Alarm symbolic name in Application - "WIZWIL"

Severity – 10

Zone – 0

Class (target) – depend on Application Language settings

History - Yes

System Wide - No

If this option is selected, the alarm will be recorded in the alarm history file.

Design/ User Class

Definition

In this dialog box, you can define alarm classes.

This option is used to assign user-defined name for alarms classes. Alarm classes can be used to categorize alarms to identify them more easily and to filter them in the system Events Summary. Alarm classes are used by the events summary to filter and display alarms. The classes are numbered from 1 to 16.

To **change** the default name of a class, simply delete the name (using the Delete or Backspace key), and type the name that you want.

After you define the classes, they can be assigned to alarms by activating the User Class combo box in the **Alarm Definition** dialog box.

To define classes for alarms

Select the Class Names item from the Design Menu.

In this dialog box, select a class and activate the OK button.

To cause no class to be selected, activate the Reset All button.

Note that each class that appears in this dialog box was defined by the operator in the User Class Definition procedure.

Chapter 16 Alarm Filters, Printers & Printer Targets

Overview.....	545
Alarm Filters.....	546
Printers.....	547
Printer Targets	547
Workflow	549
Defining Printers	550
Defining Printers	551
General Tab	552
Alarm Properties Tab	553
Colors Tab	555
Line Printing Tab	556
Defining Alarm Filters	557
Defining Alarm Filters.....	558
Selecting Alarm Filters	560
General Tab	560
Network Tab.....	563
Counters Tab	564
Defining Printer Targets.....	565
Other Topics	568

About this chapter:

This chapter describes Alarm filters, Printers and Printer Targets and how to configure them as follows:

Overview describes Alarm filters, Printers and Printer Targets and their functionality in the system program.

Defining Printers describes how to define printers and their various functions.

Defining Alarm Filters describes alarm filters and their functionality in the program and how to define their different parameters.

Defining Printer Targets describes printer targets and their functions in the program.

Overview

Alarm Filters

The Alarm Filter applies on alarms before they are printed out or written to the **Event Summaries**. Alarm filters are displayed in the Alarm Filters table and defined or modified in the Filter Properties dialog box. Filter properties can be updated, however the name of a filter cannot be changed.

The Alarm Filter applies on the alarms sent when parameters defined in tag variants are not met.

All the alarms which went through the alarm filter, are sent to the related Printers defined in the Printer Targets module. **See Defining Alarm Filters.**

Alarm Filters Manager - Overview

The Alarm Filter filters alarms and reports before they are printed out or written to the Events Summary.

Alarm filters are displayed in the Alarm Filters table and defined or modified in the Filter Properties dialog box.

Filter properties can be updated, however the name of a filter cannot be changed. The Alarm Filter filters the alarms sent when parameters defined in tag variants are not met. After alarms and reports outside the defined categories have been filtered out by the Alarms Filter, the remaining alarms are sent to the Printers defined in the Printer Targets module.

Add an alarm filter

Define the alarm filter's properties

Select Alarm Filters

Printers

The Printers dialog box enables enhanced printing capabilities. Each printer added to a system can be set to print reports, alarms or both. In addition a definition can be made where many alarms are printed on a full page or whether only one alarm is printed on each page. Page orientation and font can also be defined. Alarm properties that are printed can also be set together with different colors, text and background. **See Defining Printers.**

Printer Targets

A Printer Target is a collection of predefined filters and printers specifying the conditions under which the targeted printer is activated.

The Printer Target dialog box holds a list of all the printer targets that have been defined. Each printer target is identified by a unique name and description. **See Defining Printer Targets.**

Printer Targets Overview

A printer target is a collection of pre-defined filters and printers, specifying the conditions under which a target printer will be activated.

The Printer Targets dialog box contains a list of all the printer targets you defined. Each printer target is identified by a unique name and description.

To load a target printer

1. Select the printer you want to load.
2. Click the Load button. A check mark to the left of the printer indicates that the printer is loaded.

Or,

Select the checkbox on the left of the printer you wish to load.

To unload a target printer

1. Select the printer you want to unload.
2. Click the Unload button.

Or,

Uncheck the checkbox on the left of the printer you wish to unload.

When a printer target is loaded and an alarm that meets the filter criterion is generated, the alarm will be sent automatically to the printer defined for printing alarms.

Adding a Printer Target

Printers Overview

Using the Print dialog box you can specify the printers that will be used for the different types of printing tasks, and to define the various printing parameters, such as orientation and font. The different types of files generated the application for alarms and reports may be sent to different types of printers. To use several printers, you have to specify which printers are active using the **Printer Targets** definitions.

General Properties

Printing Source

Select what files will be printed by the selected printer:

- **Reports** - the printer will be used to print reports.
- **Alarms** - the printer will be used to print on-line alarms and events.

Alarm Print Options

- **Full page** - the printer will print a full page.

- **One alarm per page** - the printer will print one alarm on each page.
- **Line printing** - the printer will strike the paper a line at a time. This option is used with dot-matrix and inkjet printers, additional parameters are defined in the **Line Printing tab**.

Orientation

Select the page orientation: Portrait or Landscape.

Font

Select the font you wish to use in your printouts.

Alarm Properties

Select and organize the fields (columns) that will be displayed in your alarm printouts.

Colors

Define printouts text and background colors.

Workflow

This section describes the order of the steps required for defining Printers, Alarm Filters and Printers Targets.

Define tags	Tags definition.
Define alarm	Alarm definition.
Define Printer	The Printer module has three tabs; General, Alarm Properties and Color.
Define Alarm Filter	Alarm filters are attached to alarms. The Alarm Filter filters alarms according to family, severity, zone and classes.

Define Printer
Target

The Printer Target dialog box connects between
the defined filters and printers.

Defining Printers

Adding Printers

You can add a local or a network printer.

To add a printer

1. Click the Printers icon in the control panel, or on the Design menu click Options and then Printers. The Printers dialog box appears.
2. Click the Local Printer button to add a local printer; Click the Network Printer button to add a network printer.
3. Select the printer you want to add and click OK. The printer you added now appears in the Printers list.

To define the printer's properties

1. Under Use printer for select Reports or Alarms or both.
 2. Under Alarm Print Options, select the whether you want to print only one alarm on each page, a full page, or support **line printing**.
 3. Under Orientation, select the page orientation: Portrait or Landscape.
 4. Click the Choose Font button to display the Font dialog box where you can define your printouts font.
 5. Click the Alarm Properties tab to select and organize the alarm fields (columns) that will be displayed in the alarm printouts.
 6. Click the Color Properties tab to customize both text and background printout colors.
 7. Click the **Line Printing** tab to define the line printer properties.
 8. Click the Preview button for a print preview.
 9. Click OK.
-

Defining Printers

The Printers dialog box enables enhanced printing capabilities. Each printer added to a system can be set to print reports, alarms or both. Printers can also be Network printers that are shared by multiple users. In addition, you can define whether many alarms will be printed on a full page or whether only one alarm will be printed on each page. Page orientation, font and printed alarm properties can also be defined and printed in different colors, text and background.

- To specify printers:



In the Control panel of the Application Studio, double-click the Printer icon.

Or,

From the Design menu, point to Options and select Printers from the popup menu. The Printers dialog box is displayed.

The Printers option has four tabs:

- **General Tab**
- **Alarm Properties Tab**
- **Colors Tab**
- **Line Printing Tab**

Selecting Printers

To select a printer

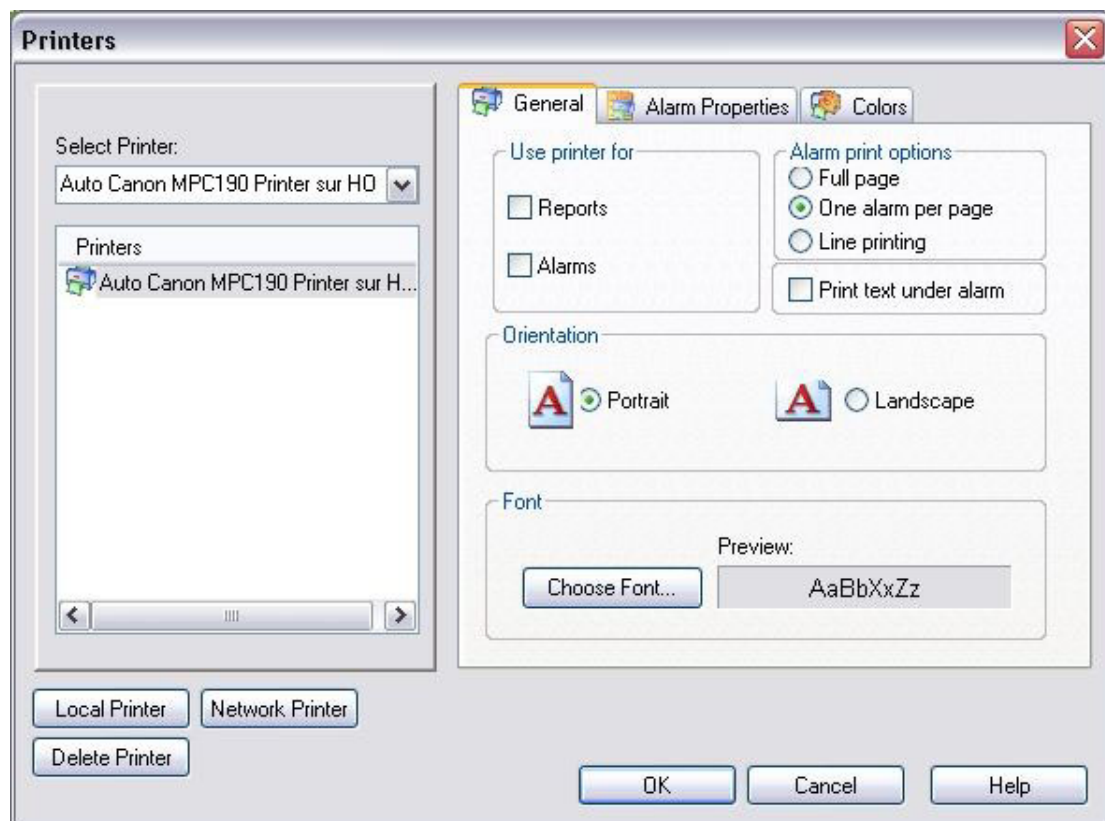
1. Select the printer you want to add from the list of all defined printers.
2. Click the Add button.

The selected printer is now added to the list of selected printers.

To remove a selected printer

1. Select the printer you want to remove from the list of selected printers.
2. Click the Remove button.

General Tab



1. To define a printer either, click the name of a printer from the Printers List or click the arrow in the Select Printer field's dropdown list and select a printer.
2. Printers can be added or deleted from the Printers List. To add printers to the Printers List click either Local Printer or Network Printer. Double click the name of a printer in the List and OK to confirm. To delete a printer select a printer and click Delete Printer. The printer will be deleted from the list.
3. Report, Alarms or both can be printed. In the Use Printer For field check the relevant checkbox(es) to define this option.

Alarms: This option has backwards compatibility. This means that alarms from previous versions that have the Default Printer option selected will print to the defined printer.

Reports: This option has backwards compatibility (see Alarms above) and also prints reports.

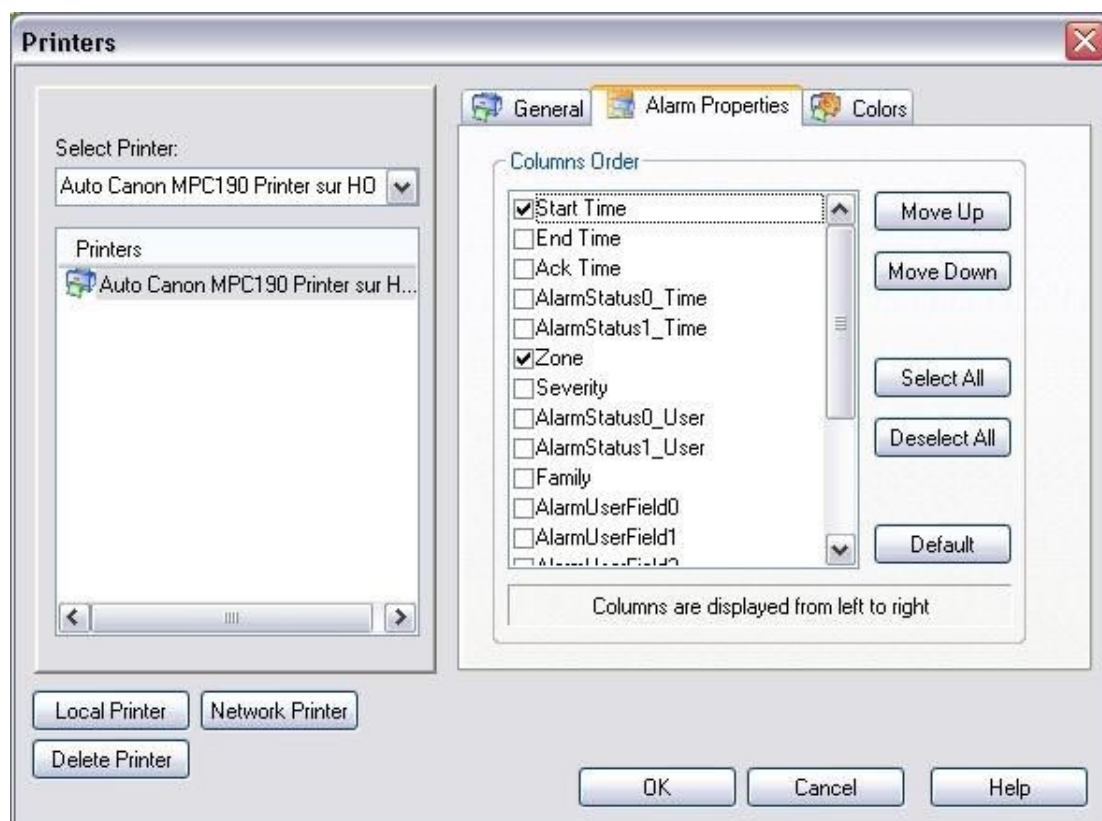
Note: When Alarms and Reports are both checked, the selected printer is the default printer for alarms and reports printing.

4. The Alarm Print Options has three options, Full page, One alarm per page or Line printing, click the relevant option.
5. In the Orientation field click either Portrait or Landscape.
6. To change font style or color, click the Choose Font button and select a font or color.
7. Click OK to confirm.

Note: When the Network Printers button is clicked, the Network Browser opens. You can browse the Network Place directory to visualize the list of the computers that have shared printers. Select the relevant computer name from this list and then select a printer. Only one Alarms and one Reports printer can be defined per application. The Line Printing tab only opens when this option is clicked in the Alarm Print Options and is only for Dot Matrix printers or Dot Matrix mode.

Alarm Properties Tab

1. To define a printer either, click on the name of a printer from the Printers List or click the Select Printer field's dropdown list and select a printer.



2. Printers can be added or deleted from the Printers List. To add printers to the Printers List click either Local Printer or Network Printer. Double click the name of a printer in the List and OK to confirm. To delete a printer select a printer and click Delete Printer. The printer will be deleted from the list.

3. The Columns Order field allows to define the printing layout of the alarms. Check the relevant column in the list to define this option.

4. The order in which columns appear in the printout can be defined using the following buttons:

- Move Up - Moves a column up one space.
- Move Down - Moves a column down one space.
- Select All - Selects all the columns in the options list.
- Deselect All - Removes all the columns in the options list.
- Default - Resets to the default options list.

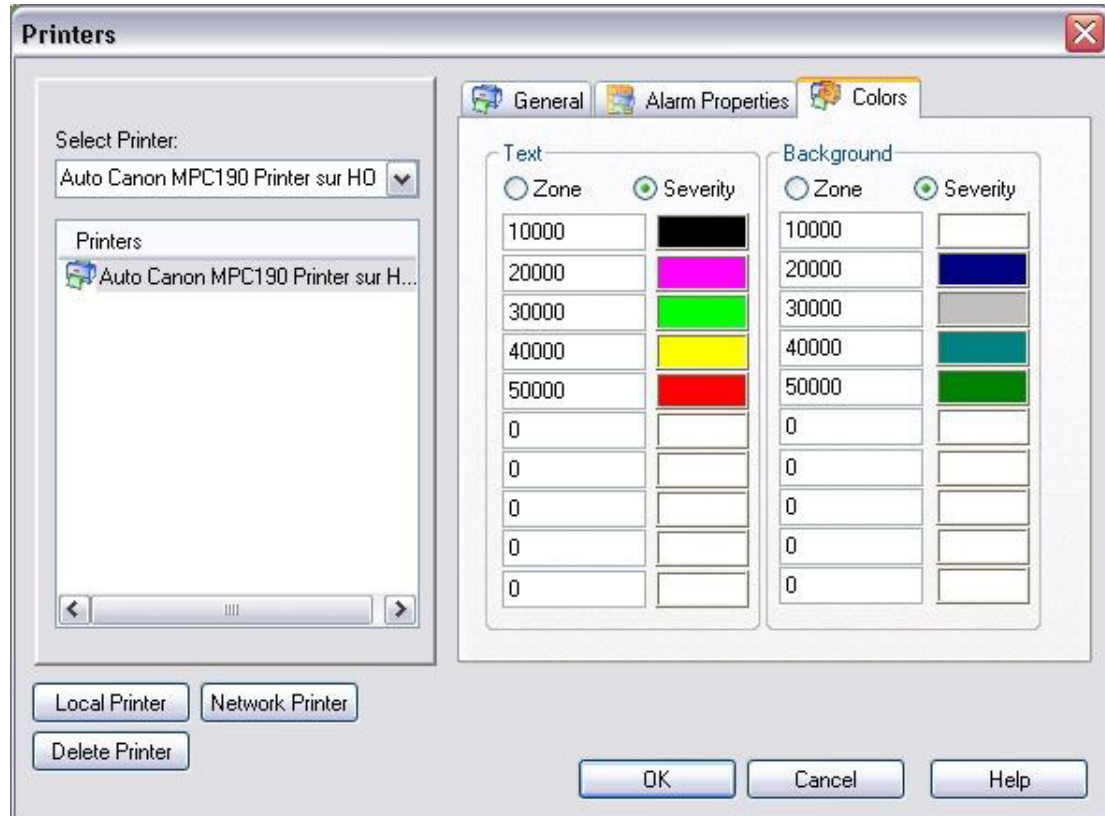
5. Click OK to confirm these changes.

Note: When Network Printers is selected the Network Browser opens. Browse to open the Network Place directory where a list of the computers that have shared printers is located. Select the relevant computer name from this list and then select a printer.

Colors Tab

You can assign the colors of the alarms text and background that will be printed.

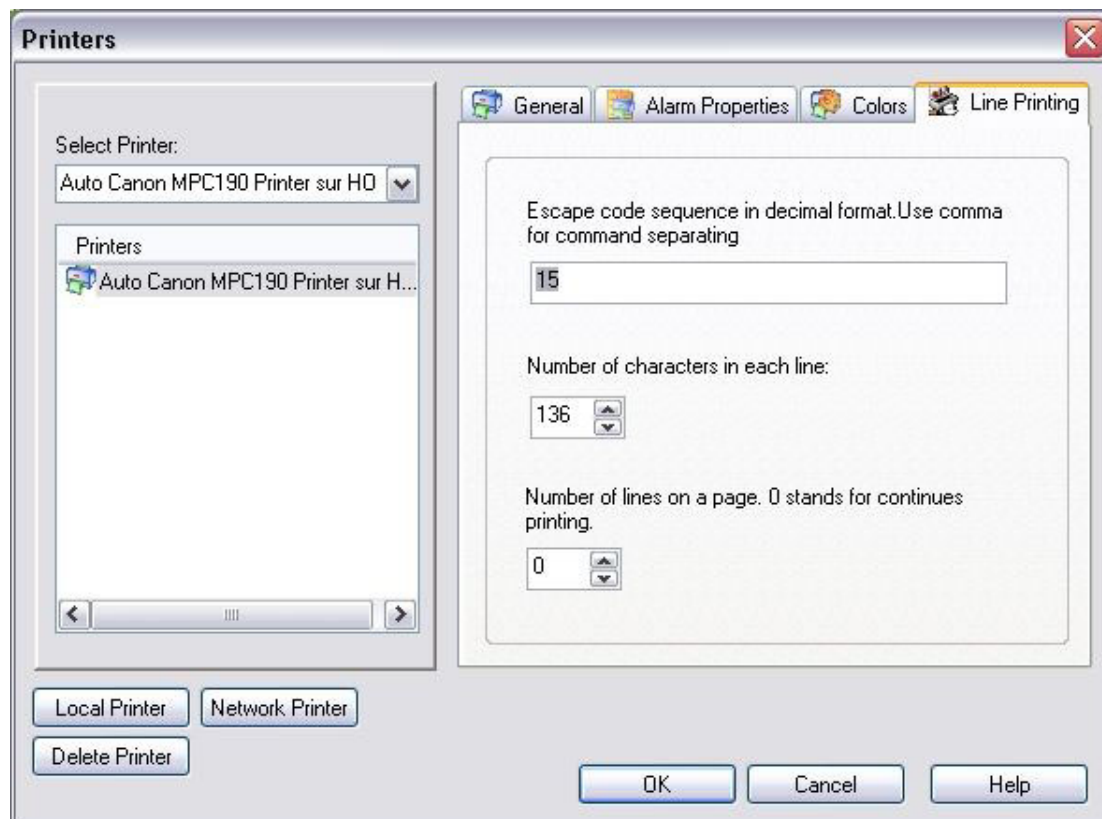
The Text or/and Background colors can be based on alarm Severity or/and Zone.



1. To define colors, select a printer from the Printers List .
2. Select either Zone or Severity. Additional zones can be entered by typing the zone number in the sequential textbox.
3. To add/change a color of Text and Background, click the (empty) color box to open the color chart, select a color and click OK. The color will be added to the list.

Note: Color can be defined for Windows mode printing.

Line Printing Tab



Note: This tab only appears after Line Printing is defined in the Alarm Print Options of the **General Tab**.

1. To define a printer either, click on the name of a printer from the Printers List or click the Select Printer field's dropdown list and select a printer.
2. Printers can be added or deleted from the Printers List. To add printers to the Printers List click either Local Printer or Network Printer. Double click the name of a printer in the List and OK to confirm. To delete a printer select a printer and click Delete Printer.
3. An escape sequence is a set of characters giving additional commands to the printer regarding printing format. Each printer has its own escape sequence, which is usually written in the printer's manual.
4. The number of characters in each line can be defined. To do so either type in the number or use the arrows to scroll up/down.
5. The number of lines on each page can be defined. To do so either type in the number or use the arrows to scroll up/down. The digit 0 indicates continuous printing.

Line Printing

Line printing applies to dot-matrix printers and inkjet printers that strike the paper a line at a time.

To define the printer's line printing properties

1. Click the Line Printing tab to open the Line Printing page.
 2. Type the Escape code sequence used by the printer. The code is in decimal numbers. Use comma for command separating.
 3. Define the number of characters in each printed line (default is 136 characters).
 4. Set the number of lines on each page. Note that 0 is used for continuous printing.
-

Defining Alarm Filters

Adding Alarm Filters

To add an alarm filter

1. Click on the Alarm Filters icon in the Application Studio control panel, or select Alarm Filters from the Design menu. The Alarm Filters dialog box is displayed.
2. Click the Add button to open the **Filter Properties** dialog box where you can define a new filter:

To modify an alarm filter

1. Select the alarm filter you want to change. The **Filter Properties** dialog box is displayed.
2. Change the filter's properties as applicable. Note that you cannot change the filter's name.

Alarm Filters Manager

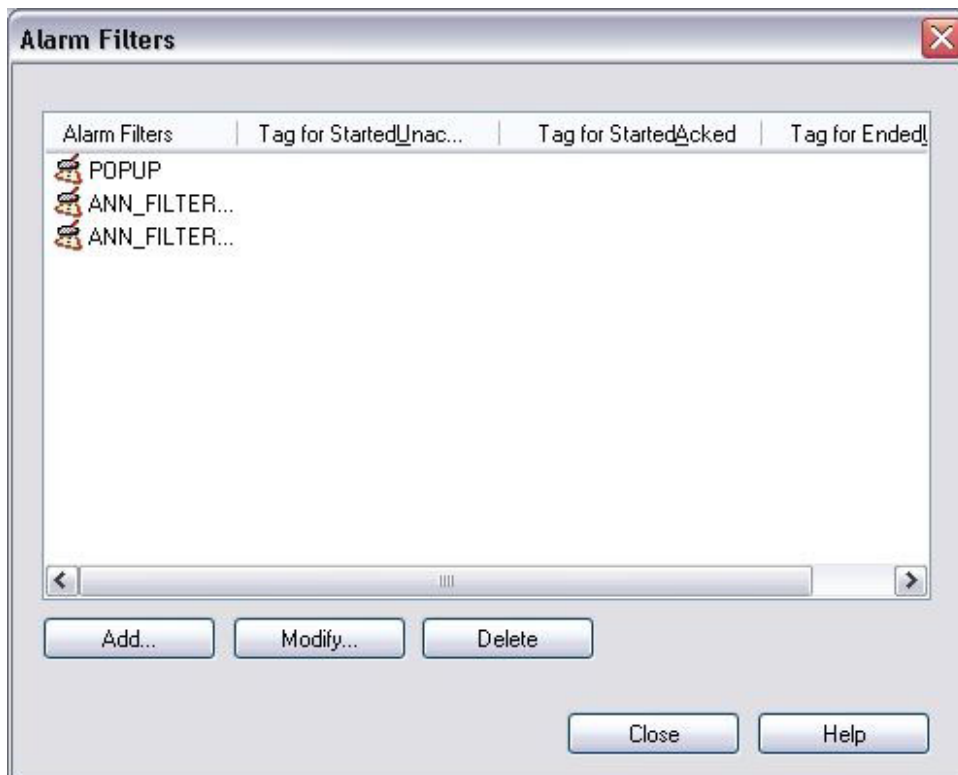
Defining Alarm Filters

When the alarm condition is true, an alarm is generated. The Alarm Filters module filters alarms according to family, severity, zone, classes and user defined fields.

In the Control panel of the Application Studio, double-click the  Alarm Filters icon.

Or,

From the Design menu select Alarm Filters. The Alarm Filters dialog box is displayed:



The Alarm Filters dialog box has four columns:

Alarm Filters	Displays an Alarms Filters list
Tag for Started & Unacked	Number of Started and Unacknowledged alarms
Tag for Started & Acked	Number of Started and Acknowledged alarms

Tag for Ended&Unacked	Number of alarms that are Started and Ended but not acknowledged
--------------------------	---

Alarm filters can be added, updated and deleted.

- To add Alarm Filters:

To define an Alarm Filter click the Add button located under the Alarm Filter list. The Filter Properties dialog box opens.

There are three tabs:

- **General Tab**
- **Network Tab**
- **Counters Tab**

Filter Properties

This tab holds general information about the **alarm filter**.

1. In the Name field type a unique name for the alarm filter.
2. In the Description field type a short description of the alarm filter.
3. Click the Family field's arrow to open the dropdown list and select a family. Only alarms from this family will be displayed.
4. In the Severity field specify the Minseverity and Maxseverity fields. Alarms out of these fields will not be displayed.
5. In the Zone field specify the Minzone and Maxzone fields. Alarms out of these zones will not be displayed.
6. Click the Select Class button to open the Set Class Filter dialog box. Filter classes can be used to categorize alarms to identify them more easily and to filter them in the Events Summary. Classes can be added and removed individually or as a group by clicking the Set All and Reset All buttons. Click OK to return to the General tab.
7. Click the Select Fields button to open the User Fields Filters dialog box.
This dialog box holds customized fields that are defined by the user in the Alarms Parameters Field Names dialog box. Type in your filtering criteria in the relevant User Field and click OK to confirm. The Alarm Filter will filter the User Fields accordingly. For example in User Field 1 only Alarms that are High will be filtered.
8. Click OK to actually save the Alarm Filter definitions.

Network tab

Counters tab

Select Alarm Filters

Selecting Alarm Filters

1. Select the filters from the list and click the arrow to add the filter to the list of selected filters.
 2. Click the New button to define a new filter.
 3. Select a filter from the list of defined filters, and click the Modify button to edit the filter properties (note that all the filter properties are editable except the name).
 4. Select a filter from the list of defined filters, and click the Delete button to remove the selected filter.
-

General Tab

This tab holds general information about the alarm filter.

Filter properties

General Network Counters

Name: ANN_FILTER_11:52:39.771

Description:

Family:

Severity: Min. 0 Max. 50000

Zones: Min. 0 Max. 50000

Classes: Select Class... Select Fields...

OK Cancel Help

1. In the Name field type a unique name for the alarm filter.
2. In the Description field type a short description of the alarm filter.
3. Click the Family field's arrow to open the dropdown list and select a family, or type the family name directly. Only alarms from this family will be displayed.
4. In the Severity field specify the Minseverity and Maxseverity fields. Alarms out of these fields will not be displayed.
5. In the Zone field specify the Minzone and Maxzone fields. Alarms out of these zones will not be displayed.
6. Click the Select Class button to open the Set Class Filter dialog box. Filter classes can be used to categorize alarms to identify them more easily and to filter them in the **Event Summaries**. Classes can be added and removed individually or as a group by clicking the Set All and Reset All buttons. Click OK to return to the General tab.



7. Click the Select Fields button to open the User Fields Filters dialog box.



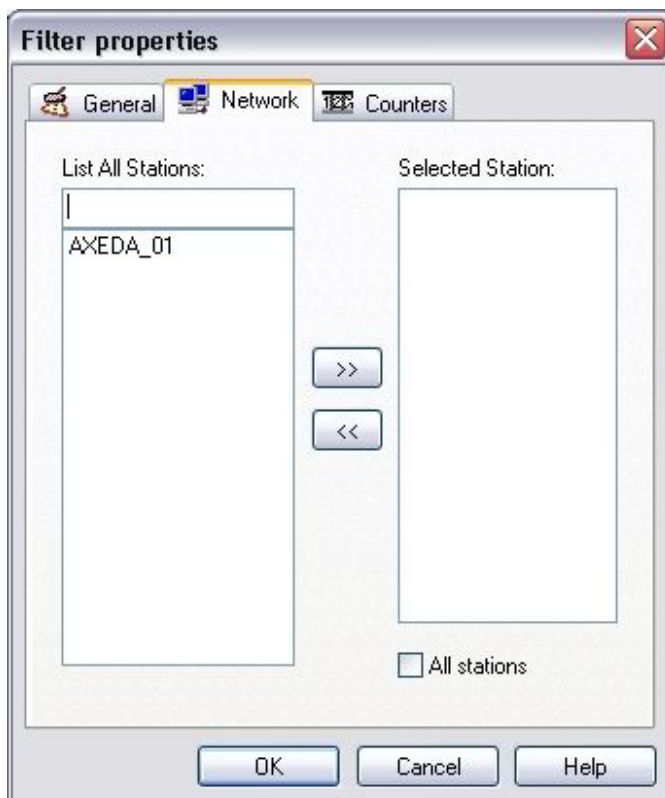
This dialog box holds customized fields that are defined by the user in the Alarms Parameters Field Names dialog box. Type in your filtering criteria in the relevant User Field and click OK to confirm. The Alarm Filter will filter the User Fields accordingly. For example in User Field 1 only Alarms with the value "2" will be filtered.

8. Click OK to actually save the Alarm Filter definitions.

Note: The Family name list is defined in the **Tags** dialog box in the Tag Name field.

Network Tab

This tab is used to apply a Filter Alarm to the alarms coming from the selected network stations.



1. In the List All Stations column select the relevant station.
2. Either double click the station name or, click the Forward button. The station name will be transferred to the Selected Station column.
3. To remove a station from the Selected Station list click the Backwards button.
4. The All Stations checkbox enables filtering alarms on all the stations in the network including local stations. Click this checkbox to enable this option. When this checkbox is selected the button options are not enabled.
5. Click OK to confirm.

Counters Tab

This tab is used to assign tags to counters that will contain the amount of alarms matching the filter conditions, and can be used in Wizcon modules (e.g. image module,...).



1. To enable the fields in this dialog box check the Enable Count Alarms checkbox.
2. In each field click the arrow to open the dropdown list and select the tag that will get counted value. Do not select system tags.
3. Click OK to confirm. The selected tags will appear in Alarm Filter main dialog box in the related columns.
 - To change Alarm Filters specifications:
 1. To change an Alarm Filter either double click the alarm filter in the list or select the Alarm Filter and click the Change button located under the Alarm Filter list. The Filter Properties dialog box will open.
 2. Change relevant parameters using the instruction for **To add Alarm Filters** Click OK to confirm. The changes will appear in the Alarm Filters list.
 - To delete an Alarm Filter:

1. To delete an Alarm Filter select the alarm filter and click the Delete button located under the Alarm Filter list. A message box will open asking if you are sure that you want to delete this alarm filter.
2. Click Yes to delete the Alarm Filter.
3. Click OK to confirm.


Note: See the Event Summary chapter for details on how the name of the alarm filter can be changed dynamically in order to update the contents of the event summary in realtime.

Defining Printer Targets

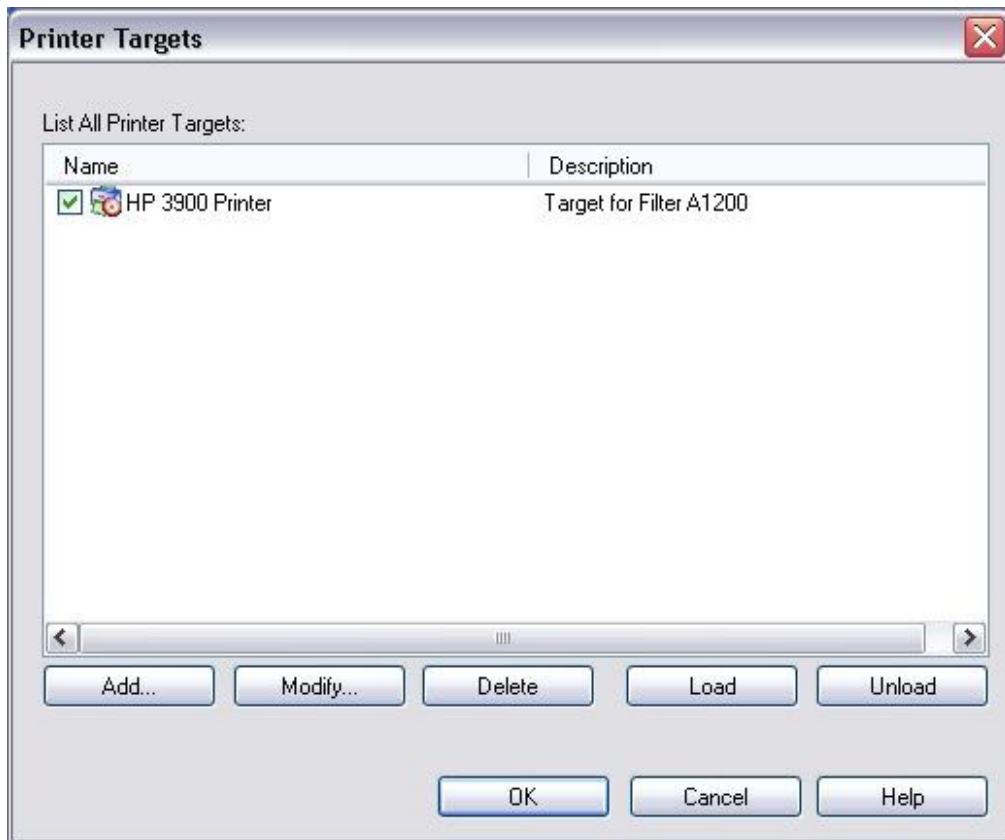
A Printer Target is a collection of predefined filters and printers specifying the conditions under which the targeted printer is activated.

The Printer Target dialog box holds a list of all the printer targets that have been defined. Each printer target is identified by a unique name and description.

- To specify Printer Targets:

In the Control panel of the Application Studio, double-click the  Printer Target icon.
Or,

From the Design menu select Printer Target. The Set Printers dialog box is displayed:




1. To add a printer target click the Add button. The Target Definition dialog box opens.
2. To modify a printer target select the printer target in the Name column and click the Modify button.
3. Printer targets can be deleted. To do so select the printer target in the Name column and click the delete button.
4. To load a printer target, select the printer target in the Name column and click the Load button. A tick will appear in the checkbox next to the selected printer target.
5. To unload a printer target select the printer target in the Name column and click the unload button. Or uncheck the checkbox of the selected printer target

Note: When a Printer Target item is loaded and an alarm meets the target filter criterion, the alarm will be sent automatically to the printers declared as the targets.

- To specify Target Definition:

A Target Definition is comprised of a user defined name and description and a selection of printers and filters. This dialog box opens when either the Add or Modify button is clicked in the Printer Target dialog box.



The image shows a 'Target Definition' dialog box with the following fields and controls:

- Name:** HP 3900 Printer
- Description:** Target for Filter A1200
- List All Selected Filters:** A list box containing 'ANN_FILTER_11:52:39.771' with a small icon to its left.
- Select Filters...** button
- List All Selected Printers:** A list box containing 'Auto Canon MPC190 Printer sur HOME' with a small icon to its left.
- Select Printers...** button
- ☐ Load at application startup
- OK**, **Cancel**, and **Help** buttons at the bottom.

1. Type the name of the target in the Name field.
2. Type a description for the target in the Description field.
3. In the List all Selected Filters field select the relevant filter. To add filters to this list click the Select Filter button to open the Select Filter dialog box. Select a filter, click Add and OK to confirm.
4. In the List all Selected Printers field select the relevant printer. To add printers to this list click the Select Printers button to open the Select Printers dialog box. Select a printer, click Add and OK to confirm.
5. To automatically load the printer target during application start up click the Load at Application Startup button and click OK. The printer target now appears in the Printer Targets list.

Note: The Name must be unique.

Adding a Printer Target

To add a printer target

1. Click the Printer Target icon located on the studio control panel. The Printer Targets dialog box opens.
2. Click the Add button to open the Target Definition dialog box.
3. Type the name of the target in the Name field (note that this name should be unique).
4. Type a description for the Printer Target.
5. Click the Select Filters button to display the **Select Filters** dialog box, where you can select your printer target filters, or create new filters for your printer target.
6. Click the Select Printers button to display the **Select Printers** dialog box where you can select the printers for your target printer from the list.
7. Select the Load at application startup checkbox to automatically load the printer target upon application startup.
8. Click OK when done. The printer target now appears in the list of Printer Targets.

Other Topics

Redirects the messages to a Popup, for the Popup events summary, or the printer, for the alarm printer.

Redirect messages to the file specified.

The application now enables you to print trend viewers as they appear in the browser.

To print:

Select Print from the Options menu of the Trend Viewer

Chapter 17 Advanced Alarm Management

Advanced Alarm Management (AAM) Overview	573
Advanced Alarm Management	574
Getting Started	574
Getting Started	574
Requirements.....	575
Plug Upgrade	575
Workflow for Alphanumeric Messages.....	575
Workflow for Vocal Messages.....	575
Configuring AAM.....	575
Channels	576
Channels.....	576
Defining Channels.....	577
TAPI Modem/COM Port setup Dialog Box.....	579
TAPI Modem Properties Dialog Box	580
COM Port Properties Dialog Box	581
Modem Parameters in Vocal Mode.....	584
GSM/PCS Modem Parameters	585
Hayes Modem Parameters	586
Jericho	589
Pager Services	592
Pager Services.....	592
Adding Pager Services	592
Remove Pager Services	593
Defining Paging Service Setup	594
Defining Call Management.....	596
Driver Setup	597
E-mail Driver Configuration (Direct SMTP connection).....	597
E-mail Driver Configuration (With Internet modem connection).....	597
SMS Driver Configuration	598
Pager Driver Configuration	598
Fax Driver Configuration	599
Voice Driver Configuration	600
Vocal Server	601
Vocal Server	601
WAV Messages	605
Voice Synthesis Parameters.....	606
Voice Tab.....	606
Features Tab.....	607
Dictionaries Tab	609
Edit Dictionary	610
Dictionary Entry.....	611
Identifiers Tab	612
User Message Format	613

User Message Format	613
E-mail Message Format.....	613
SMS Message Format	613
Pager Message Format	613
Fax Message Format	614
Printer Message Format	614
Voice Message Format	614
Advanced Alarm Viewer	615
Tools AAM Viewer	615
Advanced Alarm Viewer.....	615
Event Log Journal	618
Event log	620
Export.....	621
Customizing the Event Log Journal Window.....	622
Column Title.....	623
Column Width	624
Column Position.....	624
Column Alignment.....	625
Sort on Column	625
Mask	625
Display	626
Printing.....	626
Message Formatting.....	626
Message Formatting.....	628

About this chapter:

This chapter describes Advanced Alarm Management (AAM), as follows:

Advanced Alarm Management (AAM) Overview is an overview of the application network environment.

Getting Started describes the basic requirements for AAM.

Channels describes working with AAM Channels.

Pager Services describes working with AAM Pager Services.

Vocal Server describes this server's setup.

Message Formatting lists different types of user message formats.

Advanced Alarm Management (AAM) Overview

The Advanced Alarm Management (AAM) module provides additional alarm services. This is useful when critical alarms requiring urgent attention need to be sent, read and the cause of the alarm handled.

The AAM module sends either alphanumeric or voice messages. An alarm can be sent by SMS, pager, E-mail, fax, printer, or as voice to single or multiple users. An alarm sent by voice mail can be acknowledged and any messages sent with the alarm can be read.

AAM messages can be sent to groups (defined in **Chapter 7, Security and User Management, User Management - Overview**) and according to schedules set in the Users Timetable (**Chapter 18, Users Timetable, Users Timetable Overview**).

The AAM module supports multilanguage. User messages can be translated into French, English or German.

Note: All WAV files played by the AAM must be in mono format and not stereo.

Advanced Alarm Management can be used in two modes:

- Demo mode: Used for trial purposes, runs for two hours after which the user (developer) must restart the computer. The voice option is not available.
- Plug with AAM option: Authorized unlimited full-time mode.

The following AAM configuration module defines how and where an alarm is sent:

- **Channels** - defining the modems (TAPI modem or modem connected to COM port).
 - **Pager Services** - defines the types of services used to send alarms (SMS, E-mail, Pager, Fax, Printer, Voice).
 - **Advanced Alarm Viewer**- a real time log where outgoing alarms can be viewed.
 - User Timetable - where users within teams and groups work schedules can be defined. Alarms will be sent to users in real-time and according to work shift. See **Chapter 18, Users Timetable**.
 - **Vocal Server** - defines the different settings related to the vocal transmission of an alarm.
-

Advanced Alarm Management Overview

The Advanced Alarm Management (AAM) uses a multi service communications platform to provide alarm transmission over various communication channels, such as SMS, e-mail, fax or vocal messages, using:

A universal messaging service (Paging service) to send numerical or alphanumeric messages (with an attached file or not) to beeps, pagers or terminals (screen terminals, printers or fax).

A telematic terminal server (ANSI, HTML, videotex).

A voice server.

A file transmission service (Z-Modem, FTP).

AAM is comprised of two design mode components: Alarm Channels and AAM Pager and a run-time component: Advanced Alarm Viewer.

Advanced Alarm Management

Click the Advanced Alarm Management icon to open the Advanced Alarm Management dialog box where you can direct your alarms through various communication channels.

Getting Started

Getting Started

This section discusses basic work principles and requirements for using AAM.

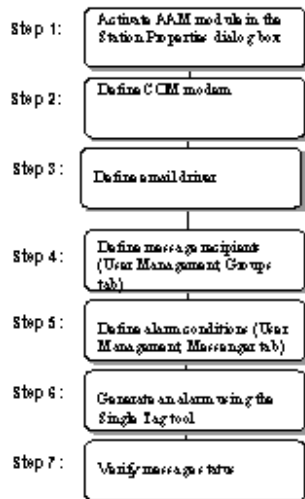
Requirements

- Network communications - modem.
- Plug authorization.
- Multi media hardware - sound card (for voice functionality only).

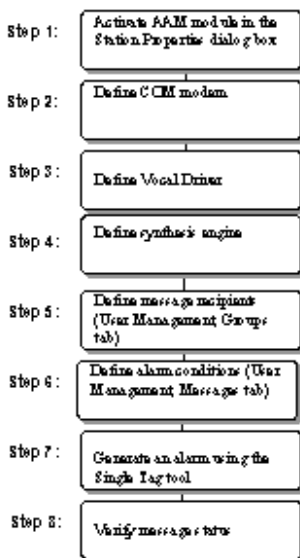
Plug Upgrade

Contact your supplier for details regarding ordering a new plug or upgrading existing software through the Remote Upgrade Service (RUS). Or visit our website at www.Wizcon.com to find your nearest supplier.

Workflow for Alphanumeric Messages



Workflow for Vocal Messages

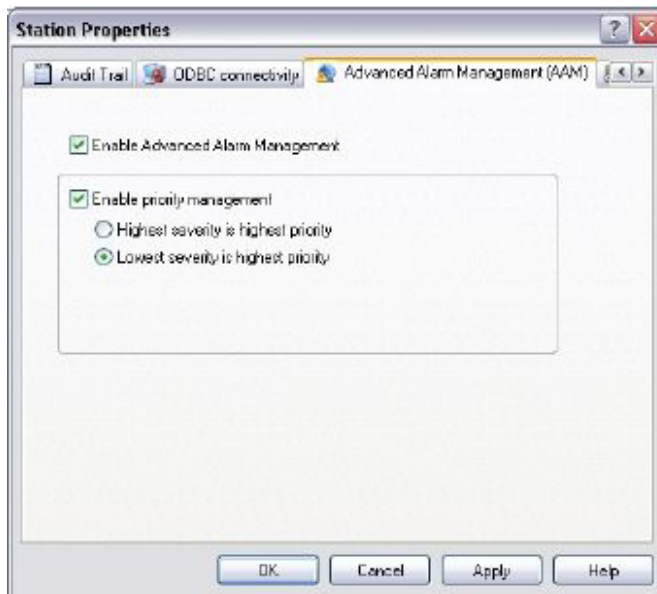


Configuring AAM

Advanced Alarm Management is configured in the Station Properties dialog box Advanced Alarm Management tab.

- To define Advanced Alarm Management:

In the All Containers pane right click on the project name. The Station Properties dialog box opens.



1. Using the arrows scroll and select the Advanced Alarm Management tab.
2. Check the Enable Advanced Alarm Management checkbox.
3. If needed, check the Enable Priority Management button checkbox. This function enables to send first alarms with highest priority. You can decide what kind of alarms will have the highest priority, the ones with low severity value or the ones with high severity .
4. Click OK to confirm and restart the application.

Channels

Channels

Advanced Alarm Management communication lines (TAPI modem or modem connected to COM port) are defined in the Channels dialog box where channels can be added, removed, deactivated or be modified.

- Quick Access Bar Icon

The Advanced Alarm Management dialog box can be accessed by clicking the  AAM icon on the Quick Access Bar.



The following configuration options can be accessed through this dialog box:

- **Channels** (modems) channels setup - Tapi modem or modem connected to COM port)
- **Pager Services** (messages)
- **Vocal Server**
- **Advanced Alarm Viewer**
- **Message Formatting**

During runtime the real time Advanced Alarm Viewer shows statistics and the **Event Summaries**.

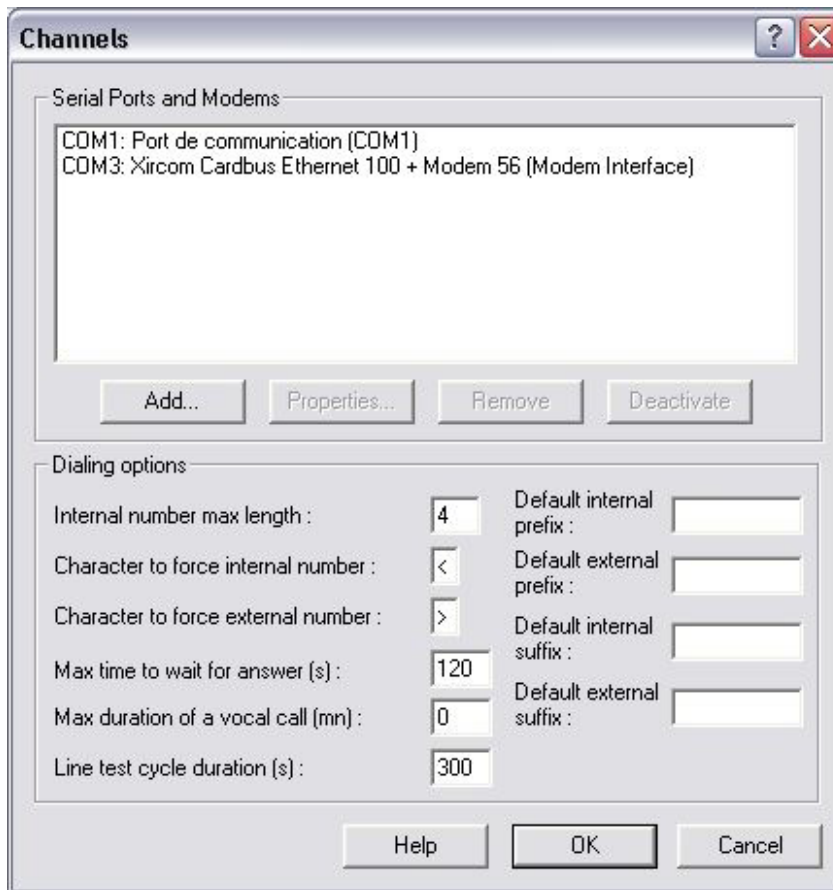
Defining Channels

- To specify AAM Channels:

In the Quick Access bar click the AAM icon and then click the Number of modems Setup button.

Or,

From the Design menu, point to Advanced Alarm Management and select Channels from the popup menu. The Channels dialog box is displayed.




The Channels dialog box has four buttons:

Add	This button, when clicked opens the Channel dialog box where TAPI modems and COM ports can be selected and added.
Properties	This button when clicked opens the Line Properties dialog box where communication line parameters can be configured.
Remove	This button when clicked removes a selected modem/or port from the list.
Deactivate	This button, when clicked deactivates a selected modem/port.

Line Designation

The **Channels** dialog box enables you to define and configure the communication lines used by the Advanced Alarm Management.

The Channels window displays a list of the serial ports and modems and enables you to select the ports to be used by **AAM**. The used ports are marked by the symbol .

To add and define communication channels

1. Click the Add button to display a dialog box containing a list of all the Physical (COM) ports and a list of Modems (TAPI).
2. Check the **Display only available COM ports** checkbox to display only existing ports that are not used by other applications.
3. Select the port you want to use.
4. Click the OK button.

The **Line Properties** dialog box opens, enabling you to configure the various port parameters.

To modify a port properties

1. In the Channels dialog box, select the port you wish to modify.
2. Click the Properties button to open the Line Properties dialog box, where you can modify the selected port properties.

To delete a port

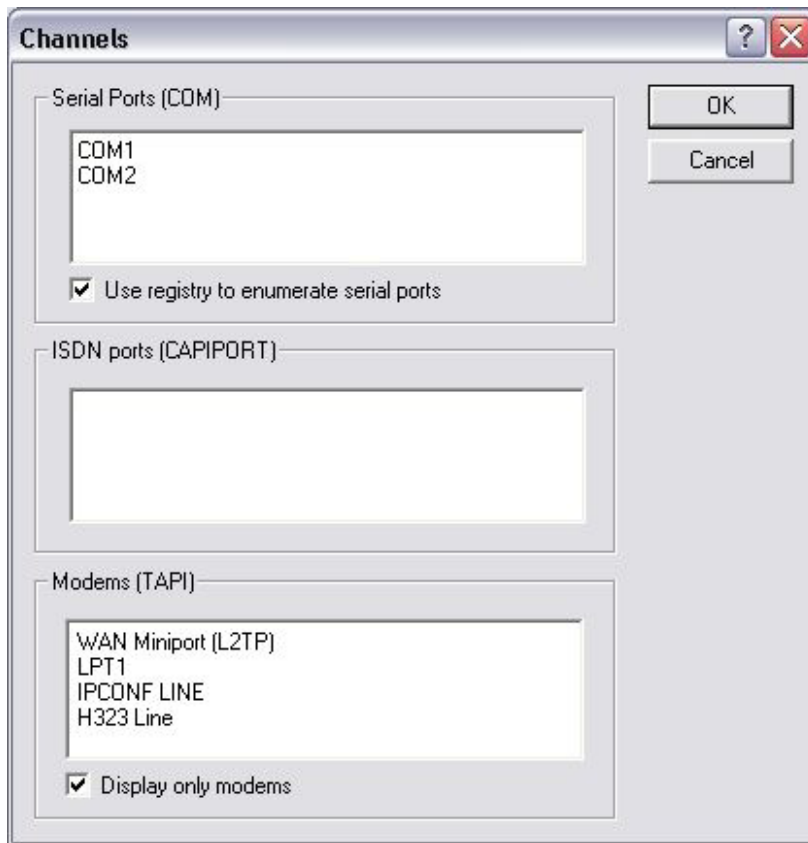
1. Select the port you want to delete.
2. Click the Remove button.

To deactivate an active port

1. Select the port you want to deactivate.
2. Click the Deactivate button.

TAPI Modem/COM Port setup Dialog Box

In this dialog box you can view and select TAPI modems and/or physical COM ports.

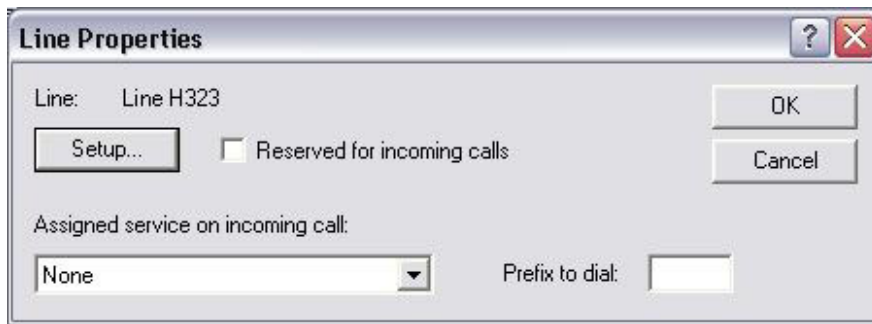


Select a modem, port or both and click the OK button. The Line Properties dialog box opens on your screen.

Notes: By default all modems and physical ports defined in the system are listed in this dialog box. To view TAPI modems or COM ports, check the Display only Modems and Display only Available COM ports checkboxes.

We highly recommend you to use a modem connected to a COM port rather than a TAPI modem to enable maximum parameters control.

TAPI Modem Properties Dialog Box



Click the Setup button to open the standard Microsoft dialog box where setup modem parameters can be defined.

Voice functionality:	The AAM module supports voice functionality with the TAPI modem if the modem driver also supports voice functionality.
With Windows NT4:	Generally, modem drivers do not support voice function and AAM cannot be used with the TAPI modem. Therefore, the COM port is connected to the modem.
With Windows 2000/XP:	Most TAPI modem drivers support voice functionality and the AAM module can use TAPI modem for voice call management. Not all driver modems support voice functionality.

- To check that a driver can manage voice functionality:

In the AAM dialog box, click Setup. Add a TAPI modem, and click Properties to open a standard Microsoft dialog box. If in the Assigned Service on Incoming Call field the Vocal Server option is defined this means that your TAPI modem driver can handle voice calls and can be used by AAM.

COM Port Properties Dialog Box

This dialog box is used to configure the parameters of the communication line.



Line Properties has the following fields:

Port	The port number is the name of the port defined in the Channels or Channel Modem and Port dialog box.
Keep Open	When this option is selected AAM defines that this port remains open permanently solely for the application. If this checkbox is not checked then this modem/port will be opened on demand and when available and will be automatically closed when communication terminates.
Type	There are two port types: Hayes Modem - where communication is established through the telephone network Direct Communication - for example, a printer connected to the port
Bauds, Bits, Parity	Where port/modem communication bandwidth is defined
Flow Control	Where communication error control parameters are defined: None - no flow control Hardware - communication errors will be checked at the hardware level Xon/Xoff - communication errors will be checked at the software level. Xoff code (13h) request for data emission suspension sent to the transmitter who then returns Xon (11h) code to resume transmission.
Assigned service	This field assigns services to incoming calls: Direct line - assigned service that will manage port communication Modem - assigned service that will manage incoming call

Prefix to dial	The number dialed to receive an outside communication line.
Voice Modem	Modem used to carry voice messages. Voice modem parameters can be defined by clicking the button to open the Modem Parameters in the Vocal Code dialog box.
Fax Modem	Modem used to send fax messages.
Modem CSM/PCS	Where the parameters for this modem can be defined. Click the Browse button to open the GSM/PCS modem parameters dialog box.
Reserved for	Defines that this modem/port is reserved for incoming calls only.
Automatic Setting	Port/modem settings according to definitions.
Carrier Detect	DCD carrier settings.
Modem Parameter	Where the Hayes modem parameters are defined.

1. Check the Keep open checkbox to enable port sharing between several applications.
2. In the Type field select either Hayes Modem or Direct.
3. Port baud rate should be defined as follows:

Parameter	Value
Baud rate	300-11520
Bits	7,8
Parity	Even, Odd, None
Stop bits	1,2

These parameters can be modified by the services using the port for outgoing calls according to the communication type established.

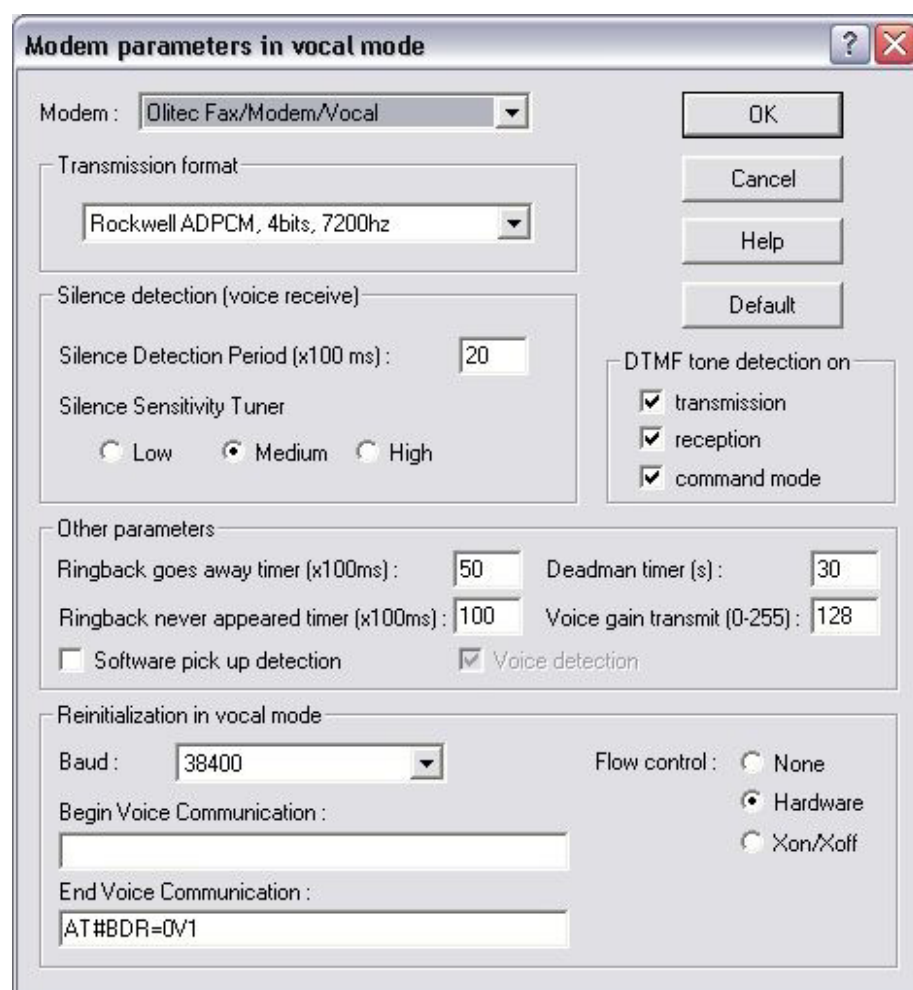
4. In the Flow Control field select either None, Hardware or Xon/Xoff.
5. In the Assign Service on Incoming Call field click the dropdown list and select the relevant service.
6. In the Prefix to Dial field type the prefix used to access the outside communication line if relevant.
7. Select the relevant format type:
 - If a Hayes Modem has been selected then click the Modem parameters button to open the Hayes Modem Parameters dialog box.
 - If Direct has been selected in the Type field then select either Automatic connection, Connect detect or both.
8. Click OK to confirm.

Modem Parameters in Vocal Mode

This dialog box defines the parameters of the modem that transmits voice messages.

- To specify modem parameters in vocal mode:

In the Line Properties dialog box click the voice modem button to open the Modem Parameters dialog box.



The dialog box titled "Modem parameters in vocal mode" contains the following settings:

- Modem:** Olitec Fax/Modem/Vocal
- Transmission format:** Rockwell ADPCM, 4bits, 7200hz
- Silence detection (voice receive):**
 - Silence Detection Period (x100 ms): 20
 - Silence Sensitivity Tuner: ☐ Low ☒ Medium ☐ High
- DTMF tone detection on:**
 - ☒ transmission
 - ☒ reception
 - ☒ command mode
- Other parameters:**
 - Ringback goes away timer (x100ms): 50
 - Deadman timer (s): 30
 - Ringback never appeared timer (x100ms): 100
 - Voice gain transmit (0-255): 128
 - ☐ Software pick up detection
 - ☒ Voice detection
- Reinitialization in vocal mode:**
 - Baud: 38400
 - Flow control: ☐ None ☒ Hardware ☐ Xon/Xoff
 - Begin Voice Communication: [Empty text box]
 - End Voice Communication: AT#BDR=0V1

Buttons: OK, Cancel, Help, Default

1. In the Modem field click the arrow to open the dropdown list and select the correct modem type.
2. In the Transmission format field click the arrow in the Rate field to select how often the transmission line is sampled and then select the number of bits per sample.
3. In the Silence Detection Voice Receive field type in the silence detection period number (x100ms) and then in the Silence Sensitivity Tuner field select either; Low, Medium or High.
4. DTMF tone detection can be either on Transmission, Reception or Command, select a mode.
5. In the Other Parameters field type in the relevant parameters.
6. In the Reinitialization in Vocal Mode field define baud level.
7. In the Flow Control field select either None, Hardware or Xon/Xoff.
8. In the Begin and End Voice Communication fields type in the relevant number.
9. Click OK to confirm.

Notes: To avoid noise problems on the phone line, select the hardware flow control option. The parameter Ringback Goes Away Timer (100 ms) enables synchronization of messages that are played during user download. By default this is defined at 50. The value must be modified according the modem you use (with Olitec Speed Com 2000 the value could be 100).

GSM/PCS Modem Parameters

This dialog box defines the parameters of the GSM/PCS modem and the format of SMS messages.

- To specify GSM/PCS modem parameters:

In the Line Properties dialog box click the Browse button to open the GSM/PCS modem parameters dialog box.



1. In the PIN number field type in the unique PIN number.
2. In the SMS format field select either; Auto, PDU or Text.
3. Click OK to confirm.

GSM/PCS modem properties

In this dialog box you can configure the **GSM/PCS** modem parameters.

To configure the GSM/PCS modem parameters

1. Type the modem PIN (Personal Identification Number) number to authorize access to the GSM modem functions.

2. Select the SMS format, the format that will be used to transmit short messages.

Note that selecting Auto enables the actual format configured in the modem to be used.

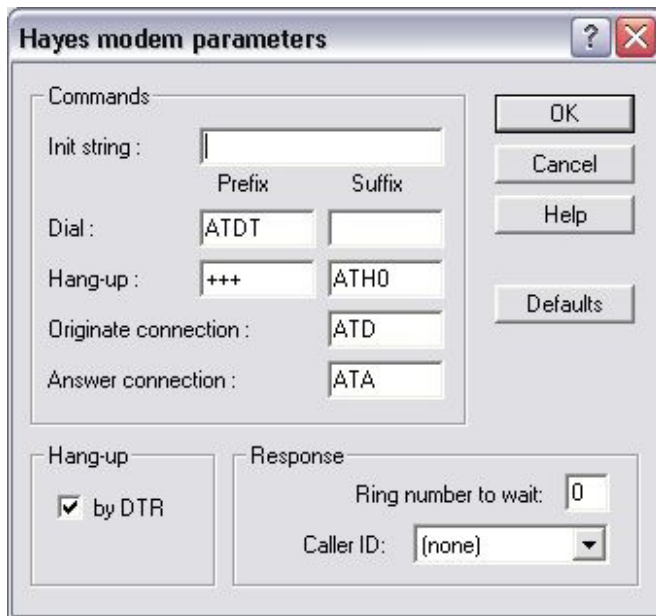
3. Click OK to save your configurations and return to the **Line Properties** dialog box.

Hayes Modem Parameters

This dialog box is used to define the Hayes Modem communication line parameters.

- To specify Hayes modem parameters:

In the Line Properties dialog box click the Modem Parameter button to open the Hayes modem parameters dialog box.



1. In the Init String field type the command string that will be transmitted to the modem at interface initialization and at the end of each communication session.
2. Specify the Dial field parameters:
 - Prefix - type the string to be transmitted before the dial number
 - Suffix - type the attention string to signal a modem command during data communication
3. Specify the Hang-up field parameters:
 - Prefix - type the attention string to signal a modem command during data communication
 - Suffix - type the disconnection command
4. In the Originate Connection field type the command that will be sent to the modem to connect it after an incoming call received when the modem is setup for manual use.
5. In the Answer Connection field type the connection command that will be sent to the modem when an incoming call is received and the modem is set up for manual use.
6. Check the Hang-up by DTR checkbox to enable the DTR line to function as a command to disconnect the modem from the line.
7. Type the number of rings the system waits before answering an incoming call. The type of answer depends on the service selected for incoming calls in the Line Properties dialog box.
8. Select the Caller ID to enable a protocol generation for identification of the call dial number during incoming calls. There are three protocol types:
 - Formatted ID - analog voice modem with formatted caller identification
 - Unformatted ID - analog voice modem with unformatted caller identification
 - Register S190 - ISDN modem, caller ID installed in the S190 modem register.

Note: To avoid problems during phone line connection add W to the ATDT for commands, for example; ATDTW. This will cause the modem to generate an error when the phone line is not connected.

- To modify Channel Line Properties:

In the Channels dialog box select the specific port or modem and click the Properties button. The Line Properties dialog box will open. **See COM Port Properties Dialog Box.**

- To remove Channel Line Properties:

In the Channels dialog box select the port or modem and click the Remove button.

- To deactivate Channel Line Properties:

In the Channels dialog box select the port or modem and click the Deactive button.

Hayes Modem Parameters

In this dialog box you can configure the Hayes modem line specific parameters.

To configure the Hayes modem parameters

1. In the **Init string** field, type the command string that will be transmitted to the modem at interface initialization and at the end of each communication session.

This string has to be used only for general setting commands; the specific communication commands are transmitted by the services using the port before each communication session.

2. Specify the **Dial** parameters:

Prefix - type the string to be transmitted before the dial number.

Suffix - type the string to be transmitted after the dial number.

3. Specify the Hang-up parameters:

Prefix - type the attention string to signal a modem command during a data communication.

Suffix - type the disconnection command

4. In the **Originate connection** field, type the command that will be sent to the modem to connect it, following a manual outgoing call.

5. In the **Answer connection** field, type the command that will be sent to the modem to connect it, following an incoming call when the modem is setup for manual answering.

6. Check the **Hang-up by DTR** checkbox to enable the DTR line to function as a command to disconnect the modem from the line (hang-up command).

7. Type the number of rings the system waits before answering an incoming call. The type of answer depends on the service selected for incoming calls in the **Line Properties** dialog box.

8. Select the **Caller ID** to enable a protocol generation for identifying the caller dial number during incoming calls. There are three protocol types:

- **Formatted ID** - analog voice modem with caller identification.
- **Unformatted ID** - analog voice modem with caller identification.
- **Register S190** - ISDN modem, caller id stored in the modem register S190.

Jericho

Direct Line Properties

Selecting the direct line communication option enables direct communication, for example, to a printer connected to the port.

The direct line special parameters are as follows:

Automatic connection

Select this option to enable automatic transition to the connected state from the port opening, providing that the DSR line is high (if the **Connect detect** option is selected).

Connect detect

Select this option to enable the DSR line functioning as indicator of active connection of adverse equipment: disconnection when DSR falls and, if the Automatic connection option is selected, automatic connection as soon as DSR goes to high state.

Reserved for incoming calls

Select this option to indicate that the port cannot be used for outgoing calls.

Hayes Modem Line Properties


Selecting the Hayes Modem line type, communication is established through the telephone network and uses a modem of type Hayes.

To define the Hayes modem properties

1. In the **Prefix to dial** box, type the number to dial for access to the public telephone network (0 by example), if the modem is connected to an internal telephone line.
 2. Select the **Voice modem** checkbox to indicate that the modem connected to the port is a voice modem and will be used for voice communications. Click the browse button to open the **Modem parameters in vocal mode** dialog box where you can select a voice modem and configure its properties.
 3. Select the Fax modem checkbox to indicate that the modem connected to the port is a fax modem and will be used for fax transmission.
 4. Select the **Modem GSM/PCS** checkbox to indicate that the modem connected to the port is a GSM or PCS modem.
Click the browse button to open the **GSM/PCS modem properties** dialog box where you can configure this modem properties.
 5. Select the **Reserved for incoming calls** checkbox to indicate that the port cannot be used for outgoing calls.
 6. Select the **Automatic setting** checkbox to enable validation of the automatic modem interface settings: Identification of the baud rate and the transmission format used by the connected modem.
This option does not need validation with most Hayes modems as the automatic settings are managed by the modem itself.
 7. Select the **Carrier detect** checkbox to automatically end the communication when the DCD (carrier detect line) falls.
 8. Click the Modem Parameters button to open the **Hayes Modem Parameters** dialog box.
-

Line Designation

The **Channels** dialog box enables you to define and configure the communication lines used by the Advanced Alarm Management.

The Channels window displays a list of the serial ports and modems and enables you to select the ports to be used by **AAM**. The used ports are marked by the symbol .

To add and define communication channels

1. Click the Add button to display a dialog box containing a list of all the Physical (COM) ports and a list of Modems (TAPI).
2. Check the **Display only available COM ports** checkbox to display only existing ports that are not used by other applications.
3. Select the port you want to use.
4. Click the OK button.

The **Line Properties** dialog box opens, enabling you to configure the various port parameters.

To modify a port properties

1. In the Channels dialog box, select the port you wish to modify.
2. Click the Properties button to open the Line Properties dialog box, where you can modify the selected port properties.

To delete a port

1. Select the port you want to delete.
2. Click the Remove button.

To deactivate an active port

1. Select the port you want to deactivate.
2. Click the Deactivate button.

Line Properties

The **Line properties** dialog box allows you to configure the parameters of a communication line using the physical ports COM1 to COM64.

To configure the communication line parameters

1. Check the Keep open option to enable port sharing between several applications. When this option is selected, the port is permanently kept open by the AAM and consequently cannot be used by another application. If this option is not selected, the port will be opened by the AAM (providing that it is free) only upon communication establishment. It will be automatically closed as soon as the communication will be ended.

2. Select the line type:

Direct - select this option to enable direct communication (for example to a printer connected to the port).

Hayes Modem - select this option if the communication is established through the telephone network and uses a modem of type Hayes.

3. Define the port baud rate and transmission format, as follows:

Parameter Values

Baud rate 300 - 11520

Bits 7, 8

Parity Even, Odd, None

Stop bits 1, 2

Note that these parameters can be modified by the services using the port for outgoing calls (paging services) according to the communication that is being established.

4. Select the Flow control type to enable the control of communication errors:

None - no flow control.

Hardware - communication errors will be checked on the Hardware level.

Xon/Xoff - communication errors will be checked on the Software level by sending the code Xoff (13h) to request the transmitter to suspend data emission, and the code Xon (11h) to request the transmitter to resume data emission.

Note: the selection of Flow Control can be modified by the services using the port for outgoing calls (paging service) according to the communication that is being established.

5. Assign a service for the incoming calls:

- If the port is set as a direct line, assign the service that will manage the communication on the port.
- If the port is set as a modem line, assign the service that will manage incoming calls.

If you selected a Hayes modem line type go to **Hayes Modem Properties**

If you selected a Direct line type go to **Direct Line Properties**

Pager Services

Pager Services

The AAM Pager Services module enables definition of a list of paging drivers and Call Management parameters. New drivers can be added, existing drivers removed and driver setup can be configured.

Adding Pager Services

This button when clicked opens the Add Paging Drivers dialog box. The list of drivers can be configured according to country and with/without the GSM modem.



1. In the Paging Service Setup dialog box click the Add button to open the Add Paging Drivers dialog box.
2. In the Country field click the arrow to open the dropdown list and select a country. The Drivers list will show only the drivers available for the specific country.
3. To enable the GSM modem, click the With GSM Modem checkbox.
4. Select a driver from the Drivers list.
5. Click OK. The driver will appear in the Paging Service Setup Installed Drivers list.

Remove Pager Services

This option removes a driver from the Installed Drivers list.

Select the driver from the Installed Drivers list and click the Remove button. The driver is removed from the list.

Paging Service - Overview

The paging service of Advanced Alarm Management handles all the functions of sending messages to a user using a selected media such as: bip, paging system, fax, terminal or printer and e-mail.

When a request to send a message to a user is initiated, the paging service searches for a port compatible with the messaging system that has to be used, initializes this port with the appropriate parameters and then starts the call to the destination of the messaging system. when the connection is established, it transmits all the waiting messages for the system in question.

To configure AAM paging services

1. Click the **AAM - Pager Services** icon located on the studio Control panel;
Or, Select Advanced Alarm Management from the Design menu, then select Pager services.

The **Paging Service Setup** dialog box opens.

2. Add drivers to support the various messaging options and configure the drivers parameters accordingly, as described in **Paging Service Setup**
-

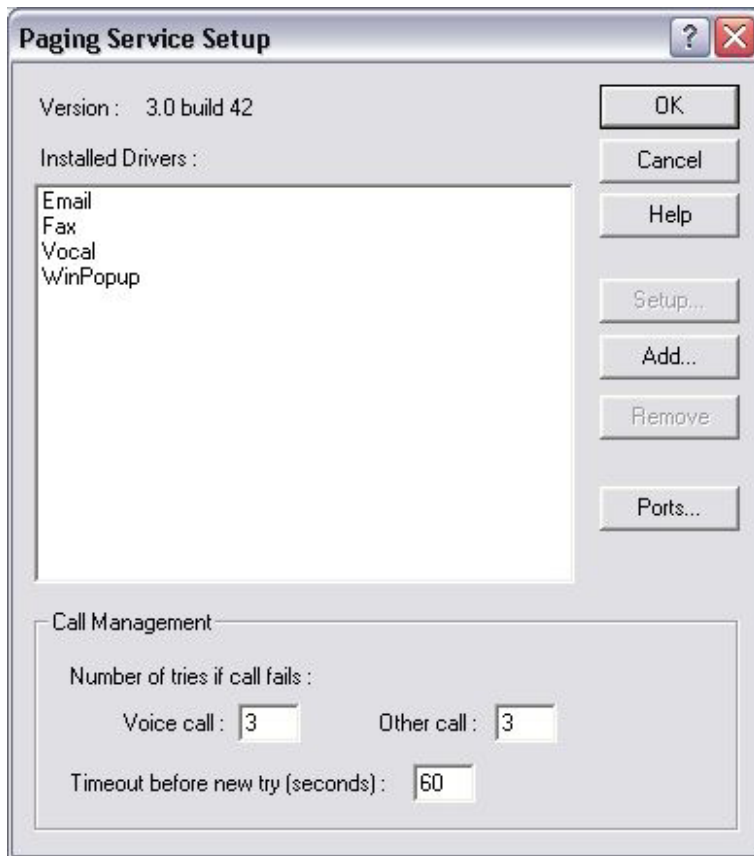
Defining Paging Service Setup

- To define paging service setup:

In the Quick Access bar or in the Control panel of the Application Studio, click the AAM icon and then click the Number of message services configured Setup button.

Or,

From the Design menu, point to Advanced Alarm Management and select Pager Services from the popup menu. The Paging Service Setup dialog box is displayed.



The Paging Service Setup dialog box has the following options:

Installed Drivers	A list of all drivers installed in the application.
Setup	This option opens the setup dialog box for the selected service.
Add	This opens the Add Paging Drivers dialog box where drivers can be selected and added.
Remove	This button when clicked removes a selected driver from the list.
Ports	This button allows to call the channels dialog without closing the current dialog box.
Call Management	This option defines the number of times transmission connection is attempted before a failure message is sent. It also defines the time interval between each attempt.

Paging Service Setup

In this dialog box you can define the list of paging drivers you want to use, and setup the specific parameters of each selected driver, as well as the parameters of a call management.

The dialog box displays a list of all the installed drivers to which you can add additional drivers and configure the parameters of each driver.

To add a new driver

1. Click the **Add** button to display a list of all the supported drivers. The **Add Paging Drivers** dialog box opens:
2. Select a Country to display a region-related list of drivers.
3. Click the **With GSM modem checkbox** to add to the list those drivers that work with GSM modems.
4. Select the driver(s) you want to add and click the OK button to return to the **Paging Service Setup** dialog box.

To configure the driver's parameters

1. Select the driver you want to configure.
2. Click the Setup button to open the driver's related setup dialog box.

To define the call management options

1. Type the number of tries in case a call fails.
2. Define the time interval (in seconds) the system waits before trying.

Paging Service Overview

Defining Call Management

This field defines both the number of times connection is attempted before a failure message is sent and the time-out before each call attempt.

1. In the Number Tries if call fails field, type in the number of times a transmission is sent.
2. In the Time-out before New Try field type in the number of seconds between each connection attempt.
3. Click OK to confirm.

Driver Setup

This option defines the selected driver's setup. In general different dialog boxes open for different drivers.

E-mail Driver Configuration (Direct SMTP connection)

A SMTP server can be used to send E-mail (directly) by defining the full address of the SMTP server given by the Internet provider.

E-mail Driver Configuration (With Internet modem connection)

E-mail can be sent through a modem and an Internet connection:

1. Setup the Internet connection independently of the application.
2. Check the option 'Connect to the server using a modem'
3. In the E-mail Driver Setup dialog box select the name of your Internet connection.
4. Define the login and password of the connection.
5. The SMTP Server Address can be either an IP address or the server name.
6. In 'your E-mail address' you can fill in the recipients address.
7. Click OK to confirm.

SMS Driver Configuration

Each country already has an SMS driver profile configured and therefore generally these do not need to be configured. However, in most countries SMS messages are sent via TAPI or ERMES servers. Therefore, if the SMS driver profile is not in the list contact Wizcon Systems for an updated configuration file.

Pager Driver Configuration

Each country already has a page profile configured and therefore generally these do not need to be configured. However, in most countries message pagers are sent via TAPI or ERMES servers. Therefore if the SMS driver profile is not in the list contact Wizcon Systems for an updated configuration file.



The image shows a Windows-style dialog box titled "TAP Version 4.7". It contains several input fields and checkboxes. The "Name" field is pre-filled with "Beeper". The "Analog dial number" field contains "6100081" and has a dropdown arrow and a "..." button. The "ISDN dial number" field is empty and also has a dropdown arrow and a "..." button. There are empty text boxes for "Password" and "Message header". At the bottom, there are two checkboxes: "Convert message to uppercase" and "Reverse message (Right to left reading)", both of which are unchecked. Below these is a large text area labeled "Comment". On the right side of the dialog, there are "OK" and "Cancel" buttons.

TAP Version 4.7

Name :
Beeper

Analog dial number :
6100081

ISDN dial number :

Password :

Message header :

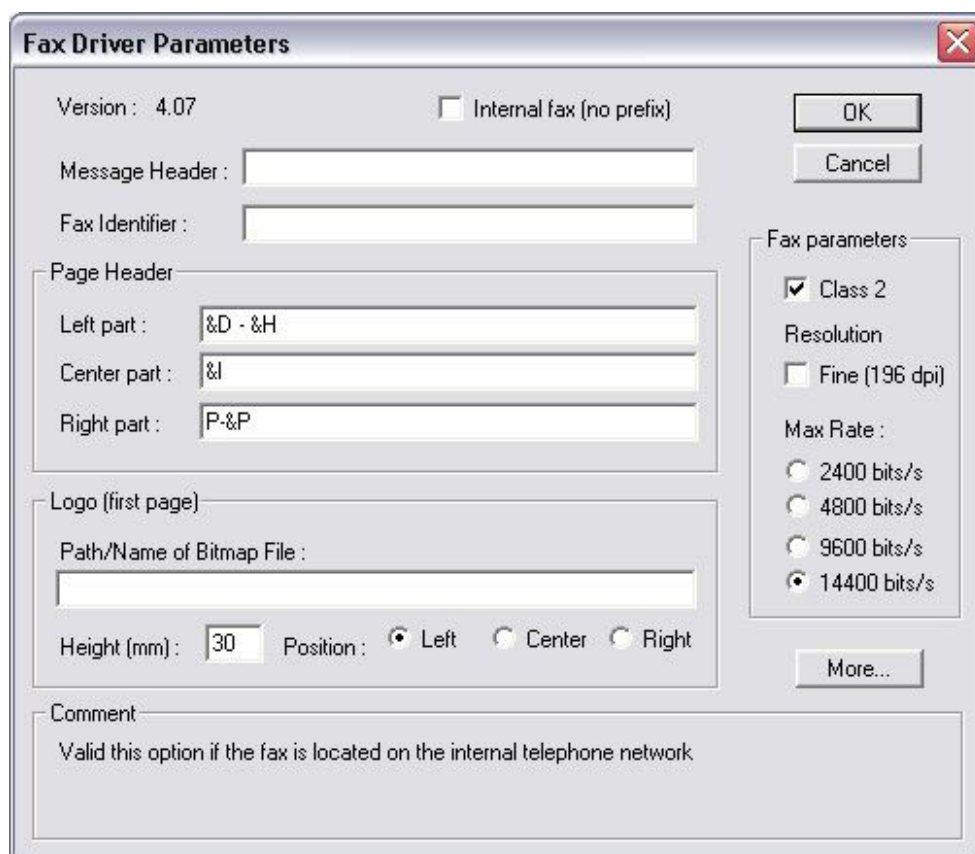
☐ Convert message to uppercase
☐ Reverse message (Right to left reading)

Comment

OK
Cancel

Fax Driver Configuration

Note: To avoid flow communication problems select the hardware flow control option by clicking the More button.



Fax Driver Parameters

Version : 4.07 ☐ Internal fax (no prefix) OK Cancel

Message Header :

Fax Identifier :

Page Header

Left part :

Center part :

Right part :

Logo (first page)

Path/Name of Bitmap File :

Height (mm) : Position : ☒ Left ☐ Center ☐ Right

Comment

Valid this option if the fax is located on the internal telephone network

Fax parameters

☒ Class 2

Resolution

☐ Fine (196 dpi)

Max Rate :

☐ 2400 bits/s

☐ 4800 bits/s

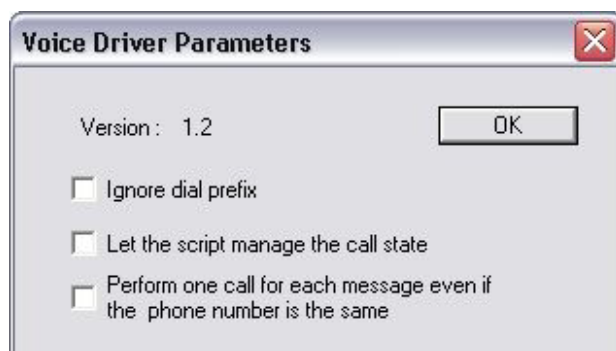
☐ 9600 bits/s

☒ 14400 bits/s

More...

Voice Driver Configuration

Note: No specific parameters are needed in the configuration of the voice driver.



Voice Driver Parameters

Version : 1.2 OK

☐ Ignore dial prefix

☐ Let the script manage the call state

☐ Perform one call for each message even if the phone number is the same

Vocal Server

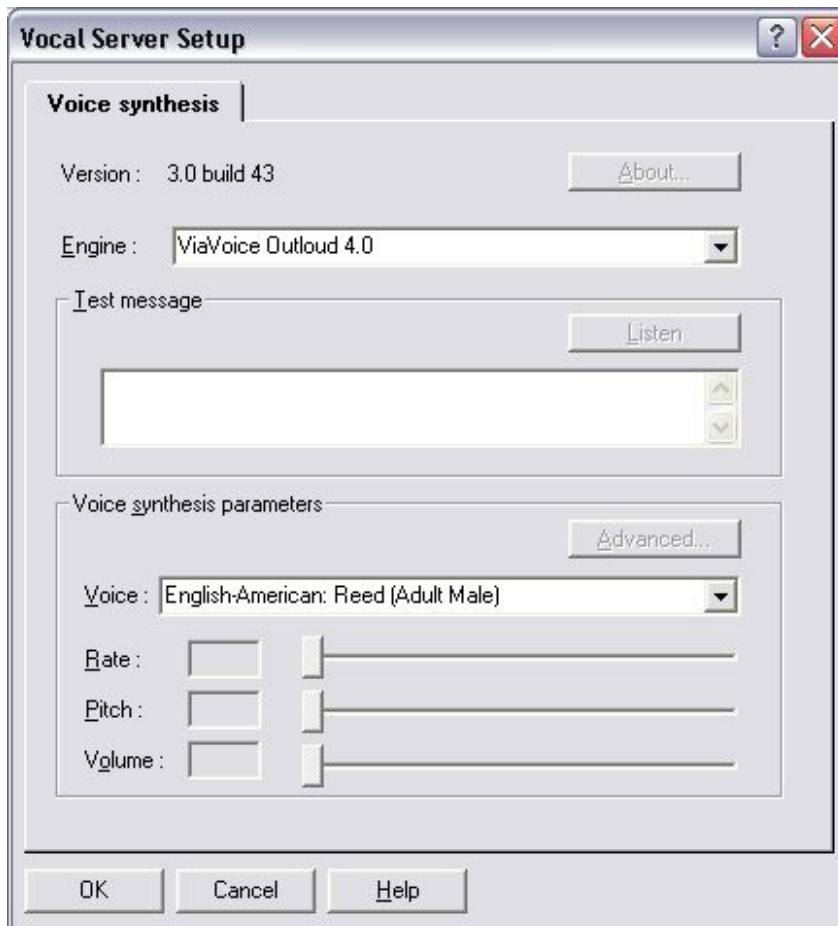
Vocal Server

The Vocal Server dialog box configures the sound of the voice message defined in the Alarms dialog box **Action on Alarm** tab AAM field. The voice can be defined as male, female, according to age, volume, pitch, rate, country of origin and more.

Note: All WAV files played by the AAM must be in mono format and not stereo. The following format must be used 44kHz 16bit mono.

- To open the Vocal Server Setup

In the Quick Access bar click the AAM icon. The Advanced Alarm Management dialog box opens. Click Vocal Server Setup to open the Vocal Server Setup dialog box.



This dialog box has the following fields:

About This button when clicked opens the Vocal Server license agreement.

Engine The Engine field defines the type of synthesizer.

Test Message Type in the message of the alarm text

Advanced - when clicked this button opens the Voice Synthesis Parameters dialog box.

Voice - this field defines the type of voice speaking the message

Synthesis Parameters: Rate - this field defines how fast the message is spoken

Pitch - this field defines the pitch the message is spoken

Volume - this field defines the volume at which this message is spoken

1. In the Engine field click the arrow in the dropdown list and select ViaVoice Outloud 4.0.
2. In the Text Message field type in the text of the voice message.
3. In the Voice field click the arrow to open the dropdown list and select the voice type.
4. In the Rate, Pitch and Volume fields slide the button to change parameters.
5. Click the Advanced button to open the Voice Synthesis Parameters dialog box to make further changes to the voice.
6. Click OK.

Vocal Server Overview

The Vocal Server enables you to define a vocal interface to control the communication of an application using the telephone, from a simple telephonic keyboard.

The vocal server interacts with an internal **database**. This database contains a set of variables that can be read or written by specific functions of the scripts (in reaction to operator commands for example).

Some variable can be linked to external variables (variables belonging to an external application) through interface drivers: DDE driver, OPC driver, specific drivers.

The database has a double architecture: physical and logical. The physical architecture of the database allows to physically localize variables and to connect them to the external world (internal variable, driver and relative address to this driver). The logical architecture of the database enables to define a representation of the data independent of their physical implementation. It allows to define logical groups, representative of physical entities of identical structure: office, electric module, machine, etc.

Variables are referenced in scripts by designating them by their logical name and their path in the logical architecture of the data base: Set point and BuildA\Floor1\Office103 for example. The logical path can be contextually defined by the identification of the in line operator, thus allowing to use the same script to order some different variable sets.

The vocal server manages a list of **identifiers** (channel number, user code). Each identifier can be associated to a script and a path in the logical architecture of the database (logical group).

Configuring the Vocal Server

Configuring the Vocal Server

Messages

Click on this button to consult or edit the recorded voice messages.

Programs

List of defined scripts (or programs). This list can contain up to 16 different scripts, numbered 00 to 15. The script marked by '>' is the script that is activated by each connection.

To **edit a script**, click the corresponding line in the list then click on the **Edit...** button. If the selected line is empty (**addition of a script**), a dialog box is displayed prompting you to select a file; select an existing script (**script importation**) or type the name of the script you want to create (**create a new script**).

To **remove a script** from the list, select the corresponding line in the list then click on the **Remove** button. A removed script is only removed from the list. The corresponding file is not deleted.

The **> initial Program** button allows you to define the script that will be activated at every operator's connection. Such script is marked by '>'.

The **Broadcast** button enables you to transmit the defined script list and the associated program files to all the stations connected on the network (updating the configuration of a vocal server will be distributed to several stations).

Database

Name of the file containing the description of the used database. If no database is defined, type the name of a new database file in the edit field, with the .vab extension.

To edit the database designated in the edit field, click on the **Edit...** button.

The **Broadcast** button allows you to transmit the defined database to all the stations connected on the network (updating of the configuration of a vocal server to several stations).

Identifiers

List of identifier codes "recognized" by the vocal server. This list can be referenced by specific functions in scripts to authorize or not a received identifier code and to get the contextual parameters associated with this identifier code: associated program and logical group.

To create a new identifier, type the identifier code in the **Id** field, the code of the associated program (00 to 15) in the **Prog** field and the name of the logical group in the **Group** field, then click on the **Apply** button ". The name of the logical group can be selected also in the list of group defined in the database by clicking on the browse button on the right of the field. The program name and group name are optional.

To **delete an identifier**, select the corresponding line in the list then click on the **Remove** button.

The **Broadcast** button allows you to transmit the defined list of identifiers to the all stations connected on the network (updating the configuration of a vocal server distributed on several stations).

Voice synthesis

Select the voice synthesis motor to use. When a voice synthesis motor is selected, it is immediately initialized. It will be then automatically initialized every time the application will be launched.

Selecting None stops the voice synthesis motor.

Select the voice to use. When the voice is modified, the voice synthesis motor is immediately reset with the new voice.

Adjustment of the voice synthesis

- Speed: this parameter defines the elocution speed of the synthesis
- Pitch: this parameter defines the tonality of the voice generated, low (high value) or high (low value)
- Volume: this parameter defines the sound level of the message generated.

To test the selected voice synthesis motor and the adjustments, type a text in the field Test message , then click on the button Listen .

Vocal Server Overview

WAV Messages

The following messages are held in the product Bin.To activate the message the following format must be defined in the Frequency Formatting dialog box: PCM48KHz.8bit.mono. File names cannot be modified.

ACKFILE.WAV	This message is used to inform the user that the alarm message has been acknowledged.
ENDALARM.WAV	This message is used to inform the user that the alarm has ended.
ENDMSG.WAV	This message is used to inform the user that the message has ended.
STARTALARM.WAV	This message is used to inform the user that the alarm is starting.
WAITACTFILEACKEND.WAV	This message is used to inform the user that their message has been received and that they can either press * to confirm it or press # to exit the message.
WAITACTFILEEND.WAV	This message informs the user that their message was received and that to end the message press #.

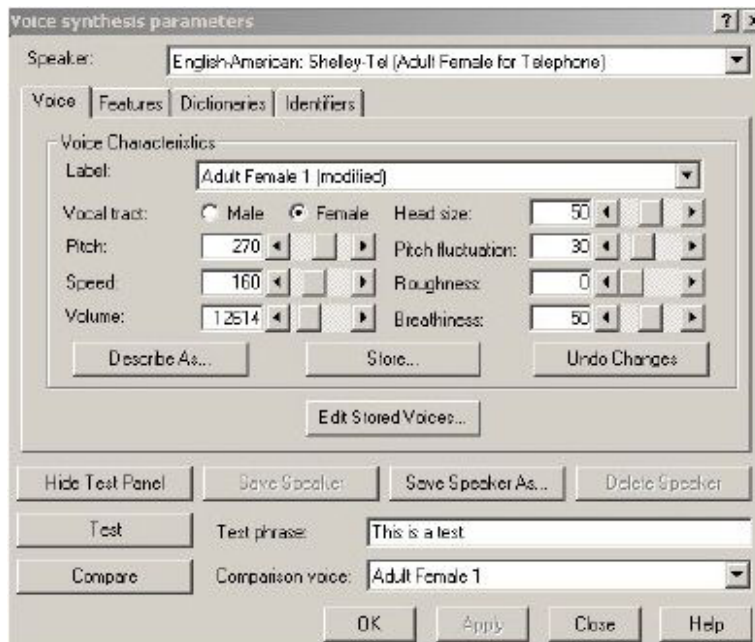
Voice Synthesis Parameters

The Voice Synthesis Parameters edits the voice of the voice message.

This dialog box has four tabs:

- **Voice** - defines the voice label, gender, and other parameters.
- **Features** - defines voice language, dialect, style and more
- **Dictionaries** - holds lists of words, roots, abbreviations common to the module.
- **Identifiers** - lists the identifier codes recognized by the Id field.
- To open the Voice Synthesis Parameters

In the Vocal Server Setup dialog box click the Advanced button to open the Voice Synthesis Parameters dialog box.



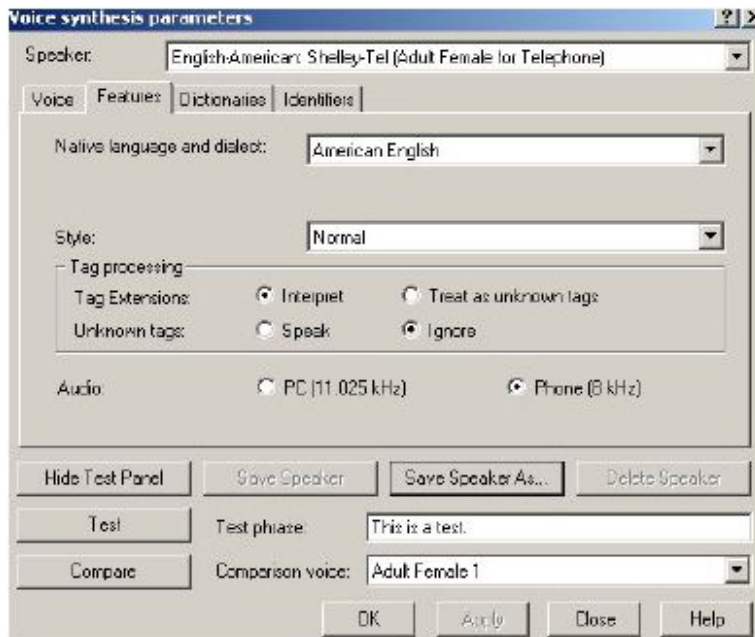
Voice Tab

This tab has the following fields:

Voice Characteristics	This field defines the voice sound in the following options: Label, vocal tract, pitch, speed, volume, head size, pitch fluctuation, roughness and breathiness.
Describe As	This option defines voice gender and age.
Store	This option displays the Edit Stored Voices list
Edited Stored Voice	This option is used to edit the Stored Voices list
Show/Hide Test Panel	This option shows/hides the test panel where the defined voice can be tested, compared to another voice in the list and saved

1. From the Speaker listbox click the arrow to select the speaker type. The values in the Voice Characteristics tab change accordingly.
 2. Change the sound of the voice using the Voice Characteristic fields.
 3. Click Test to hear the voice.
 4. To change the voice gender click the Describe As button to open the Describe Voice As dialog box, where you can change the gender characteristics.
 5. Click the Show Test Panel button to compare the voice to another voice in the list.
 6. The Save Speaker button saves the voice to file.
 7. Click the Delete Speaker button to erase this voice.
 8. Click OK to confirm.
-

Features Tab



This tab has the following fields:

Native Language &Dialect	This option defines language and dialect
Style	This option defines type of speech
Tag Processing	<p>This option defines how the selected tab will be processed:</p> <p>Interpret - causes all tags to be recognized and interpreted</p> <p>Treat as Unknown - causes all tags to be treated as unknown and processed according to the application's definitions</p> <p>Speak - causes all unknown tags to be spoken as individual characters and numbers</p> <p>Ignore - causes all unknown tags to be ignored</p>
Audio	This option defines the Audio sampling rate used. PC optimizes the sampling rate for the computer while Phone optimizes sampling rate for the telephone
Show/Hide Test	This option shows/hides the test panel where the defined voice can be tested, compared to another voice in the list and saved

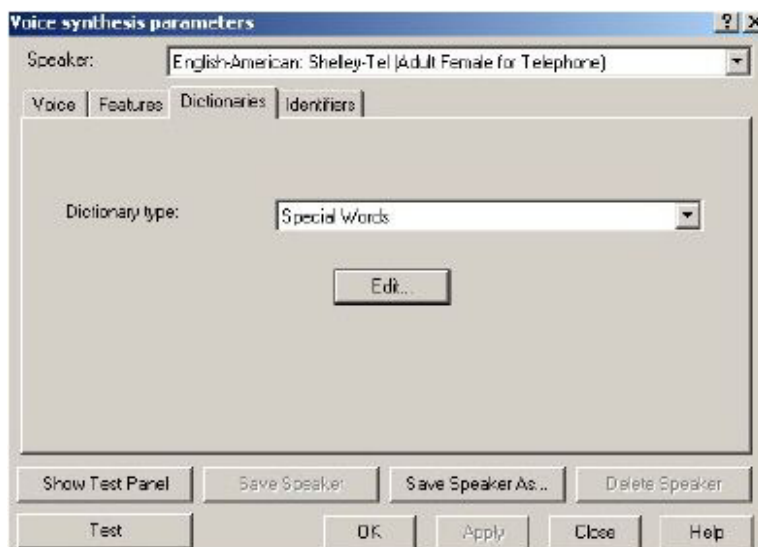
○ Features Definition

1. In the Speaker field click the arrow to open the dropdown list and select a speaker type.
2. In the Native Language and Dialect field click the arrow to open the dropdown list and make your selection.
3. In the Style field click the arrow to open the dropdown list and make your selection.
4. In the Tag Processing field select the relevant processing method.
5. In the Audio field select either PC (11.025kHz) or Phone (8kHz).

6. Click the Show Test Panel button to compare the voice to another voice in the list.
7. Click OK to confirm.

Dictionaries Tab

This tab is used to add or edit dictionaries and to define special word types.

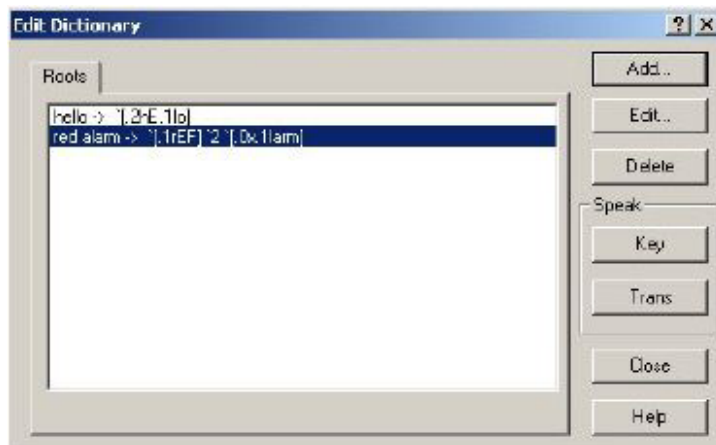


This dialog box has the following fields:

Dictionary Type	<p>There are three dictionary types:</p> <p>Special Words - contains entries which may include digits or other non-alphabetic symbols or entries that require translations with annotations, SPRs or other non-alphabetic symbols</p> <p>Roots - contains the root of the word only</p> <p>Abbreviations - contains entries that include periods</p>
Edit	<p>When this button is clicked it opens the Edit Dictionary dialog box where you can add, edit, delete, add speakers, keys and translation</p>
Show/Hide Test	<p>This option shows/hides the test panel where the defined voice can be tested, compared to another voice in the list and saved</p>

1. In the Dictionary Type field click the arrow to open the dropdown list and select a dictionary term.
 2. To edit a dictionary term click the Edit button to open the Edit Dictionary dialog box.
 3. Click OK to confirm.
-

Edit Dictionary



This dialog box has the following fields:

- | | |
|--------|---|
| Add | This option when clicked opens the Dictionary Entry dialog box |
| Edit | This option when clicked opens the Dictionary Entry dialog box |
| Delete | When selected deletes the dictionary entry |
| Key | The string of characters that the dictionary searches for. Click this option to hear the pronunciation of the key |
| Trans | Click this option to hear the translation of the key. |

- Managing dictionaries

1. To add a new dictionary entry, click the Add button. The Dictionary Entry dialog box will open. Complete the fields as described in **Dictionary Entry** and click OK to return to this dialog box.
2. To edit a dictionary entry, select the entry and click the Edit button. The Dictionary Entry dialog box will open. Complete the fields as described in **Dictionary Entry** and click OK to return to this dialog box.

3. To delete a dictionary entry, select the entry and click the Delete button. The entry will be removed from the list.
4. Click the Key button to listen to the pronunciation of the key for the selected dictionary term.
5. Click the Trans button to listen to the pronunciation of the translation that was provided by the user for the selected dictionary term.
6. Click OK to confirm.

Dictionary Entry

This dialog box opens when the Edit Dictionary Add or Edit buttons are selected.



This dialog box has the following fields:

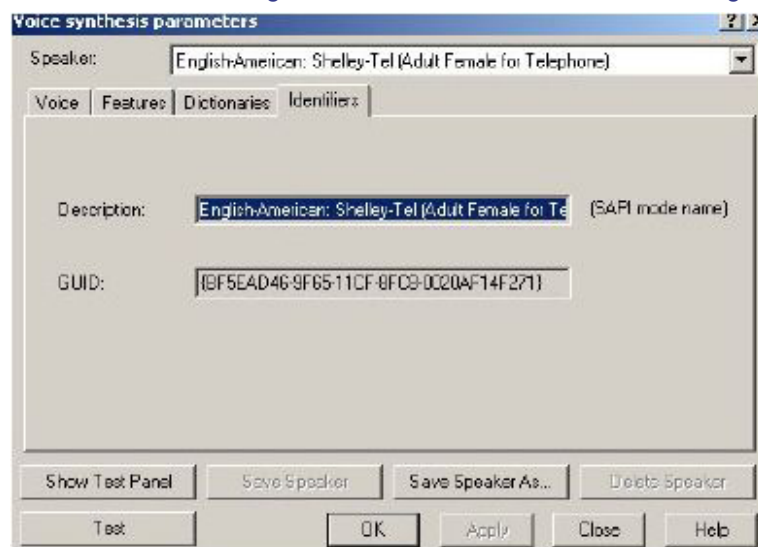
Key	The string of characters that the dictionary searches for.
Translation	The translation of the key that the dictionary searches for.
SPR from Key	Phonetic alphabet the dictionary searches for
SPR from Translation	The phonetic alphabet that the dictionary searches for.

1. In the Key field type in the new directory term.
2. In the Translation field type in the way that the word should be pronounced.
3. If the translation sounds correct click OK, if not continue modifying the spelling of the translation.
4. For phonetic alphabet pronunciation click the SPR from Translation button.

5. Click OK to confirm.

Identifiers Tab

The Identifier tab dialog box holds a list of identifier codes recognized by the vocal server.



This dialog box has the following fields:

Description	This field shows the description of the selected speaker
Guide	This field shows the Description field's code
Show/Hide Test	This option shows/hides the test panel where the defined voice can be tested, compared to another voice in the list and saved

1. In the Speaker field click the arrow to open the dropdown list and select a speaker type.
2. Click the Show Test Panel button to compare the voice to another voice in the list.
3. The Save Speaker button saves the voice to file.
4. Click the Delete Speaker button to erase this voice.
5. Click OK to confirm.

User Message Format

User Message Format

This section shows message formats for different kinds of pager services.

E-mail Message Format

Station Name: Station1
Alarm Status: Alarm Started
Alarm Date/Time: Thursday August 30 2001, 10 Hours, 22 Minutes, 21 Seconds
Alarm Text: The test variable is equal to 46
Alarm Severity: 2
Alarm Zone: 15
Alarm Family: Electrical

Note: The contents of the Alarm Text field will appear also in the Object of the E-mail.

SMS Message Format

St: Station1
Alarm Started: Thursday August 30 2001, 10 Hours, 57 Minutes, 46 Seconds, <The test variable is equal to 46>
Svr: 2
Zn: 15
Fam: Electrical.

Pager Message Format

Station Name: Station1
Alarm Date/Time: Thursday Augu
Alarm Text: The test variable is equal to 46 Alarm Severity:
Alarm Family: Electrical

Fax Message Format

<Logo>
<Fax Message Header>
Station Name: Station1
Alarm Status: Alarm Started.
Alarm Date/Time: Thursday August 30 2001, 10 Hours, 22 Minutes, 21
Seconds
Alarm Text: The test variable is equal to 46
Alarm Severity: 2
Alarm Zone: 15
Alarm Family: Electrical

Printer Message Format

Station Name: Station1
Alarm Status: Alarm Started
Alarm Date/Time: Thursday August 30 2001, 10 Hours, 22 Minutes, 21
Seconds
Alarm Text: The test variable is equal to 46
Alarm Severity: 2
Alarm Zone: 15
Alarm Family: Electrical

Station name is: Stations1
Alarm started at:
Date is: Thursday August 30 2001, 11 Hours, 12 Minutes, 28
Seconds
Severity is equal to
Family is: Electrical.

Voice Message Format

Note: An introduction message will be played before the alarm message. An alarm message can be acknowledged by pressing the * character after which a confirmation message will be played.

Advanced Alarm Viewer

Tools AAM Viewer

The AAM viewer displays detailed information on all AAM alarms in the application.

Advanced Alarm Viewer

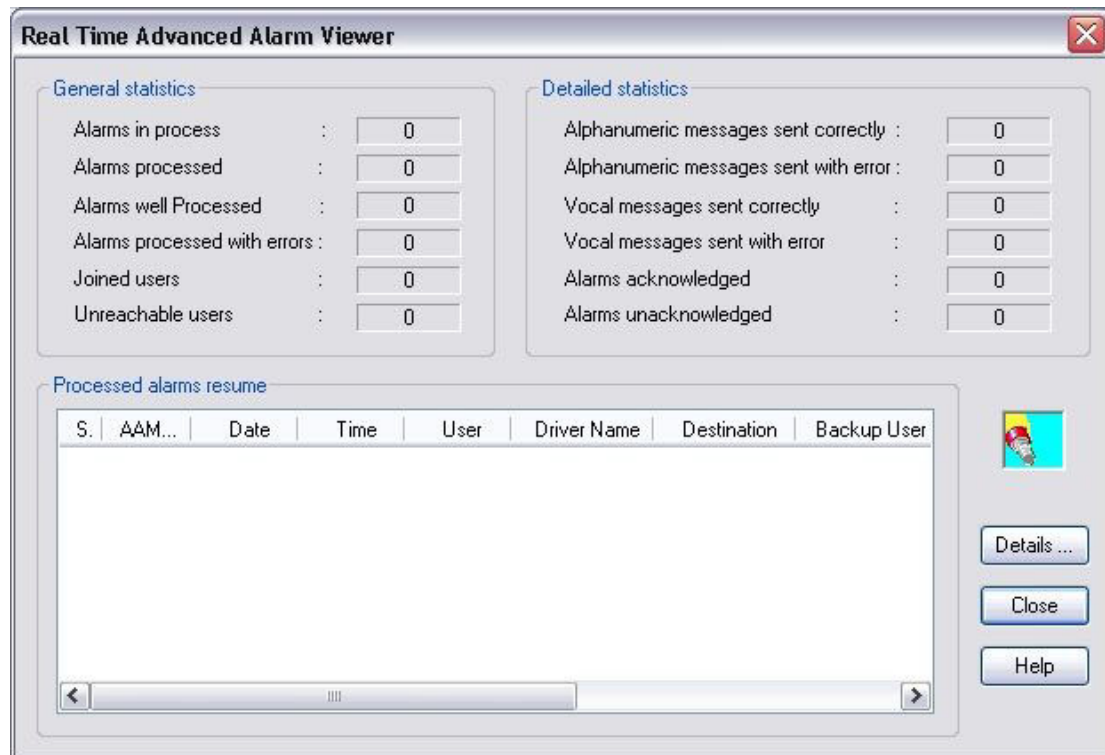
The AAM viewer displays detailed information on all AAM alarms in the application.

- To open the Advanced Alarm Viewer

In the Quick Access bar click the AAM icon. The Advanced Alarm Management dialog box opens. Click the Advanced Alarm Viewer to open the Advanced Alarm Viewer dialog box.

Or,

In the menu bar select Tools and then Advanced Alarm Viewer. The Advanced Alarm Viewer opens.



Description of available statistics:

Alarms in process	Displays the number of alarms that are being processed
Alarms processed	Displays the number of alarms that have been processed
Alarms well processed	Displays the number of alarms that have successfully reached their destination
Alarms processed with errors	Displays the number of erroneous alarms generated
Joined users	Displays the number of users that have been reached
Unreachable users	Displays the number of users that cannot be reached
Alphanumeric messages sent correctly	Displays the number of alphanumeric message sent correctly
Alphanumeric message sent with error	Alphanumeric messages sent with error. Displays the number of erroneous alphanumeric messages
Vocal messages sent correctly	Displays the number of vocal message sent correctly.
Vocal messages sent with error	Displays the number of erroneous vocal messages

Alarms acknowledged	Displays the number of alarms that have been acknowledged by user
Alarms unacknowledged	Displays the number of alarms that have not been acknowledged

Description of fields available in the Events Summary:

AAM ID	Displays the alarm identifier provided by the AAM module
Status	Displays an icon according to the management status of the alarm
Date	Displays the date the alarm was raised
Time	Displays the time that the alarm was raised
User	Displays the name of the user receiving the alarm
Driver Name	Displays the driver used to reach the user
Destination	Displays the destination address of the sent message
Backup User	Displays Yes if the user is the backup user, otherwise it displays No.
Detailed Status	Additional informations on the AAM status
More Details	This button when clicked opens the Event Log Journal

Note: In this version the only service that can be supported by the Backup User is Vocal.

Advanced Alarm Viewer

The Advanced Alarm Viewer provides you with a statistic view of your AAM alarms: number of alarms generated, how many alarms are in-process and also the amount of alarms that were successfully sent to the alarm target or the alarm recipient, and the number of alarms that failed to get to their defined targets.

In addition, the Advanced Alarm Viewer displays a list view of the AAM alarms including the following information:

Status	this column displays the status of the generated alarm.
AAM ID	this column displays the alarm serial number provided by the system.
Date	this column displays the alarm date.
Time	this column displays the alarm start time.
User	this column displays the user attached to the alarm.
Driver Name	this column displays the driver used for the alarm generation.
Destination	this column displays the alarm message destination
Backup User	this column displays Yes if a backup user was defined and No if a backup user was not defined.
Detailed Status	this column displays additional information on the AAM status.

To refresh this window and display updated data, click the **Update** button.

To display the **Event Log Journal** window, click the **More Details** button.

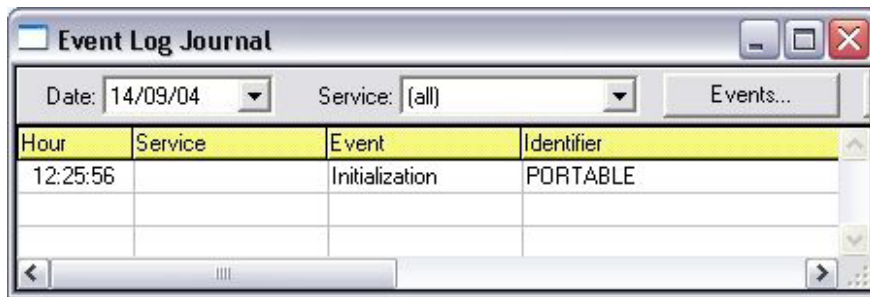
Event Log Journal

The Event Log Journal is a table that holds the historical record of all events detected by the Advanced Alarm Management module. A new Event Log Journal file is opened every day where each event is written in order of occurrence. The file is saved in the Trace folder located under the application bin folder in the following format:

tYYMMDD.LOG
YY=year, MM=month DD=date

- To open the Event Log Journal

Click the Details button in the Advanced Alarm Viewer dialog box.



The Event Log Journal has the following fields columns and options:

- Date: The date of this Event Log Journal file
- Service: The AAM service where the event occurred, this could be Pager, Vocal Server or both
- Events: The Events button when clicked opens a list of all event types
- Print: The Print button when clicked prints a copy of this page
- Time: The event time stamp
- Service: The AAM service where the event occurred, this could be Pager, Vocal Server or both
- Event: Label of the event including the event code number and name
- Identifier: The user whose station generated the event
- Information: Additional information regarding the event

- To select the Event Log Journal date:

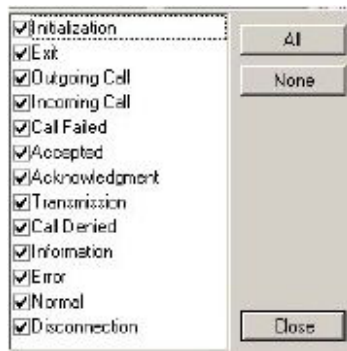
1. In the Date field click the arrow to open the dropdown list.
2. Select the relevant date. The Log will show only the events that occurred on the selected date.

- To select a service:

1. In the Service field click the arrow to open the dropdown list.
2. Select the relevant Service. This could be Pager, Vocal Server or both. The Log will show only the events that occurred in the selected service.

- To select an event type:

Click the Events button to open the Events Type list.



1. Check the relevant event types.
2. Click the All button to select all event types and None for no event types.
3. Click Close to close the list. The selected event types will be recorded.

Event log

The Event Log Journal window contains the historical record of all the events that were detected by the AAM.

The Event Log Journal Files

The event log is recorded to files - a file per each day. The files are stored in the a folder named **trace**, located under your **bin** folder.

The name of the stored log files have the format: **tYYMMDD.LOG**, where:

YY =year; MM=month; DD=day of the month.

For example a file named **t010702.log** is a file created on July 2nd, 2001.

The stored event log file is actually a daily table containing the chronological event list of a day.

Each line in this table describe an event in 5 columns:

Time	The event time stamp.
Service	The service correlated with the event (for example, pager).
Event	Label of the event, including the event code number and name (for example: "04:Call Failed")
Identifier	The user whose station generated the event.
Information	Additional information about the event

The Event Log Journal View

You can customize the view of the Event Log Journal window by selecting a date, the services whose events you want to view and the event types.

To select a date

1. Click on the Date drop-down box to display a list of dates. The date format is **dd/mm/yy**, where **dd** is the day, **mm** is the month and **yy** is the year.

2. Select the date whose log file you want to display. The Event Log Journal now displays the selected date events.

To select a service

1. Click on the Service drop-down box to display the list of available services.
2. Select the service whose events you want to display: select **All** to display all the services events, **Pager** to display pager services events and Vocal Server to display vocal server events.

To select event types

1. Click on the Events button to display a list of all possible events.
2. Check the events you want to display.
3. Click the All button to display all the event types in the Event log Journal window. Click None to deselect the list of events.
4. Click the Close button when done.

Customizing the Event Log Journal window

The event log list can be customized, sorted and resized and each column of the event log list can be modified.

To customize the event log list columns

1. Position your cursor on the column you wish to customize and click your mouse right button, a popup menu is displayed, enabling to select one of the following options: Column title , Column width , Column position, Column alignment, Sort on column, Mask, Display, Printing, **Export**.
2. Define each of the options as applicable.

To adjust the event log list columns width

You can manually adjust the event log list columns by dragging the event log window title bar column lines to the desired width.

To sort the event log list

You can sort the list both by increasing and decreasing order of each column. Click on the title of the column you want to sort the list by: an arrow will indicate whether the list is in increasing or decreasing order (first click is used for increasing order, second click is used for decreasing order).

Export

You can export the event log table data either to the clipboard or to a specified file.

To export the event log table data

1. Right click the event log table and select Export from the popup menu displayed. The Export dialog box opens.
2. Select the columns you wish to export.

3. Check the **Include first line header** checkbox to display the columns title in the exported file.
 4. Select the columns separator in the exported data (tab, semi colon or comma).
 5. Define where to export your table data: to the clipboard or a file. If you selected to export the data to a file, click the browse button to select the file to which you want to export the table data.
 6. Click OK when done.
-

Customizing the Event Log Journal Window

Each column in the Event Log Journal can be customized according to requirements.

- To customize the Event Log Journal:

Right click in the column you wish to customize to open the dropdown list options.

- To define the column title:

1. Select Column Title from the dropdown list to open the Column Title dialog box.
2. Type in the new name of the column and click OK.

- To define the column width:

1. Select Column Width from the dropdown list to open the Column Width dialog box.
2. In the Column Width field type in the new measurement and click OK.

- To define the column position:

1. Select Column Position from the dropdown list to open the Column Position dialog box.
2. In the Column Position field type in the new position (range 1-5) and click OK. The position of the column within the table will change accordingly.

- To define column alignment:

1. Select Column Alignment from the dropdown list to open the Column Alignment dialog box.
2. In the Title Alignment field select either; Left, Center or Right.
3. In the Column Alignment field select either; Left, Center or Right and click OK. The column will be aligned accordingly.

- To sort a column:

Select Sort on Column from the dropdown list. The column in the Event Log List will be sorted accordingly.

- To mask a column:

Select Mask from the dropdown list. The column will be hidden.

- To display a column:

This option is used to retrieve masked columns.

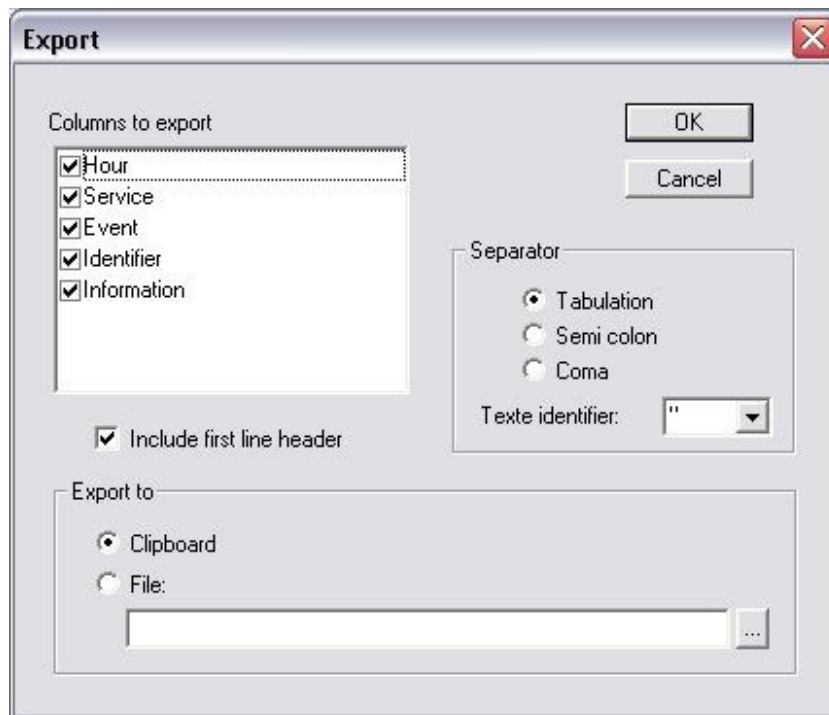
1. Select Display from the dropdown list to open the Column Display list.
2. Select the columns you wish to display in the Event Log Journal table and click OK. The selected columns will open in the table.

- To print a column:

Select Printing from the dropdown list to open the Printing Format list

1. Select the columns you wish to print.
2. Select printing orientation, which is either Default, Portrait or Landscape. Click OK to print the column.

- To export a column:



1. Select Export from the dropdown list to open the Export dialog box.
2. Select the columns you wish to export.
3. Check the Include first line header checkbox to display the columns title in the exported file.
4. Select the columns separator in the exported data (tab, semi colon or comma).
5. Define where to export your table data: to the clipboard or a file. If you selected to export the data to a file, click the browse button to select the file to which you want to export the table data.
6. Click OK when done.

Column Title

Select this item to open the Column title dialog box where you can rename the column's title.

Column Width

Select this item to open the Column width dialog box where you can change the column's width.

Column Position

Select this item to open the Column position dialog box where you can change the position of the column in the window.

You can type a number in the range 1 - 5 (as this window contains 5 columns), where 1 is the left-most column and 5 is right-most column.

Column Alignment

Select this item to open the Column alignment dialog box where you can define the title alignment (left, center or right) and the column alignment (left, center or right).

Sort on Column

Select this item to sort the event log list according to this column.

Mask

Select this item to hide the current column (both title and contents of column will disappear upon clicking the Mask item).

Display

Select this item to open the Column display dialog box where you can select the columns to display in the event log window.

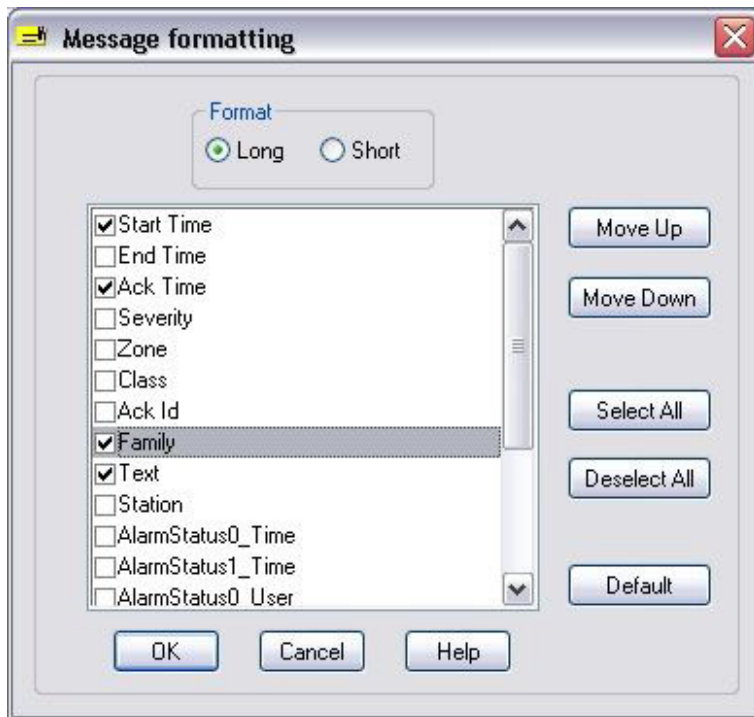
Printing

Select this item to open the Printing format dialog box where you can select the columns you want to print and the printing orientation.

Message Formatting

The Message Formatting dialog box is used to define the format of the alarm message that is sent to the user.

- To open the Advanced Alarm Viewer
 1. In the Quick Access bar click the AAM icon. The Advanced Alarm Management dialog box opens.
 2. Click the Message Format button to open the Message Formatting dialog box.



This dialog box has the following options and buttons:

Format	<p>This field defines the type of alarm format sent to the user:</p> <p>Long which, when checked, indicates that the user will receive an alarm message holding all the alarm fields available. The defaults for this field are Start time and Text.</p> <p>Short which, when checked, indicates that the user will receive an alarm holding limited fields only. The default for this field is Text.</p> <p><i>Note: Check the End Time Message checkbox to enable the user to receive notification that an AAM has ended.</i></p>
Columns List	<p>This list holds all the columns that can be selected and which will appear in the AAM message sent to the user.</p>
Move Up	<p>Moves a selected column from the Columns List one space up.</p>
Move Down	<p>Moves a selected column from the Columns List one space back.</p>
Select All	<p>Selects all the columns appearing in the Columns Lists and adds them to the AAM message format.</p>
Deselect All	<p>Unchecks all the selected messages from the Columns List.</p>
Default	<p>Returns the options of this dialog box to default.</p>

Note: A message will not be sent to a vocal client in the following circumstances:

- If the alarm is acknowledged by pressing the button "*" on a cellular phone.

- *If the AutoAck option is selected.*
-

Message Formatting

This dialog box has the following options and buttons:

Format This field defines the type of alarm format sent to the user:

Long which when checked indicates that the user will receive an alarm message holding all the alarm fields available.

Short which when checked indicates that the user will receive an alarm holding limited fields only.

Columns List This list holds all the columns that can be selected and which will appear in the AAM message sent to the user.

Move Up Moves a selected column from the Columns List one space up.

Move Down Moves a selected column from the Columns List one space back.

Select All Selects all the columns appearing in the Columns Lists and adds them to the AAM message format.

Deselect All Unchecks all the selected messages from the Columns List.

Default Returns this dialog box's options to the application's default.

Chapter 18 Users Timetable

Users Timetable	629
Users Timetable Overview	630
Users Timetable Overview	630
Users Timetable Overview	631
Menu bar	632
Toolbar	633
Customizing the Users Timetable	633
Selecting the Schedule Time Frame	635
Selecting the Schedule Time Frame	635
Selecting the Schedule Time Frame	636
Yearly Schedule	638
Scheduling Teams	640
Scheduling Teams	640
Scheduling a Team	642
Mark/Stop Marking Options	643
Shift Management	643
Overview	643
How to	644

About this chapter:

Users Timetable Overview discusses the basic User Timetable options.

Customizing the Users Timetable discusses how to create a personalized teams schedule.

Selecting the Schedule Time Frame discusses how to create time frames.

Scheduling Teams discusses how to create a team schedule.

Users Timetable

Click the Users Timetable icon to open the Users Timetable window where you can schedule the alarm recipient teams.

Users Timetable

Overview

Users Timetable Overview

The Users Timetable module enables efficient management of the application's workforce teams. Using this module, teams can be selected and scheduled in a calendar environment, which can be either; daily, weekly or yearly. For further timetable management efficiency each team can be allocated a specific color.

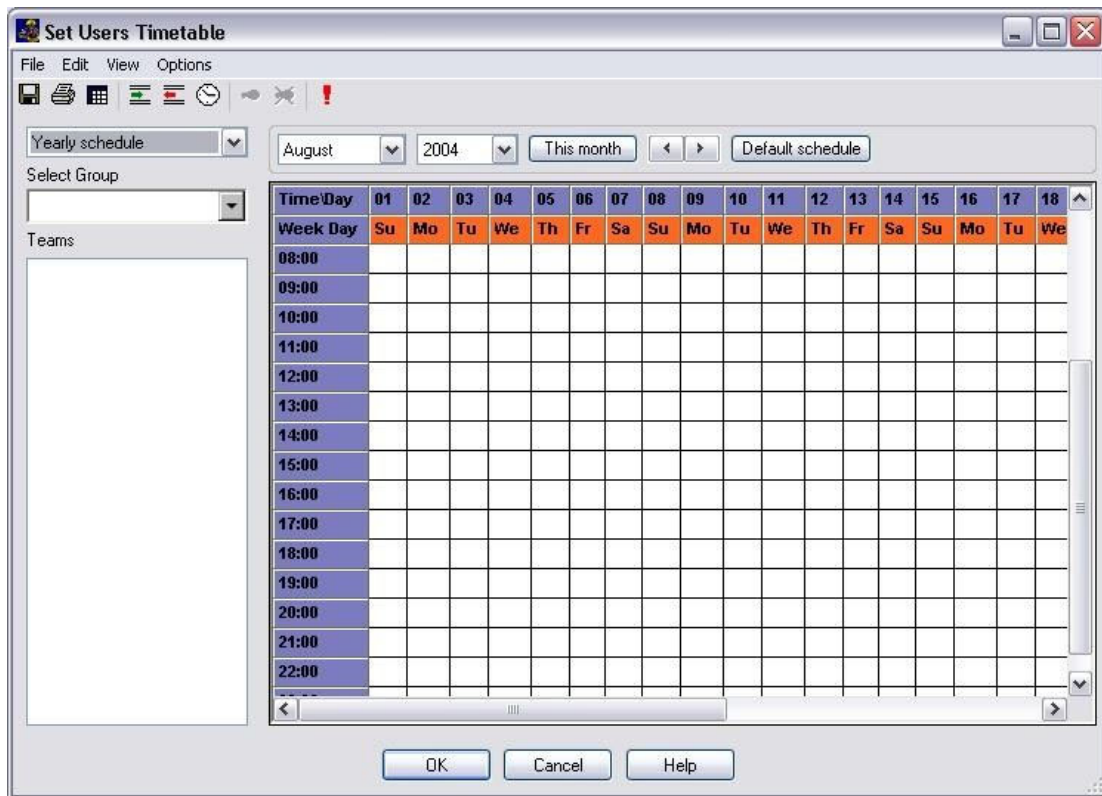
Commands and options in the Users Timetable module are performed through the module's menu bar, toolbar or by right clicking in the timetable.

Timetable intervals can be locked or unlocked. This could be to reserve time period cells for scheduled teams or for defining public holidays and so on.

Note: The User Timetable is accessible via the Web.

- To access the Users Timetable:

In the Quick Access Bar click the  icon. The Set Users Timetable dialog box opens.



Users Timetable Overview

The application provides you a new and easy way to schedule your application's **teams**. Using the Users Timetable you can select a team and schedule it on a calendar environment that offers you three different views: Weekly schedule, Daily schedule and Yearly schedule. Each team has its own color, which makes it easier to manage this timetable.

The Users Timetable can be accessed from the quick access bar by clicking on the icon.

To learn how to work with the Users Timetable follow these steps:

Selecting the schedule time frame

Scheduling a team

Customizing the table










Menu bar

The Users Timetable menu bar has the following options and commands:

File	Save
	Print
	Exit
Edit	Select all
	Clear - which has the following sub options:
	• Clear all
	• Clear selected
	• Clear row
	• Clear column
View	Fit to view all
	Gridlines - which has the following sub options:
	• Both
	• Vertical
	• Horizontal
	• None
	Team Name
Options	Week Separator
	Set time intervals
	Stop marking
	Headers font
	Colors

Toolbar

The Users Timetable toolbar icons have the following options and commands:

- | | |
|---|--|
|  | Save current group timetable |
|  | Print current group timetable |
|  | Clear group timetable |
|  | Insert row to the timetable |
|  | Remove the row from the timetable |
|  | Set timetable interval |
|  | Lock selected cells in the timetable |
|  | Unlock selected cells in the timetable |
|  | Toggle stop/start marking in the timetable |
-

Customizing the Users Timetable


The Users Timetable fonts and colors can be customized to meet your personal requirements. Additionally rows and columns can also be added or removed.

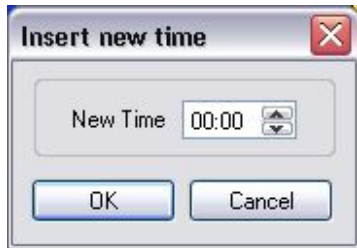
- To customize the timetable font:
 1. In the Options menu select Headers Font. The Font dialog box opens.
 2. Select and define the font type, style and size.
 3. Click OK to confirm.
- To customize timetable colors:
 1. In the Options menu select Colors. The Colors dialog box opens.



2. Click the dropdown menu in each field to display a color palette. Select the relevant color.
3. Click OK to confirm.

Note: When a group with teams is selected for the first time the teams are assigned random colors.

- To customize timetable gridlines:
 1. In the View menu select Gridlines. The Gridlines sub menu opens.
 2. There are four options:
 - Both - displays both horizontal and vertical gridlines
 - Vertical - displays vertical gridlines only
 - Horizontal - displays horizontal gridlines only
 - None - displays no gridlines
- To insert time rows:
 1. Click the  Insert icon or right click in the table area to open the popup menu and select Insert time row. The Insert New Time dialog box opens.



2. Using the arrows scroll up or down to define the new time.
3. Click OK to confirm. A new row with the new time will be added to the table.
 - To remove time rows:

Select the specific row and then click the  Remove icon or right click in the table area to open the popup menu and select Remove time row. The time row is removed.

Selecting the Schedule Time Frame

Selecting the Schedule Time Frame


The Users Timetable has three time frames each of which changes the appearance of the table. The frames are:

- Daily - displays a 24 hours work schedule
- Weekly - displays a weekly work schedule
- Yearly - displays a monthly schedule with upto 31 days per month

Note: The start day can only be set in a weekly time frame whereas start and end times can be set in all time frames. The Daily/weekly/ Yearly Schedule field is activated only after a group with teams is selected.

To customize a time frame:



1. In the Options menu select Set Time Intervals or click the  Set Time icon. The Set Time Intervals dialog box opens.
2. In the Time Interval field define the period of time that each time cell represents. The default is 60 minutes.
3. In the Day Start At and Day Ends At fields use the arrows to scroll and define the new time. The default is 00:00.
4. Select the day of the week that the timetable begins.

Note: The Yearly Schedule field at the bottom of the dialog box is for reference purposes only.

Selecting the Schedule Time Frame

The Users Timetable provides three time frames: Daily schedule, Weekly schedule and Yearly schedule.

Each time frame changes the appearance of the table accordingly.

To select the timetable time frame

Open the schedule drop-down menu and select the time frame:

Daily schedule: the table displays a 24 hours schedule.

Weekly schedule: the table displays a one week schedule.

Yearly schedule: the table display a monthly schedule, containing up to 31 week days

You can customize each of the time frames to start and end in a different time or day.

To customize the time frames

1. Select **Set Time Intervals** from the **Options** menu, or click on the time intervals icon located on the toolbar.

The Set Time Intervals dialog box opens.

2. Define the timetable time interval (default is 60).

3. Define the day start time (default is midnight 00:00) and end time (default is 00:00).

4. Select the day a week begins with (default is Monday).

The Yearly timetable

Selecting the Yearly schedule enables you to schedule teams to a selected month and year.

You can click the **This month** button to display current month calendar and use the arrow buttons to move back and forward in the year's months.

You can add a week separator to the monthly calendar. To do that, select Week Separator from the View menu.

Selecting the planning mode

You have two modes for planning: Daily, and weekly which allows you to define a typical day or week in your calendar. The yearly calendar allows you to define special days or times different to the standard times.

Daily Mode: Use this mode when all days have the same timetable. Select the icon  from the toolbar or the properties menu.

Note: when switching weekly to daily modes, a dialog box will appear allowing you to choose the day to use as the reference for the daily mode. Be careful: The planning for all other days will be lost after saving (you can use the cancel button if you don't want to proceed).

Weekly Mode: Choose this mode if the planning changes depending on the day of the week. For example, weekend working times are different from weekday working times.

Select the icon  from the toolbar or the properties menu.

Note: when passing from daily to weekly mode, the daily timetable is automatically transferred to every day of the week in the weekly timetable.




Planning special days on the annual calendar

Open the drop-down list and choose the type of calendar:

Daily or Weekly calendar depending on the type of programming you want to do.

Yearly Calendar: This allows you to see the planning month by month.

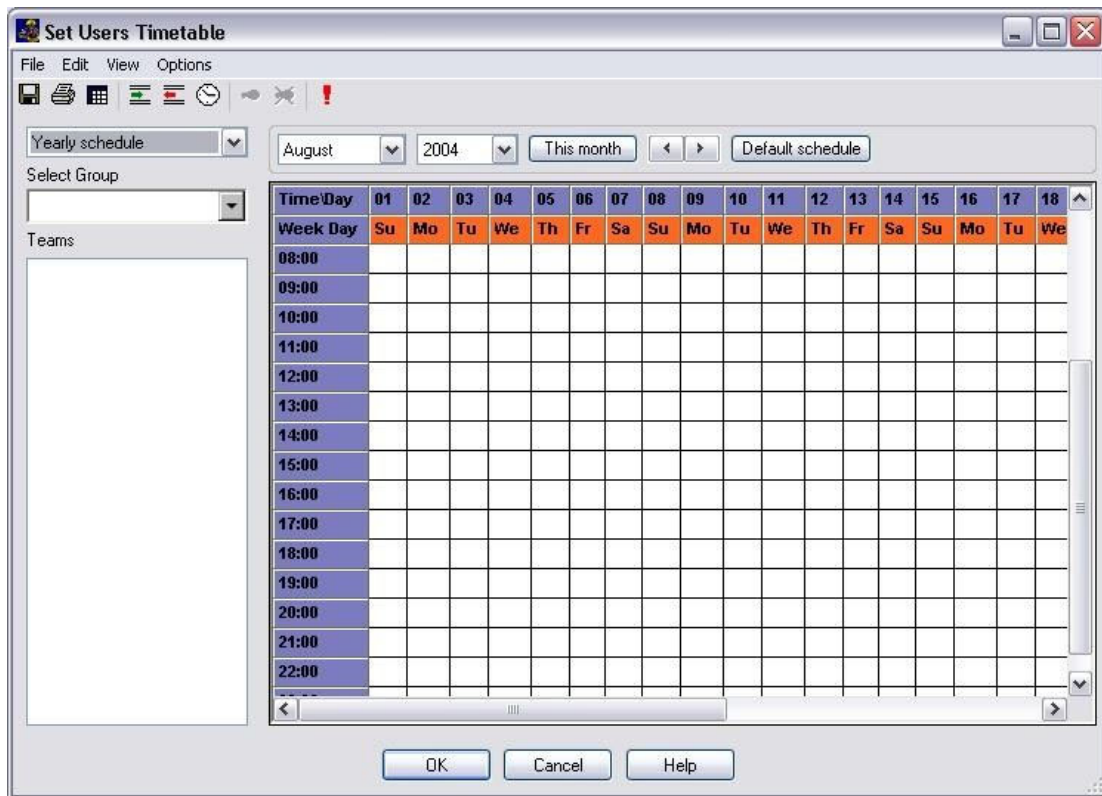
To add a special day (e.g. a public holiday), you must do the following:

1. Select the group on the left to see the list of teams.
2. Select a team so that you pass into edit mode .
3. In the calendar, click on the cell in which you want to start the planning and drag the mouse to select the time-period that you need.
4. To return to « standard » mode, click the icon  on the toolbar or the menu.
5. To save the timetable, click the button  on the toolbar, or File, Save.

Click on the button **This Month** to show the days of the month and use the arrows to move forwards or backwards thru the months.

Yearly Schedule

The Yearly Schedule displays a month-by-month view of the yearly calendar. In turn, each month can be split into weeks.

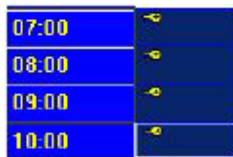




- To customize a yearly timeframe:
 1. In the Select Group field click the drop-down arrow to open the groups/teams list.
 2. Select the relevant groups and then, in the field above select Yearly schedule.
 3. To select a month either click the month fields arrow to open a dropdown list or scroll backwards/forwards using the Forwards/Backward arrow buttons.
 4. To select a year click the Year field's arrow and scroll down to select the relevant year.
 5. Click the This Month button to display the current month's calendar.
 6. If you have made changes to the User Timetable and wish to return to the timetable that is currently saved in the database click the Default Schedule button.

- To customize a weekly calendar in a yearly timeframe:

1. In the View menu select Week Separator. The timetable is marked with weekly gridlines.

- To lock/unlock time intervals:



1. Select the specific time cell and then click the  Locked icon. The selected time cell will be locked.
2. To unlock a time cell select the relevant cell and click the  Unlocked icon.

Note: This option is only available in the Daily and Weekly options. Time cells can only be locked when the Stop Marking option is on. Locked Time cells remain locked even when the group changes.

Scheduling Teams

Scheduling Teams

Teams are groups of users defined in Alert Groups. When an alarm is generated and targeted to a specific group of users, the team that is scheduled in the Users Timetable at that specific time will receive the alarm.

Note: Users/Groups/Teams are created in the User Management module. See **Chapter 7, Security and User Management**.

- To schedule a team:



1. Click the Select Group dropdown list to display all the application's Alert Groups. A + sign to the left of the group's name indicates that the group has teams.
2. Click the relevant team. The team will now appear in the List of Teams.
3. To change the team color code, right click on the specific team to open the Change Teams Color dialog box, and select a color. The team's color identifier will change to the selected color both in the List of Teams and in the Users Timetable.
4. To schedule a team, select a team and in the Users Timetable click the relevant table cells. The cells will be painted the team's color identifier and the name of the team will appear in the cell.

- To print a user timetable:

1. To print a timetable either click the  Printer icon or select Print from the File menu. The Print option dialog box will open.

2. Check that the Printer parameters are correct and Click OK.

- To save a user timetable:




To save a timetable either click the  Save icon or select Save from the File menu.

Team Planning

Teams are sub-groups created within work groups marked as a « Shift Group ». During the time specified for a given team in the timetable, only the members of that team will be able to login to the system. Their session will be closed automatically when the specified time period elapses.

Note: You can define an « overlap time » during which members of the next team can login to the system. You can define this overlap time on the user properties dialog box launched from the application studio.

Team Planning

1. Select a group on the left-hand-side of the window in order to see the teams.
2. Select a team. The window passes into edit mode (represented by the icon .
3. Click on the cell for which you want the time period for this team to begin; drag and release to define the end. Note that each time you click on a cell, the cell takes on the color of the team.
4. To return to « standard » mode, click the icon  on the toolbar or the menu.
5. To save the timetable, click the button  on the toolbar, or File, Save.


To modify a team color

Each team has a color assigned to it. Double click on the name of the team if you want to change it.


To print the team planning

Click on the icon  or select the menu File, Print.

To add a new time to the timetable

Select the icon  on the toolbar or right click anywhere in the timetable. Select « Add a Time » in order to add a new time into the timetable at the appropriate place.

To delete a time

Select the icon  on the toolbar or right click anywhere in the timetable. Select « Remove a Time » in order to add a new time into the timetable at the appropriate place.

Scheduling a Team

Teams are sub-groups created within Alert groups specially for scheduling purposes. When an alarm is generated and defined to target a certain group of users, the group's team that is scheduled at the time of the alarm generation will be the recipient of the alarm.

To schedule a team

1. Select the scheduling time frame.

2. Click the Select Group drop-down box to display all your application's alert groups. A plus sign (+) to the left of the group's name indicates that the group has teams.

3. Select the team you want to schedule. The selected team now appears in the Teams list with a colored rectangle to its left. Each team is assigned with a unique color, provided automatically by the system.

4. To change a team's color, double click the team in the Teams list to display the Change Team Color dialog box, where you can select a different color from the color palette, or define colors of your own.

5. In the timetable, click the table cell where you want to start the group's scheduling and drag the mouse until the desired area is covered. Click again to stop area selection.

Note that every time you click on the table, the "clicked" cell will be painted with the team's color.

6. To reserve cells for the scheduled team and prevent other teams scheduling in those cells, click the Lock icon on the toolbar. This icon will appear on the locked cells. To unlock the cells you locked, click on the unlock icon on the toolbar. This option is available only in the Daily and the Weekly schedules.

Note that you can lock cells only when the **Stop marking** option is enabled.

To stop cells painting

Click your mouse right button on the table area and select **Stop marking** from the popup menu displayed; or, select **Stop Marking** from the **Options** menu.

To display the team's name on the painted cells

Select Team Name from the View menu.

To save the scheduling

Select Save from the File menu, or click the save icon on the toolbar.



To print the scheduling

Select Print from the File menu, or click the print icon on the toolbar.

Mark/Stop Marking Options

Time cells can be automatically marked according to row, column or specific cell. The Stop Marking option prevents time cells that are not included in a team's time scheduling from being marked.

- To activate/deactivate the marking option:

1. In the Option menu check that the Stop Marking option is not activated. Or, click the  Toggle icon.
2. Select the team for which the time cells are allocated.
3. Select the first time cell and then right click to open a popup menu.
4. Select either Mark Entire Column or Mark Entire Row accordingly.
5. To deactivate the Marking option either; click the  icon or from the Options menu select Stop Marking or right click in the Users Timetable to open the dropdown list and select Stop Marking.

Note: Stop Marking is deactivated when a new team is selected.

Shift Management

Overview

Overview of the Shift Management calendar

The application offers you a simple way to plan working hours for your teams defined in a Shift Group.

Thanks to this calendar, you can select a team and plan his access rights to the system (i.e. when he is able to login to the application).

There are two planning modes:

- Daily Mode : Can be used when the planning is the same for every day of the week..
- Weekly mode : This allows you to plan working times for a typical week (where the working times may be different depending upon which day).

Whichever mode is chosen, it is then possible to create "special days" using the "yearly calendar".

If a user is not in a team that is currently active, he cannot login to the application. Each team has its own



You can launch the shift management calendar by clicking the icon , on the Quick Access Bar or by launching the web page, [ShiftManagement.html](#).

To learn more about using the shift management calendar, see the following:

Selection of the programming mode

Team Planning

Configuring the calendar

How to

Customizing the Table

You can customize the scheduling table fonts, colors and gridlines. In addition you can add time rows and day columns.

To customize the table's fonts

1. Select Headers Font from the Options menu to display a standard Fonts dialog box.
2. Select and define the font you wish to use in your table headings.
3. Click OK when done.

To customize the table's colors

1. Select Colors from the Options menu to display the Colors dialog box.
2. Click the drop-down menu in each field to display a color palette and select the table's header background and text colors; cell background and text colors; gridlines colors and the yearly schedule colors (week day background and text colors).
3. Click OK when done.

To customize the table's gridlines

Select Gridlines from the View menu, then select:

Both - to display both vertical and horizontal gridlines.

Vertical - to display vertical gridlines only.

Horizontal - to display horizontal gridlines only.

None - to display no gridlines.


To add a time row

1. Right click on the calendar table area to display the popup menu.
 2. Select Insert Time Row to open the New time dialog box where you can define the time to be added to the table.
-

Calendar Configuration

The calendar is entirely configurable. Once saved, the configuration will apply to all users. You can configure the grid of the timetable, fonts and the colors.

To personalise the table

Select the icon  from the toolbar or the property menu. The properties dialog box will be launched. The "General Properties" tab allows you to configure the time usage:

Time interval : Allows you to configure a single time unit in minutes.

Start Time : Allows you to configure the time at which the working day begins.

End Time : Allows you to configure the time at which the working day ends.

First day of the week : The selected day will appear in the first column.

Gridlines : whether to show the grid lines

Both – show horizontal and vertical grid lines.

Vertical – show vertical grid lines.


Horizontal – show horizontal grid lines.

Aucune – No grid lines.


Team Name : Whether to show the team name in each cell.

Week separators : Whether to show the week separators.

To customise the fonts

Select the icon  from the toolbar or the menu in order to launch the dialog box. The « Fonts » tab allows you to choose the font to use in the column headers.

To personalize the table colors

Select the icon  from the toolbar or the menu to launch the properties dialog box. The "Colors" tab allows you to choose the colors that will be used in the headers of the timetable:

In each field, click on the color square to launch the color selection dialog box. Then select the text, the background color for each type of calendar view.

Chapter 19 The Application Network

Overview.....	648
Application Network.....	649
Basic Concepts.....	650
Basic Concepts	650
Application Station	650
Application SCADA Station	650
Application Hot Backup Station.....	651
Application VIEW Stations	651
Application SCADA Station	651
Application SCADA View Station	652
Configuring the Application for Networking	652
Configuring the Application for Networking	652
Time Setting Considerations	652
Configuring Application Network Stations	652
Configuring Application Network Stations	653
Configuring a Network station	653
Network Properties	654
Network Properties	654
Network Tuning Properties	655
Network Property	655
General Tab	656
Network Property - General	657
Local Station Tab	657
Protocol Tab.....	658
Network Property - Protocol.....	659
Internet Tab.....	660
Backup Tab.....	661
Network Property - Backup	662
Configuring a Hot Backup Station	664
Configuring a Hot Backup Station	664
Hot Backup Station Configuration.....	667
Updating an existing Hot Backup application.....	668
Querying the Status of a Station with Application Language	669
Application Backup - Principles of Operation	669
Application Backup - Principles of Operation	669
Tags	669
Alarms.....	669
Failure Detection and Reaction.....	670
Recording Remote Data	670
Recording Remote Data	672
/ Record remote data	673
Other Topics	674
Installing Web Application	674

Sharing information with other stations	674
Network	676
Network Local Station	683
Local station configuration See also	684
Network Properties - Internet	684
Network Simulation	685
Network Simulation	686

About this chapter:

This chapter describes how to design and operate an application network, as follows:

Overview is an overview of the application network environment.

Basic Concepts describes the application network configurations.

Configuring Application Network Stations describes how to configure the application for networking.

Network Properties describes how to set your network environment to establish maximum application performance.

Configuring a Hot Backup Station describes the backup configuration and principles of the backup station and the master station

Application Backup - Principles of Operation describes the principles of the backup stations.

Recording Remote Data describes how to record remote tags and alarms. It also describes how to simulate the connection between a remote station that is not running.

Overview

Application stations operating in a network environment can share objects, such as alarms and tags. Direct access to remote tags and alarms can be implemented through a simple station definition procedure. Once the station is defined to support the application's network activities, any operation involving tags and alarms on a local station can include remote tags and alarms as well.

The application network system operates in a manner similar to other network systems. The application kernel, handles all network operations and transfers data from/to local and remote application stations.

The application supports various network components as TCP/IP.

Installation in a TCP/IP environment enables application stations on one network to communicate with other application stations on other networks. Through TCP/IP, the application network offers a complete enterprise-wide solution.

A computer Network consists of several computers linked together to enable data to be transferred from one computer to another.

Several Application stations can be linked together in a network, so that Application reports, charts, tag values, recipes and images can be transferred from one station to another.

The Application network definition and configuration is performed by selecting the item included in Network menu in the Studio Application.

Application Network

This topic contains the necessary information for designing and operating a Application network.

Application stations operating in a network environment can share objects, such as alarms and tags. Direct access to remote tags and alarms can be implemented through the simple station definition procedure described in this chapter. Once the station is defined to support Application network activities, any operation involving tags and alarms on a local station can include remote tags and alarms as well.

The Application network system operates in a manner similar to other network systems. The Application supports various network components, including Novel Requester, LAN Server and TCP/IP.

Installed in a TCP/IP environment enables Application stations on one network to communicate with Application stations on other networks.

Through TCP/IP, the Application Network offers a complete enterprise-wide solution

You configure an Application for network by using the Network menu in the Studio Application.

Application Networking on Windows 2000

To use Application networking on Windows do the following:

1. Go to Windows Settings / List Zone Network

The Network window opens:

2. Select the NetBEUI Protocol.
3. Press the Properties button and the NetBEUI Properties window opens.
4. Select Advanced option.
5. Click on the check box to set this protocol to be the default protocol.

Configuring SCADA and SCADA View Stations

To define your computer as a SCADA or SCADA View station on the Application network, Select the Local Station Configuration item from the Network menu. The following dialog box appears:

Basic Concepts

Basic Concepts

This section describes the application's network configurations.

Application Station

A general term describing a station that is configured to operate on the application network (can be SCADA or BACKUP).

Application SCADA Station

An operations station that can communicate with up to 1000 network stations and 32 PLCs simultaneously. This station performs functions such as:

- Sampling PLCs
- Generating alarms
- Collecting historical data
- Performing control operations

The operator can view the process through the application user-interface and interact with on-going activities. The application's SCADA station can receive and send data to other network stations.

Application Hot Backup Station

For applications that require the highest degree of reliability, the application provides the hot backup redundant configuration. This configuration consists of two identical application SCADA stations. Both stations are connected to the same PLCs, but one station runs in the Master mode and samples data in the field, while the second station (Backup station) remains in a Stand-By mode. When the Master station goes down, the Backup station switches to the Master mode, starts to sample PLCs and distributes real-time data to other stations across the network.

In addition to real-time redundancy, the Hot Backup feature ensures the integrity of historical databases. After the Master station recovers, the backup station updates the Master station with the missing historical data. This mechanism ensures that the historical database on the Master stations remains complete.

Application VIEW Stations

A network VIEW station is not connected to a PLC, but to SCADA stations via a network. Any regular Wizcon model can behave as a View station.

It is a fully operational station that allows operators to view and control the process. This station automatically receives all the online and historical data from the SCADA stations, as required. The operator can transparently interact with the process using application images, charts and other standard modules. The application VIEW station serves as a mirror of the real-time and historical data from one or more SCADA stations.

Application SCADA Station

Application SCADA station is an operations station that can communicate with up to 16 networks of PLCs simultaneously. This station performs functions such as sampling PLCs, generating alarms, collecting historical data and performing control operations. The operator can view the process through the Application user-interface and interact with on-going activities. The Application SCADA station can receive and send data to other network stations.

Application SCADA View Station

The Application SCADA View station is a full operational station that allows operators to view and control the process. This station automatically receives all the online and historical data from the SCADA stations, as required. The operator can transparently interact with the process using Application's Images, Charts and other standard modules. The Application SCADA View serves as a mirror of the real-time and historical data from one or more SCADA stations. The SCADA View Station is not connected to a PLC, it is connected to SCADA Stations via a network

Application for Networking

Configuring the

Configuring the Application for Networking

Before defining stations for your network first configure the O/S for networking.

Time Setting Considerations

The application timestamp is based on local time according to daylight saving time therefore synchronize the clocks on your network settings.

Make sure that:

- The windows settings are identical in all application stations across the network. This includes Time Zone as well as Daylight Saving Time.
- All network PC clocks are synchronized at all times. It is recommended to use a network utility to periodically synchronize the PC clocks.

Network Stations

Configuring Application

Configuring Application Network Stations

You can configure your computer as an application network station, as described below. You can also query the status of a station with **Application Language**.

- To configure network stations:

Select the Network menu in the Application Studio. The following options are available:

- **Local Station Tab and Network Properties** This dialog box enables you to configure your computer as a SCADA. It has the following tabs:
 - **General Tab** where the network can be activated and other general parameters defined.
 - **Local Station Tab** where the station's name and ID are defined and where you can define a Backup station.
 - **Protocol Tab** where the type of protocol used is defined.
 - **Internet Tab** where the maximum time a message is delayed and number of messages that can be delayed are defined.
 - **Backup Tab** where the backup mode and properties are defined.
 - **Recording Remote Data** This dialog box defines sets remote tags and alarms records.
-

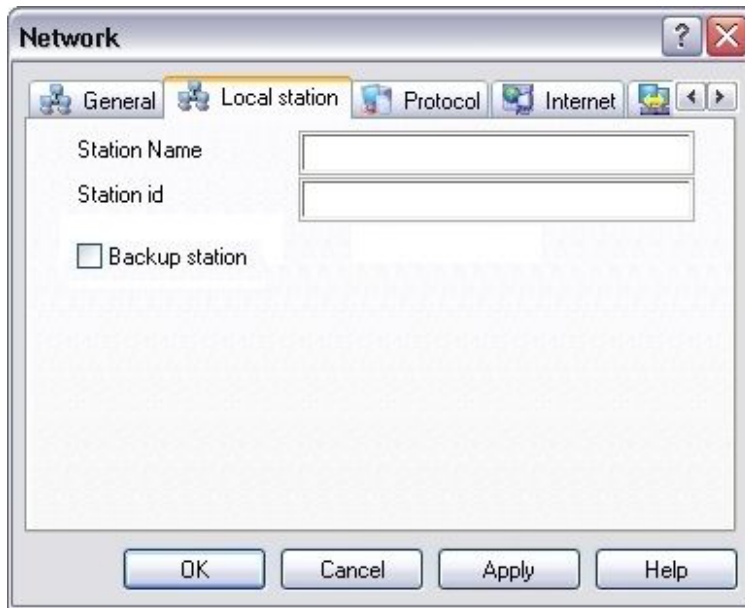
Configuring a Network station

When configuring a Wizcon station, specify a unique name and a unique ID number for your station. It is recommended to keep a 10 number gap between different station IDs. For instance, if one ID is 80, the next ID should be 90, and so on. The range for ID numbers is 1 through 999.

Before configuring a station verify the station's name so that you can give your station a unique name.

Note: Networking requires a security plug.

- To define your computer as a network station:
1. In the Network dialog box scroll to open the Local Station tab.



2. In the Station Name field, specify a unique name for the station.
3. In the Station ID field, specify a unique ID number for the station.
4. Leave the Backup station field empty. For more details about Hot Backup configuration see **Configuring a Hot Backup Station**.
5. Click OK to save your definitions and to close the dialog box.
6. Restart the application to implement the changes.

Network Properties

Network Properties

The Network Properties menu enables you to set your network environment and establish maximum application performance, and to enable or disable specific functions.

- To define network properties:

Double-click the Network icon in the Control Panel.

Or,

From the Network menu of the Application Studio, select Network Properties. The Network dialog box opens in which you can:

- Determine if the application network module is loaded, enabling you to access application stations on the network, in the **General Tab**,
 - Determine a network protocol to be used by the application, in the Protocol tab.
 - Optimize network use in the Internet tab.
 - Determine the Hot Backup switching mode in the Backup tab.
-

Network Tuning Properties

The Network Properties menu enables you to set your network environment and establish maximum application performance, and to enable or disable specific functions.

To define network properties:

Double-click the Network icon in the Control Panel.

Or,

From the Network menu of the Application Studio, select Network Properties. The Network dialog box opens in which you can:

Determine if the application network module is loaded, enabling you to access application stations on the network, in the General tab,

Determine a network protocol to be used by the application, in the Protocol tab.

Optimize network use in the Internet tab.

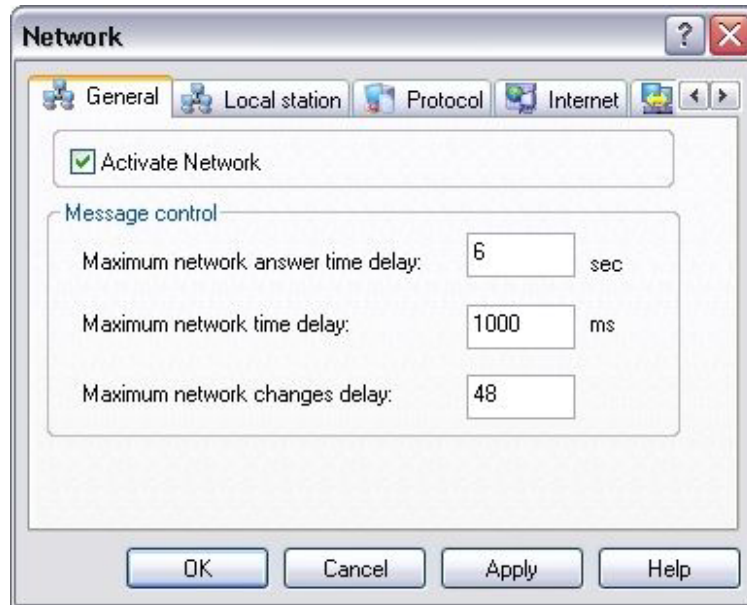
Determine the Hot Backup switching mode in the Backup tab.

Network Property

Used to define the tuning network parameters.

General Tab

You can determine if the application network module will be loaded in the General tab of the Network dialog box.



The following options are available:

Activate
Network

Specifies that the network is activated. Select to activate.

The following options are available:

Message
control

Maximum Network Answer Time Delay: Defines the amount of time that a query waits for an answer from a remote station. The default time is 6 sec.

Maximum Network Time Delay: Determines the maximum time interval that a station will delay before updating the other stations with tag and alarm changes. The default time is 1000ms.

Maximum Network Changes Delay: Determines the maximum number of messages that a source station accumulates before it sends the data buffer to a target station. The default is 48 messages.

As soon as either of the two last settings reaches the defined value, the data buffer will be sent.

Note: Restart the application for changes to take effect

Network Property - General

Select the Network menu in the Application Studio. The following options are available:

Local Station and Network Properties This dialog box enables you to configure your computer as either a SCADA or View station. It has the following tabs:

General where the network can be activated and other general parameters defined.

Local Station where the station's name and ID are defined and where the network is defined as a Management View or Backup station.

Protocol where the type of protocol used is defined.

Internet where the maximum time a message is delayed and number of messages that can be delayed are defined.

Backup where the backup mode and properties are defined.

You can determine if the application network module will be loaded in the General tab of the Network dialog box.

The following options are available:

Activate Network Specifies that the network is activated. Select to activate.

Message control The following options are available:

Maximum Network Answer Time Delay: Defines the amount of time that a query waits for an answer from a remote station.

Maximum network time delay: Determines the maximum time interval that a station will delay before updating the other stations with tag and alarm changes. The default time is 1000ms.

Maximum network changes delay: Determines the maximum number of messages that a source station accumulates before it sends the data buffer to a target station. The default is 48 messages.

Notes:

Restart the application for changes to take effect

As soon as either of the two settings reaches the defined value, the data buffer will be sent.

Local Station Tab

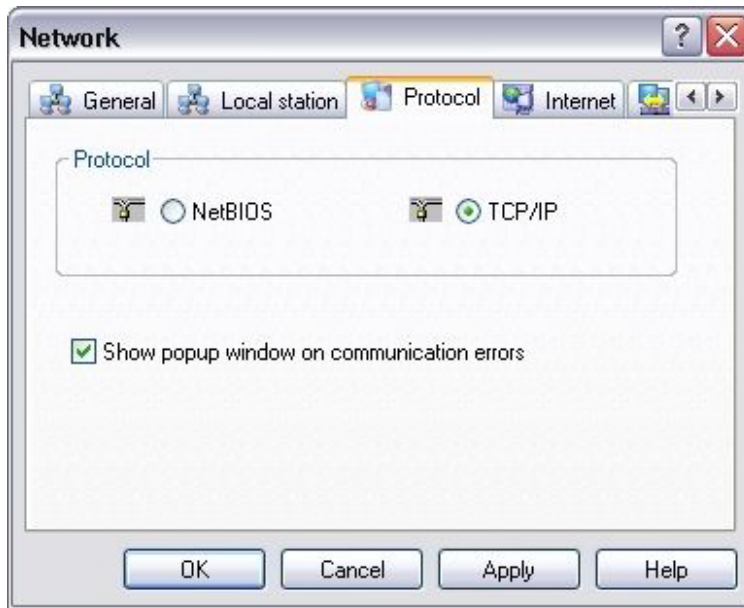
The Local Tab is used to define the station name, the ID number and Backup station. In the Network dialog box scroll to open the Local Station tab.



1. In the Station Name field, specify a unique name for the station.
2. In the Station ID field, specify a unique ID number for the station. Keep a 10 number gap between different station IDs. For instance, if one ID is 80, the next ID should be 90. Range for ID numbers is 1-999.
3. Check the Backup Station checkbox to open the Backup Parameters if needed. For details about Hot Backup configuration and use, see **Configuring a Hot Backup Station** and **Application Backup - Principles of Operation**
4. Click OK to save your definitions and close the dialog box.

Protocol Tab

You can select either the NetBIOS or TCP/IP network protocols in the Protocol tab of the Network dialog box.



1. Click on the network protocol to be used by the application. The default network protocol is: TCP/IP.
2. If relevant, click the Show Popup Window on Communication Errors checkbox to define that a popup window opens for a communication error in another station.

Note: Restart the application for changes to take effect.

Network Property - Protocol

Path: Application's Studio Network Network Properties

Select the Protocol tab and the Network Protocol page opens:

Click on the network protocol to be used by the Application. The two network protocols are NetBIOS or **TCP/IP**.

Press OK to activate.

Default: NetBIOS

Restart the Application for action to take effect.

In order for a Application station to communicate with Application stations on other LANs, specify the Broadcast Address of the 'remote' stations in a text file called **OTHERNET.DAT**.

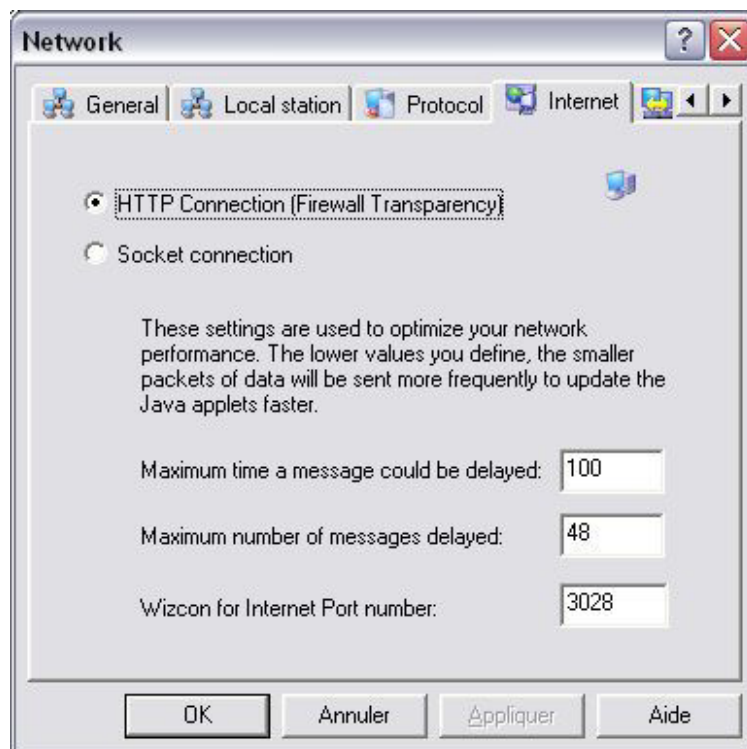
Internet Tab

You can optimize Internet access in the Internet tab of the Network dialog box.

To transfer data between Java applets and the application, two connection modes are available:

- TCP Connection (default): this establishes a connection using sockets via, by default, port 3028. If you use a firewall, you will need to add this port to the list of exceptions. If your security policy does not allow this, opt for the second option, described here:
- HTTP Connection: this connection mode the HTTP protocol standard through port 80. No special configuration is therefore required on the part of your network administrator on either the client or the server side. This mode uses an ISAPI extension which is installed by default on the IIS server. Note that the connection between the web server (the ISAPI extension) and the application uses sockets. As a result, the parameters below apply equally to this mode. This mode is compatible with secure communication using secure socket layers (SSL). In this case, the certificate should be installed at least for the virtual folders Docs and WizNet. In this case, the protocol will be HTTPS.

Please note that IIS on Windows XP limits the number of concurrent connections. As a result, in HTTP connection mode, you can have a maximum of 10 simultaneous connections. Each applet uses 3 connections, therefore the maximum is 3 applets in this mode. It is therefore recommended to use Windows 2000 Server or Windows 2003 Server (which do not have these limitations) when using the web clients.



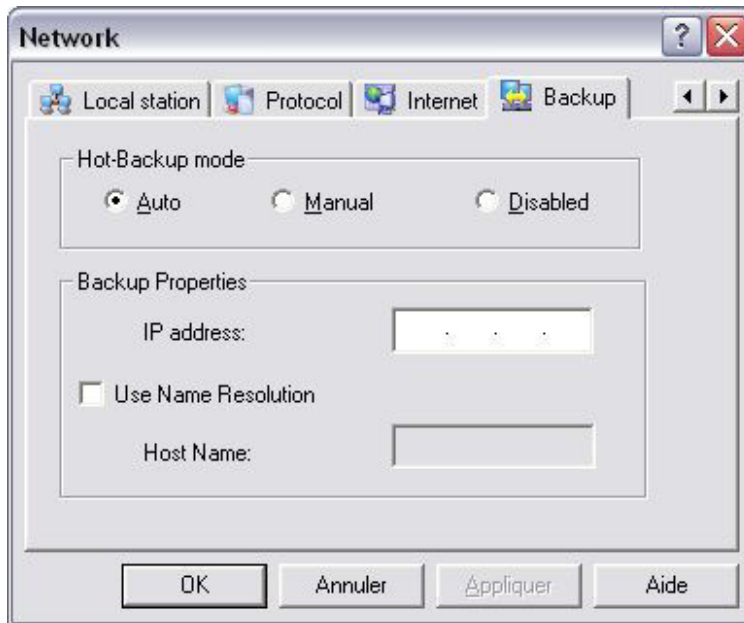
The following options are available:

Maximum time a message could be delayed	Specifies the maximum time interval that a server will delay, before updating the Wizlets with tag and alarm changes. The default value is 100ms.
Maximum number of messages delayed	Specifies the maximum number of messages that a server accumulates before it sends the data buffer to the Wizlets. The default value is 48.
Wizcon for Internet Port number	Specifies the port used by the internal network mechanisms to communicate with the Wizcon applets. The default value is 3028.

Note: The data buffer will be sent once either of the two settings reaches the defined value. Restart the application for changes to take effect.

Backup Tab

This tab is used to configure Hot Backup stations. For full details about how to configure and use the Hot Backup function see **Configuring a Hot Backup Station** and **Application Backup - Principles of Operation**.



1. In the Backup Tab Hot Backup Mode field select either:
 - Auto - which is the default switch option.
 - Manual - which enables activating the backup station regardless of the state of the Master station.
 - Disabled - which disables the switching option.
2. If TCP/IP protocol is used add the backup station's IP address to the master station in the Network Properties Backup tab TCP/IP Address field. Note that you can also use name resolution, in which case you give the name of the backup station only - this simplifies setting up of your application.
3. Exit the application on the Master station and copy all the Master station application files to the Backup station
4. Run the application.

Network Property - Backup

Path: Application's Studio Network Network Properties

The Network Dialog box opens:

Select the Backup tab and the Network Backup page opens:

Hotbackup Mode

The Hotbackup mode enables you to determine the Hotbackup switching mode. The Hotbackup station can be activated automatically or manually.

Both Master and Hotbackup stations must be set to the same mode.

Select Manual mode to enable activating the Backup Station regardless of the state of the Master station.

Note that the Backup station can only be manually activated by using the WizSetBackup ModeAPI in an add-on.

For more information please see the Application Programming Interface on-line help.

Default: AUTO

Restart the Application for changes to take effect.

TCP/IP Address

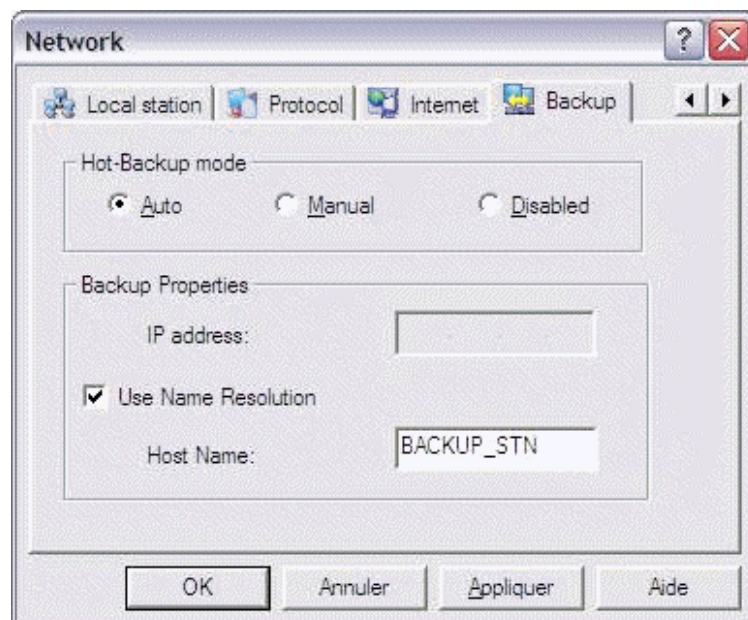
To establish the link between a Master station and its Backup station, you must specify the **TCP/IP** address of the remote station. It should be specified in both stations when working with TCP/IP. This field specifies the TCP/IP address of the backup station.

If you are in backup station, specify the TCP/IP address of the Master Station. And if you are in the Master Station specify the TCP/IP address of the Backup station.

You can now choose to use names of the machines to connect to either other stations on the network or your backup station. In this case machines can be configured to obtain IP address automatically without any problem.

Connecting to the backup station using Name Resolution

You can now connect by simply typing the name of the workstation using name resolution instead of the IP address, as shown below:



Using name resolution to connect to the backup station, BACKUP_STN

Connecting to other stations on the network using name resolution

A common way to limit the set of stations on the network is to define a file, `othernet.dat` (see the user guide). When you do this, you must give the IP address of the machines that are to be connected to the network. You will now have the option to give only the name of the other workstation and the configuration will be resolved automatically for you.

Note: Make sure that the address field is empty when switching from Hotbackup configuration to **SCADA station**

Configuring a Hot

Backup Station

Configuring a Hot Backup Station

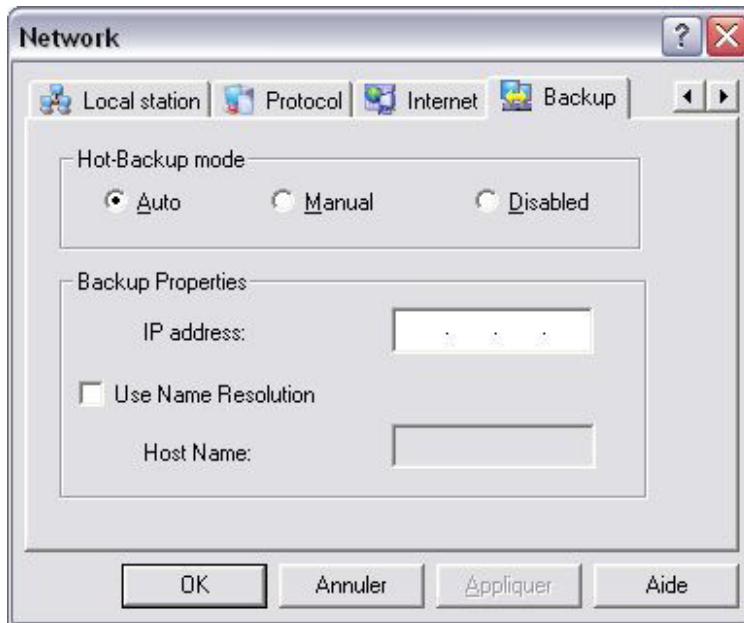
The Hot Backup configuration is based on a pair of SCADA stations: One operates as a master and the other serves as a standby or backup. If the Master station fails, the Backup station takes over.

A Backup station can also operate as a VIEW station, serving as an additional station for displaying and controlling the process on the Master station.

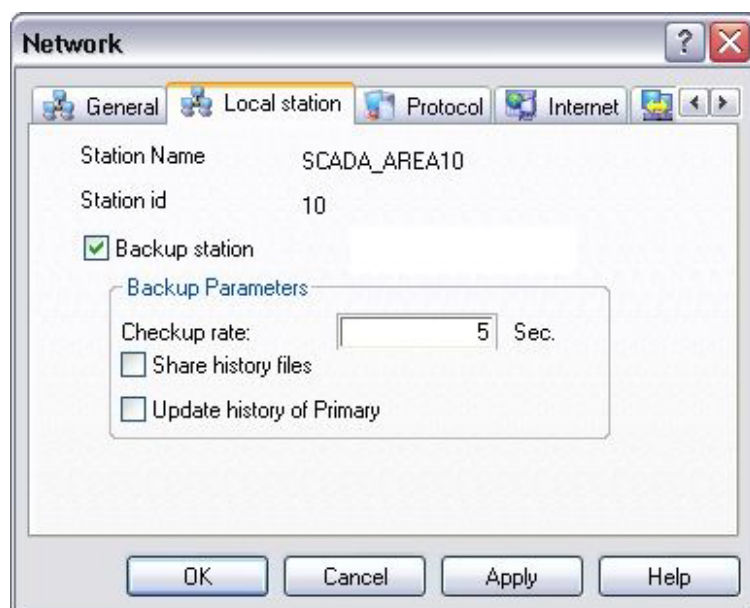
When configuring stations, no application station may have the same name as the Backup stations with the '2' appended.

For instance, if the Backup stations are named "WIZCON", no other application station on the network can be named "WIZCON2". This is a system reserved name.

- To define a station as a Hot Backup station:



1. In the Network Properties dialog box Backup Tab Hot Backup Mode field select either:
 - Auto - which is the default switch option.
 - Manual - which enables activating the backup station regardless of the state of the Master station.
 - Disabled - which disables the switching option.
2. If TCP/IP protocol is used, add the backup station's IP address to the master station in the Network Properties Backup tab TCP/IP Address field. If you use name resolution, you can give the name of the backup station instead of its IP address.
3. Exit the application on the Master station and copy all the Master station application files to the Backup station
4. Run the application.
5. From the Network menu of the Application Studio, select Local Station Configuration. The Local station configuration dialog box opens.
6. Return to the Local Station dialog box and check the Backup Station checkbox. The Backup Parameters field opens.



The following options are available:

Checkup rate	Specifies the checkup rate in seconds, at which the Backup station will check if the Master station is still functioning.
Share history files	Specifies that the Backup and Master station both share the same history files (LRM, HIS). Both stations have the same tag history path and use a file server or peer-to-peer connection. This option is recommended when historical data is critical.
Update history of Primary	Updates the Master with the data logged in the Backup station.

7. (Optional) If you are configuring the backup station as a VIEW station, leave the above options blank, and click OK.

8. In the Backup Tab of the Network Properties dialog box, the Hot Backup Mode field select either:

- Auto - which is the default switch option.
- Manual - which enables activating the backup station regardless of the state of the master station.
- Disabled - which disables the switching option.

9. If TCP/IP protocol is used, add the Master station's IP address to the backup station in the Network Properties Backup tab TCP/IP Address field.

10. Enter your specifications. Click OK to save them and close the dialog box.

Notes: Only tag historical data can be transferred to the Master and not alarm history. A Master station is automatically updated with the online data (tag values and live alarms) when it becomes active. Alarm history, recorded by the Backup station during the Master station fail-time, will not be transferred to the Master station after the master restarts. If neither of the procedure options is selected, each station, when active, will record historical data independently, and no historical data will be transferred between the two stations. When the Hot Backup Mode is set to Manual, the Backup station can only be activated

using the WizSetBackup Mode API in an add-on. Restart the application for changes to take place.

Hot Backup Station Configuration

Note: Hot Backup Station is not supported on the Web.

The **hot backup configuration** is based on a pair of SCADA stations: one operates as a master and the other serves as a stand by or backup. If the master station fails, the backup station takes over.

Note: No application station may have the same name as a Backup station with the '2' appended. For instance, if a Backup station is named Silo, no other application station on the network can be named Silo2.

Name the backup station the same name as the master station. The application automatically adds '2' to the name, thereby identifying the station name with 2 appended to it as the Backup station on the network.

To define a station as a hot backup station, first copy all the master station application files, run the application and select the **Define as a Hot Backup Station** option in the Local Station Configuration dialog box.

In the **Checkup Rate** field, specify the times per seconds (1/sec.) at which the backup station will check if the master station is still functioning.

Share history files Option

When this option is enabled the backup and master station both share the same history files (LRM, HIS). Both stations have the same tag history path and use a file server or peer-to-peer connection. **This option is recommended when historical data is critical.**

Update history of primary option

Select the **Update history of primary (master)** so that the master or main station will be updated with the data logged in the Backup Station.

Notes:

1. Only tag historical data can be transferred to the master, and not alarm history. A master station is automatically updated with the online data (tag values and live alarms) when it becomes active.

2. Alarm history recorded by the backup station during the master station fail-time, will not be transferred to the master station, after the master restarts!

Caution!:

If neither of the proceeding options is selected, each station when active will record historical data independently, and no historical data will be transferred between the two stations.

Status of a station and Application Language

The status of a station can be queried through the \$Backup application language variable. The \$BACKUP variable represents the status of the backup station. When this variables set to 1 - the station is in passive mode. When variable is set to 0 - the station is in active move

Caution!:

Do not assign \$BACKUP to a tag through the application language!

Since Application t language runs on both the master and backup station -the assignment statement of WIL5 \$BACKUP is executed twice. Once by the master WIL5 and the other by the backup station's WIL5, thus not giving a true picture of the situation.

Updating an existing Hot Backup application

Both master and backup stations must be identical. The procedure below ensures that the tags file in the master and the backup station will always be identical. This is a must for master/backup applications.

- Procedure to add/change tags to an existing Hot Backup application:
 1. Exit from the application in the backup station.
 2. Add or change the new tags in the master station.
 3. Copy the files to the wizdata.mdb file to the backup station.
 4. Run the application in the backup station.
-

Querying the Status of a Station with Application Language

The status of a station can be queried through the \$BACKUP **Application Language** variable. The \$BACKUP variable represents the status of the backup station:

- When this variable is set to 1 - the station is in Backup or passive mode.
- When the variable is set to 0, the station is in Master or active mode.

Note: Do not assign \$BACKUP to a tag through the application language. Since application language runs on both the Master and Backup stations - the assignment statement of WIL5 \$BACKUP is executed twice. Once by the Master WIL5, and the other by the Backup station's WIL5, thus not giving a true picture of the situation.

For more details refer to **Chapter 30, Application Language**.

Note:

Application Backup -

Principles of Operation

Application Backup - Principles of Operation

The Backup station and the Master station always have the same status of tags and alarms. This is executed in the following way:

Tags

- When a tag is changed at the active station, a message is sent to the passive station notifying of a tag change, with the ID of the tag and its new value. The passive station receives the message and performs WizPutGateVal in memory only mode.
- When a tag is changed from the passive station, the request is routed to the active station where it is written to the PLC or to memory (depending on the type of the tag). The active station then informs the passive station that a tag was changed (as in case 1).
- When a passive station is first loaded, it requests an update of all tag values.

Alarms

- When an alarm is generated in the active station, the active station informs the passive station that an alarm was started. The forwarded information includes all that is needed to start the same alarm on the Backup station. The passive station receiving notification from the active station starts the alarm using an internal API similar to WizStartAlarm.

Further changes to the alarm generated in the active station are passed to the Backup station using the alarm ID and the event that occurred. (Ack/End/Class/Text changed).

- When a request to Start/Ack/End an alarm on the passive station is made, the passive station routes the request to the active station. The passive station will show the result of the request after it receives the notification from the active station.
- When the passive station starts, it requests the status of all active alarms at the Master station, builds an Alarm id on active station to Alarm id on passive station translation table, and brings the passive station to the same status.

Failure Detection and Reaction

In automatic switch Backup mode, the backup station periodically checks the connection with the master station. The frequency of the check is user defined. For more details about fine-tuning, see WizTune User Guide.

During communication test failure with the Master station, or if the Backup station was switched to active mode (in manual switch backup mode), the Backup station broadcasts a Backup is Active message to the network.

When the remote stations receive the message they:

- Update their internal stations database with the information that the Master station is now replaced by the Backup station.
 - Disconnect the session with the Master station.
 - Reconnect to the Backup station.
 - If the local station was a client with alarms and tags on the Master station, it re-registers as a client for the alarms and tags at the Backup station.
-

Recording Remote Data

Wizcon stations are able to record tags and alarms from remote stations.

- To specify remote tags and alarms for recording in your local database:

1. From the Network menu select the Record Remote Data option. The Define remote data to record dialog box opens:



2. Select the remote station for which you want the tag and alarm data to be recorded, and activate the OK button to save your settings and close the dialog box.
3. Restart the application for your changes to take affect.

- To change the recording specifications of a remote station:

Select a station in the list box and activate the Change button. The Define Data To Record From Station dialog box opens:



The following options are available:

Record Tags	<p>Specifies the tags that are to be recorded in the local database. Select to configure the tag recording parameters as follows:</p> <p>Tag name: Specifies the tag that you want to record. Click on the arrow to the right of the field and select a tag or enter a name prefix so that all the tags beginning with the prefix are recorded.</p> <p>After you specify a tag, activate the Add button to add the name to the list.</p> <p>To delete a tag from the list, select the name you want to delete in the listbox and activate the Delete button.</p>
Record Alarms	<p>Specifies the alarms that the application should record in your local database. Select to configure the alarm recording parameters, as follows:</p> <p>Specify values in the following filter fields, so that only the alarms that meet these specifications will be recorded in your local database. These values will appear under the Filter column in the Define Data To Record From Station dialog box, shown on the previous page.</p> <p>Minimal Severity</p> <p>Maximal Severity</p> <p>Family Prefix</p> <p>First Zone</p> <p>Last Zone</p> <p>These filter fields together with the Class button are similar to the specifications defined for the Events Summary. Refer to Display, in the Chapter 24, Event Summaries.</p>

Recording Remote Data

In addition to application server stations, both SCADA and VIEW stations are also able to record remote tags and alarms.

You can simulate the connection to a remote station that is not running. This enables you to work with remote tags, alarms and images to help you when developing the local station application.

To specify remote tags and alarms for recording in your local database:

1. 1. From the Network menu select the Record Remote Data option. The Define remote data to record dialog box opens.
1. 2. Select the remote station for which you want the tag and alarm data to be recorded, and activate the OK button to save your settings and close the dialog box.
1. 3. Restart the application for your changes to take affect.

To change the recording specifications of a remote station:

Select a station in the list box and activate the Change button. The Define Data To Record From Station dialog box opens:

The following options are available:

Record Tags Specifies the tags that are to be recorded in the local database. Select to configure the tag recording parameters as follows:

Tag name: Specifies the tag that you want to record. Click on the arrow to the right of the field and select a tag or enter a name prefix so that all the tags beginning with the prefix are recorded.

After you specify a tag, activate the Add button to add the name to the list.

To delete a tag from the list, select the name you want to delete in the listbox and activate the Delete button.

Record Alarms Specifies the alarms that the application should record in your local database. Select to configure the alarm recording parameters, as follows:

Specify values in the following filter fields, so that only the alarms that meet these specifications will be recorded in your local database. These values will appear under the Filter column in the Define Data To Record From Station dialog box, shown on the previous page.

Minimal Severity

Maximal Severity

Family Prefix

First Zone

Last Zone

These filter fields together with the Class button are similar to the specifications defined for the Events Summary. Refer to the section called Alarm Display, in the Events Summaries chapter.

/ Record remote data

Select this item to define remote data recording

Other Topics

Installing Web Application

Installing an Application for development

Hardware

Computer: Pentium III 450MHz (recommended 1GHz and up).

Memory: 256MB (recommended 512MB).

Hard Disk: 500MB minimum free. This is required for both installing the program and for later developing an application.

Monitor Adapter: 8MB (Recommended 32MB)

Monitor: Resolution 800X600 or higher

Display: VGA, SVGA, or any graphic adaptor that supports the operating system desktop. The display should be set at 256 colors or higher and the screen resolution should be set at 800 x 600 or higher.

Mouse: Any PC compatible mouse.

Parallel Port: Required for the system's security plug.

Software

Operating System: Microsoft's Windows NT version 4.0, Windows 2000 or Windows XP

- Correctly configured TCP/IP: A fixed IP address is required for a web server.
- Web server: A web server is required for publishing the application, (not for development).
- Browser: Microsoft Internet Explorer 5 (or higher) and virtual machine. If you are installing the Scheduler then the Microsoft Internet Explorer 5.5 SP2 is required.
- HTML Editor: Any HTML editor may be used. (Optional)

The following is required to publish an application on the web.

- Java 1.1 enabled browser or higher
- A web server. For example, the Microsoft Internet Information Server that can be downloaded from the Microsoft web site.

Sharing information with

other stations

Local Station Configuration [See also](#)

To define your computer as a SCADA or SCADA View station on the Application network select from the Network menu Local Station configuration.

The Local Station Configuration dialog appears:

1. Specify a unique name and a unique ID number for your station.
2. Leave the check boxes in their default state unmarked.
3. Restart the Application to implement the new settings.

Tip:

Keep a 10 number gap between different station IDs. For instance, if one ID is 80, the next ID should be 90. Range for ID numbers is 1-999.

Notes:

SCADA and SCADA View stations require a security plug.

- The Application station name must be different from your computer name. The Windows computer name is configured in Settings Control Panel Network Identification

Management view Parameters

To configure your station as a management view station load the Application without a plug , follow the same procedure as when defining a SCADA station . Then in the local station definition dialog box set the Management View station check box, and Select **A Server station** to indicate that requests for data from the local station will be directed to the Application Server.

Hot Backup station configuration

The **hot backup configuration** is based on a pair of SCADA stations: one operates as a master and the other serves as a stand by or backup. If the master station fails, the backup station takes over.

Note: No Application station may have the same name as a Backup station with the '2' appended. For instance, if a Backup station is named Silo, no other Application station on the network can be named Silo2.

Name the backup station the same name as the master station. The Application automatically adds '2' to the name, thereby identifying the station name with 2 appended to it as the Backup station on the network.

To define a station as a hot backup station, first copy all the master station application files, run the Application and select the **Define as a Hot Backup Station** option in the Local Station Configuration dialog box. After selecting this option, the following field appears:

In the **Checkup Rate** field, specify the times per seconds (1/sec.) at which the backup station will check if the master station is still functioning.

Share history files Option

When this option is enabled the backup and master station both share the same history files (LRM, HIS) .Both stations have the same tag history path and use a file server or peer-to-peer connection. **This option is recommended when historical data is critical.**

Update history of primary option

Select the Update history of primary (master) so that the master or main station will be updated with the data logged in the Backup Station.

Notes:

1. Only tag historical data can be transferred to the master, and not alarm history. A master station is automatically updated with the online data (tag values and live alarms) when it becomes active.
2. history recorded by the backup station during the master station fail-time, will not be transferred to the master station, after the master restarts!

Caution!:

If neither of the proceeding options is selected, each station when active will record historical data independently, and no historical data will be transferred between the two stations.

Status of a station and Application Language

The status of a station can be queried through the \$Backup Application language variable. The \$BACKUP variable represents the status of the backup station. When this variables set to 1 - the station is in passive mode. When variable is set to 0 - the station is in active move

Caution!:

Do not assign \$BACKUP to a tag through the Application language!

Since Application language runs on both the master and backup station -the assignment statement of WIL5 \$BACKUP is executed twice. Once by the master WIL5 and the other by the backup station's WIL5, thus not giving a true picture of the situation.

Network

Application Network

This topic contains the necessary information for designing and operating a Application network.

Application stations operating in a network environment can share objects, such as alarms and tags. Direct access to remote tags and alarms can be implemented through the simple station definition procedure described in this chapter. Once the station is defined to support Application network activities, any operation involving tags and alarms on a local station can include remote tags and alarms as well.

The Application network system operates in a manner similar to other network systems. The Application supports various network components, including Novel Requester, LAN Server and TCP/IP.

Installed in a TCP/IP environment enables Application stations on one network to communicate with Application stations on other networks.

Through TCP/IP, the Application Network offers a complete enterprise-wide solution

You configure an Application for network by using the Network menu in the Studio Application.

Application Networking on Windows 2000

To use Application networking on Windows do the following:

1. Go to Windows Settings / List Zone Network
The Network window opens:
2. Select the NetBEUI Protocol.
3. Press the Properties button and the NetBEUI Properties window opens.
4. Select Advanced option.
5. Click on the check box to set this protocol to be the default protocol.

Configuring SCADA and SCADA View Stations

To define your computer as a SCADA or SCADA View station on the Application network, Select the Local Station Configuration item from the Network menu. The following dialog box appears:

The Application Factory concept is designed to ensure smooth data flow between the plant floor and other departments in the organization, while maintaining full performance and data integrity.

The Application Factory solution provides a smooth growth path from a standalone workstation, through the plant-floor configuration, to plant-wide network architecture that connects the plant floor with existing file servers and other management systems. The Application's scalability protects both present and future investments in process automation and information technology.

Basic Concepts

Application Station A general term describing a station that is configured to operate on the Application Network (can be SCADA, BACKUP, VIEW or SERVER).

Application SCADA Station – The Application SCADA station is an operations station that can communicate with up to 32 networks of PLCs simultaneously. This station performs functions such as sampling PLCs, generating alarms, collecting historical data and performing control operations. The operator can view the process through the Application user-interface and interact with on-going activities. The Application SCADA station can receive and send data to other network stations.

Application's Hot Backup Station

Application SCADA View Station The Application SCADA View station is a full operational station that allows operators to view and control the process. This station automatically receives all the online and historical data from the SCADA stations, as required. The operator can transparently interact with the process using Application's Images, Charts and other standard modules. The Application SCADA View serves as a mirror of the real-time and historical data from one or more SCADA stations. The SCADA View Station is not connected to a PLC, it is connected to SCADA Stations via a network

Server Station

Management View Station

Management View Station

The Application's Management View stations are stations that bring real-time and historical data from the plant floor to any desktop in the organization. Management View stations can display data collected by one or more SCADA stations. In addition to displaying the data in forms of images, graphs and reports, Management View stations provide the necessary functions for interacting with on-going activities. Each command for changing process parameters or downloading a recipe is immediately transferred to the appropriate Application SCADA stations. Since the Application Server handles the communication, this process does not affect time-critical operations on the plant-floor. A Management View Station cannot operate without a Server station.

Management View Station Configuration

Note: *Management View Station is not supported on the Web.*

To configure your station as a management view station load the Application without a plug, follow the same procedure as when defining a **SCADA station**. Then in the local station definition dialog box set the Management View station check box, and Select **A Server station** to indicate that requests for data from the local station will be directed to the Application Server.

Application's Hot Backup Station

For applications that require the highest degree of reliability, this application provides the Hot-Backup redundant configuration. This configuration consists of two identical Application SCADA stations. Both stations are connected to the same PLCs, but one station is running in the Master mode and samples data in the field, while the second station (Backup station) remains in a Stand-By mode. When the Master station goes down, the Backup station switches to the Master mode, starts to sample PLCs and distributes real-time data to other stations across the network.

In addition to real-time redundancy, the Hot-Backup feature ensures the integrity of historical databases. After the Master station recovers, the backup station updates the Master station with the missing historical data. This mechanism ensures that the historical database on the Master stations remains complete.

WIADDE Client (WIZDDEC)

The WIZDDEC program enables your application to run as a DDE client and receive information from server applications.

Activating the WIZDDE Client

To enable your application as a DDE client, you must run the WIZDDEC module. This module can be run in one of two ways:

DDE Client folder

Double click on the *Start DDE Client* icon in the Application folder group (to find the folder move to the Start Application Group/menu and within it select the DDE Server option)

OR

Through Design/Application setup path

1. Press the Add button
2. Press Browse to move to the WIZDDES program location
3. Move to the Application/Bin directory
4. Choose the WIZDDEC.exe file

Notes

- Load the application program that is the server before the client.
- In order for the WIZDDE to establish contact with the DDE server application, the server must be loaded before WIZDDE.

For example,

- If your application receives data from Excel (the DDE server), you must first load Excel before loading the WIZDDE.
 - If the DDE server application was **not loaded** prior to the WIZADDE, or was closed and then reloaded, you must do one of the following to establish communication:
 1. Restart WIZDDE client by double clicking on the icon.
 2. If a DDE tag is displayed, in a Single Tag Input box or image, close the display and reopen it. If no DDE tag is visible, simply display the tag in a Single Tag Input box and communication will be restored.
-

WIZDDE Client Block

The WIZDDE Client Block mechanism allows the Application to receive many tag values from the server in one update message. This improves the communication between the Application and the DDE server. The WIZDDE Client Block is built from a matrix of rows and columns in which each cell of the matrix contains the value of one data item.

Note: Not all programs support block messages, so please check the documentation of the DDE server application.

A common use for DDE client blocks is a setup in which a DDE server updates at once a block of items that make up a recipe. The Application, the client, receives all the items, and the tag values are changed at once.

Define DDE client blocks only if data items in the server change **simultaneously** (within milliseconds). The reason is that the Application receives the whole block of data whenever one of the items in the block changes. Therefore, if items change one at a time, the Application will receive a whole block of values, many of which have not changed.

To use DDE Block in an Application, you should first define all blocks and then connect the tags to the relevant blocks. A DDE block in an Application is composed of an internal name, block address, and block dimension. The internal name is used to connect a tag to a block. The DDE

Address is similar to a regular address, except that the Item name is different (explained below). The block dimension is also explained below.

To define DDE Blocks:

From the List Zone

1. Double click the Station (Utility option) in the Containers tree
 2. From the List Zone select the DDE Block
 3. Press the Add button in the DDE Client block definition dialog box
- OR

From the Design Menu

1. Select the Design menu from the Studio main menu
2. Press the Add button in the DDE Client block definition dialog box

The fields in this box are:

Block Name: The internal block name

Application: The DDE server application where each block physically resides

To define a new block

Click the **Add** button

To modify an existing block

Double click on it

OR

Select it and press the Change button.

The fields in this box are:

Name - The internal name of the block being defined.

Application - The DDE server application.

Topic- The name of the group of data or files on the DDE Server that will be accessed.

Address - The block address. To obtain the block address format, you must read the relevant documentation of the server. DDE clients of Excel, for example, must specify the block address as follows: Upper Left Cell: Bottom Right Cell. See the Figure above for an example.

Dimension - The number of rows and columns in the block. This is worked out from the address.

The previous example defines a DDE block that resides in Excel. It starts at the cell in Row2/Column3 and ends with the cell in Row6/Column9. Therefore, the block covers five cells vertically (rows) and seven cells horizontally (columns).

After defining blocks, individual tags can be connected to elements in the block. To connect a tag to one item from a DDE block, select the **Block item** option. In the DDE section of the Tag definition dialog box. The DDE section then appears as follows:

Block Name The block to which the tag will belong.

Row The row number of the item in the block relative to the *start position*.

Column The column number of the item in the block relative to the *start position*.

Link The DDE link definition: Always or In Monitor. Always means that every change will be passed by WIZDDEC to WIZpro even if the tag is not in monitor mode.

Remember that you specified the start position in the Address field when you defined the DDE block. The tag shown here is connected to R2 C3 from BLOCK1 defined above.

WIZDDE Server

To run your application as a DDE server, use the WIZDDES program.

To enable your application as a DDE server, you must run the WIZDDES module. This module can be run in one of two ways:

DDE Server Folder

Double click on the *Start DDE Server* icon in the Application folder group (to find the folder move to the Start Application Group/menu and within it select the DDE Server option)

OR

Through Design/Application setup path

1. Press the Add button
2. Press Browse to move to the WIZDDES program location
3. Move to the Application/Bin directory
4. Choose the WIZDDEs.exe file

Run Excel or any other application program to serve as the client.

Important WIZDDES Notes

- The WIZDDE Server can support *only one client application*. If a WIZDDE Server communicates with a client and another application establishes contact with the Application, the link between the Application and the first client will be terminated.
 - If a real tag gets a communication error, then asterisks (****) are sent to the DDE client.
-

Network Local Station

The Local Tab is used to define the station name and ID number and whether it is a Management or Backup station. In the Network dialog box scroll to open the Local Station tab.

1. 1. In the Station Name field, specify a unique name for the station.
1. 2. In the Station ID field, specify a unique ID number for the station. Keep a 10 number gap between different station IDs. For instance, if one ID is 80, the next ID should be 90. Range for ID numbers is 1-999.
1. 3. Either select the Management View checkbox to open the Management View Parameters field and then do the following:
1. 4. In the Server station field, click on the arrow to the right and select a server station to indicate that requests for data from the local station will be directed to the application server.

In the Station Name field, specify a unique name for the station.

Or,

Check the Backup Station checkbox to open the Backup Parameters field which has the following options:

- **Checkup rate** Specifies the times per seconds (1/sec.) at which the Backup station will check if the Master station is still functioning.
- **Share history files** Specifies that the Backup and Master station both share the same history files (LRM, HIS). Both stations have the same tag history path and use a file server or peer-to-peer connection. This option is recommended when historical data is critical.
- **Update history of Primary** Updates the Master or main station with the data logged in the Backup station.

1. 5. Click OK to save your definitions and close the dialog box.
-

Local station configuration See also

Select this item to define a local working station.

Network Properties - Internet

The Application uses these settings to optimize network use. Lower values mean the Application will send smaller packets of data more frequently so that Application Java applets will be updated faster.

Path: Application Studio Network menu Network Properties

The Network dialog box opens:

You can also access the Network Properties from the Application Studio by pressing the Network Icon.

To transfer data between Java applets and the application, two connection modes are available:

TCP Connection (default): this establishes a connection using sockets via, by default, port 3028. If you use a firewall, you will need to add this port to the list of exceptions.

In the Maximum network time delay field, you can determine the maximum time interval that a server will delay, before updating the Wizlets with tag and alarm changes.

Default: 100ms

Restart the Application for changes to take effect.

In the Maximum network messages delayed field, you can determine the maximum number of messages that a server accumulates before it sends the data buffer to the Wizlets.

Default: 48 messages

Restart the application for changes to take effect.

If your security policy does not allow this, opt for the second option, described here:

HTTP Connection: this connection mode the HTTP protocol standard through port 80. No special configuration is therefore required on the part of your network administrator on either the client or the server side. This mode uses an ISAPI extension which is installed by

default on the IIS server. Note that the connection between the web server (the ISAPI extension) and the application uses sockets. As a result, the parameters below apply equally to this mode. This mode is compatible with secure communication using secure socket layers (SSL). In this case, the certificate should be installed at least for the virtual folders Docs and WizNet. In this case, the protocol will be HTTPS.

Please note that IIS on Windows XP limits the number of concurrent connections. As a result, in HTTP connection mode, you can have a maximum of 10 simultaneous connections. Each applet uses 3 connections, therefore the maximum is 3 applets in this mode. It is therefore recommended to use Windows 2000 Server or Windows 2003 Server (which do not have these limitations) when using the web clients. You can download the tool, MetaEdit 2.2 from Microsoft in order to increase this number to 40:

<http://support.microsoft.com/default.aspx?scid=kb;en-us;301386&sd=tech>

Note: The data buffer will be sent once either of the two settings reaches the defined value.

Network Simulation

Network Simulation Option

The Network Simulation option allows you to simulate the connection to a remote station that is not running. This enables you to work with remote tags, alarms and images to aid in developing the local station application.

To implement network simulation:

1. 1. Copy the application files of the remote station to a directory on a server drive, or your local hard disk.

1. 2. Create a text file called NETSIM.DAT, as follows:

STATION_NAME ID PATH

Where:

1. 1. "STATION_NAME" is the name of the remote station with which the connection will be simulated.

2. 2. "ID" is the station ID.

3. 3. "PATH" is the path specifying the location of the remote station's application files. This file must be located in the local application directory. For example: SCADA01 110
S:\APPLICATION\REMOTE

Network Simulation

Network Simulation Option

The Network Simulation option allows you to simulate the connection to a remote station that is not running. This enables you to work with remote tags, alarms and images to aid in developing the local station application.

To implement network simulation:

1. 1. Copy the application files of the remote station to a directory on a server drive, or your local hard disk.
 2. 2. Create a text file called NETSIM.DAT, as follows:
 3. 3. STATION_NAME ID PATH
 4. 4. Where:
 5. 5. "STATION_NAME" is the name of the remote station with which the connection will be simulated.
 6. 6. "ID" is the station ID.
 7. 7. "PATH" is the path specifying the location of the remote station's application files. This file must be located in the local application directory. For example: SCADA01 110 S:\APPLICATION\REMOTE
-

Click this box to determine the maximum number of messages that a source station accumulates before it sends the data buffer to a target station.

Default: 48 messages

Restart the Application for changes to take effect.

Note: The data buffer will be sent once either of the two settings reaches the defined value.

Click this box to determine the maximum time interval that a station will delay, before updating the other stations with tag and alarm changes.

Default: 1000ms

Restart the Application for changes to take effect.

Check the Activate Network
check box. Restart the Application for changes to take effect.

Click on the network protocol
to be used by the Application.

The two network protocols are NetBIOS or TCP/IP.
Press OK to activate.

Default: NetBIOS

Restart the Application for action to take effect.

In order for a Application station to communicate with Application stations on other LANs, specify the Broadcast Address of the 'remote' stations in a text file called OTHERNET.DAT.

Chapter 20 Introduction to the Image Module

Images Overview	690
Image Overview	690
The Image Windows	691
Error Management	692
Presentation	692
Access means / Description	692
Getting Started	693
Getting Started	693
Image Properties	693
View	694
Loading	696
Trigger	698
Rates	700
Fast Zone	701
Dynamic	702
The Image Window	703
Menu Bar	704
Toolbar	705
Opening Existing Files	707
Basic Image Module Concepts	707
Basic Image Module Concepts	707
Active Layer	707
Mouse Buttons	707
Cursor	707
Filling	708
Orientation	708
Attributes	708
Continuous Design	708
Multiple Windows	708
File Management	708
Image Limitations	708

About this chapter:

This chapter is an introduction to the Image Module as follows:

Images Overview discusses the basic Image options.

Getting Started discusses the basic parameters required for creating an image in the Image module.

Image Properties discusses how to predefine the Image Window parameters.

The Image Window discusses the Image interface, its toolbar, menu bar and various operational toolboxes.

Basic Image Module Concepts discusses the various Image module concepts.

Images Overview

Images are dynamic graphic representations of industrial processes. **Tags** in an industrial process can be represented by an image object and each object can represent specific process values. Together they can display a dynamic picture of the work process.

Images can be saved into Html pages and be viewed from remote stations over the Internet. Using the Goto Zone function, operators can receive alarms showing a graphical image of the cause of the alarm.

Images can be imported, inserted or attached to a project from other projects or locations. Graphics can also be saved in Cluster Libraries and be used to create multiple projects.

The Layers functionality enables users to zoom in and out of an image for a more detailed view. Different operators can view different layers, a feature which is useful for work efficiency and security.

Image Overview

Application Images are dynamic graphs representations of industrial processes. Each tag in an industrial process can be represented by an image object, and each object can represent specific process values, thereby displaying a dynamic picture of the process.

To initiate the Image window:

1. Right click the Image file located in the Containers tree

2. Select the "New Image" option with the left mouse button.

OR

Through the Pop-up menu located in the List Zone

1. Select the Images file from the Project Tree.
2. Right click an existing Image or click anywhere in the List zone
3. Choose the New Image option.

To view the list of Image files:

Right click Images on the All Containers tree. As a result a list of all Images is displayed.

To set the order of fields to be displayed in the Images list:

1. Click the Image file in the Containers tree
2. Right click an existing Image or anywhere in the List Zone
3. Choose the View Setting option from the menu.

See the following:

The Image Toolbars

Viewing Images

The Image Windows

Image windows are windows in which images are viewed and manipulated. Images are dynamic pictures through which control processes are monitored and supervised.

An Image window can operate in one of the following modes:

Monitor - In this mode, the image can only be viewed in the current window boundaries. Tag value input through trigger objects is supported (if the operator is authorized to do so).
Navigate - In this mode, the image can only be scrolled, panned, and zoomed in and out.
Edit - In this mode, an image can be drawn, edited, and saved. When the Edit mode is invoked, an auxiliary window, called the Tools window, will appear beside the Image window. The Tools window contains editing tools that you can use to draw or modify an image.

The Image window modes can be activated by selecting a mode from the Modes menu. Several Image windows can be opened simultaneously on the screen, each displaying parts of the same image, or different images.

In the Edit mode, each image has its own dedicated Tools window.

Error Management

Presentation

In the image when an object references a tag or an Object Oriented name which is not valid, this object is marked with a cross.

Access means / Description

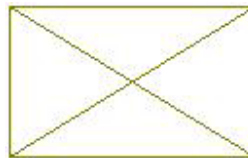
The user can not interact with this new feature. It is only here to indicate that there is a problem with an object in the image. Depending on the cross color, the user is informed of the nature of the error, so it will be easier for him to correct the default.

The following cases are handle:

- Missing tag (gray cross)



- Communication error (brown cross)



- Template error (red cross)



Getting Started

Getting Started

This section discusses basic work principles for creating an image.

There are two work modes available, where each mode when selected, opens showing different functions on the computer screen. These modes are:

- Edit - this mode is used for designing and editing images. This mode opens displaying the Drawings, Colors, Objects and Operations toolboxes. The Navigate toolbars can be activated in this mode enabling the user to move within the image and/or zoom in and out of it.
 - Trigger on - when the Trigger mode is set to ON, objects defined as trigger objects can be used for tag input. When this mode is OFF, no objects (even those defined as Trigger objects) can be used for tag input. The Navigate toolbars can be activated in this mode enabling the user to move within the image and/or zoom in and out of it.
-

Image Properties

Image Properties are used to define the properties of the image.

- To access the Properties dialog box:

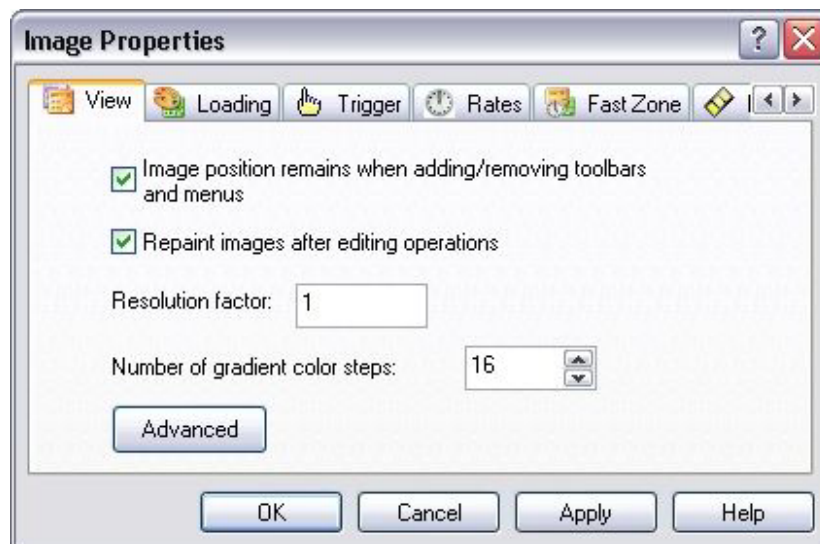
In the All Containers section right-click Images and select Properties from the popup menu. The Image Properties dialog box opens. This dialog box has the following tabs:

- **View** - where image window view properties are defined.
- **Loading** - where the amount of memory available for Image objects is defined
- **Trigger** - where the parameters for trigger objects are defined.

- **Rates** - where image update performance in milliseconds and the size of the internal message buffer that images use to collapse tag/alarm notification message is defined.
 - **Fast Zone** - where the period of time (in ms) for "slow" zones is defined.
 - **Dynamic** - where the blinking rate values for dynamic objects are defined.
-

View

This tab is used to define the properties of the Image window, repaint and resolution level.



The following options are available:

Image position
remains when
adding/removing
toolbars and
menus

When checked, this defines that the position of the image object does not change when adding/removing toolbars and menu bars.

Repaint images
after editing
operations

When checked this field defines that an image will be repainted automatically after actions that may alter the image (such as, moving, copying) are performed. This option is useful in small and medium zones.

Resolution factor

Sets global stretching or shrinking factors applicable to all images. This is required to solve display differences caused by replacing an operating system, monitor or other H/W or to move between resolutions.

Number of gradient color steps This field determines the number of steps used when drawing objects filled with gradient color. The default is 16. Drawing large gradient surfaces in many steps may be slow therefore, develop using few steps and then increase for run-time.

Advanced button Displays the Image Window Attributes dialog box where window attributes are defined.

Note: When changing the Resolution Factor the window remains the same size in pixels. However a centimeter in one image will not be a centimeter in another. The image remains unchanged when the value is 1. Values greater than 1 expand the image.

- To set correct application values:

1. Load the image in a PC and measure an object's length in the image (a line will do).
2. Load the same image in another PC and measure the same object's length.
3. Divide the first length by the second length and the result is the xx.xx value.
4. Enter the IMG_RESFACTOR with the value you found and reload the application.

The range is $0.1 \leq \text{IMG_RESFACTOR} \leq 10$.

The default value: 1

5. Restart the application for changes to take effect. The range of the factor is $0.1 \leq \text{IMG_RESOLUTION_FACTOR} \leq 10$.

- Setting Image Window Attributes

Click the Advanced button in the View tab of the Properties dialog box.

Note: Image Windows Attributes is not applicable on the Web.



Each listed attribute can be set to On or Off. When confirmed, the selected attributes will apply to all future windows of the type specified. The following options are available:

Title bar The line in the window holding the title. This is relevant only if the Title bar is active.

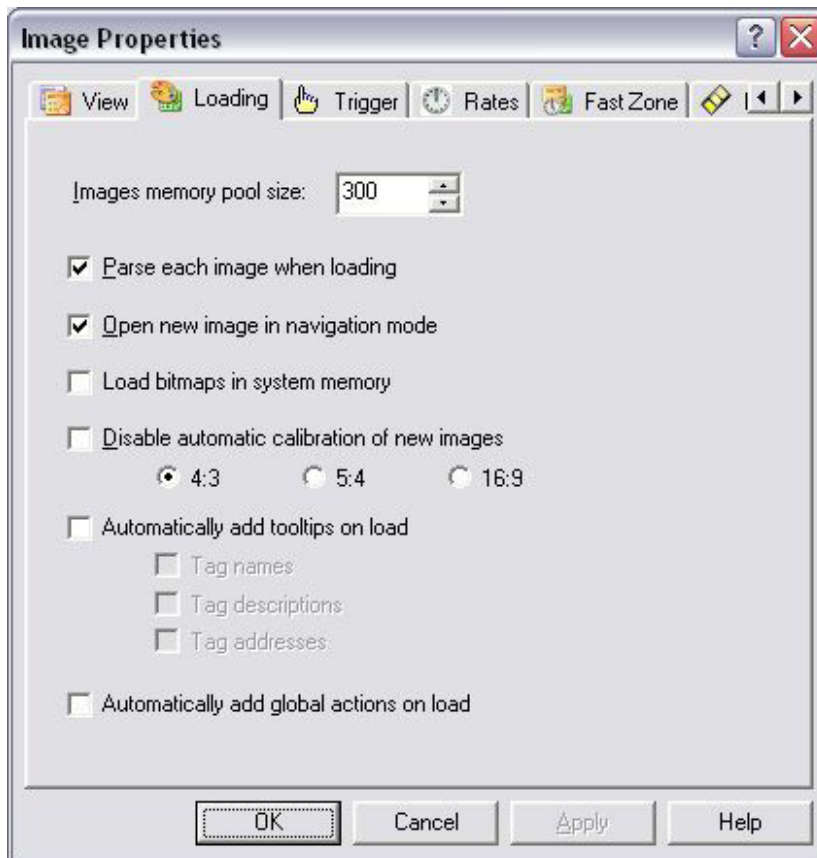
Name in title Title bar text.

System menu	The menu that opens when clicking on the top left corner of a menu. The menu options are: Move, Size, Close.
Min/Max button	This option defines whether the min/max buttons will appear in the Image window.
Size Border	Specifies that window border size can be changed by clicking and dragging.
Menu Bar	Specifies that the menu bar will open in the Images window.
Always on Top	When selected the image is displayed on top of other applications.
Pos	Specifies X and Y coordinate in pixels.
Size	Specifies window size in pixels.
Title Bar Text	Specifies the name appearing in the title bar.

Note: The system menu is title bar dependent. Its corresponding checkbox is unchecked and disabled. If the menu bar is not selected but the system menu is, the menus and items included in the Menu bar will appear in the system menu.

Loading

This tab determines the amount of memory available for image objects. It also enables/disables tag name parsing when loading images and determines the mode in which the image will open.



Note: Setting the amount of memory available for image objects is not applicable on the Web. Always restart the program after updating this tab.

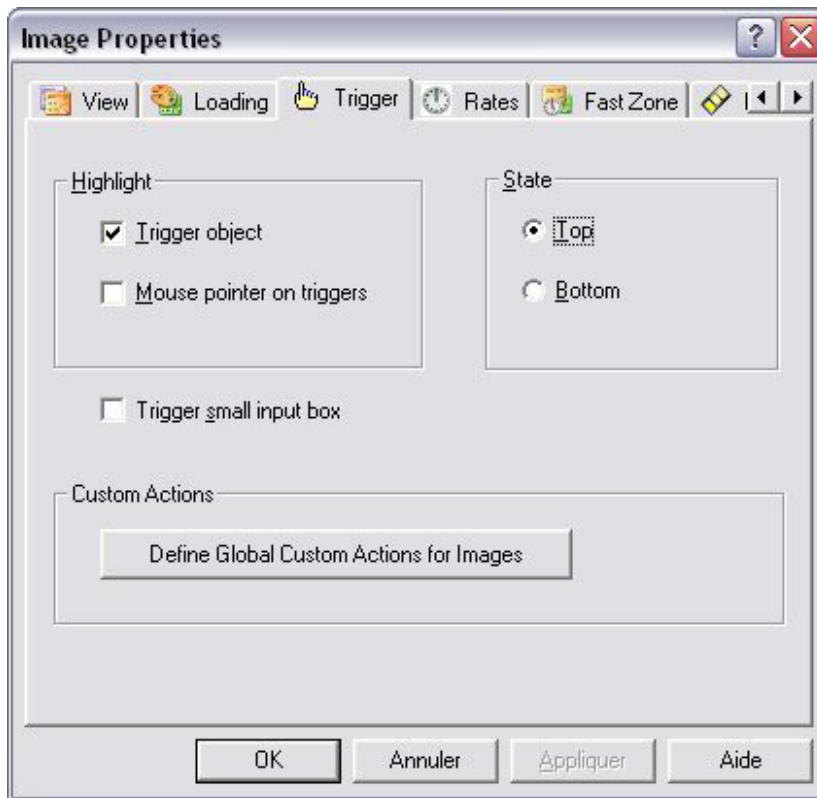
The following options are available:

Images memory pool size	Enables large images with many objects to be created, but allows only 10 (+-) Image windows to be open at one time. The lower the value, the more Image windows that can be opened simultaneously (they must be smaller in size). The value for the parameter can be set from 60 to 200.
Parse each image when loading	Enables or disables tag name parsing when loading in the Images module. Disable this option to shorten image load time for images that contain network tags. When this option is disabled network tags validity is not checked. Therefore, use this option after all tag definitions in the network station are complete.
Open new image in Navigation mode	This checkbox defines that the new image will be opened in Navigation mode.

Disable automatic calibration of new images	<p>When an image is created, it is automatically calibrated so that the X and Y coordinates are proportionally correct. This automatic calibration respects a 4:3 ratio.</p> <p>With the automatic calibration option, you may either:</p> <ul style="list-style-type: none">- choose a different ratio: 4/3 (default screen), 5/4 (TFT screen) or 16/9 (Wide screens)- disable the automatic calibration mechanism.
Automatically add tooltips on load	<p>If you developed an image in a version of the application before tooltips were available, you can add them now by checking this option. If you check this option you can choose to add the tag name or tag description to all objects. If you do this, the tooltips will be added to all objects. You must then save the image so that the tooltips are stored with the image.</p>
Automatically add global custom actions on load	<p>If you developed an image in a version of the application before custom actions were available, you can add them now by checking this option. If you check this option, all the global custom actions will be applied to all objects. You must then save the image so that the custom actions are stored with the image.</p>

Trigger

This tab defines trigger objects and onmouseover properties.



This tab holds the following fields:

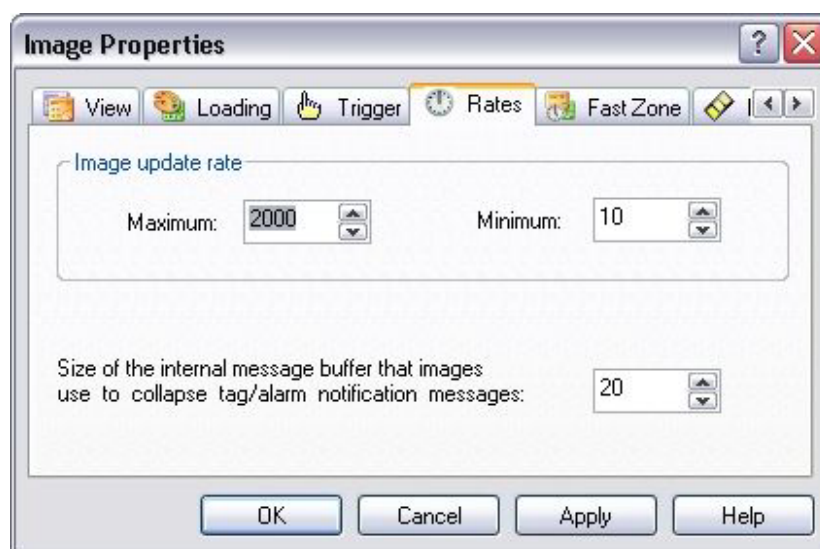
Trigger object	Determines whether trigger objects are highlighted when selected. If this option is checked, trigger objects will be outlined (with dashed lines) when they are selected. The default option is not selected.
Mouse pointer on triggers	Determines whether the mouse pointer will be highlighted when it is moved on top of a trigger object in an image. The default option is not selected.
Trigger small input box	When checked, the input box when defining data entry for triggers, will be small and will only have a field for entering the value.
State	Determines which trigger object is activated when overlapping triggers are clicked. This could be either; Top (default) or Bottom.
Define Global Custom Actions for Images	For each object in an image, you can define a set of custom actions. In many cases, you will want to apply the same set of custom actions to each object. In order to simplify this task, you can predefine the set of custom actions. Once defined, by default, when you add a custom action, unless you specify otherwise, these will be the default set of actions.

Note: Always restart the program after updating this tab.

Rates

Note: The Image Rates Properties is not applicable on the Web.

This tab determines the image update performance in milliseconds. It also defines the size of an internal message buffer that images use to collapse tag/alarm notification messages received by WizPro.



This tab has the following fields:

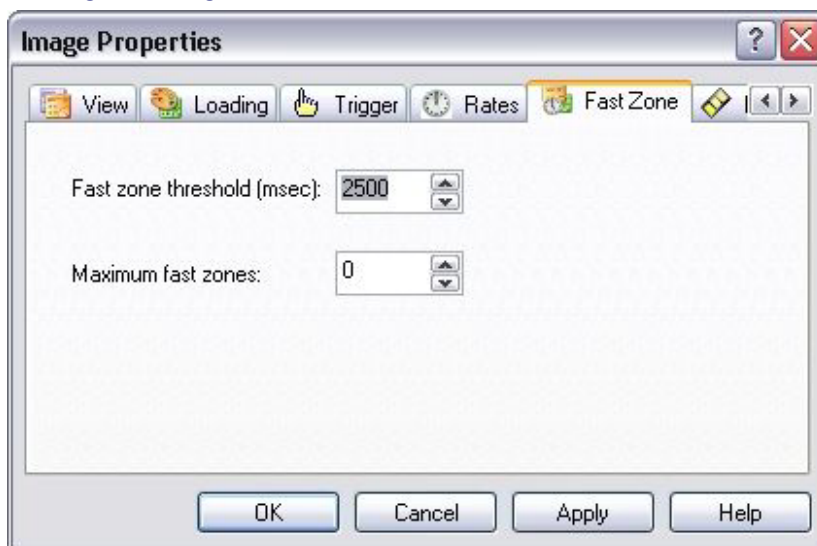
Image update rate	Specifies the image update performance in milliseconds. Specify maximum and minimum rates. The default values are: Maximum = 2000 Minimum = 10.
Message buffer size	Determines the size of the internal message buffer that images use to collapse tag/alarm notification messages received by WizPro. When tag values change, an image receives messages in a buffer from WizPro and updates graphical objects accordingly. The range is 5 to 500 messages. A high value for this parameter improves the performance of images with rapidly changing dynamic objects, so that images will not have to make graphical updates for each value message. The default is 20 messages.

Note: Always restart the program after updating this tab.

Fast Zone

Note: Image FastZone Properties is not applicable on the Web.

This tab determines the period of time (in ms) for "slow zones". A zone is slow if it has a background that takes more than a given period of time to draw. This parameter improves the drawing time for Goto Zone operations by using a cache of memory bitmaps for drawing the background of slow zones.



This tab has the following fields:

Fast zone threshold (msec)	Specifies the fast zone threshold. If this parameter is set to be 2500 and the background takes 2500ms or more to draw, the zone is considered to be slow. The range is 0 to 1 hour (in ms). The default is 2500ms.
Maximum fast zones	Determines the limit of the number of fast zone bitmaps that can be kept in a single window's memory cache. When a window reaches this limit, the least recently used fast zone bitmap is removed from the cache to make room for the new bitmap. The available range is 0-50. The default is 0 (FastZone disabled).

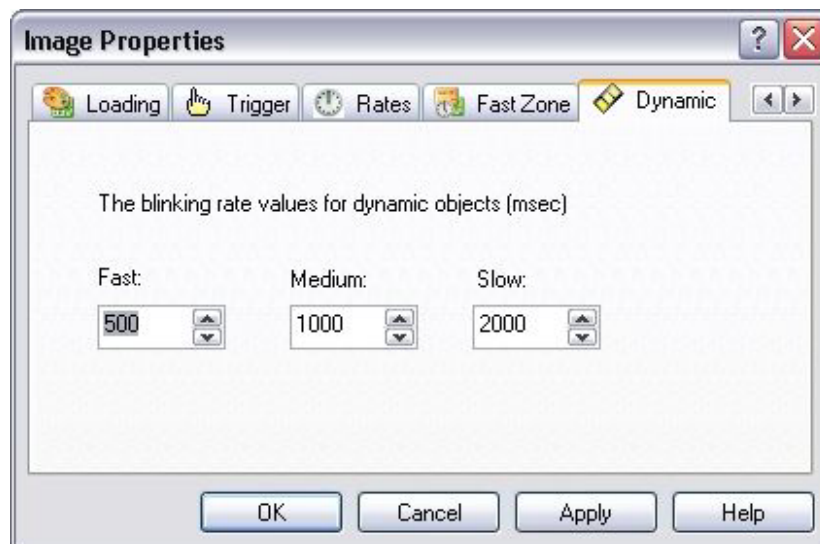
Note: This only affects the background of the image. Dynamic elements are drawn as before. Operate only when NOT in Edit mode. Always restart the program after updating this tab.

Dynamic

Note: Image Dynamic Properties is not applicable on the Web.

This tab determines blinking rates for dynamic objects. The blink rate is the period of time that the object will appear on the screen, disappear, and then reappear, and so on.

The format of this parameter is from left to right. It is recommended to increase the values for this option if it is anticipated that a large number of dynamic objects on the screen will be updated at once.



This tab has the following field:

The blinking rate values for dynamic objects (msec)

Specifies the fast zone threshold. The values specified for fast, medium and slow are in milliseconds and can be from 50 (1/20 second) to 30,000 (30 seconds). If a value that exceeds these limits is specified then the application will automatically apply the maximum and minimum values instead. The default values are 200, 500 and 1000 ms.

Note: High blink rates decrease the system's performance. When using the Wiztune.dat file to enter the values, use commas (,) to separate the values. Restart the application for changes to take effect.

The Image Window

Images are created, edited and viewed in windows that can be moved, sized and closed. The Image window can be operated using standard window techniques, according to the windows specific configuration defined during application setup.

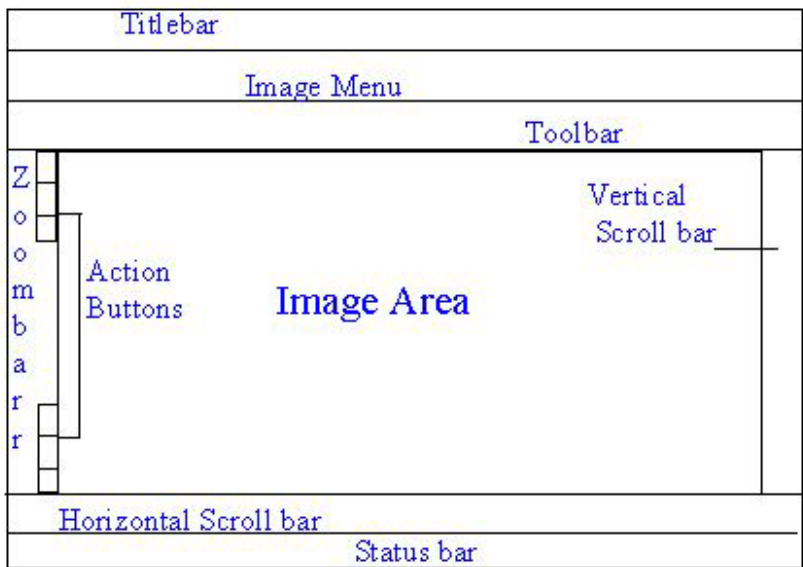
To open an Image window:

Click the  New Image icon in the toolbar.

Or,

In the All Containers section, right-click Images, and select New Image from the pop-up menu. The Images interface will open on your screen.

The following screen shot shows an Images window in Edit mode when the Navigate option has been selected.



Title Bar Displays the title of the image.

Image Region The work area where the image is designed.

Scroll Bars The bottom and right edge sliders are used for scrolling horizontally and vertically. The slider position and size relative to the scroll bar, represent the position and size of the window relative to the workspace.

Status Bar Specifies information of x y coordinates, scale and layers.

Zoom Bar	The left edge slider is used for zooming:Moving up - zooms out Moving down - zooms in
Action Buttons	Buttons located above and below the Zoom Bar, used for viewing operations. These operations include automatic positioning of the Image (a), window selection (w), and Image Redraw (r).
Toolbar	Holds icons which activate the most common functions.


Menu Bar








The Image menu bar contains the following menus and options:

File	Save, Save as, Insert, Import, Attach to, Print, Exit
Edit	Undo/Redo, Copy/Paste to clipboard, Find/Find next, Align, Select, Operator, Options, Drawings, Line type, Set background color, Get/Save background colors
View	Toolbar, Font bar, Status bar, Objects, Operations, Drawings, Patterns, Align, Colors
Layers	Elaborate on, Active layer, Definition, Override show/hide, move objects to active layer
Clusters	Define, Break, Open lib, Rebuild instances, Basket maintenance, Open basket
Options	Auto window, Goto, Goto Zone, Zones Definition, Repaint window, Simulate, Force dyn show, Mark triggers, Styles definition
Modes	Edit, Navigate, Trigger on, Copy on, Grid setup, Snap to grid, Grid show
Help	Image module Help files.

Toolbar

The Image toolbar contains the following icons and commands icons:

	Save
	Print
	Copy
	Paste
	Undo/Redo
	Goto
	Goto Zone
	Define Zone
	Edit Zone
	Navigate Zone

	Trigger On
	Mark Triggers
	Force Dynamic Show
	Grid Setup
	Set Background Color
	Repaint
	Line Type

Additional toolboxes can be activated/deactivated in the View menu. The following options are available.

- Objects - enables definition of image objects such as Alarm, Trigger, Dynamic, Cluster Definition, Group, Slider, Media Player and **Scheduler**.
- Operations - includes Rotate, Pick Color, Active Layer, Toggle Fill, Cluster Library, Send to Back, Bring to Front, Delete, Grid, Snap to Grid and Copy Paste Attributes.
- Drawings - contains simple drawing objects such as Line, Pipe, Box, Text, and Circle. Both filled and unfilled objects can be selected. The selection and text tool are also included in this toolbox. The Widget option holds the Slider, Media Player and Scheduler options.
- Patterns - contains 16 different fill patterns, including solid and transparent. The Image drawing patterns also support 32 gradient styles. The first color used for the gradient is the foreground color, while the last color used is the background color.
- Align - enables alignment of two or more selected objects. The objects can also be centered or resized horizontally, vertically or both. The objects can also be arranged so they are equal distances from each other, either vertically or horizontally.
- Colors - includes 32 colors for background and foreground (text). A left mouse click selects the line color while a right mouse click selects the fill color.

Opening Existing Files

Image files are opened from the Application Studio.

- To open an existing Image file:

From the File menu of the Application Studio, select Open. In the dialog box that is displayed, select the file to be opened. Image files have the extension *.VIM.

Or,

Select the relevant file from the List of Images in the Application Studio. When a file has been selected and confirmed, the image will be opened.

If an image with an undefined tag is loaded, an error message will appear with a reference to a file called imgname.mis, where imgname will be the name of the Image that was loaded. The .mis file can be opened for further information using any text editor. The file includes the name of the undefined tag and its type (dynamic or trigger).

Basic Image Module

Concepts

Basic Image Module Concepts**Active Layer**

An image is made up of layers and is built one layer at a time. A layer being worked on is referred to as the active layer. The layer that always exists by default is called the base layer.

The active layer name is displayed in the window title together with the Image name and the current scale.

Mouse Buttons

Generally, the left button is used to draw objects. Click the left button on specific points in the image to start and end objects. The right button is generally used to cancel operations or complete them.

Cursor

When a drawing operation is selected, the cursor will take on the appearance of the icon representing the operation that was selected.

Filling

Any figure can be filled with a pattern. A pattern is structured as a foreground (text) color over a background color. A transparent attribute can also be selected. Open figures will be filled up to the line connecting the endpoints of the figure.

Orientation

Some figures are drawn in an orthogonal orientation (only in the horizontal, vertical, or 45-degree directions). Once such a figure is drawn, it can be rotated to any angle.

Attributes

Each figure (circle, square, polygon, and so on.) is assigned a set of attributes, including colors, filling and patterns.

An important drawing feature is that once a figure with specific attributes is drawn, each time that the operation is selected again the figure will be drawn with the same attributes.

Continuous Design

After an object is drawn, a new object with the same attributes can be drawn immediately without selecting the operation again.

Multiple Windows

Several Image windows may appear on the screen simultaneously. One toolbox of each type will appear for each different Image. For example, if you opened three windows for the same image called DEMO, one toolbox of each type will serve all three windows.

File Management

Normally an Image window and image are the same. The file name for both are identical except for the extension. The Image module will automatically open/save both files as required.

When saving an image for the first time the Save As dialog box opens where files can be saved in the following formats:

- Image *.VIM
- Bitmaps *.BMP
- ASCII *.ILS

Image Limitations

The following lists the technical specifications of the Image module:

Coordinate space	2,000,000 x 2,000,000 pixels
Number of static elements	100,000
Number of dynamic elements	14,000
Number of zoom scales	2,048
Number of zones	500
Number of layers	64

Chapter 21 Image Editor

Overview.....	718
Viewing Images	719
Image Overview.....	720
Basic Principles	720
Basic Principles.....	720
Objects.....	721
Drawing Space.....	721
Image Window	722
Fast Actions	722
Lock Object.....	723
Zoom Level	723
Layers	723
Zones	724
Goto Zones	724
Zone Navigator	724
Toolboxes	725
Image Files	725
ASCII Files	725
Bitmap.....	726
File Menu.....	726
File Menu	726
The Image File Menu	727
New Image Files	728
Open Files.....	728
Saving Files	729
File / Save	729
File / Save as	729
Deleting Files	730
Inserting Files.....	730
File / Insert	731
Importing Files	731
Import.....	731
File Attachment.....	732
File / Attach to	732
Printing Images	733
File / Print.....	733
File / Exit	733
File Menu	733
Edit Menu	737
Edit Menu.....	737
Image Edit Menu.....	738
Undo/Redo.....	739
Undo/Redo.....	739

Copy/Paste to Clipboard	740
Copy and Paste Attributes	740
Copy To Clipboard	741
Paste form Clipboard	741
Copy/Paste Attributes	742
Copy/Paste Attributes for Grouped Objects	742
Image Parameters	743
Bitmap	743
Bitmap Transparency Dialog Box	744
Edit Properties	746
Triggers	747
Fast Actions	749
Find\Find Next	750
Image Find Option	752
Aligning Objects	753
Edit / Align	755
Select Options	755
Drawing Options	756
The Image Drawing Tools	757
The Drawings toolbar	758
Drawing Lines and Segmented Shapes	758
Drawing Rectangles and Ellipses	759
Drawing Arcs	759
Drawing Pipes	760
Drawing Options	760
Text	771
Text Tool	772
Font Style Selection	773
Modifying Text	775
Modifying Text	775
Specifying Line Properties	776
Colors	776
Edit / Get Colors and Save Colors	777
Setting the Image Background Color	777
Edit / Set Background Color	778
Saving and Getting Colors	778
Pick Color Tool	779
Pick Color Tool	779
View Menu	780
View Menu	780
Toolbar	781
The Toolbar	782
The Image Toolbars	782
Font Bar	783
Status bar	783

The Status bar	784
Objects Toolbox	784
The Objects toolbar.....	785
The Objects toolbar.....	785
Operations Toolbox.....	785
The Operations toolbar	786
Patterns Toolbox.....	787
The Patterns and Gradient Toolbar	787
Align Toolbox	789
The Align toolbar	789
The Align toolbar	789
Color Toolbox.....	790
The Colors toolbar	790
Additional Drawing Tips	790
Moving and Scaling Objects	791
Grouped Objects.....	791
Grouping and Ungrouping Objects	792
Grouping and Ungrouping.....	792
Lock Objects	793
Bring to Front/Send to Back.....	793
View Menu	793
Layers Menu	794
Layers Menu	795
The Layers Menu	796
Elaborate on.....	796
Layers / Elaborate.....	796
Active Layer	797
Definition	797
Layers / Definition	798
Override Show/Hide.....	799
Layers / Override Show	800
Layers Visibility Mode	800
Layers / Override Hide	801
Move Object to Active Layer	801
Move Object to Active Layer Used to move a selected object to the layer defined as active.....	802
Layers	802
Cluster Menu	805
Cluster Menu.....	806
Cluster Library.....	807
Defining Clusters.....	807
Clusters / Define	808
Linked Tags and Alarms	809
Clusters and Alarm Filters.....	811
Clusters and Alarm Families	814

Special Tokens	815
\$ID([from-to]).....	816
\$ASK("text"[, from-to]).....	817
Open Lib	818
Clusters / Open Lib	821
Breaking/Editing Clusters.....	821
Breaking Clusters.....	822
Deleting a Cluster from the Library	823
Copying Clusters from One Library to Another	823
Rebuild Instances	824
Cluster Edition.....	825
Cluster / Rebuild Instance.....	828
Cluster Baskets	828
Clusters Basket Maintenance	830
Open Cluster Basket Objects.....	830
Clusters / Open Basket	831
Clusters.....	831
Options Menu	834
Options Menu.....	835
Autowindow.....	836
Options / AutoWindow	836
Options / AutoWindow	836
Goto	837
Options / Goto.....	837
Options / Goto.....	838
Goto Zone	838
Options / Goto Zone.....	839
Zone Definition.....	840
Defining Zones.....	841
Zone Navigator	842
Zone Navigator	846
Repaint.....	849
Options Repaint	850
Window	850
Options / Window	851
Options / Window	851
Simulate	852
Force Zone Dyn Show	852
Mark Trigger.....	853
Styles Definition	853
Options Menu.....	854
Modes Menu	860
Modes Menu	861
Edit.....	861
Navigate.....	862

Trigger On	862
Copy On	863
Grid Display	863
Grid Setup	864
Defining Grid Parameters	866
Snap to Grid	866
Grid Show	867
Modes Menu	867
The Window Tools	871
The Align toolbar	871
The Colors toolbar	871
The Image Drawing Tools	872
The Drawings toolbar	873
The Objects toolbar	873
The Operations toolbar	873
The Patterns and Gradient Toolbar	874
Viewing	875
Other Topics	904
File / Delete	905
Design / Advanced Alarm Management / Channels	905
Design / Advanced Alarm Management / Pager Services	905
Design / Application Setup	906
Design / Authorization	906
Design / Authorization / System	906
Design / Authorization / Groups	907
Design / Authorization / Menu Items	907
Design / Authorization / Users	908
Design / Class Names	908
Design / DDE Client Definition	908
Design / Options / Application	909
Design / Popup Settings	909
Design / Printer Targets	910
Design / Zone Navigators	910
Design / Alarm Filter	910
Design Alarm Parameters Field Names	911
Located in the menu bar of the "Application studio" dialog box.	911
Design / Options	911
Design Scheduler	912
Design Tag Filters	912
Design/Popup/Filter	913
Image Property	913
Image Property- Fast Zone	914
Image Property - Loading	915
Image Property - Pictures	917
Image Property - Rates	917

Image Property - Trigger	919
Image Property - View	920
Used to determine the amount of memory available for image object. The value for the parameter can be from 60 to 200.....	922
The value for the parameter can be set from 60 to 200.....	923
This parameter enables an image to be repainted automatically after actions such as moving, copying etc.	923
This parameter sets a global stretching or shrinking factor which applies to all images.....	923
Active Layer	923
Action Definition	924
Alarm Object Definition	925
Arc Tool.....	927
Cancel Override Color	928
Changing Color	928
CloseEventSummary	929
ClosetImage	929
Cluster - Drag&Drop	930
Defining the Cluster Basket	930
Cluster Define (Simple Object).....	931
Cluster / Rebuild Instance	932
Clusters / Open Basket	932
Clusters Basket Maintenance	933
Breaking Clusters.....	933
Clusters / Define	934
Clusters / Open Lib	934
Copy To Clipboard	935
Custom Actions	935
Define Instance Links.....	936
Defining Tooltips	937
Defining Zones.....	937
Deselect All	939
Deleting Objects.....	939
Deselect Last	939
Drag&Drop to Img	940
Edit / Drawings	940
Edit / Align	941
Drawing in the Image	942
Edit / Find	943
Edit / Find Next	943
Line Types	943
Edit / Operations	944
Edit / Select.....	945
Edit Properties	945
Edit / Set Background Color.....	946
Edit/Get Colors and Save Colors	946

Fast Actions	947
File / Exit	948
Import.....	948
File / Insert	949
File / Print.....	949
File / Save	949
File / Save as	950
The Image File Menu	950
File / Attach to	950
Filled Circle Tool	951
Filled Ellipse Tool.....	951
Filled Orthogonal Polygon Tool.....	952
Filled Polygon Tool	952
Filled Closed Arc Tool.....	953
Filled Round-cornered Rectangle or Square Tool.....	953
Find	954
Options / Styles Definition	954
Filled Rectangle or Square	955
Style Properties.....	955
Edit / Get Colors and Save Colors	955
GoTo Zone.....	956
Gradient Styles	956
GoTo	958
Defining Grid Parameters	959
Grid Display	959
Grouping and Ungrouping.....	960
Image Alert Fill/Line Color.....	960
Image Bitmap Transparency	962
Image Button Tool.....	962
Image Alert - Blink.....	963
Copy and Paste Attributes	963
Image Edit Menu	964
Image Overview	964
Insert Picture Tool.....	965
Image Find Option	965
Instance Parameters.....	967
Layers Visibility Mode	967
Layers / Definition	968
Layers / Elaborate.....	968
Layers / Override Hide	969
Layers Definition	969
LoadAnnFile.....	970
LoadHtmlPage	970
Layers / Override Show	971
LoadImage	971

LoadPictureFile	971
LoadTrendFile	972
Lock Tags Value	972
Locking and Unlocking Objects	973
Modes Copy On	973
Modes / Edit	974
Media Player	974
Modes / Grid Show	975
The Modes Menu	975
Modes / Grid Setup	976
Modes / Navigate	976
Modes / Snap to Grid	977
Modes / Trigger On	977
Modify Tag Value	978
Modifying Text	978
Momentary Trigger	979
Moving Objects	980
Numeric Keypad	980
Move Object to Active Layer Used to move a selected object to the layer defined as active.....	981
Options / AutoWindow	981
Options / Force Dyn. Show	982
Options / Goto	982
Options / Window	983
Options / Goto Zone	983
Options Repaint	984
Options Simulate	984
Options Mark Trigger	985
Options / Styles Definition	985
Orthogonal Pipe Tool	985
Orthogonal Pipe	986
Orthogonal Polyline	986
Paste form Clipboard	986
Pick Color Tool	987
Pipe Tool	988
Polyline Tool	988
Orthogonal Polyline Tool	988
Remove Alarm	989
Rebuild Cluster Instances	989
Rotating Objects	990
Select Active Layer	991
Select Tool	991
Remove Trigger	992
Selecting an Object	992
Send to Back	993

Simulate Range	994
Slider.....	994
Smooth Input.....	995
String Tag	995
Options / Simulate.....	996
Tag Input: Bit Operation	997
Text Table	997
Tag Value.....	999
The Align toolbar	999
Text Tool	1000
The Colors toolbar	1000
The Drawings toolbar.....	1001
The Clusters Menu.....	1001
The Image Drawing Tools	1002
The Image Toolbars	1003
The Image Windows	1003
The Layers Menu	1004
The Objects toolbar.....	1004
The Fonts Toolbar.....	1005
The Options Menu	1005
The Operations toolbar	1006
The Patterns and Gradient Toolbar	1006
The Toolbar.....	1007
The Status bar	1008
Toggle Fill	1008
The button panel title	1008
Trigger Button Definition	1009
Trigger Objects	1011
Trigger Macros.....	1013
Undo/Redo.....	1013
Undo Redo.....	1014
Unfilled Closed Arc Tool	1015
Unfilled Circle Tool.....	1015
Unfilled Orthogonal Polygon Tool	1016
Unfilled Ellipse Tool	1016
Unfilled Polygon Tool	1016
Unfilled Round-cornered Rectangle or Square Tool	1017
Using the Text Tool.....	1017
Viewing Images.....	1018
Unfilled Rectangle or Square Tool	1019
Widgets / Scheduler	1019
Widgets / Slider.....	1020
Zone Definitions	1021
Modifying a Grid.....	1022
File / New / Image	1023

File / New	1024
Image Property Trigger	1024
Image Property Loading	1025
Image Property View	1026
Save As Layout	1026
Save Layout	1027
File / New / Image	1028
Picture file	1029
A Trigger Object is any object in an image defined to execute a specific operation whenever it is selected	1029
Basic Principles	1029
Goto Zones	1030
Layers	1030
Printing Images	1030
Zone Navigator	1031
Zones	1031

About this chapter:

This chapter describes the Image Editor, as follows:

Overview, provides an overview of the Image Editor.

Basic Principles describes some of the basic concepts used for Image design.

File Menu describes the options in this menu.

Edit Menu describes the options in this menu.

View Menu describes the options in this menu.

Layers Menu describes the options in this menu.

Cluster Menu describes the options in this menu.

Options Menu describes the options in this menu.

Modes Menu, describes the options in this menu.

Overview

The Image Editor is the graphic tool of the application. It is used to create and view the images that enable the operator to visualize part or all of a control process.

The Image Editor operating in an Image window defined during application setup includes a wide variety of drawing tools that make image design quick and easy. Any drawing in this window can be zoomed and scrolled.

Objects created using the Editor can be linked to tags, so that as the values of a tag change, the objects linked to the tag will change accordingly. In addition, objects can be defined as triggers for tag value input.

Image Editor operations can be performed only by operators that have the appropriate authorization level permission. While some operators may be authorized to design and view images, others may only be able to view them. In addition, each object in an image has its own authorization level.

The following basic activities can be performed using the Image Editor:

- Image Editing - Image design.
- **Image Animation** - Associating Image objects and dynamic properties with tags and modifying their values.
- Image Navigation - Navigating within an image.

Viewing Images

There are several ways to view images, using several window positions and zoom levels. You can auto arrange all the image objects, or zoom into a specific part of the image, or jump to a pre-defined position and zoom level, called Zone, in the image, or define the coordinates within the image window you wish to jump to.

For more information about the various image view options click the respective topic:

[AutowindowHLP_WZ2EDT_AUTOWINDOW](#)

Zooming into a specific part of the image

[Defining ZonesHLP_DLG_WZ2_DZONE](#)

Jumping to Zones

[HLP_DLG_WZ2_HANDNAV](#)

Image Overview

Application Images are dynamic graphs representations of industrial processes. Each tag in an industrial process can be represented by an image object, and each object can represent specific process values, thereby displaying a dynamic picture of the process.

To initiate the Image window:

1. Right click the Image file located in the Containers tree
2. Select the "New Image" option with the left mouse button.

OR

Through the Pop-up menu located in the List Zone

1. Select the Images file from the Project Tree.
2. Right click an existing Image or click anywhere in the List zone
3. Choose the New Image option.

To view the list of Image files:

Right click Images on the All Containers tree. As a result a list of all Images is displayed.

To set the order of fields to be displayed in the Images list:

1. Click the Image file in the Containers tree
2. Right click an existing Image or anywhere in the List Zone
3. Choose the View Setting option from the menu.

See the following:

The Image Toolbars

Viewing Images

Basic Principles

Basic Principles

This section describes some of the basic concepts used for image design that should be understood before using the Image Editor.

Objects

Objects are geometric figures or text that together make up an image. Objects that are geometric figures can be either open or closed, and can be filled with specified patterns and displayed in unlimited colors.

In addition to the standard object design features, the following features are also available:

- Objects can be defined as Groups, Dynamic, and Triggers.
 - The **Cluster Library** contains defined objects that can be used in any image. Library clusters can be defined to include one or more existing image object.
 - An image can include widgets (slider scale objects and Media Player) to enable fast and simple tag value changes. Widgets are custom designed and can be placed anywhere within the image.
 - Image objects can be associated with alarms.
-

Drawing Space

An image is drawn in a drawing space measured in drawing units. This measurement can be useful when moving throughout the drawing space and determining object sizes.

The drawing space is from -1,000,000 to +1,000,000 drawing units.

Image Window

An image is held in an image window. The part of the image that is displayed in the window depends on the window size, image size, and zoom level.

Fast Actions

Fast Actions are predefined macros that can be attached to triggers to enable you to perform routine operations. These include:

- **CloseActiveImage** - used to close the currently opened Image file.
- **CloseChart** - used to close a specified Chart file.
- **CloseEventSummary** - used to close a specified Events Summary file.
- **ClosetImage** - used to close a specified Image file.
- **GotoUrl** - after this trigger option is defined for an Image object when the object is clicked it will jump to the defined URL.
- **LoadAnnFile** - used to open a specified Events Summary Profile file, or an Event Summary file.
- **LoadHtmlPage** - used to load a specified HTML page.
- **LoadImage** - used to open a specified Image file, window and zone. This may also be used to change the context of the image (see the chapter on tag templates).
- **LoadPictureFile** - used to open a specified image window. This may also be used to change the context of the image (see the chapter on tag templates).
- **LoadRecipe** - used to load the recipe to apply its tag values to the image
- **LoadTrendFile** - used to open a specified trend file. This may also be used to change the context of the chart (see the chapter on tag templates).
- **LockTagsValues** - used to open the Tag Value Lock window where you can lock/unlock tags and change the locked tags definitions.
- **OpenScheduler** - used to jump from the Image to the Internet Scheduler
- **SaveRecipe** - used to save the recipe tag values to the image
- **ChangeContext** - Changes the context of the current image (see the chapter on tag templates).
- **LoadLayout** - Loads the selected layout and sets the context if required so that all windows have the same context.
- **LoadAnlFile** - Loads a history viewer and allows you to set the context if required.
- **CloseAnl** - Closes the selected history viewer

Note: In this version a recipe description that has been defined in this trigger cannot be modified.

Lock Object

This option defines that a selected image object when locked cannot be moved from its location. When a locked object is copied onto the clipboard the copied object is unlocked while the original object remains locked.

Zoom Level

The zoom level determines how the image will be viewed. The smaller the zoom level the closer and larger the image.

Any zoom level can be assigned from 1 to 2048. At a zoom level of 64, each drawing unit is 0.01 mm on a standard monitor.

Layers

An image is structured in layers. Each layer contains a part of the overall image. When the drawing is completed the layers can be merged. Each individual image layer can be made visible or hidden. Layers can be added or changed, but not removed.

Zones

Zones are predefined positions in the image window.

Goto Zones

The operator with the relevant authorization can, using the **Goto Zone** option, jump to any defined zone from anywhere in an image. The Goto Zone dialog box is used to enter the coordinates of the location to which to jump in the image. Any position in the image can be jumped to whether or not that position is defined as a zone.

Zone Navigator

The Zone Navigator is a global, multi-image zone navigation window that enables you to quickly and efficiently navigate through a list of zones defined in the application's various image files. A number of navigators each of which can contain a number of zones from one or more different image files can be defined in the module.

Toolboxes

The following toolboxes can be activated in the View mode. When the Image window definition is to open with Navigate Mode On, the Drawing, Operations, Options and Color toolboxes will also open.

Image Files

There are three file extension types:

- Image *.VIM
- Bitmaps *.BMP
- ASCII *.ILS

By default image files are saved as *.VIM.

ASCII Files

By default images are saved in .VIM files. You can, however, also save images as ASCII files, which can then be edited and loaded in the Image window.

Image ASCII files can be useful for the following purposes:

- Viewing: Saving images in ASCII format enables you to obtain documented records of the images so that they can be viewed by opening the file with any text editor.

- This option provides the illustration designer and plant engineer with a powerful image-debugging tool.
 - The ASCII format enables images to be converted easily from/to other formats and be used as drawing objects.
 - This option also enables you to draw Images by editing text files. This can be useful when you are working outside the application environment, or want to create an image without physically drawing it.
 - Images in ASCII format can be used for numerous purposes, to enhance Image creation and modification capabilities.
 - Images saved as ASCII (x.ILS) files can be loaded in the same as any other image.
-

Bitmap

A bitmap is a graphic format informing the application to consider the graphic element (text or drawing) and its background as a solid unit.

File Menu

File Menu

The Image File menu has the following options:

Save	Select this option to save the current image file with its original name.
------	---

Save as	Select this option to save the current image file with a new name.
Insert	This option allows you to insert an existing image file into an existing Image window.
Import	An image file that has been saved as an ASCII file can be imported into the image. This file can then be viewed and edited.
Attach to	The File Attach to menu allows you to attach an image (*.VIM) to an existing window. This replaces the image in the window. The VIM file is modified to reflect this change.
Print	Select this option to print the current view.
Exit	Select this option to close the current window.

The Image File Menu

The Image File menu provides the user with the basic operations of the Image window:

File / Save Select this item to save the current image window file with its original name.

File / Save as Select this item to save the current image window file with a new name.

File/Insert The Insert file option allows you to insert an existing Image File, into an existing Image Window.

File/Import You can import or load an Image file that has been saved as ASCII file into the Image Window. This file can then be viewed and edited.

File/Attach to The File Attach to menu allows you to attach an Image (*.VIM) to an existing Window. This replaces the Image inside the Window. The VIM file is modified to reflects this change. Common Open Dialog lets you select the Attach VIM (actually the Image is what is attached).

File/Print Select this item to print the current view.

File/Exit Select this item to close the current window.

If you made changes to the image, but did not save the file, you will be prompted to either save the changes you made or discard them.

New Image Files

New Image files are opened from the Application Studio.

- To open a new Image file:

From the File menu in the Application Studio, point to New and select Image.

Or,

Press Ctrl +N.

Or,

In the Container List of the Application Studio Containers right-click Images and select New Image from the popup menu. A new Image is displayed with the default Image properties.

Open Files

Image files are opened from the Application Studio.

- To open an existing Image file:

From the File menu of the Application Studio, select Open. In the dialog that is displayed, select the file to be opened. Image files have the extension *.VIM.

Or,

Select the relevant file from the List of Images in the Application Studio. When a file has been selected and confirmed, the Image will be opened.

If an image with an undefined tag is loaded, an error message will appear with a reference to a file called imgname.mis, where imgname will be the name of the image that was loaded.

The .mis file can be opened for further information using any text editor. The file includes the name of the undefined tag and its type (dynamic or trigger).

Saving Files

When saving the image for the first time, the Save As dialog box with the extension of *.VIM opens in the default directory for the image.

- To save an Image as an Image file:
 1. Select Save as to open the Save as dialog box.
 2. Select Image from the Save as type list. The file is saved with the *.VIM extension.
 - To save an Image as a Bitmap:
 1. Select Save as to open the Save as dialog box.
 2. Select Bitmap from the Save as type list. The file is saved with the .BMP extension.
 - To save an Image as an ASCII file:
 1. Select Save as to open the Save as dialog box.
 2. Select ASCII from the Save as type list. The file is saved with the .ILS extension.
-

File / Save

Select this item to save the current image and window settings (position, mode etc.)
Selecting the Save option opens the Save As dialog box, prompting you to specify a file name. The dialog box displays the image files default folder and default image files extension (*.VIM).

File / Save as

Select this item to save the current image window file under a new file type: VIM, ASCII, BITMAP

Deleting Files

Images are deleted from the Application Studio.

- To delete an Image file:

Select the image name from the List of Images in the Application Studio. Right-click on the file you wish to delete and select Delete from the popup menu.

Inserting Files

- To insert an image:

1. Select Insert from the File menu. The Open dialog box opens.
2. Double click the relevant file from the list. The file contents will be merged into the currently opened image file.

Note: Imported objects will be placed in the layer to which they belonged in the source image (according to the ordinal number of the layer and not the layer name), or in the current layer if the layer to which they belonged does not exist in the target image. The same applies for text in different fonts.

File / Insert

The Insert file option allows you to insert an existing Image file, into an existing Image Window.

Importing Files

The Import option enables you to import or load an image file that has been saved as an ASCII file (*.ILS) into the Image window. This file can then be viewed and edited.

- To import an Image as an ASCII file:

1. Select Import from the File menu. The Open dialog box opens.
2. Double click the relevant file from the list. The file contents will be imported into the currently opened image file.

Note:

Imported objects will be placed in the layer to which they belonged in the source Image (according to the ordinal number of the layer and not the layer name), or in the current layer if the layer to which they belonged does not exist in the target Image. The same applies for text in different fonts.

Images that were saved as ASCII (x.ILS) files can be loaded in the same way as any other image.

For more information see Appendix G, ASCII (ILS) File Format for the structure and format of an ILS file.

Import

You can import or load an Image file that has been saved as ASCII file into the Image Window.
This file can then be viewed and edited.

File Attachment

The Attach to option enables you to attach an Image (*.VIM) to an existing window. This replaces the image inside the window. The VIM file is modified to reflect this change.

- To attach an image file:
 1. Select Attach to from the File menu. The Open dialog box opens.
 2. Double click the relevant file from the list. The file contents will be imported into the currently opened image file.
-

File / Attach to

The File Attach to menu allows you to attach an Image (*.VIM) to an existing Window. This replaces the Image inside the Window. The VIM file is modified to reflect this change. The Common Open dialog box enables you to select the Attach VIM (the Image). The Image title changes to something like attached to c:\APPLIC\APPL\2.VIM.

Printing Images

Images are printed from the Image file menu.

- To print an Image file:

Select Print from the File menu. The Print dialog box is displayed:

1. To send the Image to a file in the bitmap format
 2. Select the Bitmap option and specify the filename.
-

File / Print

Select this item to print the current view.

File / Exit

Select this item to close the current window.

If you made changes to the image, but did not save the file, you will be prompted to either save the changes you made or discard them.

File Menu

The Image File Menu

The Image File menu provides the user with the basic operations of the Image window:

File / Save Select this item to save the current image window file with its original name.

File / Save as Select this item to save the current image window file with a new name.

File/Insert The Insert file option allows you to insert an existing Image File, into an existing Image Window.

File/Import You can import or load an Image file that has been saved as ASCII file into the Image Window. This file can then be viewed and edited.

File/Attach to The File Attach to menu allows you to attach an Image (*.VIM) to an existing Window. This replaces the Image inside the Window. The VIM file is modified to reflect this change. Common Open Dialog lets you select the Attach VIM (actually the Image is what is attached).

File/Print Select this item to print the current view.

File/Exit Select this item to close the current window.

If you made changes to the image, but did not save the file, you will be prompted to either save the changes you made or discard them.

File / Attach to

The File Attach to menu allows you to attach an Image (*.VIM) to an existing Window. This replaces the Image inside the Window. The VIM file is modified to reflect this change. The Common Open dialog box enables you to select the Attach VIM (the Image). The Image title changes to something like attached to c:\APPLIC\APPL2.VIM.

File / Exit

Select this item to close the current window.

If you made changes to the image, but did not save the file, you will be prompted to either save the changes you made or discard them.

Import

You can import or load an Image file that has been saved as ASCII file into the Image Window.

This file can then be viewed and edited.

File / Insert

The Insert file option allows you to insert an existing Image file, into an existing Image Window.

File / Print

Select this item to print the current view.

File / Save

Select this item to save the current image and window settings (position, mode etc.)
Selecting the Save option opens the Save As dialog box, prompting you to specify a file name. The dialog box displays the image files default folder and default image files extension (*.VIM).

File / Save as

Select this item to save the current image window file under a new file type:VIM, ASCII, BITMAP

Edit Menu

Edit Menu

The Image Edit menu is the graphic tool of the application and is used to create and view the images enabling you to visualize part or all of a control process. The following options are available:

Undo/Redo	Undo/redo the last action.
Copy/Paste to Clipboard	Copy/paste data between applications.
Copy/Paste Attributes	Copies/pastes attributes from one object to another.
Edit Properties	Edit drawing objects and clusters. Attributes such as line and fill color, existing dynamic definitions and trigger definitions can be modified.
Find	Find and go to an object that matches the search text.
Find Next	Search for the next occurrence of the last search string.
Align	Align two or more objects at right top or bottom. Center or resize horizontally, vertically or both.
Select	Select objects in the image.
Operations	This option when selected enables editing and animation operations in an Image.
Drawings	This option when selected enables you to draw and add text by using the polyline, box, circle, pipe, text, and pick color tools or assign trigger objects with the button tool. The media player or slider properties can also be defined.

Set Background Color	This option when selected sets the image background color.
Get Colors	This option when selected retrieves customized colors.
Save Colors	This option when selected saves customized colors.

Image Edit Menu

The Image Edit Menu is the graphic tool of the application. It is used to create and view the images that enable personnel to visualize part or all of a control process.

The Image Edit Menu includes a variety of drawing tools that make image design quick and easy.

The Image Edit Menu consists of the following menu items:

Edit /Undo- RedoThe Undo command reverses or deletes the last entry. Immediately after you undo an action, the Undo command changes to Redo, allowing you to restore what you reversed

Edit/ Copy To Clipboard The Clipboard is an Operating system facility use to transfer data between applications.

Edit/ Paste form Clipboard Select this item to paste objects from the Clipboard to an image

Edit/Edit Properties Select this item to edit objects

Edit/ Find Using the Find option you can find and Goto an object that matches the search text

Edit/ Find next Find next searches for the next occurrence of the last search string.

Edit/Align Two or more selected objects can be aligned to Right Top or Bottom. They can also be centered or resized Horizontally, Vertically or Both.

Edit/Select This item is used to select objects in the image.

Edit/Operations The Operations Menu allows you to perform editing and animation operations on your Image.

DrawingsThe Drawings Menu enables you to draw and add text in your Image by using the Polyline, Box, Circle, Pipe, Text and Pick color tools.

Line Type Line Type enables you to define lines with different widths and types for objects that include lines as part of their shape

[Set Background Color](#)[HLP_WZ2EDT_SETBACKCOLOR](#)

Get Colors The Set Image Background feature enables you to set the image background color.

[Save Colors](#)[HLP_WZ2EDT_SAVECOLORS](#)

Undo/Redo

The Undo and Redo operations are available for Image drawing operations. This applies to actions such as delete, scale, rotate and change attributes (color) of an object. The Undo command reverses or deletes the last entry.

Immediately after you undo an action, the Undo command changes to Redo, enabling you to restore what you reversed. Up to 50 levels of Undo/Redo operations are available.

Undo/Redo

Undo and Redo operation is available for Image drawing operations. This applies to actions as delete, scale, rotate and change attributes (color) of an object.

The Undo command reverses or deletes the last entry.

Immediately after you undo an action, the Undo command changes to Redo, allowing you to restore what you reversed.

Up to 50 levels of undo/redo operations are available.

To Undo

1. Select object you want to undo.
2. Click on the Undo tool in the **Image main toolbar**.
3. The action is reversed.

You can also Undo an action by clicking the Undo option from the Operations Menu, or pressing Ctrl Z.

To Redo

1. Select the object you want to redo.
2. Click on the Redo tool in the Image Main Menu Toolbar.
3. Your action is restored.

You can also Redo an action by clicking the Redo option from the Operations Menu, or pressing Ctrl Y.

Notes *The Align feature does not support the Undo feature. Copying objects using <Ctrl C> does not support the Undo feature.*

Copy/Paste to Clipboard

The Clipboard is a convenient way to transfer graphic objects from the application to external applications, vice versa, and from one image to another. This option is only available when the Edit mode is activated.

Copy and Paste Attributes

This feature can be used to copy and paste both objects and text attributes.

In an image select an object/text and then click the Copy Attributes button in the Operations toolbox.

Using the tool, click on an object or text in the image. The copied attributes are pasted into the selected item.

Right click anywhere in the image to end this process.

Notes:

1. Objects are applied by clicking each object individually.
 2. Copied attributes can only be pasted into the same object/text type. That is, attributes copied from text cannot be pasted into objects.
 3. The Copy Attributes button is only enabled when an object/text is selected.
-

Copy To Clipboard

The application enables you to use the Clipboard as a convenient way to transfer graphic objects from the application to external application and vice versa.

There are two ways to copy an object to the Clipboard

Through the Edit Menu

1. Select an object
2. Select the Copy to Clipboard item from the Edit menu
3. As a result the object will be copy to the clipboard for later use.

Through the Pop-Up Menu

1. Right click an object in the Image window
2. From the Pop-up Menu select the Copy to clipboard. The Copy to Clipboard operation will copy a selected object(s) in many formats.

Note: Copying objects using <Ctrl C> does not support the Undo feature.

Paste form Clipboard

Select this item to paste objects from the Clipboard to an image. The imported object will be placed in the current active layer.

For a Paste from Clipboard operation, the application will paste the object first in the image parameter format (if the object is in that format). If the object is not in that format, the application will paste the object in the Metafile format. If the object is not in that format either the application will paste the object in the Bitmap format. If the object is not in any of these formats, the application will not paste the object.

There are two ways to paste an object from the Clipboard

Through the Edit Menu

1. Select an object
2. Select the Paste from clipboard item from the Edit menu

Through the Pop-Up Menu

1. Right click object in the Image window
2. From the Pop-up Menu select the Copy to clipboard


To place an object after it has been pasted, either double-click on the point in the image where you want the object to appear, or click once to set the size and location of the image.

If you click once, you must define the area which the object will fill by moving the outlined box that appears (by dragging the mouse) to the end point of the object, and clicking again.

Copy/Paste Attributes

This feature supports the following:

- **Object** - line and fill color
- **Text** - font style, size, color and background color
- To copy/paste an attribute do the following:

1. In an image select an object/text. In the operations toolbox click the  Copy/Paste Attributes button.
2. Click on another object/text in the image. Each time you click an object/text the attributes of the copied item will be pasted in to it.
3. Right click anywhere in the image to end this process.

Note: An object's attributes can be applied by clicking each object individually. Copied attributes can only be pasted into the same object/text type. This means that attributes copied from text cannot be copied into objects.

The Copy Attributes button is only enabled when an object/text is selected. Text attributes cannot be pasted into object attributes and vica versa.

Copy/Paste Attributes for Grouped Objects

This option is available for a group of objects.

Each individual object in the group may have different attributes, (which will remain the individual object's attribute after being grouped). However the attribute of the group will be the same. For example the object color and fill of the group is green while each individual object within the group has a different color and fill.

Using the copy/paste button, the object group can be selected and its attributes pasted into an object out of the group.

Note: The attribute of a group/selected list that has both text and objects cannot be copied and pasted into another object.

Image Parameters

This format is used by to create image objects. Each object in an image includes several parameters (such as dynamic, trigger, etc.). These parameters inform the application how the object behaves.

If this format is used, when transferring an object from/to the clipboard the object will include other Imaging parameters information.

Bitmap

A bitmap graphic is captured by pixels. In a Copy to Clipboard operation, the application copy's the selected object(s) in all of the formats. During a Paste from Clipboard operation, the application will paste the clipboard object first in the image parameter format. If the object is not in this format it will be pasted in bitmap format and if this fails the object will not be pasted.

Note: If you paste an object from the clipboard, the imported object will be placed in the current active layer.

When a text object is pasted from the clipboard and the original font of the object you pasted does not exist in your system, the object will appear in the current active font.

The following editing operations can be applied to objects pasted from the Clipboard to a image:

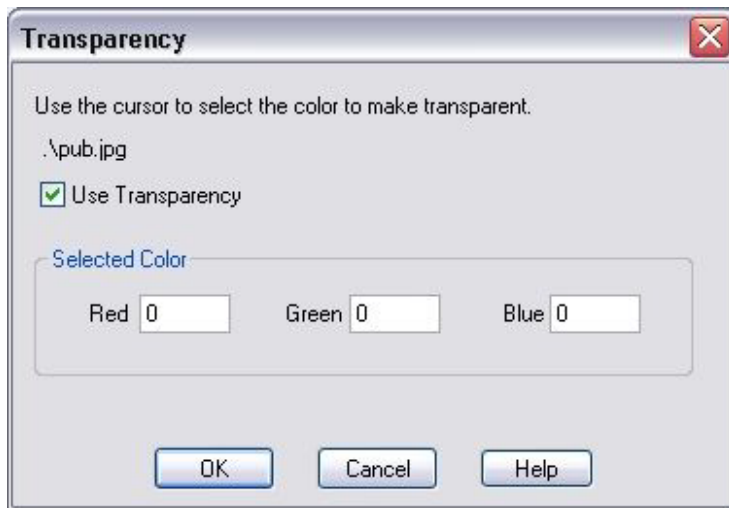
Operation	Bitmap
-----------	--------

Move	Yes
Size	Yes
Rotate	No
Fill	No
Color	No
Dynamic	Yes
Trigger	Yes

Bitmap Transparency Dialog Box

This dialog box is used to change color transparency of an Image bitmap.

- To access the Transparency dialog box do the following:
 1. From the Drawing Tool bar click the Picture icon and then click in the Image drawing area. The Select Picture window opens.
 2. Double click on a bitmap image. The image will open on your screen.
 3. Right click anywhere in the image and then select and double click the imported bitmap. The Transparency dialog box opens.



4. Check the Use Transparency field to activate the Selected Color fields.
5. In the color fields define the required transparency.
6. Click OK to save.

- To copy an object from an image to the Clipboard:

Select an object(s), and then select Copy to Clipboard from the Edit menu, or click the <Ctrl-Insert> key combination.

Or,

Select an object and then right click to open a pop up menu and select Copy to Clipboard.

- To paste an object from the clipboard to an image:

1. Select Paste from Clipboard in the Edit menu, or press the <Shift-Insert> key combination or select an object and then right click to open a pop up menu and select Paste to Clipboard.

2. To paste the object do either:

- Double-click on the point in the image where you want the object to appear. The object will automatically be pasted at the location you selected in its original size.
- Click once to set the size and location of the object. You can then define the area that the graphic object will fill, using an outline box. After the initial click, simply move the outline box, by moving the mouse, to the end point of the object, and click again.

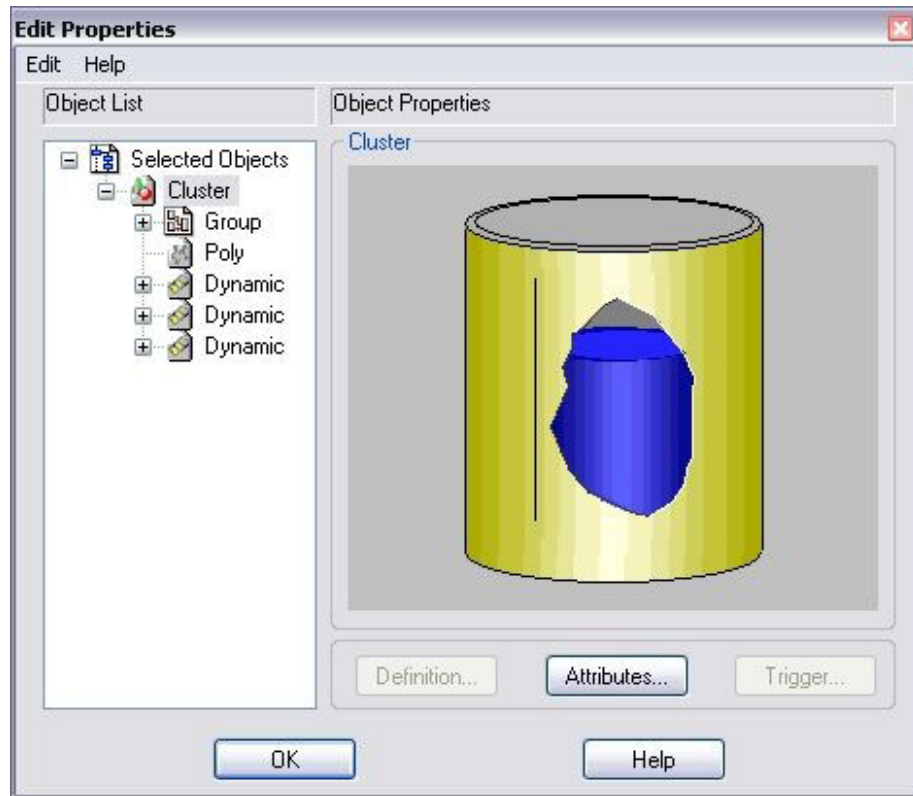
Note: If you start by clicking on a high point, and move down and click on a lower point, the graphic object will appear upside-down (unless that object is in the bitmap format).

Edit Properties

The Edit Properties dialog box is used to modify selected objects.

- To open the Edit Properties dialog box:

Select Edit Properties in the Edit menu, or select an object and then right click to open a pop up menu and select Edit Properties.



This dialog box has the following options:

Objects List	This section displays a tree of the object according to hierarchy.
Object Properties	This section shows the object selected from the Objects List.
Definition	This button when clicked is used to modify dynamic tag parameters and is only available for objects such as button, alarm or text. It is not available that are defined as basic objects.
Attributes	This button when clicked is used to modify an objects color line and color fill.
Triggers	This button when clicked opens the Trigger Definition dialog box.

Triggers

Trigger objects are objects that you can click on to cause pre-defined tag values to be set automatically or manually, cause the image to go to a pre-defined zone, or cause pre-defined macros to be activated. Any object can be defined as a trigger object. However, only one tag value input method can be assigned per object.

The tag value input method that you select in the dialog box will be marked by an arrow.

The Data Entry, Bit, Smooth, and Test the last position of the dialog box will be saved (unless you activated the Cancel button before completing the operation). This means that you can drag the dialog box to any position on the screen, and thereafter, whenever the dialog box will be invoked, it will appear in its last position. However, the dialog box position is relative to the window position. If the window is moved and then the dialog box is invoked, it will appear in the position it was last saved, relative to the new location of the window.

For Text Table objects, the String button will appear in the Input Method field instead of Data Entry.

For Time objects, the Time button will appear in the Input Method field instead of Data Entry.

For Date objects, the Date button will appear in the Input Method field instead of Data Entry.

- To define a trigger

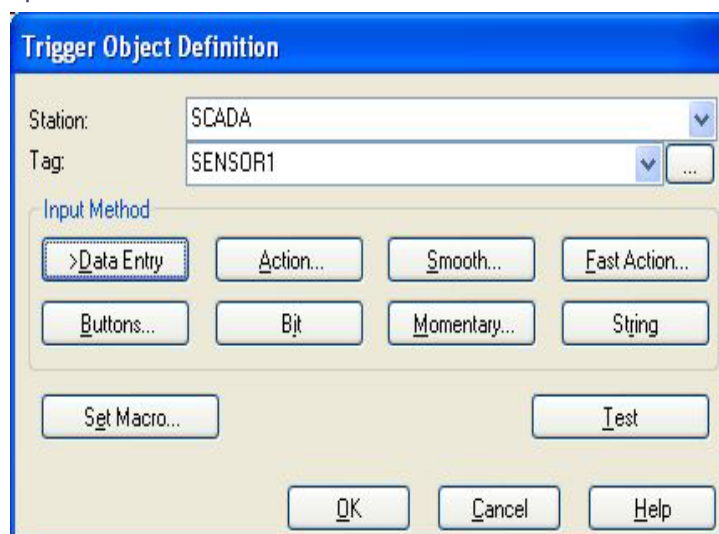
Select the object you want to define as trigger, and then Right click the selected object. Select Trigger Definition from the popup menu.

Or,

From the Edit menu select Operations, then click on the Trigger option.

Or,

From the Objects toolbar select the Trigger tool. The Trigger Object Definition dialog box opens:



1. Select the station to which the tag associated with the trigger object is attached.

2. Select the tag associated with the trigger object, or click the browse button to open the Tag Definition dialog box where you can define a new tag. This tag may be a tag template identifier (see the chapter on tag templates).
3. Select the trigger object Input Method. Several tag input methods can be used for trigger objects. To test an input method, tag value variations can be simulated.

The tag value input methods include the following:

Action	When the operator clicks on an object, a present value is applied to the tag, or a pre-defined macro is activated. This method is valid for all tags and objects.
Buttons	When the operator clicks on an object, a set of buttons with present values appears. Activating a button causes a value to be applied to the tag, or a pre-defined macro to be activated. This method is valid for all analog and digital tags.
Bit	When the operator clicks on an object, On, Off, and Toggle buttons appear. This method is valid for all tags and objects (except string tags).
Data Entry	When the operator clicks on an object, a dialog box appears to specify a numerical tag value. This method is valid for all tags and objects besides Text Table objects.
String	The String button will appear instead of the Data Entry button. When the operator clicks on an object, a Text Table that was made active for the tag associated with the object will be applied. The Text table contains a list of strings corresponding to different tag values.
Date	The Date button will appear instead of the Data Entry button. When the operator clicks on an object defined as a Date/Time object, a dialog appears with the current date value to be modified.
Time	The Time button will appear instead of the Data Entry button. When the operator clicks on an object defined as a Date/Time object, a dialog box appears with the current time value to be modified.
Smooth	When the operator clicks on an object, a dialog box appears with tag values that can be selected using sliders. This method is not valid for string tags.
Momentary	When the operator clicks on an object, a dialog box appears enabling the user to change tag value in a one short action.
Fast Actions	When the operator clicks on an object, a pre-defined macro, called Fast Action is executed (note that some Fast Action are not Web enabled).

4. Click the Set Macro button to define macros for trigger objects (note that Set Macro is not supported on the Web).

- Click the Test button to test the input method and adjust its appearance. In addition you can move the numeric keypad to any location on your screen. When you re-open the application and operate the keypad, it will be opened at the same location as you selected.

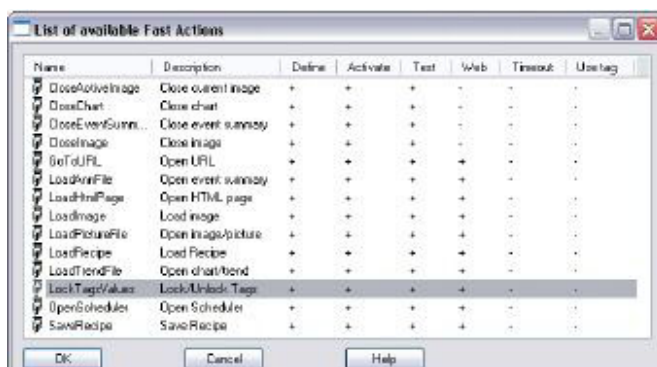
Fast Actions

Fast Actions are pre-defined macros that can be attached to a trigger, enabling you to easily execute routine operations.

Note: Fast actions are Web enabled.

- To define Fast Action triggers:

- Click the Fast Action button on the Trigger Object Definition dialog box. The List of available Fast Actions dialog box is displayed.



Select the Fast Action you want to attach to the trigger:

- CloseActiveImage - used to close the opened Image file.
- CloseChart - used to close a specified Chart file.
- CloseEventSummary - used to close a specified Events Summary.
- CloseImage - used to close a specified Image file.
- GotoUrl - after this trigger option is defined for an Image object when the object is clicked it will jump to the defined URL.*
- LoadAnnFile - used to open a specified Events Summary Profile file or an Event Summary file. *
- LoadHtmlPage - used to load a specified HTML page. *
- LoadImage - used to open a specified Image file, window and zone.
- LoadPictureFile - used to open a specified image window. *
- LoadTrendFile - used to open a specified trend file. *

- LockTagsValues - used to open the Tag Value Lock window where you can lock / unlock tags and change the locked tags definitions.
- **Open Scheduler** - used to jump from the Image to the Internet Scheduler
- **SaveRecipe** - used to save the recipe tag values to the image
- **Change Context** - used to change the tag context of the current image
- **LoadLayout** - Loads the selected layout and sets the context if required so that all windows have the same context.
- **LoadAnlFile** - Loads a history viewer and allows you to set the context if required.
- **CloseAnl** - Closes the selected history viewer

2. Click OK to define the selected Fast Action Parameters.

Note: * indicates that when Load in the same window (Web only) is checked a new page in the Explorer is not opened, however the current page is changed to the selected one.

Note: The Web column indicates with the '+' sign that the feature works on web. The '-' sign indicates that the feature doesn't work on web.

Find\Find Next

The Find option is used to search and jump to an object that matches the search text. This feature is available in Edit mode only. The Find command opens the Find dialog box while Find Next searches for the next occurrence of the last search string.

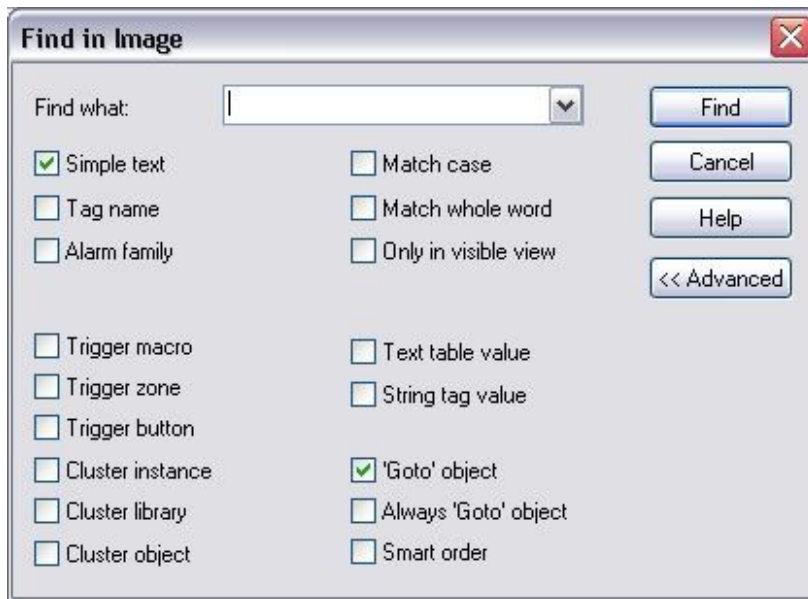
A search string can be of upto and including 256 characters. Search options are common for all Image windows

- To open the Find/Find next dialog boxes:

Select Find/Find next from the Image Edit menu or press the following keys:

- Ctrl F = Find
- F3 = Find next

Clicking the Advanced button in the Find dialog box opens the lower section of the dialog box showing the advanced search options. If a search fails, a notification message is displayed with the searched string.



The Find in Image dialog box has the following options.

Simple text	Check this checkbox if the Find field is in simple text.
Tag name	This includes tag names in Dynamic object, Tag value, Trigger, Text table and Widgets.
Alarm family	As defined in alarm object.
Match case	The search is made for full matching letter cases; otherwise, strings are compared ignoring the case.
Match whole word	The search is made to find the exact full text, all characters are accounted for. Otherwise, the search is made to find the occurrence of the search string inside any text.
Only in visible view	If this option is checked, the search is limited to the visible part of the Image inside the Image window.
Trigger macro name	The name of the macro that a trigger activates.
Trigger zone name	The name of the zone that a trigger jumps to.
Trigger button	Any name in a trigger button including title and legend on each button.
Cluster instance	The instance name of a cluster.
Cluster library	The library name of cluster instance.
Cluster object	The cluster object name as appearing in the library.

Text table value	The current string value matches the search string.
String tag value	The current string tag value matches the search string.
Goto object	Checks that the application will automatically navigate to the found object and bring it into the middle of the current window; scale will not be changed.
Always Goto object	The application will jump to the found object, even if it already appears in the visible part of the Window.
Smart order	Performs a geometric search. The image is searched from 'left to right' in strips of the same size of the current open view. In many cases, such a search is more intuitive, especially if the image is divided into zones with a corresponding layout. If this option is not checked, the search is simple, meaning that the search is by the order of objects in the image, from the first object created to the last one.

Note: For Text table and String tag the Simple text option must be also checked. If searching for trigger zone or macro the search is also made in trigger buttons for a match. Options can be set independently.

Image Find Option

Using the find option you can find and Goto an object that matches the search text. This feature is available in Edit mode only. The Find command opens the Find dialog box while the Find next searches for the next occurrence of the last search string.

You can activate the Find option using the following keys:

Find: Ctrl F

Find Next: F3

In the Find in Image option you can do the following:

You can enter search strings up to 256 characters

Search options are common for all Image Windows.

Search Options

The following is a list of the search categories and their description you can select to search for:

Simple text.

Tag name - this includes tag names in Dynamic object, Tag Value, Trigger, Text table and. Widgets.

Alarm family name - as defined in alarm object.

Trigger macro name - the name of the macro that a trigger activates.

Trigger zone name - the name of the zone that a trigger *goto*

Trigger button - any name in trigger button including title and legend on each button.

Cluster Instance - the instance name of a cluster.

Cluster library - the library name of cluster instance.

Cluster object - the cluster object name as appearing in the library.

Text table value - the current string value matches the search string.

String tag value - the current string tag value matches the search string

Notes:

1. For Text table and String tag the Simple text option must be also checked.
2. If searching for trigger zone or macro, then the search is also made in trigger buttons for such a match.
3. Options can be set independently from one of the other.

Other Search Options

Other search options give you control of the way the actual search is made.

Match case -- the search is made for full match of case of letters, otherwise, strings are compared ignoring the case.

Whole word -- the search is made to find the exact full text, all characters are accounted for, otherwise, the search is made to find the occurrence of the search string inside any text.

Only in visible view -- if this option is checked, the search is limited to the visible part of the Image inside the Window.

Other Advanced Search Options

Goto object -- if this option is checked the application will automatically navigate to the found object to bring it into the middle of the current Window; the scale will not be changed.

Always *Goto* object -- checking this option causes the application to navigate to the found

Smart Search -- checking this option will cause the search to be performed in a geometrical way. The Image is searched from 'left to right' in strips of the same size of the current open view. In many cases such search is more 'intuitive' especially if the Image is divided to zones with a corresponding layout.

If this option is not checked the search is simple, meaning that the search is by the order of objects in the Image, from the first object created to the last one.

Notification Message

If a search fails a notification message is displayed with the searched string.

Aligning Objects

The Align option is used to align objects with other objects or to resize objects.

- To align objects:

Select Align in the Image Edit menu or activate the Align toolbox by checking Align in the View menu. This menu has the following options:



Align objects by their left edges.



Align objects by their right edges.



Align objects by their centers (vertically).



Align objects by their middles (horizontally).



Align objects both horizontally and vertically.



Align objects by their tops.



Align objects by their bottoms.



One or more objects can be resized to the same width.



One or more objects can be resized to the same height.



One or more objects can be resized to both same height and width.



Objects can be arranged (distributed) so they are equal distances from each other horizontally.



Objects can be arranged (distributed) so they are equal distances from each other vertically.

Note: The Align feature does not support the Undo option.

Edit / Align

Select the Align option to display a sub-menu where you can choose how to align an object with another object(s).

In addition, the Align sub-menu enables you to resize objects horizontally, vertically or both.

You can also align objects by using the Align toolbar.

The Align options are as follows:

Left Aligns objects by their left edges.

Right Aligns objects by their right edges.

Top Aligns objects by their tops.

Bottom Aligns objects by their bottoms.

Center Horiz. Aligns objects by their middles horizontally.

Center Vert. Aligns objects by their centers vertically.

Center Both Aligns object both horizontally and vertically.

Resize Horiz. Selected objects can be resized to the same width.

Resize Vert. Selected objects can be resized to the same height.

Resize Both Selected objects can be resized both to the same width and height.

Even Spacing Horiz. Spaces between selected objects lined horizontally will be equal.

Even Spacing Vert. Spaces between selected objects lined vertically will be equal.

Note: The Align feature does not support the Undo option.

Select Options

There are three Select Options:

- Select
- Deselect Last
- Deselect All

1. To select several objects simultaneously using the left mouse draw a rectangle around the relevant objects.

2. To add a new object to already selected objects press the <Shift> key and click a new object.

3. Deselect objects by clicking on an empty part of the image area or select Select/Deselect Last/All.

4. Deselect the last selected object by pointing to Select in the Edit menu and selecting Deselect Last.

Note: Right-clicking sets the object automatically to select mode and cancels the move operation.

Drawing Options

The Drawings toolbox options are used to design image objects. Line, Pipe, Box, Text and Circle.

Both filled and unfilled objects can be selected. The selection and text tool are also included in this toolbox.



Filled/empty rectangle or square



Filled/empty rounded-corner rectangle or square



Filled/empty circle



Filled/empty ellipse



Filled/empty arc



Filled/empty orthogonal polygon



Filled/empty polygon



Filled/empty orthogonal pipe



Filled/empty pipe



Arc



Orthogonal polyline



Polyline



Text



Picture



Button



ActiveX

The Image Drawing Tools

The **Drawings toolbar** is used to draw objects in an image.

The application includes all the tools you need to create your own graphic objects. These tools are found in the Drawings toolbox and include the tools listed below. If you want to edit any of these shapes, you can use the Edit Operations Toolbar.

[Select tool](#)HLP_WZ2EDT_SELECT_TOOL

Filled Rectangle or Square

Unfilled Rectangle or Square

[Filled Rectangle or Square](#)Filled_Rectangle_or_Square

[Unfilled Round-cornered Rectangle or](#)

[Square](#)Unfilled_round_cornered_rectangle_or_square_tool

Filled Circle Tool

[Unfilled Circle](#)HLP_WZ2EDT_CIRCLE

Filled Ellipse Tool

Unfilled Ellipse

[Filled Closed Arc](#) [Filled_Closed_Arc_tool](#)

[Unfilled Closed Arc](#) [Unfilled_Closed_Arc_Tool](#)

Filled Orthogonal Polygon

[Unfilled Orthogonal Polygon](#) [Unfilled_orthogonal_polygon_tool](#)

[Filled Polygon](#) [Filled_polygon_tool](#)

[Unfilled Polygon](#) [Unfilled_polygon_tool](#)

Orthogonal Pipe

[Pipe](#) [Pipe_tool](#)

[Arc](#) [Arc_tool](#)

[Orthogonal Polyline](#) [Orthogonal_polyline_tool](#)

[Polyline](#) [HLP_WZ2EDT_POLYLINE](#)

[Text](#) [HLP_DLG_WZ2_TEXT](#)

[Button](#) [HLP_WZ2EDT_BUTTON_PROP](#)

Insert Picture

To select a drawing tool

1. Click in the Drawings toolbar.
2. Click the tool you want to draw with.

The Drawings toolbar

The Drawings toolbar contains simple drawing objects such as Line, Pipe, Box, Text, and Circle. Both filled and unfilled objects can be selected. The selection, text tool and button are also included in this toolbar.

Drawing Lines and Segmented Shapes

This section describes how to draw with the following group of tools:

- To draw:

1. In the Drawings toolbox, click the appropriate shape.
2. Click the left button on the start point.
3. Click the left button on successive end points.
4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.
5. Right-click in the Image to deselect the tool.

If you click the right button before starting to draw, the Select tool will be activated.

Drawing Rectangles and Ellipses

- To draw:

1. In the Drawings toolbox, click the appropriate shape.
2. Position the mouse pointer where you want to start drawing.
3. Drag diagonally.
4. Release the mouse button.
5. Right-click in the Image to deselect the tool.

If you click the right button before starting to draw the select tool will be activated.

Drawing Arcs

Note: The angle of an arc or closed arc may be affected if the arc is scaled.

- To draw an arc:

1. In the Drawings toolbox, click on the appropriate tool.
2. Position the mouse pointer where you want to start drawing, drag to the end point and then release the mouse button.
3. Move the mouse to the desired radius point and left-click the mouse button.

4. Right-click in the Image to deselect the tool.

Drawing Pipes

Note: The width of the pipe can be controlled using the plus (+) and minus (-) keys at any stage during the drawing process.

- To draw a pipe:
 1. From the Drawings toolbox, click on the appropriate pipe tool.
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Right-click when the shape is complete.
 5. Right-click in the Image to deselect the tool.

Drawing Options

Animated Gifs

Presentation

This new feature consists in supporting animated gifs in image, like any other object.

Access means

The interface to load a gif picture is the same as the one used to load a bmp or a jpeg picture.

Description

Each animated gif contains its own delay between the display of two frames. However for performance reason in the image we have only one timer called

periodically which displays the good frame of each animated gif contained in the image regarding the elapsed time. By default this timer updates the pictures ten times per second. This delay can be changed by adding the following parameter in WIZTUNE.DAT: IMG_ANIMTHREAD_DELAY = xxxx where xxxx is the time between two updates in millisecond.

Note 1: When the loaded gif contains a lot of frames or/and big pictures, the memory used increases and could become very high.

Note 2: Animated GIF are supported in Web Image.

Edit / Drawings

The Drawings sub-menu enables you to draw and add text in your Image by using the **Polyline, Box, Circle, Pipe, Text and Pick color** tools.

The Drawings sub-menu also includes the Widget option. The Widget option holds the **Slider, Media Player and Scheduler** options. The Drawings Menu also includes the Button to enable the application to contain a trigger object that has the same look and feel as a Windows button

See also the Drawing toolbar

Drawing in the Image

You can design, draw or modify your application by selecting the appropriate tools in the Image. The Drawings toolbar contains simple drawing objects such as Line, Pipe, Box, Text and Circle. You can draw both filled and unfilled objects. You can also assign text to your image by using the text tool.

Drawing shapes

1. From the Shape tools select a drawing tool.
2. In the Image area press and hold down the left mouse button.
3. Start drawing by moving the mouse around, the shape outline you selected is being drawn as you move.
4. Finish drawing by releasing the mouse.

Notes:

1. After drawing you remain in the selected tool; note that the object is not selected.
2. To change colors of selected object select new color in the color toolbar.
3. Clicking the right mouse button sets the object automatically to select mode and cancels the continuity of the last operation.
4. Double-click on Object toolbar as Trigger, Alarm, Slider, Media or, Dynamic open its definition dialog.

Object Selection/Deselection

Choose the Selection Tool to select any object (for size or move operations).

1. To select several objects, start from an empty point in the Image, press and hold left mouse button, drag a rectangle around the objects you wish to select.
2. You add an object to existing selection by left-clicking the mouse while holding down the Shift key.
3. Deselect objects by pressing left mouse button on empty space of Image.
4. To deselect last used menu item Edit Select Deselect last.
5. Clicking the right mouse button sets the object automatically to select mode and cancels the move operation.

Aligning Objects

Whenever you select more than one object, one of the selected objects is marked with 8 hollow handles. These handles cannot be used to move or resize the object, their sole purpose is to mark the object.

The marked object is the first object selected. Whenever you use an alignment tool (any of the 10 alignment tools), all objects are aligned or resized according to the position or size of the marked object.

To make another object the marked or first object

1. Deselect all (through the menu or by clicking an empty spot)
2. Select the desired object, by clicking it.
3. Add the other objects to the selection by holding the shift key pressed while selecting. This works with both single select (click) and multi-select (drag).

Moving/Scaling

1. Scale by selection of object and handles
2. To move an object press left mouse button down on object and drag
3. To copy object move/scale it with Ctrl key pressed.

Object Sensitive Menus

1. Press the right mouse button on any object in the Image. The object is selected and a pop up menu appears.
2. For general Image menu click in empty space in the Image. The pop up menu deselects previously selected objects.

The Image Drawing Tools

The **Drawings toolbar** is used to draw objects in an image.

The application includes all the tools you need to create your own graphic objects. These tools are found in the Drawings toolbox and include the tools listed below. If you want to edit any of these shapes, you can use the Edit Operations Toolbar.

[Select tool](#)[HLP_WZ2EDT_SELECT_TOOL](#)

Filled Rectangle or Square

[Unfilled Rectangle or Square](#)

[Filled Rectangle or Square](#)[Filled_Rectangle_or_Square](#)

[Unfilled Round-cornered Rectangle or](#)

[Square](#)[Unfilled_round_cornered_rectangle_or_square_tool](#)

Filled Circle Tool

[Unfilled Circle](#)[HLP_WZ2EDT_CIRCLE](#)

Filled Ellipse Tool

Unfilled Ellipse

[Filled Closed Arc](#) [Filled_Closed_Arc_tool](#)

[Unfilled Closed Arc](#) [Unfilled_Closed_Arc_Tool](#)

Filled Orthogonal Polygon

[Unfilled Orthogonal Polygon](#)[Unfilled_orthogonal_polygon_tool](#)

[Filled Polygon](#)[Filled_polygon_tool](#)

[Unfilled Polygon](#)[Unfilled_polygon_tool](#)

Orthogonal Pipe

[Pipe](#)[Pipe_tool](#)

[Arc](#) [Arc_tool](#)

[Orthogonal Polyline](#) [Orthogonal_polyline_tool](#)

[Polyline](#)[HLP_WZ2EDT_POLYLINE](#)

[Text](#)[HLP_DLG_WZ2_TEXT](#)

[Button](#)[HLP_WZ2EDT_BUTTON_PROP](#)

Insert Picture

To select a drawing tool

1. Click in the Drawings toolbar.
2. Click the tool you want to draw with.

To draw an arc

1. From the Drawings toolbar, click on the arc tool.
2. Position the mouse pointer where you want to start drawing.
3. Drag to end point.
4. Release mouse button.
5. Move the mouse to the desired radius point and left-click the mouse button.

Note: Arcs are not supported on the Web.

Filled Closed Arc Tool

To draw a filled closed arc

1. From the Drawings toolbar, click on the filled closed arc tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to end point.
 4. Release mouse button.
 5. Move the mouse to the desired radius point and left-click the mouse button.
-

Filled Ellipse Tool

To draw a filled ellipse

1. From the Drawings toolbar, click on the ellipse tool.
2. Position the mouse pointer where you want to start drawing.
3. Drag to form the ellipse.
4. Release mouse button.

Filled Orthogonal Polygon Tool

To draw a filled orthogonal polygon

1. From the Drawing Toolbar, click on the closed filled orthogonal polygon tool
2. Click the left mouse button on the start point.
3. Click the left mouse button on successive end points.
4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Filled Polygon Tool

To draw a filled polygon

1. From the Drawings toolbar, click on the filled polygon tool.
2. Click the left mouse button on the start point.
3. Click the left mouse button on successive end points.
4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two

points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Filled Rectangle or Square

To draw a filled rectangle or square

1. From the Drawings toolbar, click the filled rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Filled Round-cornered Rectangle or Square Tool

To draw a filled round-cornered rectangle or square

1. From the Drawings toolbar, click the round filled round-cornered rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Orthogonal Pipe

Orthogonal pipes are connected rectangular segments in orthogonal directions. (vertical, horizontal, and at 45 degrees).

Orthogonal Pipe Tool

To draw an orthogonal pipe

1. From the Drawings toolbar, click on the orthogonal pipe tool.
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right mouse button to complete the operation.
-

Orthogonal Polyline Tool

To draw an orthogonal Polyline

1. From the Drawings toolbar, click on the orthogonal polyline tool
2. Click the left mouse button on the start point.
3. To connect lines, click the left mouse button on successive end points.

4. Click the right mouse button to complete the operation.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Pipe Tool

To draw a pipe

1. From the Drawings toolbar, click on the pipe tool
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right mouse button to complete the operation.
-

Polyline Tool

To draw a Polyline

1. From the Drawings toolbar, click on the Polyline tool
2. Click the left mouse button on the start point.
3. To connect lines, click the left mouse button on successive end points.
4. Click the right mouse button to complete the operation.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two

points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Unfilled Closed Arc Tool

To draw an unfilled closed arc

1. From the Drawing Toolbar, click on the unfilled closed arc .
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to end point.
 4. Release mouse button.
 5. Move the mouse to the desired radius point and left-click the mouse button.
-

Unfilled Ellipse Tool

- To draw an unfilled ellipse

1. From the Drawings toolbar, click on the unfilled ellipse tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to form the ellipse.
 4. Release mouse button.
-

Unfilled Orthogonal Polygon Tool

- To draw an unfilled orthogonal polygon
1. From the Drawings toolbar, click on the unfilled closed orthogonal polygon tool
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Unfilled Polygon Tool

- To draw an unfilled polygon
1. From the drawings toolbar, click on the unfilled polygon tool
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Unfilled Rectangle or Square Tool

To draw an unfilled rectangle or square

1. From the Drawing toolbar, click the filled rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Unfilled Round-cornered Rectangle or Square Tool

- To draw a round cornered unfilled rectangle or square

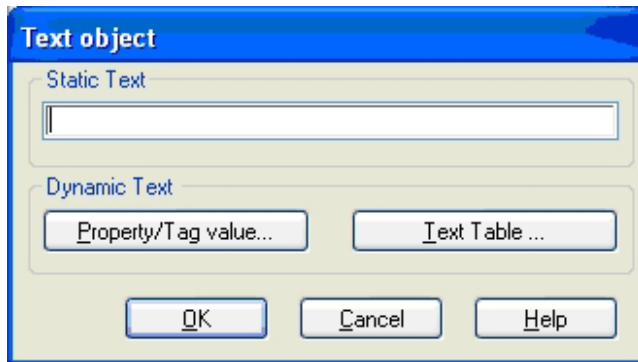
1. From the Drawings toolbar, click the round cornered rectangle tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Text

This section describes how to insert text into an image:

- To use the text tool:

1. From the Drawings toolbox, click on the text tool.



2. Enter text in the Text dialog box. Click OK. The text will appear at the specified location on the screen.

The other Text Types field is used for the dynamic display of tag values. When the text is entered and confirmed, it will appear at the specified location on the screen.

Text Tool

The Text Dialog Box is used to specify a plain string or numerical value that will be displayed whenever a specific tag value occurs.

To use the text tool

1. From the Drawings toolbar, click on the Text tool. The Text dialog box is displayed.
2. Type your text in the Text box.
3. Click one of the following buttons for further Text definitions:

Tag Value - click to define the attributes for the digital text object.

Text Table - click to define a plain string or numerical value that will be displayed whenever a specific tag value occurs.

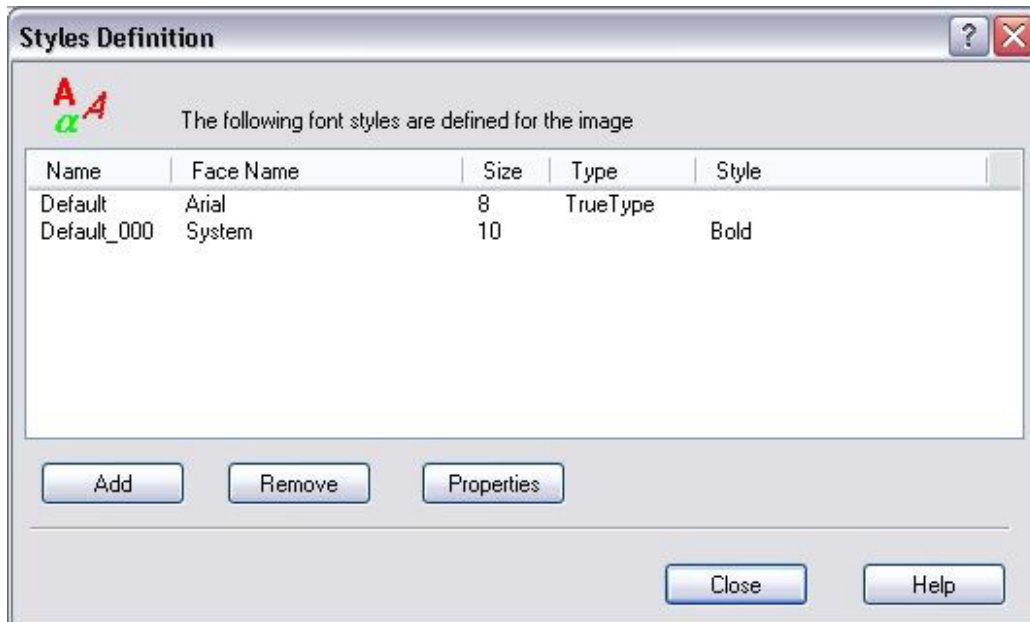
Font Style Selection

In the application any text object, simple, tag value or text table, can have its own font style. The Font bar reflects the font style that is going to be used for the next text object. It also reflects the font style of the current selected, single, text object. Changing the font style while a single text object is selected will change that object's style. Predefined text styles can be used for easy uniform texts as labels, titles and so on.

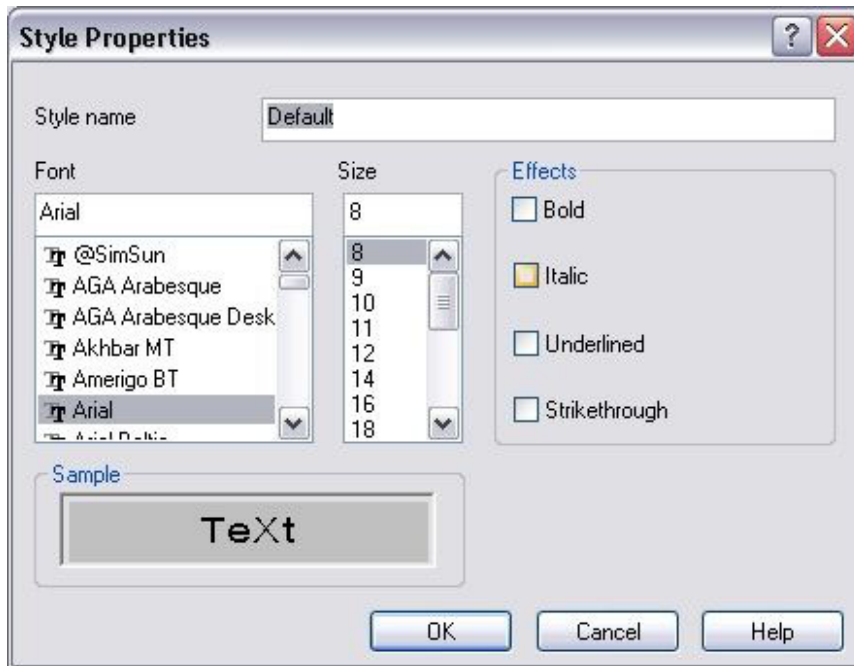
It is possible to set a style to text and then change only part of the style properties. If a style is changed, all texts with that style are changed in any property that was not modified for that text. The text object colors are selected and set as any other object.

- To define font styles:

1. From the Options menu, select Styles Definition. The Styles Definition dialog box is displayed:



2. Click the Add button to open the Style Properties dialog box.



3. Specify the required font style from the following options and click OK to save your definitions and close the dialog box.

Style name Selected from list. Reflects the font style that is going to be used for Text objects. Predefined text styles can be used for easy uniform texts as labels, titles and so on.

Font Face Name Can be bitmap or TrueType - selected for available fonts (system dependent). List of available system fonts.

Font size For bitmap fonts you can select from sizes available for that face name. If another value is entered, the Image will use the best fit. In TrueType fonts size 14 is translated as 1,000 word units on scale of 64.

Effects Select from the following options: Bold: (font dependable), Italic, Underline and Strikethrough.
Note that Underline and Strikethrough are not applicable on the Web.

Sample Text Type any text to obtain an example of the way the text will appear in the Image. The text example that you type appears in the example box below this field.

You can activate the Properties button in the Font Styles Definition dialog box to reopen the Font Properties dialog box where you can change your font definitions.

It is important to note that when using bitmap fonts, since these fonts cannot be scaled or rotated, changing the zoom does not change the size of the font. It is recommended to place bitmap text in layers using only one scale level.

Modifying Text

Text in an image can be edited by selecting the relevant text and then activating the Text tool in the Drawing toolbox.

- To modify text:

1. Select text and click the Text button. The Modify Text dialog box is displayed:



2. The text you selected to edit will appear in the Text field.
3. Change the text and activate the OK button to cause the new text to replace the old text.

For tag value, text table, or date/time text, the appropriate dialog is displayed in which you can change the text attributes.

Modifying Text

Use this dialog box to modify a text object.

To modify a text object

1. Select the text object you want to modify.
2. Click the mouse right button and select Change Text from the popup menu displayed. The Modify Text dialog box is displayed.

OR

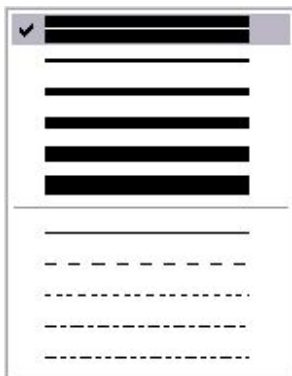
Double click the selected object

3. Modify your text as applicable and click OK.
-

Specifying Line Properties

An image can be drawn using different types of lines. The following line widths are supported: 1, 2, 4, 6, 8 and 10 pixels.

- To specify the line width/type:
 1. Select the line you want to modify.
 2. Select the Line type button in the Image toolbar, or select Line Type from the Edit menu to open the Lines dropdown list.



3. Select a line type the original line will change to the selected line.
-

Colors

This application has full color support that is limited only by your computer's operating system and hardware.

Double-clicking on any color in the Color toolbox opens a common color dialog box where colors can be selected to customize your toolbox.

Edit / Get Colors and Save Colors

The application enables you to get colors, i.e., import a color palette, or save colors, which means saving the colors you defined in your image file.

The *.pal file contains the 16 toolbox colors as well as the additional 16 custom colors from the color dialog box. Once you define or customize your colors you can save them in a *.pal file. To retrieve or *get* the colors you have saved, use the Get Colors option.

To retrieve colors from a saved color palette

Select Get Colors from the Edit menu. The Open dialog box opens, where you can select the colors from a *.pal file.

To save a color palette

Select Save Colors from the Edit menu. The Save As dialog box opens, where you can save your colors to a *.pal file.

*Note: If the image file name and *.pal file name are the same, the *.pal file is loaded automatically. The user can continue to work with his customized palette every time he opens an image.*

Setting the Image Background Color

The Set Image Background feature enables you to set the image background color.

- To set the background From the Edit menu select Set Background Color. The Color dialog box opens.
 2. Select a color and click OK. The background of your image will display the selected color.
-

Edit / Set Background Color

The Set Image Background feature enables you to set the image background color.

To set the Background color

1. Go to Image menu, select the Edit Option and there the Set Background color.
2. Select a color, press OK and the background of your image will display the color you chose.

OR

Press the Set Background Color Icon from the Image main menu.

Saving and Getting Colors

The *.pal file contains the 16 toolbox colors as well as the additional 16 custom colors from the Color dialog box. Once you define or customize your colors, you can save them in a *.pal file.

- To get saved colors:

From the Edit menu select Get/Save Color. The Color dialog box opens. The Color dialog box is displayed where you can select the colors from a *.pal file.

If the Image file name and *.pal file name are the same, the *.pal file is loaded automatically. You can then continue to work with the customized palette every time you open an Image.

Pick Color Tool

Select the Pick Color tool in the Operations toolbox for filling or drawing objects with the exact color used in a different object.

The Pick Color tool enables you to take a color sample from an area of an image to designate a new line color or fill color.

- To select the line or fill color using the Pick Color tool:
 1. Select the drawing tool of your choice.
 2. Select the Pick Color tool, and then place the dropper icon on any point in the image over the desired color.
 3. Draw your new object and the object fills with the selected color.
 4. To select a new line color, in the Color toolbox, click the required color. The toolbox resets to the last drawing tool that was used, and the color becomes the default color for that drawing tool.
 5. To select a new fill color, in the Color toolbox, right click the required color. The toolbox resets to the last drawing tool that was used, and the color becomes the default color for that drawing tool.
-

Pick Color Tool

Click on the Pick Color tool in the Operations Toolbar for filling or drawing objects with the exact color used in a different object.

The Pick Color Tool lets you sample colors from an area of an image to designate a new line color or fill color.

To select the line or fill color using the Pick Color tool

1. Select the drawing tool.
2. Select the Pick Color tool, then place the dropper icon on any point in the image over the desired color.
3. Draw your new object and the object fills with the selected color.

Or

1. To select a new line color from the Color Toolbar, left click the mouse button on the color you want.
 2. To select a new fill color from the Color Toolbar, right click the mouse button on the color you want.
-

View Menu

View Menu

The View menu activates/deactivates the Image module's toolbar, status bar and unique toolboxes. To activate/deactivate an option click the specific menu item in the View menu.

Toolbar	Defines that the toolbar is activate in the Image window.
Font bar	Defines that the font bar is activate in the Image window.
Status bar	Defines that the status bar is activate in the Image window.
Objects	Defines that the Objects toolbox is activate in the Image window.
Operations	Defines that the Operations toolbox is activate in the Image window.
Drawing	Defines that the Drawing toolbox is activate in the Image window. The drawing tools enable the user to draw and edit images. Also included is the Widget option and a trigger button.
Patterns	Defines that the Patterns toolbar is activate in the Image window.
Align	Defines that the Align toolbox is activate in the Image window.
Colors	Defines that the Colors toolbox is activate in the Image window.

Toolbar

The Image toolbar contains the following icons and commands icons:



Save



Print



Copy



Paste



Undo/Redo



Goto



Goto Zone



Define Zone



Edit Zone



Navigate Zone



Trigger On



Mark Triggers



Force Dynamic Show



Grid Setup



Set Background Color



Repaint



Line Type

The Toolbar

This toolbar is located under the Image menu and includes shortcuts to menu items such as Save, Print, Navigate mode, Goto Zone, Grid setup and Mark triggers.

The Image Toolbars

The image window contains many toolbars that enable you to easily draw and animate your application.

To show a toolbar

From the View menu, click the toolbar you want to view. A check mark to the left of the toolbar name indicates that this toolbar is already opened.

For more information on each toolbar, click the respective topic:

[The Fonts toolbar](#)[The_Fonts_Toolbar](#)
[The Align toolbar](#)[HLP_WZ2EDT_VIEW_ALIGN](#)
[The Drawing toolbar](#)[HLP_WZ2EDT_VIEW_DRAWING](#)
[The Objects toolbar](#)[HLP_WZ2EDT_VIEW_OBJECTS](#)
[The Operations toolbar](#)[HLP_WZ2EDT_VIEW_OPERATIONS](#)
[The Patterns toolbar](#)[HLP_WZ2EDT_VIEW_PATTERN](#)
[The Color toolbar](#)[HLP_WZ2EDT_VIEW_COLOR](#)
[The Status](#)[HLP_WZ2EDT_VIEW_STATUSBAR](#)

Font Bar

The Font bar enables you to set the text font style for any text object, simple, digital or text table. This toolbar includes the font name, size, direction and different text effects. The text can be bold, italic, underscored or strikethrough.



Status bar

The Image module Status bar displays the coordination scale and layer of the image object.

The Status bar

The Status Bar appears at the bottom of the Image Window. The Status Bar displays information about images, features, and procedures.

Objects Toolbox



Alarm Definition



Trigger Definition



Dynamic Definition



Cluster Definition



Group



Slider



Media Player



Scheduler

The Objects toolbar

The Objects toolbar allows you to define Image objects such as Alarm, Trigger, Dynamic, Cluster Definition, Group, Slider, Media and Scheduler

The Objects toolbar

The Objects toolbar allows you to define Image objects such as Alarm, Trigger, Dynamic, Cluster Definition, Group, Slider, Media and Scheduler

Operations Toolbox



Rotate



Pick color



Active layer



Toggle fill



Cluster library



Send to back



Bring to front



Delete



Grid



Snap to grid



Copy attributes

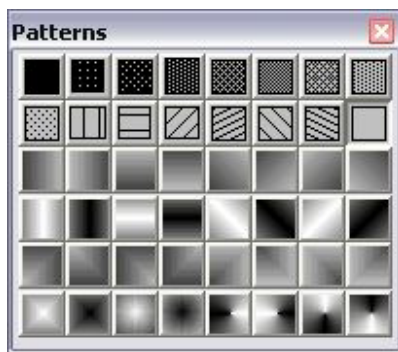
The Operations toolbar

The Operations toolbar includes Rotate, Pick color, Active Layer, Toggle Fill, Cluster library, Bring to Back, Bring to Front, Delete, Grids, Snap to Grids and Copy Attributes.

Patterns Toolbox

The Patterns toolbox contains 16 different fill patterns, including solid and transparent. The Image drawing patterns also support 32 gradient styles. The first color used for the gradient is the foreground color, while the last color used is the background color.

Gradient fills are supported for the following objects: Text, Filled box/circle, Polygon.



Note: Pipes do not support Gradient fills.

The Patterns and Gradient Toolbar

Note: Patterns and Gradient fills are not supported on the Web.

The Patterns toolbar contains 16 different fill patterns, including solid and transparent. The Image drawing patterns also support 32 gradient styles. The first color used for the gradient is the foreground color, while the last color used is the background color. Gradient fills are supported for the following objects: Text, Filled Box - Circle, and Polygon. Pipes do not support Gradient fills.

Notes

1. *Gradients are not fully supported on Windows 98. Circles, ellipses and rounded rectangles will be drawn as rectangles.*
2. *In the ILS file the gradient pattern numbers run between 100 to 131 ordered by the above list.*
3. *Bitmap fonts are not effected by the Gradient.*
4. *After changing attributes of gradient objects, or moving from select mode, image may need refresh.*
5. *Performance may suffer when drawing large gradient surfaces with many steps. It is advisable that only static (background) object will be using the Gradient. Dynamic over Gradient is possible but performance may suffer. It is also advised to do development in low number of steps and later increase steps for run-time.*
6. *To set the gradient steps use Image Properties View or in the Witztune.dat file, manually set the tuning parameter IMG_GRAD_STEP= n). Valid values are between 2 to 255 – Default is 16. Re-enter Image.*
7. *Transparent color will have 'unknown' effect over fill.*
8. *The gradient is not affected from rotation or transformation. It is possible to rotate objects with Gradient but the Gradient orientation will not be rotated*
9. *Not supported on Web. Note that if patterns are used and then brought to the Web, the patterns turn to solid colors.*
10. *The gradient for a group works like for a pattern.*
11. *It is not possible to select Gradient fill type in Dynamic definition Fill Type range.*
12. *The gradient's center reference point for filled polygons, orthogonal polygons, and filled arcs is always calculated by the visible parts of the objects. Therefore, when you scroll and the object partially disappears from view, you will notice that the object's center point moves upwards away from the center.*

Align Toolbox

The Align toolbox enables you to align two or more selected objects. They can be aligned to the left, right, top, or bottom. Objects can also be centered or resized horizontally, vertically or both. The objects can also be arranged so they are equal distances from each other, either vertically or horizontally. **See Aligning Objects.**

The Align toolbar

The Align toolbar enables you to align two or more selected objects. They can be aligned to the Left, Right, Top, or Bottom. The objects can also be centered or resized Horizontally, Vertically or both.

The Align toolbar

The Align toolbar enables you to align two or more selected objects. They can be aligned to the Left, Right, Top, or Bottom. The objects can also be centered or resized Horizontally, Vertically or both.

Color Toolbox

The Color toolbox includes 32 colors for background and foreground (text). A left mouse click selects the line color while a right mouse click selects the fill color.

Double-clicking either mouse button opens the Color dialog box, enabling you to customize any color.

The Colors toolbar

The Color toolbar includes 32 colors for background and foreground color of objects. Left click selects the foreground or the color while right click selects the background, or fill color.

Double-clicking either mouse button opens the color palette dialog, enabling you to customize any color.

Additional Drawing Tips

Moving and Scaling Objects

When an object is selected, eight handles will appear around the object to indicate that it is selected.

- To move an object or group of objects in the Image:
 1. Select the object(s) you want to move.
 2. Click inside the object (or bounded rectangle for a group of objects) hold the mouse button down and drag the object(s) to the desired location.
- To scale an object or group of objects in the Image:
 1. Select the object(s) you want to scale.
 2. Click on one of the eight handles of the object (or bounded rectangle, for a group of objects) hold the mouse button down and drag the handle to resize the object(s).
- To resize the object(s) proportionally:

Click and drag any corner handle in a diagonal direction, as in the following illustration:

Note: To terminate a move or scale operation, press the <Esc> key.

Grouped Objects

Grouping objects combines two or more objects into a single object. You can flip, rotate, and resize or scale all the objects in a group as a single unit. You can also change the attributes of all objects in a group at one time. Grouped objects can be edited the same way as any other object, but cannot be nested (a group cannot include another group). A grouped object can also be ungrouped to separate its original elements.

Note: Any object in a segment which is defined as a trigger object, will function in the Trigger mode in the same way as when it is not included in a segment.

Grouping and Ungrouping Objects

- To group objects:
 1. Click the select tool and then drag to select the drawing objects you want to group.
 2. Click the button on the Group tool in the Objects Toolbox or, point to Operations in the Edit menu and select Group.
- To ungroup objects:

Select the grouped objects. Click the right mouse button on the grouped objects and select Ungroup from the popup menu or, point to the Operations in the Edit menu and select Ungroup.

Grouping and Ungrouping

Grouping objects combines two or more objects so you can work with them as though they were a single object. You can flip, rotate, and resize or scale all the objects in a group as a single unit. You can also change the attributes of all objects in a group at one time. For example, you can change the fill color to all objects in the group in a single step.

To Group Objects

1. Click the **select tool** and then drag to select the drawing objects you want to group.
2. Click the left mouse button on the Group tool in the Objects Toolbar.

Or

Click Operations from the Edit menu, then click on the Group option.

Or

By right clicking an object and selecting the Group option.

To UnGroup Objects

1. Select the grouped objects.
2. Click the right mouse button on the grouped objects and select the UnGroup option.

Or

Click Operations from the Edit menu, then click on the Ungroup option.

Or

By right clicking the grouped object and selecting the Ungroup option from the menu.

Lock Objects

Image objects can be locked and unlocked. A locked object cannot be moved or modified.

- To lock an image object:
 1. Select an image object.
 2. Right click to open a popup menu. Select Lock.
-

Bring to Front/Send to Back

The Bring to Front option enables you to place objects in the front of your Image.

- To bring objects to the front:

Select the drawing object you want to bring to the front and click the Bring to Front tool in the Operations toolbox.
- To send objects to back:

Select the drawing object you want to send to the back and click the Send to Back tool in the Operations toolbox or, from the Operations menu click Send to Back. The selected drawing object is placed in behind other overlapping objects.

View Menu

The Fonts Toolbar

The Fonts toolbar allows you to set the text font style for any text object, simple, digital or text table.

This toolbar includes the font name, size, direction and different text effects.

The text can be bold, italic, underscored or strike through.

The Operations toolbar

The Operations toolbar includes Rotate, Pick color, Active Layer, Toggle Fill, Cluster library, Bring to Back, Bring to Front, Delete, Grids, Snap to Grids and Copy Attributes.

The Drawings toolbar

The Drawings toolbar contains simple drawing objects such as Line, Pipe, Box, Text, and Circle. Both filled and unfilled objects can be selected. The selection, text tool and button are also included in this toolbar.

Layers Menu

Layers Menu

An image is structured in layers. Each layer contains a part of the overall image. When the drawing is completed the layers can be merged. Each individual image layer can be shown/hidden. Layers can be added or changed, but not removed. The layer that always exists by default is called the base layer.

Each image can consist of one layer (the Base layer) or several layers.

The Layer menu options are as follows:

Elaborate on	If the Elaborating Zoom is On, each layer will be viewed in the scale range assigned when the layer is defined. If the Elaborating Zoom is off, each layer will always appear (even if scaling ranges were not specified for them).
Active Layer	The active layer definitions sets the parameters for which all subsequent editing operations will be performed.
Definition	This option opens the Layers Definition dialog box where the parameters for the layer are defined.
Override Show/Hide	This option when set to hide indicates that a layer will always be hidden, despite the Elaborating Zoom mode setting. Any layer set as hidden is marked with a special arrowhead character. Note that if both Hide and Show attributes are assigned to a layer, the layer will be hidden.
Move Object to Active Layer	This option is used to move a selected object to the layer defined as active.

The Layers Menu

Image objects are drawn in layers. Each image can consist of several layers or of one layer, the Base layer. Layers can be added, changed and deleted.

In an image, each individual layer constitutes one part of the overall image. A complete image consists of all layers that belong to that image.

Each layer is assigned a zoom range. Once created, layers can be viewed in one of two scaling modes; Elaborating zoom On or Elaborating Zoom Off.

Each image layer can be assigned its own authorization levels, to enable only specific operators to view the layer, and each layer can be made visible or hidden using the visibility mode to toggle.

The Options available in the Layers menu are:

Elaborate ON - Select this item to toggle the Elaborate Zoom on and off.

Active Layer - Select this item to designate the active layer for which all subsequent editing operations will be performed.

Definition- Select this item to define a new layer in the image.

Override Show - Select this item to set a layer so that it will always be visible, despite the Elaborating Zoom mode setting.

Override Hide - Select this item to set a layer so that it will always be hidden, despite the Elaborating Zoom mode setting.

Move Object to Active Layer

Select the object that you want to move, and then select the Move Object to Active Layer menu item.

Elaborate on

Layers can be viewed in the Elaborating Zoom On or Elaborating Zoom Off mode. If the Elaborating Zoom is on, each layer will be viewed in the scale range you assign when you define the layer. If the Elaborating Zoom is off, each layer will always appear (even if scaling ranges were not specified for them).

- To toggle the Elaborating Zoom mode on and off

Select Elaborate On from the Layers menu.

Layers / Elaborate

Select the Layers item to toggle the Elaborate Zoom on and off.

A checkmark beside the item indicates that the Zoom is On. When the Elaborating Zoom mode is on, each layer will be viewed according to the scale range specified in the Layer Definition operation.

When the mode is off, layers will always appear (even if the current scale does not fall within the layer's scale range).

To toggle the Elaborating Zoom mode on and off

Select Elaborate On from the Layers menu. A checkmark beside the item indicates that the mode is active.

Active Layer

The layer that is worked on is referred to as the active layer. The active layer name is displayed in the window Title bar together with the Image name and the current scale.

- To select an active layer

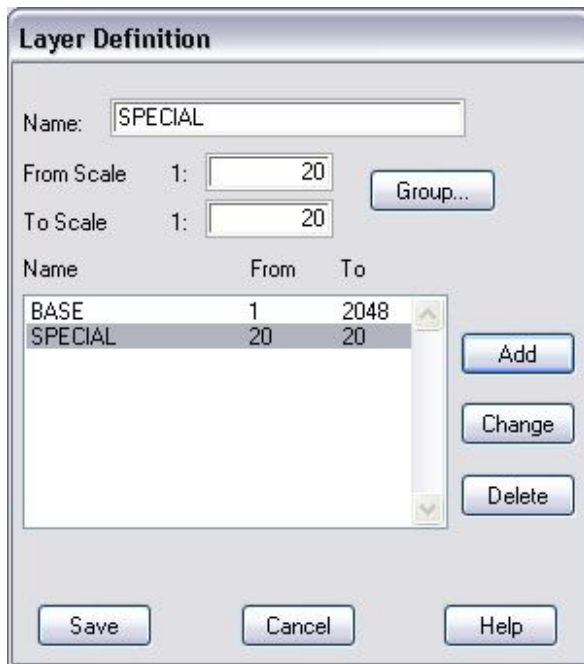
Select Active Layer from the Layers menu.

Definition

This option when selected opens the Layers Definition dialog box where layers can be defined or modified.

- To define a layer

In the Layers menu select Definition. The Layers Definition dialog box opens.



1. In the Name field type the name of layer.
2. In the From Scale field, specify the lower limit of the zoom level range for elaborating zoom.
3. In the To Scale field, specify the upper limit of zoom level range for elaborating zoom.
4. Click the Group button to open the Access Permission Manager dialog box opens, where you can assign authorized users and groups for this layer.
5. Click the Add button to add your definition to the list of layers.
 - To modify a layer:
 1. Select the relevant layer.
 2. Modify the layer using the instructions above.
 3. Click the Change button for the changes to take effect.
 - To remove a layer

Select the relevant layer and click the Delete button.

Layers / Definition

Select the Layer Definition item to define a new layer in the image.

Image objects are drawn in layers. Each image can contain several layers or just one layer (the Base layer always exists).

Each layer in an image constitutes one part of the overall image, and each layer is assigned its own zoom range.

Each image can consist of either one layer (the Base layer) or several layers.

To define a new layer

Select Definition from the Layers menu. The **Layer Definition** dialog box opens.

Override Show/Hide

You can override the current visibility mode and make a layer visible or hidden. The Layer Override Hide or Layer Override Show dialog boxes are basically identical and enable you to select a layer from the list and make it visible or hidden.

When Override Hide is selected the layer will always be hidden, despite the Elaborating Zoom mode setting. A layer set to show/hide is marked with an forward pointing arrowhead.

Note: If both the Hide and Show attributes are assigned to a layer, the layer will be hidden.

- To open the Layer Override Show dialog box:

From the Layers menu select Override Show/Hide. The Layer Override Show/Hide dialog box opens.



1. Select the layer that you wish to show/hide and then click the Show/Hide button. This layer will always be visible/hidden.
2. Click the Clear button if you want all layers to revert to default visibility.

Layers / Override Show

Select this item to set a layer so that it will always be visible, despite the **Elaborating Zoom mode** setting. A layer set to *be visible* (show) is marked with a special arrowhead character.

Layers Visibility Mode

You can override the current visibility mode and make a layer visible or hidden. The Layer Override Hide or Layer Override Show dialog boxes enable you to select a layer from the list and make it visible or hidden.

- To make a layer visible

1. From the Layers menu select Override Show.
2. In the Layer Override Show dialog box select the layer you want to become visible.
3. Click the Show button to make this layer always visible.
4. Click the Clear button if you want all layers to revert to default visibility. A layer set to be visible (Show) is marked with a special arrowhead character.

To hide a layer

1. From the Layers menu select Override Hide.
2. In the Layer Override Hide dialog box select the layer you want to become hidden.
3. Click the Hide button to make this layer always hidden.
4. Click the Clear button if you want all layers to revert to default visibility. A layer set to be hidden (Hide) is marked with a special arrowhead character.
5. To cancel the permanent effect for all the layers, activate the Clear button.

Notes:

If both the Hide and Show attributes are assigned to a layer, that layer will be hidden.

Layers are used to enhance the elaborating zoom effect in an image.

Layers / Override Hide

Select the Override Hide item to set a layer so that it will always be hidden, despite the **Elaborating Zoom mode** setting. Any layer set to be hidden is marked with a special arrowhead character.

Note that if both Hide and Show attributes are assigned to a layer, that layer will be hidden.

Move Object to Active Layer

This option is used to move a selected object from a layer to the layer defined as active.

- To move an object to the active layer:

Select an object in one layer and then from the Layers menu select Move Objects to Active Layer. The object will appear in the Active Layer.

Note: You can select an object and then click the right mouse button on the active layer.

Move Object to Active Layer Used to move a selected object to the layer defined as active.

- To move an object to the active layer:
 1. Select the object(s) that you want to move.
 2. From the Layers menu select Move Objects to Active Layer.
- You can select an object and then click the right mouse button on the active layer

Layers

The Layers Menu

Image objects are drawn in layers. Each image can consist of several layers or of one layer, the Base layer. Layers can be added, changed and deleted.

In an image, each individual layer constitutes one part of the overall image. A complete image consists of all layers that belong to that image.

Each layer is assigned a zoom range. Once created, layers can be viewed in one of two scaling modes; Elaborating zoom On or Elaborating Zoom Off.

Each image layer can be assigned its own authorization levels, to enable only specific operators to view the layer, and each layer can be made visible or hidden using the visibility mode to toggle.

The Options available in the Layers menu are:

Elaborate ON - Select this item to toggle the Elaborate Zoom on and off.

Active Layer - Select this item to designate the active layer for which all subsequent editing operations will be performed.

Definition- Select this item to define a new layer in the image.

Override Show - Select this item to set a layer so that it will always be visible, despite the Elaborating Zoom mode setting.

Override Hide - Select this item to set a layer so that it will always be hidden, despite the Elaborating Zoom mode setting.

Move Object to Active Layer

Select the object that you want to move, and then select the Move Object to Active Layer menu item.

Layers / Definition

Select the Layer Definition item to define a new layer in the image.

Image objects are drawn in layers. Each image can contain several layers or just one layer (the Base layer always exists).

Each layer in an image constitutes one part of the overall image, and each layer is assigned its own zoom range.

Each image can consist of either one layer (the Base layer) or several layers.

To define a new layer

Select Definition from the Layers menu. The **Layer Definition** dialog box opens.

Layers Visibility Mode

You can override the current visibility mode and make a layer visible or hidden.

The Layer Override Hide or Layer Override Show dialog boxes enable you to select a layer from the list and make it visible or hidden.

- To make a layer visible

1. From the Layers menu select Override Show.
2. In the Layer Override Show dialog box select the layer you want to become visible.
3. Click the Show button to make this layer always visible.
4. Click the Clear button if you want all layers to revert to default visibility. A layer set to be visible (Show) is marked with a special arrowhead character.

To hide a layer

1. From the Layers menu select Override Hide.
2. In the Layer Override Hide dialog box select the layer you want to become hidden.
3. Click the Hide button to make this layer always hidden.
4. Click the Clear button if you want all layers to revert to default visibility. A layer set to be hidden (Hide) is marked with a special arrowhead character.

5. To cancel the permanent effect for all the layers, activate the Clear button.

Notes:

If both the Hide and Show attributes are assigned to a layer, that layer will be hidden.

Layers are used to enhance the elaborating zoom effect in an image.

Layers / Elaborate

Select the Layers item to toggle the Elaborate Zoom on and off.

A checkmark beside the item indicates that the Zoom is On. When the Elaborating Zoom made is on, each layer will be viewed according to the scale range specified in the Layer Definition operation.

When the mode is off, layers will always appear (even if the current scale does not fall within the layer's scale range).

To toggle the Elaborating Zoom mode on and off

Select Elaborate On from the Layers menu. A checkmark beside the item indicates that the mode is active.

Layers / Override Hide

Select the Override Hide item to set a layer so that it will always be hidden, despite the **Elaborating Zoom mode** setting. Any layer set to be hidden is marked with a special arrowhead character.

Note that if both Hide and Show attributes are assigned to a layer, that layer will be hidden.

Move Object to Active Layer

Used to move a selected object to the layer defined as active.

- To move an object to the active layer:
 1. Select the object(s) that you want to move.
 2. From the Layers menu select Move Objects to Active Layer.
- You can select an object and then click the right mouse button on the active layer
-

Layers / Override Show

Select this item to set a layer so that it will always be visible, despite the **Elaborating Zoom mode** setting. A layer set to *be visible* (show) is marked with a special arrowhead character.

Cluster Menu

Cluster Menu

A Cluster is an object-class. Clusters can easily placed in an application and be reused as required. Clusters can be small or large. They can be simple, such as circles or pumps, or complex, such as a complete sub-application that includes tanks, pumps and valves.

Once clusters are instantiated in an Image, they can be moved, scaled, rotated, and deleted in the same as any other Image object. To cancel a Cluster definition select a cluster object in the Image and then select Break from the Clusters menu in the Image.

Instances cannot be defined as dynamic, as trigger, or as another cluster (no nesting of clusters), unless they are broken apart.

The Clusters menu has the following options:

Define	This option defines clusters and adds them to the Cluster Library
Break	This option cancels a selected cluster object in the image
Open Lib	This option is used to open a library.
Rebuild Instances	This option enables instances to be built automatically after updating the original cluster in the library
Basket maintenance	A basket is a tool supplying high-level engineering and application design. It is used to make a prototype of the application before actual implementation and traces the progress of the application development.
Open basket	This option displays the clusters defined in a basket. On the right of the cluster, the number of times that the cluster has been used and maximum usage permitted are displayed.

Cluster Library

The Cluster Library uses object-oriented technology to simplify and speed up application design and maintenance. A Cluster Library holds a number of clusters.

There are two steps for working with clusters:

- Defining clusters and adding them to libraries. This step requires knowledge of all the application components and is usually performed by application designers.
- Using existing clusters and placing them in the application. This requires minimum knowledge of the application and no programming skills.

Once a cluster is placed in an application an instance can be created. One cluster can have many different instances, each with the specific characteristics defined according to the application's needs. The action of creating a separate instance of the object or function is called instantiation. A unique editing feature allows you to modify any object and simultaneously apply the changes to all application diagrams. For example, to modify runtime supervision in a certain pump type, you can redefine the pump cluster in the library and then rebuild all instances of the pump to incorporate the changes made to the cluster definition.

The application includes a set of ready-to-use cluster libraries.

It is recommended to use clusters whenever possible. Working with clusters is much easier than working with graphics, tags, and alarms separately. Besides saving time, you can use an object that has been already approved for work.

Defining Clusters

- To define a cluster and add it to a library:

Select the graphic object in the image that you want to include in the cluster and then either:

From the Clusters menu select Define.

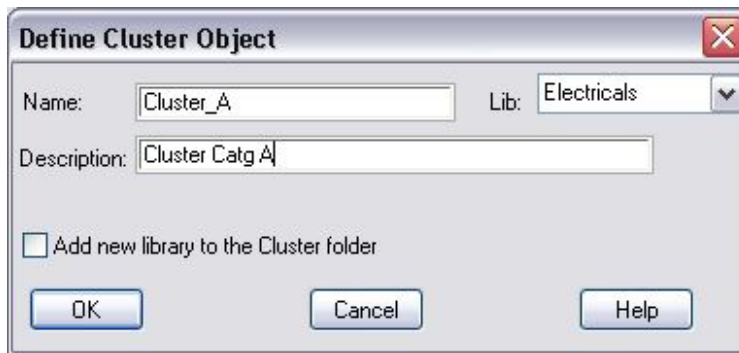
Or,

Click the Cluster Definition tool from the Objects toolbox.

Or,

Right-click and select Cluster Definition from the popup menu.

If no tags or alarms are associated with the graphic objects that are selected in the image (the object was not defined as a dynamic, trigger, or alarm object), the Define Cluster Object dialog box is displayed:



The following options are available:

Name	Specifies the name of the cluster (up to 15 characters).
Lib	Specifies the name of the library in which the cluster will be placed. To select from existing libraries, click on the arrow to the right of the field.
Description	Specifies a brief description of the cluster (up to 40 characters).
Add new library to the Cluster folder	Check this checkbox, to add the newly created library to the global Cluster folder (this will enable other applications to use the new library you create).

Note: These fields and buttons appear in the dialog box only if the object is defined as a dynamic, trigger, or alarm object.

Clusters / Define

This option will enable you to define a cluster.

Cluster definition is enabled in two modes:

Simple - If no tags or alarms are associated with the graphic objects that are selected in the image (meaning that the object was not defined as a dynamic, trigger, or alarm object).

Dynamic - If the object you have selected is associated with tags or alarms (the object was defined as a dynamic or trigger object).

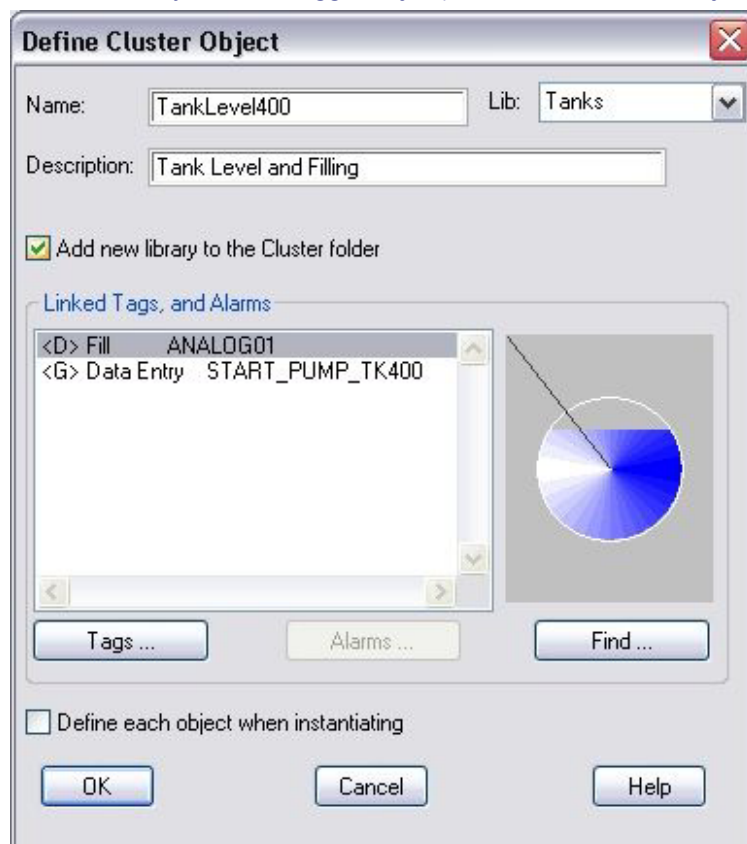
To define a Cluster and add it to a library

1. Select the graphic objects in the image that you want to include in the cluster.
2. Select Define from the Clusters menu. The Define Cluster Object dialog box is displayed.

The Clusters Menu

Linked Tags and Alarms

If the object you selected in the image is associated with tags or alarms (the object was defined as a dynamic or trigger object), the Define Cluster Object dialog box is displayed:



This listbox contains a list of tags and alarms associated with the object you selected, and the type of the object with which the tags and alarms are associated.

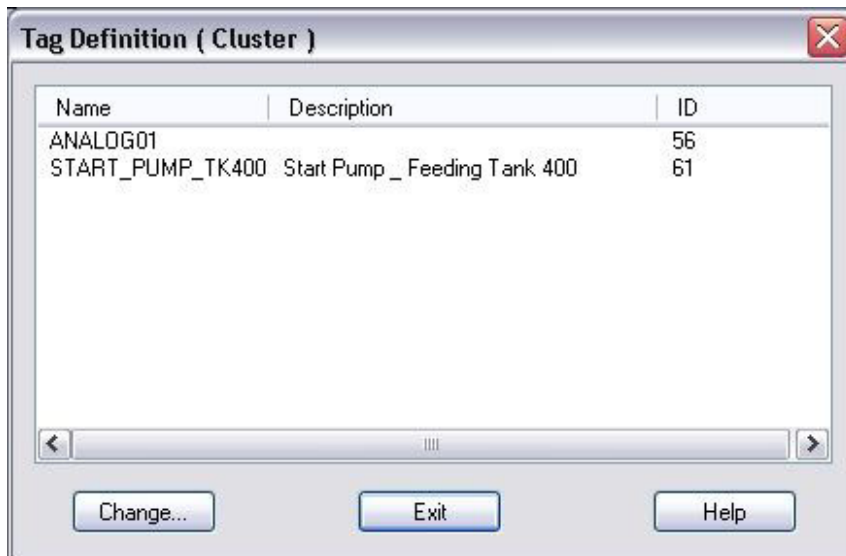
The object types, enclosed in brackets (<>), include:

- D for dynamic
- G for trigger
- A for alarm (Not applicable on the Web)
- W for widgets (tag value sliders)
- T for text table
- N for digital, date/time, and string displays
- t for dynamic text tables
- n for dynamic digital, date/time and string displays

Note: To indicate the connection between the selected line in the list box, and the corresponding graphical object, there is an arrow in the "Objects View" window (in the right hand side of the list box) from the left top corner of the window to the middle of the object. For further information see **Chapter 9, Tags** and **Chapter 15, Alarms**.

- To define tags and alarms do the following:

In the Define Cluster dialog box, click the Tags or Alarms button. A new tag/alarm with the modified original tag/alarm definition will be generated during cluster instantiation in the image. The Tag Definition dialog box is displayed. Only tags/alarms that are associated with the cluster objects will appear in the tags/alarms list and only the Change button is enabled.



1. Click the Change button to open the Tag/Alarm Specification dialog box.
2. Complete the fields in this dialog box according to instructions in the Tags and Alarms chapters.

Note: You can also access this dialog by double-clicking on a line in the list.

Clusters and Alarm Filters

Presentation

Cluster designers are now able to use alarm filters instead of alarm families inside clusters. This has the following advantages:

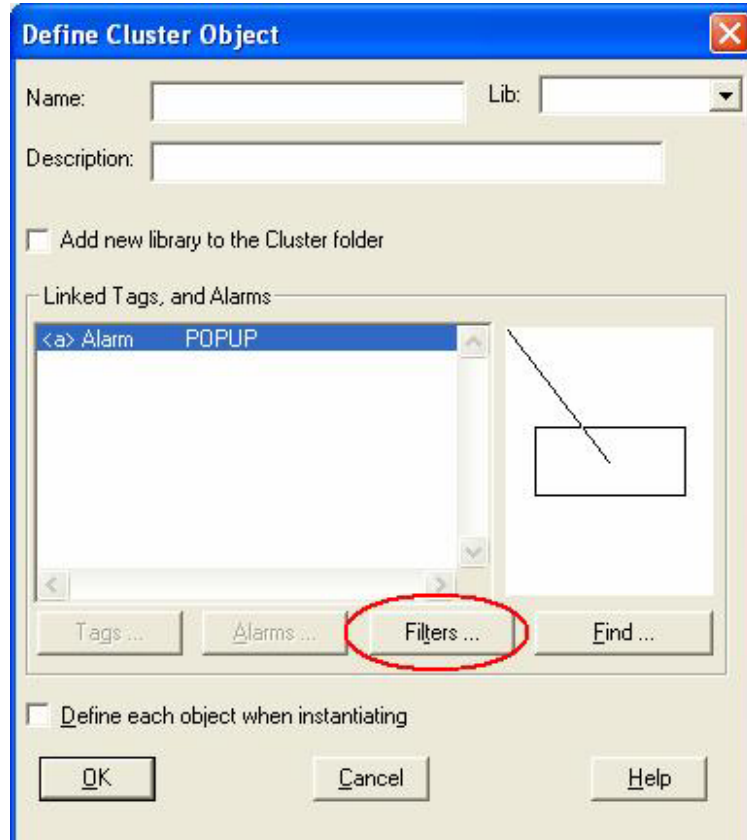
- Selection of different stations and their family names.
- Use of more parameters (see the alarm filter dialog box in the novaPro Open studio)
- Use of Alarm templates so that the same cluster will change automatically according to the context.

Description

This new feature is divided in 2 parts: the creation and the instantiation of a cluster.

1) Creation

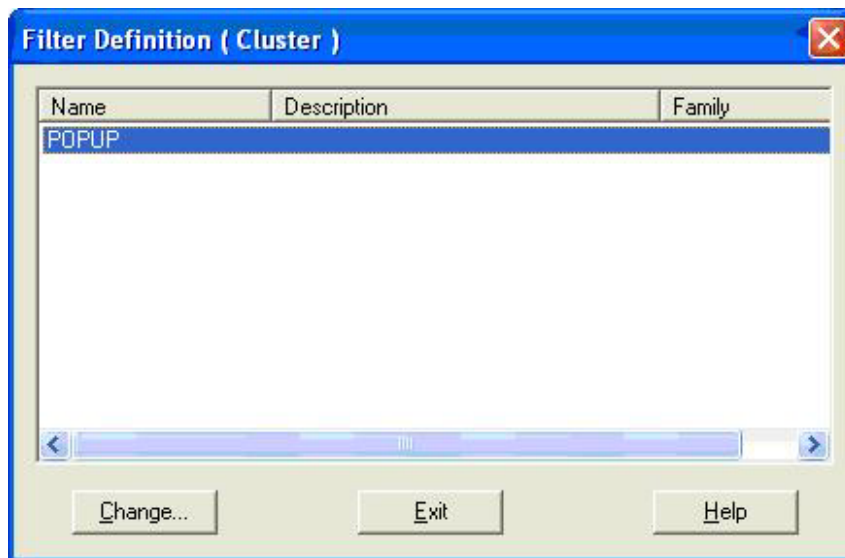
When a cluster is created, alarm selection indicates if an alarm family or an alarm filter was set inside the object, as shown in this dialog box:



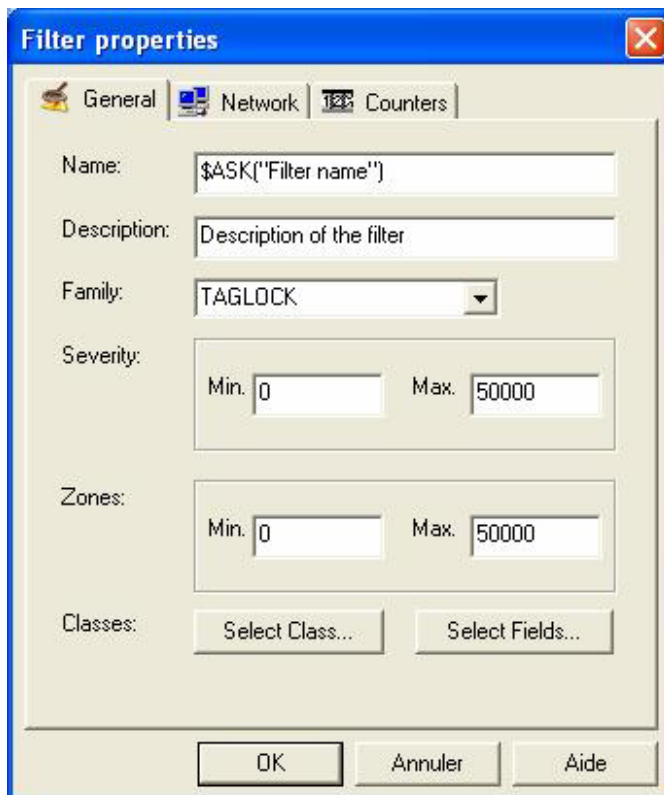
We differentiate an alarm object defined by an alarm family or an alarm filter. An alarm family is identified in this dialog box with an “A” enclosed in brackets. For an alarm filter a small ‘a’ enclosed in brackets is shown: <a>.

Moreover a new button has been added for filter definition (enabled only when an alarm filter is defined inside the cluster).

Like for alarm definition, a new dialog box has been created to list all the alarm filters defined inside the cluster. Each alarm filter can easily be changed:



To change a filter definition, we can double-click on a line in the list or select a line and click on the Change button.

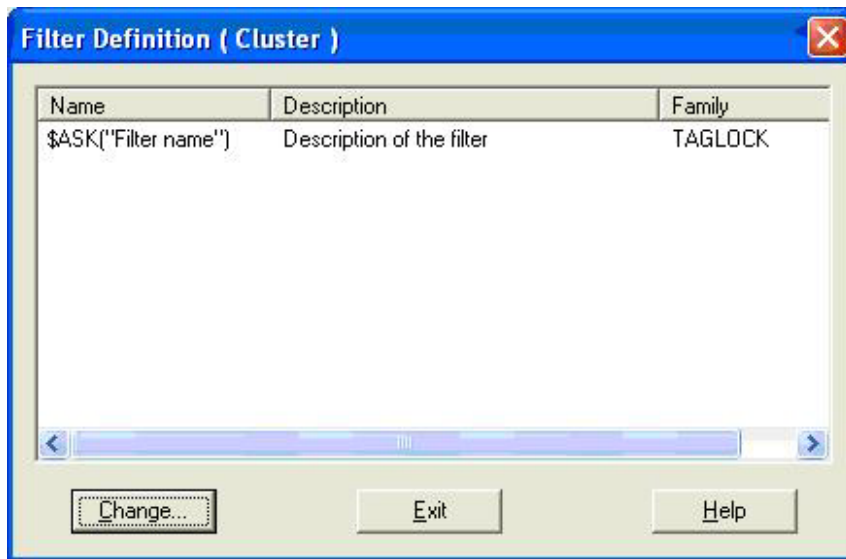


In this dialog box all the fields can be changed. The modifications will then be saved inside the cluster structure. We can also define special tokens for the filter name (and only for the filter name!).

The special tokens are \$ASK or \$ID (cf user guide to know how to use them).

Note: Upon instantiation of a cluster (by dragging and dropping it from the clusters libraries), if a token is set in the filter name, a dialog box in which we can choose a new or an existing filter will be opened.

Once the modifications are applied, we can see in our filter definition dialog box the new filter name, filter description and filter family.



2) Instantiation

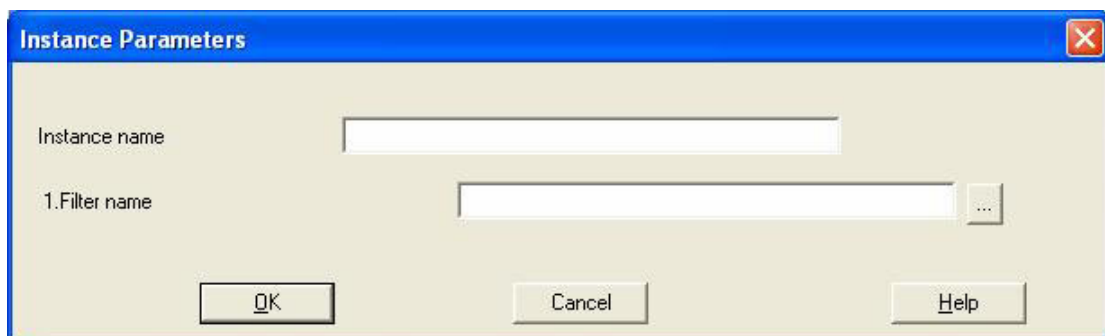
When we instantiate a cluster containing an alarm filter, there are three possibilities:

- The filter definition didn't contain any token:

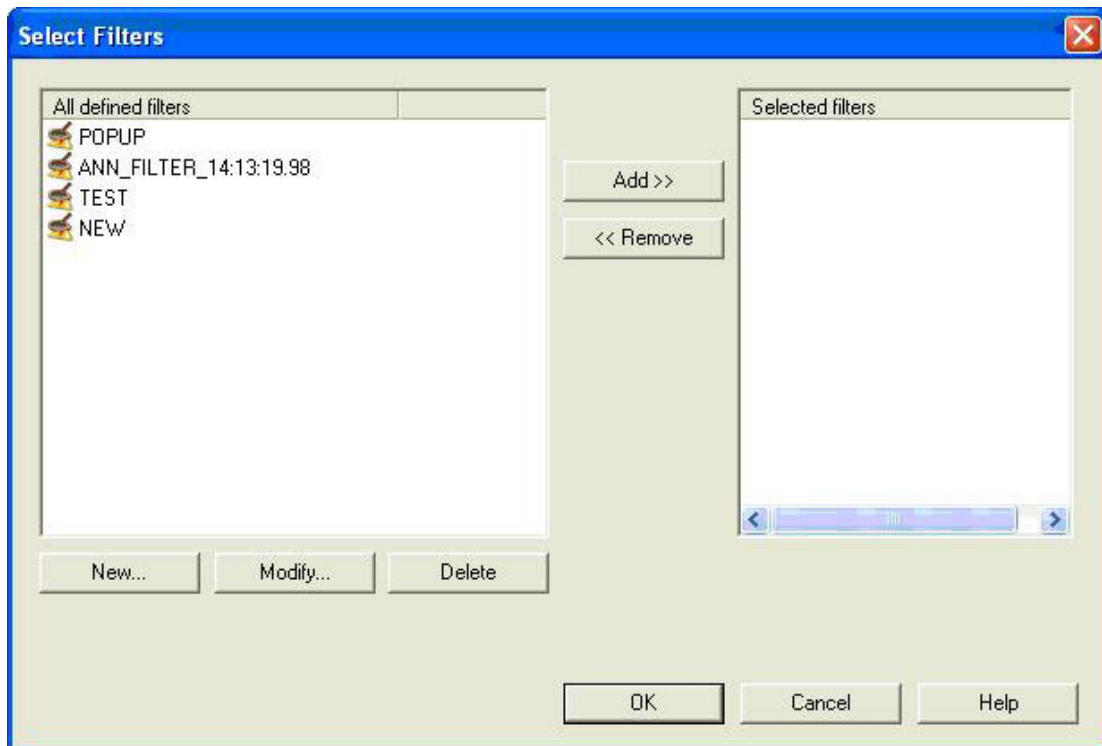
The users have to fill the instance name field. When the cluster is instantiated, the alarm filter properties are the ones defined during the cluster creation.

- The filter definition contained a \$ASK token:

In this case we will have the following dialog box:



If the user knows a filter name, he can directly fill the filter name field. Otherwise he can click on the "... " button, which will open the following dialog box:



In this dialog box the user can create, delete or modify any filter, but only one filter can be selected at a time. Upon selection, the filter name appears in the filter name field.

Note: If the user enters a non existing filter in the filter name field, the cluster will not be instantiated.

- The filter definition contained a \$ID token: We get the same dialog box as for a filter containing a \$ASK token, except that the user can't browse for existing filters (a filter can not be created or modified). The filter name must be entered in the instance name field.

Access means

We can access this functionality only inside the image module.

Clusters and Alarm Families

Presentation

This feature relies on the ability to browse distant alarm families.

Access means

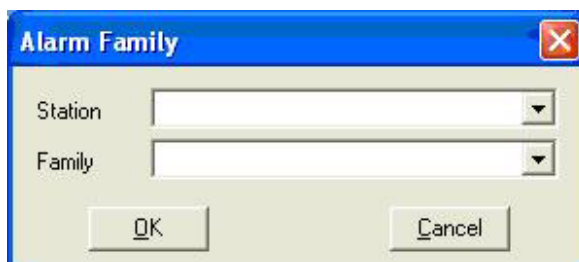
We can select an alarm family (remote or local) in the image (when defining a new alarm object or when dropping a cluster which contains a '\$ASK' token for the alarm family field) and when defining a filter.

Description

For performance reason (and to be consistant with tags methods), we display only 200 alarm family names at the same time in the combobox. So when the user didn't type anything in the combo box we display the 200 first alarm family names. If the user enters a family name prefix, the 100 families before and after this prefix are displayed.

Note: this new feature offers the advantage to be faster than the previous method. So, when an application contains lot of alarm family names, the application is not frozen during few seconds.

How to



- At first select a station.

- Then choose an alarm family name available on this station (if no station is selected, local alarm family names are displayed) .

Special Tokens

In the Tag/Alarms Definition dialog box, you can use special tokens to enable customized tag creation and identification during object instantiation. These tokens can be used in the Tag Name, Address and Description fields to enable customized tag attribute generation.

'[.]' brackets specify an optional parameter.

The following tokens can be used:

\$ID([from-to])

The from-to variable represents characters from the data supplied by the operator during instantiation. The following methods can be used for the From-To parameter:

#-# All the characters within the number range specified will be displayed. For example, if the string is ABCDE and 2-4 for From-To is specified, the letters BCD will be displayed.

The character located at the number you specify will be displayed. For example, if the string is ABCDE, and you specify 3 for From-To, the letter C will be displayed.

#- All the characters from the number you specify and forward will be displayed. For example, if the string is ABCDE, and you specify 3- for From-To, the letters CDE will be displayed.

-# All the characters up to the number you specify will be displayed. For example, if the string is ABCDE and you specify -3 for From-To, the letters ABC will be displayed.

For example, If you specify the tag name ANA\$ID(2-3) in the Tag Definition dialog box and if the operator instantiates the object for which this tag was defined and enters the instance name I02, a tag called ANA02 will be created for that object (the count for 2-3 in I02, is I=1, 0=2, and 2=3).

For tag address, if, for example, you want the address constant to be 0000, in the Address field of the Tag Definition dialog box, you can choose 0000\$ID(2-3). Then if, for example, the operator enters A10 in the instance name, the address of the tag generated upon instantiation of the object would be 000010.

The same applies for Description. For example, if you want the constant valve to appear in the description followed by the valve number, if you use Valve\$ID() (where the empty parentheses indicates that all the characters in the operator-supplied name should be used). If the operator enters 12 for the instance name while instantiating the object, the description of the generated tag will be Valve12.

Different combinations of the \$ID variable can be used to customize generated tag attributes upon object instantiation.

\$ASK("text"[, from-to])

For text, specify the text that will appear in the prompt upon instantiation. The from-to parameter is optional and can be used in the same way as described in \$ID token.

For example, if you entered \$ASK("TAG NAME") in the Tag/Alarm Name field of the Tag/Alarms Specifications dialog box and \$ASK ("Enter Description") in the Description field, when you instantiate the object in the image, the Instance Parameters dialog box appears:



If you enter \$ASK("Tag Name",1-4) in the Tag/Alarm Name field of the Tag/Alarm Specifications dialog box and \$ASK("Enter Description",1-5) in the Description field, when you instantiate the object in the image, the Instance Parameters dialog box reappears. However, only the first four characters of the tag/alarm name and the first five characters of the tag/alarm description specified by the operator are extracted and used.

- To find an existing tag/alarm:

1. Click the find button to open the Find dialog box.



2. Specify the name prefix of the tag or alarm family that you want to search, and click the Find button.

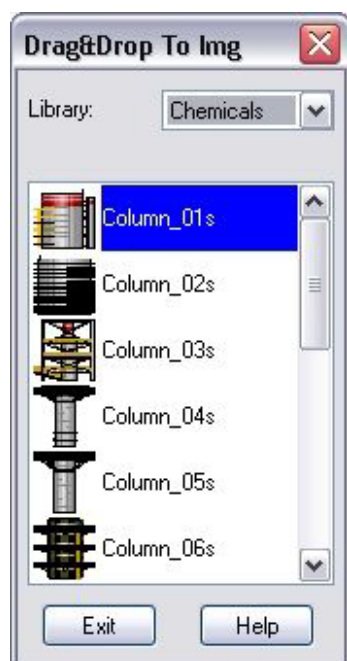
3. Select Define each Object when Instantiating to define alarms during cluster instantiation in the Image.

Open Lib

This menu option is used to insert an image from an existing Cluster Library into an image.

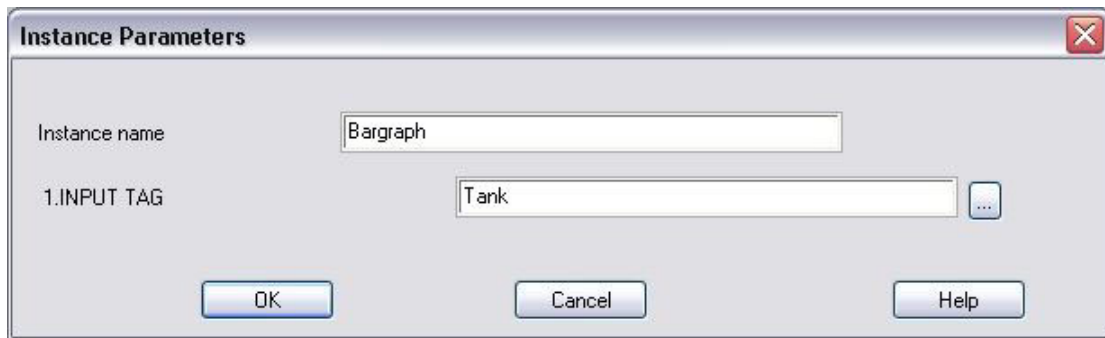
- To instantiate a cluster from a library to the application:

Select Open Lib from the Clusters menu in the Image window.



Note: This window is modeless (meaning that you can perform other application or operating system functions while this window appears on the screen). In addition, the library window can be resized to adjust its height.

1. Specify the library from which you want to instantiate a cluster. To open a list of existing libraries, click on the arrow to the right of the Library field. Double click on a specific cluster to open an information box where the library to which the cluster belongs and further information regarding the cluster is listed.
2. Select the cluster and instantiate it in the image by right clicking on the object and dragging it to the required location in the image.
3. After placing a cluster from a library into an image, the application enables you to determine parameters that are used to generate the instance characteristics. If the cluster is not defined with the Define each Object when Instantiating option, the Instance Parameters dialog box opens. Click the Browse button to locate the tag you want to associate with the instance parameters.



Note: If the cluster contains \$ASK variables, this dialog includes the \$ASK Parameter field in which you can specify additional user data.

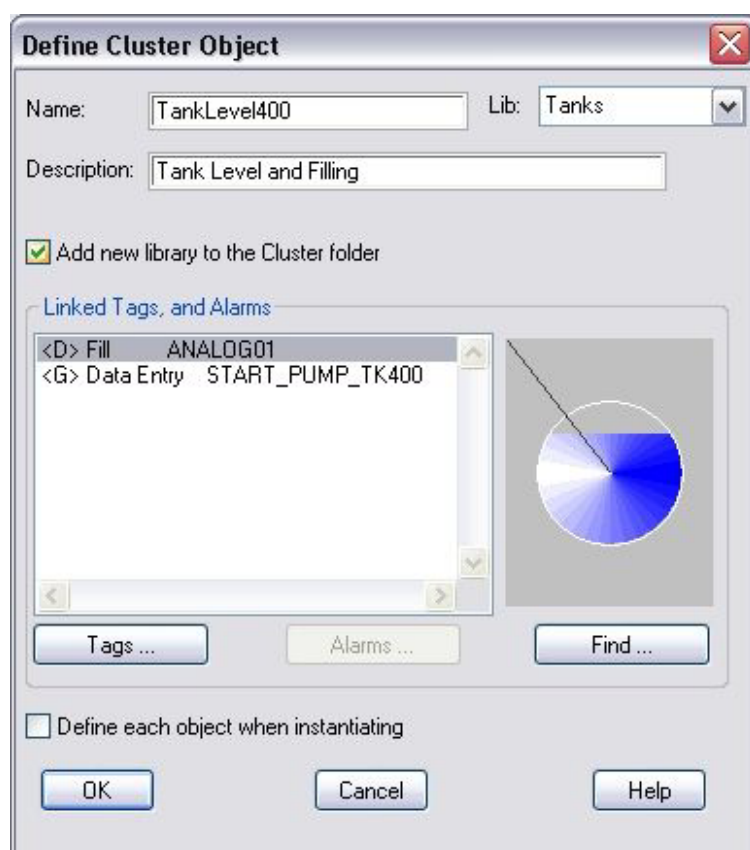
- To determine parameters:

1. Enter a unique instance name in the Instance name field.
2. Enter a tag name in the TAG NAME field or click the Browse button. The Tags Identifier dialog box opens:



3. In the Station field, enter a station name, or click the arrow to the right of the field and select the required station from a list of available stations.
To associate more than one station to the instance parameters, select another station and click Add. The station is added to the field.
To replace stations in the Station field, select a station from the list of stations and click Change. The specified station is added to the Station field, replacing all other stations.
4. In the Tag field, enter a tag name, or click the arrow to the right of the field and select a tag from a list of tags. To associate more than one tag to the instance parameters, select another tag and click Add. The tag is added to the field. To replace the tags in the Tag field, select a tag from the list of tags and click Change. The specified tag is added to the Tag field, replacing all other tags.

If the cluster is defined with the Define each Object when Instantiating option, the Define Instance Links dialog box opens:



The following options are available:

Instance Name	The unique name of the instance in the image.
Linked Tags and Alarms	This listbox contains a list of all the tags and alarms associated with the object(s) in the cluster, and the operation defined for each.
Tags/Alarms	Activate these buttons to change the original definitions of the tags and alarms associated with the objects in the cluster. The tag and alarm definitions that you specify will be used to generate new tags and alarms for the cluster in the Image.
Find	Activate this button to search for a tag or alarm in the Linked Tags and Alarms listbox. In the entry field, you can specify the full name of the tag or alarm, or a name prefix.

Clusters / Open Lib

To instantiate a cluster from a library to the application, select the Open Lib item. This option will enable you to open a library.

To instantiate a cluster from a library to the application

1. Select the Open Lib item from the Clusters menu in the image window
2. Specify the library from which you want to instantiate a cluster in the Drag and Drop to Img window.

Clusters Menu

Breaking/Editing Clusters

Clusters can be modified without breaking the cluster. This includes changing tag names and range parameters in dynamic operation. You can also change the fill and line color of the objects. Trigger operations can also be edited.

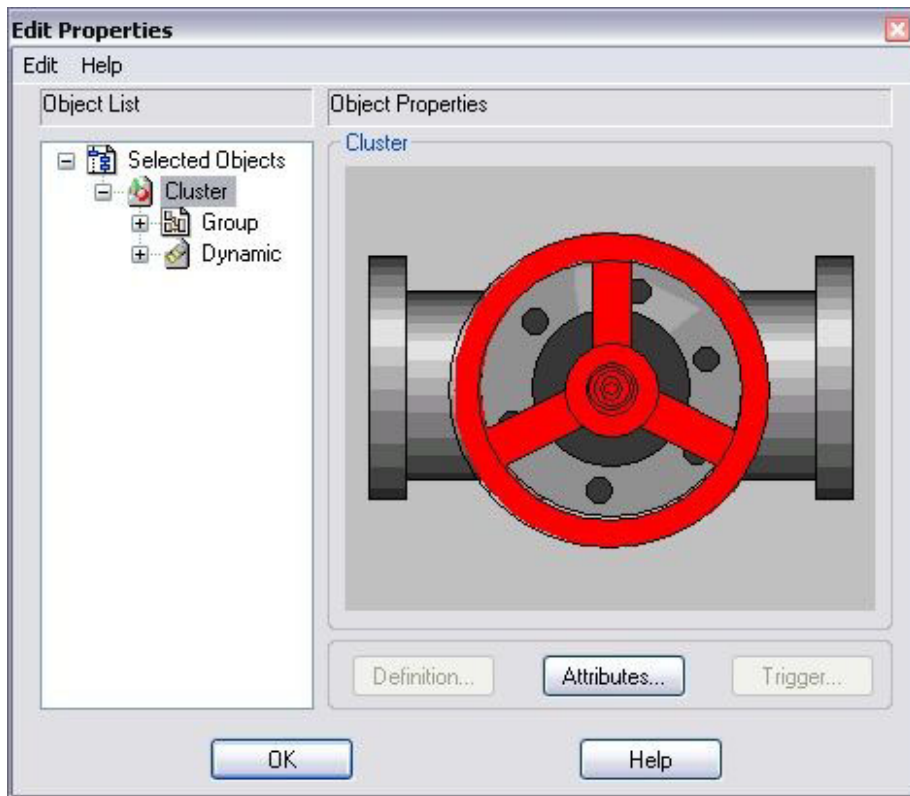
Note: Editing allows modifying, but not adding new properties to the cluster.

- To Edit Clusters:

1. Select the cluster you want to edit.
2. Right-click the object and select Edit Properties from the popup menu.

Or

From the Edit menu click Edit Properties. The Edit Properties dialog opens.



The Edit Properties dialog displays the structure of the cluster. The dialog box is divided into two frames:

- Object List on the left. The Object tree contains the structural makeup of the cluster. For example the displayed truck consists of dynamic objects, groups and polylines. Each object can be modified.
- Object Properties on the right. When clicking on an object in the Object list, it is shown on the right. The Definitions and Attributes buttons allow you to modify the object. You can also modify triggers with the Trigger button.

Note: For further information read **See Edit Properties**.

Breaking Clusters

Cluster definitions can be cancelled by selecting a cluster object in the Image, and then selecting Break from the Clusters menu.

To cancel a Cluster definition:

1. Select a cluster object in the image.
2. Select Break from the Clusters menu.

Note: *Instances cannot be defined as dynamic, trigger, or as another cluster (no nesting of clusters), unless they are broken apart.*

The Clusters Menu

Deleting a Cluster from the Library

Clusters can be deleted from their library.

- To delete a cluster from the library:
 1. Select the Cluster and the Open Lib menu.
 2. In the Library field select the library from which you want to delete the object. Then, select the cluster from the clusters list in the dialog box and press the Delete button on the keyboard.

Note: Since a library must contain at least one cluster, the last cluster in the library cannot be deleted.

Copying Clusters from One Library to Another

Clusters can be copied from one library to another.

- To copy a cluster from one library to another:
 1. Select the Cluster and the Open Lib menu.
 2. In the Library field select the library from which you want to copy cluster. Then select this menu item again.

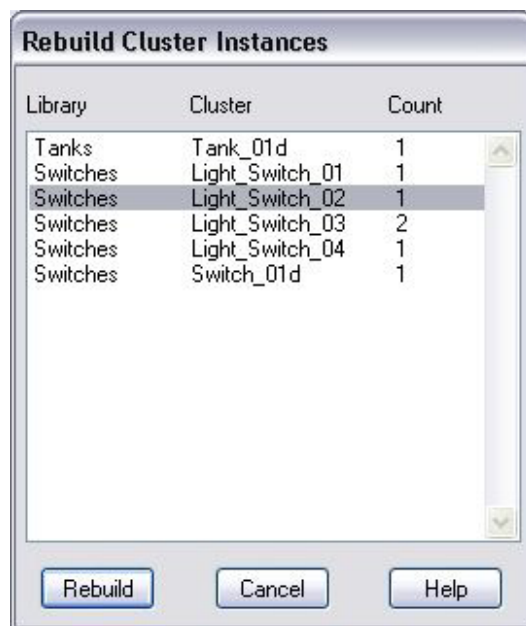
3. In the new dialog box select the library to which you want to copy the cluster.
4. Then simply drag the cluster from the source library dialog to the target library dialog, and the cluster will be copied.

Note: Clusters that reside in the same library must have different names. Therefore, if the cluster you want to copy already exists in the target library, you will not be able to copy it.

Rebuild Instances

One of the big advantages of using clusters is the ability to rebuild all instances automatically after updating the original cluster in the library.

- To rebuild the instances in the application:
1. Select Rebuild Instances from the Clusters menu to open the Rebuild Cluster Instances dialog box:



In the list, you can see all the instances that were placed in the current Image. Each line contains the library name, the cluster name, and how many instances of that object were placed.

2. Select those items you want to update (note that the list box has multiple selections, and therefore, you can select more than one line in the list), and press the Rebuild button.

Note: The tags and alarms that were associated with each instance will remain unchanged. The Rebuild operation will fail if there is no compatibility between the cluster in the library, and the instances in the Image. Compatibility means that the tags, alarms and triggers must have the same links. For example you cannot redefine an object that was

linked to one tag to be connected to two tags. You can select all items in the list by pressing <CTRL></> keys

Cluster Edition

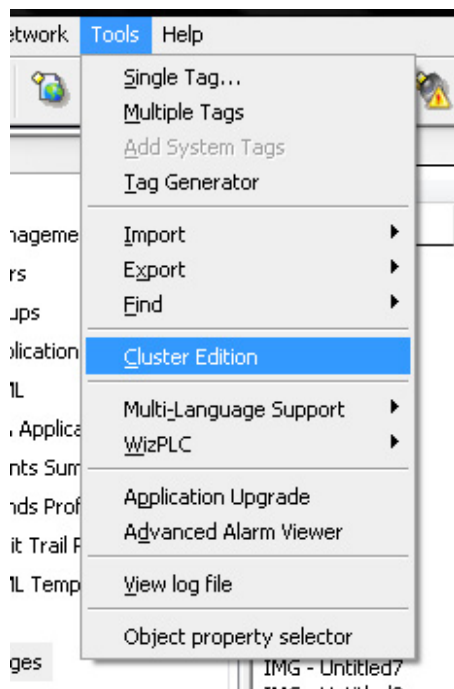
Presentation

Clusters, once defined in a cluster library, were impossible to modify. It was necessary to create a new cluster from scratch and to replace the old version.

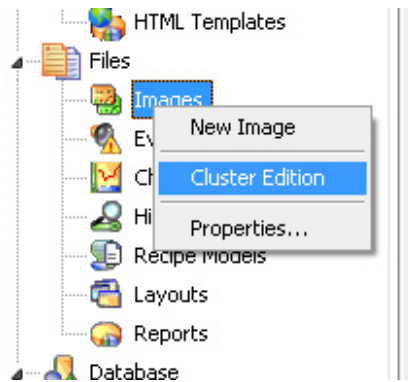
Now, cluster edition allows you to modify your cluster by adding new objects and new tags, removing objects or changing their position. All of this is done without having to recreate the objects from scratch.

Description

To use cluster edition, open an cluster editor window. You can open this window with the menu "Tools/ClusterEdition" inside main application menus,

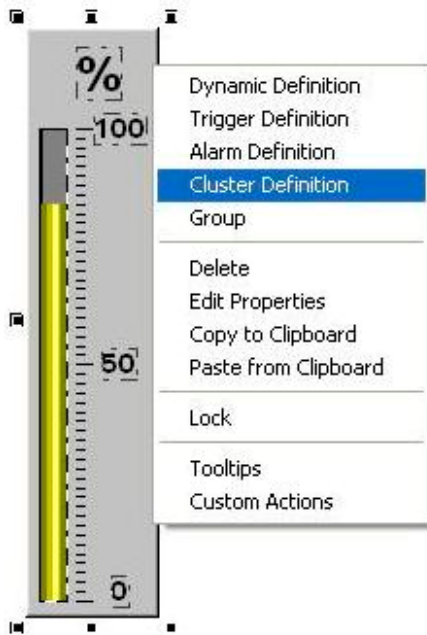


or by right-clicking on "images" section and choosing "Cluster Edition" .

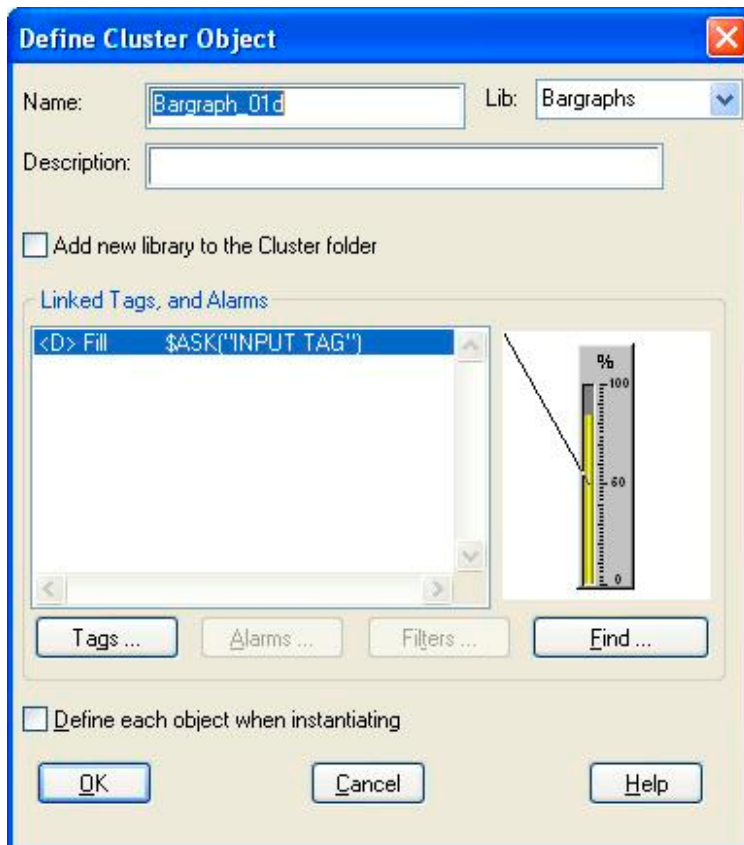


Once the editor is opened, all commands are similar to a normal image, except that you can drag and drop a cluster from a library to copy all objects that define it. At this point, the complete layout will be editable in the usual way with all tools available inside image edition.

When edition is finished, select all objects that must be repacked as your new cluster, and choose "Create cluster" from the contextual menu.



As you were using edition mode, cluster original data such as name, library, description and tag information (\$ask/\$id tokens) were saved and are cross-referenced with your new cluster layout.



Normally, for minimal changes, you only have to validate the cluster creation dialog box, if everything seems fine to you. Your original cluster is replaced by your new version, if you do not change the name and the lib selection.

Notes

When you instantiate cluster objects in edition mode, they may contain/reference tags that are not available, as objects still contain old definitions. This is not a problem as original cluster information regarding tag to used are saved. You will be able to modify tag information once you come back to the cluster definition user interface.

If you edit a cluster that contains alarm objects and associated alarm definitions, you will lose all alarm definition.

In edition mode, you cannot save your current image. To save your cluster modifications you have to rely on the create cluster command.

Cluster / Rebuild Instance

One of the big advantages of using clusters is the ability to rebuild all instances automatically after updating the original cluster in the library.

1. Select Rebuild Instances from the Clusters menu to open the Rebuild Cluster Instances dialog box: In the list, you can see all the instances that were placed in the current Image. Each line contains the library name, the cluster name, and how many instances of that object were placed.
2. Select the items you want to update (note that the list box has multiple selections, and therefore, you can select more than one line in the list), and press the Rebuild button.

Notes:

1. *The tags and alarms that were associated with each instance will remain unchanged.*
2. *The Rebuild operation will fail if there is no compatibility between the cluster in the library, and the instances in the Image. Compatibility means that the tags, alarms and triggers must have the same links. For example you cannot redefine an object that was linked to one tag to be connected to two tags.*
3. *You can select all items in the list by pressing <CTRL></> keys.*

The Clusters Menu

Cluster Baskets

The basket is a tool supplying a high level of engineering and application design. It is used to make a prototype of the application before starting to actually implement it, and also to trace the progress of the application development.

When you place an object from the basket to your application, there is one less object that you can take from the basket. If you delete an instance that is a basket item from the application, it will be added to the basket again (as if not taken from there). All the basket operations are also logged in a file called BASKET.LOG, which describes who takes or adds items from and to the application basket, and when.

There is only one basket in the system, which is kept in a simple ASCII text file called BASKET.DAT. This file can be edited using any text editor to ensure simple and fast image design for the application engineers. The format of the BASKET.DAT file is similar to the one that appears in the listbox of the Basket Maintenance dialog box.

- To define an application basket:

Select Basket Maintenance from the Clusters menu to open the Basket Maintenance dialog box.

Name	Library	Object	Required	Used
Bargraph1	Bargraphs	Bargraph_02d	0010	0005
Bargraph2	Bargraphs	Bargraph_06d	0037	0000

The following fields are available:

Name	Specifies the name of the item as you want it to appear in the basket library.
Library	Specifies the library from which you want to extract the cluster. To select from a list of existing libraries, click on the arrow to the right of the field.
Object	Specifies the name of the cluster as it appears in the library you specify. To select from a list of existing objects, click on the arrow to the right of the field.
Amounts For Required	Specify the amount of times the cluster object will be available in the basket library. For Used, the value is usually 0 (if you do not fill this field, the default value is also 0). This indicates that the first cluster object in the basket library will be number 0.

Cluster Listbox	A list of existing clusters defined in the basket library.
Add	Activate this button to add the current cluster definition to the basket library.
Change	Activate this button to change the definition of a cluster in the basket library to the current definition.
Delete	Activate this button to delete the cluster from the basket library.

Clusters Basket Maintenance

A Basket is a special tool that supplies a new (high) level of engineering and application design. It is used to make a prototype of the application before starting to actually implement it, and also to trace the progress of the application development. You can think of it as a shopping list, you can specify in the basket the components you need to include in your application

To define the application basket, select the Basket Maintenance item from the Clusters menu in the image window.

The Clusters Menu

Open Cluster Basket Objects

This option is used to open a cluster basket and import an object into an image.

- To instantiate an existing cluster:

Select Open Basket from the Clusters menu. The Drag &Drop to Img dialog box is displayed:

- To instantiate an object from the library window:

Click the right mouse button on the object you want to instantiate, and drag the object to the desired location in the image.

Note: In addition to each object in the library, the numbers indicate the amount of required objects that you specify in the Basket Maintenance dialog box and the amount of objects you already instantiated in the Image.

Clusters / Open Basket

This option displays the clusters defined in a basket. On the right of the cluster the number of times that the cluster has been used and maximum usage are displayed.

The Clusters Menu

Clusters

Clusters / Define

This option will enable you to define a cluster.
Cluster definition is enabled in two modes:

Simple - If no tags or alarms are associated with the graphic objects that are selected in the image (meaning that the object was not defined as a dynamic, trigger, or alarm object).

Dynamic - If the object you have selected is associated with tags or alarms (the object was defined as a dynamic or trigger object).

To define a Cluster and add it to a library

1. Select the graphic objects in the image that you want to include in the cluster.
2. Select Define from the Clusters menu. The Define Cluster Object dialog box is displayed.

The Clusters Menu

Clusters Basket Maintenance

A Basket is a special tool that supplies a new (high) level of engineering and application design. It is used to make a prototype of the application before starting to actually implement it, and also to trace the progress of the application development. You can think of it as a shopping list, you can specify in the basket the components you need to include in your application

To define the application basket, select the Basket Maintenance item from the Clusters menu in the image window.

The Clusters Menu

Breaking Clusters

Cluster definitions can be cancelled by selecting a cluster object in the Image, and then selecting Break from the Clusters menu.

To cancel a Cluster definition:

1. Select a cluster object in the image.
2. Select Break from the Clusters menu.

Note: *Instances cannot be defined as dynamic, trigger, or as another cluster (no nesting of clusters), unless they are broken apart.*

The Clusters Menu

Clusters / Open Basket

This option displays the clusters defined in a basket. On the right of the cluster the number of times that the cluster has been used and maximum usage are displayed.

The Clusters Menu

Clusters / Open Lib

To instantiate a cluster from a library to the application, select the Open Lib item. This option will enable you to open a library.

To instantiate a cluster from a library to the application

1. Select the Open Lib item from the Clusters menu in the image window
2. Specify the library from which you want to instantiate a cluster in the Drag and Drop to Img window.

Clusters Menu

Cluster / Rebuild Instance

One of the big advantages of using clusters is the ability to rebuild all instances automatically after updating the original cluster in the library.

1. Select Rebuild Instances from the Clusters menu to open the Rebuild Cluster Instances dialog box: In the list, you can see all the instances that were placed in the current Image. Each line contains the library name, the cluster name, and how many instances of that object were placed.
2. Select the items you want to update (note that the list box has multiple selections, and therefore, you can select more than one line in the list), and press the Rebuild button.

Notes:

1. *The tags and alarms that were associated with each instance will remain unchanged.*
2. *The Rebuild operation will fail if there is no compatibility between the cluster in the library, and the instances in the Image. Compatibility means that the tags, alarms and triggers must have the same links. For example you cannot redefine an object that was linked to one tag to be connected to two tags.*
3. *You can select all items in the list by pressing <CTRL></> keys.*

The Clusters Menu

Options Menu

Options Menu

This menu defines image properties and zones that will appear on the operator's workstation.

The Goto, Goto Zone and Zone Definition options are used to define and jump to zones.

Autowindow	This option when selected automatically sets the image window position and zoom level.
Goto	This option opens the Goto dialog box where the coordinates of the location to which you want to jump in the image are defined.
Goto Zone	Using the Goto Zone function, operators can receive alarms showing a graphical image of the cause of the alarm.
Zone Definition	This option when selected opens the Zones Definition dialog box where zone parameters are defined. These zones will appear in the Goto Zone list.
Repaint	Select this item to redraw the current image. This is useful to view the results of editing operations, if they do not immediately appear on the screen.
Window	A window zoom is defined by marking a window in an image. This zoom enables the operator to define a window's contents.
Simulate	Select this option to simulate variations of tag values and observe how the image is affected by each value.
Force Zone Dyn Show	This option when selected causes a dynamic object in an image to appear.
Mark Trigger	This option when selected causes all trigger objects in the window to be marked (or unmarked) on the screen. A red hand will appear in all the trigger objects in the image.
Styles Definition	Select this option to define a font for image text objects.

Autowindow

This option automatically sets the Image window position and zoom level, so that all image objects in the window will be arranged.

This function can also be performed by clicking the  button on the left side of the Image window.

Options / AutoWindow

Select this item to automatically set the image window position and zoom level, so that all image objects in the window will be arranged properly.

This function can also be performed by clicking on the a button on the left side of the image window.

Options / AutoWindow

Select this item to automatically set the image window position and zoom level, so that all image objects in the window will be arranged properly.

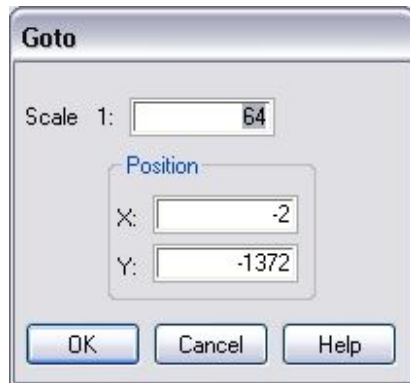
This function can also be performed by clicking on the a button on the left side of the image window.

Goto

This dialog box is used to enter the coordinates of the location to which you want to jump in the image. You can jump to any position in the image, whether or not that position is defined as a zone.

- To open the Goto dialog box:

1. Select Goto from the Options menu or click the Goto icon. The Goto dialog box opens.



2. Enter a scale level between 1 and 2048.
3. Enter the X and Y coordinates, in drawing units.
4. Click OK to confirm.

Note: In the Image module scale represents the image zoom level. The smaller the scale, the closer the image is. At a scale of 64 each drawing unit is 0.01 on a standard workstation monitor.

Options / Goto

This dialog box is used to enter the coordinates of the location to which you want to jump in the image. You can jump to any position in the image, whether or not that position is defined as a zone.

To jump to a specific position in the image window

1. Select Goto from the Options menu. The Goto dialog box appears.
2. Enter a **scale** level between 1 and 2048.

3. Enter the X and Y coordinates, in drawing units.
-

Options / Goto

This dialog box is used to enter the coordinates of the location to which you want to jump to in the image. You can jump to any position in the image, whether or not that position is defined as a zone.

To jump to a specific position in the image window

1. Select Goto from the Options menu. The Goto dialog box appears.
 2. Enter a **scale** level between 1 and 2048.
 3. Enter the X and Y coordinates, in drawing units.
-

Goto Zone

The Goto Zone dialog box enables you to easily jump to any of the zones defined in the Zones Definition dialog box.

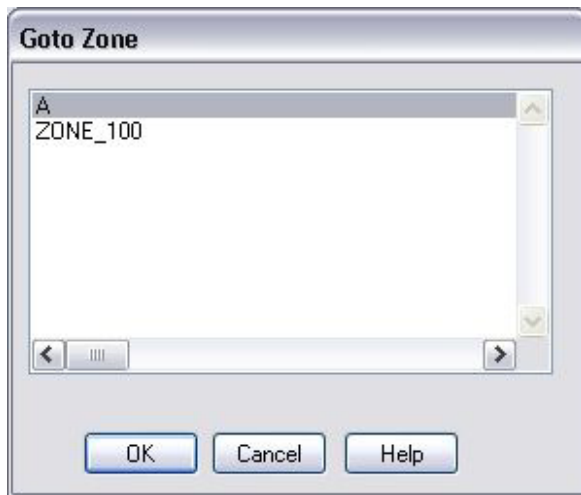
- To jump to a specified zone in an image:

From the Options menu select Goto Zone

Or,

Click the Go to Zone icon. The Goto Zone dialog box opens.

1. Select a zone and click OK, or double click a zone.



2. The image window will immediately be centered on the zone's central point and the zoom level will be adjusted to the level defined for that zone.

Note: A pre-defined zone called Previous Zone is included in the zone list. You can goto this zone the same way as any other zone. However, if there is no zone to return to the previous zone item will be disabled.

Options / Goto Zone

The Goto Zone dialog box enables you to easily jump to any of the zones you defined.

To jump to a specified zone in an image:

1. Select the Goto Zone item from the Options menu, or click the Goto Zone icon from the main menu. The Goto Zone dialog box is displayed.
2. Select the zone you want to jump to and click the OK button, or double click the zone you wish to jump to. The image window will immediately be centered on the zone's central point and the zoom level will be adjusted to the level defined for that zone.

Note that a pre-defined zone called Previous Zone is included in the zone list. This zone appears as the character <<<. You can goto this zone the same way as any other zone. However, if there is no zone to return to, the previous zone item will be disabled.

Zone Definition

A Zone is a pre-defined position and zoom level in the image that can be jumped to by selecting the Goto Zone item in the Options menu.

- To open the Zone Definition dialog box

From the Options menu select Zones Definition

Or,

Click the Navigation mode icon. The Zone Definition dialog box opens:

Zones Definition

Name:

Central Point X: Y:

Scale:

Context Name:

Tag Context:

☐ Control tag

Station:

Tag:

Name	X	Y	Scale
TEST	-429	0	64
UPDATE	-429	0	64

Add Change Delete

Save Cancel Help

1. In the Name field type in a unique zone name.
2. In the Central Point field enter the X and Y coordinates, in drawing units, to define the zone center in the image window.
3. In the Scale field type in a level between 1 and 2048.
4. Select the Control tag checkbox if you want to use a digital tag to indicate the zone status. At run-time, if the digital tag value is 1, the zone status will be BAD; if set to 0, the zone status will be GOOD.
5. In the Station field select the station from which you want to select a tag.

6. In the Tag field select the tag you want to use from the drop-down menu, or click the browse button to open the Tag Definition dialog box.
 7. This is an optional step: select a context name through the list of currently available contexts. This will automatically fill the tag context field. Only use this if you need access to the tag template feature (see the chapter on tag templates).
 8. Click the Add button to add the zone. The new zone is displayed in the list.
 9. Click Save to save the zone definition and exit the dialog box.
 - To modify a defined Zone parameters:
 1. Select the zone you wish to modify.
 2. Using the instructions for Zone Definition, modify the selected zone parameters.
 3. Click the Change button. The zone properties displayed in the list of zones are modified.
 - To remove a zone:
 1. Select the relevant zone.
 2. Click the Delete button.
-

Defining Zones

A Zone is a pre-defined position and zoom level in the image that can be jumped to, by selecting the Goto Zone item in the Options menu.

- How to define a Zone?
 1. Select Zones Definition item from the Options menu. The Zone Definition dialog box opens.
 2. Type a unique name for the zone in the Name box.
 3. Enter the X and Y coordinates, in drawing units, to define the zone center in the image window.
 4. Enter a **scale** level between 1 and 2048.
 5. Select the Control tag checkbox if you want to use a digital tag to indicate the zone status.
 At run-time, if the digital tag value is 1, the zone status will be BAD; if set to 0, the zone status will be GOOD.
- Station - Select the station from which you want to select a tag.
- Tag - select the tag you want to use from the drop-down menu, or click the browse button to open the Tag Definition dialog box.

6. Choose a Context through 'Context Name' combo box that will be applied to objects that use tag template Ids. This context is optional. You do not have to select it if you do not need one

7. Click the Add button to add the zone. The new zone is displayed in the list.

8. Click Save to save the zone definition and exit the dialog box.

- To modify a defined Zone parameters:

1. Select (click) the zone you wish to modify.

2. Change the selected zone parameters in the various dialog box fields, as applicable.

3. Click the Change button. The zone properties displayed in the list of zones are modified.

- To remove a zone:

1. Select (click) the zone you wish to remove.

2. Click the Delete button.

Zone Navigator

The Zone Navigator is a global, multi-image zone navigation window that enables efficient navigation through a list of zones defined in the application's various image files.

Using the Zone Navigator window a number of navigators each of which can contain a number of zones from one or more different image files can be defined.

The Zone Navigator can be applied on images through button and action type triggers or by configuring an action macro using the Zone Navigation Action macro.

A digital tag representing the zone status of each Zone Navigator can be attached. If the tag value is set to 1 Zone Navigator status will be BAD and if set to 0 Zone Navigator status will be GOOD. Additionally, colors can be defined in which zones with a control tag of BAD status will be displayed in the run-time Zone Navigator window.

- To open the Zone Navigators window:

Double click the Zone Navigator icon on the Studio Control panel.

Or,

Select Zone Navigators from the Studio Design menu.

Or,

In the Edit mode right click an object to open a popup menu and select Trigger Definition, Action and then Zone Navigator. The Zone Navigator dialog box opens.



The Zone Navigator has the following fields:

List of
Zone
Navigators:

This list displays all the Zone Navigators defined. Each navigator is identified by a unique name and general description.

New:

Click this button to add a new Zone Navigator.

Modify:

Click this button to modify the selected Zone Navigator. This will open the New Zone Navigator dialog box where the Name field will appear in gray.

Delete:

Click this button to delete the selected Zone Navigator.

Select
background
color :
#ffffff;">

Click this
button to
open the
Color
dialog box
where
color
indicating
zones
status can
be

defined.
The
default
color is
red.

- To open a new Zone Navigator:

In the Zone Navigator dialog box click New to open the New Zone Navigator dialog box.

New Zone Navigator

Name:

Description:

☒ Enable control tag

Station

Tag

List of All Selected Zones:

Zone Name	Image Name	Control tag
ZONE1	FACTORY	
ZONE2	FACTORY	

Add ... Delete Move up Move down

Automatically close window after [Sec]:

☒ Always select before opening
☐ Open in existing window
☒ Always on top

OK Cancel Help

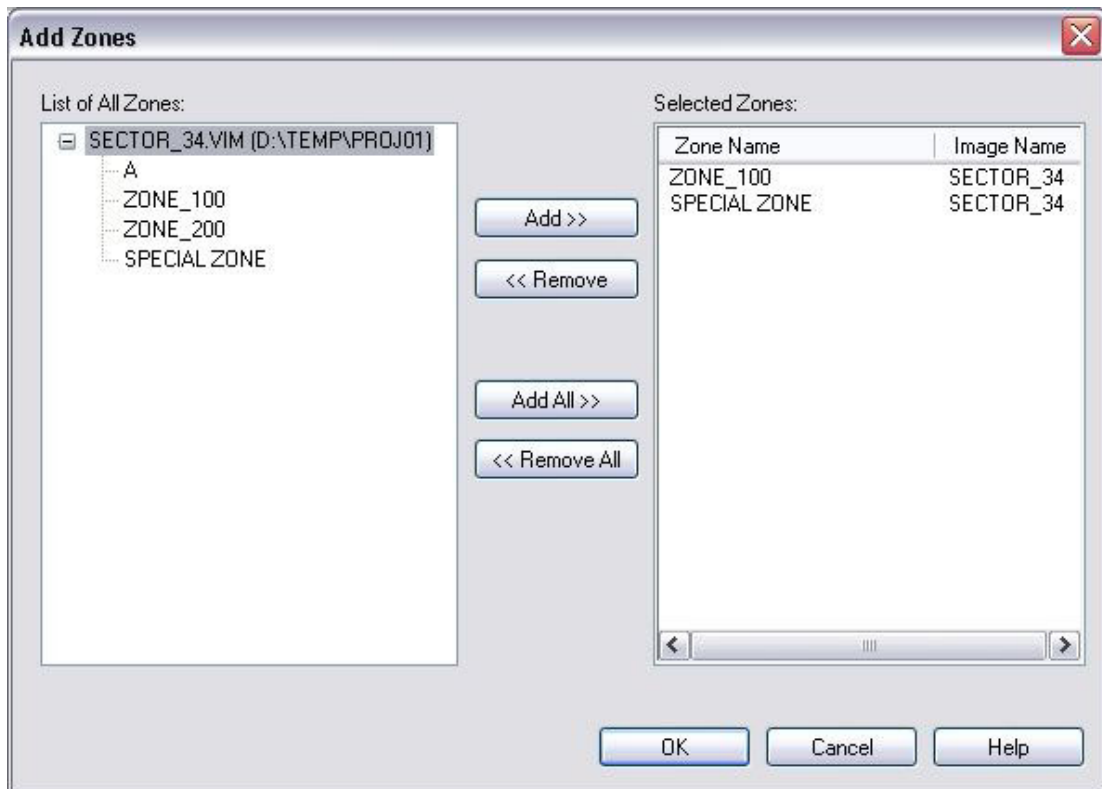
The New Zone Navigator dialog box has the following fields:

- | | |
|---------------------|--|
| Name: | Unique Zone Navigator name. This can be up to 60 characters including spaces. |
| Description: | Unique description of the Zone navigator. This can be up to 256 characters, including spaces |
| Enable Tag Control: | This checkbox when checked enables definition of an analog tag that will indicate Zone Navigator status. |
| Station: | Indicating the station from which the Tag is selected. |

Tag:	Indicating the Zone Navigator Tag.
List all Selected Zones:	Displays a list of all selected zones. This list has three columns: Zone Name, Image Name and Control Tag.
Add:	This button when clicked opens the Add Zones dialog box which displays a list of defined zones which can be added/removed to the List all Selected Zones.
Delete:	This option when clicked deletes a selected zone from the List all Selected Zones.
Move Up	This button when clicked moves a selected line in the List of All Selected Zones up a row.
Move Down	This button when clicked moves a selected line in the List of All Selected Zones down a row.
Window Properties:	The following fields define the zone's behavior on the operator's workstation:
Automatically close window after (Sec):	This option defines that the window will automatically close after the indicated number of seconds.
Always Select before Opening:	This checkbox when checked defines that this window will be displayed on top of other opened windows.
Always select before opening:	This checkbox when checked indicates that the user will jump to the zone only after selecting to view it when the alarm is received.
Open in existing window:	This checkbox when checked indicates that zones will be opened in the same image window, even when they belong to a different image window than the currently opened one. When unchecked, each zone will be opened in the image file in which it was defined.

- To Add zones to the Zone Navigator:

Click the Add button to open the Add Zones dialog box:



This dialog box has the following fields:

List of All Zones	This displays a list of all defined zones in the application.
Selected Zones	This displays a list of the zones selected from the List of All Zones.
Add/Add All	Click these buttons to either add a selected zone to the Selected Zones list or click Add All to add all the zones to the list.
Remove/Remove All	Click these buttons to either remove a selected zone from either lists or click Remove All to remove all the zones from the list.

Zone Navigator

Zone Navigator Overview

Zone Navigators Overview

The Zone Navigator is a global, multi-image zone navigation window that enables you to quickly and efficiently navigate through a list of zones defined in your application's various image files.

Using the Zone Navigator window you can define a number of navigators each of which can contain a number of zones from one or more different image files.

The Zone Navigator can be applied on images through triggers of type Button and Action, or by configuring a macro of type Action using the ZoneNavigation action macro.

To indicate a zone's status, you can attach a digital tag representing the zone's status to each zone navigator. If the tag value is set to 1 the Zone Navigator status will be BAD, if set to 0 the Zone Navigator status will be GOOD. You can also define the color in which zones defined with a control tag that have BAD status will be displayed in the run-time Zone Navigator window.

To open the Zone Navigators window

Double click the Zone Navigators icon on the Application Studio Control panel

Or

Select Zone Navigators from the Application Studio Design menu.

The Zone Navigator dialogbox has the following fields:

List of Zone	the list displays all the zone navigators you defined. Each navigator is identified by a unique name and a general description.
New	Click this button to add a new Zone Navigator. For more details on adding zone navigators, refer to Adding Zone Navigators.
Modify	Click this button to modify the selected zone navigator. For more details on modifying zone navigators, refer to Modifying Zone Navigators.
Delete	Click this button to delete the selected zone navigator.
Define Color	Click this button to open the Color dialog box where you can define the color indicating zones status. For more details on defining the zones color, refer to Defining Zones Status Color.

How to

Adding New Zone Navigators

Adding a Zone Navigator consists of two steps:

1. Defining the Zone Navigator parameters.
2. Attaching zones defined in your images to the Zone Navigator.

To add a new zone navigator

1. Click the New button in the Zone Navigators dialog box to open the New Zone Navigator dialog box.
2. Enter a unique name for the Zone Navigator in the Name field. The name can be up to 60 characters, including spaces.
3. Type a general description for the Zone Navigator in the Description field. The description can be up to 256 characters, including spaces.
4. Define the various Zone Navigator window properties.

Always on top - select this checkbox to display this window on top of any other opened windows.

Close after - define the time (in seconds) after which the Zone Navigator window will be closed.

Always select before opening - when checked you can go to a zone only when selected.

Open in existing window - when checked zones will be opened in the same image window, even when they belong to a different image window than the currently opened one. When unchecked, each zone will be opened in the image file in which it was defined.

5. Select the Control tag checkbox, if you want to use a digital tag to indicate the zone navigator status:

At run-time, if the digital tag value is 1, the zone navigator status will be BAD, if set to 0, the zone navigator status will be GOOD.

Station - select the station from which you want to select a tag.

Tag - select the tag you want to use from the drop-down menu, or click the browse button to open the Tag Definition dialog box.

Modifying Zone Navigators

You can modify all the zone navigator parameters, except its name.

To modify a zone navigator

1. Open the Zone Navigator dialog box by clicking the Zone Navigators icon in the control panel, or by selecting Zone Navigators from the studio Design menu.
2. Select the zone navigator you want to modify from the list of zone navigators.
3. Click the Modify button, or double click the selected zone navigator to modify its parameters.

The Zone Navigator dialog box is opened with the Name field grayed.

4. Modify the various zone navigator parameters as described in the Adding New Zone Navigators topic.

Defining Zones Status Color


To indicate a zone's status, you can attach a digital tag representing the zone's status to each zone. If the tag value is set to 1 (true), then there is a problem in this zone, and the zone will be drawn in a special, predefined color when displayed in the Zone Navigator. The default color is red.

To define zones status color


1. Click the Define Color button in the Zone Navigators window. A standard color dialog box is opened.
2. Select a color from the color pallet, or click the Define Custom Colors for other colors.
3. Click OK when done.

Attaching Zones to the Zone Navigator

To attach zones to the Zone Navigator

1. Click the **Add** button to display the Add Zones dialog box.
2. Select an image name from the list of images on the left. You can click the + sign to the left of each image name to view all the zones in the selected image.
3. Click the  button to add the selected zones to your Zone Navigator. The selected zones are displayed in the list of selected zones on the right.
4. Click the Add All button to add all the zones to the Zone Navigator (note that if you do not expand the image file to view its zones and you click the add arrow, all the zones will be added as well).

To remove zones from the list of selected zones

1. Select the zone you want to remove from the list.
 2. Click the  button to remove the selected zone/s from the list.
- Or, to remove all the zones, click on the Remove All button.

Activating the Zone Navigator

Once created, the Zone Navigator can be called at run-time, to enable easy navigation through your application various zones.

To do so, follow these steps:

1. Define a zone navigator that includes a collection of all the application zones you want to navigate through at run-time.
2. Configure a trigger of type Button or Action or an Action Macro using the action Zone Navigation to activate the zone navigator.

3. Open your application image containing the trigger and click the trigger you configured to open the zone navigator window, or click the accelerator defined for opening the zone navigator:

The Zone Navigator window contains the following components:

- Title bar displaying the Zone Navigator name.
- General information displaying the number of zones in this navigator and the navigator status (good or bad).
- A list view displaying the zones contained in this navigator, including: zone name, image name and control tag (if defined).
- In addition, you can use the filtering capability to view zones by entering a text in any of the list view fields.

To navigate through the various zones

1. Select (click) the zone you want to go to from the list of zones.
2. Click the Go To button. The image file containing the zone you selected is opened in the position and the zoom level defined by the zone.

Or,
Double click the selected zone.

Zone Navigation Action Macro

Use this action macro to invoke a zone navigator at run-time.

Take the following steps to configure a macro invoking a zone navigator at run-time:

1. Select Macros from the application studio Design menu, to open the Macro Definition dialog box.
2. Click the Action button and select Zone Navigation from the drop-down menu.
3. Click the Parameters button and type the Zone Navigator name, or click the Browse button to open the Zone Navigators window, where you can select one of the navigators you defined, or create a new zone navigator.
4. Click OK when done.

Repaint

This option when select redraws the current image. This is useful to view the results of editing operations, if they do not immediately appear on the screen, or to remove undesirable residues that may remain on the screen after editing.

- To repaint an object:

Select the Repaint option from the Options menu.

Or,

Click the  button on the Image scroll bar.

Options Repaint

Select this item to redraw the current image.

This is useful to view the results of editing operations, if they do not immediately appear on the screen, or to remove undesirable residues that may remain on the screen after editing.

To Repaint

Select the Repaint option from the Options menu.

OR

Press the r button from the Image scroll bar.

Window

A window zoom is defined by marking a window in an image. This is later used as the window. This zoom enables the operator to define what is to be included in the window.

- To zoom in to a specific part of the image:
 1. Click on any location in the image to define the start and end points of the image section you want to zoom in on.
 2. Click in the outlined box, or, click the button on the Image scroll bar.
 3. To move an outlined box, position your cursor on a box border (a multiple arrow cursor appears), click, and drag the box to the new position.
-

Options / Window

Select this item to zoom in to a specific part of the image.

A window zoom is performed by marking a window in the image to be used later as the window. This zoom enables the operator to define what is to be included in the window.

To zoom in to a specific part of the image:

1. Click on any location in the image to designate the starting point of the portion of the image you want to zoom in on.
2. Click on the place where you want the end of the image portion to be.
3. Click in the outlined box.

OR

Press the w button located in the Image scroll bar.

To move an outlined box, place the cursor on a box border (a multiple arrow cursor appears), click, and drag the box to the new position.

Options / Window

Select this item to zoom in to a specific part of the image.

A window zoom is performed by marking a window in the image to be used later as the window. This zoom enables the operator to define what is to be included in the window.

To zoom in to a specific part of the image:

1. Click on any location in the image to designate the starting point of the portion of the image you want to zoom in on.
2. Click on the place where you want the end of the image portion to be.
3. Click in the outlined box.

OR

Press the w button located in the Image scroll bar.

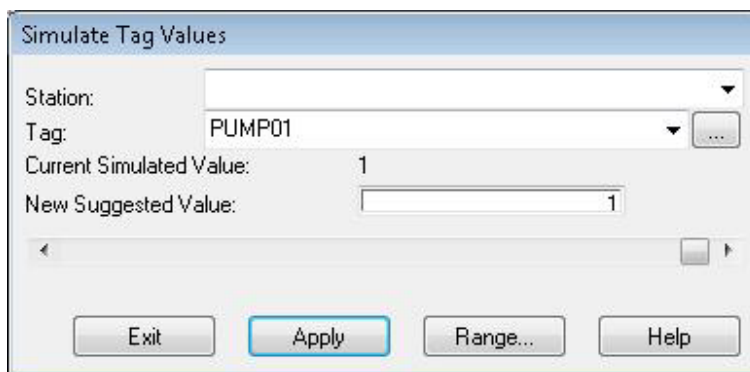
To move an outlined box, place the cursor on a box border (a multiple arrow cursor appears), click, and drag the box to the new position.

Simulate

This option opens the Simulate Tags dialog box, which is used to specify tag values and simulate them for test purposes. After dynamic objects are defined, the operator can test an object's response to different tag values using an application mechanism that simulates tag values without affecting the tag itself.

- To simulate tag values:

1. Select Simulate from the Options menu. The Simulate Tag Values dialog box opens.



2. In the Station field click the arrow to open the dropdown list and select the tag station.
 3. In the Tag field click the arrow to open the dropdown list or click the Browse button to select the relevant tag.
 4. In the New Suggested Value field type in a value.
 5. To set the value is click the Apply button, or, use the horizontal scroll bar to immediately set and simulate the specified value.
 6. Click the Range button to specify the upper and lower range limits of the tag value to be simulated.
 7. Click the Exit button to quit the dialog box and leave the last set value.
-

Force Zone Dyn Show

This option when selected causes a dynamic object in an image to appear even if the object is hidden.

- To define Force Dynamic show

Select an object from the view and then select Force Dyn. Show from the Options menu, right click an object to open a popup menu and then select Dynamic Definition or, click the Force Dynamic Show icon from the Image Main Menu.

Mark Trigger

Note: Mark Triggers is not supported on the Web.

Triggers can be marked in Edit mode during image design. When this option is selected all trigger objects in the window are marked (or unmarked) on the screen. After selecting the Mark Triggers option, a red hand will appear in all the trigger objects in the image. The Mark Triggers function will apply to any trigger object.

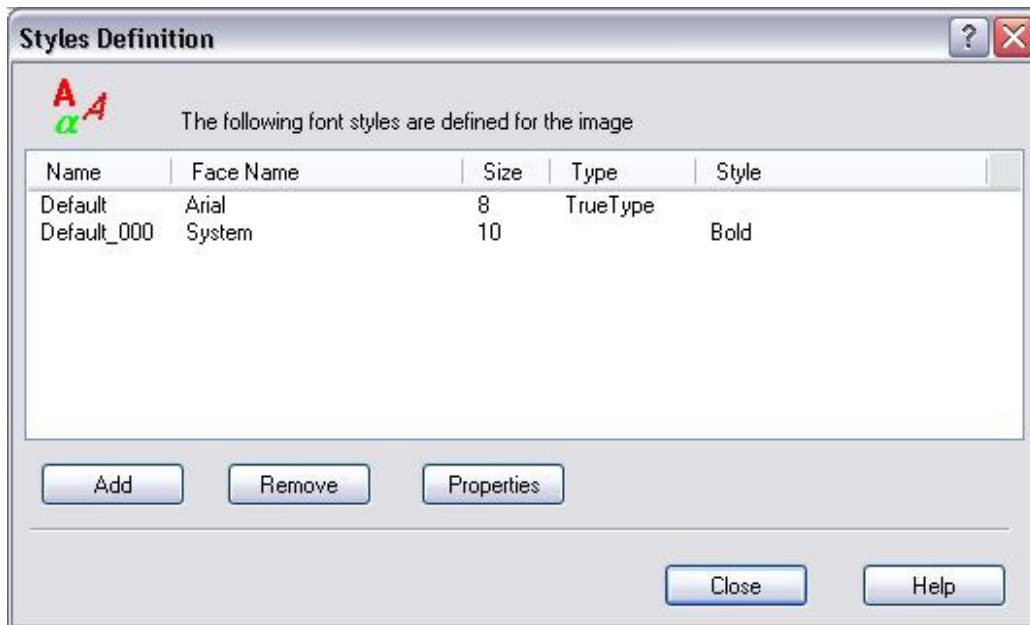
Note: If an object is marked (with a red hand) to indicate that it is a trigger object, but is dynamically or manually transformed (moved, rotated, scaled, etc.), the trigger mark may disappear or will not appear in its proper location. If this occurs, you can refresh the screen by pressing <Alt-R>.

Styles Definition

This option is used to define the image text style.

- To define text font style:

1. Select Styles Definition from the Options menu. The Styles Definition dialog box opens.



2. Click the Add button to open the Style Properties dialog box where you can define the new style properties.
3. To change the definition of an existing style select a style from the list click the Properties button to open the Style Properties dialog box. Change the style attributes: size and effect and click the OK button.
4. To Remove a style, select a style from the list and click the Remove button.

Options Menu

The Options Menu

The Option menu offers the following features:

AutoWindow Select this item to automatically set the image window position and zoom level, so that all image objects in the window will be arranged properly.

Goto Select this item to cause the window to jump to a position and zoom level that you specify in the dialog box that appears.

Goto Zone Select this item to cause the window to jump to an existing zone.

Zones Definition Select this item to define Zones.

Repaint Select this item to redraw the current image.

Window Select this item to zoom in to a specific part of the image.

Simulate Select this item to simulate variations of tag values and observe how the image is affected by each value.

Force Dynamic Show Select this item to cause a dynamic object in an image to appear, even if according to a Drum or Show filter (both defined in the Dynamic Parameters dialog box), the object is hidden.

Mark trigger Select this item to cause all trigger objects in the Window to be marked (or unmarked) on the screen.

Styles definition Select this item to define the fonts you want to use for image text objects.

Options / AutoWindow

Select this item to automatically set the image window position and zoom level, so that all image objects in the window will be arranged properly.

This function can also be performed by clicking on the a button on the left side of the image window.

Options / Goto

This dialog box is used to enter the coordinates of the location to which you want to jump to in the image. You can jump to any position in the image, whether or not that position is defined as a zone.

To jump to a specific position in the image window

1. Select Goto from the Options menu. The Goto dialog box appears.
2. Enter a **scale** level between 1 and 2048.
3. Enter the X and Y coordinates, in drawing units.

Options / Goto Zone

The Goto Zone dialog box enables you to easily jump to any of the zones you defined.

To jump to a specified zone in an image:

1. Select the Goto Zone item from the Options menu, or click the Goto Zone icon from the main menu. The Goto Zone dialog box is displayed.
2. Select the zone you want to jump to and click the OK button, or double click the zone you wish to jump to. The image window will immediately be centered on the zone's central point and the zoom level will be adjusted to the level defined for that zone.

Note that a pre-defined zone called Previous Zone is included in the zone list. This zone appears as the character <<<. You can goto this zone the same way as any other zone. However, if there is no zone to return to, the previous zone item will be disabled.

Defining Zones

A Zone is a pre-defined position and zoom level in the image that can be jumped to, by selecting the Goto Zone item in the Options menu.

○ How to define a Zone?

1. Select Zones Definition item from the Options menu. The Zone Definition dialog box opens.
2. Type a unique name for the zone in the Name box.
3. Enter the X and Y coordinates, in drawing units, to define the zone center in the image window.
4. Enter a **scale** level between 1 and 2048.
5. Select the Control tag checkbox if you want to use a digital tag to indicate the zone status.

At run-time, if the digital tag value is 1, the zone status will be BAD; if set to 0, the zone status will be GOOD.

Station - Select the station from which you want to select a tag.

Tag - select the tag you want to use from the drop-down menu, or click the browse button to open the Tag Definition dialog box.

6. Choose a Context through 'Context Name' combo box that will be applied to objects that use tag template Ids. This context is optional. You do not have to select it if you do not need one

7. Click the Add button to add the zone. The new zone is displayed in the list.

8. Click Save to save the zone definition and exit the dialog box.

- To modify a defined Zone parameters:

1. Select (click) the zone you wish to modify.

2. Change the selected zone parameters in the various dialog box fields, as applicable.

3. Click the Change button. The zone properties displayed in the list of zones are modified.

- To remove a zone:

1. Select (click) the zone you wish to remove.

2. Click the Delete button.

Options Repaint

Select this item to redraw the current image.

This is useful to view the results of editing operations, if they do not immediately appear on the screen, or to remove undesirable residues that may remain on the screen after editing.

To Repaint

Select the Repaint option from the Options menu.

OR

Press the r button from the Image scroll bar.

Options / Window

Select this item to zoom in to a specific part of the image.

A window zoom is performed by marking a window in the image to be used later as the window. This zoom enables the operator to define what is to be included in the window.

To zoom in to a specific part of the image:

1. Click on any location in the image to designate the starting point of the portion of the image you want to zoom in on.
2. Click on the place where you want the end of the image portion to be.
3. Click in the outlined box.

OR

Press the w button located in the Image scroll bar.

To move an outlined box, place the cursor on a box border (a multiple arrow cursor appears), click, and drag the box to the new position.

Options / Simulate

This dialog box is used to specify tag values that you want to simulate for testing purposes. After dynamic objects are defined, the operator can test an object's response to different tag values using an application mechanism that simulates tag values without affecting the tag itself.

When you simulate values, the field device will not be affected.

To simulate tag values

1. Select Simulate from the Options menu. The Simulate Tag Values dialog box is displayed.
2. Select the station to which the tag belongs.
3. Select the tag you want to access.
4. Enter the tag value to be simulated in the New Suggested Value field. The current tag value is displayed in the Current Simulated Value field. The value is set by clicking the Apply button.

OR

Use the horizontal scroll bar to immediately set and simulate the specified value.

5. Click the **Range** button to specify the upper and lower range limits of the tag value to be simulated.
 6. Click the Exit button to quit the dialog box and leave the last set value.
-

Options / Force Dyn. Show

Select the Force Dynamic Show item to cause a dynamic object in an image to appear, even if according to a Drum or Show filter (both defined in the Dynamic Parameters dialog box), the object is hidden.

To define Force Dynamic show

1. Select an object from the view
2. Select Force Dyn. Show from the Options menu.

OR

1. Select an object from the view.
2. Click it with the right mouse button
3. Select the Dynamic Definition from the popup menu.

OR

Press the Force Dynamic icon from the Image Main Menu.

Options Mark Trigger

Note: Mark Triggers is not supported on the Web. You can mark triggers in Edit mode, while developing your image.

Select this item to cause all **trigger objects** in the Window to be marked (or unmarked) on the screen.

After you select Mark Triggers, a red hand will appear in all the trigger objects in the image. The Mark Triggers function will apply to any trigger object.

Note, however, that if an object is marked (with a red hand) to indicate that it is a trigger object, but is dynamically or manually transformed (moved, rotated, scaled, etc.), the trigger mark may disappear or will not appear in its proper location. If this occurs, you can refresh the screen by pressing <Alt-R>.

Options / Styles Definition

This dialog box is used to define font styles for the image text.

To define a new style

1. Select Styles Definition from the Options menu of the Image Window. The Styles Definition dialog box opens
2. Click the Add button to open the **Style Properties** dialog box where you can define the new style properties.
3. Click the Close button when done.

To change the definition of an existing style

1. Select a style from the list
2. Click the Properties button. The Style Properties dialog box opens.
3. Change the style attributes: size and effect and activate the OK button.

To Remove a style

1. Select a style from the list
 2. Click the Remove button.
-

Modes Menu

Modes Menu

This menu sets the operating mode of the window. Several image windows can appear on the screen simultaneously enabling the operator to view and edit separate parts of the same or different images on the same screen. The different modes can be activated/deactivated by selecting/deselecting the relevant mode option.

Edit	The Edit is used for designing and editing an image. In this mode, an image can be viewed and edited.
Navigate	This option is used to move through an image workspace without editing the image. In this mode, the displayed image can only be viewed and not navigated or edited, though tag input can be performed if the operator is authorized to do so and the Trigger on mode has been activated.
Trigger On	When the Trigger mode is set to On, objects defined as Trigger objects can be used for tag input. When this mode is Off, no objects, even one defined as a Trigger object, can be used for tag input.
Copy On	When this option is selected transformations do not affect the original objects. For example, if an object is moved, both the original and the moved objects will remain on the screen (the object will be copied). If this mode is Off, when an object is moved, only the newly positioned object is moved.
Grid Setup	This option when selected opens the Grid Setup dialog box where you can select the grid unit types and coordinates, reference point to which all other points are relative and preview the defined grid.
Snap to Grid	When this option is On the cursor will move only from point to point on the grid, without skipping points. This mode can be activated to position objects accurately in the image.
Grid Show	When this option is selected a grid appears in the image window.

Edit

The Edit mode is used for designing and editing an image. In this mode, an image can be viewed and edited.

A check mark beside the Edit option indicates that it is active. Selecting the option again causes the system to revert the Monitor Mode.

In the Edit mode, all the image Window functions are present, including the Tools windows which contains the drawing and editing tools used to create and modify images. When the Edit Mode is activated, all the Tools available in the window will appear. The Tools window contains the object, the operation, the drawing and the color tools. In addition, the current coordinates of the location of the cursor in the image will appear in the title bar of the window (or in the caption of the icon, if it was minimized).

Note: If the Edit mode is activated without the Navigate mode, you will be able to edit the image, but not scroll, pan, or zoom in it.

- To access the Edit Mode:

Select Edit from the Modes menu.

Navigate

The Navigate Mode is used to move through an image workspace without editing the image.

In this mode, the displayed image can only be viewed and not navigated or edited, though tag input can be performed if the operator is authorized to do so and the Trigger on mode has been activated. The Tools window initially appears outside the Image Window, but can be moved to the new location.

If this mode is selected without the Edit mode, you will be able to scroll, pan, and zoom in the image, but not edit it.

In addition, if the Edit mode is not activated together with this mode, the Tools window will not appear.

- To enable the Navigation mode

Click the Navigate mode icon in the Image main menu.

Or,

Select Navigate from the Modes menu.

Trigger On

When the Trigger mode is set to ON, objects defined as Trigger objects can be used for tag input. When this mode is OFF, no objects, even those defined as a Trigger object, can be used for tag input.

When this mode is active, you can move from one trigger object to another by pressing the Tab key. To move in the reverse order, press the Shift and tab keys together. Note that you move from one object to another according to the order in which the objects were designed. To change the order, use the Z order tool. After you select this item, the cursor will appear as a white hand. When the hand is placed on a trigger object, it will turn red. In this mode, image objects designed for tag input (trigger objects) can be activated.

- To access the Trigger on mode:

Click the Trigger on icon on the Image Main Menu.

Copy On

The Copy On mode enables duplication of objects in Transform operations.

When the Copy On mode is activated, a transform operation will preserve the original object. When the Copy on mode is not activated, a transform operation will discard the original object (only the transformed object will remain).

- To toggle the Copy On mode:

Select Copy On from the Modes menu. A check beside the item indicates that it is active.

In addition to the Copy mode, the following methods can also be used to copy objects:

Grid Display

To make a grid visible or hidden, click on the grid tool from the Operations Toolbar.

You can also make the grid hidden or visible from the Image Modes Menu, Show Grid.

Grid Setup

A grid is an array of points superimposed on an image. It is used to accurately position objects in an Image.

A grid consists of the following elements:

Origin	The origin is the reference point that all other points are made relative to. The origin can be any point in an Image.
Step	The distance between adjacent grid points. Different values can be assigned for horizontal and vertical steps.
Snapping	The cursor can be made to move only in grid point steps. When the mouse is moved, the cursor will jump to the next grid point.

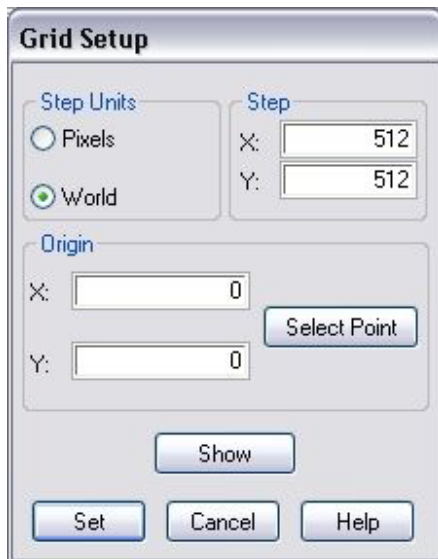
The following types of grids can be used:

World	The grid step is set to the Drawing Space: When the zoom level is changed, the visible distance between grid points also changes accordingly together with the other geometrical objects in the Image.
Pixels	The grid step is set to the screen pixels: Whatever the zoom level, the distance between the grid points remains the same, even though object sizes visibly change.

Grids can be made visible or hidden. The following sections describe the operations that are performed to create grids and set their attributes.

- To configure a grid:

Select Grid Setup from the Modes menu, or the Grid Setup button from the toolbar. The Grid Setup dialog is displayed:



The following options are available:

Step Units	Specifies the grid type, as follows: Pixels are Image grid type units. World are geometric grid type units.
Step	The grid step (in the respective units): X is the horizontal step. Y is the vertical step.
Origin	Used to enter the origin point X-Y coordinates.
Select Point	When this button is activated, the dialog will temporarily be suspended, and the operator can then indicate the origin point by clicking the left button in the window.
Show	When this button is activated, the grid is displayed on the Image to verify the setting. If the operator changes the setting and activates the button again, the old grid will be deleted and the new one will be displayed.

Defining Grid Parameters

Select the Grid Setup item to define a grid for the image.

A grid is a rectangular array of points that appears in the image background and can be used to place objects at exact coordinates in the image.

To define the image grid setup

1. Select Grid Setup from the Modes menu.

Or, Click the Grid Setup tool located on the main toolbar.

The Grid Setup dialog box opens.

2. Define the Grid step units type:

World - The grid step will be set to the drawing space, so that when the zoom level is changed, the visible distance between grid points also changes accordingly, together with the other geometrical objects in the image.

Pixels - The grid step is set to the screen pixels, so that whatever the zoom level, the distance between the grid points will remain the same, even though the object sizes visibly change.

3. Enter the grid step (in the respective units). X is the horizontal step and Y is the vertical step.

4. In the Origin section, define the reference point to which all other points are relative.

5. Click the Select Point button to select the origin point by clicking on a point in the image. The X and Y fields will indicate the point you selected.

6. Click the Show button to cause the grid to appear in the image immediately, according to the current configuration.

7. Click the Set button to save the grid configuration and exit the dialog box.

The grid origin is the reference point to which all other points are relative.

The term grid snapping refers to the movement of the cursor in the image, only in grid point steps (when the mouse is moved, or arrow key is pressed, the cursor will move to the next grid point.

Snap to Grid

- To toggle the Grid Snapping mode on and off:

Click the Snap to Grid tool in the Operations toolbox, or select Grid Snap from the Modes menu.

Grid Show

- To make a grid show or hidden:

Click on the Grid tool from the Operations toolbox, or select Grid Show from the Modes menu. A grid is displayed over the Image.

Modes Menu

The Modes Menu

Window modes (edit, navigate)

Select one of these items to set the operating mode of the window.

Several image windows can appear on the screen simultaneously: **Edit, Navigate** thus enabling the operator to view and edit separate parts of the same image, or different images, on the same screen.

Trigger on **When the Trigger mode is set to ON, objects defined as Trigger objects can be used for tag input. When this mode is OFF, no object, even one defined as a Trigger object, can be used for tag input.**

Copy On Select this item to toggle the Copy On mode on and off.

Grid Setup Select this item to define a grid for the image.

Grid Snap Select this item to toggle the Grid Snapping on and off.

Grid Show Select this item to make a grid visible or hidden.

Modes / Edit

Select this item to toggle the Edit Mode on and off.

The Edit mode is used for designing and editing an image. In this mode, an image can be viewed and edited.

To access the Edit Mode

Select Edit from the Modes menu. A checkmark beside the Edit item indicates that it is active. Selecting the item again causes the system to revert to the Monitor Mode.

In the Edit mode, all the image Window functions are present, including the Tools windows which contains the drawing and editing tools used to create and modify images.

When the Edit Mode is activated, all the Tools available in the window will appear.

The Tools window contains the object, the operation, the drawing and the color Tools. In addition, the current coordinates of the location of the cursor in the image will appear in the title bar of the window (or in the caption of the icon, if it was minimized).

*Note that if the Edit mode is activated without the **Navigate mode**, you will be able to edit the image, but not scroll, pan, or zoom in it.*

Modes / Navigate

Select this item to toggle the Navigate mode on and off.

Use the Navigate Mode to move through an image workspace without editing the image.

In this mode, the displayed image can only be viewed and not navigated or edited, though tag input can be performed if the operator is authorized to do so and the trigger on Mode has been activated.

The Tools window initially appears outside the Image Window, but can be moved to the new location,

To enable the Navigation mode

Press the Navigator Icon located in the Image main menu

OR

Select Navigate from the Modes menu.

If this mode is selected without the **Edit mode**, you will be able to scroll, pan, and zoom in the image, but not edit it.

In addition, if the Edit mode is not activated together with this mode, the Tools window will not appear.

Modes / Trigger On

Select this item to toggle the Trigger mode on and off to enable the use of Trigger objects with other modes.

When the Trigger mode is set to ON, objects defined as Trigger objects can be used for tag input. When this mode is OFF, no objects, even one defined as a Trigger object, can be used for tag input.

When this mode is active, you can move from one trigger object to another by pressing the Tab key. To move in the reverse order, press the Shift and tab keys together. Note that you move from one object to another according to the order in which the objects were designed. To change the order, use the Z order tool.

To access the Trigger ON tool

Press the Trigger On button located in the Image Main Menu. After you select this item, the cursor will appear as a white hand. Whenever the hand is placed on a trigger object, it will turn red. In this mode, image objects designed for tag input (trigger objects) can be activated.

Modes Copy On

Select this item to toggle the Copy On mode on and off.

To enable the Copy On mode:

Select Copy On from the Modes menu. In the Copy On mode, transformations do not affect the original objects. For example, if an object is moved, both the original and the moved objects will remain on the screen (the object will, in effect, be copied). If this mode is off, when an object is moved, only the newly-positioned object will appear.

Modes / Grid Setup

Select the Grid Setup item to define a grid for the image.

A grid is a rectangular array of points that appears in the image background and can be used to place objects at exact coordinates in the image.

Selecting Grid Setup opens the **Grid Setup dialog box** where you can select the grid step unit types and coordinates, the reference point to which all other points are relative. You can also preview your grid definition.

Modes / Grid Show

Select the Grid Show item to make a grid visible or hidden.

To enable the Grid Show option

Select Grid Show from the Modes menu.

Or,

Click the Grid icon on the Operations toolbar.

Modes / Snap to Grid

Select the Grid Snap item to toggle the Grid Snapping on and off.

When grid snapping is on, the cursor will move only from point to point on the grid, without skipping points.

This mode can be activated to position objects accurately in the image

To enable the Grid Snap option

Select Snap to Grid from the Modes menu.

Or

Click on the Snap to Grid icon in the Operations toolbar.

The Window Tools

The Align toolbar

The Align toolbar enables you to align two or more selected objects. They can be aligned to the Left, Right, Top, or Bottom. The objects can also be centered or resized Horizontally, Vertically or both.

The Colors toolbar

The Color toolbar includes 32 colors for background and foreground color of objects. Left click selects the foreground or the color while right click selects the background, or fill color.

Double-clicking either mouse button opens the color palette dialog, enabling you to customize any color.

The Image Drawing Tools

The **Drawings toolbar** is used to draw objects in an image. The application includes all the tools you need to create your own graphic objects. These tools are found in the Drawings toolbox and include the tools listed below. If you want to edit any of these shapes, you can use the Edit Operations Toolbar.

Select toolHLP_WZ2EDT_SELECT_TOOL

Filled Rectangle or Square

Unfilled Rectangle or Square

Filled Rectangle or SquareFilled_Rectangle_or_Square

Unfilled Round-cornered Rectangle or

SquareUnfilled_round_cornered_rectangle_or_square_tool

Filled Circle Tool

Unfilled CircleHLP_WZ2EDT_CIRCLE

Filled Ellipse Tool

Unfilled Ellipse

Filled Closed Arc Filled_Closed_Arc_tool

Unfilled Closed Arc Unfilled_Closed_Arc_Tool

Filled Orthogonal Polygon

Unfilled OrthogonalPolygonUnfilled_orthogonal_polygon_tool

Filled PolygonFilled_polygon_tool

Unfilled PolygonUnfilled_polygon_tool

Orthogonal Pipe

PipePipe_tool

Arc Arc_tool

Orthogonal Polyline Orthogonal_polyline_tool

PolylineHLP_WZ2EDT_POLYLINE

TextHLP_DLG_WZ2_TEXT

ButtonHLP_WZ2EDT_BUTTON_PROP

Insert Picture

To select a drawing tool

1. Click in the Drawings toolbar.
2. Click the tool you want to draw with.

The Drawings toolbar

The Drawings toolbar contains simple drawing objects such as Line, Pipe, Box, Text, and Circle. Both filled and unfilled objects can be selected. The selection, text tool and button are also included in this toolbar.

The Objects toolbar

The Objects toolbar allows you to define Image objects such as Alarm, Trigger, Dynamic, Cluster Definition, Group, Slider, Media and Scheduler

The Operations toolbar

The Operations toolbar includes Rotate, Pick color, Active Layer, Toggle Fill, Cluster library, Bring to Back, Bring to Front, Delete, Grids, Snap to Grids and Copy Attributes.

The Patterns and Gradient Toolbar

Note: Patterns and Gradient fills are not supported on the Web.

The Patterns toolbar contains 16 different fill patterns, including solid and transparent. The Image drawing patterns also support 32 gradient styles. The first color used for the gradient is the foreground color, while the last color used is the background color.

Gradient fills are supported for the following objects: Text, Filled Box - Circle, and Polygon. Pipes do not support Gradient fills.

Notes

1. *Gradients are not fully supported on Windows 98. Circles, ellipses and rounded rectangles will be drawn as rectangles.*
2. *In the ILS file the gradient pattern numbers run between 100 to 131 ordered by the above list.*
3. *Bitmap fonts are not effected by the Gradient.*
4. *After changing attributes of gradient objects, or moving from select mode, image may need refresh.*
5. *Performance may suffer when drawing large gradient surfaces with many steps. It is advisable that only static (background) object will be using the Gradient. Dynamic over Gradient is possible but performance may suffer. It is also advised to do development in low number of steps and later increase steps for run-time.*
6. *To set the gradient steps use Image Properties View or in the Witztune.dat file, manually set the tuning parameter IMG_GRAD_STEP= n). Valid values are between 2 to 255 – Default is 16. Re-enter Image.*
7. *Transparent color will have 'unknown' effect over fill.*
8. *The gradient is not affected from rotation or transformation. It is possible to rotate objects with Gradient but the Gradient orientation will not be rotated*
9. *Not supported on Web. Note that if patterns are used and then brought to the Web, the patterns turn to solid colors.*
10. *The gradient for a group works like for a pattern.*
11. *It is not possible to select Gradient fill type in Dynamic definition Fill Type range.*
12. *The gradient's center reference point for filled polygons, orthogonal polygons, and filled arcs is always calculated by the visible parts of the objects. Therefore, when you scroll and the*

object partially disappears from view, you will notice that the object's center point moves upwards away from the center.

Viewing

The Image Windows

Image windows are windows in which images are viewed and manipulated. Images are dynamic pictures through which control processes are monitored and supervised.

An Image window can operate in one of the following modes:

Monitor - In this mode, the image can only be viewed in the current window boundaries.

Tag value input through trigger objects is supported (if the operator is authorized to do so).

Navigate - In this mode, the image can only be scrolled, panned, and zoomed in and out.

Edit - In this mode, an image can be drawn, edited, and saved. When the Edit mode is invoked, an auxiliary window, called the Tools window, will appear beside the Image window. The Tools window contains editing tools that you can use to draw or modify an image.

The Image window modes can be activated by selecting a mode from the Modes menu.

Several Image windows can be opened simultaneously on the screen, each displaying parts of the same image, or different images.

In the Edit mode, each image has its own dedicated Tools window.

Selecting

Edit / Select

Use this option to select or deselect objects within the image.

You can choose to:

Select - select an object.

Deslect Last - deselect the last selected object.

Deselct All - deselect all selected objects.

Select Tool

To select an object

1. Click the select arrow.
 2. Click on the object you want to select.
 3. To select several objects, start from an empty point in the Image, press and hold left mouse button, drag a rectangle around the objects you wish to select.
 4. To add an object to existing selection, left-click the mouse button while holding down the Shift key.
 5. Handles (small squares) appear on the corners and sides of an object's highlighting box when the object is selected.
 6. Use the square handles to resize and transform an object. Click on a selected object and the handles change to arrows which then permit you to resize an object.
 7. To move selected objects, click inside the object or bound rectangle, for a group of objects and, while holding the mouse button down, drag the object to the desired location.
-

First selected object is marked with 8 hollow handles.

Deselect All

Select this option to deselect all the objects in the window.

Deselect Last

Select this option to deselect the last object that was selected in the window.

Select this item to set the a new font style

Image Operation

Moving Objects

The move operation is used to move objects from one location to another. As opposed to the move operation described in the section called Selection, this move operation is useful for long distance moving (from zone to zone, area to area, etc.), since the mouse button does not have to be held down while dragging the object.

To move an object:

1. Select one or more objects.
 2. From the Edit Menu Operations click the move option.
 3. Click on the left mouse button. The cursor changes to a bi-directional arrow.
 4. Click the left button on a starting point.
 5. Move the frame of the object(s) to the desired location and click the left button.
 6. Clicking the right mouse button sets the object automatically to select mode and cancels the move operation.
-

Rotating Objects

The Rotate Operation lets you turn an object or group of objects clockwise or counter clockwise.

To Rotate an Object

1. Select an object.
2. Select Operations from the Edit menu, then select the Rotate option; or select the Rotate tool from the Operations toolbar.
3. Click the left button on the rotation pivot and see the skewing handles.
4. Move the frame of the object around the pivot until the object is rotated to the desired orientation and click the left button.

Once a starting point for the Rotate operation has been established, click the right button to cancel the last part of the operation. When no starting point has been established, the right button can be used for single object selection.

Note: *Ellipses cannot be rotated sideways (slanted).*

Bring to Front

The Bring to Front option allows you to place objects in the front of your image. You can change the way objects overlap or lie by shifting the object to the front. Objects are placed with the first object you created on the bottom and the last object you created on top. You can shift the order of the objects by using the Bring to Front option or Send to Back option.

To Bring the object to the front

- 1 Select drawing object you want to bring to the front.
2. From the Edit menu select Operations, then Bring to Front. The selected drawing object is placed in front of other overlapping objects.

Or,

Click the Bring to Front tool on the Operations toolbar.

Send to Back

The Send to Back option allows you to place objects in the back of your image. You can change the way objects overlap or lie by shifting the object to the back. Objects are placed with the first object you created on the bottom and the last object you created on top. You can shift the order of the objects by using the Bring to Front option or Send to Back option.

To Send the object to the back

1. Select the drawing object you want to send to the back.
2. From the Edit menu select Operations then Send to Back.

The selected drawing object is placed in back of other overlapping objects.

Or,

Click the Send to Back tool on the Operations toolbar.

Changing Color

The Change Color operation allows you to select a different color for your drawing objects.

To Change Color

1. Select the drawing tool of your choice.
 2. From the Color select a color.
 3. Highlight your drawing object.
 4. From the Edit menu click Operations, then click on the Change color option. The object is drawn with the selected color.
-

Cancel Override Color

The Cancel Override Color option enables you to return to the original or default colors you chose for your objects, after modification.

To cancel override color

1. Draw the objects with your choice of colors and Group them.
 2. Modify your objects colors.
 3. If you wish to return to the original color selection click on the Operations Menu Cancel Override Color and your objects keep their original colors.
-

Cancel Override Pattern

The Cancel Override Pattern option enables you to return to the original or default patterns you chose for your objects, after modification.

To cancel override pattern

1. Draw the objects with your choice of patterns and Group them.
2. Modify your objects patterns.
3. If you wish to return to the original pattern click on the Operations Toolbar Cancel Override Pattern and your objects keep their original patterns.

Color

Pick Color Tool

Click on the Pick Color tool in the Operations Toolbar for filling or drawing objects with the exact color used in a different object.

The Pick Color Tool lets you sample colors from an area of an image to designate a new line color or fill color.

To select the line or fill color using the Pick Color tool

1. Select the drawing tool.
2. Select the Pick Color tool, then place the dropper icon on any point in the image over the desired color.
3. Draw your new object and the object fills with the selected color.

Or

1. To select a new line color from the Color Toolbar, left click the mouse button on the color you want.
2. To select a new fill color from the Color Toolbar, right click the mouse button on the color you want.

Toggle Fill

The Toggle Fill operation is used to fill and empty objects. The Toggle Fill tool operates as a toggle.

Note that when an object is unfilled it still retains its fill attribute, which can be restored at any time.

To use the Toggle Fill Tool

1. Select an object.
2. Click the left mouse button on the Toggle Fill tool in the Operations Toolbar.

Or

From the Edit Menu, select Operations, then click on the Toggle Fill option.

The Colors toolbar

The Color toolbar includes 32 colors for background and foreground color of objects. Left click selects the foreground or the color while right click selects the background, or fill color.

Double-clicking either mouse button opens the color palette dialog, enabling you to customize any color.

Changing Color

The Change Color operation allows you to select a different color for your drawing objects.

To Change Color

1. Select the drawing tool of your choice.
 2. From the Color select a color.
 3. Highlight your drawing object.
 4. From the Edit menu click Operations, then click on the Change color option. The object is drawn with the selected color.
-

Edit/Get Colors and Save Colors

The application enables you to get colors, i.e., import a color palette, or save colors, which means saving the colors you defined in your image file.

The *.pal file contains the 16 toolbox colors as well as the additional 16 custom colors from the color dialog box. Once you define or customize your colors you can save them in a *.pal file. To retrieve or *get* the colors you have saved, use the Get Colors option.

To retrieve colors from a saved color palette

Select Get Colors from the Edit menu.

The Open dialog box opens, where you can select the colors from a *.pal file.

To save a color palette

Select Save Colors from the Edit menu.

The Save As dialog box opens, where you can save your colors to a *.pal file.

*Note: If the image file name and *.pal file name are the same, the *.pal file is loaded automatically. The user can continue to work with his customized palette every time he opens an image.*

Edit / Get Colors and Save Colors

The application enables you to get colors, i.e., import a color palette, or save colors, which means saving the colors you defined in your image file.

The *.pal file contains the 16 toolbox colors as well as the additional 16 custom colors from the color dialog box. Once you define or customize your colors you can save them in a *.pal file. To retrieve or *get* the colors you have saved, use the Get Colors option.

To retrieve colors from a saved color palette

Select Get Colors from the Edit menu. The Open dialog box opens, where you can select the colors from a *.pal file.

To save a color palette

Select Save Colors from the Edit menu. The Save As dialog box opens, where you can save your colors to a *.pal file.

*Note: If the image file name and *.pal file name are the same, the *.pal file is loaded automatically. The user can continue to work with his customized palette every time he opens an image.*

Cancel Override Color

The Cancel Override Color option enables you to return to the original or default colors you chose for your objects, after modification.

To cancel override color

1. Draw the objects with your choice of colors and Group them.
2. Modify your objects colors.
3. If you wish to return to the original color selection click on the Operations Menu Cancel Override Color and your objects keep their original colors.

Edit / Set Background Color

The Set Image Background feature enables you to set the image background color.

To set the Background color

1. Go to Image menu, select the Edit Option and there the Set Background color.
2. Select a color, press OK and the background of your image will display the color you chose.

OR

Press the Set Background Color Icon from the Image main menu.

Drawing Options

Edit / Drawings

The Drawings sub-menu enables you to draw and add text in your Image by using the **Polyline, Box, Circle, Pipe, Text and Pick color** tools.

The Drawings sub-menu also includes the Widget option. The Widget option holds the **Slider, Media Player and Scheduler** options. The Drawings Menu also includes the Button to enable the application to contain a trigger object that has the same look and feel as a Windows button

See also the Drawing toolbar

Drawing in the Image

You can design, draw or modify your application by selecting the appropriate tools in the Image. The Drawings toolbar contains simple drawing objects such as Line, Pipe, Box, Text and Circle. You can draw both filled and unfilled objects. You can also assign text to your image by using the text tool.

Drawing shapes

1. From the Shape tools select a drawing tool.
2. In the Image area press and hold down the left mouse button.
3. Start drawing by moving the mouse around, the shape outline you selected is being drawn as you move.
4. Finish drawing by releasing the mouse.

Notes:

1. After drawing you remain in the selected tool; note that the object is not selected.
2. To change colors of selected object select new color in the color toolbar.
3. Clicking the right mouse button sets the object automatically to select mode and cancels the continuity of the last operation.
4. Double-click on Object toolbar as Trigger, Alarm, Slider, Media or, Dynamic open its definition dialog.

Object Selection/Deselection

Choose the Selection Tool to select any object (for size or move operations).

1. To select several objects, start from an empty point in the Image, press and hold left mouse button, drag a rectangle around the objects you wish to select.
2. You add an object to existing selection by left-clicking the mouse while holding down the Shift key.
3. Deselect objects by pressing left mouse button on empty space of Image.
4. To deselect last used menu item Edit Select Deselect last.
5. Clicking the right mouse button sets the object automatically to select mode and cancels the move operation.

Aligning Objects

Whenever you select more than one object, one of the selected objects is marked with 8 hollow handles. These handles cannot be used to move or resize the object, their sole purpose is to mark the object.

The marked object is the first object selected. Whenever you use an alignment tool (any of the 10 alignment tools), all objects are aligned or resized according to the position or size of the marked object.

To make another object the marked or first object

1. Deselect all (through the menu or by clicking an empty spot)
2. Select the desired object, by clicking it.
3. Add the other objects to the selection by holding the shift key pressed while selecting. This works with both single select (click) and multi-select (drag).

Moving/Scaling

1. Scale by selection of object and handles
2. To move an object press left mouse button down on object and drag

3. To copy object move/scale it with Ctrl key pressed.

Object Sensitive Menus

1. Press the right mouse button on any object in the Image. The object is selected and a pop up menu appears.
 2. For general Image menu click in empty space in the Image. The pop up menu deselects previously selected objects.
-

The Image Drawing Tools

The **Drawings toolbar** is used to draw objects in an image.

The application includes all the tools you need to create your own graphic objects. These tools are found in the Drawings toolbox and include the tools listed below. If you want to edit any of these shapes, you can use the Edit Operations Toolbar.

Select tool!HLP_WZ2EDT_SELECT_TOOL

Filled Rectangle or Square

Unfilled Rectangle or Square

[Filled Rectangle or Square](#)Filled_Rectangle_or_Square

[Unfilled Round-cornered Rectangle or](#)

[Square](#)Unfilled_round_cornered_rectangle_or_square_tool

Filled Circle Tool

[Unfilled Circle](#)HLP_WZ2EDT_CIRCLE

Filled Ellipse Tool

Unfilled Ellipse

[Filled Closed Arc](#) Filled_Closed_Arc_tool

[Unfilled Closed Arc](#) Unfilled_Closed_Arc_Tool

Filled Orthogonal Polygon

[Unfilled Orthogonal Polygon](#)Unfilled_orthogonal_polygon_tool

[Filled Polygon](#)Filled_polygon_tool

[Unfilled Polygon](#)Unfilled_polygon_tool

Orthogonal Pipe

[Pipe](#)Pipe_tool

[Arc](#) Arc_tool

[Orthogonal Polyline](#) Orthogonal_polyline_tool

[Polyline](#)HLP_WZ2EDT_POLYLINE

[Text](#)HLP_DLG_WZ2_TEXT

[Button](#)HLP_WZ2EDT_BUTTON_PROP

Insert Picture

To select a drawing tool

1. Click in the Drawings toolbar.
2. Click the tool you want to draw with.

Arc Tool

To draw an arc

1. From the Drawings toolbar, click on the arc tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to end point.
 4. Release mouse button.
 5. Move the mouse to the desired radius point and left-click the mouse button.
- Note: Arcs are not supported on the Web.
-

Filled Closed Arc Tool

To draw a filled closed arc

1. From the Drawings toolbar, click on the filled closed arc tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to end point.
 4. Release mouse button.
 5. Move the mouse to the desired radius point and left-click the mouse button.
-

Filled Ellipse Tool

To draw a filled ellipse

1. From the Drawings toolbar, click on the ellipse tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to form the ellipse.
 4. Release mouse button.
-

Filled Orthogonal Polygon Tool

To draw a filled orthogonal polygon

1. From the Drawing Toolbar, click on the closed filled orthogonal polygon tool
2. Click the left mouse button on the start point.
3. Click the left mouse button on successive end points.
4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Filled Polygon Tool

To draw a filled polygon

1. From the Drawings toolbar, click on the filled polygon tool.
2. Click the left mouse button on the start point.
3. Click the left mouse button on successive end points.
4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Filled Rectangle or Square

To draw a filled rectangle or square

1. From the Drawings toolbar, click the filled rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Filled Round-cornered Rectangle or Square Tool

To draw a filled round-cornered rectangle or square

1. From the Drawings toolbar, click the round filled round-cornered rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

The Objects toolbar

The Objects toolbar allows you to define Image objects such as Alarm, Trigger, Dynamic, Cluster Definition, Group, Slider, Media and Scheduler

Orthogonal Pipe

Orthogonal pipes are connected rectangular segments in orthogonal directions. (vertical, horizontal, and at 45 degrees).

Orthogonal Pipe Tool

To draw an orthogonal pipe

1. From the Drawings toolbar, click on the orthogonal pipe tool.
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right mouse button to complete the operation.
-

Orthogonal Polyline

Lines drawn in orthogonal and diagonal directions (vertical, horizontal, and at 45 degrees).

Orthogonal Polyline Tool

To draw an orthogonal Polyline

1. From the Drawings toolbar, click on the orthogonal polyline tool
2. Click the left mouse button on the start point.
3. To connect lines, click the left mouse button on successive end points.
4. Click the right mouse button to complete the operation.

***Tip:** You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.*

Pipe Tool

To draw a pipe

1. From the Drawings toolbar, click on the pipe tool
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right mouse button to complete the operation.
-

Polyline Tool

To draw a Polyline

1. From the Drawings toolbar, click on the Polyline tool
2. Click the left mouse button on the start point.
3. To connect lines, click the left mouse button on successive end points.
4. Click the right mouse button to complete the operation.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Grid Display

To make a grid visible or hidden, click on the grid tool from the Operations Toolbar. You can also make the grid hidden or visible from the Image Modes Menu, Show Grid.

Defining Grid Parameters

Select the Grid Setup item to define a grid for the image.

A grid is a rectangular array of points that appears in the image background and can be used to place objects at exact coordinates in the image.

To define the image grid setup

1. Select Grid Setup from the Modes menu.

Or, Click the Grid Setup tool located on the main toolbar.

The Grid Setup dialog box opens.

2. Define the Grid step units type:

World - The grid step will be set to the drawing space, so that when the zoom level is changed, the visible distance between grid points also changes accordingly, together with the other geometrical objects in the image.

Pixels - The grid step is set to the screen pixels, so that whatever the zoom level, the distance between the grid points will remain the same, even though the object sizes visibly change.

3. Enter the grid step (in the respective units). X is the horizontal step and Y is the vertical step.

4. In the Origin section, define the reference point to which all other points are relative.

5. Click the Select Point button to select the origin point by clicking on a point in the image. The X and Y fields will indicate the point you selected.

6. Click the Show button to cause the grid to appear in the image immediately, according to the current configuration.

7. Click the Set button to save the grid configuration and exit the dialog box.

The grid origin is the reference point to which all other points are relative.

The term grid snapping refers to the movement of the cursor in the image, only in grid point steps (when the mouse is moved, or arrow key is pressed, the cursor will move to the next grid point).

Grouping and Ungrouping

Grouping objects combines two or more objects so you can work with them as though they were a single object. You can flip, rotate, and resize or scale all the objects in a group as a single unit. You can also change the attributes of all objects in a group at one time. For example, you can change the fill color to all objects in the group in a single step.

To Group Objects

1. Click the **select tool** and then drag to select the drawing objects you want to group.
2. Click the left mouse button on the Group tool in the Objects Toolbar.

Or

Click Operations from the Edit menu, then click on the Group option.

Or

By right clicking an object and selecting the Group option.

To UnGroup Objects

1. Select the grouped objects.
2. Click the right mouse button on the grouped objects and select the UnGroup option.

Or

Click Operations from the Edit menu, then click on the Ungroup option.

Or

By right clicking the grouped object and selecting the Ungroup option from the menu.

Options Repaint

Select this item to redraw the current image.

This is useful to view the results of editing operations, if they do not immediately appear on the screen, or to remove undesirable residues that may remain on the screen after editing.

To Repaint

Select the Repaint option from the Options menu.

OR

Press the r button from the Image scroll bar.

Unfilled Closed Arc Tool

To draw an unfilled closed arc

1. From the Drawing Toolbar, click on the unfilled closed arc .
2. Position the mouse pointer where you want to start drawing.
3. Drag to end point.
4. Release mouse button.
5. Move the mouse to the desired radius point and left-click the mouse button.

Unfilled Ellipse Tool

- To draw an unfilled ellipse
1. From the Drawings toolbar, click on the unfilled ellipse tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to form the ellipse.
 4. Release mouse button.
-

Unfilled Orthogonal Polygon Tool

- To draw an unfilled orthogonal polygon
1. From the Drawings toolbar, click on the unfilled closed orthogonal polygon tool
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

Tip: You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.

Unfilled Polygon Tool

- To draw an unfilled polygon
 1. From the drawings toolbar, click on the unfilled polygon tool
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

***Tip:** You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.*

Unfilled Rectangle or Square Tool

To draw an unfilled rectangle or square

1. From the Drawing toolbar, click the filled rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Unfilled Round-cornered Rectangle or Square Tool

- To draw a round cornered unfilled rectangle or square
 1. From the Drawings toolbar, click the round cornered rectangle tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Image Text

Text Tool

The Text Dialog Box is used to specify a plain string or numerical value that will be displayed whenever a specific tag value occurs.

To use the text tool

1. From the Drawings toolbar, click on the Text tool. The Text dialog box is displayed.
2. Type your text in the Text box.
3. Click one of the following buttons for further Text definitions:

Tag Value - click to define the attributes for the digital text object.

Text Table - click to define a plain string or numerical value that will be displayed whenever a specific tag value occurs.

Image Find Option

Using the find option you can find and Goto an object that matches the search text. This feature is available in Edit mode only. The Find command opens the Find dialog box while the Find next searches for the next occurrence of the last search string.

You can activate the Find option using the following keys:

Find: Ctrl F

Find Next: F3

In the Find in Image option you can do the following:

You can enter search strings up to 256 characters

Search options are common for all Image Windows.

Search Options

The following is a list of the search categories and their description you can select to search for:

Simple text.

Tag name - this includes tag names in Dynamic object, Tag Value, Trigger, Text table and Widgets.

Alarm family name - as defined in alarm object.

Trigger macro name - the name of the macro that a trigger activates.

Trigger zone name - the name of the zone that a trigger *goto*

Trigger button - any name in trigger button including title and legend on each button.

Cluster Instance - the instance name of a cluster.

Cluster library - the library name of cluster instance.

Cluster object - the cluster object name as appearing in the library.

Text table value - the current string value matches the search string.

String tag value - the current string tag value matches the search string

Notes:

1. For Text table and String tag the Simple text option must be also checked.
2. If searching for trigger zone or macro, then the search is also made in trigger buttons for such a match.
3. Options can be set independently from one of the other.

Other Search Options

Other search options give you control of the way the actual search is made.

Match case -- the search is made for full match of case of letters, otherwise, strings are compared ignoring the case.

Whole word -- the search is made to find the exact full text, all characters are accounted for, otherwise, the search is made to find the occurrence of the search string inside any text.

Only in visible view -- if this option is checked, the search is limited to the visible part of the Image inside the Window.

Other Advanced Search Options

Goto object -- if this option is checked the application will automatically navigate to the found object to bring it into the middle of the current Window; the scale will not be changed.

Always *Goto* object -- checking this option causes the application to navigate to the found

Smart Search -- checking this option will cause the search to be performed in a geometrical way. The Image is searched from 'left to right' in strips of the same size of the current open view. In many cases such search is more 'intuitive' especially if the Image is divided to zones with a corresponding layout.

If this option is not checked the search is simple, meaning that the search is by the order of objects in the Image, from the first object created to the last one.

Notification Message

If a search fails a notification message is displayed with the searched string.

Options / Styles Definition

This dialog box is used to define font styles for the image text.

To define a new style

1. Select Styles Definition from the Options menu of the Image Window. The Styles Definition dialog box opens
2. Click the Add button to open the **Style Properties** dialog box where you can define the new style properties.
3. Click the Close button when done.

To change the definition of an existing style

1. Select a style from the list
2. Click the Properties button. The Style Properties dialog box opens.
3. Change the style attributes: size and effect and activate the OK button.

To Remove a style

1. Select a style from the list
 2. Click the Remove button.
-

Style Properties

Use this dialog to define a new style or edit an existing style.

To define a new style:

1. Select the Styles Definition option from the Options Menu.
 2. Click the Add button. The Style Properties dialog box opens.
 3. Type the style name in the Style name field.
 4. Select the font from the Font list.
 5. Define the font attributes: size and effects (bold, italic, underline, strikethrough).
 6. Click OK to save your changes and return to the Font Styles Definition dialog box.
- The new style you defined now appears in the list of styles.

Note *that on the Web only Bold and Italic effects apply. The dialog box opens with Underlined and Strikethrough disabled.*

Using the Text Tool

- To use the text tool
1. From the Drawings toolbar, click on the text tool
 2. Enter text in the text dialog box.
 3. Press OK and the text will appear at the specified location on the screen.
-

The Fonts Toolbar

The Fonts toolbar allows you to set the text font style for any text object, simple, digital or text table.

This toolbar includes the font name, size, direction and different text effects.

The text can be bold, italic, underscored or strike through.

Modifying Text

Use this dialog box to modify a text object.

To modify a text object

1. Select the text object you want to modify.
2. Click the mouse right button and select Change Text from the popup menu displayed.

The Modify Text dialog box is displayed.

OR

Double click the selected object

3. Modify your text as applicable and click OK.
-

Text Table

Text Tables are used to associate tag values with pre-defined strings. Whenever a Text Table is defined and activated, a text string will be associated with the tag values that were defined in the Table. When a value changes, the corresponding string will be displayed. Each string table is stored in a separate file.

To assign text tables or create new ones:

Click the Text Table button in the Text dialog box.

If no text table exists, the New Text Table File dialog box opens where you can specify the name of the text table. If a text table file already exists, the Open Text table file dialog box appears. Select a file from the list, or activate the New button to invoke a dialog box in which you can enter the name of a new text table file.

After you specify the file you want to edit, the Text Table dialog box is displayed to specify the string-value relationship:

The following options are available:

Station Specifies the network station to which the tag belongs.

Tag Specifies the name of the tag.

Value Specifies the string display value.

Text Specifies the string for the value.

List Specifies the list of values and the strings defined for them.

Add Adds the value-string pair to the list.

Change Replaces the selected pair with the one specified in the entry boxes.

Delete Deletes the selected pair from the list.

Specify a tag name, the tag values, and their corresponding strings in the entry boxes, and add them to the list by activating the Add button. A value-string pair can be selected from the existing pairs list, placed in the entry boxes, and revised, by activating the Change button. When the Delete button is activated, the selected pair is removed from the list.

Special Cases:

If a tag value does not exist in the text table, the text field will be filled with Xs (xxxxxx).

If no text table file exists, number signs (#####) will appear in the field.

If a communication error occurred, asterisks (*****) will appear in the field.

If spaces are to be used in the string, enclose the string in quotation marks, for example, "The text".

Text table string files can be created or modified using your system editor. The format of this file is as follows:

Value String

5 "Cycle Starting ..."

20 "Cycle Completed !"

Note: Text Tables can also be used for Trigger objects when the String input method is active.

Other Topics

File / Delete

Select this item to delete an existing layout.

Design / Advanced Alarm Management / Channels

Select this item to open the Channels dialog box where you configure the communication lines used by **Application Advanced Alarm Management**.

Design / Advanced Alarm Management / Pager Services

Select this item to open the Paging Service Setup dialog box where you define the list of pager drivers you want to use and setup the specific parameters of each selected driver to be used by **Application Advanced Alarm Management**.

Design / Application Setup

A new concept is introduced with the Application - the Application Studio. The Application includes all relevant objects and files needed to run your application. To manage the Application you use the **Application Studio**.

Design / Authorization

Note: Not supported on the Web.

Select this item to configure the Application Authorization scheme.

In the Application, the system engineer can limit operator access to system facilities by assigning authorization groups. Only operators who are assigned with the proper authorization level will be able to use specific Application modules and perform specific Application actions.

When you select the Authorization item, a sub-menu will appear with additional items for you to select from.

1. 1. Select the **Users item** to define operators who will be able to log in to the system and use Application modules and functions.
 2. 2. Select the **Group Names** item to define names for authorization groups.
 3. 3. Select the **Menu Items** item to assign authorization groups to any menu item in the Application system.
-

Design / Authorization / System

Note: This option is available only for Windows NT/ 2000 users.

Select this item to access the Application security system.

The Application provides an additional system security by ensuring that users access only those parts of the system to which they have authorization.

Note: *The Application system security must be installed to enable this option. When the Application system security is installed, it replaces the standard Windows system control. The Application dialogs overwrite the Windows NT dialogs.*

Selecting this item opens the System Authorization Management dialog box where you can define the access permission to Application security system.

Design / Authorization / Groups

Note: *Not supported on the Web.*

Select this item to define names for Application authorization groups.

After you select this item, the Group Names dialog box will appear for you to define the names of groups. Once a group is defined, operators can be assigned to that group for authorization purposes.

Design / Authorization / Menu Items

Note: *Not supported on the Web.*

Select this item to assign authorization groups and users to any Application menu or menu item.

After you select this item, the **Menu Authorization** dialog box will appear with a list of menus for you to select from. The dialog box operates according to the expansion method, whereby each menu you select will automatically be expanded to display all the items in that menu. You can then select the groups that will have access to the item you want.

Design / Authorization / Users

Select this item to define the names of operators who will be able to log in to the system and use Application modules and functions.

After you select this item, the Users Setup dialog box will appear for you to define the users who will have access to the system. Each user is assigned a unique name and password, which must be specified upon system startup.

Design / Class Names

Select the Class Names item to assign class names for alarms.

Class names are assigned to alarms for filter purposes.

Any alarm class name you define, can be used later to filter alarms in the Events Summary or Pop-up Events Summary window.

After you select this item, the Alarm **User Class Names** dialog box will appear for you to enter the class names.

Design / DDE Client Definition

The application DDE client block mechanism allows the Application to receive many tag values from the server in on update message. This improves the communication between the Application and the DDE server. A common use for DDE client blocks is a setup in

which a DDE server updates at once a block of items that make up a recipe. The Application, the client, receives all the items, and the tag values are changed at once.

Design / Options / Application

Select the item to configure the application's operational environment. You can specify whether or not the application will activate the tag sampling mechanism, write to .HIS files, activate the alarms module, and activate the collapse alarms mechanism.

Design / Popup Settings

What is a Popup Events Summary?

The Popup Events Summary is an Events Summary that can be made to appear on the screen whenever a severe alarm occurs. The operator can filter the alarms that will appear in the Popup Events Summary.

To define the Popup Events Summary parameters follow these steps:

1. 1. From the Application Studio Design menu select Popup.
 1. 2. From the sub-menu displayed select Popup Settings to define the Popup Events Summary **columns**, **colors**, **filter** and **popup window specifications**.
 1. 3. Select Popup Buzz to define buzz parameters.
-

Design / Printer Targets

1. 1. Select this item to open the Printer Targets dialog box where you can define **Printer Targets**.
 1. 2. A printer target is a collection of pre-defined filters and printers, specifying the conditions under which a target printer will be activated.
-

Design / Zone Navigators

Select this item to open the Zone Navigators dialog box where you can define **Zone Navigator** objects.

Zone Navigator is a global, multi-image zone navigation window that enables you to quickly and efficiently navigate through a list of zones defined in your application's various image files.

Design / Alarm Filter

The alarm filters are automatically activated when the application is loaded. The **Alarm Filter Manager** enables you to assign values to each of the alarm classifications so that the Events Summary will display only the alarms that meet these specifications.

Design Alarm Parameters Field Names

These are customized fields that are defined by the user according to their specific requirements. User fields enable additional alarm filtering. There are five User Fields.

To define User Fields:

1. 1. From the Design menu, select Alarm Properties and then Field Names to open the Alarm User Fields dialog box.
 1. 2. Type in the unique User Name opposite the relevant number.
 1. 3. Click OK to confirm.
-

Located in the menu bar of the "Application studio" dialog box.

Design / Options

Select this item to configure the Application environment parameters.

When you select this item, a sub-menu will appear with several additional items for you to select from: the Application, Paths, Printers.

Design Scheduler

The new generation Internet based Scheduler enables you to easily create daily or weekly task orientated schedules remotely. Accessed through an Internet browser or by clicking on an icon, the Scheduler is extremely user friendly, efficient and economical.

Being both task and time orientated the Scheduler can be used to create unlimited tasks, actions and states. Tasks can be modified, enabled/disabled and have many states such as On/Off attached to them. An unlimited number of actions, which are basic operations, can be attached to each task.

Timetable templates can be created in advance and be attached to a task. Additionally, multiple schedules using the same template can be defined, where changes made to one template will automatically appear in all the other schedules using the same template.

Design Tag Filters

The Tag Filter module is used to filter, view and manage a list of tags and their status (locked/unlocked) in the application. This is useful for the development and maintenance of an application.

The Tag Filters List is stored in the application's TFM.XML filter that is created in the .\docs directory (or another appropriate directory of the application).

When accessed through Java applets the Tag Filters List can be defined/modified/viewed in the Image module during runtime. Up to 10 tag filters can be selected simultaneously.

Design/Popup/Filter

The Alarm Filter filters alarms and reports before they are printed out or written to the Events Summary. Alarm filters are displayed in the Alarm Filters table and defined or modified in the Filter Properties dialog box. Filter properties can be updated, however the name of a filter cannot be changed.

The Alarm Filter filters the alarms sent when parameters defined in tag variants are not met.

After alarms and reports outside the defined categories have been filtered out by the Alarms Filter, the remaining alarms are sent to the Printers defined in the Printer Targets module.

An Image is a graphical drawing of a plant or facility that can include dynamic and static objects. Application images are drawn in layers, whereby each image can consist of one or more layers that can be zoomed into, to obtain views of specific plant sections.

Image are drawn edited, and viewed in image windows, which are invoked by selecting the Image item from the Studio Application.

Image Property

Use this option to define the Image tuning parameters.

Image Property- Fast Zone

Note: *Not applicable on the Web.*

This parameter determines the period of time (in ms) for "slow" zones. A zone is "slow" if it has a background that takes more than a given period of time to draw. This parameter improves the drawing time for "Goto Zone" operations by using a cache of memory bitmaps for drawing the background of slow zones.

If the **Fast zone threshold** is set to be 2500, that means that the zone is considered to be "slow" if its background takes 2500ms or more to draw.

Notes

After the zone threshold was defined make sure to restart the Application

It only affects the background of the image, dynamic elements are drawn as before.

Operate only when NOT is Edit mode.

Maximum fast zone - This parameter determines the limit of the number of fast zones bitmaps that can be kept in a single Window's memory cache. When a window reaches this limit, the least recently used fast zone bitmap is removed from the cache in order to make room for the new bitmaps.

Note After the Max fast zone was defined make sure to restart the Application.

This parameter determines whether or not trigger objects will be highlighted when you click on the object and hold the mouse button down. If you click this option, the trigger objects will be outlined (with dashed lines) when they are selected.

Determines the size of the internal message buffer that images use to collapse tag/alarm notification message received by the application.

This parameter determines whether or not the mouse pointer will be highlighted when it is moved on top of a trigger object in an Image.

This parameter determines whether or not trigger objects will be highlighted when you click on the object and hold the mouse button down. If you click this option, the trigger objects will be outlined (with dashed lines) when they are selected. This option is valid while the user is editing or working in the Image, it is not valid on the Web

Image Property - Loading

Note: Not applicable on the Web.

This tab determines the amount of memory available for image objects. It also enables/disables tag name parsing when loading images and determines the mode in which the image will open.

Notes:

Setting the amount of memory available for image objects is not applicable on the Web. Always restart the program after updating this tab.

The following options are available:

Images memory pool size	Enables large images with many objects to be created, but allows only 10 (+-) Image windows to be open at one time. The lower the value, the more Image windows that can be opened simultaneously (they must be smaller in size). The value for the parameter can be set from 60 to 200.
Parse each image when loading	<p>Enables or disables tag name parsing when loading in the Images module. Disable this option to shorten image load time for images that contain network tags.</p> <p>When this option is disabled network tags validity is not checked. Therefore, use this option after all tag definitions in the network station are complete.</p>
Open new image in Navigation mode	This checkbox defines that the new image will be opened in Navigation mode.

Maximum fast zone - This parameter determines the limit of the number of fast zones bitmaps that can be kept in a single Window's memory cache. When a window reaches this limit, the least recently used fast zone bitmap is removed from the cache in order to make room for the new bitmaps.

Note After the Max fast zone was defined make sure to restart the application.

Image Property - Pictures**Note: Not applicable on the Web.**

The Image properties box allows you to set the location of picture files folder, relative to the web application root directory.

The Pictures folder is located underneath the **DOCS directory**. (Default).

To access the Events Summary Profiles properties:

1. From the **Containers List** select Files Images.
2. Right-click on the highlighted Images icon and select the Properties option.
3. The Image Properties dialog appears (as shown below).
4. The Default folder name **Pictures** appears in the field.
5. Press OK or Apply to enter your selection.

You can also access this from the Web Application Properties Pictures tab

Image Property - Rates**Note: Not applicable on the Web.**

Used to determine the image update performance in milliseconds as well as determine the size of the internal message buffer that images use to collapse tag/alarm notification message received by the application.

To access the Property dialog box:

1. Follow the next Path: Studio / Image / Right click the Image Files
2. Select the Properties option
3. The Image property dialog box will appear

Image update rate Max/Min Rates:

These parameters determine the image update performance in milliseconds.

The default values are: Maximum = 2000 and Minimum= 10.

Note After those parameters were defined restart the Application.

Message Buffer size:

Determines the size of the internal message buffer that images use to collapse tag/alarm notification message received by the application. When tag values change, an image receives message in a buffer from the application and updates graphical objects accordingly.

The default range is 5 to 500 messages.

A high value for this parameter improves the performance of images with rapidly changing dynamic objects, so that images will not have to make graphical updates for each value message.

This parameter enables an image to be repainted automatically, after actions such as moving, copying etc., that may leave the image drawn incorrectly. It is useful for small and medium sized zones.

This parameter sets a global stretching or shrinking factor that applies to all images. It is needed in order to overcome display differences caused by replacing an operating system, a monitor or other hardware devices. This parameter is also used for moving between resolution.

Notes

- It is not recommended to develop an application using a factor other than 1. The range of the factor is $0.1 < \text{IMG_RESOLUTION_FACTOR} \leq 10$
 - After the resolution level was defined make sure to restart the Application.
-

Image Property - Trigger

Note: *Not applicable on the Web.*

This tab defines trigger objects and onmouseover properties.

This tab holds the following fields:

Trigger object	Determines whether trigger objects are highlighted when selected. If this option is checked, trigger objects will be outlined (with dashed lines) when they are selected. The default option is not selected.
Mouse pointer on triggers	Determines whether the mouse pointer will be highlighted when it is moved on top of a trigger object in an image. The default option is not selected.
Trigger small input box	When checked, the input box when defining data entry for triggers, will be small and will only have a field for entering the value.
State	Determines which trigger object is activated when overlapping triggers are clicked. This could be either; Top (default) or Bottom.

Note: *Always restart the program after updating this tab.*

This parameter determines which trigger object is activated when you click overlapping trigger objects. The top or the bottom one you can specify Top for top, or Bottom for bottom.

Note After checking this option, make sure to restart the Application.

Image Property - View

Note: Not applicable on the Web.

This tab is used to define the properties of the Image window, repaint and resolution level.

The following options are available:

Image position remains when adding/removing toolbars and menus	When this dialogbox is checkbox is checked, Image objects do not change position when either the image modules attributes (defined in the Image Window Attributes dialog box) change
Repaint images after editing operations	When checked this field defines that an image will be repainted automatically after actions that may alter the image (such as, moving, copying) are performed. This option is useful in small and medium zones.
Resolution factor	Sets global stretching or shrinking factors applicable to all images. This is required to solve display differences caused by replacing an operating system, monitor or other H/W or to move between resolutions.
Number of gradient color steps	This field determines the number of steps used when drawing objects filled with gradient color. The default is 16. Drawing large gradient surfaces in many steps may be slow therefore, develop using few steps and then increase for run-time.
Advanced button	Displays the Image Window Attributes dialog box where window attributes are defined.

Note: When changing the Resolution Factor the window remains the same size in pixels. However a centimeter in one image will not be a centimeter in another. The image remains unchanged when the value is 1. Values greater than 1 expand the image.

- To set correct application values:

1. 1. Load the image in a PC and measure an object's length in the image (a line will do).
1. 2. Load the same image in another PC and measure the same object's length.
1. 3. Divide the first length by the second length and the result is the xx.xx value.
1. 4. Enter the IMG_RESFACTOR with the value you found and reload the application.

The range is $0.1 \leq \text{IMG_RESFACTOR} \leq 10$.

0 The default value: 1

1. 5. Restart the application for changes to take effect. The range of the factor is $0.1 \leq \text{IMG_RESOLUTION_FACTOR} \leq 10$.

Setting Image Window Attributes:

Click the Advanced button in the View tab of the Properties dialog box.

Note: Image Windows Attributes is not applicable on the Web.

Each listed attribute can be set to On or Off. When confirmed, the selected attributes will apply to all future windows of the type specified. The following options are available:

Title bar The line in the window holding the title. This is relevant only if the Title

	bar is active.
Name in title	Title bar text.
System menu	The menu that opens when clicking on the top left corner of a menu. The menu options are: Move, Size, Close.
Min/Max button	This option defines whether the min/max buttons will appear in the Image window.
Size Border	Specifies that window border size can be changed by clicking and dragging.
Menu Bar	Specifies that the menu bar will open in the Images window.
Always on Top	When selected the image is displayed on top of other applications.
Pos	Specifies X and Y coordinate in pixels.
Size	Specifies window size in pixels.
Title Bar Text	Specifies the name appearing in the title bar.

Notes:

1. 1. The system menu is title bar dependent. Its corresponding checkbox is unchecked and disabled.
2. 2. If the menu bar is not selected but the system menu is, the menus and items included in the Menu bar will appear in the system menu.

This parameter determines the period of time (in ms) for "slow" zones. A zone is "slow" if it has a background that takes more than a given period of time to draw.

These parameters determine the image update performance in milliseconds. The default values are: Maximum = 2000 and Minimum= 10.

Note After these parameters are defined restart the Application.

Used to determine the amount of memory available for image object. The value for the parameter can be from 60 to 200.

This parameter enables or disables tag name parsing upon loading in Images. Disable this option to shorten image load time for images that contain network tags.

Caution: When this option is disabled, the validity of network tags is not checked. It is suggested to use this option after all tag definitions on network station is completed.

Note After checking this option, make sure to restart the Application.

This parameter enables or disables tag name parsing upon loading in Images. Disable this option to shorten image load time for images that contain network tags.

The value for the parameter can be set from 60 to 200.

The default enables large images with many objects to be created but allows only about 10 image files to be open at one time. The lower the value, the more image files can be open simultaneously, but they must be smaller in size.

This parameter enables an image to be repainted automatically after actions such as moving, copying etc.

This parameter sets a global stretching or shrinking factor which applies to all images.

Active Layer

Select the active layer item to designate the active layer for which all subsequent editing operations will be performed.

Click to add your button definition to the list.

Action Definition

Click the Action button in the Trigger Object Definition dialog box. The Action Definition dialog box is displayed.

1. In the Formula field you can use any of the following formats:

@tag op val

val op @tag

val

@tag

Where @ alone is the current tag, tag is the name of any tag, op is any valid operator including operators +, -, /, *, % (percent denotes modulus, as in C programming language), &, |, or ^ (bitwise AND, inclusive OR and exclusive OR). Val is any numerical value.

2. Either a Zone or Zone Navigator can be added. Do either:
 - Check the Zone checkbox and then in the Zone field click the arrow and select the relevant zone or, type in the relevant zone.

Or,

- Check the Zone Navigator checkbox and then in the Zone Navigator field click the Browse button. The Zone Navigator dialog box opens. Select the relevant Zone Navigator and click OK to save and return to the Action Definition dialog box.
- 3. To add a macro, click the Macro field and select the relevant macro.
- 4. Click OK to confirm your definitions and to exit this dialog box.

Note: *If more than one operation is assigned in this dialog box, the operations will be performed in the following order: goto zone, tag assignment, run macro. If one of the operations fails, the next operation will not be executed.*

Alarm Object Definition

To define an object as an alarm object

Select an object in the image and activate the Alarms object button from the Object Bar

OR

Select Edit / Operations / Alarm

OR

Right click an object and selecting the Alarm definition option.

To define an object as an alarm object:

Select an object in the Image and activate the Alarms object button in the toolbox. The Alarm Object Definition dialog box is displayed. The following options are available:

Station The network station to which the alarm belongs. For a list of defined stations click on the arrow to the right of the field.

Alarm Family The family of alarms to be associated with the object. The name you specify must be the name of a family of alarms that was, or will be, defined in the system. (You can specify the name of an alarm family that was not yet defined in the Alarm Definition module. Although, at some point, it must be defined.)

For a list of defined alarm families click the arrow to the right of the field. You can also use a ? and a * wildcard to enable you to quickly define family filters.

Show Object When Select Always to cause the object to appear in the Image constantly. If you select this option, you must also select an Animation.

Select Alarm Family Active to cause the object to appear in the Image only when the alarm condition is true.

Select Alarm Family not Active to cause the object to appear in the Image only when the alarm condition is false. If you select this option, both the Animation and Trigger Function fields will be disabled.

Animation The following options are available:

Blink Activate to define the blink parameters for the object. The Image **Alarm** Blink dialog box is displayed.

Fill Color Activate to define the color display of the object. The Image Alarm - Color dialog box is displayed. Select the alarm status option you want and the color to be associated with that status. Active alarms can be either; Started (unacked, unended), Acked (and unended), or Ended (but unacked). For example, you can define the object to be red when the alarm is started, green when it is acked, and its default color when it is ended

Line " >Trigger Function Select Acknowledge to cause the alarm associated with the object to be acknowledged whenever the object is selected in the Trigger mode.

Select Acknowledge with confirm to prompt the operator before acknowledging the alarm.

Select Assist to cause the help file of the alarm associated with the object to appear whenever you select the object in the Image.

Select Assist + Ack button to cause the help file of the alarm to appear with an additional acknowledge button. For more information about alarm help files, see the Event Summaries chapter.

Select None for no trigger function.

If the No Alarm option is selected in the Show Object When field, the Trigger Function field will be disabled.

Notes for Animation

1. *This note applies to all the Animation dialog boxes: These dialog boxes have the following states: Started, Acked, Ended. If User Defined States are defined (and enabled in the Alarm/Tag properties dialog box) then they will also appear here. Any State Name can be defined for User Defined States. However if no State Name is defined then the default State 1 and State 2 are used.*
2. *More than one animation option can be applied for each alarm object.*
3. *If the No Alarm option is selected in the Show Object When field, the Animation field will be disabled.*
4. *A selected Animation option is indicated by a small arrow that appears beside the button label.*
5. *If more than one alarm is active in an alarm family, the status of the alarm in order of severity will be as follows: Started, Ended, Acked. In the Trigger mode,*

If the Acknowledge option is selected in the Trigger Function field, and you click on the object to acknowledge the alarm, all the alarm instances will be acknowledged.

Notes for Trigger

1. *If an object was already defined as an alarm object, and you invoke the Alarm Object dialog box for that object, the dialog box will appear with the options you selected. If you change the definition (select different options) and then activate the OK button, the new definition will replace the previous definition.*
 2. *Several objects can be selected together in the Image for alarm object definition. If an object within the group you selected was already defined as an alarm object, the group definition will replace the single object's definition.*
-

Arc Tool

To draw an arc

1. From the Drawings toolbar, click on the arc tool.
2. Position the mouse pointer where you want to start drawing.
3. Drag to end point.
4. Release mouse button.
5. Move the mouse to the desired radius point and left-click the mouse button.

Note: Arcs are not supported on the Web.

The button size can be set by pressing the arrow keys, PgUp and PgDn keys (for scaled uniform movement), and the Home key (to restore the default shape).

Cancel Override Color

The Cancel Override Color option enables you to return to the original or default colors you chose for your objects, after modification.

To cancel override color

1. Draw the objects with your choice of colors and Group them.
 2. Modify your objects colors.
 3. If you wish to return to the original color selection click on the Operations Menu Cancel Override Color and your objects keep their original colors.
-

Click to override the selected button in the list with the current definition.

Changing Color

The Change Color operation allows you to select a different color for your drawing objects.

To Change Color

1. Select the drawing tool of your choice.
2. From the Color select a color.
3. Highlight your drawing object.
4. From the Edit menu click Operations, then click on the Change color option. The object is drawn with the selected color.

CloseChart

Selecting this Fast Action opens the Define Trigger dialog box enabling you to browse and select the chart (*.chr) file you want to close upon activating the CloseChart trigger.

CloseEventSummary

Selecting this Fast Action opens the Define Trigger dialog box enabling you to browse and select the Events Summary (*.ann) file you want to close upon activating the CloseEventSummary trigger.

CloseImage

Selecting this Fast Action opens the Define Trigger dialog box enabling you to browse and select the image (*.vim) file you want to close upon activating the CloseImage trigger.

Cluster - Drag&Drop

Click the right mouse button on the object you want to instantiate, and drag the object to the desired location in the image.

Note: In addition to each object in the library, the numbers indicate the amount of required objects that you specify in the Basket Maintenance dialog box and the amount of objects you already instantiated in the Image.

Defining the Cluster Basket

This dialog box is used for maintaining the cluster basket in your system.

To maintain / define a basket

1. Select Basket Maintenance from the Clusters Menu.
The Basket Maintenance dialog box opens.
 2. Enter the name of the item as you want it to appear in the basket library.
 3. Type the library name from which you want to extract the cluster, or select a library from the drop-down list.
 4. Enter the name of the cluster as it appears in the library you specify, or select an object from the drop-down list.
 5. In the Required field, Specify the amount of times the cluster object will be available in the basket library
 6. In the Used field, the value is usually 0 (if you do not fill this field, the default value is also 0). This indicates that the first cluster object in the basket library will be number 0.
 7. Click the Add button to add the current cluster definition to the basket library.
- To modify a cluster definition in the basket library
1. Select the cluster you want to modify.
 2. Modify the cluster's parameters as applicable.

3. Click the Change button.

To remove a cluster from the basket library

1. Select the cluster you want to remove.

2. Click the Delete button.

Cluster Define (Simple Object)

Select the graphic object in the image that you want to include in the cluster and then either:

From the Clusters menu select Define.

Or,

Click the Cluster Definition icon from the Objects toolbox.

Or,

Right-click and select Cluster Definition from the popup menu.

If no tags or alarms are associated with the graphic objects that are selected in the image (the object was not defined as a dynamic, trigger, or alarm object), the Define Cluster Object dialog box is displayed.

The following options are available:

Name Specifies the name of the cluster (up to 15 characters).

Lib Specifies the name of the library in which the cluster will be placed. To select from existing libraries, click on the arrow to the right of the field.

Description Specifies a brief description of the cluster (up to 40 characters).

Add new library to the Cluster folder check this checkbox to add the newly created library to the global Cluster folder (this will enable other applications to use the new library you create).

Note: These fields and buttons appear in the dialog box only if the object is defined as a dynamic, trigger, or alarm object.

The Clusters Menu

Cluster / Rebuild Instance

One of the big advantages of using clusters is the ability to rebuild all instances automatically after updating the original cluster in the library.

1. Select Rebuild Instances from the Clusters menu to open the Rebuild Cluster Instances dialog box: In the list, you can see all the instances that were placed in the current Image. Each line contains the library name, the cluster name, and how many instances of that object were placed.
2. Select the items you want to update (note that the list box has multiple selections, and therefore, you can select more than one line in the list), and press the Rebuild button.

Notes:

1. *The tags and alarms that were associated with each instance will remain unchanged.*
2. *The Rebuild operation will fail if there is no compatibility between the cluster in the library, and the instances in the Image. Compatibility means that the tags, alarms and triggers must have the same links. For example you cannot redefine an object that was linked to one tag to be connected to two tags.*
3. *You can select all items in the list by pressing <CTRL></> keys.*

The Clusters Menu

Clusters / Open Basket

This option displays the clusters defined in a basket. On the right of the cluster the number of times that the cluster has been used and maximum usage are displayed.

The Clusters Menu

A cluster is an object class with all its behavior, including parameters, the graphical shape and tag and alarm functions.

Clusters Basket Maintenance

A Basket is a special tool that supplies a new (high) level of engineering and application design. It is used to make a prototype of the application before starting to actually implement it, and also to trace the progress of the application development. You can think of it as a shopping list, you can specify in the basket the components you need to include in your application

To define the application basket, select the Basket Maintenance item from the Clusters menu in the image window.

The Clusters Menu

Breaking Clusters

Cluster definitions can be cancelled by selecting a cluster object in the Image, and then selecting Break from the Clusters menu.

To cancel a Cluster definition:

1. Select a cluster object in the image.
2. Select Break from the Clusters menu.

Note: *Instances cannot be defined as dynamic, trigger, or as another cluster (no nesting of clusters), unless they are broken apart.*

The Clusters Menu

Clusters / Define

This option will enable you to define a cluster.

Cluster definition is enabled in two modes:

Simple - If no tags or alarms are associated with the graphic objects that are selected in the image (meaning that the object was not defined as a dynamic, trigger, or alarm object).

Dynamic - If the object you have selected is associated with tags or alarms (the object was defined as a dynamic or trigger object).

To define a Cluster and add it to a library

1. Select the graphic objects in the image that you want to include in the cluster.
2. Select Define from the Clusters menu. The Define Cluster Object dialog box is displayed.

The Clusters Menu

Clusters / Open Lib

To instantiate a cluster from a library to the application, select the Open Lib item. This option will enable you to open a library.

To instantiate a cluster from a library to the application

1. Select the Open Lib item from the Clusters menu in the image window
2. Specify the library from which you want to instantiate a cluster in the Drag and Drop to Img window.

Clusters Menu

Copy To Clipboard

The application enables you to use the Clipboard as a convenient way to transfer graphic objects from the application to external application and vice versa.

There are two ways to copy an object to the Clipboard
Through the Edit Menu

1. Select an object
2. Select the Copy to Clipboard item from the Edit menu
3. As a result the object will be copy to the clipboard for later use.

Through the Pop-Up Menu

1. Right click an object in the Image window
2. From the Pop-up Menu select the Copy to clipboard. The Copy to Clipboard operation will copy a selected object(s) in many formats.

Note: Copying objects using <Ctrl C> does not support the Undo feature.

Custom Actions

You can use this dialog box to send a command to one or several programs external to the application. You can choose a set of parameters to send to the programs.

These programs will be called via a right-click on the object during runtime. If there are several programs defined, a drop-down menu will allow you to choose which program to call. If there is only a single program, you can choose to launch it directly after a right-click.

You can create the programs in the following way:

For each program that you want to call, you must give it a Title (this is the name that will appear when you do the right-click).

The "Command" is the actual program that will be launched. Use the button "..." to help you to find it if you need to.

For each program you can send a set of parameters: A User-defined string (type the string in the text box below the list of parameters), the tag names of all the tags associated with the object and the position on the screen of each of the associated tags (the position is measured in image coordinates).

The format of the string that is sent to the program is the following (remember that they can be in any order):

`Application.exe -tagnames:TAGNAME1,TAGNAME2,TAGNAME3 -coords:X,Y <userstr>`

Note that there are no spaces between the tag names, and that the user-defined string (userstr) is a free-form string. The only thing to notice is that there is a space between the string and any of the other parameters.

You can add the parameters in any order you like. Use the up and down buttons to change the order of the parameters.

For each program, use the "Add" button to add it to the list. You can "Modify" each program, or remove it from the list.

As for the parameters, use the up and down buttons to change the order in which they will appear in the drop-down menu following a right-click on the object.

If only one program is defined for the object, use the "Start action without displaying menu" option to launch the program without the drop-down menu appearing.

Define Instance Links

If the cluster is defined with the Define each Object when Instantiating option, the Define Instance Links dialog box opens:

The following options are available:

Instance Name The unique name of the instance in the image.

Linked Tags and Alarms This listbox contains a list of all the tags and alarms associated with the object(s) in the cluster, and the operation defined for each.

Tags/Alarms Activate these buttons to change the original definitions of the tags and alarms associated with the objects in the cluster. The tag and alarm definitions that you specify will be used to generate new tags and alarms for the cluster in the Image.

Find Activate this button to search for a tag or alarm in the Linked Tags and Alarms listbox. In the entry field, you can specify the full name of the tag or alarm, or a name prefix.

Defining Tooltips

This dialog box will allow you to assign tooltips to objects in the image. You can define the tooltips while developing the application, but they will only be activated during runtime. The following options are available and you can choose any combination of the options.

You can choose to display either the tag name, tag description, its address or a text string of your own choosing.

Note that if you have several tags associated with a single object, you will see these options for each tag attached to the object.

Defining Zones

A Zone is a pre-defined position and zoom level in the image that can be jumped to, by selecting the Goto Zone item in the Options menu.

- How to define a Zone?

1. Select Zones Definition item from the Options menu. The Zone Definition dialog box opens.
2. Type a unique name for the zone in the Name box.
3. Enter the X and Y coordinates, in drawing units, to define the zone center in the image window.
4. Enter a **scale** level between 1 and 2048.
5. Select the Control tag checkbox if you want to use a digital tag to indicate the zone status.

At run-time, if the digital tag value is 1, the zone status will be BAD; if set to 0, the zone status will be GOOD.

Station - Select the station from which you want to select a tag.

Tag - select the tag you want to use from the drop-down menu, or click the browse button to open the Tag Definition dialog box.

6. Choose a Context through 'Context Name' combo box that will be applied to objects that use tag template Ids. This context is optional. You do not have to select it if you do not need one
7. Click the Add button to add the zone. The new zone is displayed in the list.
8. Click Save to save the zone definition and exit the dialog box.

- To modify a defined Zone parameters:

1. Select (click) the zone you wish to modify.
2. Change the selected zone parameters in the various dialog box fields, as applicable.
3. Click the Change button. The zone properties displayed in the list of zones are modified.

- To remove a zone:

1. Select (click) the zone you wish to remove.
2. Click the Delete button.

Click to remove the selected button from the list.

Deselect All

Select this option to deselect all the objects in the window.

Deleting Objects

The Delete operation enables you to remove the selected objects from an Image.

To delete an object

1. Select one or more objects.
 2. Select the Delete option from the Operations Menu and the object is removed from the Image. Or Click the left mouse button on the Delete tool in the Operations toolbar. Or Press the Delete key on the keyboard.
-

Deselect Last

Select this option to deselect the last object that was selected in the window.

Drag&Drop to Img

This menu option is used to insert an image from an existing Cluster Library into an image.

Note: This window is modeless (meaning that you can perform other application or operating system functions while this window appears on the screen). In addition, the library window can be resized to adjust its height.

1. Specify the library from which you want to instantiate a cluster. To open a list of existing libraries, click on the arrow to the right of the Library field. Double click on a specific cluster to open an information box where the library to which the cluster belongs and further information regarding the cluster is listed.
2. Select the cluster and instantiate it in the image by right clicking on the object and dragging it to the required location in the image.
3. After placing a cluster from a library into an image, the application enables you to determine parameters that are used to generate the instance characteristics. If the cluster is not defined with the Define each Object when Instantiating option, the Instance Parameters dialog box opens. Click the Browse button to locate the tag you want to associate with the instance parameters.

Note: If the cluster contains \$ASK variables, this dialog includes the \$ASK Parameter field in which you can specify additional user data.

The Clusters Menu

Edit / Drawings

The Drawings sub-menu enables you to draw and add text in your Image by using the **Polyline**, **Box**, **Circle**, **Pipe**, **Text** and **Pick color** tools.

The Drawings sub-menu also includes the Widget option. The Widget option holds the **Slider**, **Media Player** and **Scheduler** options. The Drawings Menu also includes the Button to enable the application to contain a trigger object that has the same look and feel as a Windows button
See also the Drawing toolbar

Edit / Align

Select the Align option to display a sub-menu where you can choose how to align an object with another object(s).

In addition, the Align sub-menu enables you to resize objects horizontally, vertically or both.

You can also align objects by using the Align toolbar.

The Align options are as follows:

Left Aligns objects by their left edges.

Right Aligns objects by their right edges.

Top Aligns objects by their tops.

Bottom Aligns objects by their bottoms.

Center Horiz. Aligns objects by their middles horizontally.

Center Vert. Aligns objects by their centers vertically.

Center Both Aligns object both horizontally and vertically.

Resize Horiz. Selected objects can be resized to the same width.

Resize Vert. Selected objects can be resized to the same height.

Resize Both Selected objects can be resized both to the same width and height.

Even Spacing Horiz. Spaces between selected objects lined horizontally will be equal.

Even Spacing Vert. Spaces between selected objects lined vertically will be equal.

Note: The Align feature does not support the Undo option.

Drawing in the Image

You can design, draw or modify your application by selecting the appropriate tools in the Image. The Drawings toolbar contains simple drawing objects such as Line, Pipe, Box, Text and Circle. You can draw both filled and unfilled objects. You can also assign text to your image by using the text tool.

Drawing shapes

1. From the Shape tools select a drawing tool.
2. In the Image area press and hold down the left mouse button.
3. Start drawing by moving the mouse around, the shape outline you selected is being drawn as you move.
4. Finish drawing by releasing the mouse.

Notes:

1. After drawing you remain in the selected tool; note that the object is not selected.
2. To change colors of selected object select new color in the color toolbar.
3. Clicking the right mouse button sets the object automatically to select mode and cancels the continuity of the last operation.
4. Double-click on Object toolbar as Trigger, Alarm, Slider, Media or, Dynamic open its definition dialog.

Object Selection/Deselection

Choose the Selection Tool to select any object (for size or move operations).

1. To select several objects, start from an empty point in the Image, press and hold left mouse button, drag a rectangle around the objects you wish to select.
2. You add an object to existing selection by left-clicking the mouse while holding down the Shift key.
3. Deselect objects by pressing left mouse button on empty space of Image.
4. To deselect last used menu item Edit Select Deselect last.
5. Clicking the right mouse button sets the object automatically to select mode and cancels the move operation.

Aligning Objects

Whenever you select more than one object, one of the selected objects is marked with 8 hollow handles. These handles cannot be used to move or resize the object, their sole purpose is to mark the object.

The marked object is the first object selected. Whenever you use an alignment tool (any of the 10 alignment tools), all objects are aligned or resized according to the position or size of the marked object.

To make another object the marked or first object

1. Deselect all (through the menu or by clicking an empty spot)
2. Select the desired object, by clicking it.
3. Add the other objects to the selection by holding the shift key pressed while selecting. This works with both single select (click) and multi-select (drag).

Moving/Scaling

1. Scale by selection of object and handles
2. To move an object press left mouse button down on object and drag
3. To copy object move/scale it with Ctrl key pressed.

Object Sensitive Menus

1. Press the right mouse button on any object in the Image. The object is selected and a pop up menu appears.
2. For general Image menu click in empty space in the Image. The pop up menu deselects previously selected objects.

Edit / Find

Using the find option you can find and Goto an object that matches the search text. This feature is available in Edit mode only. The Find command opens the Find Dialog box while the Find next searches for the next occurrence of the last search string.

For more information about the Image Find capabilities refer to **Image Find Option**

Edit / Find Next

The Find command opens the Find Dialog box while the Find next searches for the next occurrence of the last search string.

For more information about the Image Find capabilities refer to **Image Find Option**

Line Types

The application enables you to define lines with different widths and types for objects that include lines as part of their shape. This option is available for all objects, except text and pipes.

The application provides the Line type button on the Image toolbar, to quickly access this option.

The following line widths are supported: 1, 2, 4, 6, 8 and 10 pixels.

The following line types are supported:

Solid lines

Dashed lines

Dotted lines

Alternating dashed and dotted lines

Alternating dashed and double-dotted lines

To specify the line width/type

1. Select the line you want to modify.
2. Select the Line type button on the Image toolbar, or select LineStyle from the Edit menu to display a dropdown menu from which you can select the required line width/type.

Edit / Operations

Use the Operations menu command to perform editing and animation operations on your Image.

The Operations menu includes various commands that enable you to change the position and dimensions of objects by using the move, rotate, scale and delete options.

You can modify the object's attributes by using the change color, fill, toggle fill, segment. You can also send an object back or forward by using the back to front and send to back tools.

In addition, the Operations menu command allows you to animate your Image by using the trigger tool, Dynamic Trigger definition, alarm and alarm definition.

The Operations sub-menu consists of the following options:

Move

Rotate

Copy/AtttributesHLP_WZ2EDT_CPYATTR

Delete

Bring to Front

Send to BackHLP_WZ2EDT_OPERATIONS_SENT_BACK

Change ColorHLP_WZ2EDT_MODIFY

Cancel Override ColorHLP_WZ2EDT_OPERATIONS_CANCEL_OVERCOLOR

Toggle FillHLP_WZ2EDT_FILL

Cancel Override PatternHLP_WZ2EDT_OPERATIONS_CANCEL_OVERPATTERN

GroupHLP_WZ2EDT_SEGMENT

UngroupHLP_WZ2EDT_SEGMENT

TriggerHLP_DLG_WZ2_GINDEF

Remove TriggerHLP_WZ2EDT_OPERATIONS_REMOVE_TRIGGER

DynamicHLP_DLG_WZ2_DYN

[Cancel DynamicHLP_WZ2EDT_OPERATIONS_CANCEL_DYNAMIC](#)
[AlarmHLP_DLG_WZ2_ALT](#)
[Remove AlarmHLP_WZ2EDT_OPERATIONS_REMOVE_ALERT](#)

Edit / Select

Use this option to select or deselect objects within the image.

You can choose to:

Select - select an object.

Deselect Last - deselect the last selected object.

Deselect All - deselect all selected objects.

Edit Properties

Select Edit Properties in the Edit menu, or select an object and then right click to open a pop up menu and select Edit Properties.

This dialog box has the following options:

Objects List This section displays a tree of the object according to hierarchy.

Object Properties This section shows the object selected from the Objects List.

Definition This button when clicked is used to modify dynamic tag parameters and is only available for objects such as button, alarm or text. It is not available that are defined as basic objects.

Attributes This button when clicked is used to modify an objects color line and color fill.

Trigger This button when clicked opens the Trigger Definition dialog box.

Edit / Set Background Color

The Set Image Background feature enables you to set the image background color.

To set the Background color

1. Go to Image menu, select the Edit Option and there the Set Background color.
2. Select a color, press OK and the background of your image will display the color you chose.

OR

Press the Set Background Color Icon from the Image main menu.

Edit/Get Colors and Save Colors

The application enables you to get colors, i.e., import a color palette, or save colors, which means saving the colors you defined in your image file.

The *.pal file contains the 16 toolbox colors as well as the additional 16 custom colors from the color dialog box. Once you define or customize your colors you can save them in a *.pal file. To retrieve or *get* the colors you have saved, use the Get Colors option.

To retrieve colors from a saved color palette

Select Get Colors from the Edit menu.

The Open dialog box opens, where you can select the colors from a *.pal file.

To save a color palette

Select Save Colors from the Edit menu.

The Save As dialog box opens, where you can save your colors to a *.pal file.

*Note: If the image file name and *.pal file name are the same, the *.pal file is loaded automatically. The user can continue to work with his customized palette every time he opens an image.*

Fast Actions

Note: *Fast actions are Web enabled.*

Fast Actions are pre-defined macros, that you can attach to a trigger, enabling you to easily execute routine operations.

To define Fast Action triggers:

1. Click the Fast Action button on the Trigger Object Definition dialog box. The List of available Fast Actions dialog box is displayed.
2. Select the Fast Action you want to attach to the trigger:

CloseActiveImage used to close the opened Image file.

CloseChart used to close a specified Chart file.

CloseEventSummary used to close a specified Events Summary.

CloseImage used to close a specified Image file.

GotoUrl after this trigger option is defined for an Image object when the object is clicked it will jump to the defined URL.*

LoadAnnFile used to open a specified Events Summary Profile file or an Event Summary file. *

LoadHtmlPage used to load a specified HTML page. *

LoadImage used to open a specified Image file, window and zone.

LoadPictureFile used to open a specified image window. *

LoadRecipe used to load the recipe to apply its tag values to the image

LoadTrendFile used to open a specified trend file. *

LockTagsValues used to open the Tag Value Lock window where you can lock / unlock tags and change the locked tags definitions.

OpenScheduler used to jump from the Image to the Internet Scheduler

SaveRecipe used to save the recipe tag values to the image

Change Tag Context used to change the context of the current window

LoadLayout load the selected layout and apply the selected context to each the windows

LoadHistory load the history viewer with the selected context

CloseHistory close the selected history viewer

3. Click OK to define the selected Fast Action parameter.

*Note: * indicates that when Load in the same window (Web only) is checked a new page in the Explorer is not opened, however the current page is changed to the selected one.* OK to define the selected Fast Action Parameters.

File / Exit

Select this item to close the current window.

If you made changes to the image, but did not save the file, you will be prompted to either save the changes you made or discard them.

Import

You can import or load an Image file that has been saved as ASCII file into the Image Window.

This file can then be viewed and edited.

File / Insert

The Insert file option allows you to insert an existing Image file, into an existing Image Window.

File / Print

Select this item to print the current view.

File / Save

Select this item to save the current image and window settings (position, mode etc.)
Selecting the Save option opens the Save As dialog box, prompting you to specify a file name. The dialog box displays the image files default folder and default image files extension (*.VIM).

File / Save as

Select this item to save the current image window file under a new file type: VIM, ASCII, BITMAP

The Image File Menu

The Image File menu provides the user with the basic operations of the Image window:

File / Save Select this item to save the current image window file with its original name.

File / Save as Select this item to save the current image window file with a new name.

File/Insert The Insert file option allows you to insert an existing Image File, into an existing Image Window.

File/Import You can import or load an Image file that has been saved as ASCII file into the Image Window. This file can then be viewed and edited.

File/Attach to The File Attach to menu allows you to attach an Image (*.VIM) to an existing Window. This replaces the Image inside the Window. The VIM file is modified to reflect this change. Common Open Dialog lets you select the Attach VIM (actually the Image is what is attached).

File/Print Select this item to print the current view.

File/Exit Select this item to close the current window.

If you made changes to the image, but did not save the file, you will be prompted to either save the changes you made or discard them.

File / Attach to

The File Attach to menu allows you to attach an Image (*.VIM) to an existing Window. This replaces the Image inside the Window. The VIM file is modified to reflect this change. The Common Open dialog box enables you to select the Attach VIM (the Image). The Image title changes to something like attached to c:\APPLIC\APPL\2.VIM.

Filled Circle Tool

To draw a filled circle

1. From the Drawings Toolbar, click on the circle tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to form the circle.
 4. Release mouse button.
-

Filled Ellipse Tool

To draw a filled ellipse

1. From the Drawings toolbar, click on the ellipse tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to form the ellipse.
 4. Release mouse button.
-

Filled Orthogonal Polygon Tool

To draw a filled orthogonal polygon

1. From the Drawing Toolbar, click on the closed filled orthogonal polygon tool
2. Click the left mouse button on the start point.
3. Click the left mouse button on successive end points.
4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

***Tip:** You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.*

Filled Polygon Tool

To draw a filled polygon

1. From the Drawings toolbar, click on the filled polygon tool.
2. Click the left mouse button on the start point.
3. Click the left mouse button on successive end points.
4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

***Tip:** You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.*

Filled Closed Arc Tool

To draw a filled closed arc

1. From the Drawings toolbar, click on the filled closed arc tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to end point.
 4. Release mouse button.
 5. Move the mouse to the desired radius point and left-click the mouse button.
-

Filled Round-cornered Rectangle or Square Tool

To draw a filled round-cornered rectangle or square

1. From the Drawings toolbar, click the round filled round-cornered rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Find

Find and go to an object that matches the next search.

Options / Styles Definition

This dialog box is used to define font styles for the image text.

To define a new style

1. Select Styles Definition from the Options menu of the Image Window. The Styles Definition dialog box opens
2. Click the Add button to open the **Style Properties** dialog box where you can define the new style properties.
3. Click the Close button when done.

To change the definition of an existing style

1. Select a style from the list
2. Click the Properties button. The Style Properties dialog box opens.
3. Change the style attributes: size and effect and activate the OK button.

To Remove a style

1. Select a style from the list
 2. Click the Remove button.
-

Filled Rectangle or Square

To draw a filled rectangle or square

1. From the Drawings toolbar, click the filled rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Style Properties

Use this dialog to define a new style or edit an existing style.

To define a new style:

1. Select the Styles Definition option from the Options Menu.
 2. Click the Add button. The Style Properties dialog box opens.
 3. Type the style name in the Style name field.
 4. Select the font from the Font list.
 5. Define the font attributes: size and effects (bold, italic, underline, strikethrough).
 6. Click OK to save your changes and return to the Font Styles Definition dialog box.
- The new style you defined now appears in the list of styles.

Note that on the Web only Bold and Italic effects apply. The dialog box opens with Underlined and Strikethrough disabled.

Edit / Get Colors and Save Colors

The application enables you to get colors, i.e., import a color palette, or save colors, which means saving the colors you defined in your image file.

The *.pal file contains the 16 toolbox colors as well as the additional 16 custom colors from the color dialog box. Once you define or customize your colors you can save them in a *.pal file. To retrieve or *get* the colors you have saved, use the Get Colors option.

To retrieve colors from a saved color palette

Select Get Colors from the Edit menu. The Open dialog box opens, where you can select the colors from a *.pal file.

To save a color palette

Select Save Colors from the Edit menu. The Save As dialog box opens, where you can save your colors to a *.pal file.

*Note: If the image file name and *.pal file name are the same, the *.pal file is loaded automatically. The user can continue to work with his customized palette every time he opens an image.*

GoTo Zone

The Goto Zone dialog box enables you to easily jump to any of the zones you defined.

Gradient Styles
























Line left to right



Line right to left



Line top to bottom

	Line bottom to top
	Line left-top to right-bottom
	Line left-bottom to right-top
	Line right-top to left-bottom
	Line right-bottom to left-top
	Line2 left and right to center
	Line2 center to left and right
	Line2 top and bottom to center
	Line2 center to top and bottom
	Line2 left-top and right-bottom to center
	Line2 center to left-top and right-bottom
	Line2 right-top and left-bottom to center
	Line2 center to right-top and left-bottom
	Angle to left-top
	Angle to left-bottom
	Angle to right-top
	Angle to right-bottom
	Angle from left-top
	Angle from left-bottom
	Angle from right-top
	Angle from right-bottom



Rectangle to center



Rectangle from center



Ellipse to center



Ellipse from center



Cone from left



Cone from right



Cone from top



Cone from bottom

GoTo

This dialog box is used to enter the coordinates of the location to which you want to jump to in the image. You can jump to any position in the image, whether or not that position is defined as a zone.

Defining Grid Parameters

Select the Grid Setup item to define a grid for the image.

A grid is a rectangular array of points that appears in the image background and can be used to place objects at exact coordinates in the image.

To define the image grid setup

1. Select Grid Setup from the Modes menu.

Or, Click the Grid Setup tool located on the main toolbar.

The Grid Setup dialog box opens.

2. Define the Grid step units type:

World - The grid step will be set to the drawing space, so that when the zoom level is changed, the visible distance between grid points also changes accordingly, together with the other geometrical objects in the image.

Pixels - The grid step is set to the screen pixels, so that whatever the zoom level, the distance between the grid points will remain the same, even though the object sizes visibly change.

3. Enter the grid step (in the respective units). X is the horizontal step and Y is the vertical step.

4. In the Origin section, define the reference point to which all other points are relative.

5. Click the Select Point button to select the origin point by clicking on a point in the image. The X and Y fields will indicate the point you selected.

6. Click the Show button to cause the grid to appear in the image immediately, according to the current configuration.

7. Click the Set button to save the grid configuration and exit the dialog box.

The grid origin is the reference point to which all other points are relative.

The term grid snapping refers to the movement of the cursor in the image, only in grid point steps (when the mouse is moved, or arrow key is pressed, the cursor will move to the next grid point).

Grid Display

To make a grid visible or hidden, click on the grid tool from the Operations Toolbar.

You can also make the grid hidden or visible from the Image Modes Menu, Show Grid.

Grouping and Ungrouping

Grouping objects combines two or more objects so you can work with them as though they were a single object. You can flip, rotate, and resize or scale all the objects in a group as a single unit. You can also change the attributes of all objects in a group at one time. For example, you can change the fill color to all objects in the group in a single step.

To Group Objects

1. Click the **select tool** and then drag to select the drawing objects you want to group.
2. Click the left mouse button on the Group tool in the Objects Toolbar.

Or

Click Operations from the Edit menu, then click on the Group option.

Or

By right clicking an object and selecting the Group option.

To Ungroup Objects

1. Select the grouped objects.
2. Click the right mouse button on the grouped objects and select the Ungroup option.

Or

Click Operations from the Edit menu, then click on the Ungroup option.

Or

By right clicking the grouped object and selecting the Ungroup option from the menu.

Image Alert Fill/Line Color

This dialog box defines the line and fill colors or the image object.

There are two columns:

Status where the status of the alarm is selected. This could be:

Started

AlarmStatus0

AlarmStatus1

Acked

Ended

Color click the arrow in the selected state's Color field and select the relevant color

In this zoom the layers will always appear (even if the scaling range were not specified for them).

In this zoom each layer will be viewed according to the scale range specified in the Layers Definition.

Select this item to set the a new font style

Image Bitmap Transparency

This dialog box is used to change color transparency of an Image bitmap.

1. Check the Use Transparency field to activate the Selected Color dialog box.
 2. In the color fields define the required transparency.
 3. Click OK to save.
-

Image Button Tool

The Image button is a static object that can have normal attributes as other objects such as layers and colors. The main use of this object is to enable the application to contain a trigger object that has the same look and feel as a Windows button.

It is also possible to define over the button object dynamic, alarm or triggers objects and have the same roles as any other static object.

Defining a Button

To define a button select the button tool on the Image Drawing toolbar.

Selecting the Button tool changes your cursor as follows:

Click and hold left mouse button and drag to draw a rectangle (drawn in dash line) for the size and location of the button.

Releasing the mouse button will open the Button Properties dialog box:

Type the text you want to appear on the button in the caption field. Default caption is *button*. Click OK and the button will be displayed in your Image.

Image Alert - Blink

This dialog box defines the rate that image object alert blinks.

There are two columns:

Status where the status at which the alarm blinks is selected. This could be:

Started

AlarmStatus0

AlarmStatus1

Acked

Ended

Rate where the blink rate for the selected status is defined. This could be:

Fast

Medium

Slow

Copy and Paste Attributes

This feature can be used to copy and paste both objects and text attributes.

In an image select an object/text and then click the Copy Attributes button in the Operations toolbox.

Using the tool, click on an object or text in the image. The copied attributes are pasted into the selected item.

Right click anywhere in the image to end this process.

Notes:

1. Objects are applied by clicking each object individually.
 2. Copied attributes can only be pasted into the same object/text type. That is, attributes copied from text cannot be pasted into objects.
 3. The Copy Attributes button is only enabled when an object/text is selected.
-

Image Edit Menu

The Image Edit Menu is the graphic tool of the application. It is used to create and view the images that enable personnel to visualize part or all of a control process.

The Image Edit Menu includes a variety of drawing tools that make image design quick and easy.

The Image Edit Menu consists of the following menu items:

Edit /Undo- RedoThe Undo command reverses or deletes the last entry. Immediately after you undo an action, the Undo command changes to Redo, allowing you to restore what you reversed

Edit/ Copy To Clipboard The Clipboard is an Operating system facility use to transfer data between applications.

Edit/ Paste form Clipboard Select this item to paste objects from the Clipboard to an image

Edit/Edit Properties Select this item to edit objects

Edit/ Find Using the Find option you can find and Goto an object that matches the search text

Edit/ Find next Find next searches for the next occurrence of the last search string.

Edit/Align Two or more selected objects can be aligned to Right Top or Bottom. They can also be centered or resized Horizontally, Vertically or Both.

Edit/Select This item is used to select objects in the image.

Edit/Operations The Operations Menu allows you to perform editing and animation operations on your Image.

DrawingsThe Drawings Menu enables you to draw and add text in your Image by using the Polyline, Box, Circle, Pipe, Text and Pick color tools.

Line Type Line Type enables you to define lines with different widths and types for objects that include lines as part of their shape

Set Background Color[HLP_WZ2EDT_SETBACKCOLOR](#)

Get Colors The Set Image Background feature enables you to set the image background color.

Save Colors[HLP_WZ2EDT_SAVECOLORS](#)

Image Overview

Application Images are dynamic graphs representations of industrial processes. Each tag in an industrial process can be represented by an image object, and each object can represent specific process values, thereby displaying a dynamic picture of the process.

To initiate the Image window:

1. Right click the Image file located in the Containers tree
2. Select the "New Image" option with the left mouse button.

OR

Through the Pop-up menu located in the List Zone

1. Select the Images file from the Project Tree.

2. Right click an existing Image or click anywhere in the List zone
3. Choose the New Image option.

To view the list of Image files:

Right click Images on the All Containers tree. As a result a list of all Images is displayed.

To set the order of fields to be displayed in the Images list:

1. Click the Image file in the Containers tree
2. Right click an existing Image or anywhere in the List Zone
3. Choose the View Setting option from the menu.

See the following:

The Image Toolbars

Viewing Images

Insert Picture Tool

1. To insert a picture file select the Insert Picture Icon from the Drawings Toolbar. The Select Picture Dialog box opens.
 2. Enter the file name in the File Name field and press Open.
 3. You can insert a *.Jpg or *. BMP file.
-

Image Find Option

Using the find option you can find and Goto an object that matches the search text. This feature is available in Edit mode only. The Find command opens the Find dialog box while the Find next searches for the next occurrence of the last search string.

You can activate the Find option using the following keys:

Find: Ctrl F

Find Next: F3

In the Find in Image option you can do the following:

You can enter search strings up to 256 characters

Search options are common for all Image Windows.

Search Options

The following is a list of the search categories and their description you can select to search for:

Simple text.

Tag name - this includes tag names in Dynamic object, Tag Value, Trigger, Text table and Widgets.

Alarm family name - as defined in alarm object.

Trigger macro name - the name of the macro that a trigger activates.

Trigger zone name - the name of the zone that a trigger *goto*

Trigger button - any name in trigger button including title and legend on each button.

Cluster Instance - the instance name of a cluster.

Cluster library - the library name of cluster instance.

Cluster object - the cluster object name as appearing in the library.

Text table value - the current string value matches the search string.

String tag value - the current string tag value matches the search string

Notes:

1. For Text table and String tag the Simple text option must be also checked.
2. If searching for trigger zone or macro, then the search is also made in trigger buttons for such a match.
3. Options can be set independently from one of the other.

Other Search Options

Other search options give you control of the way the actual search is made.

Match case -- the search is made for full match of case of letters, otherwise, strings are compared ignoring the case.

Whole word -- the search is made to find the exact full text, all characters are accounted for, otherwise, the search is made to find the occurrence of the search string inside any text.

Only in visible view -- if this option is checked, the search is limited to the visible part of the Image inside the Window.

Other Advanced Search Options

Goto object -- if this option is checked the application will automatically navigate to the found object to bring it into the middle of the current Window; the scale will not be changed.

Always *Goto* object -- checking this option causes the application to navigate to the found

Smart Search -- checking this option will cause the search to be performed in a geometrical way. The Image is searched from 'left to right' in strips of the same size of the current open view. In many cases such search is more 'intuitive' especially if the Image is divided to zones with a corresponding layout.

If this option is not checked the search is simple, meaning that the search is by the order of objects in the Image, from the first object created to the last one.

Notification Message

If a search fails a notification message is displayed with the searched string.

Instance Parameters

This dialog box is used to define a cluster instance. In the Instance Name field type in the name of the Instance.

A full description of Instances appears in the application documentation.

Layers Visibility Mode

You can override the current visibility mode and make a layer visible or hidden.

The Layer Override Hide or Layer Override Show dialog boxes enable you to select a layer from the list and make it visible or hidden.

- To make a layer visible

1. From the Layers menu select Override Show.
2. In the Layer Override Show dialog box select the layer you want to become visible.
3. Click the Show button to make this layer always visible.
4. Click the Clear button if you want all layers to revert to default visibility. A layer set to be visible (Show) is marked with a special arrowhead character.

To hide a layer

1. From the Layers menu select Override Hide.
2. In the Layer Override Hide dialog box select the layer you want to become hidden.
3. Click the Hide button to make this layer always hidden.
4. Click the Clear button if you want all layers to revert to default visibility. A layer set to be hidden (Hide) is marked with a special arrowhead character.
5. To cancel the permanent effect for all the layers, activate the Clear button.

Notes:

If both the Hide and Show attributes are assigned to a layer, that layer will be hidden.

Layers are used to enhance the elaborating zoom effect in an image.

Layers / Definition

Select the Layer Definition item to define a new layer in the image.

Image objects are drawn in layers. Each image can contain several layers or just one layer (the Base layer always exists).

Each layer in an image constitutes one part of the overall image, and each layer is assigned its own zoom range.

Each image can consist of either one layer (the Base layer) or several layers.

To define a new layer

Select Definition from the Layers menu. The **Layer Definition** dialog box opens.

Layers / Elaborate

Select the Layers item to toggle the Elaborate Zoom on and off.

A checkmark beside the item indicates that the Zoom is On. When the Elaborating Zoom mode is on, each layer will be viewed according to the scale range specified in the Layer Definition operation.

When the mode is off, layers will always appear (even if the current scale does not fall within the layer's scale range).

To toggle the Elaborating Zoom mode on and off

Select Elaborate On from the Layers menu. A checkmark beside the item indicates that the mode is active.

Layers / Override Hide

Select the Override Hide item to set a layer so that it will always be hidden, despite the **Elaborating Zoom mode** setting. Any layer set to be hidden is marked with a special arrowhead character.

Note that if both Hide and Show attributes are assigned to a layer, that layer will be hidden.

Layers Definition

Layers are used to enhance the elaborating zoom effect in an image. Each image can consist of one layer (the Base layer) or several layers.

Layers can be viewed in the Elaborating Zoom ON or Elaborating Zoom Off mode (Layers / Elaborate On).

If the Elaborating Zoom is on, each layer will be viewed in the scale range you assign when you define the layer. If the Elaborating Zoom is off, each layer will always appear (even if scaling ranges were not specified for them).

To define a layer

1. Select Definition from the Layers menu to open the Layer definition dialog box.
2. Type the name of layer.
3. In the From Scale field, specify the lower limit of the zoom level range for elaborating zoom.
4. In the To Scale field, specify the upper limit of zoom level range for elaborating zoom.
5. Click the Group button to open the Access Permission Manager dialog box opens, where you can assign authorized users and groups for this layer.
6. Click the Add button to add your definition to the list of layers.

To modify a layer

1. Select the layer you want to modify.
2. Change the layer various parameters.
3. Click the Change button for the changes to take effect.

To remove a layer

1. Select the layer you want to delete.
2. Click the Delete button.

The title that will appear on the button.

LoadAnnFile

Selecting this Fast Action opens the Define Trigger dialog box enabling you to browse and select the events summary file (*.ann), or the events summary profile file (*.wna) you want to open upon activating the LoadAnnFile trigger.

LoadHtmlPage

Selecting this Fast Action opens the Define Trigger dialog box enabling you to browse and select the Html file you want to open upon activating the LoadHtmlPage trigger.

Layers / Override Show

Select this item to set a layer so that it will always be visible, despite the **Elaborating Zoom mode** setting. A layer set to *be visible* (show) is marked with a special arrowhead character.

LoadImage

Selecting this Fast Action opens the Define Trigger dialog box enabling you to browse and select the image file, window and zone you want to open upon activating the LoadImage trigger.

LoadPictureFile

Selecting this Fast Action opens the Define Trigger dialog box enabling you to browse and select an image file (*.vim) or a Web picture file (*.wnp) you want to open upon activating the LoadPictureFile trigger.

LoadTrendFile

Selecting this Fast Action opens the Define Trigger dialog box enabling you to browse and select the chart file (*.chr) or trend file (*.wnt) you want to open upon activating the LoadImage trigger.

Lock Tags Value

The Tag Value Lock window enables you to modify the application's tag lock definitions in the Image module at runtime. When this trigger next opens it will be in the mode defined during Trigger creation.

To access the Tag Value Lock in an Image object, do the following:

In the All Containers side of the Application Studio click Images and then select an image from the List of Images on the right side of the Application Studio. An image will open on your computer screen.

Or,

In the Quick Access bar click the Load Image icon and select the relevant image from the list in the Open dialog box.

In the Image module during runtime (trigger mode) using the trigger hand click on the object to open the Tag Value Lock dialog box where a list of all locked/unlocked tags are listed.

The Tag Value Lock trigger has the following options:

Lock/Unlock Where filtered tags can be locked/unlocked without exiting the dialog box. Each unlocked tag receives a continuous current value update.

Print Which prints to reports printer defined in the application.

From Image/From Filters This toggle button moves between the From Image and From Filter List modes.

Select Filters Which when clicked opens the Select Tag Filters dialog box where new Tag Filters can be defined, modified and added to the Selected Filters List.

Modifying Tag Lock Values

The lock tag definition dialog box enables the filter tags to be both locked/unlocked. This dialog box also enables tag value modification READ/WRITE.

Locking and Unlocking Objects

Image objects can be locked/unlocked. Locked object cannot be moved or modified.

To lock/unlock an image object do the following:

Select an object.

Right click and select lock/unlock from the popup menu.

A macro that will be invoked whenever the button is activated.

Note: Macro is not supported on the Web.

Modes Copy On

Select this item to toggle the Copy On mode on and off.

To enable the Copy On mode:

Select Copy On from the Modes menu. In the Copy On mode, transformations do not affect the original objects. For example, if an object is moved, both the original and the moved objects will remain on the screen (the object will, in effect, be copied). If this mode is off, when an object is moved, only the newly-positioned object will appear.

Modes / Edit

Select this item to toggle the Edit Mode on and off.

The Edit mode is used for designing and editing an image. In this mode, an image can be viewed and edited.

To access the Edit Mode

Select Edit from the Modes menu. A checkmark beside the Edit item indicates that it is active. Selecting the item again causes the system to revert to the Monitor Mode.

In the Edit mode, all the image Window functions are present, including the Tools windows which contains the drawing and editing tools used to create and modify images.

When the Edit Mode is activated, all the Tools available in the window will appear.

The Tools window contains the object, the operation, the drawing and the color Tools. In addition, the current coordinates of the location of the cursor in the image will appear in the title bar of the window (or in the caption of the icon, if it was minimized).

*Note that if the Edit mode is activated without the **Navigate mode**, you will be able to edit the image, but not scroll, pan, or zoom in it.*

Media Player

Note: Media Player is not supported on the Web.

The Media Player enables you to *play* any Media file that is installed on your computer. Usually this object is used to play 'AVI' files that display some information to the operator.

To Define a New Media Object

1. Select the Media tool located in the Objects Toolbar.
 2. Draw a rectangle in the initial size you wish. The Media Player Properties dialog box opens where you can select the Media device (file) you wish to play.
 3. You can set the Media window to include a title bar with your own text. The Media device will be displayed 'Stretched ' to the object size. A small control bar is displayed at the bottom on the object with the options to Play, Stop, Pause, Fast Forward and Rewind.
 4. You can select and edit the object size and the location can be manipulated as any other object. To change the object properties double-click on it.
-

Modes / Grid Show

Select the Grid Show item to make a grid visible or hidden.

To enable the Grid Show option

Select Grid Show from the Modes menu.

Or,

Click the Grid icon on the Operations toolbar.

The Modes Menu

Window modes (edit, navigate)

Select one of these items to set the operating mode of the window.

Several image windows can appear on the screen simultaneously: **Edit, Navigate** thus enabling the operator to view and edit separate parts of the same image, or different images, on the same screen.

Trigger on **When the Trigger mode is set to ON, objects defined as Trigger objects can be used for tag input. When this mode is OFF, no object, even one defined as a Trigger object, can be used for tag input.**

Copy On Select this item to toggle the Copy On mode on and off.

Grid Setup Select this item to define a grid for the image.

Grid Snap Select this item to toggle the Grid Snapping on and off.

Grid Show Select this item to make a grid visible or hidden.

Modes / Grid Setup

Select the Grid Setup item to define a grid for the image.

A grid is a rectangular array of points that appears in the image background and can be used to place objects at exact coordinates in the image.

Selecting Grid Setup opens the **Grid Setup dialog box** where you can select the grid step unit types and coordinates, the reference point to which all other points are relative. You can also preview your grid definition.

Modes / Navigate

Select this item to toggle the Navigate mode on and off.

Use the Navigate Mode to move through an image workspace without editing the image.

In this mode, the displayed image can only be viewed and not navigated or edited, though tag input can be performed if the operator is authorized to do so and the trigger on Mode has been activated.

The Tools window initially appears outside the Image Window, but can be moved to the new location,

To enable the Navigation mode

Press the Navigator Icon located in the Image main menu

OR

Select Navigate from the Modes menu.

If this mode is selected without the **Edit mode**, you will be able to scroll, pan, and zoom in the image, but not edit it.
In addition, if the Edit mode is not activated together with this mode, the Tools window will not appear.

Modes / Snap to Grid

Select the Grid Snap item to toggle the Grid Snapping on and off.

When grid snapping is on, the cursor will move only from point to point on the grid, without skipping points.

This mode can be activated to position objects accurately in the image

To enable the Grid Snap option

Select Snap to Grid from the Modes menu.

Or

Click on the Snap to Grid icon in the Operations toolbar.

Modes / Trigger On

Select this item to toggle the Trigger mode on and off to enable the use of Trigger objects with other modes.

When the Trigger mode is set to ON, objects defined as Trigger objects can be used for tag input. When this mode is OFF, no objects, even one defined as a Trigger object, can be used for tag input.

When this mode is active, you can move from one trigger object to another by pressing the Tab key. To move in the reverse order, press the Shift and tab keys together. Note that you move from one object to another according to the order in which the objects were designed. To change the order, use the Z order tool.

To access the Trigger ON tool

Press the Trigger On button located in the Image Main Menu. After you select this item, the cursor will appear as a white hand. Whenever the hand is placed on a trigger object, it will turn red. In this mode, image objects designed for tag input (trigger objects) can be activated.

Modify Tag Value

Enter a value and then click the OK button to apply it immediately to the tag. If the object is a string tag a text value for it can be entered in the New Tag Value field.

The keypad can be used for data entry triggers of numeric types.

Click the test button to move the keypad. After the application is closed and then reopened the keypad will appear in the new location.

Modifying Text

Use this dialog box to modify a text object.

To modify a text object

1. Select the text object you want to modify.
2. Click the mouse right button and select Change Text from the popup menu displayed.

The Modify Text dialog box is displayed.

OR

Double click the selected object

3. Modify your text as applicable and click OK.

Momentary Trigger

A Momentary Trigger is an object that is used to change a tag value in one shot. Usually such operations are required for a digital tag that control a field operation that is activated by a high value (one 1) for a short period of time, followed by a low value (zero 0). The neutral way to implement such an operation is using the 'button down' button up' pair of user actions. This operation is actually a 'button click' that is regarded as one operation. The momentary trigger operation will regard a 'button click' as two operations.

Functional Description

Following is a description of the way Momentary Trigger works:

All tags can be used for the Momentary including string tags.

A formula, identical to the one used in Action trigger can be assigned for Down and Up operation

Any Dynamic object in an Image that should reflect the tag value change will be updated when the button is still pressed

Only when the user releases the mouse left button ('button up') the Up formula is calculated and the result value will be written to the application in the same way as the down value

If the user releases the button not above the trigger object the Up value will not be written

To set and reset a bit in an Analog tag the OR and AND operations can be used. For example for 8 bit analog tag to set the 3rd bit use the formula '@ | 4' and to reset the same bit use formula '@ & 251'. The same principal can be applied to any bit and for 16 or 32 bits analog tags

To define a Momentary Trigger

1. Click the Momentary button from the **Trigger Object** dialog box. The Tag Input - Momentary Values dialog box opens.
 2. Enter the Value that the application will write to the tag when you press the left mouse in the Button Down Formula Field.
 3. In the Field Button Up Formula enter the value that the application will write as soon as you release the mouse button. For new definitions the default values are 1 and 0 for Down and Up respectively.
 7. Click OK to complete the operation.
-

Moving Objects

The move operation is used to move objects from one location to another. As opposed to the move operation described in the section called Selection, this move operation is useful for long distance moving (from zone to zone, area to area, etc.), since the mouse button does not have to be held down while dragging the object.

To move an object:

1. Select one or more objects.
 2. From the Edit Menu Operations click the move option.
 3. Click on the left mouse button. The cursor changes to a bi-directional arrow.
 4. Click the left button on a starting point.
 5. Move the frame of the object(s) to the desired location and click the left button.
 6. Clicking the right mouse button sets the object automatically to select mode and cancels the move operation.
-

Numeric Keypad

Note: Numeric keypad is supported on the Web.

To enable the application to support touch screens, a new type of trigger is available. In the Wiztune.dat file, manually set the tuning parameter

IMG_TRG_KEYPAD = YES

Default is NO

Restart the application for it to take effect.

The Key Pad is available for **Data Entry triggers** of numeric type.

The keypad operates as any other numeric keypad. Press the Back button to delete one number back. Press Clear to erase all numbers in the field.

You can set the location of your keypad anywhere on the screen. Press the Test button and you can move the keypad to any location. When you reopen the application and operate the keypad, it will be opened at the same location as you selected.

Move Object to Active Layer Used to move a selected object to the layer defined as active.

- To move an object to the active layer:
 1. Select the object(s) that you want to move.
 2. From the Layers menu select Move Objects to Active Layer.You can select an object and then click the right mouse button on the active layer
-

Options / AutoWindow

Select this item to automatically set the image window position and zoom level, so that all image objects in the window will be arranged properly.

This function can also be performed by clicking on the a button on the left side of the image window.

If you select Cancel and/or Help, these buttons will be included in the panel. If you select Execute, you are prompted to confirm the specified action before it is executed.

Options / Force Dyn. Show

Select the Force Dynamic Show item to cause a dynamic object in an image to appear, even if according to a Drum or Show filter (both defined in the Dynamic Parameters dialog box), the object is hidden.

To define Force Dynamic show

1. Select an object from the view
2. Select Force Dyn. Show from the Options menu.

OR

1. Select an object from the view.
2. Click it with the right mouse button
3. Select the Dynamic Definition from the popup menu.

OR

Press the Force Dynamic icon from the Image Main Menu.

Options / Goto

This dialog box is used to enter the coordinates of the location to which you want to jump to in the image. You can jump to any position in the image, whether or not that position is defined as a zone.

To jump to a specific position in the image window

1. Select Goto from the Options menu. The Goto dialog box appears.
 2. Enter a **scale** level between 1 and 2048.
 3. Enter the X and Y coordinates, in drawing units.
-

Options / Window

Select this item to zoom in to a specific part of the image.

A window zoom is performed by marking a window in the image to be used later as the window. This zoom enables the operator to define what is to be included in the window.

To zoom in to a specific part of the image:

1. Click on any location in the image to designate the starting point of the portion of the image you want to zoom in on.
2. Click on the place where you want the end of the image portion to be.
3. Click in the outlined box.

OR

Press the w button located in the Image scroll bar.

To move an outlined box, place the cursor on a box border (a multiple arrow cursor appears), click, and drag the box to the new position.

Options / Goto Zone

The Goto Zone dialog box enables you to easily jump to any of the zones you defined.

To jump to a specified zone in an image:

1. Select the Goto Zone item from the Options menu, or click the Goto Zone icon from the main menu. The Goto Zone dialog box is displayed.
2. Select the zone you want to jump to and click the OK button, or double click the zone you wish to jump to. The image window will immediately be centered on the zone's central point and the zoom level will be adjusted to the level defined for that zone.

Note that a pre-defined zone called Previous Zone is included in the zone list. This zone appears as the character <<<. You can goto this zone the same way as any other zone. However, if there is no zone to return to, the previous zone item will be disabled.

Options Repaint

Select this item to redraw the current image.

This is useful to view the results of editing operations, if they do not immediately appear on the screen, or to remove undesirable residues that may remain on the screen after editing.

To Repaint

Select the Repaint option from the Options menu.

OR

Press the r button from the Image scroll bar.

Options Simulate

Select this item to simulate variations of tag values and observe how the image is affected by each value.

Options Mark Trigger

Note: Mark Triggers is not supported on the Web. You can mark triggers in Edit mode, while developing your image.

Select this item to cause all **trigger objects** in the Window to be marked (or unmarked) on the screen.

After you select Mark Triggers, a red hand will appear in all the trigger objects in the image. The Mark Triggers function will apply to any trigger object.

Note, however, that if an object is marked (with a red hand) to indicate that it is a trigger object, but is dynamically or manually transformed (moved, rotated, scaled, etc.), the trigger mark may disappear or will not appear in its proper location. If this occurs, you can refresh the screen by pressing <Alt-R>.

Options / Styles Definition

Select this option to define a font to be use for image text objects.

Orthogonal Pipe Tool

To draw an orthogonal pipe

1. From the Drawings toolbar, click on the orthogonal pipe tool.
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right mouse button to complete the operation.
-

Orthogonal Pipe

Orthogonal pipes are connected rectangular segments in orthogonal directions. (vertical, horizontal, and at 45 degrees).

Orthogonal Polyline

Lines drawn in orthogonal and diagonal directions (vertical, horizontal, and at 45 degrees).

Paste form Clipboard

Select this item to paste objects from the Clipboard to an image. The imported object will be placed in the current active layer.

For a Paste from Clipboard operation, the application will paste the object first in the image parameter format (if the object is in that format). If the object is not in that format, the application will paste the object in the Metafile format. If the object is not in that format either the application will paste the object in the Bitmap format. If the object is not in any of these formats, the application will not paste the object.

There are two ways to paste an object from the Clipboard

Through the Edit Menu

1. Select an object
2. Select the Paste from clipboard item from the Edit menu

Through the Pop-Up Menu

1. Right click object in the Image window
2. From the Pop-up Menu select the Copy to clipboard

To place an object after it has been pasted, either double-click on the point in the image where you want the object to appear, or click once to set the size and location of the image.

If you click once, you must define the area which the object will fill by moving the outlined box that appears (by dragging the mouse) to the end point of the object, and clicking again.

Pick Color Tool

Click on the Pick Color tool in the Operations Toolbar for filling or drawing objects with the exact color used in a different object.

The Pick Color Tool lets you sample colors from an area of an image to designate a new line color or fill color.

To select the line or fill color using the Pick Color tool

1. Select the drawing tool.
2. Select the Pick Color tool, then place the dropper icon on any point in the image over the desired color.
3. Draw your new object and the object fills with the selected color.

Or

1. To select a new line color from the Color Toolbar, left click the mouse button on the color you want.
 2. To select a new fill color from the Color Toolbar, right click the mouse button on the color you want.
-

Pipe Tool

To draw a pipe

1. From the Drawings toolbar, click on the pipe tool
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right mouse button to complete the operation.
-

Polyline Tool

To draw a Polyline

1. From the Drawings toolbar, click on the Polyline tool
2. Click the left mouse button on the start point.
3. To connect lines, click the left mouse button on successive end points.
4. Click the right mouse button to complete the operation.

***Tip:** You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.*

Orthogonal Polyline Tool

To draw an orthogonal Polyline

1. From the Drawings toolbar, click on the orthogonal polyline tool
2. Click the left mouse button on the start point.
3. To connect lines, click the left mouse button on successive end points.
4. Click the right mouse button to complete the operation.

***Tip:** You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.*

Remove Alarm

This option will cancel the Alarm of an object which was previously defined as an alarm object.

Rebuild Cluster Instances

One of the big advantages of using clusters is the ability to rebuild all instances automatically after updating the original cluster in the library.

In the dialog box list you can see all the instances that were placed in the current image. Each line contains the library name the cluster name and how many instances of the object were placed.

Select the items you wish to update and press the Rebuild button.

Notes:

The tags and alarms that were associated with each instance will remain unchanged.

This operation will fail if there is no compatibility between the cluster in the library and the instances in the image.

To select all items in the list click the <CTRL></> keys.

Rotating Objects

The Rotate Operation lets you turn an object or group of objects clockwise or counter clockwise.

To Rotate an Object

1. Select an object.
2. Select Operations from the Edit menu, then select the Rotate option; or select the Rotate tool from the Operations toolbar.
3. Click the left button on the rotation pivot and see the skewing handles.
4. Move the frame of the object around the pivot until the object is rotated to the desired orientation and click the left button.

Once a starting point for the Rotate operation has been established, click the right button to cancel the last part of the operation. When no starting point has been established, the right button can be used for single object selection.

Note: *Ellipses cannot be rotated sideways (slanted).*

Click to save the current button definition to be used later for other tags and objects.

Select Active Layer

Select the active layer item to designate the active layer for which all subsequent editing operations will be performed.

Select Tool

To select an object

1. Click the select arrow.
 2. Click on the object you want to select.
 3. To select several objects, start from an empty point in the Image, press and hold left mouse button, drag a rectangle around the objects you wish to select.
 4. To add an object to existing selection, left-click the mouse button while holding down the Shift key.
 5. Handles (small squares) appear on the corners and sides of an object's highlighting box when the object is selected.
 6. Use the square handles to resize and transform an object. Click on a selected object and the handles change to arrows which then permit you to resize an object.
 7. To move selected objects, click inside the object or bound rectangle, for a group of objects and, while holding the mouse button down, drag the object to the desired location.
-

First selected object is marked with 8 hollow handles.

Remove Trigger

Select the trigger object, right click, and select Remove Trigger from the pop-up menu.

Or,

Select the trigger object, point to Operations in the Edit menu, and select Remove Trigger.

An arrow will mark the tag value input method that you select in the dialog box.

Note that for the Data Entry, Smooth, Bit, and Test dialog boxes the last position of the dialog box will be saved (unless you clicked the Cancel button before completing the operation).

This means that you can drag the dialog box to any position on the screen. Thereafter, whenever that dialog box is opened, it will appear in its last position.

However, the dialog box position is relative to the window position. If the window is moved and then the dialog box is invoked, it will appear in the position it was last saved, relative to the new location of the window.

Selecting an Object

To select an object:

1. Click the select tool.
 2. Click on the object you want to select.
 3. To select several objects, start from an empty point in the Image, press and hold left mouse button, drag a rectangle around the objects you wish to select.
 4. To add an object to existing selection, left-click the mouse button while holding down the Shift key.
 5. Handles (small squares) appear on the corners and sides of an object's highlighting box when the object is selected.
 6. Use the square handles to resize and transform an object. Click on a selected object and the handles change to arrows which then permit you to resize an object.
-

Send to Back

The Send to Back option allows you to place objects in the back of your image. You can change the way objects overlap or lie by shifting the object to the back. Objects are placed with the first object you created on the bottom and the last object you created on top. You can shift the order of the objects by using the Bring to Front option or Send to Back option.

To Send the object to the back

1. Select the drawing object you want to send to the back.
2. From the Edit menu select Operations then Send to Back.

The selected drawing object is placed in back of other overlapping objects.

Or,

Click the Send to Back tool on the Operations toolbar.

Simulate Range

Use the Simulate Range dialog box to specify the upper and lower limits of the values to be simulated.

The fields in this dialog box are:

Lower Limit - Lower limit of the simulation range.

Upper Limit - Upper limit of the simulation range.

Slider

Note: This feature is not supported on the web.

Tag value sliders (widgets) can be designed and used in an Image to change and read tag values in a simple visual manner. The sliders can be positioned anywhere in the Image and will automatically reflect any change in the tag value that occurs in the field.

The following points should be noted when working with tag value sliders:

- Tag value sliders are system windows that operate using system controls.
- Tag value sliders are automatically generated as trigger objects, and therefore can only operate in the Trigger mode.

To design a slider:

From the Edit menu, point to Drawings and then to Widgets.

Select Slider from the popup menu.

Or,

Click the Slider tool in the Objects Toolbox. The Slider properties dialog box is displayed:

The following fields are available:

Station Specifies the network station to which the tag belongs. For a list of stations from which you can select, click on the arrow to the right of the field.

Tag Specifies the tag to be associated with the slider. For a list of tags from which you can select, click on the arrow to the right of the field.

Value Assignment Select On Dragging to cause the value of the associated tag to change as the slider is dragged.

Select On Dropping only to cause the value of the associated tag to change only when you complete the dragging (release the mouse button) and place the slider on a specific value.

Select On Dragging to Image, on dropping to Tag to cause the value of the associated tag to change and be reflected in the Image only as the slider is being dragged, and change and be written to the PLC when you complete the dragging (release the mouse button) and place the slider on a specific value.

Select Snap to Tick to cause the slider to snap to ticks on the value scale whenever it is moved, or the tag value changes in the field.

Limits Select Default tag limits to cause the value scale limits to be those you defined for the tag in the Tag Definition procedure.

In the From/To fields you can specify the values you want for the upper and lower limits of the tag scale.

Smooth Input

This dialog box is used to set the upper and lower value limits for the Single Tag Input dialog when the trigger is activated.

Lower Limit The lowest tag value that you will be able to specify in the Single Tag Input dialog box when the trigger is activated.

Upper Limit The highest tag value that you will be able to specify in the Single Tag Input dialog box when the trigger is activated.

String Tag

Tag value string displays can be used to represent tag defined as string tags, as image objects. Tag string objects in the image will display exact field device numeric, alphabetic or alphanumeric values.

In this dialog box, specify the network station to which the string tag belongs, and then the name of the string you want to be represented in the image. To select a station or tag from a list of existing stations and tags, click on the arrow to the right of the field. Press OK to activate.

Note that string objects on the image can also be defined as triggers, so that when the object is selected in the trigger mode, you will be able to enter textual values, using different input method.

Note that you may use a tag template Identifier as a tag. This will enable the string tag display to be dependant on current image context

Select one of these options to orient the button panel in a specific shape (Vert. for vertical, Horiz. for horizontal, or Rect. for rectangular).

Options / Simulate

This dialog box is used to specify tag values that you want to simulate for testing purposes. After dynamic objects are defined, the operator can test an object's response to different tag values using an application mechanism that simulates tag values without affecting the tag itself.

When you simulate values, the field device will not be affected.

To simulate tag values

1. Select Simulate from the Options menu. The Simulate Tag Values dialog box is displayed.
2. Select the station to which the tag belongs.
3. Select the tag you want to access.

4. Enter the tag value to be simulated in the New Suggested Value field. The current tag value is displayed in the Current Simulated Value field. The value is set by clicking the Apply button.

OR

Use the horizontal scroll bar to immediately set and simulate the specified value.

5. Click the **Range** button to specify the upper and lower range limits of the tag value to be simulated.

6. Click the Exit button to quit the dialog box and leave the last set value.

Tag Input: Bit Operation

When the Bit method is being used and the operator clicks on a trigger object, the Tag Input: Bit Operation dialog box appears:

For analog tags, the Toggle button in the dialog box will not appear, since it is only relevant for digital tags.

The action button functions are:

On Sets the tag value to 1.

Off Sets the tag value to 0.

Toggle Toggles between 1 and 0 for digital tags only.

Note: If the object was defined as a string this trigger type will be disabled

Text Table

Text Tables are used to associate tag values with pre-defined strings. Whenever a Text Table is defined and activated, a text string will be associated with the tag values that were defined in the Table. When a value changes, the corresponding string will be displayed. Each string table is stored in a separate file.

To assign text tables or create new ones:

Click the Text Table button in the Text dialog box.

If no text table exists, the New Text Table File dialog box opens where you can specify the name of the text table. If a text table file already exists, the Open Text table file dialog box appears. Select a file from the list, or activate the New button to invoke a dialog box in which you can enter the name of a new text table file.

After you specify the file you want to edit, the Text Table dialog box is displayed to specify the string-value relationship:

The following options are available:

Station Specifies the network station to which the tag belongs.

Tag Specifies the name of the tag.

Value Specifies the string display value.

Text Specifies the string for the value.

List Specifies the list of values and the strings defined for them.

Add Adds the value-string pair to the list.

Change Replaces the selected pair with the one specified in the entry boxes.

Delete Deletes the selected pair from the list.

Specify a tag name, the tag values, and their corresponding strings in the entry boxes, and add them to the list by activating the Add button. A value-string pair can be selected from the existing pairs list, placed in the entry boxes, and revised, by activating the Change button. When the Delete button is activated, the selected pair is removed from the list.

Special Cases:

If a tag value does not exist in the text table, the text field will be filled with Xs (xxxxxx).

If no text table file exists, number signs (#####) will appear in the field.

If a communication error occurred, asterisks (*****) will appear in the field.

If spaces are to be used in the string, enclose the string in quotation marks, for example, "The text".

Text table string files can be created or modified using your system editor. The format of this file is as follows:

Value String

5 "Cycle Starting ..."

20 "Cycle Completed !"

Note: Text Tables can also be used for Trigger objects when the String input method is active.

Tag Value

The tag and its value to be displayed are both defined together with the display attributes. The fields in this box are:

Station Specifies the workstation to which the tag belongs.

Tag Specifies the tag associated with the tag value.

Display Mode Select Dec for Decimal, Hex for Hexadecimal, or Eng for Engineering (powers of ten). For example, for the number fifteen: Dec = 15, Hex = F, and Eng = 1.5e1.

Options In this field, select Left Justify to cause the digits in the text field to be justified to the left.

Select **+** Prefixed to cause positive values to be preceded by a plus (+) sign. By default, no sign precedes positive values.

Select Leading Zeros to cause zeros to appear to the left of the value. By default, empty spaces appear to the left.

Display Format In this field, for Digits before ".", specify the number of digits that will be allowed for the integer part of the value.

For Digits after ".", specify the number of digits that will be allowed for the fractional part of the value.

Note that in the Hex mode, digits after the decimal point will be ignored.

Note that you may use a tag template Id as a tag. This will enable the tag value display to be dependant on current image context

The Align toolbar

The Align toolbar enables you to align two or more selected objects. They can be aligned to the Left, Right, Top, or Bottom. The objects can also be centered or resized Horizontally, Vertically or both.

Text Tool

The Text Dialog Box is used to specify a plain string or numerical value that will be displayed whenever a specific tag value occurs.

To use the text tool

1. From the Drawings toolbar, click on the Text tool. The Text dialog box is displayed.
2. Type your text in the Text box.
3. Click one of the following buttons for further Text definitions:

Tag Value - click to define the attributes for the digital text object.

Text Table - click to define a plain string or numerical value that will be displayed whenever a specific tag value occurs.

The Colors toolbar

The Color toolbar includes 32 colors for background and foreground color of objects. Left click selects the foreground or the color while right click selects the background, or fill color.

Double-clicking either mouse button opens the color palette dialog, enabling you to customize any color.

The Drawings toolbar

The Drawings toolbar contains simple drawing objects such as Line, Pipe, Box, Text, and Circle. Both filled and unfilled objects can be selected. The selection, text tool and button are also included in this toolbar.

The Clusters Menu

A Cluster is an object-class. Clusters can easily placed in an application and be reused as required. Clusters can be small or large. They can be simple, such as circles or pumps, or complex, such as a complete sub-application that includes tanks, pumps and valves.

Once clusters are instantiated in an Image, they can be moved, scaled, rotated, and deleted in the same as any other Image object. To cancel a Cluster definition select a cluster object in the Image and then select Break from the Clusters menu in the Image.

Instances cannot be defined as dynamic, as trigger, or as another cluster (no nesting of clusters), unless they are broken apart.

The Clusters menu has the following options:

Option	Action
Define	This option defines clusters and adds them to the Cluster Library
Break	This option cancels a selected cluster object in the image
Open lib	This option is used to open a library.
Rebuild instances	This option enables instances to be built automatically after updating the original cluster in the library
Basket maintenance	A basket is a tool supplying high-level engineering and application design. It is used to make a prototype of the application before actual implementation and traces the progress of the application development.
Open basket	This option displays the clusters defined in a basket. On the right of the cluster, the number of times that the cluster has been used and maximum usage permitted are displayed.

The Image Drawing Tools

The **Drawings toolbar** is used to draw objects in an image.

The application includes all the tools you need to create your own graphic objects. These tools are found in the Drawings toolbox and include the tools listed below. If you want to edit any of these shapes, you can use the Edit Operations Toolbar.

[Select tool](#)HLP_WZ2EDT_SELECT_TOOL

Filled Rectangle or Square

[Unfilled Rectangle or Square](#)

[Filled Rectangle or Square](#)Filled_Rectangle_or_Square

[Unfilled Round-cornered Rectangle or](#)

[Square](#)Unfilled_round_cornered_rectangle_or_square_tool

Filled Circle Tool

[Unfilled Circle](#)HLP_WZ2EDT_CIRCLE

Filled Ellipse Tool

Unfilled Ellipse

[Filled Closed Arc](#) Filled_Closed_Arc_tool

[Unfilled Closed Arc](#)Unfilled_Closed_Arc_Tool

Filled Orthogonal Polygon

[Unfilled Orthogonal Polygon](#)Unfilled_orthogonal_polygon_tool

[Filled Polygon](#)Filled_polygon_tool

[Unfilled Polygon](#)Unfilled_polygon_tool

Orthogonal Pipe

[Pipe](#)Pipe_tool

[Arc](#) Arc_tool

[Orthogonal Polyline](#) Orthogonal_polyline_tool

[Polyline](#)HLP_WZ2EDT_POLYLINE

[Text](#)HLP_DLG_WZ2_TEXT

[Button](#)HLP_WZ2EDT_BUTTON_PROP

Insert Picture

To select a drawing tool

1. Click in the Drawings toolbar.
 2. Click the tool you want to draw with.
-

The Image Toolbars

The image window contains many toolbars that enable you to easily draw and animate your application.

To show a toolbar

From the View menu, click the toolbar you want to view. A check mark to the left of the toolbar name indicates that this toolbar is already opened.

For more information on each toolbar, click the respective topic:

[The Fonts toolbar](#)[The_Fonts_Toolbar](#)

[The Align toolbar](#)[HLP_WZ2EDT_VIEW_ALIGN](#)

[The Drawing toolbar](#)[HLP_WZ2EDT_VIEW_DRAWING](#)

[The Objects toolbar](#)[HLP_WZ2EDT_VIEW_OBJECTS](#)

[The Operations toolbar](#)[HLP_WZ2EDT_VIEW_OPERATIONS](#)

[The Patterns toolbar](#)[HLP_WZ2EDT_VIEW_PATTERN](#)

[The Color toolbar](#)[HLP_WZ2EDT_VIEW_COLOR](#)

[The Status](#)[HLP_WZ2EDT_VIEW_STATUSBAR](#)

The Image Windows

Image windows are windows in which images are viewed and manipulated.

Images are dynamic pictures through which control processes are monitored and supervised.

An Image window can operate in one of the following modes:

Monitor - In this mode, the image can only be viewed in the current window boundaries.

Tag value input through trigger objects is supported (if the operator is authorized to do so).

Navigate - In this mode, the image can only be scrolled, panned, and zoomed in and out.

Edit - In this mode, an image can be drawn, edited, and saved. When the Edit mode is invoked, an auxiliary window, called the Tools window, will appear beside the Image window. The Tools window contains editing tools that you can use to draw or modify an image.

The Image window modes can be activated by selecting a mode from the Modes menu.

Several Image windows can be opened simultaneously on the screen, each displaying parts of the same image, or different images.

In the Edit mode, each image has its own dedicated Tools window.

The Layers Menu

Image objects are drawn in layers. Each image can consist of several layers or of one layer, the Base layer. Layers can be added, changed and deleted.

In an image, each individual layer constitutes one part of the overall image. A complete image consists of all layers that belong to that image.

Each layer is assigned a zoom range. Once created, layers can be viewed in one of two scaling modes; Elaborating zoom On or Elaborating Zoom Off.

Each image layer can be assigned its own authorization levels, to enable only specific operators to view the layer, and each layer can be made visible or hidden using the visibility mode to toggle.

The Options available in the Layers menu are:

Elaborate ON - Select this item to toggle the Elaborate Zoom on and off.

Active Layer - Select this item to designate the active layer for which all subsequent editing operations will be performed.

Definition- Select this item to define a new layer in the image.

Override Show - Select this item to set a layer so that it will always be visible, despite the Elaborating Zoom mode setting.

Override Hide - Select this item to set a layer so that it will always be hidden, despite the Elaborating Zoom mode setting.

Move Object to Active Layer

Select the object that you want to move, and then select the Move Object to Active Layer menu item.

The Objects toolbar

The Objects toolbar allows you to define Image objects such as Alarm, Trigger, Dynamic, Cluster Definition, Group, Slider, Media and Scheduler

The Fonts Toolbar

The Fonts toolbar allows you to set the text font style for any text object, simple, digital or text table.

This toolbar includes the font name, size, direction and different text effects.

The text can be bold, italic, underscored or strike through.

The Options Menu

The Option menu offers the following features:

AutoWindow Select this item to automatically set the image window position and zoom level, so that all image objects in the window will be arranged properly.

Goto Select this item to cause the window to jump to a position and zoom level that you specify in the dialog box that appears.

Goto Zone Select this item to cause the window to jump to an existing zone.

Zones Definition Select this item to define Zones.

Repaint Select this item to redraw the current image.

Window Select this item to zoom in to a specific part of the image.

Simulate Select this item to simulate variations of tag values and observe how the image is affected by each value.

Force Dynamic Show Select this item to cause a dynamic object in an image to appear, even if according to a Drum or Show filter (both defined in the Dynamic Parameters dialog box), the object is hidden.

Mark trigger Select this item to cause all trigger objects in the Window to be marked (or unmarked) on the screen.

Styles definition Select this item to define the fonts you want to use for image text objects.

The Operations toolbar

The Operations toolbar includes Rotate, Pick color, Active Layer, Toggle Fill, Cluster library, Bring to Back, Bring to Front, Delete, Grids, Snap to Grids and Copy Attributes.

The Patterns and Gradient Toolbar

Note: Patterns and Gradient fills are not supported on the Web.

The Patterns toolbar contains 16 different fill patterns, including solid and transparent. The Image drawing patterns also support 32 gradient styles. The first color used for the gradient is the foreground color, while the last color used is the background color.

Gradient fills are supported for the following objects: Text, Filled Box - Circle, and Polygon. Pipes do not support Gradient fills.

Notes

1. *Gradients are not fully supported on Windows 98. Circles, ellipses and rounded rectangles will be drawn as rectangles.*
2. *In the ILS file the gradient pattern numbers run between 100 to 131 ordered by the above list.*
3. *Bitmap fonts are not effected by the Gradient.*
4. *After changing attributes of gradient objects, or moving from select mode, image may need refresh.*
5. *Performance may suffer when drawing large gradient surfaces with many steps. It is advisable that only static (background) object will be using the Gradient. Dynamic over Gradient is possible but performance may suffer. It is also advised to do*

development in low number of steps and later increase steps for run-time.

6. *To set the gradient steps use Image Properties View or in the Wiztune.dat file, manually set the tuning parameter IMG_GRAD_STEP= n). Valid values are between 2 to 255 – Default is 16. Re-enter Image.*
 7. *Transparent color will have 'unknown' effect over fill.*
 8. *The gradient is not affected from rotation or transformation. It is possible to rotate objects with Gradient but the Gradient orientation will not be rotated*
 9. *Not supported on Web. Note that if patterns are used and then brought to the Web, the patterns turn to solid colors.*
 10. *The gradient for a group works like for a pattern.*
 11. *It is not possible to select Gradient fill type in Dynamic definition Fill Type range.*
 12. *The gradient's center reference point for filled polygons, orthogonal polygons, and filled arcs is always calculated by the visible parts of the objects. Therefore, when you scroll and the object partially disappears from view, you will notice that the object's center point moves upwards away from the center.*
-

The Toolbar

This toolbar is located under the Image menu and includes shortcuts to menu items such as Save, Print, Navigate mode, Goto Zone, Grid setup and Mark triggers.

The Status bar

The Status Bar appears at the bottom of the Image Window. The Status Bar displays information about images, features, and procedures.

Toggle Fill

The Toggle Fill operation is used to fill and empty objects. The Toggle Fill tool operates as a toggle.

Note that when an object is unfilled it still retains its fill attribute, which can be restored at any time.

To use the Toggle Fill Tool

1. Select an object.
2. Click the left mouse button on the Toggle Fill tool in the Operations Toolbar.

Or

From the Edit Menu, select Operations, then click on the Toggle Fill option.

The button panel title

Trigger Button Definition

Title The button group title (optional).

Legend A description of the buttons. In this field, any button letter can be highlighted for keyboard entry by prefixing it with the ampersand (&) character.

Value The button value. If the object was defined as a string tag the value can be any numeric, alphabetic, or alphanumeric value.

Zone The zone to jump to when the button is activated. This field is optional. After checking this option click the Zone field and select the relevant zone.

Zone Navigator The Zone Navigator is a global multi image zone navigation window that enables you to quickly and efficiently navigate through image files. After checking this option click the Browse button to open the Zone Navigators dialog box and select the relevant Zone Navigator.

Macro The macro to activate when the button is activated. This field is optional. Not applicable on the Web.

Add The button is added to the list.

Change The button definition is changed.

Delete The button is deleted from the list.

Style The button arrangement style:

Horiz, for horizontal rows.

Vert, for vertical columns.

Rect, for rectangular arrays.

Optional Optional buttons (Cancel, Help and Execute). Select Execute to provide added user security by displaying dialog boxes that must be confirmed before an action is executed.

Button Size Button size adjustment.

Use the <arrow> keys to change the size of the example button that appears in the field. The <PageUp> and <PageDown> keys also affect the size of the example button, and the <Home> key changes the button back to its default size.

Save The button definition is saved in a file.

Use Enables the operator to apply files that contain tag values. The files must have been saved earlier with the Save button. Tag value files can be edited using the system editor.

Notes

1. *A new button can be defined and added to the list by activating the Add button. A button can be selected from the list, its characteristics modified, and the revised definition saved, by activating the Change button. A button is deleted from the list by activating the Delete button.*
2. *If an ampersand (&) character precedes any part of the text specified in the Legend field, the operator will be able to activate that button by pressing the <Alt> key together with character that follows the ampersand (the character that will be underlined). For example, if a button legend is specified as O&FF, the actual text will appear as OFF, and the operator will be able to activate that button by pressing the <Alt> key together with the <F> key.*
3. *In the Macro field, you can specify a macro that you want to be activated by typing the name of the macro, or by clicking on the arrow to the right. When you click on the arrow, a list of predefined macros will appear for you to select from.*
4. *If more than one operation is assigned in this dialog box, the operations will be performed in the following order: goto zone, tag assignment, run macro. If one of the operations fails, the next operation will not be executed.*
5. *Activate the Save button and type a name. Once action buttons are saved for a specific object, they will appear each time the operator clicks on that object. Then, clicking on any button will apply that value to the tag.*
6. *(Optional) If you selected Execute a window containing the button panel you defined is displayed.*
7. *Click Execute to confirm and execute the action. You can also click Cancel to cancel the action and return to the Preset Buttons Definition dialog box.*
8. *Note: The dialog box will disappear after a predetermined amount of time if you do not select any of the available options. The time parameter for the display of this dialog box is specified in the wiztune.dat file, as follows:*

TRIGGER_BUTTONS = TIMEOUT

The default value is 20 seconds. The maximum value is 100 seconds.

Trigger object are objects that you can click on to cause predefined tag values to be set automatically or manually, cause the image to go to a predefined zone, or cause predefined macros to be activated.

Any object (static, dynamic, segment) can be defined as a trigger object. However, only one tag value input method can be assigned per object.

Trigger Objects

Trigger object are objects that you can click on to cause pre-defined tag values to be set automatically or manually, cause the image to go to a pre-defined zone, or cause pre-defined macros to be activated.

Any object (static, dynamic, segment) can be defined as a trigger object. However, only one tag value input method can be assigned per object.

The tag value input method that you select in the dialog box will be marked by an arrow.

Note that you may use a tag template Id as a tag. This will enable the trigger to be dependant on current image context

Note that for the Data Entry, Bit, Smooth, and Test, the last position of the dialog box will be saved (unless you activated the Cancel button before completing the operation). This means that you can drag the dialog box to any position on the screen, and thereafter, whenever that dialog box will be invoked, it will appear in its last position.

However, the dialog box position is relative to the window position. If the window is moved and then the dialog box is invoked, it will appear in the position it was last saved, relative to the new location of the window.

For Text Table objects, the String button will appear in the Input Method field instead of Data Entry. For Time objects, the Time button will appear in the Input Method field instead of Data Entry. For Date objects, the Date button will appear in the Input Method field instead of Data Entry.

To define a trigger

1. Select the object you want to define as trigger.
2. Right click the selected object.
3. Select the Trigger Definition from the popup menu.

OR

From the Edit menu select Operations, then click on the Trigger option.

OR

From the Objects toolbar select the Trigger tool The Trigger Object Definition dialog box opens

4. Select the application station to which the tag associated with the trigger object is attached.
5. Select the tag associated with the trigger object, or click the browse button to open the Tag Definition dialog box where you can define a new tag.
6. Select the trigger object Input Method. Several tag input methods can be used for trigger objects. To test an input method, tag value variations can be simulated.

The tag value input methods include the following:

Action When the operator clicks on an object, a present value is applied to the tag, or a pre-defined macro is activated. This method is valid for all tags and objects.

Buttons When the operator clicks on an object, a set of buttons with present values appears. Activating a button causes a value to be applied to the tag, or a pre-defined macro to be activated. This method is valid for all analog and digital tags.

Bit When the operator clicks on an object, On, Off, and Toggle buttons appear. This method is valid for all tags and objects (except string tags).

Data Entry When the operator clicks on an object, a dialog box appears to specify a numerical tag value. This method is valid for all tags and objects besides Text Table objects.

String The String button will appear instead of the Data Entry button. When the operator clicks on an object, when a Text Table that was made active for the tag associated with the object, will be applied. The Text table contains a list of strings corresponding to different tag values.

Date The Date button will appear instead of the Data Entry button. When the operator clicks on an object defined as a Date/Time object, a dialog appears with the current date value to be modified.

Time The Time button will appear instead of the Data Entry button. When the operator clicks on an object defined as a Date/Time object, a dialog appears with the current time value to be modified.

Smooth When the operator clicks on an object, a dialog box appears with tag values that can be selected using sliders. This method is not valid for string tags.

Momentary When the operator clicks on an object, a dialog box appears enabling the user to change tag value in a one short way.

Fast Action When the operator clicks on an object, a pre-defined macro, called Fast Action is executed (note that Fast Action is Web enabled).

7. Click the **Set Macro** button to define macros for trigger objects (note that Set Macro is not supported on the Web).
8. Click the Test button to test the input method and adjust its appearance. In addition you can move the numeric keypad to any location on your screen. When you re-open the application and operate the keypad, it will be opened at the same location as you selected.

Trigger Macros

Note: Trigger Macros are not supported on the Web.

Once you have defined Trigger objects, you can define special macros to apply Trigger object operations. To define Trigger macros, activate the Set Macro button in the Trigger Object Definition dialog box.

The fields in this dialog box are:

Name The name of the macro.

Description A brief description of the macro.

Accelerator keys Alt, Ctrl, shift and function keys that can be used in combinations to invoke the macro.

Confirm before execution This option is use to cause the application to prompt you to confirm the execution of a macro before it is executed.

Execute when out of VP Used to cause a macro to be executed even when the trigger object does not appear visually in the Image window.

Group Used to assign groups to operators for macro authorization.

Note that trigger macros will only be executed if the Trigger mode is activated (by selecting the Trigger On item from the Modes menu, in the Image window).

Undo/Redo

Undo and Redo operation is available for Image drawing operations. This applies to actions as delete, scale, rotate and change attributes (color) of an object.

The Undo command reverses or deletes the last entry.

Immediately after you undo an action, the Undo command changes to Redo, allowing you to restore what you reversed.

Up to 50 levels of undo/redo operations are available.

To Undo

1. Select object you want to undo.

2. Click on the Undo tool in the **Image main toolbar**.

3. The action is reversed.

You can also Undo an action by clicking the Undo option from the Operations Menu, or pressing Ctrl Z.

To Redo

1. Select the object you want to redo.

2. Click on the Redo tool in the Image Main Menu Toolbar.

3. Your action is restored.

You can also Redo an action by clicking the Redo option from the Operations Menu, or pressing Ctrl Y.

Notes *The Align feature does not support the Undo feature. Copying objects using <Ctrl C> does not support the Undo feature.*

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Notes : *The Align feature does not support the Undo feature. Copying objects using <Ctrl C> does not support the Undo feature.*

Unfilled Closed Arc Tool

To draw an unfilled closed arc

1. From the Drawing Toolbar, click on the unfilled closed arc .
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to end point.
 4. Release mouse button.
 5. Move the mouse to the desired radius point and left-click the mouse button.
-

Unfilled Circle Tool

- To draw an unfilled circle
1. From the Drawings toolbar, click on the circle tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to form the circle.
 4. Release mouse button.
-

Unfilled Orthogonal Polygon Tool

- To draw an unfilled orthogonal polygon
1. From the Drawings toolbar, click on the unfilled closed orthogonal polygon tool
 2. Click the left mouse button on the start point.
 3. Click the left mouse button on successive end points.
 4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

***Tip:** You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.*

Unfilled Ellipse Tool

- To draw an unfilled ellipse
1. From the Drawings toolbar, click on the unfilled ellipse tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag to form the ellipse.
 4. Release mouse button.
-

Unfilled Polygon Tool

- To draw an unfilled polygon

1. From the drawings toolbar, click on the unfilled polygon tool
2. Click the left mouse button on the start point.
3. Click the left mouse button on successive end points.
4. Click the right button and the last point will automatically be connected to the start point, closing the polygon.

***Tip:** You can create an arc instead of a straight line by clicking on the line end while pressing the Shift key. The line between the last two points will be an arc whose radius can then be adjusted by pressing the left mouse button.*

Unfilled Round-cornered Rectangle or Square Tool

- To draw a round cornered unfilled rectangle or square
1. From the Drawings toolbar, click the round cornered rectangle tool
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Using the Text Tool

- To use the text tool
1. From the Drawings toolbar, click on the text tool
 2. Enter text in the text dialog box.
 3. Press OK and the text will appear at the specified location on the screen.

Click to load a file that was saved with pre-defined button settings.

A value that will be assigned to the tag whenever the button is activated

Viewing Images

There are several ways to view images, using several window positions and zoom levels. You can auto arrange all the image objects, or zoom into a specific part of the image, or jump to a pre-defined position and zoom level, called Zone, in the image, or define the coordinates within the image window you wish to jump to.

For more information about the various image view options click the respective topic:

[AutowindowHLP_WZ2EDT_AUTOWINDOW](#)

Zooming into a specific part of the image

[Defining ZonesHLP_DLG_WZ2_DZONE](#)

Jumping to Zones

HLP_DLG_WZ2_HANDNAV

Unfilled Rectangle or Square Tool

To draw an unfilled rectangle or square

1. From the Drawing toolbar, click the filled rectangle tool.
 2. Position the mouse pointer where you want to start drawing.
 3. Drag diagonally.
 4. Release mouse button.
-

Widgets / Scheduler

Select this option and then click in the Image windows to open the Scheduler Task Configuration Dialog box.

In the Task Name field type in the name of the task or, click the arrow and select a task from the dropdown list.

To attach groups, click the Groups button to open the Access Permission Manager dialog box where groups can be defined and given access to this module.

Widgets / Slider

Note: This feature is not supported on the web.

Tag value sliders (widgets) can be designed and used in an Image to change and read tag values in a simple visual manner. The sliders can be positioned anywhere in the Image and will automatically reflect any change in the tag value that occurs in the field.

The following points should be noted when working with tag value sliders:

- Tag value sliders are system windows that operate using system controls.
- Tag value sliders are automatically generated as trigger objects, and therefore can only operate in the Trigger mode.

To design a slider:

From the Edit menu, point to Drawings and then to Widgets.

Select Slider from the popup menu.

Or,

Click the Slider tool in the Objects Toolbox. The Slider properties dialog box is displayed:

The following fields are available:

Station Specifies the network station to which the tag belongs. For a list of stations from which you can select, click on the arrow to the right of the field.

Tag Specifies the tag to be associated with the slider. For a list of tags from which you can select, click on the arrow to the right of the field.

Value Assignment Select On Dragging to cause the value of the associated tag to change as the slider is dragged.

Select On Dropping only to cause the value of the associated tag to change only when you complete the dragging (release the mouse button) and place the slider on a specific value.

Select On Dragging to Image, on dropping to Tag to cause the value of the associated tag to change and be reflected in the Image only as the slider is being dragged, and change and be written to the PLC when you complete the dragging (release the mouse button) and place the slider on a specific value.

Select Snap to Tick to cause the slider to snap to ticks on the value scale whenever it is moved, or the tag value changes in the field.

Limits Select Default tag limits to cause the value scale limits to be those you defined for the tag in the Tag Definition procedure.

In the From/To fields you can specify the values you want for the upper and lower limits of the tag scale.

A zone that will be jumped to whenever the button is activated

Zone Definitions

A Zone is a pre-defined position and zoom level in the image that can be jumped to, by selecting the Goto Zone item in the Options menu.

A Zone Navigator window that will be opened whenever the button is activated

Widgets / Media

Note: Media Player is not supported on the Web.

The Media Player enables you to *play* any Media file that is installed on your computer. Usually this object is used to play 'AVI' files that display some information to the operator.

To Define a New Media Object

Select the Media tool located in the **Objects Toolbar**.

Draw a rectangle in the initial size you wish. The Media Player Properties dialog box opens where you can select the Media device (file) you wish to play.

You can set the Media window to include a title bar with your own text. The Media device will be displayed 'Stretched' to the object size. A small control bar is displayed at the bottom on the object with the options to Play, Stop, Pause, Fast Forward and Rewind.

You can select and edit the object size and the location can be manipulated as any other object. To change the object properties double-click on it.

Modifying a Grid

You can determine how the grid lines appear in the grid by specifying the distance between adjacent grid lines. The grid lines then appear with specified intervals between them. You can also define the color in which the grid is displayed.

To modify a grid:

1. Select **Grid Setup** from the Setup menu. The Grid Setup dialog is displayed:
2. In the **Snap to tag** field, select a tag from a list of available tags. The selected tag is referred to when determining the line spacing.
3. In the **Value Axis** area, select either **Each annotation** to display the grid according to the annotations on the Value axis, or enter a value in the **Spacing value** field to determine the distance between the adjacent grid lines.

The Trend mechanism will check the values you enter for their validity. You can enter ? in the **Spacing value** field to view the high and low values that are valid for the current Trend viewer settings.

4. In the **Time axis** area, select either **Each annotation** to display the grid according to the annotations on the Time axis, or enter a value in the **Spacing value** field to determine the distance between the adjacent grid points.
5. Click in the **Grid color** field to display a color pallet in which you can select the grid color.

6. Click **OK** to close the dialog and save your settings. The application will display an error message if you have entered any invalid parameters.

Specifying the Orientation of the Grid Axes

In the default positioning of the grid axes, the Y axis displays tag values and the X axis displays time, as shown below. The Application enables you to change the orientation of the Value and Time axes so that the Y axis displays time and the X axis displays tag values.

In the following Trend, the orientation of the axis has been modified so that the tag values are displayed on the X axis and the time on the Y axis.

Axes orientation changes are in effect until you refresh the browser. Changes are made online and do not effect current grid setup and display parameters.

To change the default orientation of the grid axis:

From the Options menu, select **Axis Orientation** and then select **Inverse Orientation**. The grid lines are adjusted so that the tag values are displayed on the X axis and the time on the Y axis, as shown above.

Note: When **Inverse Orientation** is selected, the **Tag Setup** and **Time Setup** options are disabled.

To revert to the default orientation settings of the grid axis:

From the Options menu, select **Axis Orientation** and then select **Normal Orientation**.

The grid lines are adjusted so that the tag values are displayed on the Y axis and the time on the X axis

File / New / Image

Select this item to define a new Image window.

After you select this item, you will be prompted to specify the name of the window you want to define. All names should be unique.

The window will be created with the default Image window properties.

File / New

Select this item to define new Layouts for windows.

Layouts are sets of windows that can have different attributes, such as size, components (title bar, action bar, etc.), and others.

.

Image Property Trigger

Note: Not applicable on the Web.

This tab defines trigger objects and onmouseover properties.

This tab holds the following fields:

Trigger object	Determines whether trigger objects are highlighted when selected. If this option is checked, trigger objects will be outlined (with dashed lines) when they are selected. The default option is not selected.
Mouse pointer on triggers	Determines whether the mouse pointer will be highlighted when it is moved on top of a trigger object in an image. The default option is not selected.
Trigger small input box	When checked, the input box when defining data entry for triggers, will be small and will only have a field for entering the value.
State	Determines which trigger object is activated when overlapping triggers are clicked. This could be either; Top (default) or Bottom.

Note: Always restart the program after updating this tab.

Image Property Loading

Note: *Not applicable on the Web.*

This tab determines the amount of memory available for image objects. It also enables/disables tag name parsing when loading images and determines the mode in which the image will open.

Notes:

1. 1. Setting the amount of memory available for image objects is not applicable on the Web.
2. 2. Always restart the program after updating this tab.

The following options are available:

Images memory pool size	Enables large images with many objects to be created, but allows only 10 (+-) Image windows to be open at one time. The lower the value, the more Image windows that can be opened simultaneously (they must be smaller in size). The value for the parameter can be set from 60 to 200.
Parse each image when loading	Enables or disables tag name parsing when loading in the Images module. Disable this option to shorten image load time for images that contain network tags. When this option is disabled network tags validity is not checked. Therefore, use this option after all tag definitions in the network station are complete.
Open new image in Navigation mode	This checkbox defines that the new image will be opened in Navigation mode.
Load bitmaps in system memory	By default, when you add a bitmap to an image, the memory it uses is stored in the memory of the graphics card. When adding many bitmaps to an image, the memory can be used up very quickly. You can choose to use the computer's own memory if you choose this option. It will allow you to add many more bitmaps to the images. This option is disabled by default for backwards compatibility, but we recommend that you activate it for better performance.
Disable automatic calibration of new images	If images are developed on a machine with a given screen size, and then deployed on a different machine, they can have a different appearance (e.g. stretched). By default, images are automatically rescaled to avoid this problem. You can disable it if you want. If you do this, you can specify the size of the screen that you are using (4:3, 5:4 or 16:9) in order to find the most satisfactory appearance for your machine.

Image Property View

Note: Not applicable on the Web.

This tab is used to define the properties of the Image window, repaint and resolution level.

The following options are available:

Repaint images after editing operations

When checked this field defines that an image will be repainted automatically after actions that may alter the image (such as, moving, copying) are performed. This option is useful in small and medium zones.

Resolution factor

Sets global stretching or shrinking factors applicable to all images. This is required to solve display differences caused by replacing an operating system, monitor or other H/W or to move between resolutions.

Number of gradient color steps

This field determines the number of steps used when drawing objects filled with gradient color. The default is 16. Drawing large gradient surfaces in many steps may be slow therefore, develop using few steps and then increase for run-time.

Advanced button

Displays the Image Window Attributes dialog box where window attributes are defined.

Note: When changing the Resolution Factor the window remains the same size in pixels. However a centimeter in one image will not be a centimeter in another. The image remains unchanged when the value is 1. Values greater than 1 expand the image.

To set correct application values:

1. 1. Load the image in a PC and measure an object's length in the image (a line will do).
2. 2. Load the same image in another PC and measure the same object's length.
3. 3. Divide the first length by the second length and the result is the xx.xx value.
4. 4. Enter the IMG_RESFACTOR with the value you found and reload the application.

The range is $0.1 \leq \text{IMG_RESFACTOR} \leq 10$.

The default value: 1

5. 5. Restart the application for changes to take effect. The range of the factor is $0.1 \leq \text{IMG_RESOLUTION_FACTOR} \leq 10$.

Save As Layout

Select this item to save the current layout with a new name.

Save Layout

Select this item to save the current layout with its original name.

If a layout already exists with that name, you will be prompted whether you want to save or discard the current layout.

A zone is a specific area in a Application image marked for navigational purposes. Once defined zones can be used in go to and macro operations, to cause specific image sections to dill the image area of the window immediately.

Zones are defined by selecting the Zones definition item from the Options menu in the image window.

In Images, the scale represents the zoom level of the image. The smaller the scale, the closer the image will be (objects will be larger), and less of the total image will be visible. Any scale form 1 to 2048 can be assigned. At a scale of 64, each drawing unit is 0.01 mm on a standard monitor.

A segment is group of objects act as one object. Segment can be grouped, and their attributes can be edited the same way as any other object. Segments are defined by selecting the Edit/Operation/Segment menu sequence in the image window.

File / New / Image

Select this item to define a new Image file.

After you select this item, you will be prompted to specify the name of the file you want to define. All names should be unique.

The file will be created with the default Image file properties.

A Graph is a tag display defined for a specific chart. Each chart can include up to 16 graphs. Graphs can appear in the format of bars, lines, line with markers, or marker only. The graphs definition dialog box is invoked by selecting the Graph definition item from the Setup menu, in the Chat window.

Picture file

Pictures is a file representing a zone in an image. Pictures are created automatically when saving images.

When you Save your Image, each zone is saved in a separate file in the Application Picture format (WNP extension), in your pictures' directory of your Web application.

A Trigger Object is any object in an image defined to execute a specific operation whenever it is selected.

Trigger objects are defined by selecting the Edit/Operation/Trigger menu sequence in the image window, or by clicking the left button on the trigger object tool in the tools window.

Basic Principles

This section describes some of the basic concepts used for image design that should be understood before using the Image Editor.

Goto Zones

The operator with the relevant authorization can, using the **Goto Zone** option, jump to any defined zone from anywhere in an image. The Goto Zone dialog box is used to enter the coordinates of the location to which to jump in the image. Any position in the image can be jumped to whether or not that position is defined as a zone.

Layers

An image is structured in layers. Each layer contains a part of the overall image. When the drawing is completed the layers can be merged. Each individual image layer can be made visible or hidden. Layers can be added or changed, but not removed.

Printing Images

Images are printed from the Image file menu.

- To print an Image file:

Select Print from the File menu. The Print dialog box is displayed:

1. To send the Image to a file in the bitmap format
 2. Select the Bitmap option and specify the filename.
-

Zone Navigator

The Zone Navigator is a global, multi-image zone navigation window that enables you to quickly and efficiently navigate through a list of zones defined in the application's various image files. A number of navigators each of which can contain a number of zones from one or more different image files can be defined in the module.

Zones

Zones are predefined positions in the image window.

Chapter 22 Image Animation

Overview.....	1035
Cancel Dynamic	1036
Dynamic Objects	1036
Dynamic Objects	1036
Dynamic Object Definition.....	1039
Optimizing Dynamic Object Performance	1042
Move	1043
Rotate	1045
Scale	1046
Fill Region	1047
Show/Empty.....	1048
Fill Colors and Types	1049
Colors.....	1049
Types	1050
Dynamic Object Blinking	1051
Drum Pattern.....	1053
Transformation Options	1055
Sample when out of Window	1056
Dynamic Text.....	1057
Property/Tag value.....	1057
Text Table	1062
Set Date and Time	1065
Display property Object.....	1065
Dynamic Alarms	1066
Alarm Objects	1066
Miscellaneous	1070
Trigger Objects	1071
Trigger Objects	1071
Trigger Objects	1072
Trigger Object Definition	1074
Action Definition	1075
Action Definition	1076
Momentary Trigger.....	1077
Momentary Trigger.....	1078
Trigger Button Definition	1079
Smooth Input.....	1081
Trigger Object Definition	1082
Remove Trigger	1083
Custom Actions	1083
Custom Actions	1084
Custom Actions.....	1087
Global Custom Actions	1088
How to define Global Custom Actions	1088

Tooltips	1088
Defining Tooltips	1089
Modifying Object Properties	1090
Modifying Object Properties	1090
Modifying Dynamic Tag Parameters	1091
Modifying Basic Object Attributes	1092
Filtering the Edit Properties	1093
Input Method Preparations	1096
Input Method Preparations	1096
Action Buttons	1096
Action	1099
String Tags	1101
Smooth Variation Range	1101
Momentary Trigger	1102
Input Method Testing	1103
Data Entry Value	1103
Touch Screen Support	1104
Smooth Variation	1105
Bit	1105
Buttons	1106
String	1107
Date	1107
Time	1108
Trigger Macros	1108
Trigger Macros	1108
Trigger Macros	1109
Marking Trigger Objects	1110
Options Mark Trigger	1111
Widgets	1111
Media Player	1111
Slider	1114
Scheduler Task Configuration	1118
Tag Value Simulation	1121
Options / Simulate	1122
Simulate Range	1123
Other Topics	1123
Date Field Summary	1124
Date Format Dialog Box	1124
Date Style List	1125
The Elaborated Zoom is a technique used in Application images to obtain detailed views of specific plant or facility sections.	1126
Image Property - Dynamic	1126

About this chapter

This chapter describes how to use Image animation in the application, as follows:

Overview provides an overview of Image animation.

Dynamic Objects provides a description of dynamic objects and describes how to define them.

Alarm Objects describes how to define objects as alarm objects.

Trigger Objects describes how to define trigger objects.

Modifying Object Properties, describes how to modify the properties of objects in Images.

Input Method Preparations describes what to do before you can use an input method.

Trigger Macros describes how to define trigger macros.

Tag Value Sliders describe how to design sliders.

Media Player describes how to define media players.

Scheduler describes how to access this feature.

Tag Value Simulation describes how to simulate tag values in Images.

Overview

Image Animation is the process of linking Image objects created by using the Image Editor to a control process via tags. Refer to **Chapter 9, Tags** for more information about tags and their relation to on-going processes.

There are two main ways to implement Image Animation:

- **Dynamic Objects** - Objects in Images are associated with tags. Any change in tag values causes the object to change graphically.
- **Trigger Objects** - Objects in Images are designated as triggers. When these objects are activated, operations, such as tag value changes, are executed immediately, thereby affecting the graphic presentation of the Image.

Each of these methods is described in the following sections.

Edit / Operations / Dynamic

Used to define how a dynamic object will behave in response to tag variations.

Once an object is defined as dynamic, as the value of its associated tag varies, the object's shape, position, or appearance will also change.

Cancel Dynamic

This option will cancel the dynamic performance of an object that was previously defined as a dynamic object. It will not respond to tag variations.

Dynamic Objects

Dynamic Objects

Dynamic objects are elements that change according to tag values. When a tag value changes, the properties of the object, such as position, size, color, and orientation change accordingly (there are 12 different object properties). Thus, a dynamic graphical illustration of plant activity can be achieved.

Any object in an Image can be dynamically animated, including process messages. In addition, process messages themselves can be made to change (textually) according to

tag values. Values can be presented numerically, or predefined messages can be displayed for each specific tag value.

In order to implement object animation, tag value ranges are denoted by start and end values. The current state of an object corresponds to the start value, and the final state of an object, after changes, corresponds to the end value. Thereafter, for any tag value, the object will be changed proportionally (by linear interpolation or extrapolation).

Tag values can be further divided into sub-values that control different display attributes, such as colors and fill patterns. For further details see **Chapter 9, Tags**.

Dynamic objects are objects in the image that were defined to change graphically or textually according to the value changes of tags with which the objects were associated.

Dynamic objects are defined by selecting an object, and then selecting the Dynamic button from the Objects Bar, or right clicking them.

Edit / Operations / Dynamic

Used to define how a dynamic object will behave in response to tag variations.

Once an object is defined as dynamic, as the value of its associated tag varies, the object's shape, position, or appearance will also change.

Dynamic Parameters

This operation is performed to make existing Image objects dynamic.

Select the graphic object in the Image that you wish to include in the cluster, and do one of the following:

- Click the Dynamic Definition tool in the Object toolbox.
- Right click an object and select the Dynamic Definition option from the popup menu.
- From the Edit menu, point to Operation and select Dynamic.

The Dynamic Parameters dialog box is displayed.

The following options are available:

Ranged Parameters Includes the following fields:

Station: Specifies the station running the application to which the tag belongs. To select a station from the list of stations defined in the application network, click on the arrow to the right.

Tag: Specifies the tag associated with the selected object. To select an existing tag, click on the arrow to the right.

From: Specifies the minimum tag value for which the animation will occur.

To: Specifies the maximum tag value for which the animation will occur.

Animation Specifies the dynamic operation to be performed on the selected object for the specified tag value range. The operations include the following:

Move 1: Positional variation 1.

Move 2: Positional variation 2.

Scale: Scale variation.

Rotate: Orientation variation.

Fill: Command to fill an object.

Show: Specifies that an object will be visible when the value is within the specified value range, and hidden when the value is outside that range.

Empty: Specifies that an object will be empty when the value is within the specified value range.

Multi-Range

Parameters The following options are available:

Station: Specifies the station running the application to which the tag belongs. To select a station from the list of stations defined in the application network, click on the arrow to the right.

Tag: Specifies the tag associated with the selected object. To select an existing tag, click on the small arrow to the right.

Animation Specifies the dynamic operation to be performed on the selected object for the specified tag value range. The operations include the following:

Blink: Specifies that an object will blink when the value is within the specified value range.

Line Color: Sets the line color of an object when the value is within one of several specified value ranges.

Fill Color: Sets the fill color of an object when the value is within one of several specified value ranges.

Fill Type: Sets the internal fill pattern of an object when the value is within one of several specified value ranges. Not applicable on the Web.

Drum: Sets a bit pattern so that when a tag value matches this bit mask, the corresponding object will be visible; otherwise it will be hidden.

Object The selected object to which the dynamic definition will be applied.

Options Transformation options.

Notes:

1. In the Dynamic Parameters dialog box an arrowhead will appear beside any button that has been selected.
 2. When the Dynamic Parameters dialog box appears on the screen, no dynamic object animation will occur in the Image, although tag values will be updated. As soon as the dialog box is closed (when the OK or Cancel button is activated), all dynamic objects in the Image will be graphically updated.
 3. Several transformation and range parameters can be set for one object, each dependent on its associated tag value. The final appearance of an object will be the result of all the relevant transformations. However, if any one transformation is applied more than once, only the last application will be effective.
 4. Dynamic objects cannot be nested or grouped.
 5. When defining dynamic object attributes in the Dynamic Parameters dialog box, you can right-click to cancel the current operation.
 6. Note that you may use a tag template identifier as a tag. This will enable the trigger to be dependant on the current image's tag context.
-

Dynamic Object Definition

This operation is performed to make existing Image objects dynamic.

- To create a dynamic object:

Select the graphic object in the Image that you wish to include in the cluster, and do one of the following:

Click the Dynamic Definition button in the Object toolbox.

Or,

Right click an object and select the Dynamic Definition option from the popup menu.

Or,

From the Edit menu, point to Operation and select Dynamic. The Dynamic Parameters dialog box is displayed.

Dynamic Parameters

Ranged Parameters		Tag	From	To	Animation
SCADA	▼	...			Move 1
SCADA	▼	...			Move 2
SCADA	▼	...			Scale
SCADA	▼	...			Rotate
SCADA	▼	TANK_LEVEL01	0	100	>Fill
SCADA	▼	...			Show
SCADA	▼	...			Empty

Multi-Range Parameters		Animation
SCADA	▼	Blink...
SCADA	▼	Line Color...
SCADA	▼	Fill Color...
SCADA	▼	Fill Type...
SCADA	▼	Drum...

Object

Options...

OK Cancel Help

The following options are available:

Ranged Parameters

Includes the following fields:

Station: Specifies the station running the application to which the tag belongs. To select a station from the list of stations defined in the application network, click on the arrow to the right.

Tag: Specifies the tag associated with the selected object. To select an existing tag, click on the arrow to the right. Tag templates are supported (see the chapter on tag templates).

From: Specifies the minimum tag value for which the animation will occur.

To: Specifies the maximum tag value for which the animation will occur.

Animation

Specifies the dynamic operation to be performed on the selected object for the specified tag value range. The operations include the following:

Move 1: Positional variation 1. **See Move.**

Move 2: Positional variation 2.

Scale: Scale variation. **See Scale.**

Rotate: Orientation variation. **See Rotate.**

Fill: Command to fill an object. **See Fill Region.** **Show:** Specifies that an object will be visible when the value is within the specified value range, and hidden when the value is outside that range.

Empty: Specifies that an object will be empty when the value is within the specified value range.

Multi-Range Parameters	<p>The following options are available:</p> <p>Station: Specifies the station running the application to which the tag belongs. To select a station from the list of stations defined in the application network, click on the arrow to the right.</p> <p>Tag: Specifies the tag associated with the selected object. To select an existing tag, click on the small arrow to the right.</p>
Animation	<p>Specifies the dynamic operation to be performed on the selected object for the specified tag value range. The operations include the following:</p> <p>Blink: Specifies that an object will blink when the value is within the specified value range.</p> <p>Line Color: Sets the line color of an object when the value is within one of several specified value ranges.</p> <p>Fill Color: Sets the fill color of an object when the value is within one of several specified value ranges.</p> <p>Fill Type: Sets the internal fill pattern of an object when the value is within one of several specified value ranges. Not applicable on the Web.</p> <p>Drum: Sets a bit pattern so that when a tag value matches this bit mask, the corresponding object will be visible; otherwise it will be hidden.</p>
Object	The selected object to which the dynamic definition will be applied.
Options	Transformation options.

Notes:

In the Dynamic Parameters dialog box an arrowhead will appear beside any button that has been selected.

When the Dynamic Parameters dialog box appears on the screen, no dynamic object animation will occur in the Image, although tag values will be updated. As soon as the dialog box is closed (when the OK or Cancel button is activated), all dynamic objects in the Image will be graphically updated.

Several transformation and range parameters can be set for one object, each dependent on its associated tag value. The final appearance of an object will be the result of all the relevant transformations. However, if any one transformation is applied more than once, only the last application will be effective.

Dynamic objects cannot be nested or grouped.

When defining dynamic object attributes in the Dynamic Parameters dialog box, you can right-click to cancel the current operation.

Dynamic Transformation

This dialog box is used to change the default characters available for the Dynamic object. To perform dynamic object transformation operations, click the Option button on the Dynamic Parameters dialog box. The Options dialog box will appear.

Hand Mode

If this option is selected, the transformation parameters (such as Move, Scale and Rotate) will be defined numerically instead of graphically.

Fixed Fill Area

If this option is selected, the fill region will be set to the image instead of being attached to the transformed object.

Note: Fixed Fill area is not supported on the Web.

Fixed Scale Reference Point

If this option is selected, the scale reference point will be set to the image instead of being attached to the transformed object.

Note: Fixed Scale Reference Point is not supported on the Web.

Fixed Rotate Reference Point

If this option is selected, the rotate reference point will be set to the image instead of being attached to the transformed object.

Note: Fixed Rotate Reference Point is not supported on the Web.

Rotate Clockwise

If this option is selected, the rotation will be performed in the clockwise direction, instead of counter-clockwise.

Sample when out of VP

In the application, dynamic objects that do not visually appear in the image window are not sampled. However, if an object was transformed using the dynamic move, resize, or rotate options, and after the transformation that object receives tag values that cause it to move outside the image window, you can use the sample when out of Window option to cause the object to be sampled.

Optimizing Dynamic Object Performance

Dynamic updating in the Image is one of the most important operations in the Image. When a dynamic object changes its state, such as in tag changes or blink times, the Image redraws the object. This process is complex and uses a large amount of computer resources that should be optimized to run as fast as possible.

To optimize your dynamic object performance use the following guidelines when designing your Image:

- Avoid putting too many fast changing dynamic elements in one zone.
- Minimize the size of fast changing dynamic objects.
- Avoid spreading fast changing dynamic elements out over the zone.
- Avoid putting other dynamic objects in the immediate surroundings of fast changing dynamics.
- Keep fast changing dynamic objects as simple as possible. Do not make a fast blink over a complex cluster or group.

Each of the dynamic object attributes is described in the following sections.

Dynamic Colors / Patterns

Some attributes that can be applied to a dynamic objects are divided into several tag value ranges. These attributes include **Blink**, Line/Fill Color, Fill type, and **Drum**.

Each Low and High value specifies a range to which the respective sample color/pattern will be applied.

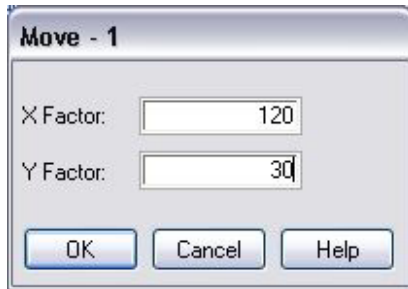
The color or pattern is changed by clicking on the sample color/pattern and then selecting the desired color or pattern from the options below.

The ranges should be specified in ascending order.

Move

When the Move 1 button is activated, the Dynamic Parameters dialog box is temporarily disabled and the Editor enters the Move mode. When an object is moved to the location corresponding to the End Value parameter, the dialog box reappears for further setting.

If the Hand mode is active, instead of moving the object, the operator enters the movement coordinates in the Move 1 dialog box. (**See Transformation Options**).



The following options are available:

X Factor	X Specifies a horizontal change in drawing units (with a scale of 64, each unit being 1/100 mm), per unit change in the tag value.
Y Factor	Y Specifies a vertical change in drawing units (with a scale of 64, each unit being 1/100 mm), per unit change in the tag value.

An animation feature enables the movement to reflect the combined value of two tags. To implement this feature, specify a new tag name or use the current tag name in the Dynamic Parameters dialog box, activate the Move 2 button, and specify the coordinates for the second tag in the Move 2 dialog that appears.

The final position of an object is derived from the sum of the coordinates of each individual position. For example, diagonal movement can be obtained through the combination of one tag with a horizontal position parameter, and another tag with a vertical position parameter.

Dynamic Hand Move

Numeric move parameters: When the Move 1 button is activated, the Dynamic Parameters dialog box is temporarily disabled and the Editor enters the Move mode. When the Hand Mode is active (has to be activated in the Option button located in the dynamic parameter dialog box) the operator enters the movement coordinates in the dialog box:

X Factor

The factor of change along the horizontal axis (in Drawing Units) per unit change in the tag value.

Y Factor

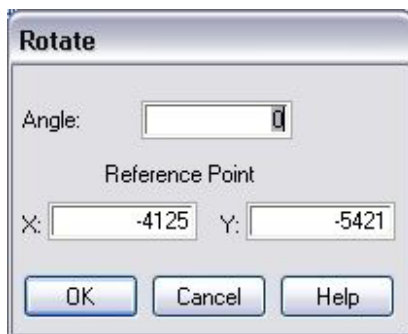
The factor of change along the vertical axis (in Drawing Units) per unit change in the tag value.

Rotate

When the Rotate button is activated, the Dynamic Parameters dialog box is temporarily disabled and the Editor enters the Rotate mode (see **Chapter 20, Introduction to the Image Module** and **Chapter 21, Image Editor**). When the object is rotated to the orientation corresponding to the End Value parameter, the dialog box reappears for further setting.

Note: If the start point is identical to the end point, clicking on a rotation point will rotate the object 360 degrees.

If the Hand mode is active, instead of rotating the object, the operator enters the rotation parameters in the Rotate dialog box:



The following options are available:

Angle	Specifies the rotation angle in degrees, per unit change in the tag value.
Reference Point	Specifies the X and Y coordinates of the rotation axis. The default coordinates are those of the lower left corner of the bounded segment rectangle.

The rotation axis can be made to relate to the Image or the object itself, by specifying the required parameter in the Options dialog box (which is accessed by clicking the Options button in the Dynamic Parameters dialog box).

Note: Rotation from the Start orientation to the End orientation will be in the counter-clockwise direction, unless otherwise specified in the Options dialog box.

Dynamic Hand Rotate

Numeric rotate parameters: When the Rotate button is activated, the Dynamic Parameters dialog box is temporarily disabled and the Editor enters the Rotate mode. When the Hand mode is activated (activation by pressing the Options button located in the Dynamic Parameter dialog box and then pressing the move button), the operator enters the rotation parameters in the dialog box:

Angle

The angle change (in degrees) per unit change in the tag value.

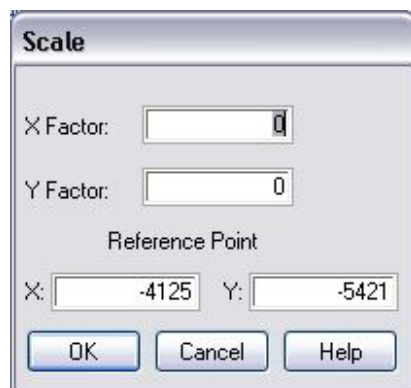
Reference Point

Rotation reference point coordinates (in Drawing Units).

Scale

When the Scale button is activated, the Dynamic Parameters dialog box is temporarily disabled and the Editor enters the Scale mode. When an object is scaled to the size corresponding to the End Value parameter, the dialog box reappears for further setting.

If the Hand mode is active, instead of sizing the object, the operator enters the scaling parameters in the Scale dialog box.



The following options are available:

X Factor	Specifies the horizontal scaling in drawing units, per unit change in the tag value.
Y Factor	Specifies the vertical scaling in drawing units, per unit change in the tag

value.

Reference Point	Specifies the X and Y coordinates. The default coordinates are those of the lower left corner of the rectangle bounding object.
-----------------	---

The scaling reference point can be made to relate to the Image or the object itself, by specifying the required parameter in the Options dialog which is activated by clicking the Options button in the Dynamic Parameters dialog box.

Dynamic Hand Scale

Numeric size parameters

When the scale button is activated, the Dynamic Parameter dialog box is temporarily disabled and the Editor enters the Scale mode. When the hand mode is activated (activation is done through the Options button located in the Dynamic Parameters dialog box), the operator enters the scaling parameters in the dialog box:

X Factor

The factor of change along the horizontal axis (in Drawing Units) per unit change in the tag value.

Y Factor

The factor of change along the vertical axis (in Drawing Units) per unit change in the tag value

Reference Point

Scaling reference point coordinates (in Drawing Units).

Fill Region

Like other object elements, the fill region of an object can vary according to the tag value, and is set according to the Start and End values.

When the Fill button is activated, the Dynamic Parameters dialog box will be moved temporarily to the background and a half-filled box icon will be attached to the cursor. Click the left button and drag the mouse to the Start Value area. Click the left button again to fill the End Value area. Click the right button to abort the operation. When the Fill operation is complete, the Dynamic Parameters dialog box will return to the foreground for further specifications.

The filling reference point can be made to relate to the Image or the object itself by specifying the required parameter in the Options dialog box.

Dynamic Fill Type

Some attributes that can be applied to a dynamic objects are divided into several tag value ranges. These attributes include **Blink**, Line/Fill Color, Fill type, and **Drum**.

Note that Fill Type is not supported on the Web.

Each Low and High value specifies a range to which the respective sample color/pattern will be applied.

In the low and high value entry specify the value range for which the pattern you selected will be active. Then select a pattern for the range you specified, by clicking on the arrow to the right of the pattern field. You can move from field to field by pressing the Tab key on the keyboard.

Show/Empty

The Show and Empty attributes can be applied globally for an entire tag range, as follows:

Empty Object	When the Empty button is clicked, the object will be empty for the given value range, and filled when outside that range (if the object is defined as a filled object).
Show Object	When the Show button is activated, the object will be visible for the given value range, and hidden when outside that range.

For each global setting, if you use a range in which the first value is greater than the second, the opposite effect will occur (the object will be hidden) for the range specified. For example, if you use the range 10-4.9 for each of the settings, the following will occur:

- The object will be filled for any value from 5 to 10.
- The object will be hidden for any value from 5 to 10.

You can select Force Dynamic Show from the Options menu in the Image window to cause a dynamic object in an Image to always appear, even if that object is currently hidden in accordance with a Show Object specification.

Or, you can click on the Force Dynamic Show icon in the Image toolbar.

In addition, note that the lower value must be a value within the range of show values, for the hidden option to operate (such as 10-4.9 described above).

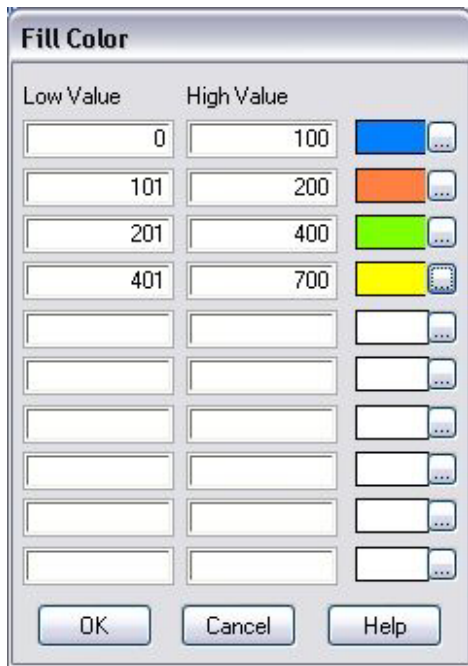
Fill Colors and Types

Some attributes that can be applied to dynamic objects are divided into several tag value ranges. These attributes include Blink, Line Color, Fill Color, Fill Type and Drum. Each of these attributes is described in the following paragraphs.

Dynamic colors and patterns can be applied to objects by activating the Line Color, Fill Color or Fill Type button.

Colors

Click the Line or Fill Color button to display the following dialog box:



In the Low Value and High Value entry boxes, specify the value range for which the color you select will be active. Then, select a color for the range you specified, by clicking on the arrow to the right of the color field. You can move from field to field by pressing the <Tab> key.

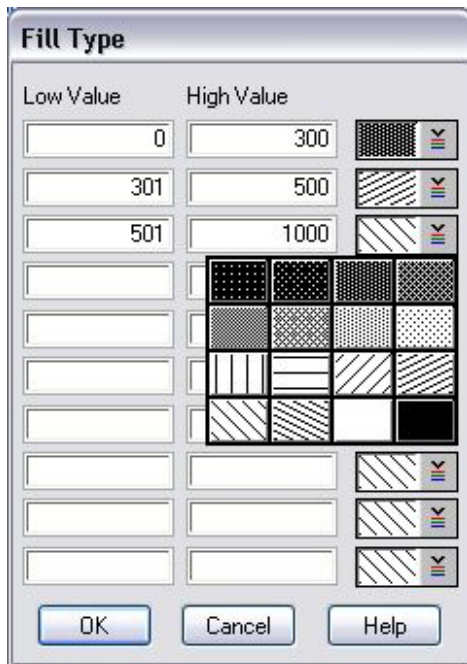
Note: Each range should be specified in ascending order. No overlapping is allowed.

For values that are not included in the ranges you specified, the object will maintain its original attributes.

Types

Note: This feature is not supported on the web.

The Fill Type button when clicked opens the following dialog box:

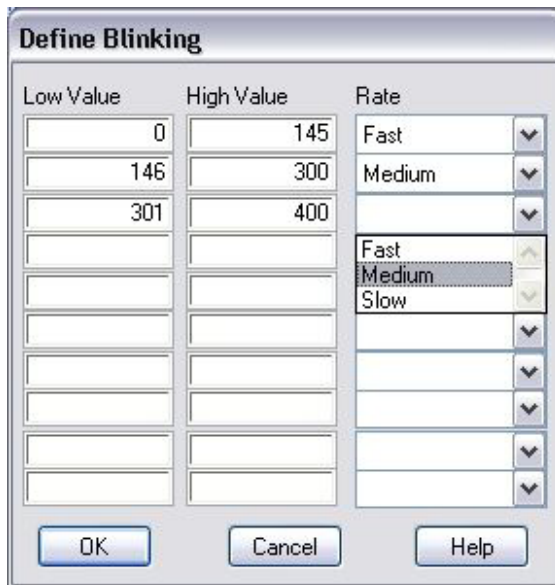


Follow the instructions for **Colors** to complete this dialog box.

Dynamic Object Blinking

- To define a dynamic object to blink:

Click the Blink button in the Dynamic Parameters dialog box. The following dialog is displayed:



The 'Define Blinking' dialog box is used to configure the blinking behavior of dynamic objects. It features three columns: 'Low Value', 'High Value', and 'Rate'. The 'Low Value' column contains a list of values: 0, 146, 301, and several empty slots. The 'High Value' column contains a list of values: 145, 300, 400, and several empty slots. The 'Rate' column contains a list of rates: Fast, Medium, and Slow, with 'Medium' currently selected. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

Low Value	High Value	Rate
0	145	Fast
146	300	Medium
301	400	Fast
		Medium
		Slow

The following fields are available:

Low Value	Specifies the minimum tag value for which the dynamic object will blink.
High Value	Specifies the maximum tag value for which the dynamic object will blink.
Rate	Specifies the amount of time that the dynamic object will appear on the screen, then disappear, then reappear, and so on. The value for Rate can be Fast, Medium or Slow. To select a rate, click on the arrow to the right of the field, or move to the field and use the up and down arrow keys to select an option.

In the Tuning Parameters and in the WIZTUNE.DAT file (see Wiztune User Guide), the IMG_BLINKRATES parameter defines the blinking rate values for dynamic objects. The format of this parameter is:

IMG_BLINKRATES=fast medium slow

The values you specify for fast, medium, and slow are in milliseconds, and can be from 100 (1/10 second) to 30,000 (30 seconds). If you specify a value that exceeds these limits, the application will automatically apply the maximum or minimum values instead.

The default is IMG_BLINKRATES=500 1000 2000.

Note: You can also use commas (,) to separate the values.

Dynamic Object Blinking

To define a dynamic object to blink, activate the Blink button in the **Dynamic Parameters** dialog box.

For Low, specify the minimum tag value for which the dynamic object will blink.

For High, specify the maximum tag value for which the dynamic object will blink.

For Rate, specify the amount of time that the dynamic object will appear on the screen, then disappear, then reappear, and so on. The value for Rate can be Fast, Medium, or Slow.

To select a rate, click on the arrow to the right of the field, or move to the field and use the up and down arrow keys to select an option.

In the WIZTUNE.DAT file, the IMG_BLINKRATES parameter defines the blinking rate values for dynamic objects. The format of this parameter is:

IMG_BLINKRATES=fast medium slow

The values you specify for fast, medium, and slow are in milliseconds, and can be from 100 (1/10 second) to 30,000 (30 seconds). If you specify a value that exceeds these limits, the application will automatically apply the maximum and minimum values instead.

The default values are: IMG_BLINKRATES=500, 1000, 2000.

Note that you can also use commas (,) to separate the values.

The values you specify for fast, medium and slow are in milliseconds and can be from 50 (1/20 second) to 30000 (30 seconds). If you specify a value that exceeds these limits, the Application will automatically apply the maximum and minimum values instead.

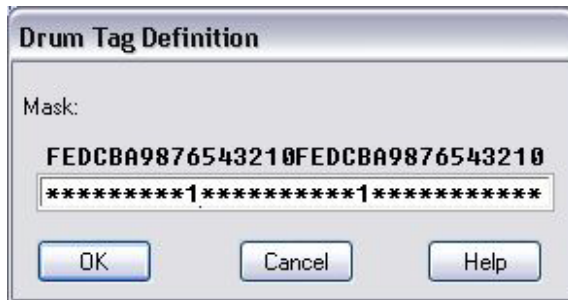
It is recommended to increase the values for this option, if it is anticipated that a large number of dynamic objects on the screen will be updated at once.

Drum Pattern

An object can be made visible when its associated tag value matches a specified bit pattern. The bit pattern can include Don't Care bits, which are bits that will be considered matches no matter what their actual values may be.

- To assign a Drum Pattern:

Click the Drum button to open the Drum Tag Definition:



A bit pattern is entered as a sequence of zeroes, ones, or asterisks (*) that represent Don't Care bits.

For example, using the pattern in the dialog box above,

the value 0101101100011010001101110111010 matches the pattern,

while the value 0101101100011010001101110110110 does not.

If a tag value matches the specified bit pattern, the object will be made visible; otherwise it will be hidden.

If several objects are associated with the same tag, each object requires its own pattern, so that each pattern will control the visibility of a different object.

This tool can be used to capture several discrete states within a single analog tag. For example, a device can at any time be in the On, Off, Idle or Fail state, whereby each state is represented by a different bit in an analog tag. A bit pattern can be defined for each object that represents a state, and as the device changes states, its current state will be reflected in the Image by the respective object.

If a tag value matches several patterns (due to the Don't Care bits), any object associated with those patterns will be made visible.

Note: You can select Force Dynamic Show from the Options menu in the Image window to cause a dynamic object in an Image to appear always, even if that object is currently hidden according to a Drum Pattern specification.

Dynamic Drum Tag Definition

An object can be made visible when its associated tag value matches a specified bit pattern. The bit pattern can include don't care bits, which are bits that will be considered matches no matter what their actual values may be.

When the tag will have a value that matches the pattern, the object will be visible; otherwise, it will be hidden.

The bit pattern is entered as 0, 1 or *, where * is a Don't Care value (0 or 1).

For example, the pattern ***....**0 would cause the object to be visible only if the tag value is even.

To assign a Drum Pattern

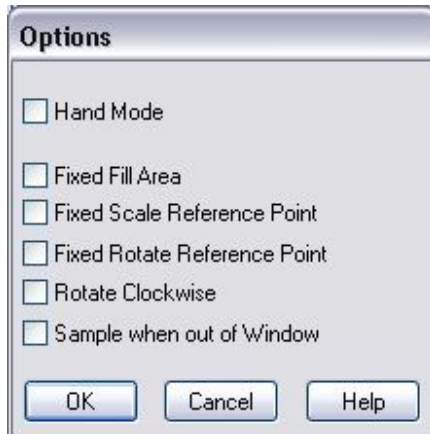
1. Select an object in the image.
2. Select the Dynamic Definition button from the **Objects Toolbar** (To make the object dynamic).
3. Activate the Drum button from the Dynamic parameter dialog box.

*Note that you can select the **Force Dynamic Show** item from the Options menu in the image window to cause a dynamic object in an image to appear always.*

Transformation Options

- To perform dynamic object transformation operations:

Click the Options button to open the Options dialog box.



The following options are available:

Hand Mode	When this option is selected, the operator will be able to enter numerical values for the Move, Scale, default, they are defined graphically in the Image.
Fixed Fill Area	When this option is selected, fill area borders will be fixed to their position in the Image. By default, the borders are bound to the object. Not applicable on the Web.

Fixed Scale Reference Point	When this option is selected, the scale reference point is fixed to its position in the Image. By default, the point is bound to the object. Not applicable on the Web.
Fixed Rotate Reference Point	When this option is selected, the rotation axis is fixed to its position in the Image. By default, the axis is bound to the object. Not applicable on the Web.
Rotate Clockwise	When this option is selected, the rotation will be performed in the clockwise direction. By default, the direction is counter-clockwise.
Sample when out of window	When this option is selected, transformed dynamic objects that no longer appear in the Image window will still be sampled. This option is described on the next page.

If multiple transformations are to be performed on the same object, they will be performed in the following order: **Move**, **Scale** and **Rotate**. This order affects the location of fill area borders, rotation axes, and scaling reference points when they are not fixed to a position in the Image.

Sample when out of Window

In the application, dynamic objects that do not visually appear in the Image window are not sampled. However, if an object was transformed using the dynamic move, resize, or rotate options, and after the transformation that object receives tag values that cause it to move outside the Image window, you can use the Sample when out of Window option to cause the object to be sampled.

If this option is not selected, transformed objects that no longer appear in the Image window will not be sampled.

Dynamic Text

In an Image tag values can be displayed as one of the following dynamic text object types:

- Property / Tag value
- Text Table display (each value causes a pre-defined string to be displayed)

To define a dynamic text display:

Click on the  button in the Drawings toolbox to open the Text dialog box:



To enter regular text, click the left button in the Text field. Regular text is described in more detail in **Chapter 20, Introduction to the Image Module** and **Chapter 21, Image Editor**. The following description refers to dynamic text only.

The fields that relate to dynamic text in the dialog box are as follows:

Text	This field is used only for regular (non-dynamic) text in the Image.
Property/Tag Value	For any property display (It encloses previous version options, which were: Tag Value, Date/Time/String)
Text Table	For the display of text, according to predefined tag values.

Property/Tag value

- To define display for tag and property values:

Click the Tag value button. The Tag Value dialog box is displayed:

Text display

Station:

Tag:

Property Type

☐ Date

☐ Time

☐ Time with Seconds

☐ String

☒ Numeric

Display Mode

☒ Dec.

☐ Hex.

☐ Eng.

Options

☒ + Prefixed

☒ Leading Zeros

Text Alignment:

Display Format

Digits Before ".": After ".":

The “Property/tag” and its value to be displayed are both defined together with the display attributes.

The fields in this box are:

Station	Specifies the workstation to which the "Property/tag" belongs.
Tag	Specifies the “Property/tag” associated with the tag value. See Display any object property in text object
“Property type” Group	<p>The property type determines how to display your text. Possibilities depend on tag/property’s type. For an unknown name, all types are available. For a string object, only the “String” button is enabled. For numeric tag/property, all options except “String” will be enabled.</p> <p>Date The tag value will determine the display of the number of days from 1/1/1980. The limitation date is up to the value of 21203 (18-Jan-2038) (18-01-38 on the Image).</p> <p>Time The tag value will determine the display of the number of minutes since midnight.</p> <p>Time with Seconds The tag value will determine the display of the number of minutes and seconds from midnight.</p> <p>String</p> <p>“String display” can be used to represent tags and properties defined as string. String objects in the Image will display exact field device numeric, alphabetic, or alphanumeric values.</p> <p>Specify the network station to which the string tag belongs, and then the name of the string tag you want to be represented in the Image. To select a station or tag from a list of existing stations and tags, click on the arrow to the right of the field.</p>

String tag objects in the Image can also be defined as triggers. When the object is selected in the Trigger mode, you will be able to enter textual values using different input methods. (See **Trigger Object Definition**).

Note: String Tags are not supported in the RePlay module.

Display Mode	<p>This group of option is only available if you select "Numeric" display.</p> <p>Select Dec for Decimal, Hex for Hexadecimal, or Eng for Engineering (powers of ten). For example, for the number fifteen: Dec = 15, Hex = F, and Eng = 1.5e1.</p>
Options	<p>This group of option is only available if you select "Numeric" display.</p> <p>In this field, select Left Justify to cause the digits in the text field to be justified to the left.</p> <p>Select + Prefixed to cause positive values to be preceded by a plus (+) sign. By default, no sign precedes positive values.</p> <p>Select Leading Zeros to cause zeros to appear to the left of the value. By default, empty spaces appear to the left.</p>
Display Format	<p>This group of option is only available if you select "Numeric" display.</p> <p>In this field, for Digits before ".", specify the number of digits that will be allowed for the integer part of the value.</p> <p>For Digits after ".", specify the number of digits that will be allowed for the fractional part of the value.</p>

Note: The created text object can also be defined as a dynamic object. Thus, both the display contents and appearance can be made to change in accordance with tag value changes.

The Digits before "." and Digits after "." fields may cause actual tag values to appear incorrectly. For example, if you specified 2 for the Digits before "." field, and the actual tag value is 115, only 15 will be displayed.

To prevent confusion with decimal numbers, the application automatically precedes hexadecimal numbers with 0x. Therefore, take into account that you need space for two extra characters before the displayed value. For example: 65,355 in decimal = FFFF in hexadecimal. To indicate that FFFF is in hexadecimal, you must define six characters, 0xFFFF.

Display any object property in text object

Presentation

This new feature allows to display any Object Oriented object property.

Access means

We have access to this new feature from a text object inside an image.

Description

The use is exactly the same as before, except that you can select any Object Oriented object property.

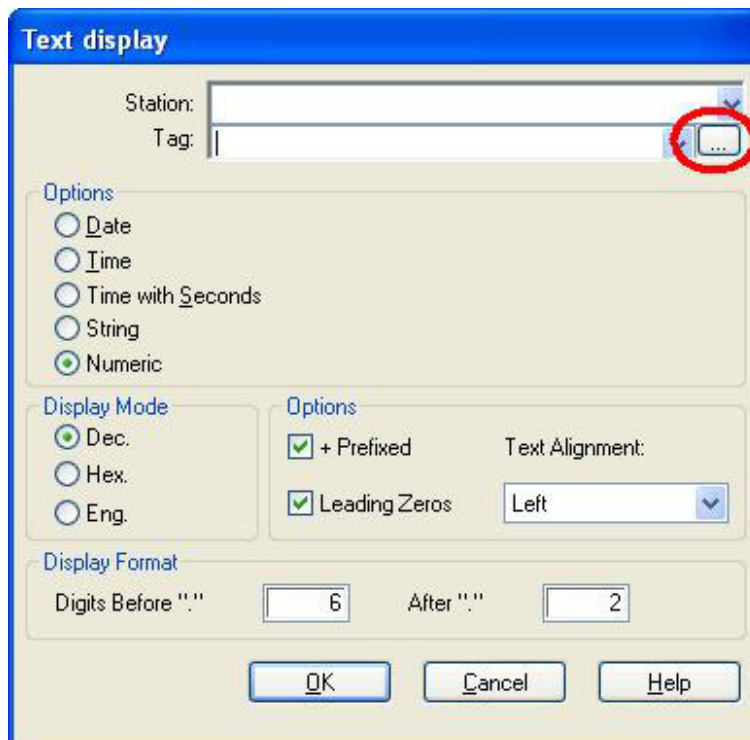
Note: an object property is not considered as a tag, so when a property is changed by the user, the image will not be advertising that a property changed. So the user needs to change zone, or reopen the image or change the scale to view the new property.

How To

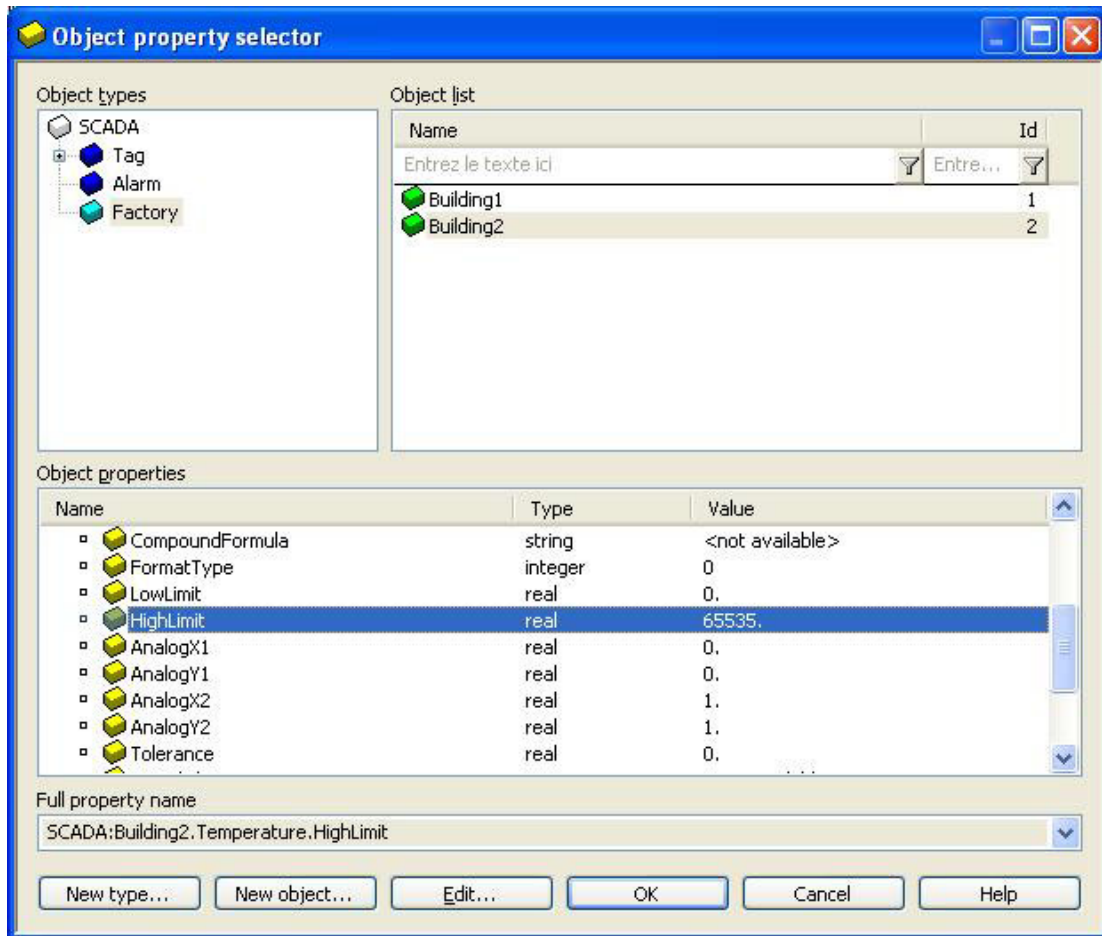
To select an object property, first select a text object and then click on the "Property/Tag value..." button:



And then on the "..." button:



The object property selector is then displayed and you can select the property you want like shown on the following picture:



MultiState in Image

Presentation

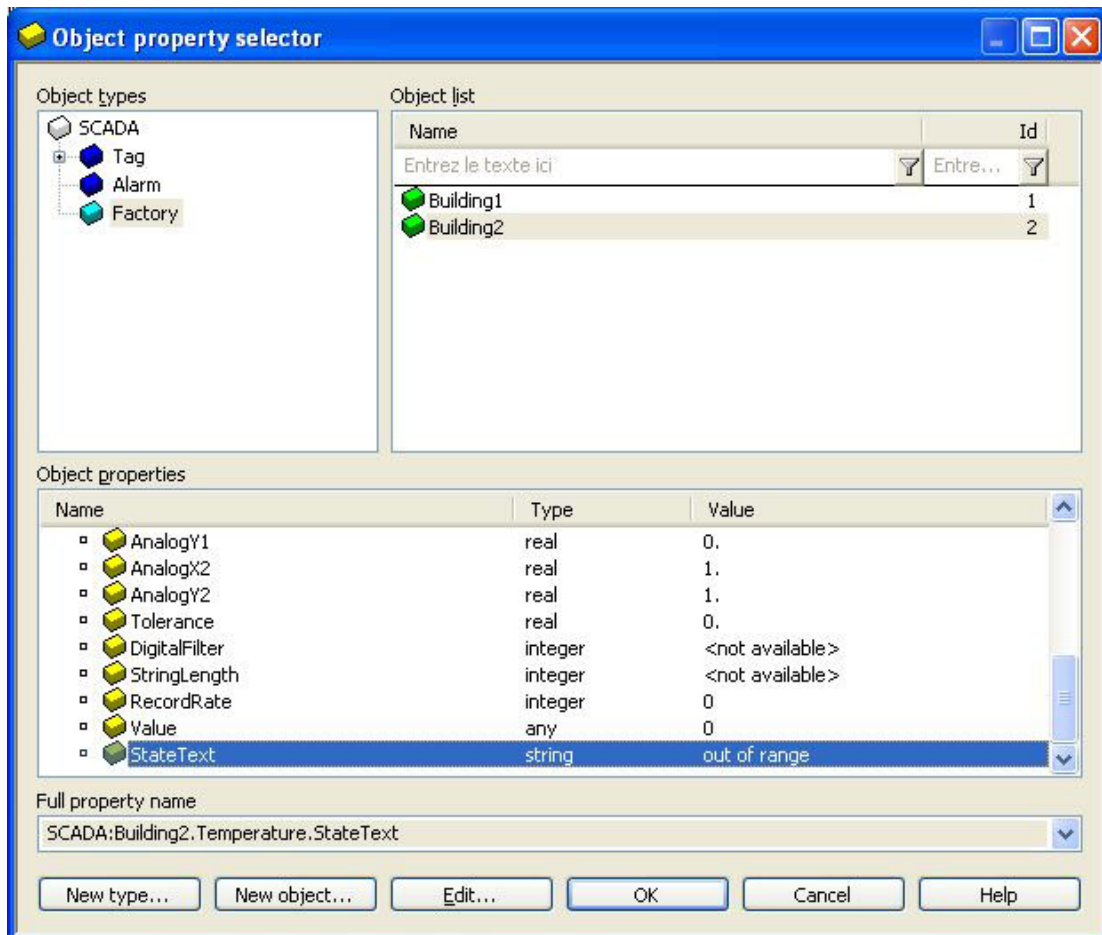
In the image a multi-state tag is only considered as a numeric tag. To display its string value, we need to open the object property selector, choose the multi-state tag and select the property "State text" of this tag.

Description

When the user wants to use the numeric value of a multi-state tag, nothing is changed as it is considered as a numeric tag. He can use it in a dynamic object, a trigger, a cluster, a date/time object...

How to

If the user wants to display a string value according to the numeric value of the multi-state tag, he first needs to select a text object. Then he just has to click on the "Property/Tag value..." button and on the "..." button to display the object property selector. And then he has to choose the "StateText" property of a multi-state tag, as shown on the following picture:



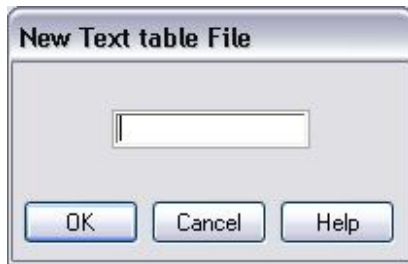
Text Table

Text Tables are used to associate tag values with predefined strings. When a Text Table is defined and activated, a text string will be associated with the tag values defined in the Table. When a value changes, the corresponding string will be displayed. Each string table is stored in a separate file.

- To assign text tables or create new ones:

Click the Text Table button in the Text dialog box.

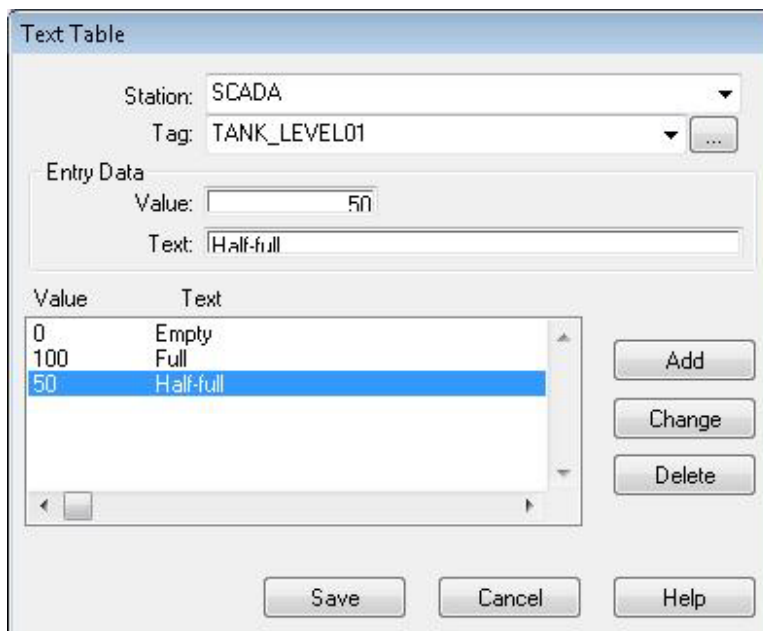
If no text table exists, the New Text Table File dialog box opens where you can specify the name of the text table.



If a text table file already exists, the Open Text table file dialog box appears:



Select a file from the list (or click the New button to open the New Text Table dialog box). The Text Table dialog box is displayed where you can specify the string-value relationship:



The following options are available:

Station Specifies the network station to which the tag belongs.

Tag	Specifies the name of the tag.
Value	Specifies the string display value.
Text	Specifies the string for the value.
List	Specifies the list of values and the strings defined for them.
Add	Adds the value-string pair to the list
Change	Replaces the selected pair with the one specified in the entry boxes.
Delete	Deletes the selected pair from the list.

Specify a tag name, the tag values, and their corresponding strings in the entry boxes, and add them to the list by clicking the Add button. A value-string pair can be selected from the existing pairs list, placed in the entry boxes, and revised, by activating the Change button. When the Delete button is clicked, the selected pair is removed from the list.

Special Cases:

- If a tag value does not exist in the text table, the text field will be filled with Xs (xxxxx).
- If no text table file exists, number signs (#####) will appear in the field.
- If a communication error occurred, asterisks (*****) will appear in the field.

If spaces are to be used in the string, enclose the string in quotation marks, for example, "The text".

Text table string files can be created or modified using your system editor. The format of this file is as follows:

Value	String
5	"Cycle Starting ..."
20	"Cycle Completed !"

Note: Text Tables can also be used for Trigger objects (see **Trigger Object Definition**) when the String input method is active.

Set Date and Time

When the **date method** is being used (the object was defined for date display as a Dynamic Text) and the operator clicks on the object, the Set Date dialog box appears. After the new date is entered, the date display object will immediately be updated.

When the time method is being used (the object was defined for time display) and the operator clicks on the object, the following dialog box appears:

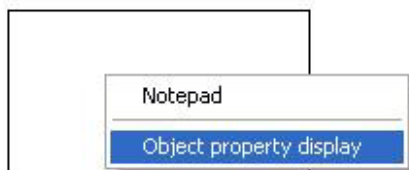
Note that if the time display was not defined as Time with Seconds, the seconds place will not appear in this dialog box.

After the new time is entered, the time display object will immediately be updated.

Display property Object

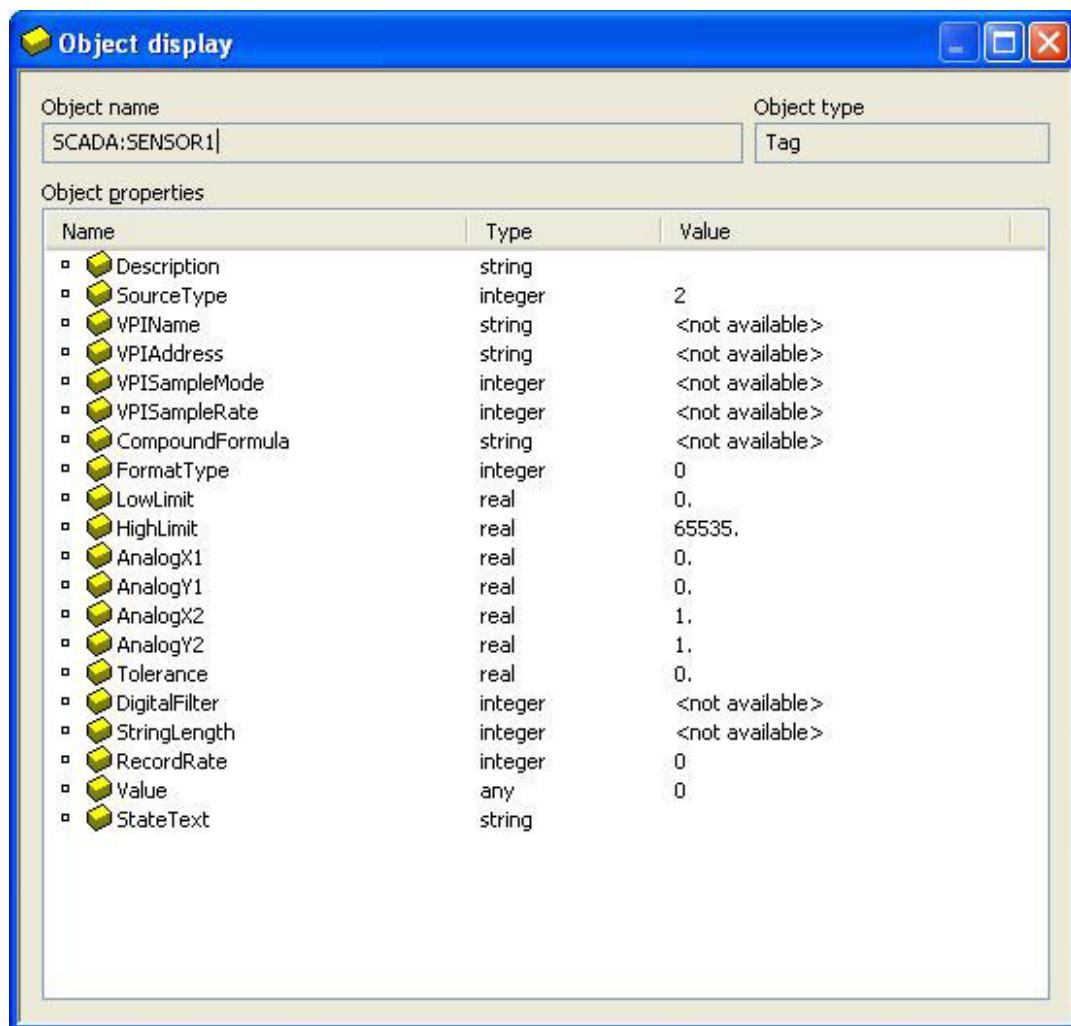
Presentation

In the image, when one object contains an Object Oriented object, we can display this property object by right clicking on the object (in trigger mode). If the object contains custom actions, a menu is displayed when the user right clicks on it. At the bottom of this sub menu, "Object Property Display" is shown and allows the user to access the object property dialog, as shown on the following picture:



How to

- Create an object in the image (for example a filled box)
- Assign to this object a dynamic definition with a long name which references a tag
- Click on trigger on (to be in trigger mode in the image)
- Right click on this object, you will get the following window:



Note: if an object contains several Object Oriented names (in the trigger and dynamic definition of an object, in a cluster, ...), the first Object Oriented name found is displayed.

Dynamic Alarms

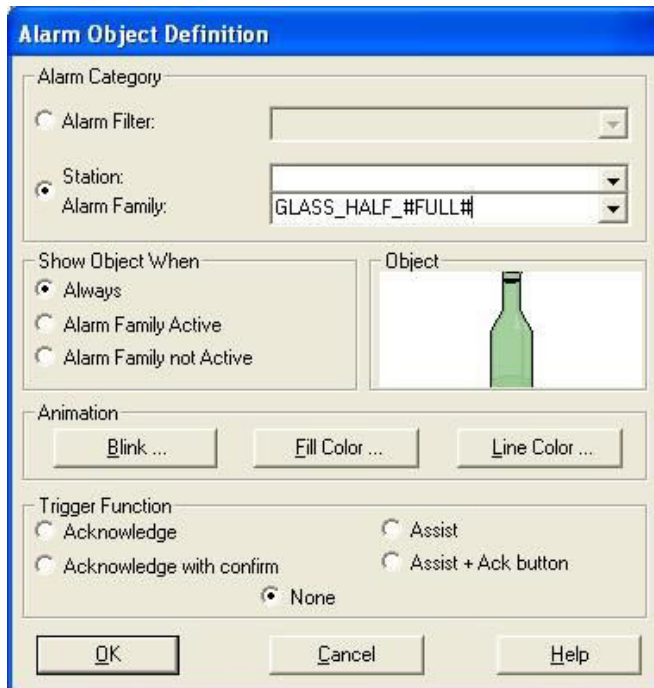
Alarm Objects

An Image object can be associated with an alarm, so that the alarm will affect the way the object behaves. Such objects are called alarm objects. (See **Chapter 15, Alarms** for further information)

An alarm object can be defined to blink, show, hide, or change colors when the alarm is active, provide textual assistance when selected, and enable alarm acknowledgment.

- To define an object as an alarm object:

Select an object in the Image and activate the Alarms Definition button in the toolbox (or right click on the object and select Alarm Definition). The Alarm Object Definition dialog box is displayed:



The dialog box is titled "Alarm Object Definition". It contains several sections:

- Alarm Category:**
 - ☐ Alarm Filter: [dropdown]
 - ☒ Station: [dropdown]
 - Alarm Family: GLASS_HALF_#FULL# [dropdown]
- Show Object When:**
 - ☒ Always
 - ☐ Alarm Family Active
 - ☐ Alarm Family not Active
- Object:** A preview window showing a green bottle.
- Animation:**
 - [Blink ...]
 - [Fill Color ...]
 - [Line Color ...]
- Trigger Function:**
 - ☐ Acknowledge
 - ☐ Acknowledge with confirm
 - ☐ Assist
 - ☐ Assist + Ack button
 - ☒ None

At the bottom are buttons for **OK**, **Cancel**, and **Help**.

The following options are available:

Station	The network station to which the alarm belongs. For a list of defined stations click on the arrow to the right of the field.
Alarm Family	<p>The family of alarms to be associated with the object. The name you specify must be the name of a family of alarms that was, or will be, defined in the system. (You can specify the name of an alarm family that was not yet defined in the Alarm Definition module. Although, at some point, it must be defined.)</p> <p>For a list of defined alarm families click the arrow to the right of the field. You can also use a ? and a * wildcard to enable you to quickly define family filters.</p> <p>The maximum number of names that you can specify is 65535.</p>

Alarm Filter

You can associate an alarm filter with the object. In this case, instead of the behaviour of the object being based solely on the family of the alarm, you can use an alarm filter. This is a more flexible approach to filtering the behaviour. In addition, it allows you to use the # symbols to change the filter that is used by changing the context of the image.

Show Object When

Select Always to cause the object to appear in the Image constantly. If you select this option, you must also select an Animation.

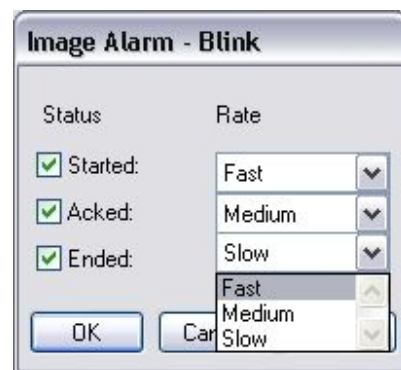
Select Alarm Family Active to cause the object to appear in the Image only when the alarm condition is true.

Select Alarm Family not Active to cause the object to appear in the Image only when the alarm condition is false. If you select this option, both the Animation and Trigger Function fields will be disabled.

The following options are available:

Blink: Click to define the blink parameters for the object. The Image Alarm - Blink dialog box is displayed.

Animation



Fill height: 188px;" width=204 height=188 border=0>

Select the alarm status option you want and the color to be associated with that status.

Active alarms can be either; Started (unacked, unended), Acked (and unended), or Ended (but unacked). For example, you can define the object to be red when the alarm is started, green when it is acked, and its default color when it is ended.

Line "	>
Trigger Function	<p>Select Acknowledge to cause the alarm associated with the object to be acknowledged whenever the object is selected in the Trigger mode.</p> <p>Select Acknowledge with confirm to prompt the operator before acknowledging the alarm.</p> <p>Select Assist to cause the help file of the alarm associated with the object to appear whenever you select the object in the Image.</p> <p>Select Assist + Ack button to cause the help file of the alarm to appear with an additional acknowledge button. For more information about alarm help files, see the Event Summaries chapter.</p> <p>Select None for no trigger function.</p> <p>If the No Alarm option is selected in the Show Object When field, the Trigger Function field will be disabled</p> <p>Notes:</p> <p>If an object was already defined as an alarm object, and you access the Alarm Object dialog box for that object, the dialog box will appear with the options you selected. If you change the definition (select different options) and then activate the OK button, the new definition will replace the previous definition.</p> <p>Several objects can be selected together in the Image for alarm object definition. If an object within the group you selected was already defined as an alarm object, the group definition will replace the single object's definition.</p>

Miscellaneous

Alarm Objects

The Application supports alarm object attributes in a browser. They are defined in the *Alarm Object Definition* dialog

The Application now supports the following alarm object attributes in a browser:

Blink

Specifies that an object will blink when the value is within the specified value range.

Fill color

Sets the fill color of an object when the value is within one of several specified value ranges.

Line color

Sets the line color of an object when the value is within one of several specified value ranges.

Acknowledge

Causes the alarm associated with the object to be acknowledged whenever the object is selected in the **Trigger** mode.

Acknowledge with confirm

Prompts the operator before acknowledging the alarm

Assist

Provides textual assistance when the object is selected.

Remote users should create an HTML file with the same name as the assist file and save it in the directory which contains the application's HTML files. When the alarm object is activated, the HTML file is opened together with the assist file.

Accessing Images with Layers

The Application supports the use of layers in Images that are remotely accessed. Users can access specific layers of an Image according to group authorization.

Note: Remember that Images accessed remotely have only scale.

Alarm Object Blink

In this dialog box, select the alarm status option you want and the blink rate to be associated with that status.

Active alarms can be either; Started (unacked, unended), Acked (and unended), or Ended (but unacked).

In the Alarm Object definition box select the Blink option.

Alarm Object Color

In this dialog box, select the alarm status option you want and the color to be associated with that status.

Active alarms can be either, Started (unacked, unended), Acked (and unended), or Ended (but unacked).

Trigger Objects

Trigger Objects

Trigger objects are objects that you can click on to cause predefined tag values to be set automatically or manually, cause the Image to go to a predefined zone, or cause predefined macros to be activated.

Any trigger object included in a segment will function the same as when it is not included in a segment. For more information about segments, see **Chapter 21, Image Editor**. Several tag input methods can be used for trigger objects. To test an input method, tag value variations can be simulated.

The tag value input methods include the following:

Action	When the operator clicks on an object, a preset value is applied to the tag, or a predefined macro is activated. This method is valid for all tags and objects.
--------	---

Buttons	When the operator clicks on an object, a set of buttons with preset values appears. Clicking a button causes a value to be applied to the tag, or a predefined macro to be activated. This method is valid for all analog and digital tags (not for string tags).
Bit	When the operator clicks on an object, ON, OFF, and Toggle buttons appear. This method is valid for all tags and objects (except string tags. For analog tags, the Toggle buttons will not appear.
Data Entry	When the operator clicks on an object, a dialog box appears to specify a numerical tag value. This method is valid for all analog and digital tags (not for string tags).
String	When the operator clicks on an object, a Text Table or a multi-state that was made active for the tag associated with that object, will be applied. The Text Table or the multi-state contains a list of strings corresponding to different tag values. This method is valid for all multi-state tags (when selecting the 'State Text' property of a multi-state tag) and Text Table objects.
Date	When the operator clicks on an object defined as a Date/Time object, a dialog box appears with the current date value to be modified.
Time	When the operator clicks on an object defined as a Date/Time object, a dialog box appears with the current time value to be modified.
Smooth	When the operator clicks on an object, a dialog box appears with tag values that can be selected using sliders. This method is valid for all analog and digital tags (not for string tags).

Trigger Objects

Trigger object are objects that you can click on to cause pre-defined tag values to be set automatically or manually, cause the image to go to a pre-defined zone, or cause pre-defined macros to be activated.

Any object (static, dynamic, segment) can be defined as a trigger object. However, only one tag value input method can be assigned per object.

The tag value input method that you select in the dialog box will be marked by an arrow.

Note that you may use a tag template Id as a tag. This will enable the trigger to be dependant on current image context

Note that for the Data Entry, Bit, Smooth, and Test, the last position of the dialog box will be saved (unless you activated the Cancel button before completing the operation). This means that you can drag the dialog box to any position on the screen, and thereafter, whenever that dialog box will be invoked, it will appear in its last position. However, the dialog box position is relative to the window position. If the window is moved and then the dialog box is invoked, it will appear in the position it was last saved, relative to the new location of the window.

For Text Table objects, the String button will appear in the Input Method field instead of Data Entry. For Time objects, the Time button will appear in the Input Method field instead of Data Entry. For Date objects, the Date button will appear in the Input Method field instead of Data Entry.

To define a trigger

1. Select the object you want to define as trigger.
2. Right click the selected object.
3. Select the Trigger Definition from the popup menu.

OR

From the Edit menu select Operations, then click on the Trigger option.

OR

From the Objects toolbar select the Trigger tool The Trigger Object Definition dialog box opens

4. Select the application station to which the tag associated with the trigger object is attached.
5. Select the tag associated with the trigger object, or click the browse button to open the Tag Definition dialog box where you can define a new tag.
6. Select the trigger object Input Method. Several tag input methods can be used for trigger objects. To test an input method, tag value variations can be simulated.

The tag value input methods include the following:

Action When the operator clicks on an object, a present value is applied to the tag, or a pre-defined macro is activated. This method is valid for all tags and objects.

Buttons When the operator clicks on an object, a set of buttons with present values appears. Activating a button causes a value to be applied to the tag, or a pre-defined macro to be activated. This method is valid for all analog and digital tags.

Bit When the operator clicks on an object, On, Off, and Toggle buttons appear. This method is valid for all tags and objects (except string tags).

Data Entry When the operator clicks on an object, a dialog box appears to specify a numerical tag value. This method is valid for all tags and objects besides Text Table objects.

String The String button will appear instead of the Data Entry button. When the operator clicks on an object, when a Text Table that was made active for the tag associated with the object, will be applied. The Text table contains a list of strings corresponding to different tag values.

Date The Date button will appear instead of the Data Entry button. When the operator clicks on an object defined as a Date/Time object, a dialog appears with the current date value to be modified.

Time The Time button will appear instead of the Data Entry button. When the operator clicks on an object defined as a Date/Time object, a dialog appears with the current time value to be modified.

Smooth When the operator clicks on an object, a dialog box appears with tag values that can be selected using sliders. This method is not valid for string tags.

Momentary When the operator clicks on an object, a dialog box appears enabling the user to change tag value in a one short way.

Fast Action When the operator clicks on an object, a pre-defined macro, called Fast Action is executed (note that Fast Action is Web enabled).

7. Click the **Set Macro** button to define macros for trigger objects (note that Set Macro is not supported on the Web).

8. Click the Test button to test the input method and adjust its appearance. In addition you can move the numeric keypad to any location on your screen. When you re-open the application and operate the keypad, it will be opened at the same location as you selected.

Trigger Object Definition

- To define trigger objects:

Select the required object and do one of the following to display the Trigger Object Definition dialog box:

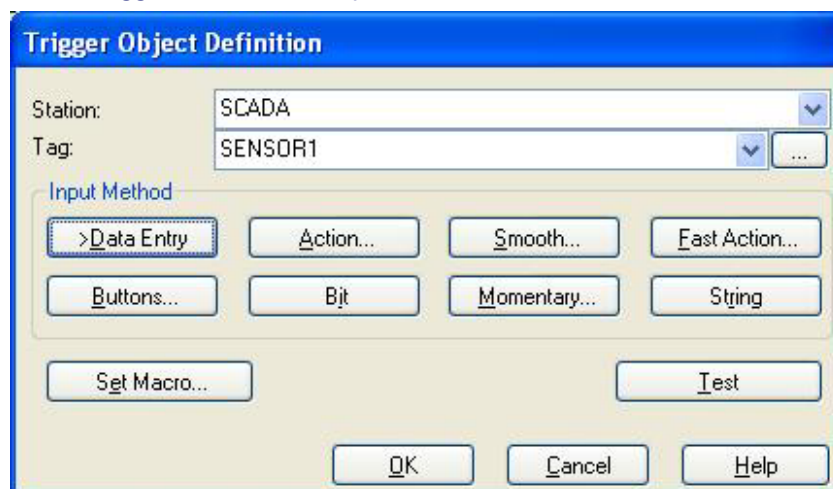
Click the Trigger Definition tool in the Objects toolbox.

Or

Right click and select Trigger from the popup menu.

Or

Select Trigger from the Edit Operations menu.



For Time objects, the Time button will appear in the Input Method field instead of Data Entry. For Date objects, the Date button will appear in the Input Method field instead of Data Entry.

The following fields are available:

Station	Specifies the station to which the tag belongs.
Tag	Specifies the tag associated with the object. Tag templates are supported (see the chapter on tag templates).
Input Method	The value input methods described above: Data Entry Value , Action, Smooth Variation , Buttons , Bit , Momentary.
Set Macro	Activate to define macros for trigger objects. (Not applicable on the Web).
Test	Activate to test the input method and adjust its appearance.

Any object (static, dynamic, segment) can be defined as a trigger object. However, only one tag value input method can be assigned per object.

- To cancel a trigger definition:

Select the trigger object, right click, and select Remove Trigger from the pop-up menu.

Or,

Select the trigger object, point to Operations in the Edit menu, and select Remove Trigger.

An arrow will mark the tag value input method that you select in the dialog box.

Note: For the Data Entry, Smooth, Bit, and Test dialog boxes the last position of the dialog box will be saved (unless you clicked the Cancel button before completing the operation). This means that you can drag the dialog box to any position on the screen. Thereafter, when the dialog box is opened, it will appear in its last position. However, the dialog box position is relative to the window position. If the window is moved and then the dialog box is invoked, it will appear in the position it was last saved, relative to the new location of the window.

Action Definition

Click the Action button in the Trigger Object Definition dialog box. The Action Definition dialog box is displayed.

1. In the Formula field you can use any of the following formats:

@tag op val

val op @tag

val

@tag

Where @ alone is the current tag, tag is the name of any tag, op is any valid operator including operators +, -, /, *, % (percent denotes modulus, as in C programming language), &, |, or ^ (bitwise AND, inclusive OR and exclusive OR). Val is any numerical value.

2. Either a Zone or Zone Navigator can be added. Do either:
 - Check the Zone checkbox and then in the Zone field click the arrow and select the relevant zone or, type in the relevant zone.

Or,

- Check the Zone Navigator checkbox and then in the Zone Navigator field click the Browse button. The Zone Navigator dialog box opens. Select the relevant Zone Navigator and click OK to save and return to the Action Definition dialog box.
3. To add a macro, click the Macro field and select the relevant macro.
 4. Click OK to confirm your definitions and to exit this dialog box.

Note: If more than one operation is assigned in this dialog box, the operations will be performed in the following order: goto zone, tag assignment, run macro. If one of the operations fails, the next operation will not be executed.

Action Definition

Click the Action button in the Trigger Object Definition dialog box. The Action Definition dialog box is displayed.

1. In the Formula field you can use any of the following formats:

@tag op val

val op @tag

val

@tag

Where @ alone is the current tag, tag is the name of any tag, op is any valid operator including operators +, -, /, *, % (percent denotes modulus, as in C programming language), &, |, or ^ (bitwise AND, inclusive OR and exclusive OR). Val is any numerical value.

2. Either a Zone or Zone Navigator can be added. Do either:
 - Check the Zone checkbox and then in the Zone field click the arrow and select the relevant zone or, type in the relevant zone.

Or,

- Check the Zone Navigator checkbox and then in the Zone Navigator field click the Browse button. The Zone Navigator dialog box opens. Select the relevant Zone Navigator and click OK to save and return to the Action Definition dialog box.
3. To add a macro, click the Macro field and select the relevant macro.
 4. Click OK to confirm your definitions and to exit this dialog box.

Note: *If more than one operation is assigned in this dialog box, the operations will be performed in the following order: goto zone, tag assignment, run macro. If one of the operations fails, the next operation will not be executed.*

Momentary Trigger

A Momentary Trigger is an object that is used to change a tag value in one shot. Usually such operations are required for a digital tag that control a field operation that is activated by a high value (one 1) for a short period of time, followed by a low value (zero 0). The neutral way to implement such an operation is using the 'button down' button up' pair of user actions. This operation is actually a 'button click' that is regarded as one operation. The momentary trigger operation will regard a 'button click' as two operations.

Functional Description

Following is a description of the way Momentary Trigger works:

All tags can be used for the Momentary including string tags.

A formula, identical to the one used in Action trigger can be assigned for Down and Up operation

Any Dynamic object in an Image that should reflect the tag value change will be updated when the button is still pressed

Only when the user releases the mouse left button ('button up') the Up formula is calculated and the result value will be written to the application in the same way as the down value

If the user releases the button not above the trigger object the Up value will not be written

To set and reset a bit in an Analog tag the OR and AND operations can be used. For example for 8 bit analog tag to set the 3rd bit use the formula '@ | 4' and to reset the same bit use formula '@ & 251'. The same principal can be applied to any bit and for 16 or 32 bits analog tags

To define a Momentary Trigger

1. Click the Momentary button from the **Trigger Object** dialog box. The Tag Input - Momentary Values dialog box opens.
 2. Enter the Value that the application will write to the tag when you press the left mouse in the Button Down Formula Field.
 3. In the Field Button Up Formula enter the value that the application will write as soon as you release the mouse button. For new definitions the default values are 1 and 0 for Down and Up respectively.
 7. Click OK to complete the operation.
-

Momentary Trigger

A Momentary Trigger is an object that is used to change a tag value in one-shot. Usually such operations are required for a digital tag that controls a field operation that is activated by a high value (one 1) for a short period of time, followed by a low value (zero 0).

The way to implement such operation is using the 'button down' button up' pair of user actions. This operation is actually a 'button click' that is regarded as one operation. The momentary trigger operation will regard a 'button click' as two operations.

Functional Description

Following is a description of the way Momentary Trigger works:

- All tags can be used for the Momentary including string tags
- A formula, identical to the one used in Action trigger, can be assigned for Down and Up operation
- Any Dynamic object, in an Image, that should reflect the tag value change will be updated, while the button is still pressed
- Only when the user releases the mouse left button ('button up') the Up formula is calculated and the result value will be written in the same way as the down value.

- If the user releases the button in a place not above the trigger object the Up value will not be written
- To set and reset a bit in an Analog tag the OR and AND operations can be used. For example for 8 bit analog tag to set the 3rd bit use the formula '@ | 4' and to reset the same bit use formula '@ & 251'. The same principal can be applied to any bit and for 16 or 32 bits analog tags

To define a Momentary Trigger

1. Select the object you wish to define as a Momentary Trigger.
2. Click the left mouse button on the Trigger Definition tool in the Objects Toolbar.

Or,

Click on the Trigger option in the Edit Menu Operations Menu. The Trigger Object Definition Dialog box opens.

3. Press the Momentary button and the Tag Input Momentary Values dialog box opens.
 4. Enter the Value that the Application will write to the tag when you press the left mouse in the Button Down Formula Field.
 5. In the Field Button Up Formula enter the value that the Application will write as soon as you release the mouse button. For new definitions the default values are 1 and 0 for Down and Up respectively.
 6. Click OK to complete the operation.
-

Trigger Button Definition

Title The button group title (optional).

Legend A description of the buttons. In this field, any button letter can be highlighted for keyboard entry by prefixing it with the ampersand (&) character.

Value The button value. If the object was defined as a string tag the value can be any numeric, alphabetic, or alphanumeric value.

Zone The zone to jump to when the button is activated. This field is optional. After checking this option click the Zone field and select the relevant zone.

Zone Navigator The Zone Navigator is a global multi image zone navigation window that enables you to quickly and efficiently navigate through image files. After checking this option click the Browse button to open the Zone Navigators dialog box and select the relevant Zone Navigator.

Macro The macro to activate when the button is activated. This field is optional. Not applicable on the Web.

Add The button is added to the list.

Change The button definition is changed.

Delete The button is deleted from the list.

Style The button arrangement style:

Horiz, for horizontal rows.

Vert, for vertical columns.

Rect, for rectangular arrays.

Optional Optional buttons (Cancel, Help and Execute). Select Execute to provide added user security by displaying dialog boxes that must be confirmed before an action is executed.

Button Size Button size adjustment.

Use the <arrow> keys to change the size of the example button that appears in the field. The <PageUp> and <PageDown> keys also affect the size of the example button, and the <Home> key changes the button back to its default size.

Save The button definition is saved in a file.

Use Enables the operator to apply files that contain tag values. The files must have been saved earlier with the Save button. Tag value files can be edited using the system editor.

Notes

1. *A new button can be defined and added to the list by activating the Add button. A button can be selected from the list, its characteristics modified, and the revised definition saved, by activating the Change button. A button is deleted from the list by activating the Delete button.*
2. *If an ampersand (&) character precedes any part of the text specified in the Legend field, the operator will be able to activate that button by pressing the <Alt> key together with character that follows the ampersand (the character that will be underlined). For example, if a button legend is specified as O&FF, the actual text will appear as OFF, and the operator will be able to activate that button by pressing the <Alt> key together with the <F> key.*
3. *In the Macro field, you can specify a macro that you want to be activated by typing the name of the macro, or by clicking on the arrow to the right. When you click on the arrow, a list of predefined macros will appear for you to select from.*
4. *If more than one operation is assigned in this dialog box, the operations will be performed in the following order: goto zone, tag assignment, run macro. If one of the operations fails, the next operation will not be executed.*

5. *Activate the Save button and type a name. Once action buttons are saved for a specific object, they will appear each time the operator clicks on that object. Then, clicking on any button will apply that value to the tag.*
6. *(Optional) If you selected Execute a window containing the button panel you defined is displayed.*
7. *Click Execute to confirm and execute the action. You can also click Cancel to cancel the action and return to the Preset Buttons Definition dialog box.*
8. *Note: The dialog box will disappear after a predetermined amount of time if you do not select any of the available options. The time parameter for the display of this dialog box is specified in the wiztune.dat file, as follows:*

TRIGGER_BUTTONS = TIMEOUT

The default value is 20 seconds. The maximum value is 100 seconds.

Smooth Input

This dialog box is used to set the upper and lower value limits for the Single Tag Input dialog when the trigger is activated.

Lower Limit The lowest tag value that you will be able to specify in the Single Tag Input dialog box when the trigger is activated.

Upper Limit The highest tag value that you will be able to specify in the Single Tag Input dialog box when the trigger is activated.

Trigger Object Definition

- To define trigger objects:

Select the required object and do one of the following to display the Trigger Object Definition dialog box:

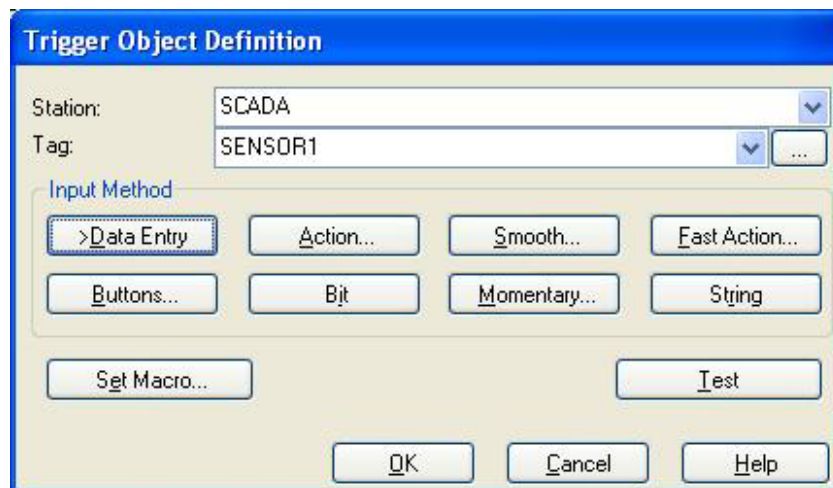
Click the Trigger Definition tool in the Objects toolbox.

Or

Right click and select Trigger from the popup menu.

Or

Select Trigger from the Edit Operations menu.



For Time objects, the Time button will appear in the Input Method field instead of Data Entry. For Date objects, the Date button will appear in the Input Method field instead of Data Entry.

The following fields are available:

Station	Specifies the station to which the tag belongs.
Tag	Specifies the tag associated with the object. Tag templates are supported (see the chapter on tag templates).
Input Method	The value input methods described above: Data Entry Value , Action, Smooth Variation , Buttons , Bit , Momentary.
Set Macro	Activate to define macros for trigger objects. (Not applicable on the Web).
Test	Activate to test the input method and adjust its appearance.

Any object (static, dynamic, segment) can be defined as a trigger object. However, only one tag value input method can be assigned per object.

- To cancel a trigger definition:

Select the trigger object, right click, and select Remove Trigger from the pop-up menu.

Or,

Select the trigger object, point to Operations in the Edit menu, and select Remove Trigger. An arrow will mark the tag value input method that you select in the dialog box.

Note: For the Data Entry, Smooth, Bit, and Test dialog boxes the last position of the dialog box will be saved (unless you clicked the Cancel button before completing the operation). This means that you can drag the dialog box to any position on the screen. Thereafter, when the dialog box is opened, it will appear in its last position. However, the dialog box position is relative to the window position. If the window is moved and then the dialog box is invoked, it will appear in the position it was last saved, relative to the new location of the window.

Remove Trigger

Select the trigger object, right click, and select Remove Trigger from the pop-up menu.

Or,

Select the trigger object, point to Operations in the Edit menu, and select Remove Trigger.

An arrow will mark the tag value input method that you select in the dialog box.

Note that for the Data Entry, Smooth, Bit, and Test dialog boxes the last position of the dialog box will be saved (unless you clicked the Cancel button before completing the operation).

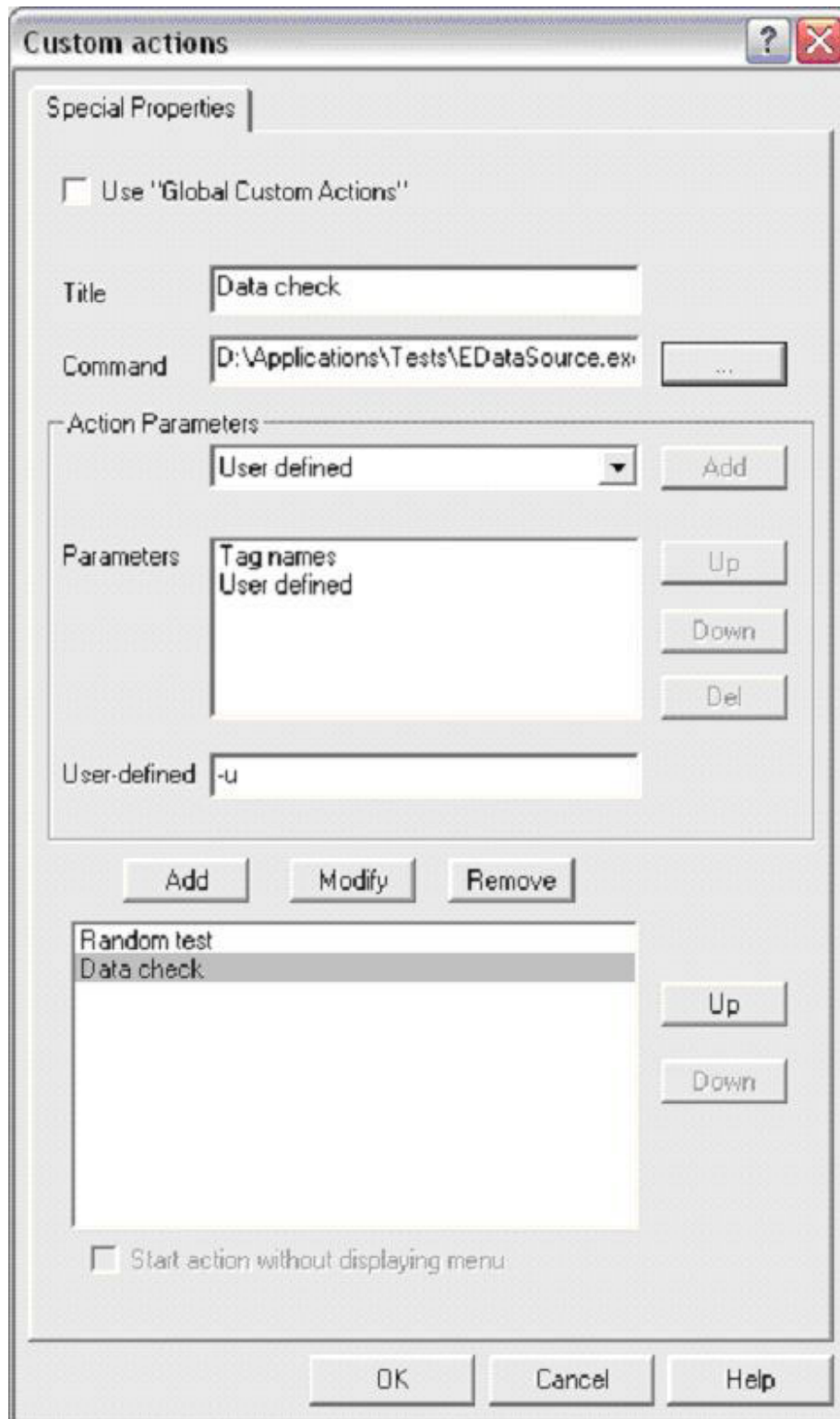
This means that you can drag the dialog box to any position on the screen. Thereafter, whenever that dialog box is opened, it will appear in its last position.

However, the dialog box position is relative to the window position. If the window is moved and then the dialog box is invoked, it will appear in the position it was last saved, relative to the new location of the window.

Custom Actions

Custom Actions

All objects in an image can be assigned to perform custom actions: a program external to the application. To assign custom actions for an object, right-click on the object while you are working in development mode. On the drop-down menu that appears, you will see an option to define custom actions. If you select this option, the following dialog box will appear:



From this dialog box, you can choose the programs that you want to call, and, for each of them, a set of parameters that you want to send to the program.

These programs will be called via a right-click on the object during runtime. If there are several programs defined, a drop-down menu will allow you to choose which program to

call. If there is only a single program, you can choose to launch it directly after a right-click by selecting the option “Start Action without display menu”.

How to define custom actions

For each program that you want to call, you must give it a Title (this is the name that will appear when you do the right-click).

The “Command” is the actual program that will be launched. Use the button “...” to help you to find it if you need to.

You can send a set of parameters to each of the custom actions you define:

- A User-defined string (type the string in the text box below the list of parameters),
- The tag names of all the tags associated with the object
- The position of the object (measured in screen coordinates).

The format of the string that is sent to the external program is the following:

Application.exe –tagnames:TAGNAME1,TAGNAME2,TAGNAME3 –coords:X,Y <userstr>

Note that there are no spaces between the tag names, and that the user-defined string (userstr) is a free-form string. Notice is that there is a space between the user-defined string and any of the other parameters.

You can add the parameters in any order you like. Use the up and down buttons to change the order of the parameters. For each custom action that you define, use the “Add” button to add it to the list. You can “Modify” each program, or “Remove” it from the list. If only one program is defined for the object, you can use the “Start action without displaying menu” option to launch the program without the drop-down menu appearing when you do a right-click on the object during runtime.

External File Access in Web Images

Presentation

External file access is now supported in Web Images.

Access means

Use the standard ways to create custom actions

Description

The command parameter should be a valid URL accessible from internet.

How To

- Open the custom actions dialog
- Set a name for this action
- Enter the URL in the command parameter
- click the OK button

Custom Actions

You can use this dialog box to send a command to one or several programs external to the application. You can choose a set of parameters to send to the programs.

These programs will be called via a right-click on the object during runtime. If there are several programs defined, a drop-down menu will allow you to choose which program to call. If there is only a single program, you can choose to launch it directly after a right-click.

You can create the programs in the following way:

For each program that you want to call, you must give it a Title (this is the name that will appear when you do the right-click).

The "Command" is the actual program that will be launched. Use the button "..." to help you to find it if you need to.

For each program you can send a set of parameters: A User-defined string (type the string in the text box below the list of parameters), the tag names of all the tags associated with the object and the position on the screen of each of the associated tags (the position is measured in image coordinates).

The format of the string that is sent to the program is the following (remember that they can be in any order):

```
Application.exe -tagnames:TAGNAME1,TAGNAME2,TAGNAME3 -coords:X,Y <userstr>
```

Note that there are no spaces between the tag names, and that the user-defined string (userstr) is a free-form string. The only thing to notice is that there is a space between the string and any of the other parameters.

You can add the parameters in any order you like. Use the up and down buttons to change the order of the parameters.

For each program, use the "Add" button to add it to the list. You can "Modify" each program, or remove it from the list.

As for the parameters, use the up and down buttons to change the order in which they will appear in the drop-down menu following a right-click on the object.

If only one program is defined for the object, use the "Start action without displaying menu" option to launch the program without the drop-down menu appearing.

Global Custom Actions

Note that the first option on this dialog box is to use “Global Custom Actions”. Global custom actions are useful when you want to call the same set of actions for many objects. This option is selected by default. In this case, all other options are deactivated. In order to customise the actions for a particular object, uncheck this box and you have access to all other fields.

How to define Global Custom Actions

On the “Triggers” section of the “Image Properties” dialog box, there is a button “Define Global Custom Actions for Images”. If you press this button, you will see a dialog box that is identical to the one shown above. Use this dialog box to define the custom actions that will be presented to the user by default when they define a custom action for an object.

Tooltips

For each object in an image, you can define a tooltip that will be shown when the user moves the mouse over the object during runtime. To define a tooltip, right-click on the object in development mode. On the menu that appears, select the “Tooltips” option. This will launch the following dialog box:



You can select to show one or more of:

- The names of each tag used by the object
- The description of each of the tags
- The driver number of each of the tags
- A free-form string of your choosing

Note that if you decide to add a tooltip to a cluster, then you may have very large tooltips displayed.

Defining Tooltips

This dialog box will allow you to assign tooltips to objects in the image. You can define the tooltips while developing the application, but they will only be activated during runtime. The following options are available and you can choose any combination of the options.

You can choose to display either the tag name, tag description, its address or a text string of your own choosing.

Note that if you have several tags associated with a single object, you will see these options for each tag attached to the object.

Modifying Object

Properties

Modifying Object Properties

You can quickly access any object, group of objects or a cluster object and modify the object properties.

This option is especially useful when editing cluster objects. You can select a cluster object and edit any of its objects without ungrouping the whole cluster.

This option enables you to:

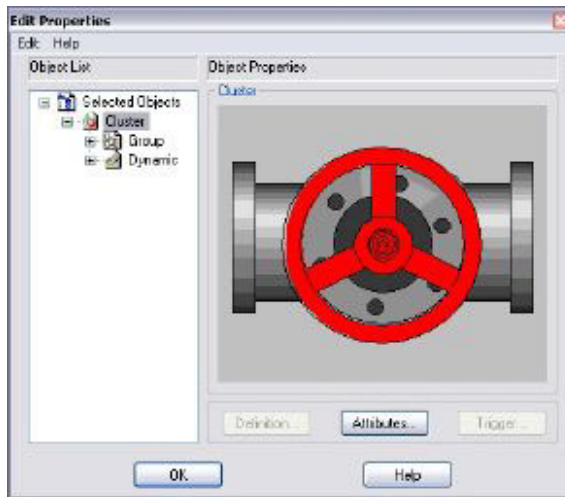
- Modify trigger definitions and text.
- Modify dynamic tag definitions.
- Modify basic object attributes such as the line color, the fill color and the active layer.

This option does not enable you to add or remove objects from an Image, or modify the shape of the object, for example, its size or type.

- To modify object properties:

Click on a single object to select it or click on each required object while holding down the shift key, then right click and select Edit Properties from the popup menu.

A dialog box similar to the following is displayed. In this dialog box, a cluster object is selected:



The Object List on the left displays a hierarchical structure, or tree, of the objects, which comprise the cluster. The tree displays object types as folders under which objects of that type are contained. For example, dynamic objects are displayed in the Dynamic folder. The Object List can be configured to display different objects types.

The application enables you to locate items according to specified strings and to replace simple text or tag names.

Each object selected in the Object List is viewed in the Object Properties area on the right of the dialog box.

The following options are available in the Edit Properties dialog box:

Definition	Enables you to modify dynamic tag parameters. This option is available for objects with a definition such as a button, or an alarm. It is also available for text. It is not available for objects that are only defined with basic object attributes such as color or line type.
Attributes	Enables you to modify the line color, the fill color and the active layer.
Trigger	Displays the standard Trigger Object Definition dialog box in which you can modify trigger definitions. This option is available for objects with a trigger definition.

Modifying Dynamic Tag Parameters

The application enables you to access the tag parameters specified for dynamic properties and modify them. This option does not enable you to re-define options such as Animation, for example, change Blink to Line Color.

- To modify dynamic tag parameters:

Select the Definition button in the Edit Properties dialog box to display the Dynamic Object dialog box. This dialog box is similar in functionality to Dynamic Parameters.

- To Modify the Range Parameters:
 1. Click the arrow to the right of the Range Parameters area and select the required operation from the popup list. A dynamic type that is not defined will appear in parenthesis. If you select an undefined type, the Tag Properties, and From and To options are disabled.
 2. Enter to and from values in the To and From fields to modify the maximum and minimum tag values.
 3. Click Apply to save your changes.
 4. Click the arrow to the right of the Station field and select the required station.
 5. Click the arrow to the right of the Tag field and select the required tag.
 - To Modify the Animation options:
 1. Click the Animation button in the Multi-Range Parameters area to display a dialog in which you can modify the action defined in the Multi Range Parameters field. For example, Blink.
 2. Click the arrow to the right of the Station field and select the required station.
 3. Click the arrow to the right of the Tag field and select the required tag.
 4. Click OK to save your changes and close the dialog box.

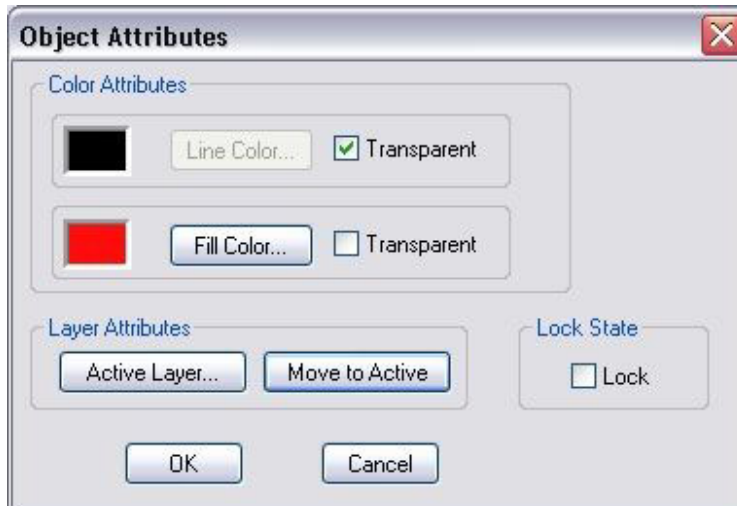
Modifying Basic Object Attributes

The application provides quick access, through one dialog box to three options that are usually defined separately during Image object definition.

Using the new Object Attributes dialog box, you can modify line and fill color and change the active layer of an object. The application does not support modifications to line types and fonts, nor enable access to transparent colors.

- To modify basic object attributes:

1. Select the Attributes button in the Edit Properties dialog box to display the Object Attributes dialog box:



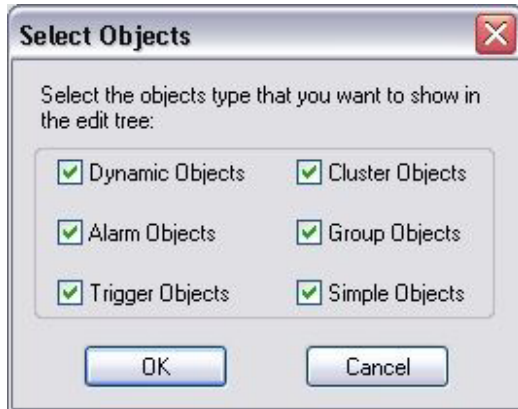
2. Click the Line color button to display the standard Color dialog box in which you can modify the line color.
3. Click the Fill Color button to display the standard Color dialog box in which you can modify the fill color.
4. Click the Active Layer button to open the Select Active Layer dialog box in which you can change the layer from a list of available layers.
5. Click the Move to Active button to Move to the active image layer.
6. Check the Lock checkbox to lock this object. A locked image and its definitions cannot be moved or modified.
7. Click OK to close the dialog box and save changes.

Filtering the Edit Properties

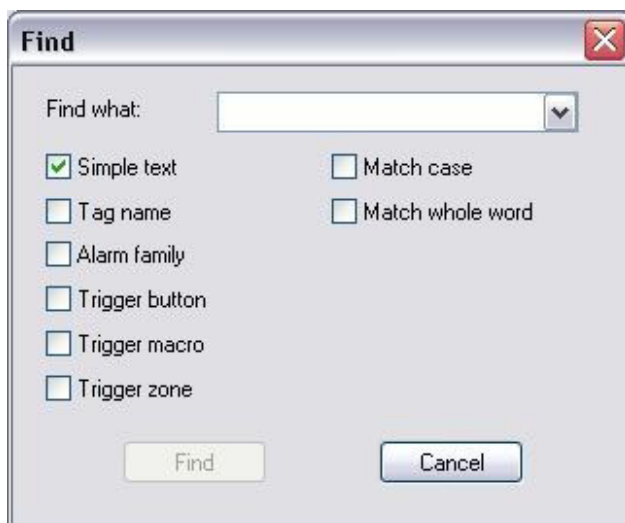
The Edit Properties dialog box, in addition to providing access to the object edit options, displays a flexible Object List that provides a number of features that enable you to:

- Specify the object folders that appear in the Object List. Object folders are used to display the object types that comprise the specified cluster.

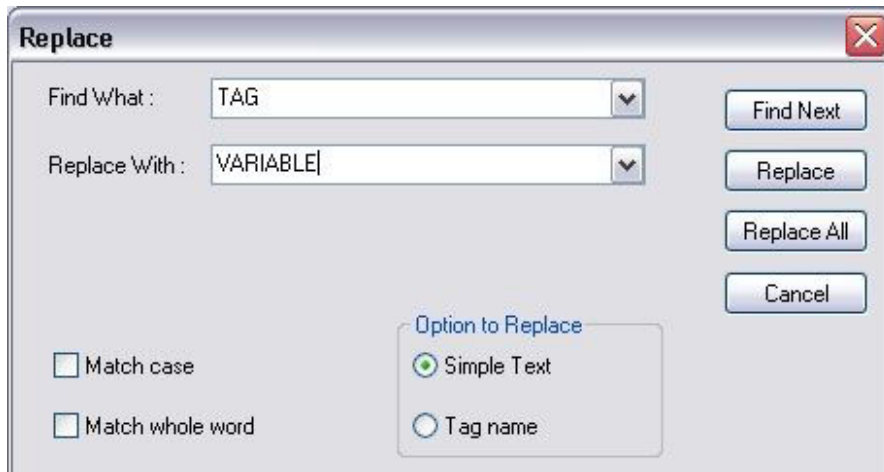
- Locate items in the Object List by specifying a string and running a match. This is useful when the Object List contains many objects and you want to quickly locate the ones you require.
 - Find and replace simple text or tag names in the Object List.
 - To filter folder types:
1. From the Edit menu, choose Select. The Select Objects dialog box is displayed:



2. Select the object type you want to display in the Object List. You can choose from the following:
 - Dynamic Object
 - Alarm Object
 - Trigger Objects
 - Cluster Object
 - Group Object
 - Simple Objects
3. Click OK to close the dialog box and save changes.
4. (Optional) You can display all the available folder types by choosing Select All from the Edit menu of the Edit Properties dialog. This overwrites your previously defined options. (It also reselects all the options in the Select Objects dialog box.)
 - To locate items in the object list:
1. From the Edit menu of the Edit Properties dialog box, select Find. The Find dialog box is displayed:



2. In the Find what field, enter the object you want to locate, for example, circle.
3. Enter one of the following to define the string by which the object is located:
 - Simple text
 - Tag name
 - Alarm family
 - Trigger button
 - Trigger macro
 - Trigger zone
4. Select Match case or Match whole word to define your search criteria.
5. The application searches the Object List for a match and selects the object when found. A message is displayed if the object is not found.
6. (Optional) Select Find Next from the Edit menu or press F3 to continue searching the tree for the next match.
 - To find and replace text:
1. From the Edit menu of the Edit Properties dialog box, select Replace. The Replace dialog box is displayed:



2. Select Simple text in the Option to Replace area.
3. Enter the text you want to search for in the Find What field, or click the arrow to the right of the field to select text from a list of available text objects.
4. Enter the replacement text in the Replace With field, or click the arrow to the right of the field to select replacement text from a list of available text objects.
5. Click Find Next to locate the text. Click Replace to continue the find and replace operation, or click the Replace All button to automatically find and replace all matching objects. You can also click Find Next again to simply find the next text object without replacing the currently selected text.
6. Click Cancel to stop the find and replace and close the dialog box.
 - To find and replace tags:
1. From the Edit menu of the Edit Properties dialog box, select Replace. The Replace dialog box is displayed.
2. Select Tag name in the Option to Replace area.
3. Enter the tag you want to search for in the Find What field, or click the arrow to the right of the field to select a tag from a list of available tags.
4. Enter the name of the replacement tag and the station, in which it is found, in the Replace With field, or click the arrows to the right of the fields and select replacement tags and their stations from lists of available tags and stations.

5. Click Find Next. The tag is located. Click Replace to continue the find and replace operation, or click the Replace All button to automatically find and replace all matching tags. You can also click Find Next again to simply find the next tag without replacing the currently selected tag.
 6. Click Cancel to stop the find and replace and close the dialog box.
-

Input Method

Preparations

Input Method Preparations

The following sections describe the steps you need to take before you can use an input method.

Action Buttons

Before using the Buttons input method first define the action buttons.

- To define action buttons:

Click the Buttons button in the Trigger Object Definition dialog box. The Preset Buttons Definition dialog box is displayed:

Preset Buttons Definition

Tag Name: TANK_LEVEL01

Title:

Button Data

Value:

Legend:

☐ Zone Navigator

☒ Zone

Macro:

Legend	Value	Zone	Macro
Value 1	10		
Value 2	20		
Out of range	101		

Optional

☒ Cancel
 ☒ Help
 ☒ Execute

Style

☒ Horizontal
 ☐ Vertical
 ☐ Rectangle

Button Size

The following options are available:

Title	The button group title (optional).
Legend	A description of the buttons. In this field, any button letter can be highlighted for keyboard entry, by prefixing it with the ampersand (&) character.
Value	The button value. If the object was defined as a string tag the value can be any numeric, alphabetic, or alphanumeric value.
Zone	The zone to jump to when the button is activated. This field is optional. After checking this option click the Zone field and select the relevant zone.
Zone Navigator	The Zone Navigator is a global multi image zone navigation window that enables you to quickly and efficiently navigate through image files. After checking this option click the Browse button to open the Zone Navigators dialog box and select the relevant Zone Navigator.
Macro	The macro to activate when the button is activated. This field is optional. Not applicable on the Web.
Add	The button is added to the list.
Change	The button definition is changed.

Delete	The button is deleted from the list.
Style	<p>The button arrangement style:</p> <p>Horiz, for horizontal rows.</p> <p>Vert, for vertical columns.</p> <p>Rect, for rectangular arrays.</p>
Optional	Optional buttons (Cancel, Help and Execute). Select Execute to provide added user security by displaying dialog boxes that must be confirmed before an action is executed.
Button Size	<p>Button size adjustment.</p> <p>Use the <arrow> keys to change the size of the example button that appears in the field. The <PageUp> and <PageDown> keys also affect the size of the example button, and the <Home> key changes the button back to its default size.</p>
Save	The button definition is saved in a file.
Use	Enables the operator to apply files that contain tag values. The files must have been saved earlier with the Save button. Tag value files can be edited using the system editor.

A new button can be defined and added to the list by clicking the Add button. A button can be selected from the list, its characteristics modified, and the revised definition saved, by activating the Change button. A button is deleted from the list by clicking the Delete button.

If an ampersand (&) character precedes any part of the text specified in the Legend field, the operator will be able to activate that button by pressing the <Alt> key together with character that follows the ampersand (the character that will be underlined). For example, if a button legend is specified as O&FF, the actual text will appear as OFF, and the operator will be able to activate that button by pressing the <Alt> key together with the <F> key

In the **Macros** field a macro that you want to be activated can be specified by typing the name of the macro, or by clicking on the arrow to the right. When you click on the arrow, a list of predefined macros will appear for you to select from.

Note: If more than one operation is assigned in this dialog box, the operations will be performed in the following order: goto zone, tag assignment, run macro. If one of the operations fails, the next operation will not be executed.

- To save a button definition:

Click the Save button and type a name. Once action buttons are saved for a specific object, they will appear each time the operator clicks on that object. Then, clicking on any button will apply that value to the tag.

1. (Optional) If you selected Execute a window containing the button panel you defined is displayed.



2. Click Execute to confirm and execute the action. You can also click Cancel to cancel the action and return to the Preset Buttons Definition dialog box.

Note: The dialog box will disappear after a predetermined amount of time if you do not select any of the available options. The time parameter for the display of this dialog box is specified in the wiztune.dat file, as follows:

TRIGGER_BUTTONS = TIMEOUT

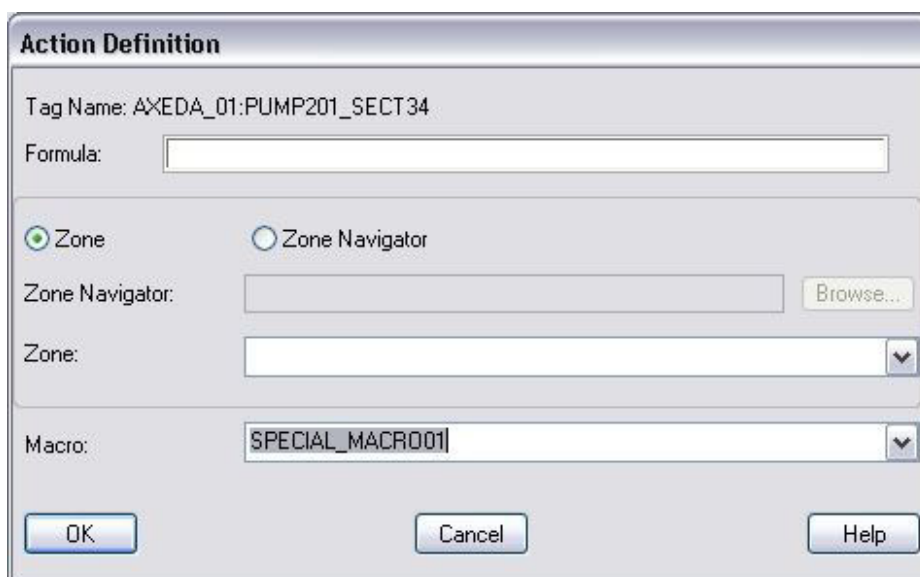
Note: The default value is 20 seconds. The maximum value is 100 seconds.

Action

To use the Action input method first define an Action formula.

- To define an action formula:

Click the Action button in the Trigger Object Definition dialog box. The Action Definition dialog box is displayed:



The image shows a dialog box titled "Action Definition". It contains the following fields and controls:

- Tag Name:** A text field containing "AXEDA_01:PUMP201_SECT34".
- Formula:** An empty text field.
- Zone:** A radio button that is selected.
- Zone Navigator:** A radio button that is not selected.
- Zone Navigator:** A text field next to the "Zone Navigator" radio button, with a "Browse..." button to its right.
- Zone:** A dropdown menu next to the "Zone" radio button.
- Macro:** A dropdown menu containing the text "SPECIAL_MACRO01".
- Buttons:** "OK", "Cancel", and "Help" buttons at the bottom.

1. In the Formula field you can use any of the following formats:

@tag op val

val op @tag

val

@tag

Where @ alone is the current tag, tag is the name of any tag, op is any valid operator including operators +, -, /, *, % (percent denotes modulus, as in C programming language), &, |, or ^ (bitwise AND, inclusive OR and exclusive OR). Val is any numerical value.

Note: Do not insert spaces between '@' and the tag name

2. Either a Zone or Zone Navigator (see **Zone Navigator on page 21-44 of Chapter 21, Image Editor**) can be added. Do either:

Check the Zone checkbox and then in the Zone field click the arrow and select the relevant zone or, type in the relevant zone.

Or,

Check the Zone Navigator checkbox and then in the Zone Navigator field click the Browse button. The Zone Navigator dialog box opens. Select the relevant Zone Navigator and click OK to save and return to the Action Definition dialog box.

3. To add a macro, click the Macro field and select the relevant macro.
4. Click OK to confirm your definitions and to exit this dialog box.

String Tags

If the tag associated with the object was defined as a string tag you can enter any character string in the Formula field, including a blank string (no characters). The Formula edit field can have up to 55 characters only.

If the formula begins with the character (@) the Image interprets the rest of the string as a tag. If you want to see the character (@) typed, place a space before it. The tag in the formula can also be of a numerical type. In this case, the value is converted to a string and written to a string tag.

In addition, you can enter a zone to jump to, or a macro to activate, whenever that object is selected.

In the Macro field, you can specify a macro that you want to be activated by typing the name of the macro, or by clicking on the arrow to the right. When you click on the arrow, a list of predefined macros will appear for you to select from.

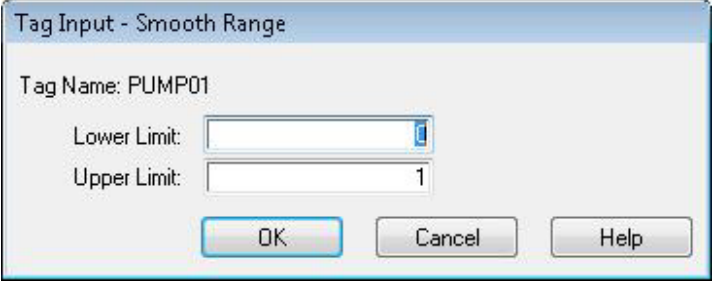
Note: If more than one operation is assigned in this dialog box, the operations will be performed in the following order: goto zone, tag assignment, run macro. If one of the operations fails, the next operation will not be executed.

Smooth Variation Range

To use the Smooth input method to specify tag values to be applied online you must first define the variation range.

- To define the smooth variation range:

Click the Smooth button in the Trigger Object Definition dialog box. The Tag Input - Smooth Range dialog box appears:



Enter values for the upper and lower range limits. These values will be used as the range within which values can be selected to apply to the tag.

Momentary Trigger

A Momentary Trigger is an object that is used to change a tag value in a single action. Usually such operations are required for a digital **Tags** that controls a field operation which is activated by a high value (one 1) for a short period of time, followed by a low value (zero 0).

The neutral way to implement such an operation is by using the button down button up pair of user actions. This operation is actually a button click that is regarded as one operation. The Momentary trigger operation will regard a button click as two operations.

All tags can be used for the Momentary, trigger, including string tags.

The following is a description of the way Momentary Trigger operates:

- All tags can be used for the Momentary, including string tags.
- A formula, identical to the one used in the Action trigger, can be assigned for button down button up operations.
- Any Dynamic object in an Image, that should reflect the tag value change will be updated, while the button is still pressed.
- Only when the user releases the mouse left button (button up) the Up formula is calculated and the result value will be written to WizPro, in the same way as the Down value.
- If the user releases the button in a place not above the trigger object, the Up value will not be written.
- To set and reset a bit in an Analog tag, the OR and AND operations can be used. For example, for 8 bit analog tag to set the 3rd bit use the formula '@ | 4'. To reset the same bit, use formula '@ & 251'. The same principal can be applied to any bit and for 16 or 32 bits analog tags.
- To define a Momentary Trigger
 1. Select the object you wish to define as a Momentary Trigger.
 2. Click the Trigger Definition tool in the Objects Toolbox or right click and select Trigger Definitions. The Trigger Object Definition dialog box appears.
 3. Click the Momentary button and the Tag Input - Momentary Values dialog box is displayed.

4. Enter the Value that the application will write to the tag when you click the left mouse in the Button Down Formula field.
5. In the field Button Up Formula enter the value that the application will write as soon as you release the mouse button. For new definitions, the default values are 1 and 0 for Down and Up respectively.
6. Press OK to complete the operation.

Input Method Testing

After you select an input method and make the necessary definitions, you can test the action that will occur whenever you click on the trigger object. The test that you perform will access the particular input method dialog box.

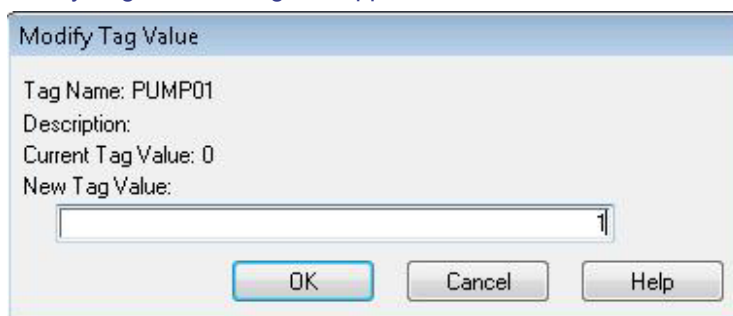
- To test an input method:

Click the Test button in the **Trigger Object Definition** dialog box. A dialog box opens for the Input method (excluding the Action method). The dialog box is placed in a default location on the screen, but can be moved by placing the cursor on the Title bar, clicking, and dragging the box to any location. The new location will be recorded and the dialog box will thereafter appear in the new location, relative to the Image window lower-left corner.

The following sections describe each of the tag value input method operations in more detail.

Data Entry Value

When the Data Entry Value method is used and the operator clicks on a trigger object, the Modify Tag Value dialog box appears:



Modify Tag Value

Tag Name: PUMP01

Description:

Current Tag Value: 0

New Tag Value:

1

OK Cancel Help

Enter a value and click the OK button to apply it immediately to the tag.

Note: If the object is a string tag object enter a textual value in the New Tag Value field.

Touch Screen Support

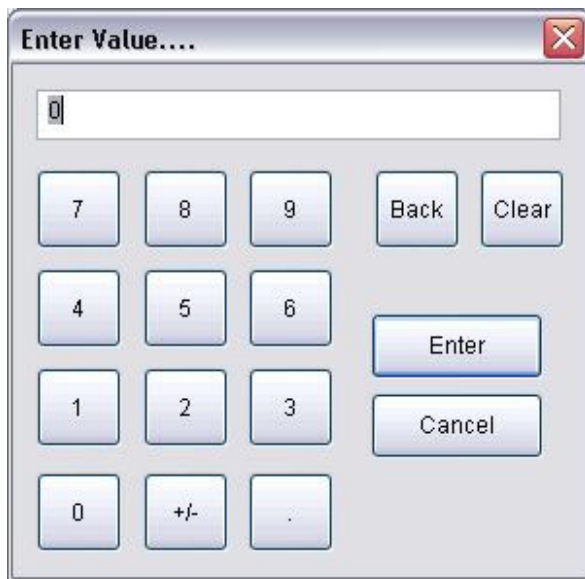
This trigger can be used to enable the application to support touch screens. In the Wiztune.dat file (See WizTune User Guide), manually set the tuning parameter:

IMG_TRG_KEYPAD = YES

Default is NO

Restart the application for it to take effect.

The Key Pad is available for Data Entry triggers of numeric type. The Enter Value dialog box opens.



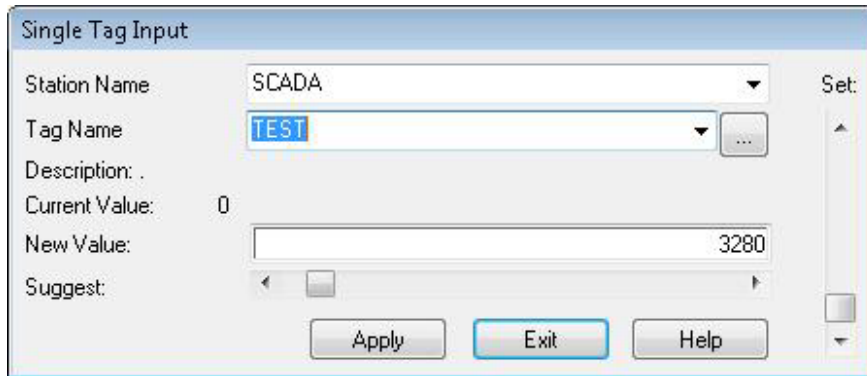
Note: This keypad is not supported in browser.

The keypad operates as any other numeric keypad. Click the Back button to delete one number back. Click Clear to erase all numbers in the field.

You can set the location of your keypad anywhere on the screen by clicking the Test button and moving the keypad to any location. When you reopen the application and operate the keypad, it will be opened at the same location as you selected.

Smooth Variation

When the Smooth Variation method is used and the operator clicks on a trigger object the Single Tag Input dialog box is displayed:



The dialog box titled "Single Tag Input" contains the following fields and controls:

- Station Name:** A dropdown menu with "SCADA" selected.
- Tag Name:** A text field containing "TEST" with a blue highlight, followed by a dropdown arrow and a button with three dots.
- Description:** A text field with a period ".".
- Current Value:** A text field containing "0".
- New Value:** A text field containing "3280".
- Suggest:** A slider control with a small square handle.
- Buttons:** "Apply", "Exit", and "Help" buttons at the bottom.
- Set:** A vertical slider on the right side of the dialog.

The following options are available:

- | | |
|---------|-------------------------------|
| New | New tag value (numerical). |
| Suggest | Slider for suggested values. |
| Set | Slider for tag values. |
| Apply | Applies the value to the tag. |
-

Bit

When the Bit method is used and the operator clicks on a trigger object, the Tag Input: Bit Operation dialog box appears:



The Toggle button is only displayed for digital tags.

The action button functions are:

On Sets the tag value to 1.

Off Sets the tag value to 0.

Toggle Toggles between 1 and 0 for digital tags only.

Note: If the object was defined as a string this trigger type will be disabled.

Buttons

If the Buttons method is used when the operator clicks on a trigger object, a dialog box will open the predefined buttons. Each button represents a different value. When a button is activated, its corresponding value is immediately applied to the tag.

The following is an example of a Button dialog box:



See Action Buttons [for further details.](#)

String

When the String method is used (a Text Table was defined for a trigger object) and the operator clicks on the object the Modify Tag by String dialog box is displayed:

Note: To use the String input method, a string must first be defined by activating the Text table button in the Text dialog box. In the Modify Tag dialog box select a predefined string from the list. The values corresponding to the string you selected will immediately be applied to the tag.

Date

When the Date method is being used and the operator clicks on the object, the Set Date dialog box is displayed. After the new date is entered, the date display object will immediately be updated.

Time

When the Time method is being used (the object was defined for time display and the operator clicks on the object, the Set Time dialog box is displayed.

Note: If the time display was not defined as Time with Seconds, the seconds box will not appear in this dialog box.

After the new time is entered, the time display object will immediately be updated.

Trigger Macros

Trigger Macros

Note: This feature is not supported on the web.

Once you have defined Trigger objects, you can define special macros (keys or key combinations) to apply Trigger object operations. For more information about Macros see **Chapter 35, Macros**.

- To define Trigger macros:

Click the Set Macro button in the Trigger Object Definition dialog box. The Trigger Macro Definition dialog box is displayed:



The following options are available:

Name Specifies the name of the macro.

Description Specifies a brief description of the macro.

Accelerator Keys	Alt, Ctrl, Shift, and Function keys that can be used in combinations to invoke the macro.
Confirm Before Execute	Causes the application to prompt you to confirm the execution of a macro before it is executed.
Execute when out of VP	Causes a macro to be executed even when the trigger object does not appear visually in the Image window.
Group	Used to assign groups to operators for macro authorization.

Note: Trigger macros will only be executed if the Trigger mode is activated (by selecting Trigger On from the Modes menu, in the Image).

Trigger Macros

Note: Trigger Macros are not supported on the Web.

Once you have defined Trigger objects, you can define special macros to apply Trigger object operations. To define Trigger macros, activate the Set Macro button in the Trigger Object Definition dialog box.

The fields in this dialog box are:

Name The name of the macro.

Description A brief description of the macro.

Accelerator keys Alt, Ctrl, shift and function keys that can be used in combinations to invoke the macro.

Confirm before execution This option is use to cause the application to prompt you to confirm the execution of a macro before it is executed.

Execute when out of VP Used to cause a macro to be executed even when the trigger object does not appear visually in the Image window.

Group Used to assign groups to operators for macro authorization.

Note that trigger macros will only be executed if the Trigger mode is activated (by selecting the Trigger On item from the Modes menu, in the Image window).

Marking Trigger Objects

- To mark trigger objects on the screen:

Select Mark Triggers from the Options menu in the Image.

Or,

Select the mark trigger toggle from the Image toolbar. After you select this item, a red-colored hand will appear in all the trigger objects in the Image.

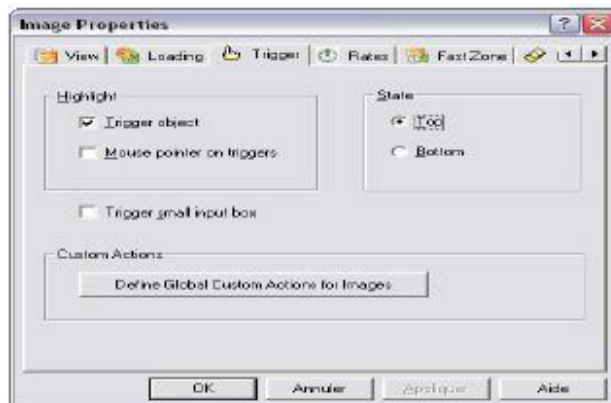
- To unmark the objects:

Reselect Mark Triggers. If the Trigger On mode is active, the hand cursor that appears will turn red when you click and hold the button down, and move the cursor within the borders of the object. When you leave the object borders (while still holding the button down), the hand will turn white.

Note: The <Spacebar> can be used to simulate the mouse button.

The Mark Triggers function will apply to any object. However, if an object is marked (with a red hand) to indicate that it is a trigger object, but that object is dynamically or manually transformed (moved, rotated, scaled, etc.), the trigger mark may disappear, or will not appear in its correct location. If this happens, you can press <ALT+R>, or click on the <r> button in the Image window, to redraw the Image. The hand will then appear in its proper location.

Specify YES for the Trigger tab in the Image Properties dialog box to highlight trigger objects (outlined with dashed lines) when you click on the object and hold the mouse button down. The default for this parameter is NO.



Options Mark Trigger

Note: Mark Triggers is not supported on the Web. You can mark triggers in Edit mode, while developing your image.

Select this item to cause all **trigger objects** in the Window to be marked (or unmarked) on the screen.

After you select Mark Triggers, a red hand will appear in all the trigger objects in the image. The Mark Triggers function will apply to any trigger object.

Note, however, that if an object is marked (with a red hand) to indicate that it is a trigger object, but is dynamically or manually transformed (moved, rotated, scaled, etc.), the trigger mark may disappear or will not appear in its proper location. If this occurs, you can refresh the screen by pressing <Alt-R>.

Widgets

Media Player

Media Player

Note: Not supported on the Web.

The Media Player enables you to *play* any Media file that is installed on your computer. Usually this object is used to play 'AVI' files that display some information to the operator.

To Define a New Media Object

1. Select the Media tool located in the Objects Toolbar.
2. Draw a rectangle in the initial size you wish.
3. The Media Player Properties dialog opens where you can select the Media device (file) you wish to play.
4. You can set the Media window to include a title bar with your own text.

The Media device will be displayed 'Stretched' to the object size. Small control bar is displayed at the bottom on the object with the options to Play, Stop, Pause, Fast Forward and Rewind.

You can select and edit the object size and the location can be manipulated as any other object. To change the object properties double-click on it.

Media Player

Note: Media Player is not supported on the Web.

The Media Player enables you to *play* any Media file that is installed on your computer. Usually this object is used to play 'AVI' files that display some information to the operator.

To Define a New Media Object

1. Select the Media tool located in the Objects Toolbar.
 2. Draw a rectangle in the initial size you wish. The Media Player Properties dialog box opens where you can select the Media device (file) you wish to play.
 3. You can set the Media window to include a title bar with your own text. The Media device will be displayed 'Stretched ' to the object size. A small control bar is displayed at the bottom on the object with the options to Play, Stop, Pause, Fast Forward and Rewind.
 4. You can select and edit the object size and the location can be manipulated as any other object. To change the object properties double-click on it.
-

Media Player Info

Note: Media Player is not supported on the Web.

The Media Player enables you to *play* any Media file that is installed on your computer. Usually this object is used to play 'AVI' files that display some information to the operator.

Media Player

Note: This feature is not supported on the web.

The Media Player enables you to play any Media file that is installed on your computer. Usually this object is used to play .AVI files that display some information to the operator.

- To define a new media object:

 1. Select the Media button from the Objects Toolbox.
 2. Draw a rectangle in the initial size you wish.
 3. The Media Player Properties dialog box opens where you can select the Media device (file) you wish to play.
 4. You can set the Media window to include a title bar with your own text.



The Media device will be displayed Stretched to the object size. A small control bar is displayed at the bottom on the object with the options to Play, Stop, Pause, Fast Forward and Rewind.

You can select and edit the object size and the location can be manipulated as any other object. To change the object properties, double-click on it.

Note: A Media Player cannot be grouped with other image objects.

Specify the file that is to be used by the media player.

If the "Has title" is checked, then in the title field specify the title bar to be included Media window.

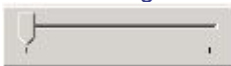
Slider

Tag Value Sliders

Note: This feature is not supported on the web.

Tag value sliders (widgets) can be designed and used in an Image to change and read tag values in a simple visual manner. The sliders can be positioned anywhere in the Image and will automatically reflect any change in the tag value that occurs in the field.

The following is an example of a slider:



The following points should be noted when working with tag value sliders:

- Tag value sliders are system windows that operate using system controls.
- Tag value sliders are automatically generated as trigger objects, and therefore can only operate in the Trigger mode.

- To design a slider:

From the Edit menu, point to Drawings and then to Widgets.

Or,

Select Slider from the popup menu.

Or,

Click the Slider button in the Objects Toolbox. The Slider properties dialog box is displayed:



The following fields are available:

Station	Specifies the network station to which the tag belongs. For a list of stations from which you can select, click on the arrow to the right of the field.
Tag	Specifies the tag to be associated with the slider. For a list of tags from which you can select, click on the arrow to the right of the field. Tag templates can be used with sliders.

	<p>Select On Dragging to cause the value of the associated tag to change as the slider is dragged.</p> <p>Select On Dropping only to cause the value of the associated tag to change only when you complete the dragging (release the mouse button) and place the slider on a specific value.</p>
Value Assignment	<p>Select On Dragging to Image, on dropping to Tag to cause the value of the associated tag to change and be reflected in the Image only as the slider is being dragged, and change and be written to the PLC when you complete the dragging (release the mouse button) and place the slider on a specific value.</p> <p>Select Snap to Tick to cause the slider to snap to ticks on the value scale whenever it is moved, or the tag value changes in the field.</p>
Limits	<p>Select Default tag limits to cause the value scale limits to be those you defined for the tag in the Tag Definition procedure.</p> <p>In the From/To fields you can specify the values you want for the upper and lower limits of the tag scale.</p>

Slider

Note: Not supported on the Web.

Tag value sliders can be designed and used in an image to change and read tag values in a simple visual manner. The sliders can be positioned anywhere in the image and will automatically reflect any change in the tag value that occurs in the field.

The following points should be noted when working with tag value sliders:

- Tag value sliders are system windows that operate using system controls.
- Tag value sliders are automatically generated as trigger objects, and therefore can only operate in the Trigger mode.

To design a slider, select the Slider item from the Edit Drawings Widgets menu, or click on the Slider tool in the Objects Toolbar. The Slider Properties dialog box appears.

The fields in this box are:

Station	The application network station to which the tag belongs. For a list of stations from which you can select, click on the arrow to the right of the field.
Tag	The tag to be associated with the slider. For a list of tags from which you can select, click on the arrow to the right of the field.

Value Assignment	<p>Select On Dragging to cause the value of the associated tag to change as the slider is dragged.</p> <p>Select On Dropping only to cause the value of the associated tag to change only when you complete the dragging (release the mouse button) and place the slider on a specific value.</p> <p>Select On Dragging to Image, On Dropping to Entire System to cause the value of the associated tag to change and be reflected in the image only as the slider is being dragged, and change and be written to the PLC when you complete the dragging (release the mouse button) and place the slider on a specific value.</p>
Styles	Select Snap to Increment to cause the slider to snap to ticks on the value scale whenever it is moved or the tag value changes in the field.
Limits	Select Default Tag Limits to cause the value scale limits to be those you defined for the tag in the Tag Definition procedure. For further information see Tags. In the From/To fields you can specify the values you want for the upper and lower limits of the tag scale.

Slider

Note: This feature is not supported on the web.

Tag value sliders (widgets) can be designed and used in an Image to change and read tag values in a simple visual manner. The sliders can be positioned anywhere in the Image and will automatically reflect any change in the tag value that occurs in the field.

The following points should be noted when working with tag value sliders:

- Tag value sliders are system windows that operate using system controls.
- Tag value sliders are automatically generated as trigger objects, and therefore can only operate in the Trigger mode.

To design a slider:

From the Edit menu, point to Drawings and then to Widgets.

Select Slider from the popup menu.

Or,

Click the Slider tool in the Objects Toolbox. The Slider properties dialog box is displayed:

The following fields are available:

Station Specifies the network station to which the tag belongs. For a list of stations from which you can select, click on the arrow to the right of the field.

Tag Specifies the tag to be associated with the slider. For a list of tags from which you can select, click on the arrow to the right of the field.

Value Assignment Select On Dragging to cause the value of the associated tag to change as the slider is dragged.

Select On Dropping only to cause the value of the associated tag to change only when you complete the dragging (release the mouse button) and place the slider on a specific value.

Select On Dragging to Image, on dropping to Tag to cause the value of the associated tag to change and be reflected in the Image only as the slider is being dragged, and change and be written to the PLC when you complete the dragging (release the mouse button) and place the slider on a specific value.

Select Snap to Tick to cause the slider to snap to ticks on the value scale whenever it is moved, or the tag value changes in the field.

Limits Select Default tag limits to cause the value scale limits to be those you defined for the tag in the Tag Definition procedure.

In the From/To fields you can specify the values you want for the upper and lower limits of the tag scale.

Slider Info

Note: *This feature is not supported on the web.*

Tag value sliders (widgets) can be designed and used in an Image to change and read tag values in a simple visual manner. The sliders can be positioned anywhere in the Image and will automatically reflect any change in the tag value that occurs in the field.

Configuration

Scheduler Task

Scheduler

The Internet based Scheduler enables you to easily create daily or weekly task orientated schedules remotely.

Before the Scheduler is accessed the Scheduler module must first be enabled in the Station Properties dialog box.

Access to the Scheduler is through password only. The user authorization rights defined in the application's User Management module are also relevant for this module.

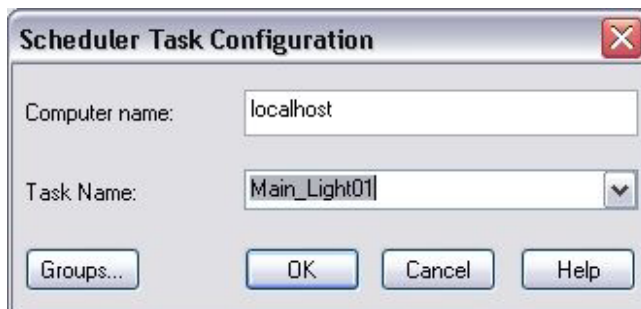
Once accessed the user can schedule or modify operations for any workstation. For more information see **Chapter 31, Scheduler**.

Note: The user name and password are case sensitive.

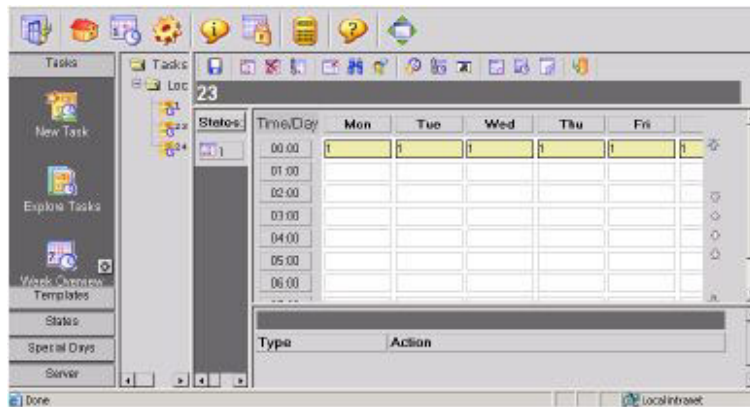
- To access the Scheduler through the Image module:

Access through the Image module can only be made if tasks have previously been defined in the Scheduler.

1. In the Image module when in Edit mode click the Scheduler icon in the Options toolbox. The clock icon with an arrow attached to it will replace your mouse arrow.
2. Draw an object. The Scheduler Task Configuration dialog box opens.



3. Click the arrow in the Task Name field and select a task from the list.
4. If relevant, click the Groups button and define access permission to the selected task and then click OK. A clock object will appear in the Image window.
5. Move to Trigger On mode and then click the clock object with the Trigger hand. The Scheduler Login page opens.
6. Type in your User Name and Password and then click the Login button. The selected task page opens in the Scheduler site.



Station Properties - Scheduler

The Internet based Scheduler enables you to easily create daily or weekly task orientated schedules remotely. Being both task and time orientated the Scheduler can be used to create unlimited tasks, actions and states. Tasks can be modified, enabled/disabled and have many states attached to them. An unlimited number of actions, which are basic operations, can be attached to each task.

Before the Scheduler is accessed the Scheduler module must first be enabled in the Station Properties dialog box.

To enable the Scheduler module:

1. 1. In the All Containers side of the Application Studio right click the application's name to open the Station Properties dialog box.
1. 2. Using the arrow, scroll and open the Scheduler tab.
1. 3. Check the Enable Scheduler checkbox and then click OK to actually define this option.
1. 4. Restart the application.

Scheduler Task Configuration

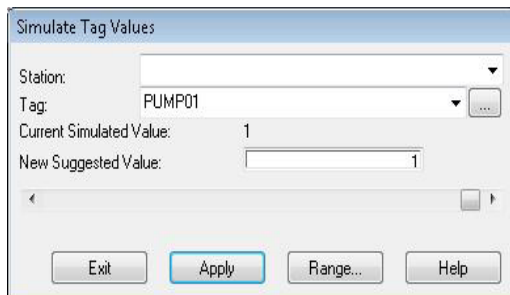
1. In the Task field either type in the name of the task or, click the arrow and select one from the list.
 2. To enable group access to this task, click the Task button and select the relevant group from the Access Permission Manager dialog box.
 3. Click OK to save.
-

Tag Value Simulation

After dynamic objects are defined, the operator can test an object's response to different tag values using an application mechanism that simulates tag values without affecting the tag itself. See **Chapter 9, Tags** for more information on tags.

- To simulate tag values:

Select Simulate from the Options menu. The Simulate Tag Values dialog box appears:



The following options are available:

Station	Specifies the application network station to which the tag belongs.
Tag	Specifies the tag to be simulated.
Current Simulated Value	Specifies the value being used for simulation.
New Suggested Value	Suggested simulation value. Enter a value or move the slider below. Extreme left is the lower range limit, extreme right is the upper range limit.

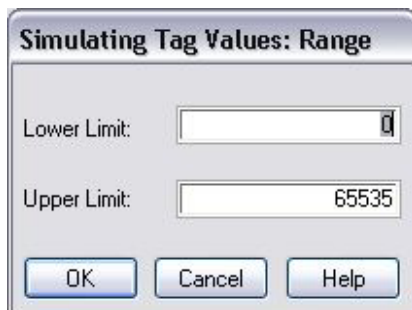
Exit	Exits the simulation.
Apply	Applies the suggested value.
Range	Range of simulation values for the slider.

After the required value is specified simulate in the New Suggested Value field and activate the Apply button, the value you specified will be simulated, and any dynamic or trigger object associated with that tag will be affected accordingly.

Note: This tool is not prioritary. The tag value simulated can be overridden by the tag sampling process if the communication is enabled. The real tag value will be displayed in the image, but not refreshed in the Simulating Tag Values dialog box.

- To set the simulation range:

1. Activate the Range button in the Simulate Tag Value dialog box. The following Simulating Tag Values: Range dialog box is displayed:



2. Enter the range limits. The scroll bar in the Simulate Tag Values dialog box will immediately be adjusted to the new range.

Options / Simulate

This dialog box is used to specify tag values that you want to simulate for testing purposes. After dynamic objects are defined, the operator can test an object's response to different

tag values using an application mechanism that simulates tag values without affecting the tag itself.

When you simulate values, the field device will not be affected.

To simulate tag values

1. Select Simulate from the Options menu. The Simulate Tag Values dialog box is displayed.
2. Select the station to which the tag belongs.
3. Select the tag you want to access.
4. Enter the tag value to be simulated in the New Suggested Value field. The current tag value is displayed in the Current Simulated Value field. The value is set by clicking the Apply button.

OR

Use the horizontal scroll bar to immediately set and simulate the specified value.

5. Click the **Range** button to specify the upper and lower range limits of the tag value to be simulated.
 6. Click the Exit button to quit the dialog box and leave the last set value.
-

Simulate Range

Use the Simulate Range dialog box to specify the upper and lower limits of the values to be simulated.

The fields in this dialog box are:

Lower Limit - Lower limit of the simulation range.

Upper Limit - Upper limit of the simulation range.

Other Topics

Date Field Summary

In this dialog box, you can view a list of all the fields defined in your report. In addition, you can add, change, and delete fields online.

To access the field summary option:

1. 1. Select the Report file from the Containers tree. If a report already exists click it and press the summary button
- OR
1. 2. If there are no reports available, right click the report file and select the add new report
1. 3. Click the **Summary** button

To add a new field to the report

1. Activate a **Type** button
2. Define the field in the dialog box that will appear,
3. Specify the field number (the number must be specified for the **Add** operation)
4. Activate the **Add** button in this dialog box. The **new** field will appear in the field list.

*Note that to define a field with the same attributes as another field, simply select the field you want to copy (by highlighting it), change the field number, and activate the **Add** button.*

To change an existing field definition,

1. Select the field that you want to change from the list (by highlighting it)
2. Activate the field type button that you want, to redefine the field attributes.
3. After you complete the modification, activate the **Change** button.

To delete a field from the list,

1. Select the field that you want to delete (by highlighting it)
2. Activate the **Delete** button.

Note that you should not delete any field that exists in the current report on the screen. If you do, the report will not be generated properly, when you use the report command.

Date Format Dialog Box

You can set the date style and date separator in the Date Format tab of the Station Properties dialog box.

The following options are available:

Date style Specifies a date style from a list of predefined date styles. Listed below are the Date styles:

DDMMYY

MMDDYY

YYMMDD

DDMMYYYY

MMDDYYYY

YYYYMMDD

Date separator Specifies a date separator from a predefined list of date separator styles. The Date separator files are:

/ (slash)

. (dot)

(dash)

?? To Set Date Format

1. 1. From the Date Style list select a predefined date style.
1. 2. From the Date Separator list select the way you want the date to be separated.
1. 3. Click OK key to enter your selection.

When loading for the first time, the application sets default values for these parameters using country code, defined in Control Panel ðRegional Settings.

The table below lists the default values in the application for different countries.

Country	Date Style	Date Separator
USA	MMDDYY	/ (slash)
Japan	YYMMDD	/ (slash)
Netherlands	DDMMYY	/ (dash)
Denmark	DDMMYY	/ (dash)
Germany	DDMMYY	. (dot)
Austria	DDMMYY	. (dot)
Russia	DDMMYY	. (dot)
All others	DDMMYY	/ (slash)

Date Style List

Used to define the Date style.

Application's predefined date styles:

DDMMYY

MMDDYY

YYMMDD

DDMMYYYY

MMDDYYYY

YYYYMMDD

Application's date separators

/ (slash)

. (dot)

(dash)

The Elaborated Zoom is a technique used in Application images to obtain detailed views of specific plant or facility sections.

When the Elaborating Zoom mode is on each layer in the image will be viewed according to the scale range specified in the Layer definition procedure. When the mode is off, the layer will appear in the image, even if the scale range were not defined for them.

Image Property - Dynamic

Note: Not applicable on the Web.

Used to determine the blinking rate values for dynamic objects.

The values you specify for fast, medium and slow are in milliseconds and can be from 50 (1/20 second) to 30000 (30 seconds). If you specify a value that exceeds these limits, the Application will automatically apply the maximum and minimum values instead.

It is recommended to increase the values for this option, if it is anticipated that a large number of dynamic objects on the screen will be updated at once

Cluster / Define (Dynamic Object)

When selecting an object associated with tags or alarms, the following dialog box appears:(the object was defined as a dynamic or trigger object):

To define a cluster of a dynamic object

1. Type the name of the cluster (up to 15 characters) in the Name field.
2. Enter the name of the library in which the cluster will be placed, or select an existing library from the drop-down list.
3. Type a brief description (up to 40 characters) in the Description field.
4. Check the Add new library to the Cluster folder checkbox, to add the new library you create to the global Cluster folder (this will enable other applications to use the new library you create).
5. Click the Tags button to change the original definition of the tag, so that a new tag will be generated upon cluster instantiation in the image.
The **Tag Definition (Cluster)** dialog box opens. In the Tag Definition dialog box, you can use **special tokens** to enable customized tag creation and identification upon object Instantiation. These tokens can be used in the Tag Name, Address, and Description fields to enable customized tag attribute generation.

In the Tag Definition dialog box only the tags that are associated with the cluster objects will appear in the tags list. Only the Change button will be enabled. To change the current definition of the tag and cause a new tag to be generated upon cluster instantiation, activate the Change button to invoke the **Tag Specification** dialog box.

Note that you can also access the Tag Specification dialog by double-clicking on a line in the list.

6. Click the Find button to search for an existing tag from the list.
7. Check the Define each object when instantiating checkbox to enable changing the definitions of the tags upon instantiation in the image.

The Linked Tags and List Box

This list box contains a list of tags associated with the object you selected, and the type of the object with which the tags are associated. The object types are marked with special letters, enclosed in brackets (<>), as follows:

D for dynamic

G for trigger

A for alarm (Not applicable on the Web).

W for widgets (tag value sliders)

T for text table

N for digital, date/time, and string displays

t for dynamic text tables

n for dynamic digital, date/time, and string displays.

Note: To indicate the connection between the selected line in the list box, and the corresponding graphical object, there is an arrow in the Objects View window (in the right hand side of the list box) from the left top corner of the window to the middle of the object.

The Clusters Menu

Dynamic Drum Tag Definition

An object can be made visible when its associated tag value matches a specified bit pattern. The bit pattern can include don't care bits, which are bits that will be considered matches no matter what their actual values may be.

When the tag will have a value that matches the pattern, the object will be visible; otherwise, it will be hidden.

The bit pattern is entered as 0, 1 or *, where * is a Don't Care value (0 or 1).

For example, the pattern ***....**0 would cause the object to be visible only if the tag value is even.

To assign a Drum Pattern

1. Select an object in the image.
2. Select the Dynamic Definition button from the **Objects Toolbar** (To make the object dynamic).
3. Activate the Drum button from the Dynamic parameter dialog box.

*Note that you can select the **Force Dynamic Show** item from the Options menu in the image window to cause a dynamic object in an image to appear always.*