

***D-Link* DCS-2000**

Internet Camera

Manual

(12/13/2002)

D-Link

Building Networks for People

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Package Contents



Contents of Package

- D-Link DCS-2000 Internet Camera
- Power Adapter
- Installation software and manual on CD
- Quick Installation Guide
- Camera Stand
- Category 5 Ethernet Cable

If any of the above items are missing, please contact your reseller.

Using a power supply with a different voltage than the one included with the DCS-2000 will cause damage and void the warranty for this product.

System Requirements

- Internet Explorer 5.x or higher t Web Browser
- CPU: Pentium III, 500 MHz or above
- Memory Size: 32 MB (64 MB recommended)
- VGA card resolution: 800 x 600 or above

These are minimum requirements. Please see Appendix xxx for requirements for various modes of the enclosed Surveillance Software.

Cautions and Warnings

Voltage Alert!

The voltage used must be the same as that specified on this unit. Using this product with a higher voltage than is specified is dangerous and may result in a fire or other type of accident causing **damage**.

For your safety, please do not detach the cover!

To avoid accident of electric shock, please do not attempt to detach the cover of the unit or the DC power supply connector. Customer should contact a qualified technician regarding any repair job.

Caution!

Use of controls or adjustments or performance of procedures other than herein may result in hazardous radiation exposure.

Warning!

Keep the unit away from direct sunlight, strong magnetic fields, excessive dust, humidity and electronic/electrical equipment (home computers, facsimiles, etc.) which generate electrical noise.

Introduction

The D-Link DCS-2000 Internet Camera is a full featured surveillance system that connects to an Ethernet, Fast Ethernet or broadband Internet connection to provide remote high-quality video and audio. The DCS-2000 Internet Camera differs from a conventional PC Camera because the Internet Camera is a stand-alone system with a built-in CPU and Web server providing a low-cost solution capable of solving demanding security and home/office monitoring needs. The Internet Camera can be accessed remotely, and controlled, from any PC or notebook computer over the Internet from anywhere in the world. Simple installation procedures, along with the built-in Web-based interface offers easy integration to your network environments.

Features and Benefits

The DCS-2000 Internet Camera is a stand-alone system requiring no special hardware or software such as PC frame grabber cards. All that is required is a computer with the Internet Explorer Web browser (version 5.x or above). Just plug-in the camera and view the picture from your Internet Camera with a valid IP Address.

Supports a Variety of Platforms

Supporting TCP/IP networking, SMTP e-mail, HTTP and other Internet related protocols, the Internet Camera can be integrated easily into other Internet/Intranet applications because of its standards-based features.

Broad Range of Applications

With today's high-speed Internet services, the Internet Camera can provide the ideal solution for live video images over the Intranet and Internet for remote monitoring. The Internet Camera allows remote access from your Internet Explorer Web browser for live image viewing and allows the administrator to manage and control the Internet Camera anywhere and any time in the world. Apply the Internet Camera to monitor various objects and places such as homes, offices, banks, hospitals, child-care centers, amusement parks and other varieties of industrial and public monitoring. The Internet Camera can also be used for intruder detection with its motion-detection mode, capture still images and video images for archiving and many more applications.

Web Configuration

Using the Internet Explorer Web browser, administrators can configure and manage the Internet Camera directly from its own web page via the Intranet or Internet. Up to 20 user names and passwords are permitted, with privilege settings controlled by the administrator.

Features & Benefits (continued)

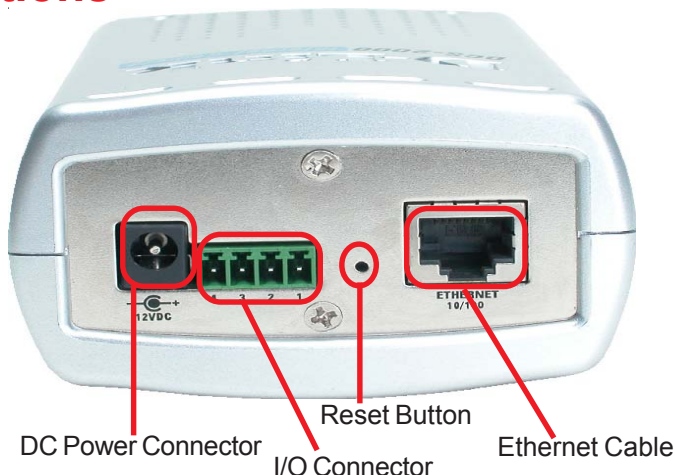
Remote Monitoring Utility

The powerful **Surveillance Software** application assigns an administrator with a pre-defined user ID and password who can modify the Internet Camera settings from the remote site via an Intranet or the Internet. Users are allowed to monitor the image, record the image to a hard drive, and take snapshots.

Connection to External Devices

Supporting auxiliary Input/Output connectors, you can connect the Internet Camera to a variety of external devices such as IR-sensors, switches and alarm relays. Combined with programmable alarming facilities, you can develop a variety of security applications that are triggered on alarm-based events. The Internet Camera provides an industry standard in/out external connector for connectivity.

Connections



Ethernet Cable Connector

The Internet Camera's rear panel features an **RJ-45** connector for connections to 10Base-T Ethernet cabling or 100Base-TX Fast Ethernet cabling. This network port supports the **NWay protocol**, allowing the Internet Camera to automatically detect or negotiate the transmission speed of the network.

The Ethernet cable included with the DCS-2000 Internet Camera is a Category 5 cable. This is the recommended cable type when the camera is installed into a 100 Mbps Fast Ethernet network.

DC Power Connector

The DC power input connector is located on the Internet Camera's rear panel and is labeled **DC 12V** with a single socket to supply power to the Internet Camera.

Reset Button

Reset will be initiated when the reset button is pressed once and Power LED begins to flash.

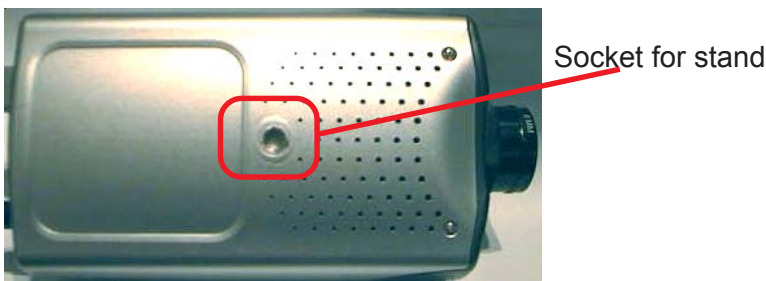
Factory reset will be initiated when the reset button is pressed continuously for 5 seconds or when the Power LED begins to light up. Release the reset button and the Power LED will begin to flash indicating that the Internet Camera's settings are reverting back to the factory settings.

Connections (continued)

I/O Connector

There are two I/O connectors, one for input and one for output situated on the rear panel. The I/O connectors provide the physical interface to send and receive digital signals to a variety of external alarm devices. **Please refer to the appendix in this manual for detailed information.**

Bottom Panel



Connecting to the Camera Stand

Located on the bottom panel of the Internet Camera, the socket is used to connect the camera stand onto the Internet Camera by attaching the screw head on the camera stand into the Internet Camera.

Power LED

LED stands for **L**ight-**E**mitting **D**iode.

The Power LED is positioned on the right side of the Internet Camera lens. As soon as the power adapter is connected to the Internet camera the power LED will flash red and green several times. The Internet camera is conducting a quick self-test while the LED flashes. Upon passing the self-test the LED will turn green to indicate a good connection to an Ethernet port or red to indicate no connection has been made.

Hardware Installation

1 Connect an Ethernet cable

Connect an Ethernet cable to the network cable connector located on the Internet Camera's rear panel and attach it to the network.



2 Attach the external power supply

Attach the external power supply to the DC power input connector located on the Internet Camera's rear panel and labeled DC 12V and connect it to your local power supply.



When you have a proper connection the LED will turn from red to green. The light may cycle on and off and your computer may show an intermittent loss of connectivity, this is normal until you have configured your Internet Camera.

Connecting the Internet Camera to the Camera Stand

The Internet Camera comes with a camera stand with a swivel ball screw head that can be attached to the Internet Camera bottom bracket cavity. Attach the camera stand to the Internet Camera and station it for your application. There is a hole located in the base of the camera stand allowing the Internet Camera to be mounted on the ceiling or any wall securely.



Software Installation

After you have successfully completed the hardware installation of the DCS-2000 Internet Camera, it is necessary to install software to configure and operate the camera. The first step is to run a program on the CD called **IP Installer**. The program will allow you to use the Internet Camera with you Internet browser. The *IP Installer* program allows you to enter settings that permit the camera to access the Internet directly or your Ethernet network.

After the *IP Installer* software program is completed, you will have an operating and controllable Internet Camera. From your Internet Explorer Web browser you will be able to access the video and sound from the Internet camera. The camera has a software program built in (called *firmware*) built-in Web server. This Web server is the program that allows the camera to access the Internet without an attached computer and permits users to view the video and audio remotely.

After running the *IP Installer* software program this built-in Web server program, along with your Internet browser, is the only software needed to actually operate the DCS-2000 and view the camera remotely.

However it is necessary to install the **Surveillance Software** from the enclosed CD to create a truly powerful monitoring and surveillance system. The following section will detail installing the **IP Installer** and the **Surveillance software**.

Installing the *IP Installer* program

Insert the CD that is included with the DCS-2000 Internet Camera. The *IP Installer* program will start up automatically from the CD. If it does not (the Windows operating system can turn this autorun function off , for example) simply access the CD from Windows and click on the software program **IP Installer**.

Click on the **Installer** button.



The opening Installer screen will appear.



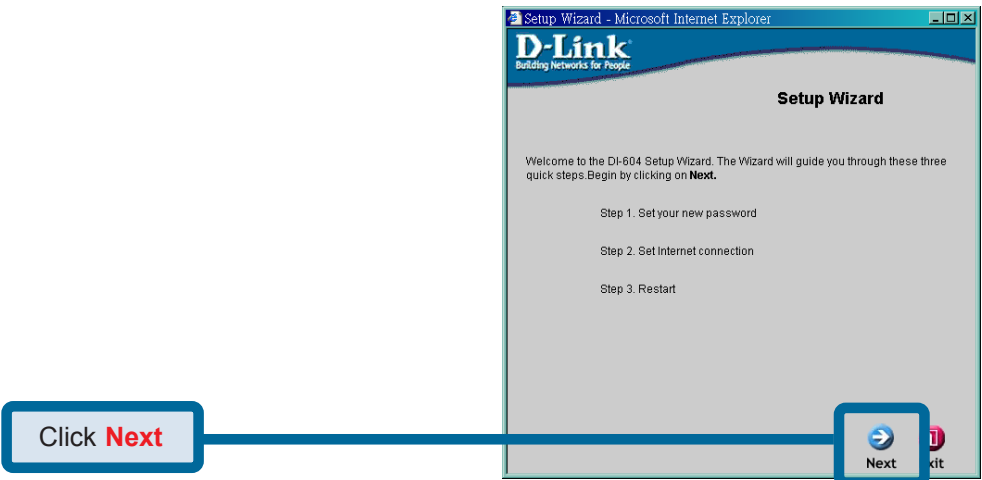
IMPORTANT:

A hardware reset of the Internet Camera is now necessary to allow the Installer program to configure the camera correctly. To accomplish this reset, lightly insert a paper clip into the reset hole on the back of the camera (see page 7 for the location of the reset hole.) The LED on the front of the camera will begin blinking red and green. When it stops the blinking cycle continue to hold in the reset button until a second cycle of blinking red and green lights indicates a second reset cycle has completed. This will take approximately 5-7 seconds.

The installer will now show a MAC address for the DCS-2000 and an IP address. This IP address may not be correct at this step in the installation.

Highlight the MAC address and then click on the **Wizard** button to activate the installation Wizard.

Press **Next** on the Welcome screen to continue the Wizard.



Enter the information needed by the Intrnet Camera to connect with your network or Internet connection. Enter your **IP Address**, **Subnet Mask**, **Gateway** and at least 1 **DNS** address. If you do not know what to put in this fields, please contact your network System Adminstrator or your Internet Service Provider.

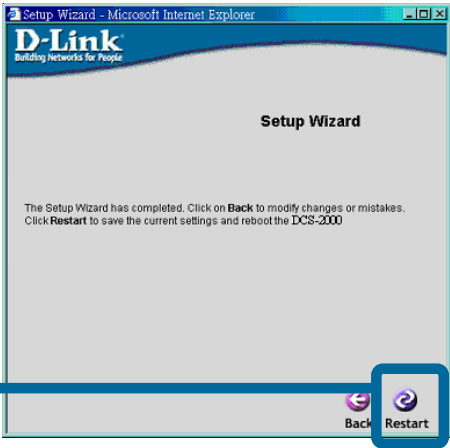
Click **Next**



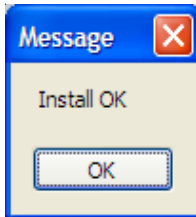
Click the checkbox titled *Use this IP whenever systems boots* to avoid running this install application each time you boot up the DCS-2000. Only check this if you are sure the IP address being entered will not change the next time the DCS-2000 boots up.

If you need to make any changes, click **Back** to modify your camera settings. To accept the settings, click **Restart**.

Click **Restart**



Click **OK** and the DCS-2000 Internet Camera will reboot to accept the settings.



If the Installer has not made any modifications to the settings, it will warn you that the settings were accepted but no changes were made.



You should now see the opening Installer screen with an IP address assigned to the MAC address of the DCS-2000.

Click on **Exit** to close the Installer.

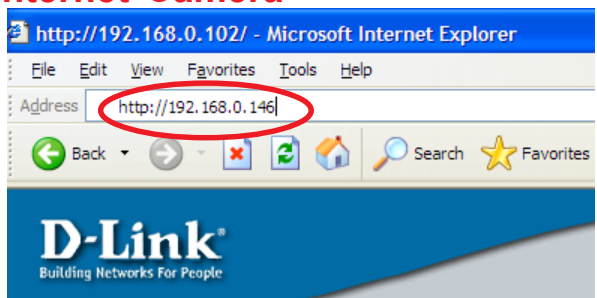
You have now completed the Setup Wizard and are ready to use your camera!

Testing the DCS-2000 Internet Camera

Open your Internet browser and type in the IP address of the DCS-2000. In this example the address is:

http://192.168.0.146

(your DCS-2000 may have a different IP address based on what you used in the Installer program.)



The window in the center of your browser is the camera image window. You should now see a video image and hear the audio over your computer speakers from the DCS-2000. If you are having problems please consult the **Troubleshooting** section of this manual.

Security

At this point it is highly recommended that you click on the **Configuration** button on the Home screen, and then **the Tools** tab to bring you to the **Admin** screen and enter a password for security purposes.

The screenshot shows the 'Tools' tab of the Internet Camera configuration interface. On the left is a sidebar with icons for a camera and buttons for 'Admin', 'System', 'Applications', and 'Default'. The main area is titled 'Administrator Settings' and contains the following sections:

- Administrator's password:** Fields for 'New password' and 'Confirm password', with a 'Save' button.
- Add user:** Fields for 'User name' and 'User password', a checkbox for 'Permit to access DI/DO', and an 'Add' button.
- Delete user:** A 'User name' dropdown menu (currently showing '-- no user --') and a 'Delete' button.
- Guest account:** A checkbox labeled 'Allow 'demo' account to view' which is currently checked.

To ensure the highest security and prevent unauthorized use of the Internet Camera, the *Administrator* has the exclusive privilege to access the **System Administration** settings to allow users the security level of entry and authorize privileges for all users. The Internet Camera supports multi-level password protection/access to the Internet Camera that can be restricted to defined users who have a **User Name** and **User Password** which is assigned by the Administrator.

The Administrator can release a public user name and password so that when remote users access the Internet Camera they will have the right to view the image transmitted by the Internet Camera.

When the Internet Camera is used for the first time it is highly recommended that the Administrator set the **Administrator Password** to constrain user access to the Internet Camera since the Default settings are Null String (no password). Once the Password is defined only the Administrator has access to the management of the Internet Camera. This procedure should be done as soon as possible since the security features of the Internet Camera will not be enabled until the **Administrator Password** is defined.

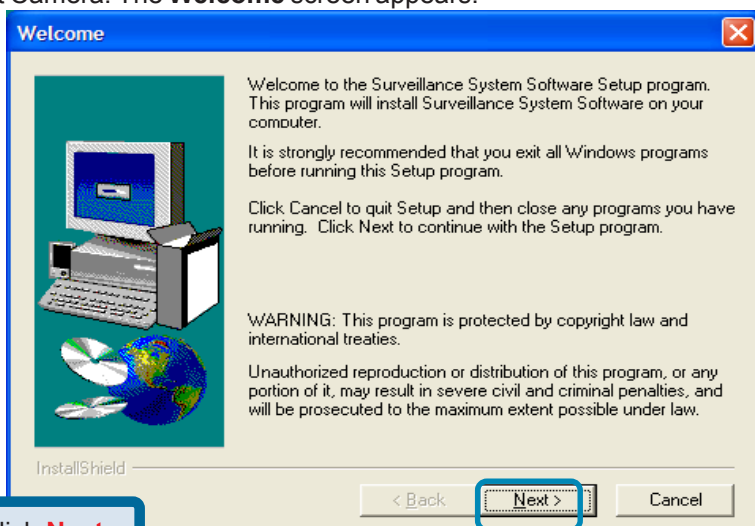
Installing the Surveillance Software

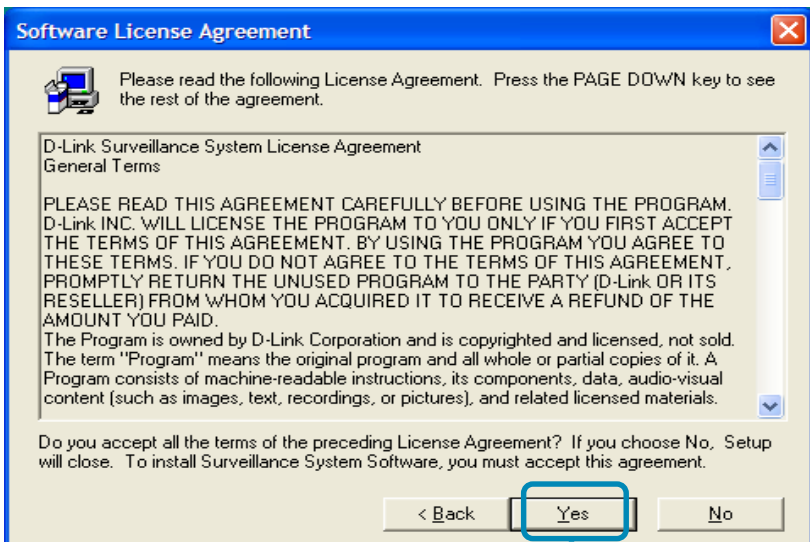
The Surveillance Software on the CD included with the DCS-2000 Internet Camera converts the DCS-2000 into a powerful, yet flexible, surveillance system for home or business.

Features and Benefits

- Real-time Monitoring
- Video Recording to hard disk
- High quality video
- High compression ratio
- Maximum to 16 cameras with different monitor layouts
- Smart playback
- Triggered event browsing
- Fast database searching
- Auto alarm in different ways
- Account-password protection
- Scheduled recording for each camera
- Just-in-time snapshot
- AVI export
- Motion detection for each camera

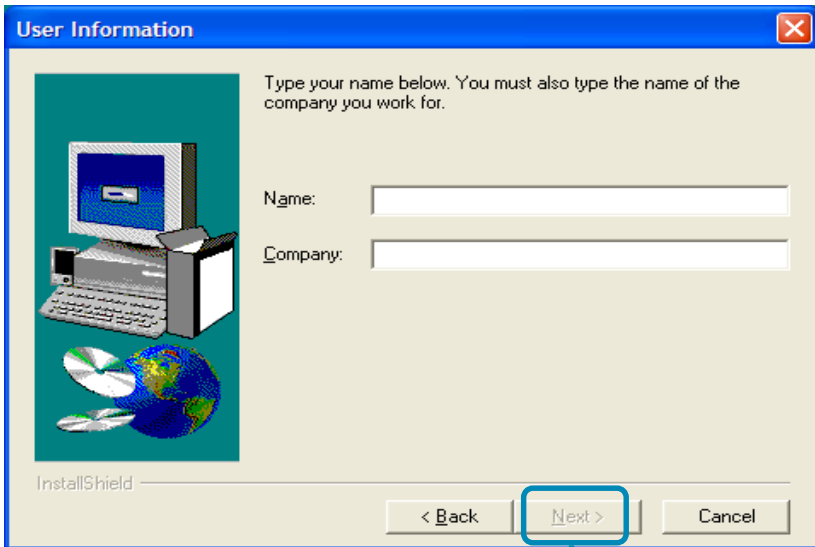
To install the Surveillance Software, click on the **Setup** file on the CD included with the Internet Camera. The **Welcome** screen appears:





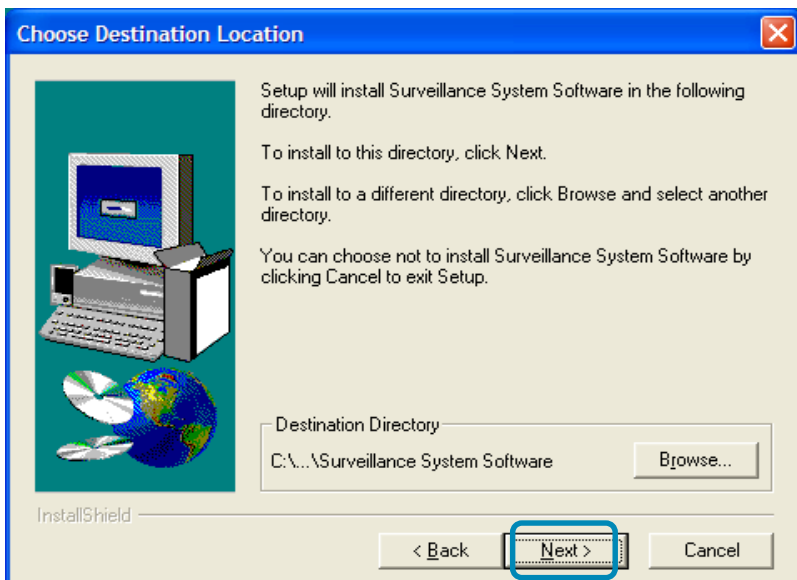
Click **Yes**

Please read the Software Licensing Agreement and click yes if you agree with the agreement. Click "No" to exit.



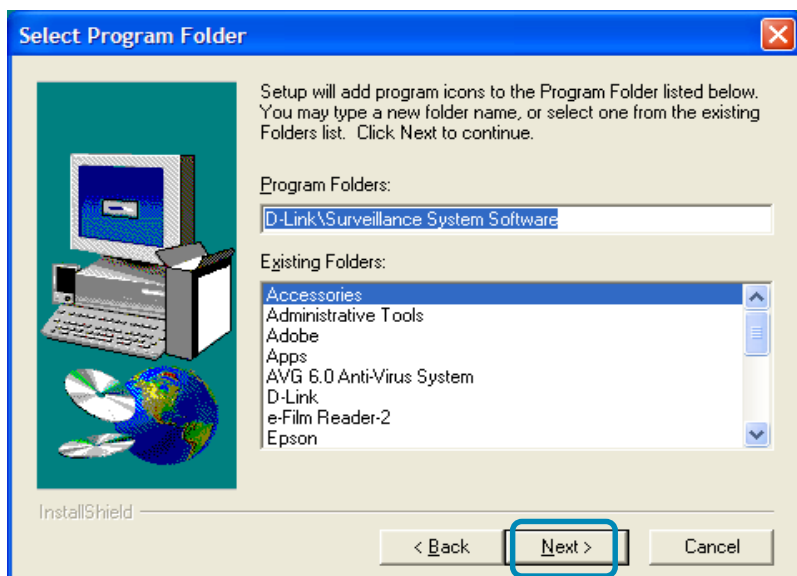
Click **Next**

Enter your name and company information and click "Next".



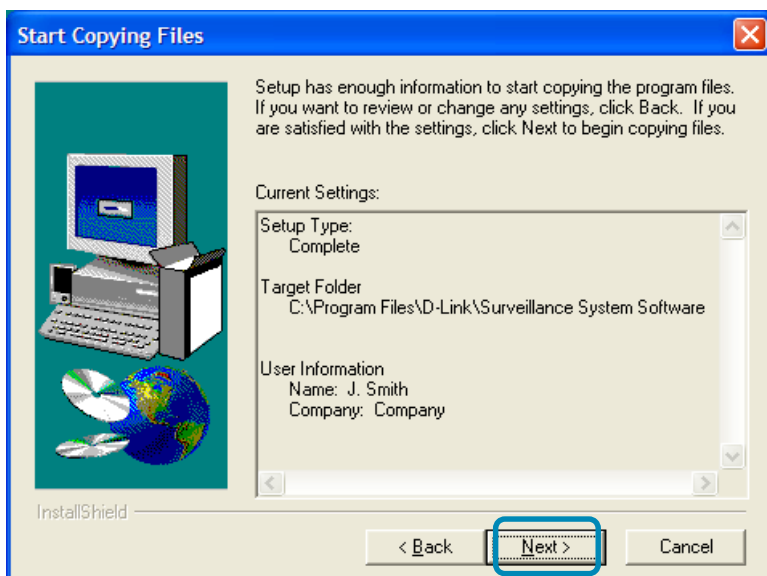
Click **Next**

Select the destination directory and click “Next”.



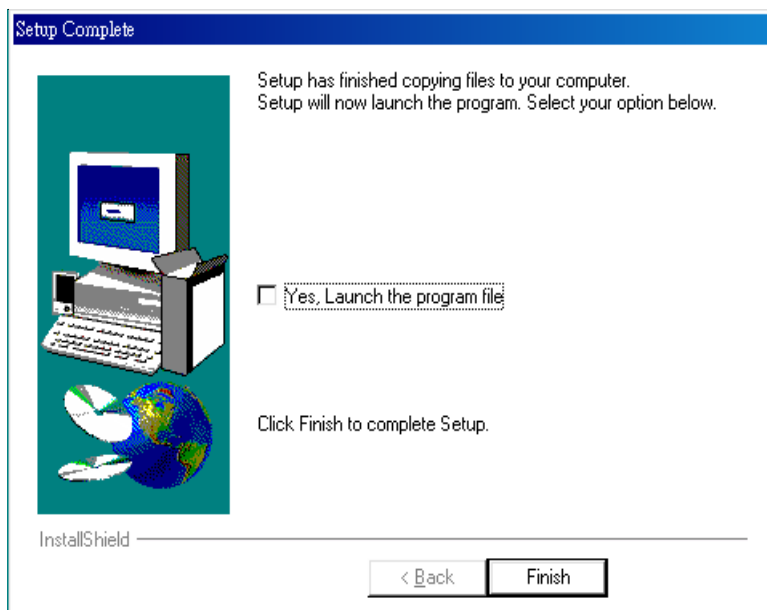
Click **Next**

Select the Program Folder the software will be installed into and click “Next”.



Click **Next**

Click “Next” and the program will begin copying onto your hard drive.



Click **Finish**

Click “Finish ” to end the installation.

Using the DCS-2000

If you are following this manual in the order it is presented, you should now have an operating DCS-2000 Internet Camera configured with the Installer program. You also have installed the **Surveillance Software** from the CD. This section of the manual will deal with using the Internet Camera in two parts:

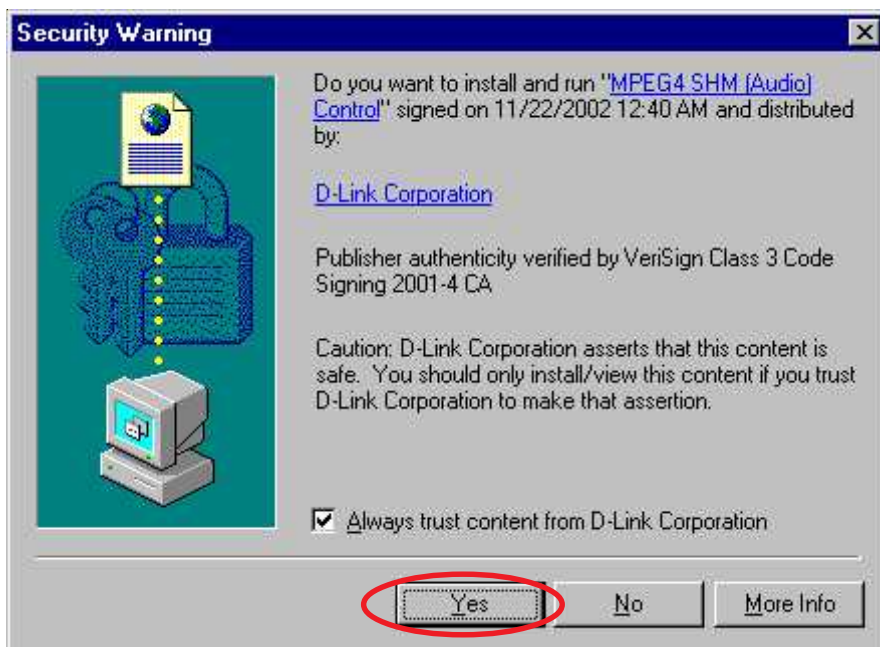
- Using the DCS-2000 with an Internet browser and accessing the screens to control and monitor the camera.
- Using the **Surveillance Software** with the DCS-2000.

Using the DCS-2000 with an Internet browser

Open your Internet Explorer Webbrowser and enter the IP address for your Internet Camera.

In the example this address is 192.168.0.146. Your address may differ.

If a window appears asking to install a Versign certificate for authentication D-Link click "Yes".

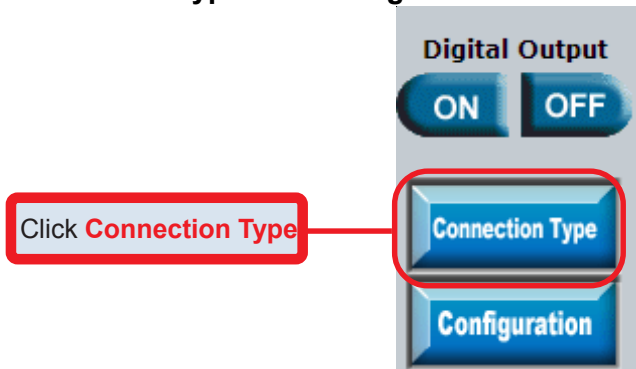


Home Page Screen



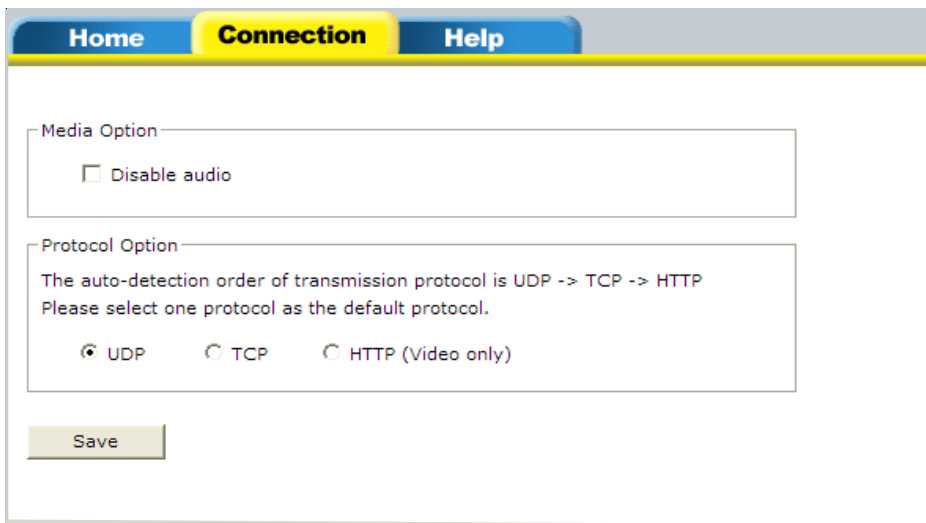
The image from the the DCS-2000 should be visible from the Home page on your computer monitor. There are two buttons on the left side of the Home page:

Connection Type and **Configuration**.



Click on the **Connection Type** button to change settings related to the connection.

Home > Connections Screen



The following options are available from the Connections settings screen:

Media Option:

Option for users to disable or enable audio when viewing video.

Protocol Option

The UDP Protocol should be chosen for the most users. Generally the client computer will automatically try these protocols in the following order, UDP -> TCP -> HTTP.

After the client connects to the DCS-2000 successfully, the working protocol will be displayed in “**Protocol Option**”. The chosen protocol will be recorded in the user’s PC and used for the next connection. If the network environment is changed or users want to let the web browser automatically detect the protocol, select UDP manually and click **Save** to change the setting and return **Home** to reconnect with the new setting.

Options:

UDP Protocol - Quality real-time performance compared to TCP. Some packet loss due to network burst traffic and images may be obscure.

TCP Protocol - Packet loss is less likely to occur and video displays are more accurate.

HTTP Protocol - If the network is protected by a firewall and it opens HTTP port (80) only, HTTP protocol must be selected. In this mode, audio is disabled and only video can be viewed.

Click the **Home** tab to return to the DCS-2000 Home page.

Home > Configuration

Click on the Configuration button on the Home page:



There are 5 tabs across the top of the **Configuration** screen controlling different elements the DCS-2000 can configure. The **Advanced** tab is the default screen in **Configuration** and **Network** is the default screen under **Advanced**.



HomeAdvancedToolsStatusHelp

Network Settings

☐ Reset IP address at next boot

General

IP address

192.168.0.103

Subnet mask

255.255.255.0

Default router

0.0.0.0

Primary DNS

0.0.0.0

Secondary DNS

0.0.0.0

SMTP

SMTP(mail) server 1

Recipient email address 1

SMTP(mail) server 2

Recipient email address 2

Return email address

DCS-2000

FTP

Local FTP server port

21

1st FTP server

1st FTP user name

1st FTP password

1st FTP remote folder

☐ Primary FTP passive mode

2nd FTP server

2nd FTP user name

2nd FTP password

2nd FTP remote folder

☐ Secondary FTP passive mode

HTTP

Http port

80

Streaming

Control channel port

5001

Video channel port

5003

Audio channel port

5002


☐ Improve audio quality in low bandwidth environment

☒ Apply

☐ Cancel

Configuration > Advanced > Network Settings

Any changes made to these settings will require the system to restart to validate. Make sure every field is correctly typed before clicking on:


Apply

Reset IP address at next boot

The box is checked when first installed. To avoid performing a software installation whenever the DCS-2000 starts, and once the network settings, especially the IP address, are correct, uncheck this box. This option can also be disabled using the **IP Installer** program. Once the option is disabled, the DCS-2000 will skip installation at the next boot and the **IP Installer** program will no longer find the installed units if any changes are necessary to the network settings. It may be necessary in that case to recover the DCS-2000 by restoring factory default settings. However, with this option disabled the DCS-2000 can automatically operate normally after restarting in case of losing power.

General

- IP address -

Necessary for network identification.
- Subnet mask -

Used to determine if the destination is in the same subnet. The default value is "255.255.255.0".
- Default router -

The gateway used to forward frames to destinations in a different subnet. Invalid router setting will fail in transmission to destinations in different subnet.
- Primary DNS -

Primary domain name server who translates names to IP addresses.
- Secondary DNS -

Secondary domain name server to backup the primary one.

SMTP

- SMTP(mail) server 1 -

The domain name or IP address of external email server.
- Recipient email address 1 -

The email address of recipients for snapshots or log file. Multiple recipients must be separated by semicolon, ';'.
- SMTP(mail) server 2 -

The domain name or IP address of another email server once the previous server is unreachable.
- Recipient email address 2 -

the email address of recipients for the backup server.
- Return email address

The return email address once the mails fail to send out.

Continued on Next Page

Configuration > Advanced > Network Settings (continued)

FTP Settings

Local FTP server port -

It can be other than default port 21. After changing, the external FTP client program must change the server port of the connection accordingly.

1st FTP server -

The domain name or IP address of the external FTP server. The following user settings must be correctly configured for remote access.

1st FTP user name -

Granted user name on the external FTP server.

1st FTP password -

Granted password on the external FTP server.

1st FTP remote folder -

Granted folder on the external FTP server. The string must conform to the external FTP server. Some FTP servers cannot accept a preceding slash symbol before the path if there is no virtual path mapping. Refer to the instructions of the external FTP server for details. The folder privilege must be open for upload.

Primary FTP passive mode -

If the DCS-2000 is located inside the network protected by firewall, a data connection for FTP may be prohibited. Passive mode FTP can bypass the rule and succeed to upload snapshots. If the passive mode is selected, the DCS-2000 can automatically attempt for an active mode if the external FTP server does not support passive mode.

2nd FTP server -

The domain name or IP address of the external FTP server.

2nd FTP user name -

Granted user name on the backup FTP server.

2nd FTP password -

Granted password on the backup FTP server.

2nd FTP remote folder -

Granted folder on the backup FTP server.

Secondary FTP passive Mode -

Passive mode setting for the backup FTP server.

HTTP Settings

Http port -

Can be to other than the default port 80. Once the port is changed, users must be informed for successful connection. For instance, when the administrator changes the HTTP port of the DCS-2000, whose IP address is 192.168.0.100 from 80 to 8080, users must type in the web browser "http://192.168.0.100:8080" instead of "http://192.168.0.100".



Click Apply to make changes effective


Apply

Configuration > Advanced > Network Settings (continued)

Streaming Screen

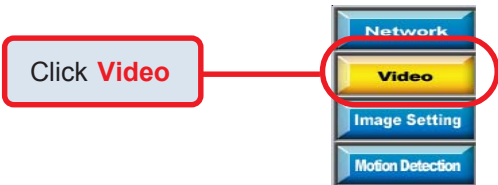
- Control channel port - It can be other than default port 5001 to cooperate with the port opened by the firewall.
- Audio channel port - It can be other than default port 5002 to cooperate with the port opened by the firewall.
- Video channel port - It can be other than default port 5003 to cooperate with the port opened by the firewall.

Improve audio quality in low bandwidth environment - In a low network bandwidth environment, users can check this option to improving audio quality by sacrificing some real-time synchronization.

Click Apply to make changes effective 
Apply

Some invalid settings may cause system failure to respond. Change the configuration only if necessary and consult with network supervisor or experienced users for correct settings. Once the system is lost contact, refer to Appendix A for reset and restore procedures.

Configuration > Advanced > Video Settings



Click the video button from the Configuration screen to access video settings that effect how the video image appears.

Configuration > Advanced > Video Settings

The screenshot shows the 'Video Settings' page under the 'Advanced' tab. The 'Advanced' tab is circled in red. The settings are as follows:

Setting	Value
Text on video	[Empty text box]
Color	COLOR
Size	Normal
Power line frequency (for fluorescent light)	60Hz
Maximum frame rate	30
Video quality control	Fix quality (selected)
Fix bit rate	384 Kbps
Fix quality	Good
Flip	[Unchecked]
Mirror	[Unchecked]
White balance	Auto

Buttons: Apply, Cancel

Text on video -

Text will be displayed in the black bar above the video window with a timestamp. The timestamp is captured from the date and time of the DCS-2000 and is maintained by a built-in real-time clock. Select the option for color or monochrome video display.

Color -

Size -

There are three options for two video sizes. “**Half**” is a quarter size of “**Normal**”. “**Half x 2**” has the same video size as “**Normal**” but has worse quality. However it consumes less network bandwidth.

Power line frequency (for fluorescent light) -

The fluorescent light will flash according to the power line frequency and depends on the local utility. Change the frequency setting to eliminate uncomfortable flash image when the light source is only fluorescent light.

Configuration > Advanced > Video Settings

There are three dependent parameters provided for video performance adjustment.

- Maximum frame rate-** Limits the maximal refresh frame rate that can be combined with the “**Video quality control**” to optimize the bandwidth utilization and video quality. If users want to fix the bandwidth utilization regardless of the video quality, choose “**Fix bit rate**” and select the desired bandwidth. The video quality may be poor in order to send maximal frames within the limited bandwidth when images change drastically. Consequently to ensure the video detail (quantization rate) regardless of the network, it will utilize more bandwidth to send the maximal frames when images change drastically.
- Flip -** Vertically rotate the video.
- Mirror -** Horizontally rotate the video. Check both if DCS-2000 is installed upside down.
- White balance -** Choose the suitable option for the best color temperature.

Tune Video for the best performance

“Best performance” means the image refresh rate should be the fastest possible and the video quality should be the best possible at the lowest network bandwidth possible. Three factors, “**Maximum frame rate**”, “**Fix bit rate**”, and “**Fix quality**” in the Video configuration page, are related to the performance.

My priority is real-time motion images

To achieve a real-time visual effect, the network bandwidth should be large enough to transmit 20 image frames per second (fps) or more. If you are on a broadband network over 1 Mbps, you can fix the bit rate to 1000Kbps or 1200Kbps, or fix the quality to achieve the maximum frames. The maximum frame rate is 25 in 50Hz system and 30 in 60Hz system. If your network bandwidth is more than 384Kbps, you can fix the bit rate according to your bandwidth and set the maximum frame rate to 25 or 30. If the images vary dramatically in your environment, you may slow down the maximum frame rate to 20 to decrease the transmitted data for better video quality, since the human eye could not easily tell the difference between 20 and 25 or 30 frames per second. If your network bandwidth is below 384 Kbps, you should fix the bit rate according to your bandwidth and try out the best performance by tuning the maximum frame rate. The larger frame rate in slow network will blur the images. You may also try to choose “Half” in size option for better images or “Halfx2” for larger image size. Because the network has burst constraints and everyone’s environment is not the same, any poor connection will drop the normal performance.

Tune Video for the best performance (continued)

My priority is clear identification for each image

To have the best video quality, you should fix the quality to **detailed** or **excellent** and tune the **maximum frame rate** to suit for your network bandwidth. If you get some broken pictures in a slow network, you can choose **TCP protocol** in “Connection type” for more accurate transmission but the received images may have certain time delay. Note that any slow connection in with multiple users will drop the performance.

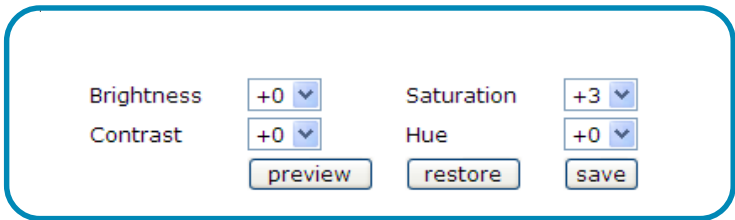
I want to compromise between real-time and clear images

If you have a broadband network, choose fix quality to **normal** or better rather than fix the bandwidth. Otherwise fix the bandwidth according to your actual network speed and set the frame rate to 30. If the images look bad, select the lower frame rate above 15. If the images are not improved, select the lower bandwidth.

Configuration > Advanced > Image Settings



Click the video button from the Configuration screen to access video settings that effect how the video image appears.



From this screen you can fine tune the video image.

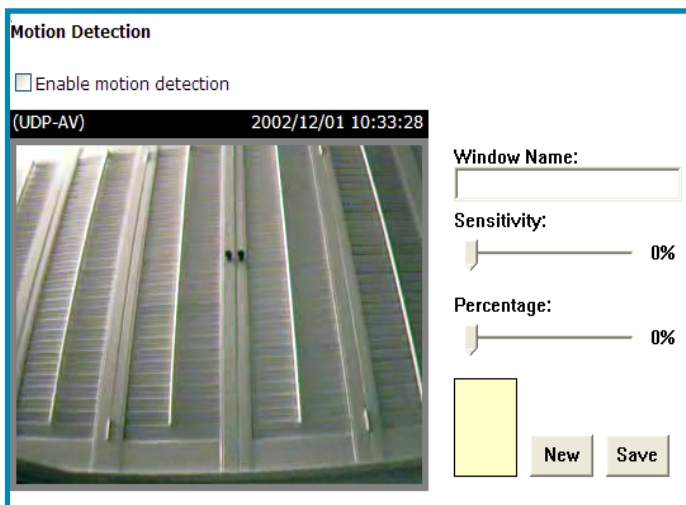
Brightness” **Contrast**” **Saturation**” and **Hue**”are all adjusted in the same manner. For each video compensation you can set from among eleven levels ranged from -5 to +5.

You may press **preview** to fine-tune the image and see what effect the setting will have on the image. When the image is acceptable, press **Save** to memorize the image settings or **restore** to recall the original settings. If parameters are changed without saving, they will be used until the next system startup.

Configuration > Advanced > Motion Detection



Click the **Motion Detection** button from the Configuration screen to access settings that effect how the DCS-2000 Internet Camera can serve as a security device by recording only when motion is detected.

The screenshot shows the 'Motion Detection' configuration window. At the top left is the title 'Motion Detection'. Below it is a checkbox labeled 'Enable motion detection'. To the right of the checkbox is a video feed window. Above the video feed, the text '(UDP-AV)' and the timestamp '2002/12/01 10:33:28' are displayed. The video feed shows a close-up of white vertical blinds. To the right of the video feed are two sliders: 'Sensitivity:' and 'Percentage:', both set to '0%'. Below the sliders is a yellow rectangular graphic bar. At the bottom right are two buttons: 'New' and 'Save'.

Enable motion detection -

Check this option to turn on the motion detection.

New -

Click on this button to add a new window. At most, three windows can exist at the same time. Use the mouse to drag the window frame to resize or the title bar to move. Clicking on the 'x' at the upper right corner of the window can delete the window. Remember to save to validate the changes.

Save -

Click on this button to save the related settings regarding to the window. A graphic bar will rise or fall depending on the image variation. A green bar means the image variation is under monitoring level and a red bar means the image variation is over monitoring level. When the bar goes red, the detected window will also be outlined in red. While back to the homepage, the monitored window will hide but the red frame will show when motion is detected.

Configuration > Advanced > Motion Detection (continued)

Window Name -	The text entered here will show at the top of the window.
Sensitivity -	Sets the measurable difference between two sequential images that would indicate motion.
Percentage -	Decides the space ratio of motioned objects over the monitored window. Higher sensitivity and small percentage will make any motion more easily detected.

Configuration > Tools > Admin

Click on the **Tools** tab to access 4 utility screens for controlling and adminstering the DCS-2000. The default screen in **Tools** is the **Admin** screen.

The DCS-2000 is shipped without any passwords by default. This means anyone can access the DCS-2000 (including the Configuration) as long as the IP address is known. It is necessary to assign a password if the DCS-2000 is intended to be accessed by others.

Type a password in the **New Password** field to enable protection, and then confirm the password in **Confirm Password** field.

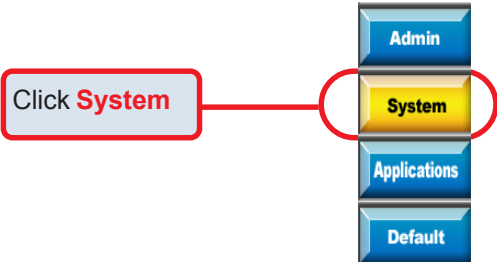
This password is used to identify the administrator. Then add an account with **User name** and **User Password** for your friends in the **Add user** section.

You can provide twenty accounts for your valuable customers or friends. Each account identifies the access right rather than the real visitor. That allows multiple visitors share the same account of different level. An option to **Permit to access DI/DO** (Digital In/Digital Out) is provided for each account. Some users may need to be prohibited from controlling your attached security devices.

Guest account: This option allows anyone uses “demo” as the user name to view without password while they can watch only. This is useful for exhibition and separating the guests from normal users.

Configuration > Tools > System

Click on the **System** button to access the System settings from the **Tools** menu.



System Settings

Host name :

☐ Turn off the LED indicator

☒ **Keep current date and time**

☐ **Sync with computer time**
PC date: [yyyy/mm/dd]
PC time: [hh:mm:ss]

☐ **Manual**
Date: [yyyy/mm/dd]
Time: [hh:mm:ss]

☐ **Automatic**
NTP server:
Time zone:

Apply

Cancel

- Host name -**

The text will display as the title at the top of the main page.
- Turn off the LED indicator -**

Check this option to shut off the LED next to the lens. It can prevent someone from observing the operation of the Internet Camera.
- Keep current date and time -**

Click to save the current date and time of DCS-2000. An internal real-time clock maintains the date and time even when the power of the system is turned off.
- Sync with computer time-**

Synchronize the date and time of DCS-2000 with the local computer. The date and time of the PC is displayed and updated in the DCS-2000.

Configuration > Tools > System

Manual -

Adjust the date and time according to what is entered by the administrator. Notice the format in the related field while typing.

Automatic -

Synchronize with the NTP server over the Internet whenever the DCS-2000 starts up. It will fail if the assigned timeserver cannot be reached.

NTP server -

Assign the IP address or domain name of the timeserver. Leaving the text box blank will let DCS-2000 connect to default timeservers.

Time zone -

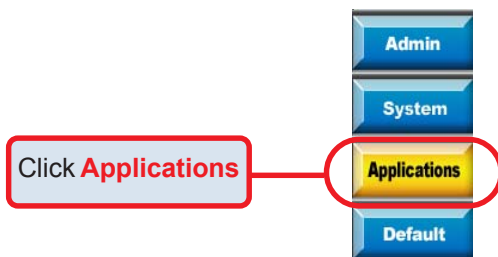
Used to adjust the hour of timeservers for local settings.

Click on Apply to validate changes.



Configuration > Tools > Applications

Click on the **Applications** button to access the Applications settings from the **Tools** menu.



Configuration > Tools > Applications (Continued)

Applications Settings

Weekly schedule

☐ Sun ☐ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐ Sat

snapshots begin at [hh:mm:ss]

snapshots stop at [hh:mm:ss]

☐ **All the time except for the above schedule**

☐ Event operation

General

Delay second(s) before detecting next event

Take snapshots at second(s) after event

Trigger condition

☐ Input is high ☐ Input is low ☐ Input is rising ☐ Input is falling

Detect motion in :

☐ Undefined ☐ Undefined ☐ Undefined

Note: Motion detection must be setup first

Trigger action

☐ Trigger output alarm while input condition matched

☐ Trigger output alarm while motion detected

☐ Upload snapshots while input condition matched

☐ Upload snapshots while motion detected

☐ **Reset output**

☐ Sequential operation

Snapshot every second(s)

☐ **Send snapshots by email**

☒ **Send snapshots by FTP**

☒ FTP put snapshots with date and time suffix



Apply



Cancel

Configuration > Tools > Applications (Continued)

Weekly schedule:

Sunday through Saturday -

Select the weekdays that should perform the following operations:

Snapshots begin at -

Set the time to start operations. Setting the begin time the as same as stop time will force operations to operate continuously

Snapshots stop at -

Set the time to stop operations.

Event operation

Delay second(s) before
detecting next event -

Set the time delay before restarting to check the trigger condition when the current condition is triggered.

Take snapshots at second(s)
after event -

After a snapshot is taken because of a trigger, another snapshot will be taken after the configured seconds.

Trigger condition -

There are 4 conditions related to the digital input and three windows for motion detection. There can be multiple selections. Select the appropriate digital input condition according to the characteristics of the external device. "High", "low" indicate external voltage input for level trigger, while "rising", "falling" is for edge trigger. There are three windows shown for the name you defined for motion detection.

"Undefined" will show instead of the window title if motion detection is not setup yet. In such a case, clicking on the "Motion detection" in the **note** will direct you to the **Configuration** page for **Motion detection**.

Trigger action -

There are four options for two actions regarding to either condition. They can have multiple selections. While choosing the trigger output alarm, the digital output will short both pins to connect the circuit of the attached external device; otherwise both pins will be open. While choosing to upload snapshots, the method can be either email or FTP. The snapshot names will be "videopre.jpg", "videotrg.jpg", and "videopos.jpg" respectively for the snapshots before event, right upon event, and after event. The date and time suffix may be added according to the option. Confirm the external mail or FTP server settings in network configuration.

Reset output -

check and save this option to reset the external device at the digital output back to the original state.

Configuration > Tools > Applications (Continued)

Sequential operation

Snapshot every second(s) -

The DCS-2000 will send snapshots at the specified interval to the external server according to the chosen method. Remember this operation is still subject to the weekly schedule.

Send snapshots by email -

Any upload action specified in the options above will use the method chosen here. The captured snapshot named "video.jpg" will be attached in the email with subject "Periodic snapshots".

Send snapshots by FTP -

The captured snapshots will upload to the external FTP server with the file name depending on the next option. It can be used to refresh the captured image stored in the external web server to build creative homepages.

FTP put snapshots with date and time suffix -

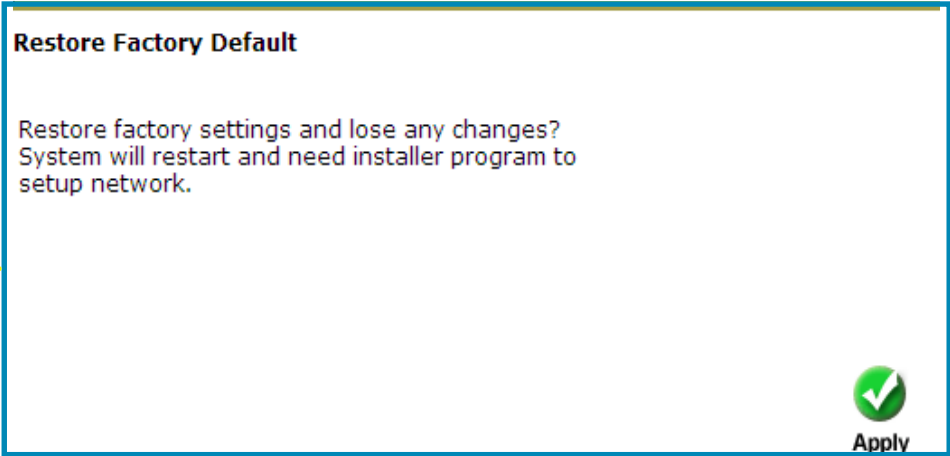
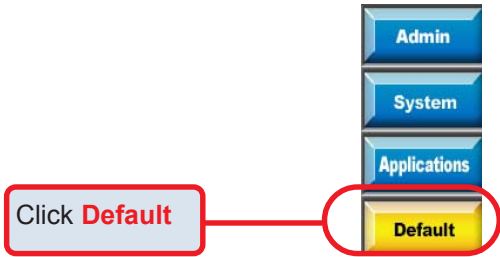
If the suffix is added, the captured date and time can be easily differentiated from the snapshot file name in either sequential or event operation. For instance, "video@20020102030405.jpg" means the JPEG image was captured at 4 minutes and 5 seconds after 3 o'clock, January 1st, A.D. 2002. If the suffix is omitted, the file named "video.jpg" on the external FTP server will be refreshed at the specified interval.

Click on Apply to validate changes



Configuration > Tools > Default

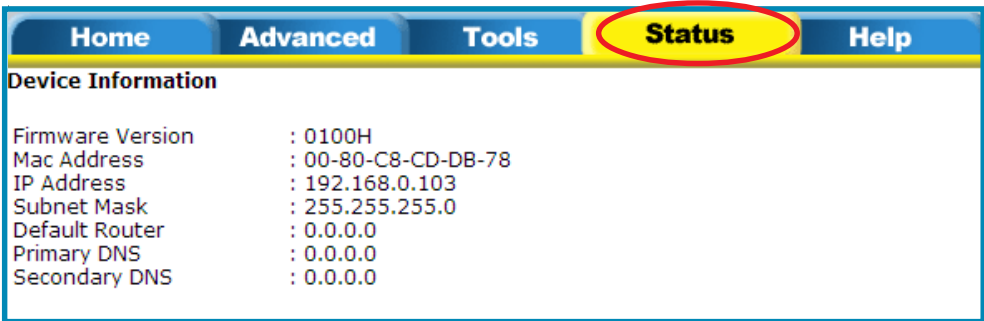
Click on the **Default** button to access the factory **Default** settings from the **Tools** menu.



Click **Apply** on the screen to restore the factory default settings. This means **any** changes made will be lost and the system will be reset to the initial status when shipped from the factory. After confirmation, the system will restart and require the **Installer** software program to setup the DCS-2000.

Configuration > Status > Device Info

Click on the **Status** tab to access **Device Info** and a **Log** of DCS-2000 system activity. The **Device Info** is the default screen when you click on the **Status** tab.

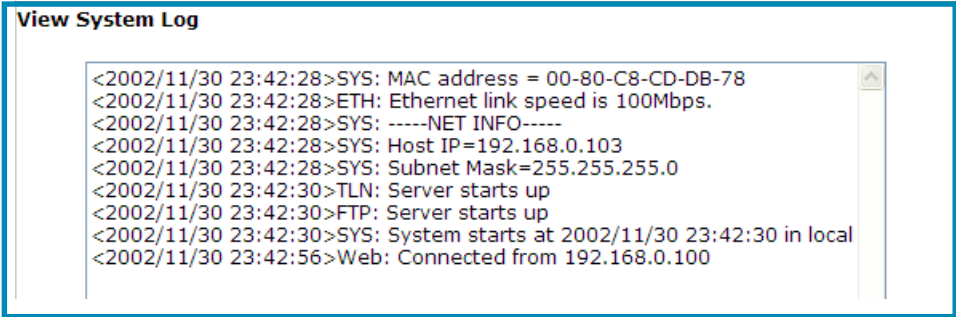
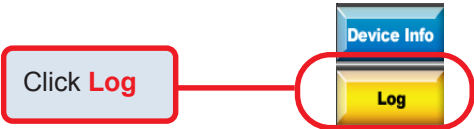


The Device Info screen lists the following important settings that are currently set for the DCS-200:

- Firmware Version number
- Mac Address
- IP Address
- Subnet Mask
- Default router address
- Primary DNS address
- Secondary DNS Address

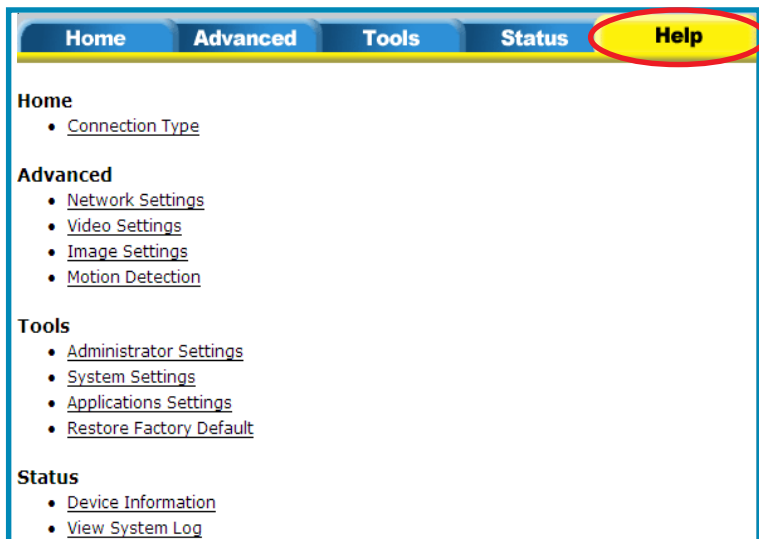
Configuration > Status > Log

Click on the **Log** button to access a system log of system activity from the **Status** menu. The content of the log file reveals useful information about the current configuration and connection logged after the DCS-2000 boots up.



Configuration > Help

Click on the **Help tab** to access descriptions of the particular function you need help with. The help screen is organized in the order of the tabs and then each menu item under that tab.



Firmware Upgrades

The DCS-2000 Internet Camera supports upgrades to the firmware (the software that controls the operation in the DCS-2000). D-Link will supply the latest firmware version on the D-Link support Web site at: **support.dlink.com**.

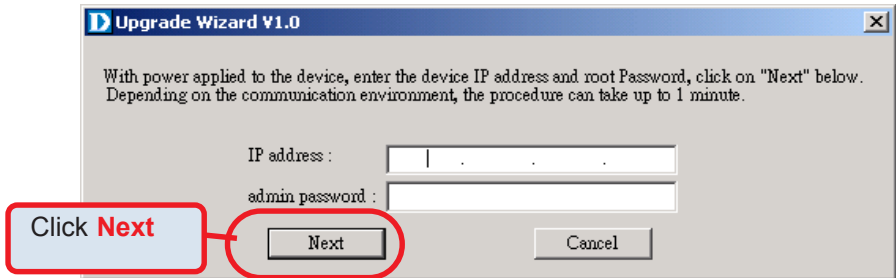
To upgrade the firmware:

Download the latest firmware file from D-Link.

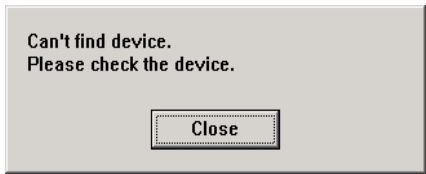
Click on the file **Upgrade Wizard** located on the CD enclosed with the DCS-2000.

Power on the DCS-2000 and connect it to the Ethernet port.

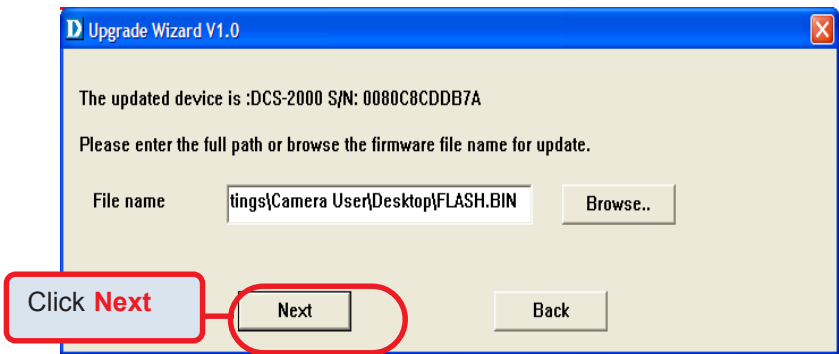
The Wizard will ask for the IP Address of your camera and for your administrator password:



The Upgrade Wizard will attempt to find the DCS-2000. If it cannot, an error message indicating this will appear.

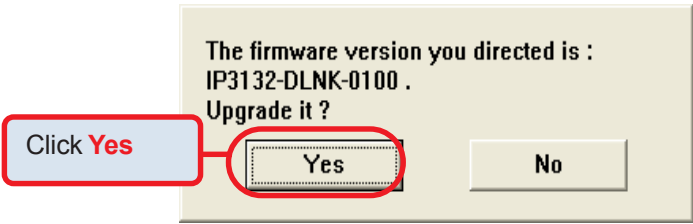


If the Upgrade Wizard finds the Internet Camera the following screen asks for the file name or gives you the choice to browse for the file. The file name should be **FLASH.BIN** for the DCS-2000 Internet Camera.

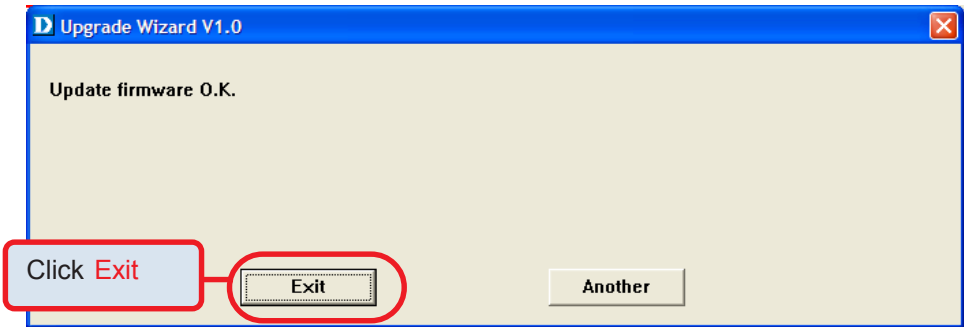
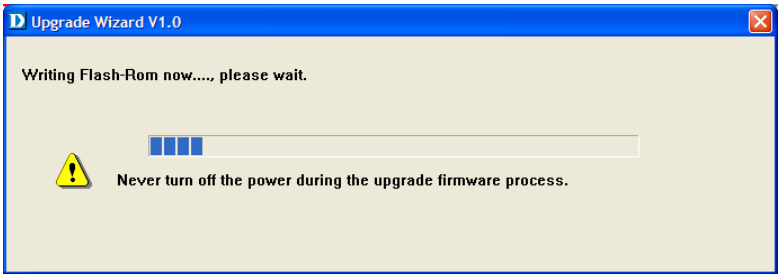


Firmware Upgrades (continued)

The firmware file is scanned by the Upgrade Wizard and the version is reported to you.



After clicking “Yes” the upgrade begins. The progress of the upgrade is displayed on the this screen:



The upgrade has been completed.



Warning

The download firmware procedure cannot be interrupted. If the power or network connections are broken during the download procedure it might possibly cause serious damage to the Internet Camera.

Using the Surveillance Software

Installation of the Surveillance Software is detailed in an earlier section of this manual titled **Installation of the Surveillance Software** under the main section titled **Software Installation**.

Upon completion of the installation of the **Surveillance Software**, you can run the **Monitor** program from:

Start\ Program Files\D-Link\Surveillance System Software\Monitor
or the directory you specified during the installation.

You will be asked to set the root password first, and the password should be at least 6 characters in length.

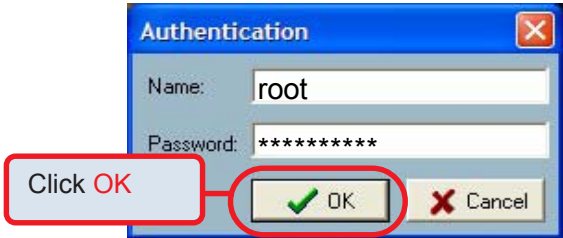
Monitor Program



A successful message box will show if you set the root password successfully.



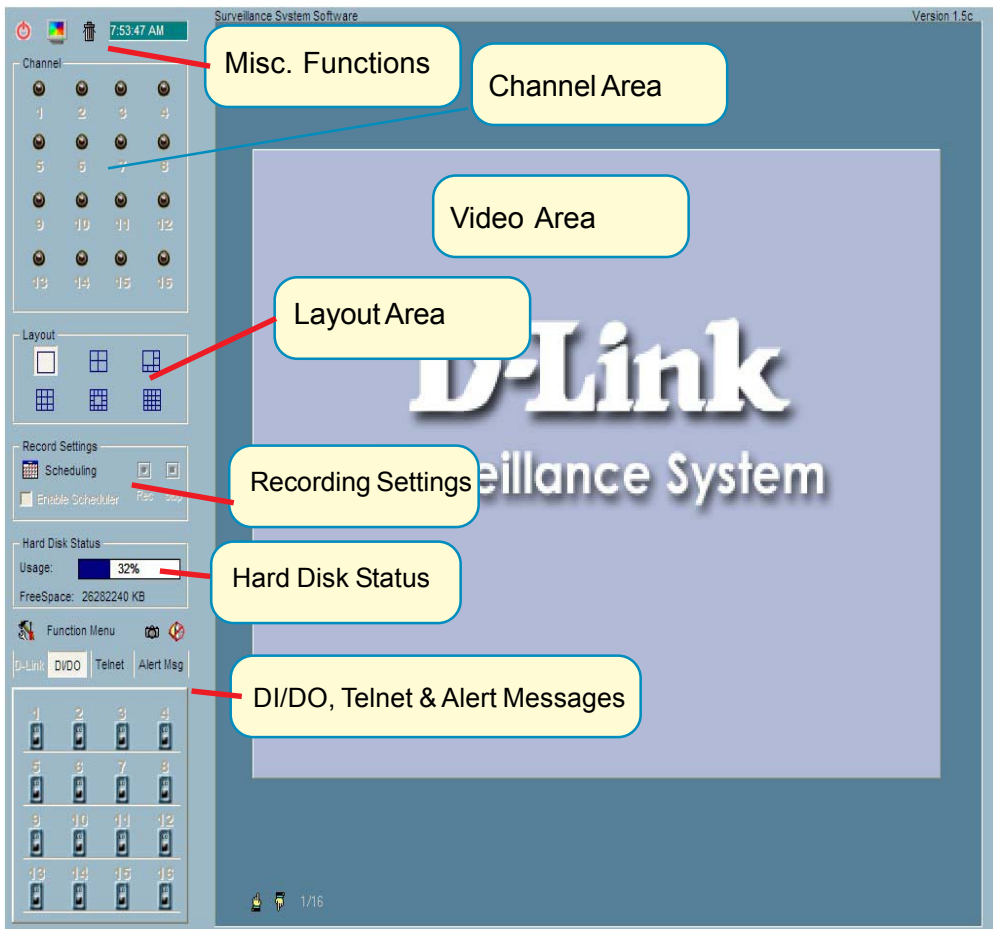
An Authentication dialog will appear. Enter “root” login for the first time and enter a password..



You will see the **Monitor** program on your display.

Using the Surveillance Software (continued)

Monitor Program Main Screen:



Descriptions of the sections of the **Monitor** program Main screen:

- **Miscellaneous functions:**
Including application exit, snapshot, full screen monitoring, and Function menu for calling global settings, configuration, and backup. Tips are provided when you move the mouse cursor on them.
- **Channel area**
This area displays the status of each video channel including: connection, recording, selected, and alert information.
- **Video area**
In this area, you can see the video of accessible channel, and some convenient controls.

Using the Surveillance Software (continued)

- **Layout area**
You can change the monitoring layout in this area.
- **Recording settings**
You can record video onto your hard disk. The recording schedule is controlled with the Scheduling tools.
- **Hard disk status**
In this area, you can get the hard disk status. This reminds you to arrange the recorded video database.
- **DI/DO control**
Receive the digital input signal and send digital output signal.
- **Telnet control**
Telnet to remote camera to do low level control
- **Alert Message**
Display the last alert messages.

Logging In

You need to login to use the **Surveillance Software** system. There are two privileges in the account-password system: the root (administrator) and the general user.



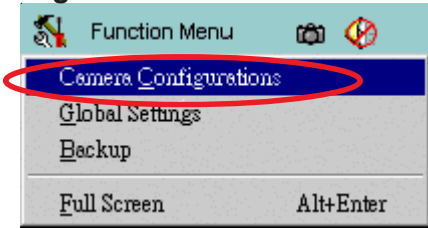
If you have the root privilege, you have the right to do the following items:

- Run the configuration tool
- Change the recording schedule
- Change the local settings

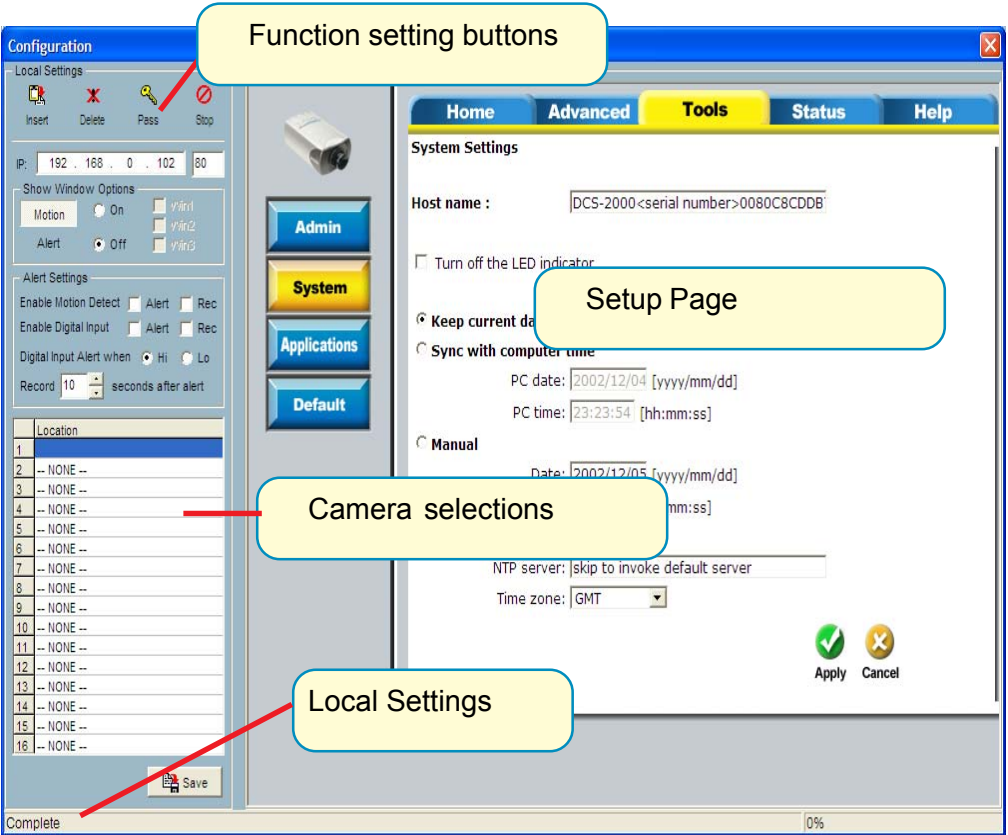
General users can only monitor the surveillance videos and change the layout of the **Monitor** program, but you do not have the right to change any configuration including recording schedule and local settings.

When you first login, you should configure the DCS-2000 from the **Camera Configurations** menu. Once you set up the root (administrator) privilege, you can run the **Configuration**.

The message: “ **Before configuration, all recordings will be stopped**” will appear to warn you that any recording that is occurring will stop when you access **Camera Configurations**



Home > Camera Configuration Screen

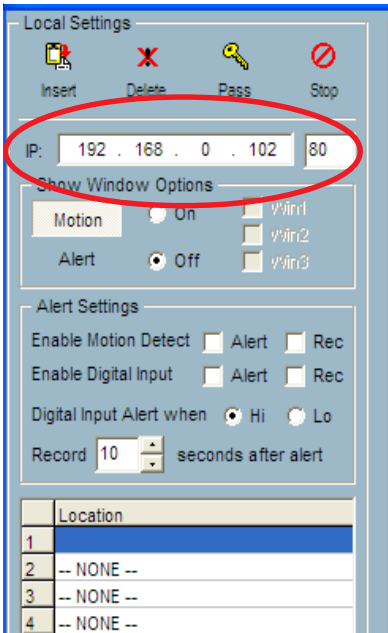


Home > Camera Configuration Screen (continued)

In the local settings there are four main functions:



Insert – Used to insert a camera in the camera list. After you specify the IP address and port, click the “**Insert**” button. The program will try to connect to the DCS-2000. If the connection succeeds, the root password of the remote DCS-2000 camera is required. If you provide the correct password, the camera will be inserted in the list



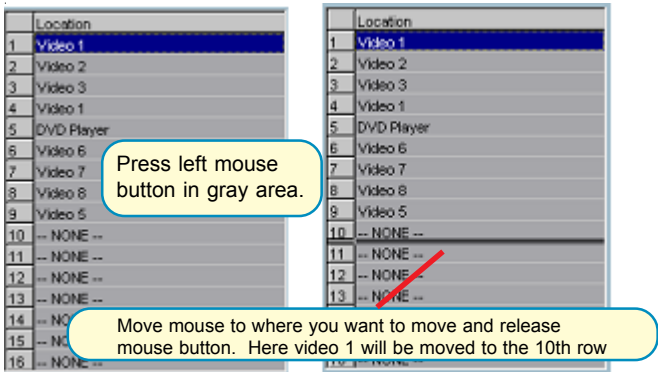
Delete – This operation deletes the camera from the camera list.

Password – Changes the local “root” password.

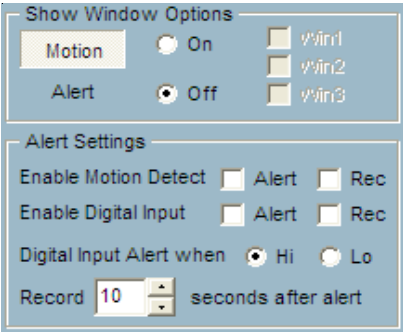
Stop – Provides a way to stop the network connection when the connection elapses for a long time.

Changing the Camera Order in the List

You can drag and drop the gray area (fixed area) of the camera list grid to change the arrangement of cameras. This makes it easy to rearrange the cameras.



Motion Window and Alert Settings



Show Window Options – If **Motion Detection** is enabled for the selected DCS-2000 camera, each motion window can be turned on in “**Show Window Options**”. Once the motion window is turned on, it will be shown as a green rectangle in monitoring screen. If you just want to see the motion window when alerted, you can also turn on the alert window separately. The alert window will be shown in red rectangle when an alert occurs.

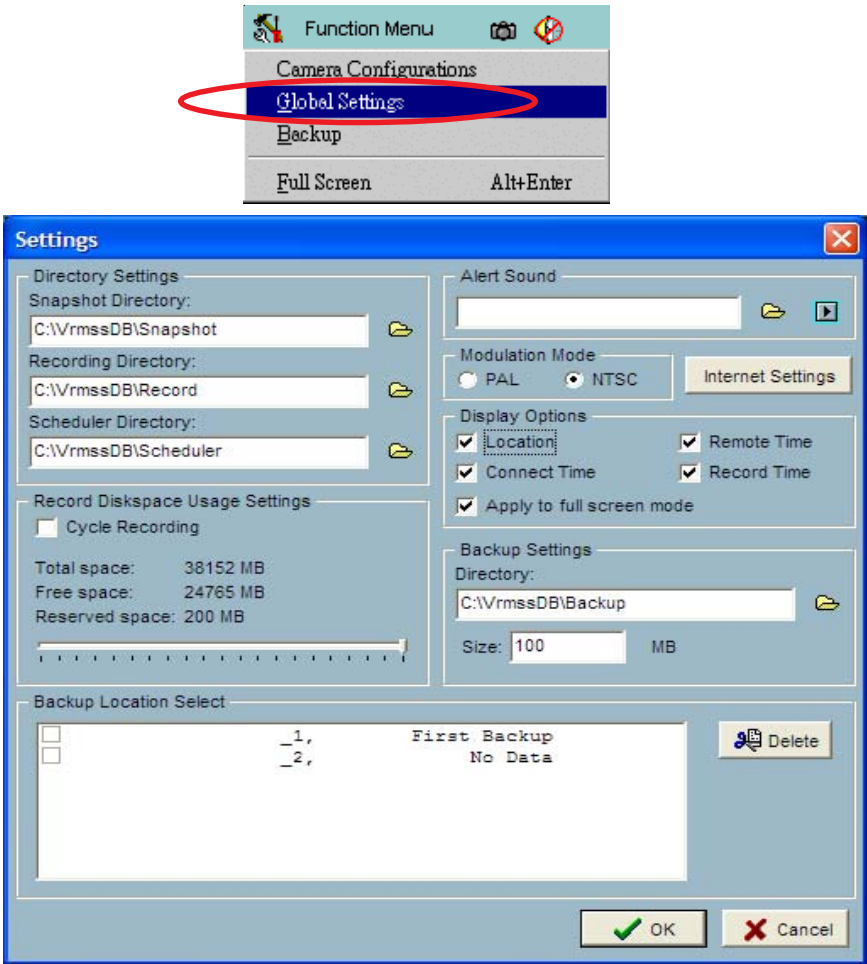
Alert Settings – Some special actions can be performed, such as generating an alert sound or starting recording when motion is detected or a digital input is triggered. The digital input can be high-triggered or low-triggered. It depends on your setting. You can also specify the period to record after the alert-trigger.

Saving the Changes

Once you click the “Save” button, the changes in the configuration will be saved and will validate immediately.

Global Settings

Click on the **Global Settings** item from the **Function Menu**.



Snapshot directory – the directory for storing the snapshot data.

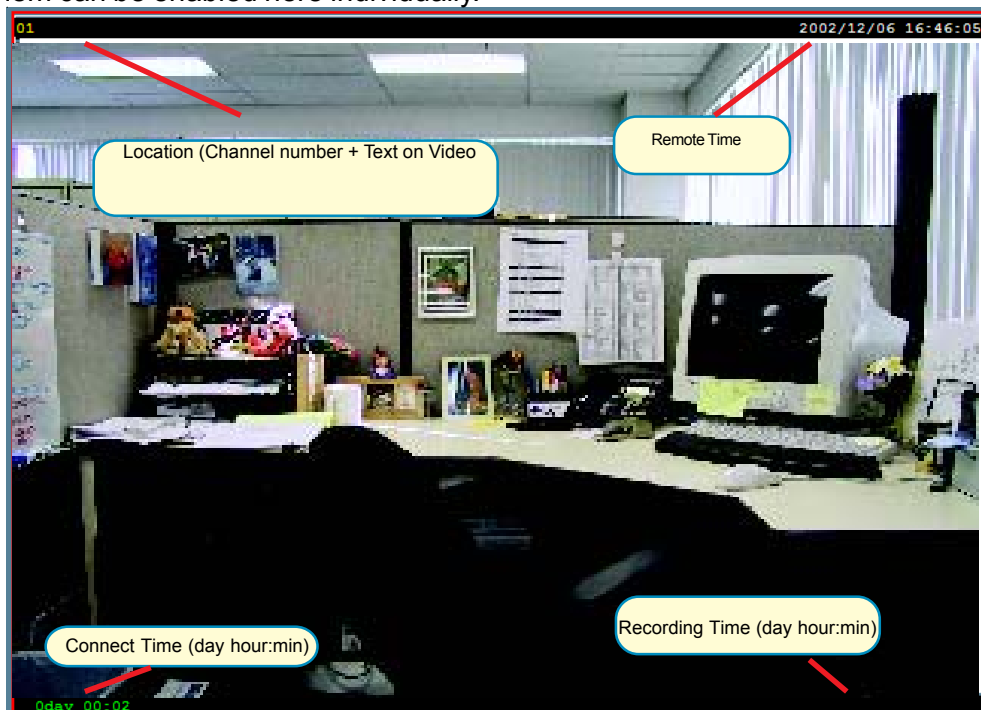
Recording directory – the directory for storing the recorded video data.

Reserved space – Indicates how many bytes should be reserved on the hard disk. If the recording data exceed disk capacity, the new video data will replace the oldest data.

Modulation Mode – For selecting the input signal format (NTSC or PAL).

Alert Sound – Select sound to play when for an alert.

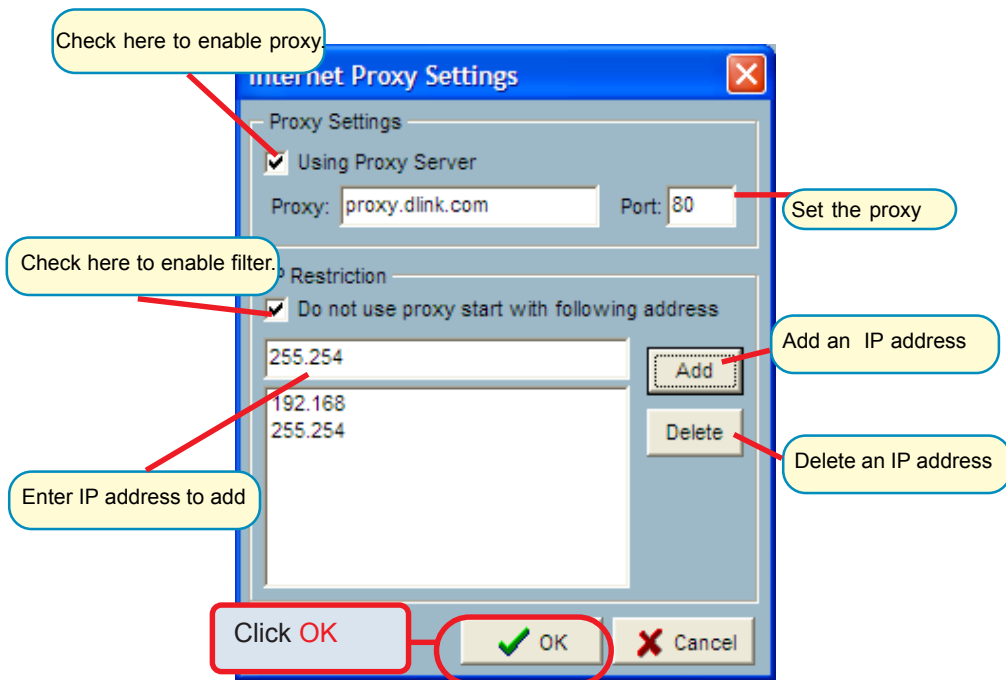
Display options – In each video frame, there are two status bars, which contain “Camera location”, “Connect time”, “Remote time” and “Record time”. All of them can be enabled here individually.



Backup Settings – Select the backup directory, the backup size for your backup media, and the backup locations. Also you can delete backup locations here. The maximum locations can not exceed 32.

Last Backup Time – Indicates the last time a backup occurred. “All Backup” means all the data in this location have been backup, and “No Data” means there is no data stored in this location.

Internet Settings – Set the proxy and IP filters.



If you enable proxy server and enable IP restriction, the listed IP addresses will not use the proxy.

Connecting to the DCS-2000

Once you connect to the DCS-2000, you can drag and drop a camera to the **video area**.

In the **channel area**, if you do not set up the camera, the color of the **camera number** will be gray. Once you set up the camera, the color of the **camera number** will turn into blue. You can drag and drop the camera to the **video area**, and apply other features if you have the the privileges.

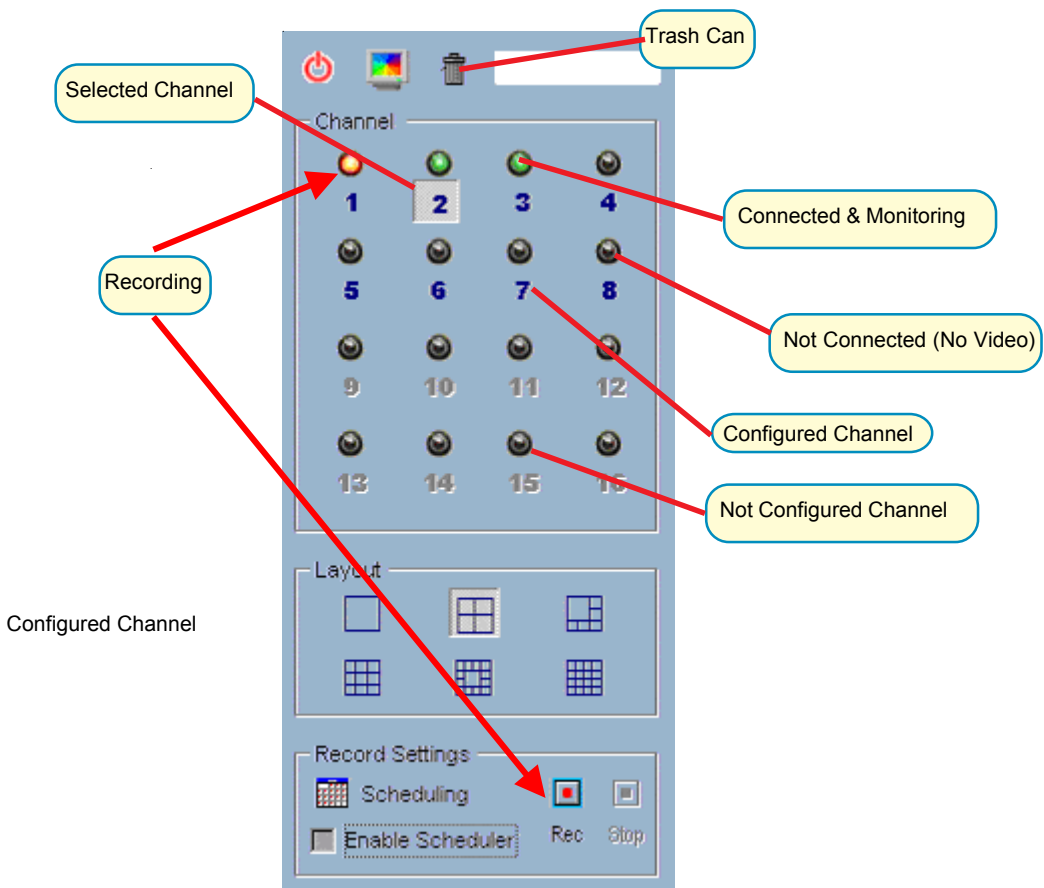
There is a unique light signal above each camera's number. It indicates the status of the camera:

Off – Camera is not connected.

Green – The green light means the camera is connected.

Red – The red light indicates the camera is both connected and in recording mode.

Blink – If motion detection is enabled and there an alert occurred, the light will blink.



If you don't want to monitor a video channel, you can drag and drop the video (in the **video area**) to the **trashcan**. Here we'll shown the drag and drop step by step:

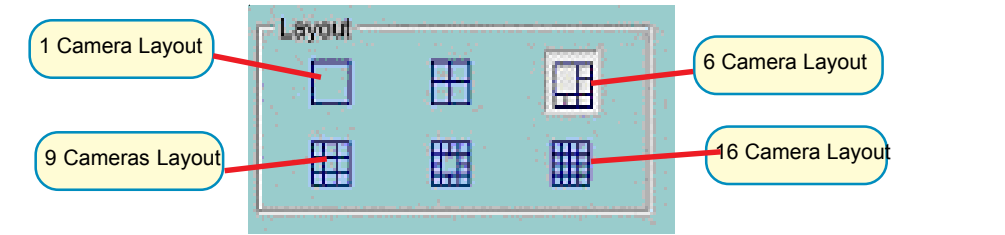
1. - Select the video of the channel to be discarded
2. - Move the mouse cursor to the channel number.
3. - Press and hold the left mouse button, the cursor will change according to the area where it is droppable or not.
4. - Move the mouse cursor to a droppable area (in this case, it should be the **video area**), and release the mouse button. In each layout, one video channel is corresponding to one and only one video box in the video area. Therefore, the drag and drop from channel number to video box also can be treated as "exchange of videos in video box", that is, if the video of channel 1 is displayed at video box A, and the video of channel 2 is displayed at video box B, when you drag channel 2 to video box A, channel 2 is displayed at video box A and channel 1 is displayed at video box B.



The drag and drop can also apply to the change of videos. In the **video area**, if you want to exchange the videos of different channel, you can drag the video and drop to where you want to locate the video. If the destination **video box** is empty, then video in the source **video box** will be shown on destination video box, and the source **video box** will be empty. If the destination **video box** contains video of some channel, then the videos in the source and destination **video box** will be exchanged.

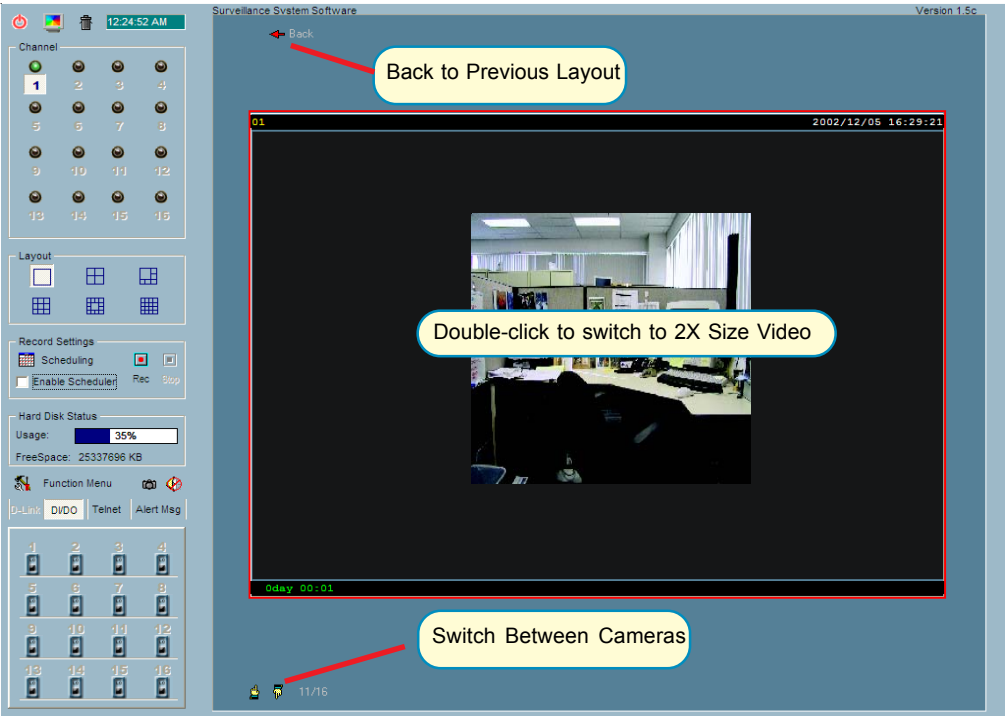
The Layout

There are six layouts in the monitor tool. You can select (by clicking the left mouse button on the icon) which videos you want to monitor. In each layout, you can drag and drop the “channel number” to any video box in the video area. If all conditions are okay, then the video will appear in the video box, and the old video is replaced.

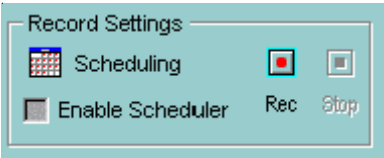


The video positions in each layout are saved for the next time the layout is selected for monitoring.

When you want to view one individual camera, you can double-click on the video in the **video area**. The layout is now changed to the view of single video whose size is twice the original one. You can click the “up” or “down” button to view different cameras, and clicking the “Back” button will switch to the previous selected layout.



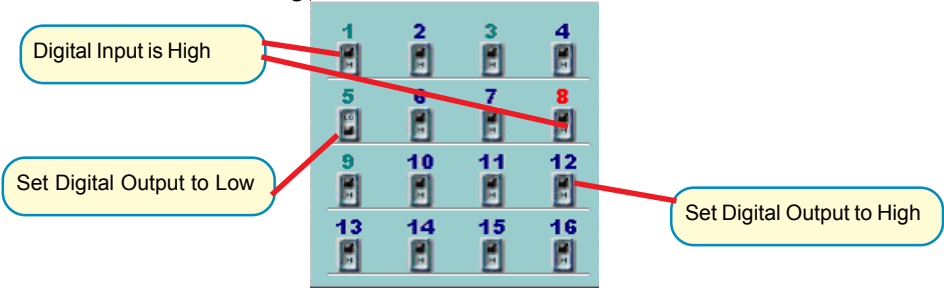
Record & Schedule



- Record** – Record the selected channel manually.
- Stop** – Stop recording the selected channel manually.
- Scheduling** – Arrange recording schedule
- Enable Scheduler** – Record according to the scheduler settings.

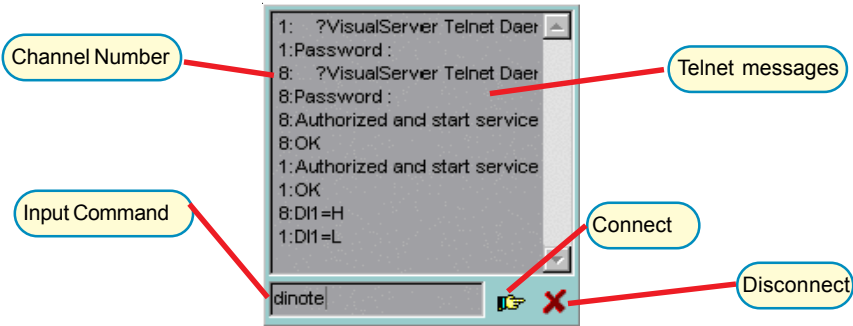
DI/DO Control

Only one user with root privilege can access the DI/DO control at the same time. Refer to the following figure to control.

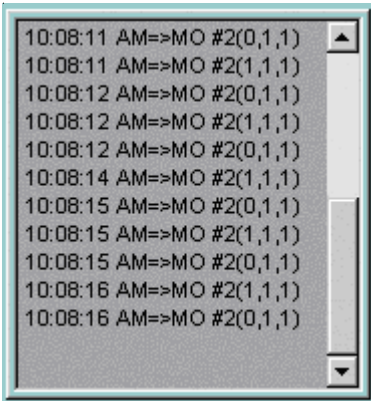


Telnet Control

You can do some low level controls such as manual DI/DO control.



Alert Message

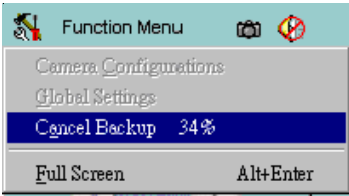
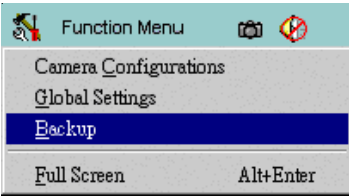


If you turn on the **Alert** function, and a motion detected is triggered when set in the configuration, the alert message will show in this window. The message format is described as follows:

“time”=>“alert type” #“channel number”(“win1”,“win2”,“win3”)

For example, the message “03:47:25 PM=>MO #5(0,1,1)” means that motion detection alert occurred at 03:47:25 PM on motion window 2 and motion window 3.

Backup



The “Backup” function will help you to archive the recorded data according to the location and size you selected in “**Global Settings**”. You can duplicate the backup data to a removable device such as CD-ROM, ZIP disk, DVD-RAM or tape manually. After the backup starts, you cannot configure the camera or change any settings. You can cancel the backup process by selecting “**Cancel Backup**” option. After the backup completes, a message appears informing you the backup is complete.

Miscellaneous Functions



Power – Close the application and save last settings

Full Screen – Switch to full screen, double click screen to return back

Local Time – Display the current time

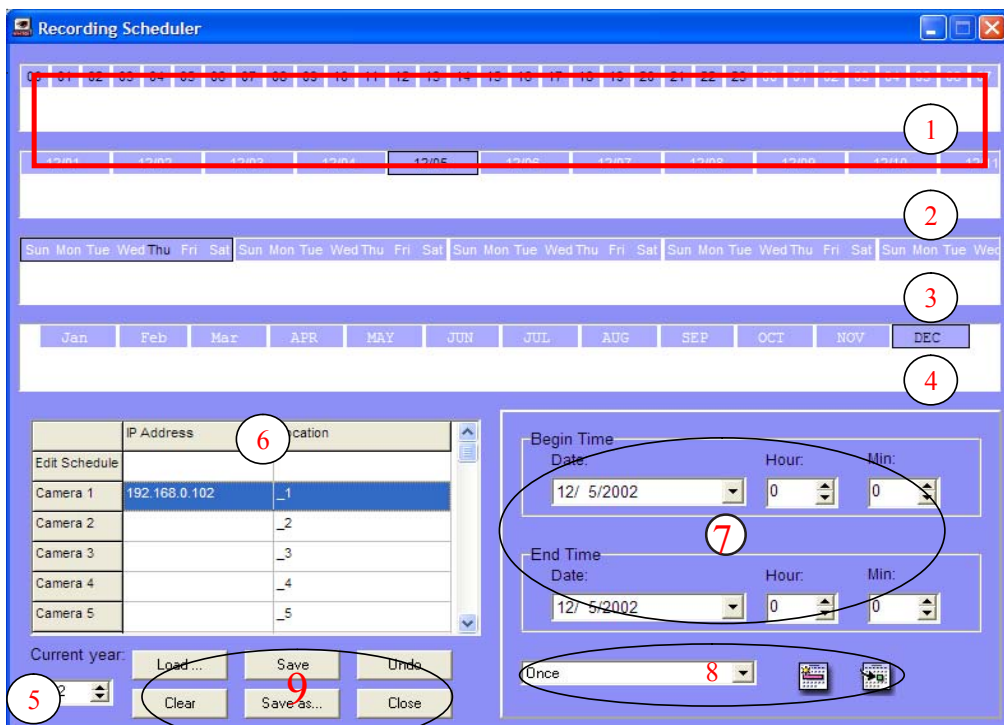
Snapshot – Snapshot each view in current layout mode, and save them as bitmap file to hard disk. You can set the directory in “global settings”.

Stop Alert Sound – Whenever alert occurs, the alert sound will start to play. You can press this button to stop the alert sound and see the alert messages.

Scheduling

The Scheduling helps you to schedule the recoding time of the output from the DCS-2000. You can easily specify the time of recording via both our graphic user interface and time period selection. Features include:

- Easy to use graphical user interface
- One-on-one camera scheduling
- Up to 9 schedule schemes for each camera
- Automatic period recording



The layout of the scheduler tool is divided into 9 sections:

Section 1 of the scheduler tool is the **Hour time-line**. It helps you create the minute-based schedule. You can refer to the **Schedule With Time Lines** section on page 59 for more details. **Sections 2, 3 and 4** are **Day time-line**, **Week time-line** and **Month time-line** respectively.

Section 5 is the **Current year settings**, which consists two components: **Year selector** and **Set year button**. Their function is to change the year that is being scheduled.

Section 6 is the camera selection area, it provides the IP addresses and location information for your reference. Their is an editing schedule space for saving a temporary schedule.

Sections 7 and 8 consists of **"Begin time selector"**, **"End time selector"**, **"Period selector"**, **"Addition button"**, and **"Erase button"**. These components help you choose a period of time in which to add or delete records in the schedule.

Section 9 is the operation buttons for the schedule-record-files and close window button.

Current Year Settings And Camera Selector

Camera 5

Current year:

2002

Load ...

Clear

By default, the scheduler is running with the current date selected on the time-lines and **Date-time picker**. Therefore, the current scheduling year is the year that you run the scheduler tool. To change the year setting:

- 1. Use the up (increase) and down (decrease) arrows to adjust the year setting.
- 2. The **Date-time selector** in [Section 7](#) (see above) will change the year concurrently.

If you change the year with the **Date-time selector**, the current year setting will also be changed.

The following is the camera selector:

	IP Address	Location
Edit Schedule		
Camera 1	192.168.0.102	_1
Camera 2		_2
Camera 3		_3
Camera 4		_4
Camera 5		_5

The **Camera selector** contains two kind of items. The first one is designed for helping edit the schedule and is at row 1 of the selector as shown above. If you want to make a schedule that does not belong to any camera, you can select this row for editing.

The second item is the camera selector. When you click on the camera row, the scheduling tool will associate the current editing space to the current selected camera.

If users have configured the **Surveillance Software** and the DCS-2000 camera, the IP address and location will show the correct setting. Please note that when users switch between cameras, the changing of the schedule will be saved automatically.

The Schedule-Record-File operations

There are five related buttons:

- Load:** This operation allows the users load other schedules from the schedule database for this camera.
- Clear:** This operation will clear all the schedule markers in the current editing area. Note that users must choose “save” or “refresh” themselves.
- Save:** The button is for applying the changes for the current schedule.
- Save As:** To save the current schedule-record-file to another file name, this button will perform this.
- Refresh:** The scheduling tool will load the old data from the schedule-record-file. The current changes will be lost.

Schedule with Time Lines

There are four time-lines: **Hour unit time-line**, **Day unit time-line**, **Week unit time-line** and **Month unit time-line**. You can create your schedule in all time-lines. These four time lines are related to the same database, that is, if you have rescheduled one time-line, the changes will be applied to the other three corresponding time-lines.

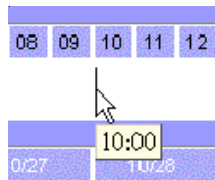
Scheduling Concept

Time Unit

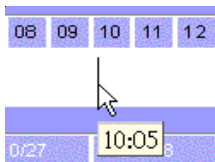
Each time-line has its own basic marking unit, if you make your schedule on different time-line from what was intended, the resulting schedule is will be very different from what was intended.

Scheduling example:

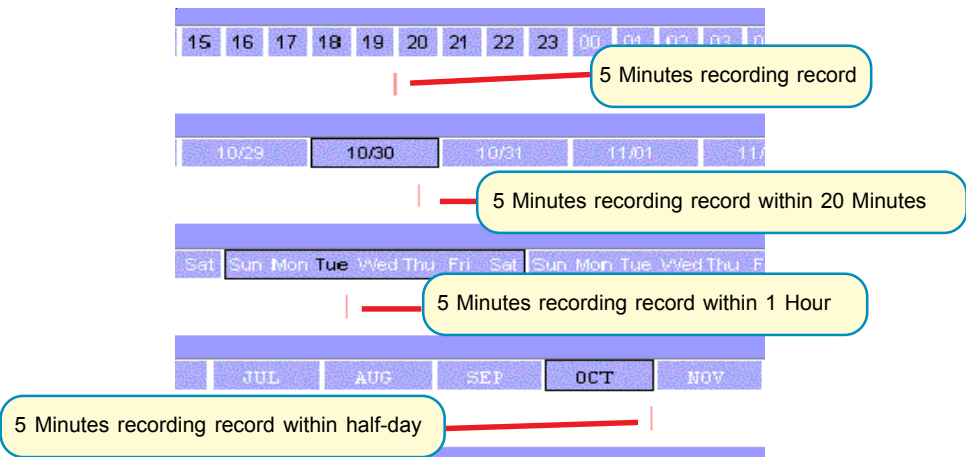
Click on 10:00 from the Hour-time line.



The next time unit is 10:05



If you click the left mouse button on the Hour time-line as the time information, 10:00, then the recording time is:



The marking concept is that there exists different time units of each time-line. If there is any smallest time unit, which is marked for recording, then the time unit for each time-line that contains the time will be marked.

Example:

In an Hour time-line, 1:10~1:15(include lower bound, exclude upper bound) is marked, although only in 1:10~1:15 the recording is valid.

As situation of point 1, in Day time-line, 1:00~1:20(include lower bound, exclude upper bound) is marked, although only in 1:10~1:15 the recording is valid.

As situation of point 1, in Week time-line, 1:00~2:00 (include lower bound, exclude upper bound) is marked, although only in 1:10~1:15 the recording is valid.

As situation of point 1, in Month time-line, 00:00~12:00 (include lower bound, exclude upper bound) is marked, although only in 1:10~1:15 the recording is valid.

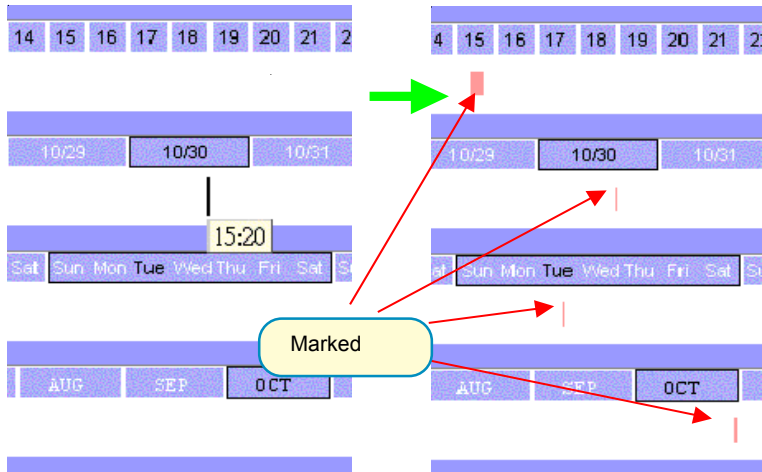
Using Mouse buttons in the Scheduler

The scheduler tool is designed for a two-button mouse. In this manual, we use **left mouse button** and **right mouse button** to distinguish them.

When you click or double click the left mouse button over the time-line, the time-line will mark the time for the scheme of the schedule; if you click or double click the right mouse button over the time-line, the time-line will unmark (clear) the record in the schedule.

Operations over time-lines which are left mouse button based are designed for marking the time (make a recording, red bars on time-line) in the schedule. The operations which are right mouse button based are designed for cancelling the recording (unmark the time, green bars on time-line) in the schedule.

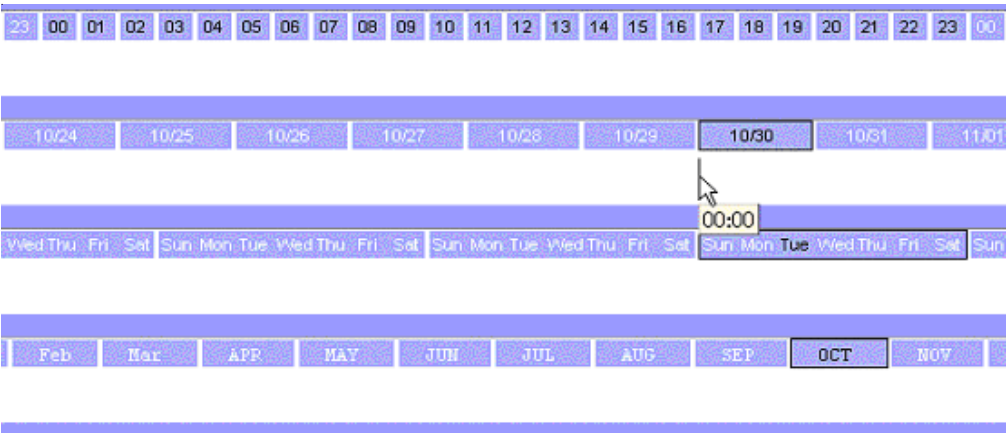
When you move your mouse over the time-lines, the scheduler will show the date/time information under the cursor to remind you of the time at the mouse cursor position.



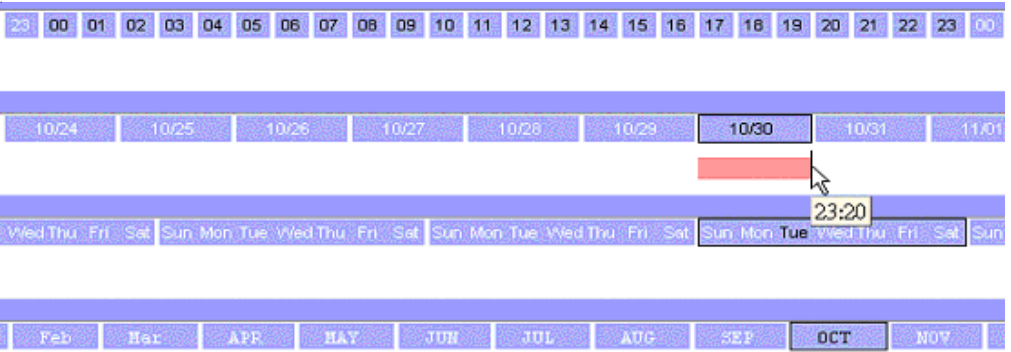
Make Serial Selections

If you want to mark/unmark a series of time units, the following steps demonstrate the method.

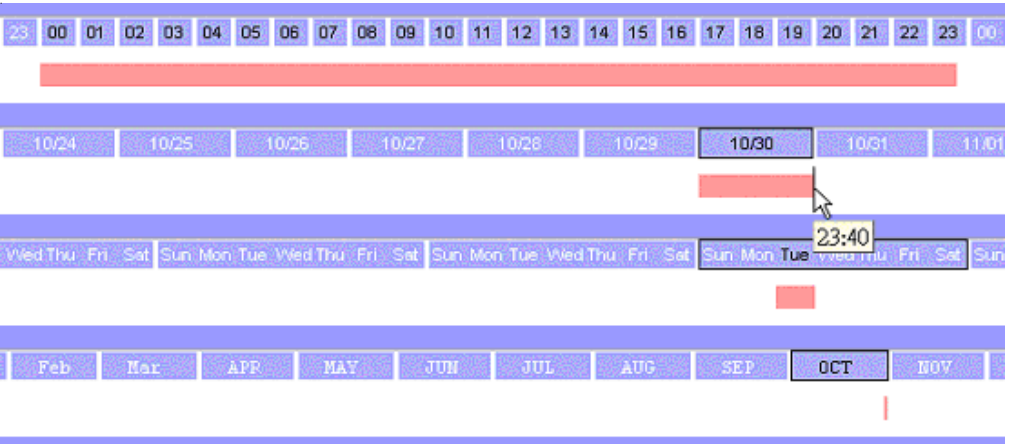
1. - Press and hold the left mouse button:



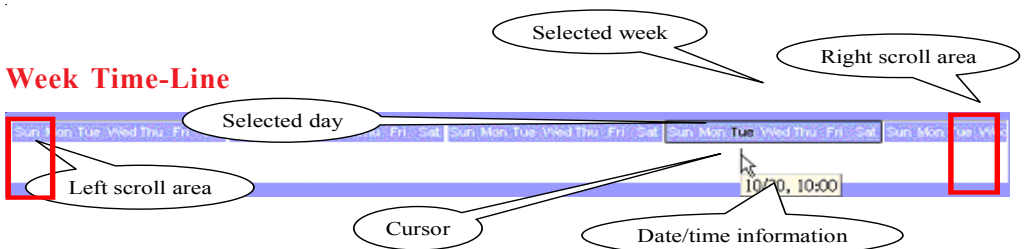
2: - Note the time information from the tips and move the mouse to the target time



3.- Release the left mouse button

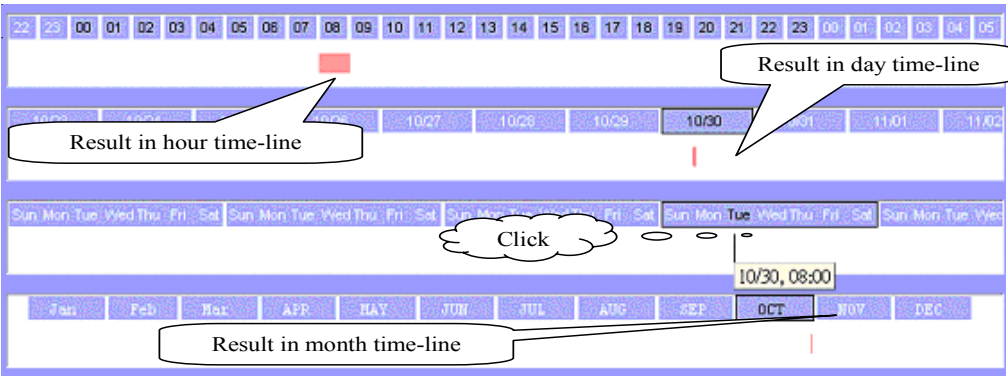


If you press the right mouse button in the above steps, the scheduler tool draw a green bar in the time-line, and finally clear the records in the unmarked region.



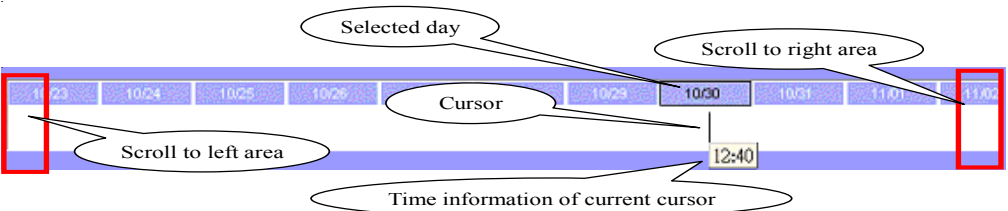
Marking/Unmarking the Recording Time

The one-click unit of the **Week time-line** is one hour. It means a continuous one-hour recording schedule is marked/unmarked if you click the mouse button. You can also press and hold the mouse button to mark/unmark continuous units.



If you move the mouse cursor to the most left part of the time line, the time-line will scroll one day-unit at a time, and the earlier date will be shown in the **week time-line**, and vice versa.

When a left mouse button click occurs at an upper time-line area (the **week day indicator**), the current date selection is changed, and the change also effects all other time-lines.



Marking/Unmarking the Recording Time

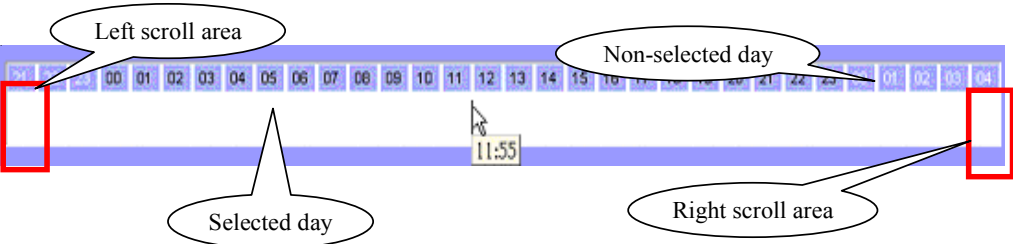
The one-click time unit in a **Day time-line** is 20 minutes. The operating method is the same as **Week time-line** and **Month time-line**. Please refer to the **Logging-in** section in the **Using the Surveillance Software** section of this manual for details about User Privileges and logging-in.

Scrolling and Switch Date in Day Time-Line

Moving the mouse cursor to the left-most part of the **Day time-line** will cause the time-line to scroll one day earlier. If you keep the mouse cursor within the same area, the time-line will continue scroll and vice versa.

Click at the **Day information area** of **Day time-line** will cause the selected day to be changed and the change will also effect all other time-lines.

Hour Time-Line

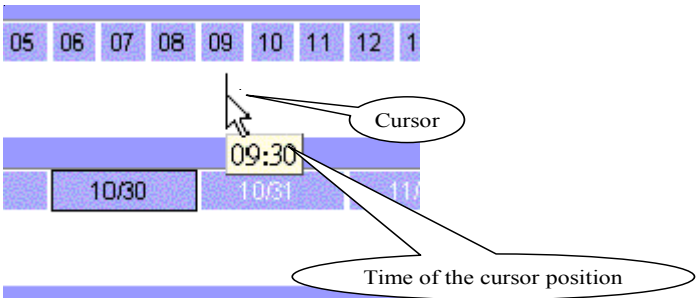


The one-click unit in the **Hour time-line** is five minutes, and it's also the smallest unit of time in the scheduling tool. The operating method is the same as the other three time-lines.

Scrolling and Switching Time in the Hour Time-Line

The scrolling unit of **Hour time-line** is one hour. Moving the mouse cursor to the left-most part of the time-line will scroll the time-line to earlier time and vice versa. The selection unit of this time-line is one day, when you click on the **Hour information area** in the time-line, the selected day will be changed and the other three time-lines will be changed as well.

When you move your mouse over the hour-line, the scheduler tool will show the time of the current cursor position. This will help to make a detailed schedule.

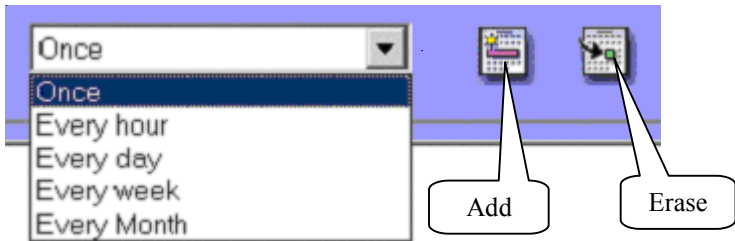


Schedule with Time Picker

There are three controlling units in both the start and end time selectors. The first controlling unit is the **Date Picker**. You can select the year, month and day with it. Once you select the date in a different year, the data file will switch automatically.

Remember to make the begin time earlier than the end time. Otherwise the add action will be ignored.

After you have selected a time period with the begin time and the end time picker, you can click the **“Add”** button or **“Erase”** button to add or clear the scheduling information within the time period. Remember that only if you click on the **“Apply”** button, the scheduling changes will be written back to the data file. This means the scheduling is valid only if you **“Apply”** the changes



Select period

Once

Every Hour

Every Day

Every Week

If you select the **“Once”** option, the scheduler tool will mark the time according to the begin time and end time. It includes year, month, day, hour, and minute selections. The following picture illustrates this situation:

Once:

Recording Scheduler

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 00 01 02 03 04 05 06 07

10/29 10/29 10/30 10/31 11/01 11/02 11/03 11/04 11/05 11/06 11/07

Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun Mon

10/30, 08:00

Jan Feb Mar Apr May JUN JUL AUG SEP OCT NOV DEC

	P Address	Location
Edit Schedule		
Camera 1	192.168.0.8	yard
Camera 2	192.168.0.5	
Camera 3	192.168.0.173	Host#2
Camera 4		
Camera 5		

Current year: 2002

Load... Save Refresh Clear Save as... Close

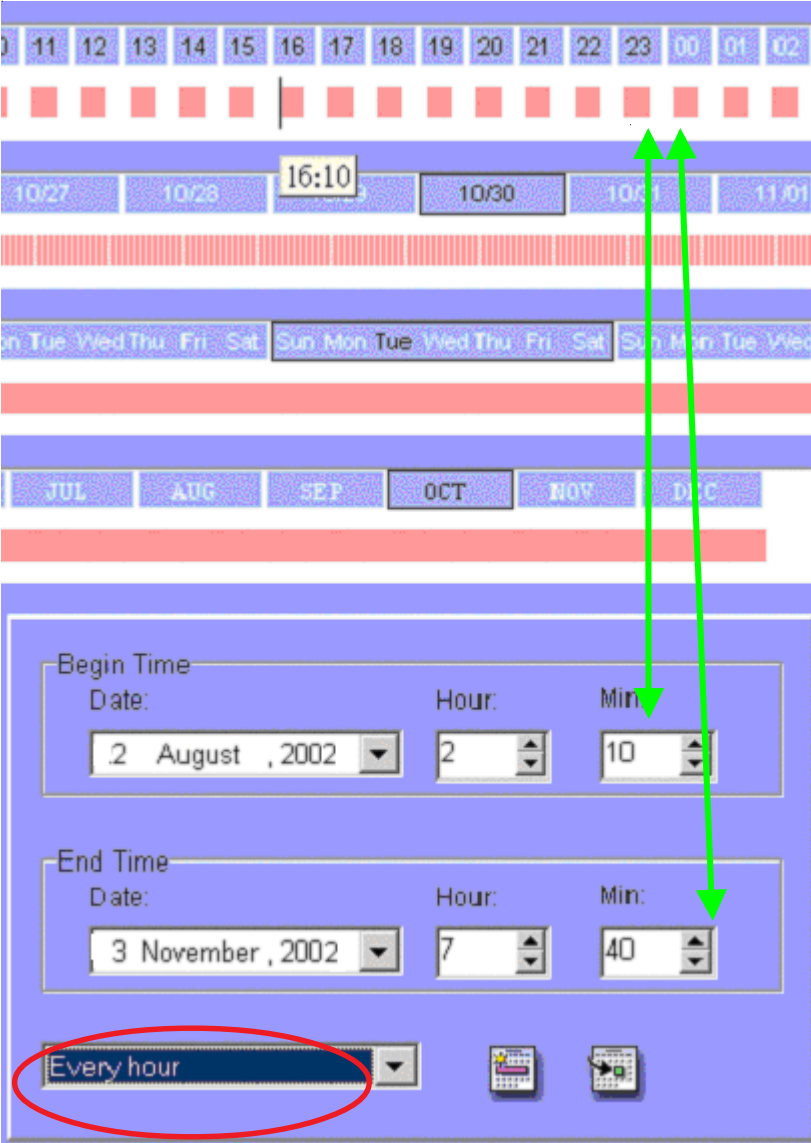
Begin Time
Date: October 30, 2002 Hour: 0 Min: 0

End Time
Date: October 30, 2002 Hour: 0 Min: 0

Once

Every hour:

If this option is selected, only the selection of minutes is valid. And within the whole year, every minute that meet the setting will be marked. The situation is shown below:



Every day:

If you select this option, only the selections of hour and minute is valid. The time that meets the selection will be marked within the year. The result shown below is an example:

The screenshot shows a multi-step date and time selection interface. At the top, there are rows for selecting the day of the month (01-13), the month (JUL-DEC), and the year (2002). Below these, there are rows for selecting the day of the week (Sun-Wed) and the time (Hour and Min). The 'Every day' option is selected in the bottom section, which is circled in red. The 'Begin Time' is set to 02:10 and the 'End Time' is set to 07:40. A green arrow points from the '02:10' time selection to the 'Hour' and 'Min' fields in the 'Begin Time' section. Another green arrow points from the '07:40' time selection to the 'Hour' and 'Min' fields in the 'End Time' section.

Day	Month	Year	Day of Week	Hour	Min
22	AUG	2002	Sun	2	10
23	AUG	2002	Mon	7	40
00	AUG	2002	Tue		
01	AUG	2002	Wed		
02	AUG	2002	Thu		
03	AUG	2002	Fri		
04	AUG	2002	Sat		
05	AUG	2002	Sun		
06	AUG	2002	Mon		
07	AUG	2002	Tue		
08	AUG	2002	Wed		
09	AUG	2002	Thu		
10	AUG	2002	Fri		
11	AUG	2002	Sat		
12	AUG	2002	Sun		
13	AUG	2002	Mon		

Begin Time
Date: 22 August , 2002 Hour: 2 Min: 10

End Time
Date: 3 November , 2002 Hour: 7 Min: 40

Every day

Every week

The functionality is similar to other options. The scheduler tool will check the dates for their day of week, and apply the time mark to every week within the year. Only the day of week, hour and minute are valid.

516171819202122230001020304050607

10/2810/2910/3010/3111/0111/02

WedThuFriSatSunMonTueWedThuFriSatSunMonTueWedThuFri

JULAUGSEPOCTNOVDEC

Begin Time

Date:

Hour:

Min:

22 August , 2002

2

10

End Time

Date:

Hour:

Min:

13 September, 2002

7

40

Every week

Every month

In this option, only the date (exclude the month and year), hour and minute are valid. Therefore, the result is as follows:

The screenshot shows a date and time selection interface. At the top, there are two rows of date boxes: the first row contains days 12 through 08, and the second row contains dates 10/22 through 10/28. Below these is a calendar grid with days of the week (Mon-Sun) and months (MAY-DEC). The 'OCT' month is highlighted. At the bottom, there are two sections for time selection: 'Begin Time' and 'End Time'. Each section has a 'Date' dropdown, 'Hour' and 'Min' spinners. The 'Begin Time' section shows '22 August, 2001', '2' for hours, and '10' for minutes. The 'End Time' section shows '27 September, 2001', '7' for hours, and '40' for minutes. A red circle highlights the 'Every Month' dropdown at the bottom. Green arrows indicate the following mappings: from the 'Date' field of 'Begin Time' to the 10/22 date box; from the 'Date' field of 'End Time' to the 27 September date box; from the 'Hour' field of 'Begin Time' to the 'OCT' month; and from the 'Min' field of 'Begin Time' to the 'OCT' month.

12 13 14 15 16 17 18 19 20 21 22 23 00 01 02 03 04 05 06 07 08

10/22 10/23 10/24 10/25 10/26 10/27 10/28

Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun Mon Tue Wed Thu Fri Sat Sun

MAY JUN JUL AUG SEP OCT NOV DEC

Begin Time
Date: 22 August, 2001 Hour: 2 Min: 10

End Time
Date: 27 September, 2001 Hour: 7 Min: 40

Refresh Close

Every Month

Playback Program

The **Playback** program is a powerful tool to assist you in browsing the recorded video database. It has two display modes (Normal display mode, Preview Mode) and three playback methods (Full Range, Time Period, Events Preview). The main tools it provides include:

Powerful play control tool:

- Play
- Stop
- Pause
- Step forward
- Fast play (from x1 to x16)
- Slow play (from /1 to /16)

Convenient display adjustment tool:

- Zoom in (from 1:1 to 2.25:1)
- Zoom out (from 1:1 to 1:2)
- Full screen

Flexible searching range adjustment tool:

- User input (from full range to 1 second)
- Zoom in (from full range to 10 seconds)
- Zoom out (up to full range)
- Page searching
- Full range

Various exporting tools:

- AVI file transducer
- BMP file snapshot
- Output to printer directly

Playback Program

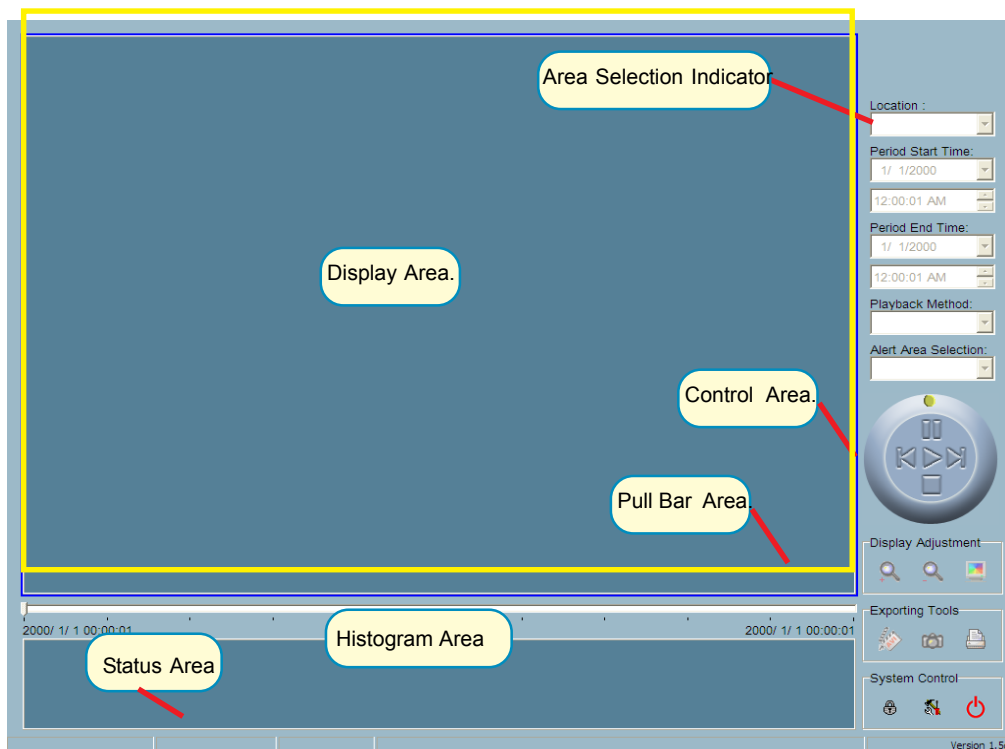
Installation of the Surveillance Software is detailed in an earlier section of this manual titled **Installation of the Surveillance Software** under the main section titled **Software Installation**.

Logging -in

Before you start the **Playback** software program, it is necessary to Log-in. For security reasons, only the root account can log-in to **Playback**. To change the password of the root account please refer to the section of this manual titled **Logging-In** in the main section **Using the Surveillance Software**.

Upon completion of the installation of the **Surveillance Software**, you can run the **Monitor** program from:

Start\ Program Files\D-Link\Surveillance System Software\Playback
or the directory you specified during the installation.



The main window will be shown on the top of the screen and the display resolution will change to 1024x768 automatically. There are four main areas in the the window: **Display area**, **Histogram area**, **Control area**, and **Status area**. There are also three controls the **Area selection indictor**, the **Frame selection indictor**, and the **Pull bar**. Explanatrions of the main Playback screen follow:

Display Area

The display area shows the surveillance database of each camera by events triggered by an alert or by time. You can change the video size through the **Display Adjustment Tool**, and the playback method through the **Play Control Tool**. Under the normal display mode you can double click on the frame area to change the frame size to a 1:1 or 2.25:1 ratio. In the Preview mode, double clicking on any frame area can change the display mode to normal and show a 10-second interval including the event you selected.

Histogram Area

The histogram is an interactive control. Not only you can get the event's location in terms of time, but you can select a group of events or period from the event histogram area and show it on the display area.

Control Area

The control area contains almost all the control selectors and toolboxes you need to browse the database (except the page control). The **Page Control Tool** is located on the right-bottom corner of the display area when the program is operating in the preview mode. These control tools include location selector, period selector, playback method selector, jog dial, display adjustment tool, exporting tool, and system control tool.

Status Area

The **Status Area** is located at the bottom of the main window. It tells you about the program status including display mode, display size, display speed, exporting file format, and exporting file name.

Area Selection Indicator

In the main **Playback** screen on shown above the display area has been highlighted with a yellow rectangle. This rectangle is the area selection indicator. This indicator can be set to either **Display Area** or **Histogram Area**, by moving your mouse cursor to the Area you want to select. When you select the **Display Area**, the **Display Adjustment Tool** will appear in the control area, and if you select the **Histogram Area**, the **Display Adjustment Tool** will disappear and the **Searching Range Adjustment Tool** will be shown in the control area.

Frame Selection Indicator

The frame selection indicator only appears when you change the display mode to **Preview Mode**. It appears as a red rectangle surrounding one of the nine **Event Preview Frames**. Once you select one of these frames, you can control its play status through the jog dial in the control area.

Pull Bar

The **Pull Bar** is a fast, flexible control for seeking data in the selected time period. It represents the total length of time in that period. You can click or pull the indicator on the pull bar to the point you want to see. And the current displaying video will halt and start to play the video sequence from the point you choose. If the video sequence has been paused, the display area will show the point you select without playing. The **Pull Bar** will only function under the normal display mode.

Settings

After the main window is shown on the screen, you must modify the settings to make it work properly. Click on the “**Settings**” button in the system control tool, and the dialog box appears on the screen as shown below:

Settings

Select a database path: C:

Select AVI file location: C:

Select bitmap file location: C:

Bitmap color depth: 16

Alert Window Settings

☐ Show Window 0 ☐ Show Window 1 ☐ Show Window 2

Modulation Mode

☐ PAL ☒ NTSC

Control Panel Position

☐ Left ☒ Right

Explanations of the **Settings** screen follow:

Database path

The most important item in the settings dialog is the database path setting. You must set it to the directory that contains the surveillance database to make the program work properly.

AVI file location

It sets the storing directory when you export AVI files. The exported AVI files will be stored in the sub-directory under the directory you set here with the name of the location you select.

Bitmap file location

It sets the directory to use the for snapshots when exported as bitmap files. These exported bitmap files will be stored in the sub-directory under the directory you set here with the name of the location you select.

Bitmap color depth

This setting changes the color depth of the exporting bitmap file. It is suggested to use more than 16 bits color depth for the best picture quality.

AVI compression mode

Unlike the exporting of bitmap files, only 16 bits of color depth are used to export the AVI file. During the AVI compression mode selection, you can select one of the compression methods that your computer supports to export the AVI file.

Alert window settings

There are three alert windows you can activate during using the monitor program. In the playback program, you can choose whether these alert windows will be shown or not. If you check one window, then you will see that rectangle in green or red color shown in the displaying video sequence.

Modulation mode

The modulation mode should not be changed with knowledge of the various modes. The quality of the video depends on how you recorded the video sequence in the monitor program. If you select the wrong mode, the video shown in the display area will become deformed. If you choose the wrong modulation mode, you may open the settings dialog again, change to the correct mode, and restart the playback program, It should then display properly.

Control panel position

The Control panel provides you a very convenient method to change the position of the control area to fit your needs.

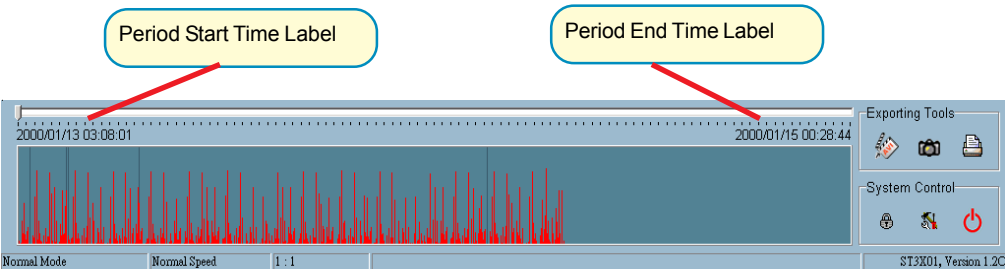
Once you change the setting of modulation or control panel position, you have to restart the program to for these changes to take effect. If you set the database path correctly, the video sequence will start displaying in the normal display mode when you click on the “Ok” button.

Normal (Single Frame) Mode

You can enter the **Normal Mode** when you:

- Change the database path in the settings dialog
- Change the location selector to another location
- Change the playback method selector to “Full Range”
- Change the playback method selector to “Time Period”
- Double click on one of the nine frames in the display area under the preview mode.

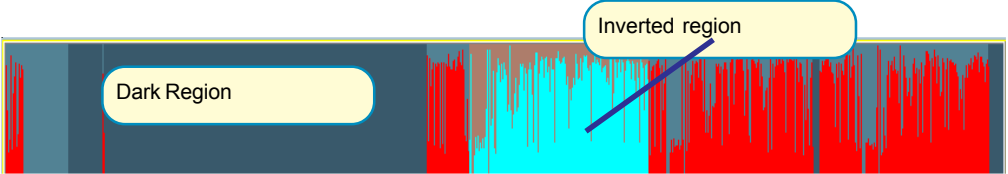
Under the single frame mode, you can use all the tools the playback program provided except the **Page Control**. In this mode, the two labels under the pull bar show the start and end time of the period individually as shown below:



Histogram Area

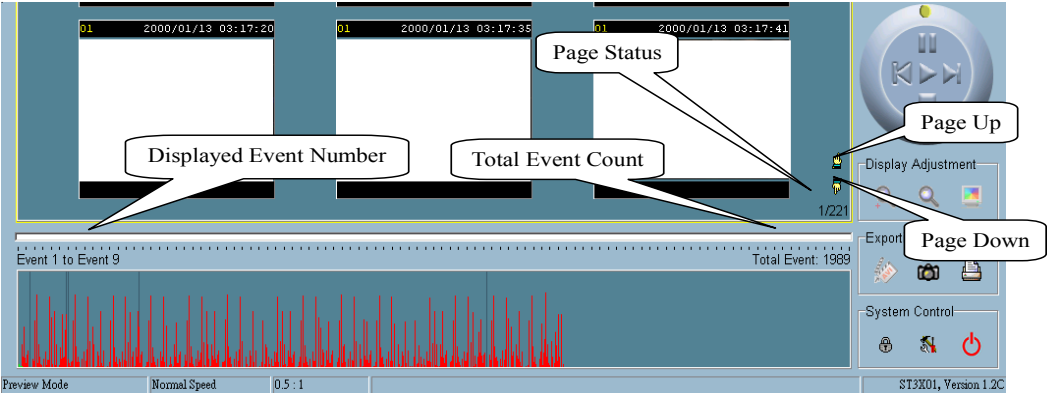
The **Histogram Area** in the single frame mode only shows the event's occurred time and the percentage of motion detection with red bars. If you want to access the **Histogram Area**, you must change the **Area Selection Indicator** to the **Histogram Area**. You can select a color-inverted region by dragging your mouse with the left button pressed. When you release the left button, the color-inverted region will be enlarged to the whole histogram area.

This color-inverted region will be the new time period the program is going to display. If you change your mind and don't want to see that period, you can cancel it by just pressing the right button of your mouse with the left button still pressed. If you click on the left button without dragging it, the action will be the same as clicking on the **Pull Bar** in the same x-axis position. The dark regions mean there is no video data in that interval. If you click on those regions, nothing will happen except a warning message.



Preview (Multiple Frame) Mode

You can enter the preview mode only when you change the playback method selector to “**Events Preview**”. It can help you to identify the objects triggering the events via not only the time information and the alert percentage, but also the real video preview playing. With it, you can easily tell the different Alert situations. Under the **Preview Mode**, the **Pull Bar**, **Transducer button** in **Exporting Toolbox**, and the **Display Adjustment Toolbox** are all disabled. The two labels under the pull bar show the displayed event number and the total event count individually. There are nine frames in the display area that we call it one page. And each frame displays a 10-second interval video sequence with 1/2 slow speed that contains different events. You can use the “Page Up” and “Page Down” button in the page control to browse the events in the selected period with nine events per page. And the page status tells you the current page number and total page count as shown below:



Histogram Area

The **Histogram Area** in the **Preview Mode** not only shows the events' occurred time and value with red bars, but also tells you the current displayed events with green bars and the selected event with blue bar. If you want to access the histogram area, you must change the **Area Selection Indicator** to the **Histogram Area**. You can select a color-inverted region by dragging your mouse with the left button pressed.

When you release the left button, the color-inverted region will be enlarged to the whole **Histogram Area**. This color-inverted region will be the new period the program is going to display. If you change your mind and don't want to see that period, you can cancel it by just pressing the right button of your mouse with the left button still pressed. If you click on the left button without dragging it, the display area will show the event page closest to the point you select. The dark region means there is no video sequence existed in that interval. If you click on those regions, nothing will happen except a warning dialog.

Using Tools in Playback

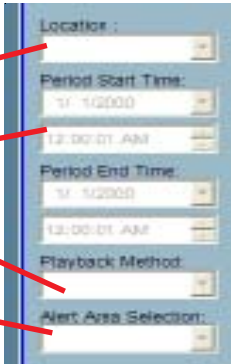
Selector tools:

Location selector

Period selector

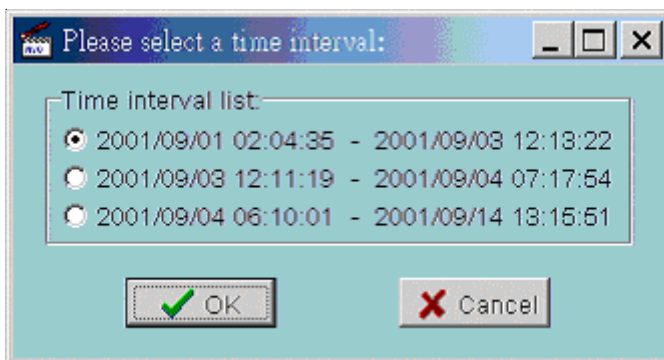
Playback method selector

Alert area selector.



Location Selector

The location selector is a control that lets you select the camera you want to see. The location information is the same as the location when you specify in the monitor program (see **Global Settings** in the **Monitor** program section). If there is more than one database in the same location, another dialog will appear (see below). You must select an interval in that dialog. If your selection is correct, the playback program will automatically switch to that camera and start displaying.



Period Selector

Period selector provides you a precise way to choose the start time and the end time of a new period. The end time should be larger than the start time. After you give the correct start and end time, clicking on the “Play” button in the jog dial will play the new period in the Display Area, change the period start and end time label, the Pull Bar and Histogram Area will change, too. If the selected period is not present in the database, the data in the period selector will change to the previous correct start and end time and a warning message will be displayed.

Playback Method Selector

Full Range

If you select this method, the database will be displayed from the beginning to the end of this location. Any change in the period selector will take no effect unless you change this selector to “**Time Period**”.

Time Period

If you change the playback method to “Time Period”, you can modify the start and end time in the period selector. When you click on the “Play” button in the jog dial, the period you select will be displayed.

Events Preview

This method will change the display mode from the normal display mode to the preview mode.

Since the program will record the previous start and end time in “Time Period” and “Events Preview” mode. Any time you want to change the period selector to see another period, you must change the **Playback Method Selector** to the mode you want to use first. Otherwise, the Period Selector will back to the previous data when you change the **Playback Method Selector**.

Alert Area Selector

In the Preview Mode, the **Playback** program only can show the total events information of one alert window each time. If you want to see the events of the other two alert area windows, you must change the alert area selector to other numbers. In the normal display mode, the alert window that the alert area selector indicates will be highlighted with red rectangle if you checked that window in the settings dialog. The alert area selector will be changed to alert window zero, when you change the location selector to another one.

Play Control



For the play control, a jog dial is used to provide the easiest way to control the displaying video sequence. Except the “Play” button, all other buttons can control the displaying frame in the normal display mode and the selected displaying frame in the preview mode.

Play

The “Play” button is an intelligent play interface. The function of this button can vary to fit with different circumstance. In the normal display mode, click on the “Play” button can restart the displaying video sequence. When in the preview mode, if you don’t change the data of period selector, clicking on this button only restarts the selected displaying frame. If the data of the period selector has been changed, clicking on the “Play” button will restart all frames to display the first nine events in the new period.

Stop

When you want to stop the displaying video sequence, you can click on the “Stop” button. Once you had pressed the “Stop” button, the start point will be reset to the start of the present period.

Pause

The “Pause” button provides you a way to pause the displaying video sequence. When the displaying video is paused, click on the “Pause” button again will continue the video to display.

Step Forward

This button is only valid when the displaying video sequence is paused. It will display the next frame in that period when you click on the “Step Forward” button one time.

Fast Play and Slow Play

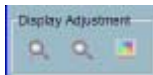
We support maximum to 16X fast forward play and slow forward play. This function helps you browse the surveillance database more flexible. If you want to change the playing speed, you just need to move the speed indicator. To increase playing speed, move the indicator in the clockwise direction. And to decrease playing speed, move it in the counterclockwise direction. The current speed you set will be shown in the second column of status area.

Display Adjustment Toolbox

Using the **Display Adjustment Toolbox**, you can change the displaying video sequence to the size you want to see in the normal display mode when you move the area selection indicator to the display area. Below is the **Display Adjustment Toolbox** and its own three elements, i.e. “Zoom In”, “Zoom Out”, and “Full Screen”.



Zoom In



When you click on the “Zoom In” button one time, the image size in the display area will be magnified 12.5 percent to the original size. Due to the limitation of the display area size, the maximum zoom in ratio we support here is only 2.25:1 for NTSC modulation mode and 1.875:1 for PAL modulation mode. If you want to see the image in more details, you can use the full screen function we support in the same toolbox.



Zoom Out

When you click on the “Zoom Out” button one time, the image size in the display area will be minified 12.5 percent to the original size. To show the location and time information completely, the minimum zoom out ratio is limited in 0.5:1.



Full Screen

When you click on the **Full Screen** button, the video sequence will be enlarged to fill the whole screen. You can double click on any place to return to the original state. When you switch to full screen display, you can press the “**Alt**” and “**Space**” keys together to pop the jog dial to control the displaying video sequence. Press the same keys again will close the jog dial. You can also press the “**Alt**” and “**Enter**” keys together to switch between the normal display and full screen display at any time when the program is under the normal display mode.

Searching Range Adjustment Toolbox

The **Searching Range Adjustment Toolbox** provides you a faster way to change the range of the displayed time period. By using this toolbox, you can browse the database of one location from any 10-second interval over its entire range. Below is the **Searching Range Adjustment Toolbox** with its own three elements: “Zoom In”, “Zoom Out”, and “Full Range”.



Zoom In



Each time you click on the “Zoom In” button in the searching range adjustment toolbox, the displayed time period will be half in the center of the original time period until the period is equal to 10 seconds. You can see the new interval in more details. The scale of pull bar and alert histogram window changes and the period start and end time change, too. The period selector will show the new start and end time. And the display area will restart to display the new period from the new start time.



Zoom Out

Each time you click on the “Zoom Out” button in the searching range adjustment toolbox, the displayed time period will be double in the center of the original time period unless the start time or end time exceed the database boundary. The scale of pull bar and alert histogram window changes and the period start and end time change, too. The period selector will show the new start and end time. And the display area will restart to display the new period from the new start time.



Full Range

As you click on the “Full Range” button, you will get the same functionality as if you changed the **Playback Method Selector** to “Full Range”.

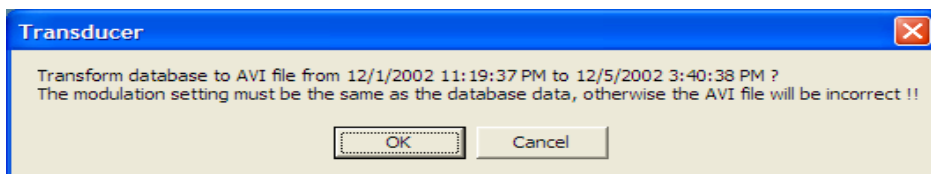
Exporting Toolbox

You can check the database through the the **Playback program** and also export the database to other media. Using the **Exporting Toolbox**, you can export the database to other more portable formats, such as AVI file, bitmap file or paper. Then you may use windows media player or other program to browse the exporting data. Under the normal display mode, you can use all the exporting tools. And under the preview mode, only snapshot and print can be used. shows the three elements of the **Exporting Toolbox**: “Transducer”, “Snapshot”, and “Print”.



Transducer

Using the **Transducer** tool, you can convert the displayed video sequence to the an AVI format file. Just click on the “**Transducer**” button and a dialog box appears (shown below) asking to confirm transforming a database into an AVI file. When you click on the “Ok” button, the conversion procedure will be started.



The time required to Export data depends on the speed of the computer and processor that you are using. At any time during the export, you can click on the “Stop” button in the jog dial to stop the procedure. Then you will get an AVI file from the start time to the time you clicked the “Stop” button. The exported AVI filename will be generated automatically and will be listed in the fourth column of the status area. If you want to change the output directory, you can go to the **Settings Window** (See Page 75). To increase the quality of an exported AVI file, it is suggested to set the video format to normal size, please refer to the **Camera Configurations** section (see Page 45).



Snapshot

When you click on the “Snapshot” button one time, the program will export a bitmap. In the normal display mode, the exporting bitmap is the image shown in the display area. And in the **Preview Mode**, it is the image that you selected through the **Frame Selection Indicator**. The size of the bitmap will be the same as that of the image you select. The exported bitmap filename will be generated automatically and listed in the fourth column of the status area. If you want to change the output directory, you can go to the **Settings** window.

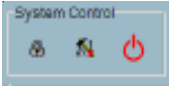


Print

When you click on the “Print” button, a dialog box will appear. After you make your selection and send to the printer, the images on the Display Area will be printed out.

System Control Toolbox

The System Control Toolbox provides basic operations for the playback program. The three elements of the system control toolbox: “Lock Window”, “Settings”, and “Exit”.



Lock Window

If you want to leave your computer, we suggest either closing the **Playback** program, or you can click on the “**Lock Window**” button to lock the main window. Once you click this button, the main window will be hidden and the login dialog will appear. To return to the main window, you need to enter the admin root password again.



Settings

The settings dialog will pop up when you click the “Settings” button. For more information about setting this program see the **Settings** section above.



Exit

The playback program will terminate when you click on the “Exit” button. If the AVI exporting procedure is running, this procedure will be stopped first.

Appendix

Frequently Asked Questions

Internet Camera Features

Q: What is an Internet Camera?

A: The Internet Camera is a standalone system connecting directly to an Ethernet or Fast Ethernet network. It differs from a conventional PC Camera, the Internet Camera is an all-in-one system with built-in CPU and web-based solutions providing a low cost solution that can transmit high quality video images for monitoring. The Internet Camera can be managed remotely, accessed and controlled from any PC/Notebook over an Intranet or the Internet from a web browser.

Q: What is the maximum number of users that can be allowed to access DCS-2000 simultaneously?

A: The maximum number of users that can log onto the Internet Camera at the same time is 10. Please keep in mind the overall performance of the transmission speed will slow down when many users are logged on.

Q: What algorithm is used to compress the digital image?

A: The Internet Camera utilizes H.263+ MPEG4 Short Header Mode image compression technology providing high quality images. MPEG is a standard for image compression and can be applied to various web browser and application software without the need to install extra software.

Q: Can I capture still images from the Internet Camera?

A: Yes you are able to capture still images with the snapshot function from the software application CD supplied with the Internet Camera.

Internet Camera Installation

Q: Can the Internet Camera be used outdoors?

A: The Internet Camera is not weatherproof. It needs to be equipped with a weatherproof case to be used outdoors and it is not recommended.

Q: What network cabling is required for the Internet Camera?

A: The Internet Camera uses Category 5 UTP cable allowing 10 Base-T and 100 Base-T networking.

Q: Can the Internet Camera be setup as a PC-cam on the computer?

A: No, the Internet Camera is used only on an Ethernet or Fast Ethernet network. The D-Link DSB-C100, DSB-C300, DSC-350 or DSC-350F can be used as a PC Camera (Webcam).

Q: Can the Internet Camera be connected on the network if it consists of only private IP addresses?

A: The Internet Camera can be connected to a LAN with private IP addresses.

Q: Can the Internet Camera be installed and work if a firewall exists on the network?

A: If a firewall exists on the network, port 80 is open for ordinary data communication. However, since the Internet Camera transmits image data, the default port 8481 is also required. Therefore, it is necessary to open port 8481 of the network for remote users to access the Internet Camera.

Troubleshooting

Q: I cannot access the Internet Camera from a web browser?

A1: The possible cause might be the IP Address for the Internet Camera is already being used by another device. To correct the possible problem, you need to first disconnect the Internet Camera from the network. Then run the PING utility (follow the instructions in the **Appendix - How to Ping Your IP Address.**)

In Windows 95/98/2000 and Windows NT, check that the IP Address of the Internet Camera is within the same subnet as your workstation.

§ Click **Start, Setting, Control Panel**, and the **Network** icon.

§ Select TCP/IP from the **Network** dialog box and from the **TCP/IP Properties** dialog box click on **Specify an IP address**.

§ If the Internet Camera is situated on a different subnet than your workstation, you will not be able to set the IP address from this workstation. To verify make sure the first 3 sections of the IP address of the Internet Camera corresponds to the first 3 sections of the workstation. Therefore the IP address of the Internet Camera must be set from a workstation on the same subnet.

A2: Other possible problems might be due to the network cable. Try replacing your network cable. Test the network interface of the product by connecting a local computer to the unit, utilizing a standard Crossover (hub to hub) Cable. If the problem is not solved the Internet Camera might be faulty.

Q: Why does the Power LED not light up constantly?

A1: The power supply used might be at fault. Confirm that you are using the provided power supply, which is DC 12V, for the Internet Camera and verify that the power supply is well connected.

A2: Another possible reason is the IP Address is located on a different subnet. To fix the problem, run the PING utility (follow the instructions in the **Appendix How to PING Your IP Address**). If the utility returns “no response” or a similar message, the finding is probably correct and you need to resolve this issue with a system administrator.

Q: Why does the Internet Camera work locally but not externally?

A1: Might be caused from the firewall protection. Check the Internet firewall with your system administrator. The firewall may need to have some settings changed in order for the Internet Camera to be accessible outside your local LAN.

A2: Make sure that the Internet Camera isn’t conflicting with any web server you may have running on your network.

A3: The default router setting might be a possible reason. Check that the configuration of the router settings allow the Internet Camera to be accessed outside your local LAN.

Q: Why does a series of broad vertical white line appear through out the image?

A: It could be that the CMOS sensor has become overloaded when it has been exposed to bright lights such as direct exposure to sunlight or halogen lights. Reposition the Internet Camera into a more shaded area immediately as prolonged exposure to bright lights will damage the CMOS sensor.

Q: The focus on the Internet Camera is bad, how can I correct it?

A1: Adjust the Internet Camera focus manually as described in “Adjusting the Internet Camera Focus” in the Appendix section of this manual.

A2: If you have previously changed the supplied CS-type lens, you may have unintentionally installed a C-type lens without fitting the adaptor first.

Q: Noisy images occur. How can I solve the problem?

A1: The video images might be noisy if the Internet Camera is used in a very low light environment. To solve this issue you need more lighting.

Q: The images is of poor quality, how can I improve the image quality?

A1: Make sure that your computers display properties are set to at least 15-bit color. Using 16 or 256 colors on your computer will produce dithering artifacts in the image, making the image look as if it has bad quality.

A2: The configuration on the Internet Camera image display is incorrect. Through the Configuration section of the web management you need to adjust the image related parameter for improve images such as brightness, contrast, hue and light frequency. Please refer to the Configuration section for detail information.

How to PING Your IP Address

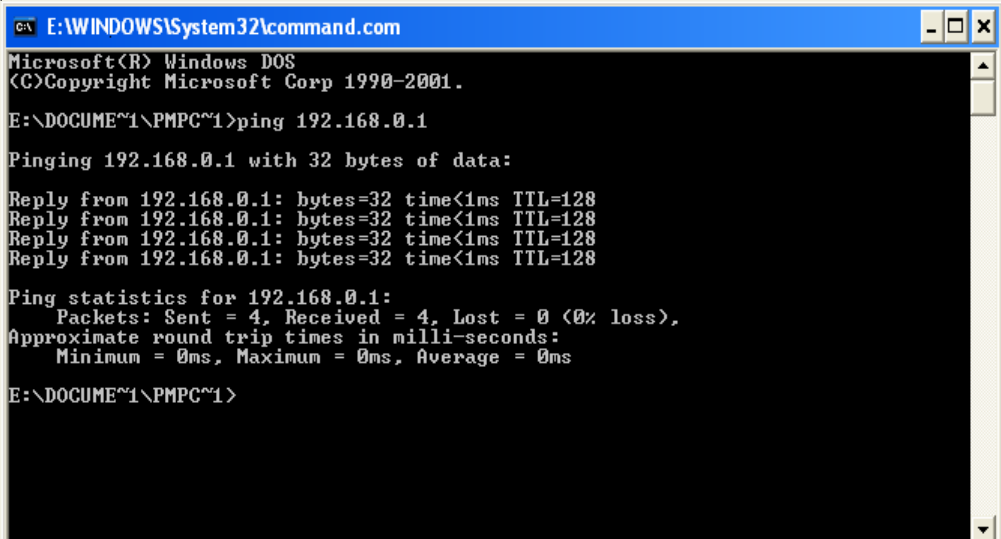
The PING (Packet Internet Groper) command can determine whether a specific IP address is accessible by sending a packet to the specific address and waiting for a reply. It can also provide a very useful tool to confirm if the IP address conflicts with Internet Camera over the network.

Follow the step-by-step procedure below to utilize the PING command but first you must disconnect Internet Camera from the network.

Start a DOS window.

Type ping x.x.x.x, where x.x.x.x is the IP address of the Internet Camera.

The replies, as illustrated below, will provide an explanation to the prob

A screenshot of a Windows DOS command window. The title bar shows the path 'E:\WINDOWS\System32\command.com'. The window content displays the output of a ping command. It starts with the Microsoft Windows DOS copyright notice. The user enters 'ping 192.168.0.1'. The response shows four successful replies, each with 32 bytes, time less than 1ms, and TTL of 128. Ping statistics for 192.168.0.1 are shown at the bottom, indicating 4 packets sent, 4 received, 0% loss, and 0ms round trip times. The prompt 'E:\DOCUMENTS\PMPC~1>' is visible at the bottom.

```
C:\ E:\WINDOWS\System32\command.com
Microsoft(R) Windows DOS
(C)Copyright Microsoft Corp 1990-2001.

E:\DOCUME~1\PMPC~1>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

E:\DOCUME~1\PMPC~1>
```

Reset and Restore

There is a button hidden in the pinhole beside the Ethernet socket. It is used to reset the system or restore the factory default settings. Sometimes resetting the system can make the system back to normal state. If the system still has problems after reset, restore the factory settings and install again:

RESET: Poke a paperclip or a small tool to click on the button.

RESTORE:

1. Poke the tool to press on the button continuously.
2. Wait for self-diagnostic to run twice.
3. Withdraw the wrench as soon as the second self-diagnostic starts.



Restoring the factory defaults will result in the loss of any previous settings. Reset or restore the system after power on.

I/O Connector

I/O Connector Definition for the Internet Camera

The DCS-2000 provides a general I/O terminal block with one digital input and one relay switch for device control. Pin 1 and pin 2 can be connected to an external sensor and the state of voltage will be monitored from the initial state 'LOW'. The relay switch of pin 3 and pin 4 can be used to turn on or off the external device.

The I/O connector provides the physical interface for digital output (DO) and digital input (DI) that is used for connecting a diversity of external alarm devices to the Internet Camera such as IR-Sensors and alarm relays.

The digital input is used for connecting external alarm devices and once triggered images will be taken and e-mailed.

I/O Terminal Block:



1	DI+	INPUT (Max. 50mA, 12VDC)
2	DI-	INPUT (Initial state of DI is low)
3	SW_COMMON	OUTPUT (open from SW_OPEN at initial state) (close with SW_OPEN when set DO to ON)
4	SW_NOPEN	OUTPUT (Max. 1A, 24VDC or 0.5A, 125VAC)

Time Zone Table

GMT stands for Greenwich Mean Time, which is the global time that all time zones are measured from.

(GMT-12:00) International Date Line West
(GMT-11:00) Midway Island, Samoa
(GMT-10:00) Hawaii
(GMT-09:00) Alaska
(GMT-08:00) Pacific Time (US & Canada); Tijuana
(GMT-07:00) Arizona
(GMT-07:00) Chihuahua, La Paz, Mazatlan
(GMT-07:00) Mountain Time (US & Canada)
(GMT-06:00) Central America
(GMT-06:00) Central Time (US & Canada)
(GMT-06:00) Guadalajara, Mexico City, Monterrey
(GMT-06:00) Saskatchewan
(GMT-05:00) Bogota, Lima, Quito
(GMT-05:00) Eastern Time (US & Canada)
(GMT-05:00) Indiana (East)
(GMT-04:00) Atlantic Time (Canada)
(GMT-04:00) Caracas, La Paz
(GMT-04:00) Santiago
(GMT-03:30) Newfoundland
(GMT-03:00) Brasilia
(GMT-03:00) Buenos Aires, Georgetown
(GMT-03:00) Greenland
(GMT-02:00) Mid-Atlantic
(GMT-01:00) Azores
(GMT-01:00) Cape Verde Is.
(GMT) Casablanca, Monrovia
(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
(GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(GMT+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
(GMT+01:00) Brussels, Copenhagen, Madrid, Paris
(GMT+01:00) Sarajevo, Skopje, Warsaw, Zagreb
(GMT+01:00) West Central Africa
(GMT+02:00) Athens, Istanbul, Minsk
(GMT+02:00) Bucharest
(GMT+02:00) Cairo
(GMT+02:00) Harare, Pretoria
(GMT+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius
(GMT+02:00) Jerusalem
(GMT+03:00) Baghdad
(GMT+03:00) Kuwait, Riyadh
(GMT+03:00) Moscow, St. Petersburg, Volgograd
(GMT+03:00) Nairobi

(GMT+03:30) Tehran
(GMT+04:00) Abu Dhabi, Muscat
(GMT+04:00) Baku, Tbilisi, Yerevan
(GMT+04:30) Kabul
(GMT+05:00) Ekaterinburg
(GMT+05:00) Islamabad, Karachi, Tashkent
(GMT+05:30) Chennai, Kolkata, Mumbai, New Delhi
(GMT+05:45) Kathmandu
(GMT+06:00) Almaty, Novosibirsk
(GMT+06:00) Astana, Dhaka
(GMT+06:00) Sri Jayawardenepura
(GMT+06:30) Rangoon
(GMT+07:00) Bangkok, Hanoi, Jakarta
(GMT+07:00) Krasnoyarsk
(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi
(GMT+08:00) Irkutsk, Ulaan Bataar
(GMT+08:00) Kuala Lumpur, Singapore
(GMT+08:00) Perth
(GMT+08:00) Taipei
(GMT+09:00) Osaka, Sapporo, Tokyo
(GMT+09:00) Seoul
(GMT+09:00) Yakutsk
(GMT+09:30) Adelaide
(GMT+09:30) Darwin
(GMT+10:00) Brisbane
(GMT+10:00) Canberra, Melbourne, Sydney
(GMT+10:00) Guam, Port Moresby
(GMT+10:00) Hobart
(GMT+10:00) Vladivostok
(GMT+11:00) Magadan, Solomon Is., New Caledonia
(GMT+12:00) Auckland, Wellington
(GMT+12:00) Fiji, Kamchatka, Marshall Is.
(GMT+13:00) Nuku'alofa

Adjusting the Cameras Focus

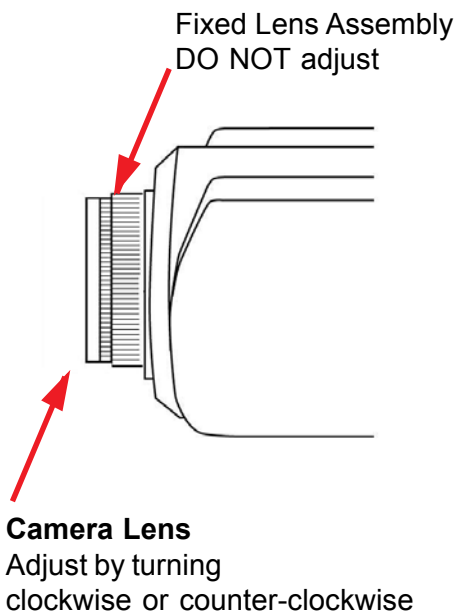


The DCS-2000 Internet Camera features an interchangeable C/CS-type lens that can be used for different applications as necessary. It supports rotational focus control so the lens can be adjusted to focus under normal and stable conditions to maximize the image quality of the Internet Camera.

To adjust the focus of the lens you will need to turn the lens slowly either clockwise or counter-clockwise until the desired image appears. DO NOT over-turn the lens in either direction as it will be out of focus. Unless you want to substitute the lens DO NOT unscrew more than 1.0mm apart from the Fixed Lens Assembly.

To help you get the best image quality, keep in mind that while adjusting the DCS-2000's focus you can preview the image quality from your Web browser.

Please refer to the diagram below when adjusting the camera lens.



Note:

You can further adjust the Internet Camera's image quality through the Web Configuration under **Configuration > Advanced > Video**. Please refer to **Using the DCS-2000** section for further details.



Warning

Direct exposure to sunlight may cause permanent damage to the CMOS sensor. Therefore do not expose the Internet Camera's lens directly to sunlight. When operation is required in glaring light environment, it is recommended to use an iris lens.

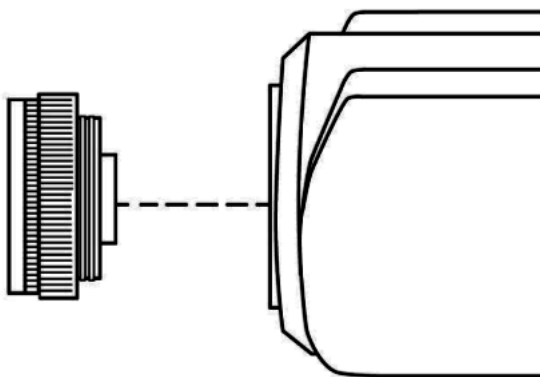
The Internet Camera is designed for indoor usage and if your application requires prolonged exposure to sunlight, a sun visor is recommended to protect the Internet Camera.

Replacing the Lens

Since the Internet Camera is designed with a CS- mount, the lens equipped with the Internet Camera can be replaced with any standard C or CS lens commonly used within the surveillance industry.

Follow the instructions below to replace the supplied lens with any C or CS type lens.

1. Unscrew the Internet Camera lens
2. When using a C-lens, attach the new lens to a CS-C adapter
3. Screw the new lens onto the Internet Camera. If appropriate, adjust the iris according to the prevailing light conditions.
4. Refer to *Adjusting the Internet Camera Focus* on the previous page.
5. Refresh the web browser and monitor the results from the Internet Camera.



Technical Specifications

Remote management

Configuration and system log can be accessed via Web browser and FTP application remotely

Networking

Protocol

TCP/IP, HTTP, SMTP, FTP, Telnet, NTP, DNS and DHCP

Ethernet

10BaseT or 100BaseT Fast Ethernet

Video

Algorithm supported

H.263+ (MPEG-4 Short header mode)

Features

Three adjustable image size and quality Intelligent motion detection windows with flexible bit rate

Audio

24Kbps

Video resolution

Up to 30 fps at 160x120

Up to 30 fps at 320x240

General I/O

1 opto-isolated sensor input(max. 12VDC 50mA)

1 relay output(max. 24VDC 1A, 125VAC 0.5A)

Security

Administrator and user group protected

Password authentication

Technical Specifications (continued)

LED indicator

Bi-color status indicator

Camera specification

1/3 inch color CMOS sensor

640x480

2.5Lux/F1.4

AGC/AWB

Electronic shutter: 1/60 ~ 1/15000 second

Standard CS mount type lens, 6mm, F1.8

Power

12VDC 1.2A, external power supply

Weight

About 240g

Dimension

135mm(L)x89mm(W)x57mm(H)

Viewing system requirement

Protocol

Standard Internet TCP/IP suite

Operating system

Microsoft Windows XP, 2000, ME or 98SE

Browser

Internet Explorer 5.x or above

Contacting Technical Support

You can find the most recent software and user documentation on the D-Link website.

D-Link provides free technical support for customers within the United States for the duration of the warranty period on this product.

U.S. customers can contact D-Link technical support through our web site, or by phone.

D-Link Technical Support over the Telephone:

(877) 453-5465

24 hours a day, seven days a week.

D-Link Technical Support over the Internet:

<http://support.dlink.com>

When contacting technical support, please provide the following information:

- *Serial number of the unit*
- *Model number or product name*
- *Software type and version number*

Warranty and Registration

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited warranty for its product only to the person or entity that originally purchased the product from:

- D-Link or its authorized reseller or distributor and
- Products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, addresses with an APO or FPO.

Limited Warranty: D-Link warrants that the hardware portion of the D-Link products described below will be free from material defects in workmanship and materials from the date of original retail purchase of the product, for the period set forth below applicable to the product type ("Warranty Period"), except as otherwise stated herein.

1-Year Limited Warranty for the Product(s) is defined as follows:

- Hardware (excluding power supplies and fans) One (1) Year
- Power Supplies and Fans One (1) Year
- Spare parts and spare kits Ninety (90) days

D-Link's sole obligation shall be to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund at D-Link's sole discretion. Such repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement Hardware need not be new or have an identical make, model or part. D-Link may in its sole discretion replace the defective Hardware (or any part thereof) with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement Hardware will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. If a material defect is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to repair or replace the defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware (or part thereof) that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty: D-Link warrants that the software portion of the product ("Software") will substantially conform to D-Link's then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days ("Warranty Period"), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. D-Link's sole obligation shall be to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link's functional specifications for the Software or to refund at D-Link's sole discretion. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Software will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty: The Limited Warranty provided hereunder for hardware and software of D-Link's products, will not be applied to and does not cover any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold "As-Is" without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim: Any claim under this limited warranty must be submitted in writing before the end of the Warranty Period to an Authorized D-Link Service Office.

- The customer must submit as part of the claim (a written description of the Hardware defect or Software nonconformance) in sufficient detail to allow D-Link to confirm the same.
- The original product owner must obtain a Return Material Authorization ("RMA") number from the Authorized D-Link Service Office and, if requested, provide written proof of purchase of the product (such as a copy of the dated purchase invoice for the product) before the warranty service is provided.

- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the Product and will not ship back any accessories.

- The customer is responsible for all shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products should be fully insured by the customer and shipped to **D-Link Systems, Inc., 53 Discovery Drive, Irvine, CA 92618**. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped via UPS Ground or any common carrier selected by D-Link, with shipping charges prepaid. Expedited shipping is available if shipping charges are prepaid by the customer.

D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered: This limited warranty provided by D-Link does not cover: Products, if in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product. Repair by anyone other than D-Link or an Authorized D-Link Service Office will void this Warranty.

Disclaimer of Other Warranties: EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO NINETY (90) DAYS. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability: TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NON-CONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY

Governing Law: This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This limited warranty provides specific legal rights and the product owner may also have other rights which vary from state to state.

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CE Mark Warning: This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of about eight inches (20cm) between the radiator and your body.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Register online your D-Link product at <http://support.dlink.com/register/>