ADMINISTRATION GUIDE | CONFIDENTIAL

SAP Financial Consolidation

Document Version: 10.1 Support Package 08 – 2020-01-15

SAP Financial Consolidation Administrator's Guide

THE BEST RUN SAP

Content

1 Typographic Conventions

Type Style	Represents
Bold	Names of windows, dialog boxes, menus, menu commands and buttons
> Command menu	Menu command
Code	Command line
Code on gray background	All or part of a configuration file to be checked or changed
Numbered list	Procedure or series of steps to be performed
< >	Value to be set
_	Compulsory space between settings
" "	To be inserted if spaces are used in a setting
[ ]	Optional setting

2 Document History

The following table provides an overview of the most important document changes.

> **i** Note
>
> To find out more about the new features of SAP BusinessObjects Financial Consolidation 10.1, see https://help.sap.com/viewer/p/SAP_BUSINESSOBJECTS_FINANCIAL_CONSOLIDATION.

Version	Date	Description
SAP Financial Consolidation 10.1 SP05	June, 2017	New chapter: Interoperability with SAP S/4HANA [page 52]
SAP Financial Consolidation 10.1 SP05	June, 2017	Update of: Migrating from Financial Consolidation Multi-Table Mode to SAP HANA Single-Table Mode [page 50]
SAP Financial Consolidation 10.1 SP05	June, 2017	Update of: Configuring SAP Financial Consolidation Web HTML5 Site Advanced Settings [page 81] and Configuring SAP Financial Consolidation Web Site Advanced Settings [page 71]
SAP Financial Consolidation 10.1 SP06	November, 2017	New parameter in the the configuration file of the legacy Financial Consolidation web site: Configuring SAP Financial Consolidation Web Site Advanced Settings [page 71]
SAP Financial Consolidation 10.1 SP06	November, 2017	New parameter in the the configuration file of the HTML5 Financial Consolidation web site: Configuring SAP Financial Consolidation Web HTML5 Site Advanced Settings [page 81]
SAP Financial Consolidation 10.1 SP06	November, 2017	How to enable access to the web assistant feature: Enabling Access to the Web Assistant [page 83]
SAP Financial Consolidation 10.1 SP06	November, 2017	How to restrict languages displayed on the logon page of the HTML5 web application: Restricting Languages Displayed on the Logon Page [page 85]

Version	Date	Description
SAP Financial Consolidation 10.1 SP07	June, 2018	How to edit the web assistant content: Editing Web Assistant Content [page 84]
SAP Financial Consolidation 10.1 SP07	June, 2018	Information added on Session Renewal and Timeout Use Cases in the HTML5 Web Client [page 16]
SAP Financial Consolidation 10.1 SP08	March, 2019	The User Import Export Tool has a new option regarding the update of SAP HANA privileges: Importing Users with the User Import Export Tool [page 134]
SAP Financial Consolidation 10.1 SP08	March, 2019	A new registry key is available: Disabling the Automatic Refresh of the Users View in the SAP Financial Consolidation Windows Client [page 143]

3 Administrating the data sources

3.1 Data source manager

The SAP Financial Consolidation application is made up of a number of components.

One of these components is the database, which is hosted on a database engine located on a server. Other components include the application servers, the HTTP servers, etc. and the BOE authentication server.

You must define and store all of this information: the login and password for connecting to the database, etc.

This is the role of the data source manager.

The data source manager ensures that this information is managed at a single point in the network. It was designed to be the storage point of all this information.

When you try to connect to SAP Financial Consolidation, you will contact the data source manager to select the database that you want.

You can change one of the servers in the SAP Financial Consolidation application without affecting users in any way. Only the data source definition is changed.

Except in specific cases, there should only be one data source manager. It is included in the SAP Financial Consolidation server installation. It does not require many resources and can be installed on any server in your environment or by itself on another machine.

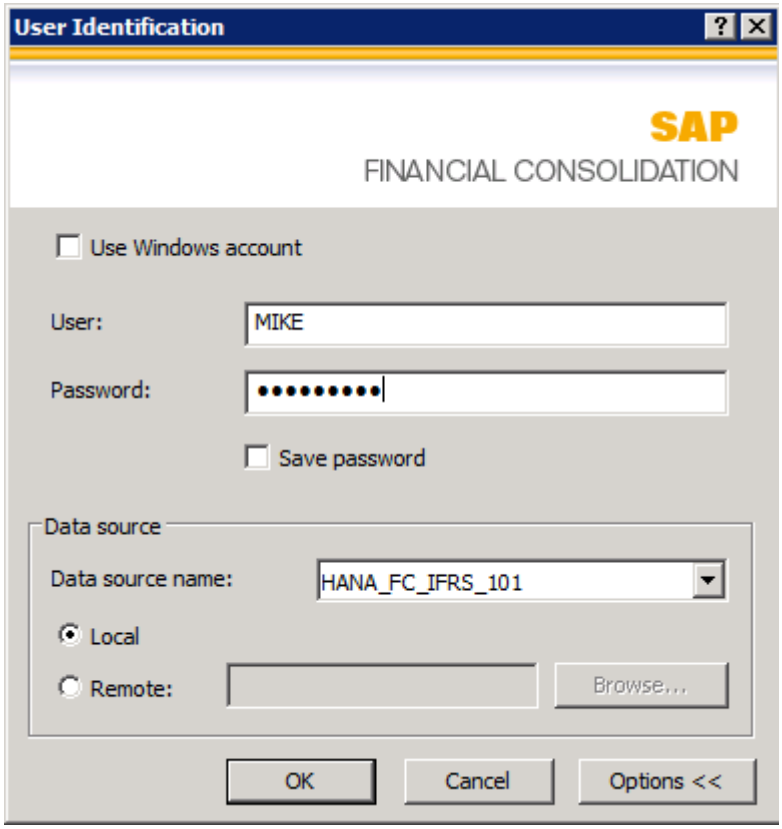
It can also be installed in a cluster environment.

> **i** Note
>
> The data source manager is identified by the *CtBroker.exe* process.

3.1.1 Connecting to the data source manager

Context

When you start SAP Financial Consolidation, the data source manager is used to connect to the application with the correct settings. You use the *Start the Application* dialog box to select the required information from the data source manager.



Procedure

1. Select the computer on which the data source manager is located.
2. Select the data source you want to use. The data source will indicate which database you will connect to.
3. Enter the login and password or select the *Use Windows account* option.

3.2 Administration console

3.2.1 Configuring the Administration console's advanced settings

The administration console's advanced settings are the following:

> ⚠ Caution
>
> It is strongly recommended that you leave the default settings.

> ⚠ Caution
>
> You cannot change the console's settings once the data source is running.

Setting Name	Comment
AdvancedDbString	This parameter enables you to optimize database performance. This parameter is made up of the following four options: • *Use temporary table* when this option is activated, the worktables containing a large amount of data (for example those generated during consolidation or when saving packages are managed in the database as global temporary tables. This option enables you to reduce the number of logs generated when the Oracle instance is in ARCHIVE_LOG mode, when the SQL base is in "Full" archive mode or when SAP HANA database is set to normal persistence log_mode. Work tables that do not contain a large volume of data will always be managed as standard tables. If you activate this option, verify that the temporary tablespace of your Oracle instance is big enough, or that the database tempdb has enough space. > ℹ Note >If temporary tables are activated, some limitations might present themselves in your SQL rules. The main one is that you cannot create indexes for your temporary tables once data has been added to them. The temporary tables used by SAP Financial Consolidation are GLOBAL TEMPORARY type. To find out more on the limitations of temporary tables, see the documentation on your DBMS. > ⚠ Caution >With SAP HANA SPS08 Revision 82 only, this option must be activated. For other versions, it is not necessary. • *Advanced data access* This option enables you to change the filter query strategy. When it is activated, a permanent table called ct_filter_result is created instead of the usual worktables. This option enables you to reduce the size of the redo-log under Oracle and generally improve performance under SQL and Oracle. We recommend that you activate this option.

Setting Name	Comment
	Note The following option is dedicated exclusively to the Oracle engines. • *Load direct path* This option will activate the HINT APPEND clauses when the worktables are used and thereby reduce the size of the log. For this option to function correctly, you must activate the NOLOGGING option for the tablespace dedicated to worktables. • *Database compression* This parameter allows you to activate consolidation tables compression, for database engines that support this mode: SQL Server 2008 Enterprise Edition and Oracle 11g Enterprise Edition. When this parameter is activated, the consolidation tables are compressed once the consolidation process is finished. The consolidation processes may nevertheless last longer. (Consolidations that lasted a few seconds may now last several minutes). However, the tables take up less space in the database because they are compressed, and data retrieval is faster because there is less data to read on the disks. **Note** SAP HANA tables are natively compressed.
The four parameters below are used to manage the size of the client and server cache: here they are filled in by default. The parameters that start with "Client" correspond to the SAP Financial Consolidation clients (*Finance.exe*). The parameters that start with "Server" correspond to the SAP Financial Consolidation servers (*CtServer.exe*).	
ServerHeapMaxSize	(numerical value) **Note** We recommend that you leave the default value. DWORD value. This is the maximum size of the memory allocated to server data (in MB). Recommended value = 2048. Cache used by the SAP Financial Consolidation server and SAP Financial Consolidation Web.
ServerCleaningFrequency	(numerical value)

Setting Name	Comment
	DWORD value. This is the frequency with which the server cache is cleaned (in seconds). Recommended value = 86400 (24 hours)
ClientHeapMaxSize	(numerical value) DWORD value. This is the maximum size of the memory allocated to client data (in MB). Recommended value = 1536. Cache used by the SAP Financial Consolidation Windows client.
ClientCleaningFrequency	(numerical value) DWORD value. This is the frequency with which the client cache is cleaned (in seconds). Recommended value = 86400. **i Note** If the values in the Administration console differ from those in the registry, the ones in the registry will be used. The four following parameters are used to manage the various locks handled by SAP Financial Consolidation. These parameters are useful especially when one of the components fail. For example, one of the application servers may stop because of hardware problems. The users who were connected to it will have to reconnect to SAP Financial Consolidation. The objects that they were working on before being disconnected, such as a package, may still be locked by other components in SAP Financial Consolidation. To avoid these problems, a leasing mechanism which is used to reserve a resource for a specific amount of time has been implemented. The objects are locked as long as the component that calls them updates the lease. When one of the components in the application becomes unavailable, it will be unable to renew the lease at the end of the leasing period and the lock on the corresponding objects will be automatically removed. **i Note** You should not change the settings below without the help of a SAP expert. The default values enable optimal performance.
ClientLeaseTime	Period of lease for an application server resource allocated to a given client. The default value is 180 seconds.

Setting Name	Comment
ClientLeaseRenewalTime	Frequency of the lease renewal for an application server resource allocated to a given client. The default value is 50 seconds.
ServerLeaseTime	Period of lease for a given application server resource. The status of the lease period is stored in the database by the application server. The default value is 125 seconds.
ServerLeaseRenewalTime	Frequency of the lease renewal for a given application server resource. The default value is 30 seconds.
ClientMessageReceiveTime	Client computers regularly query the application servers to refresh their cache. This parameter enables you to set the frequency of the calls. The parameter value cannot be set at less than 20 seconds. **i Note** The more often the caches are refreshed, the heavier the load for the application servers.
ServerMessageReceiveTime	Application servers regularly call the database servers to refresh their cache. This parameter enables you to set the frequency of the calls. The parameter value cannot be set at less than 20 seconds. **i Note** The more often the servers are refreshed, the heavier the load for the application servers and the database servers.
MaxServerSessionsOpenedSinceStart	As soon as the total number of sessions open on the application server process (CtServer.exe) reaches the number indicated in this parameter, the process recycles itself.
MaxServerVirtualMemory	As soon as the virtual memory of the CtServer.exe process reaches the size indicated in this parameter, the process recycles itself. **i Note** The value specified by default is 3584.
MaxSchedulerServerTasks	This enables you to specify the maximum number of tasks run by the processing server defined in the *SchedulerComputerName* variable. These tasks are

Setting Name	Comment
	performed by users in the *Task List* and *Task Scheduler* views in SAP Financial Consolidation. If you do not specify a value here, then the value from the *MaxServerTasks* parameter will be used.
MaxServerTasks	This enables you to specify the maximum number of tasks run by all of the application servers for a given data source. These tasks are performed by users in the *Task List* and *Task Scheduler* views in SAP Financial Consolidation. If you do not specify a value here, then the default value is 4. **i Note** If several processing units are required, you should increase the performance of the application server used.

3.2.2 Session Renewal and Timeout Use Cases in the HTML5 Web Client

The following table provides four uses cases for opening items in write mode in the HTML 5 web client.

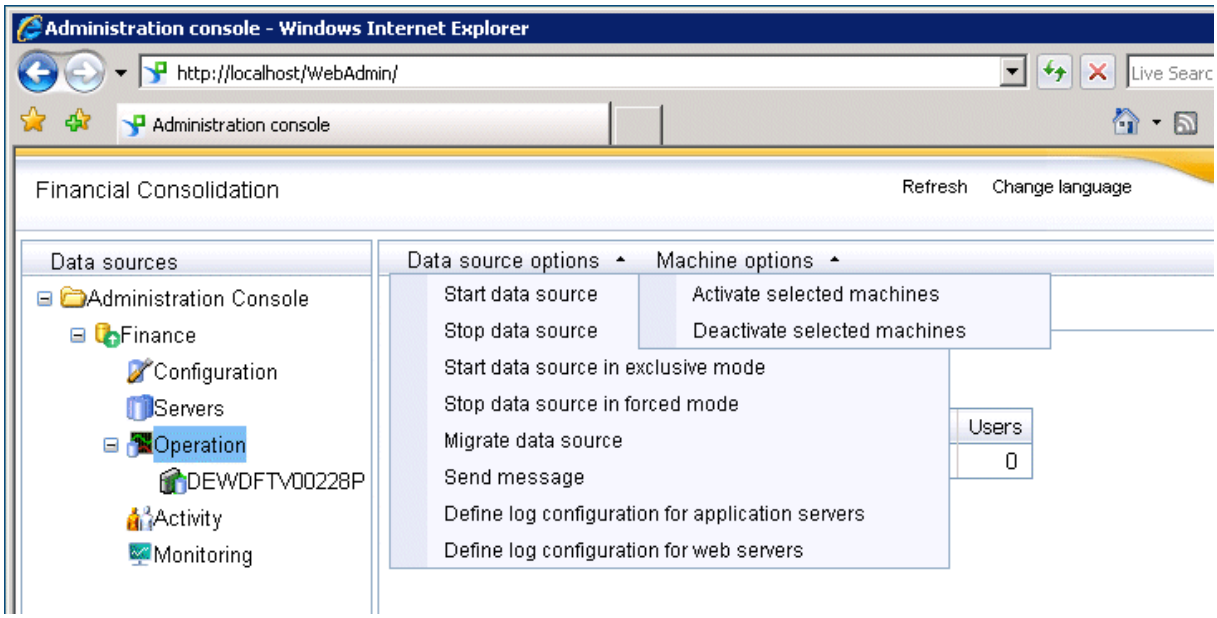
	Description	When is the object released and can be opened again in write mode by any user?	Configurable?
Use case 1	The user closes the object using the *Close* button of the application.	The current object is immediately released.	N/A
Use case 2	The user disconnects from the HTML5 web client by clicking *<User>* > *Log out*.	All objects opened by this user in write mode are immediately released.	N/A
Use case 3	The user closes the browser tab, or the browser window by clicking the browser *Close* button, but doesn't close all other open windows or tabs in the application session.	The object is released after a timeout of two to three minutes.	Not configurable

	Description	When is the object released and can be opened again in write mode by any user?	Configurable?
Use case 4	The user closes the browser tab, or the browser window by clicking the browser *Close* button, and also closes all other open windows or tabs in the application session.	The object is released after a timeout (in seconds) corresponding to the *ClientLeaseTime* and *ClientLeaseRenewalTime* parameter of the relevant data source.	Configurable in the administration console for each data source (*ClientLeaseTime* and *ClientLeaseRenewalTime* parameter)

3.2.3 Managing sources

The *Operation* view lists the computers defined for a data source and the status of the instances and data sources run on each computer.

To manage the data sources, you can select the *Operation*view and perform tasks for all of the servers defined for a given data source.



3.2.3.1 Status of data sources and instances

When an SAP Financial Consolidation data source starts running, the instances start running automatically on all of the related active machines. The number of instances running on each machine is defined in the Administration console under *Operation*. The machines that are not active are not taken into account.

When a source stops running, all of the instances stop running automatically too.

When the source is restarted, the instances are recycled automatically.

For each active source machine, the data source manager (CtBroker component) manages how instances are recycled and started. It bases itself on the maximum number of instances.

You can, however, intervene manually to change how the instances function: the administrator can stop an existing instance or start an additional one. Certain situations can therefore occur when a data source is running even though no instances are running. In such a case, the started status of the source authorizes the CtBroker component to start and manage the instances on the active computers: new instances will appear in the console.

If the source is not running, none of the instances can be started automatically.

> ⚠ Caution
>
> That is why you must stop a data source in the *Data source options* menu. Stopping all of the existing instances will not stop the data source.

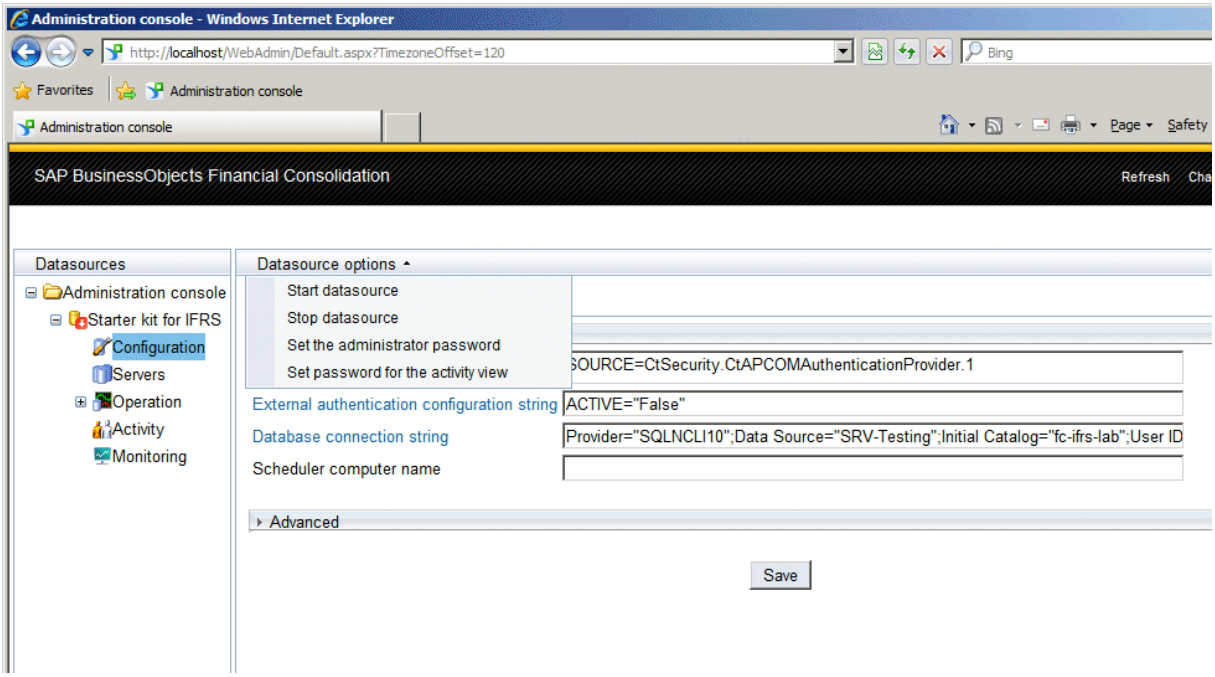
There are three levels in the administration console:

- The data source
  There are three possible statuses: Started; Starting, Migrating, Stopping or Stopped. You cannot change the data source's settings once it is running.

  > i Note
  >
  > When a source is running, it appears on screen in green.

  > i Note
  >
  > A data source must be running for you to be able to use it.
- The machine
  Each machine belonging to a source can be Active or Inactive. When the status is Active, the machine is taken into account in the data source. When the status is Inactive, it is not taken into account. This status enables you to temporarily disconnect a machine from the source if, for example, you have some maintenance work to perform, without removing it completely from the data source.
- The instance
  You can start one or more instances of the SAP Financial Consolidation server on each active machine. You may find it useful to be able to run several instances on each machine if the SAP Financial Consolidation configuration is relatively complex, since this will enable you to reduce the amount of memory used by each instance. It is better to have two servers using 4 GB of memory than one single server using up all of the 8 GB of memory.
  These instances can then be recycled automatically depending on the recycling settings chosen in the Administration Console (MaxServerSessionsOpenedSinceStart and MaxServerVirtualMemory keys).

3.2.3.2 Commands available for Configuration

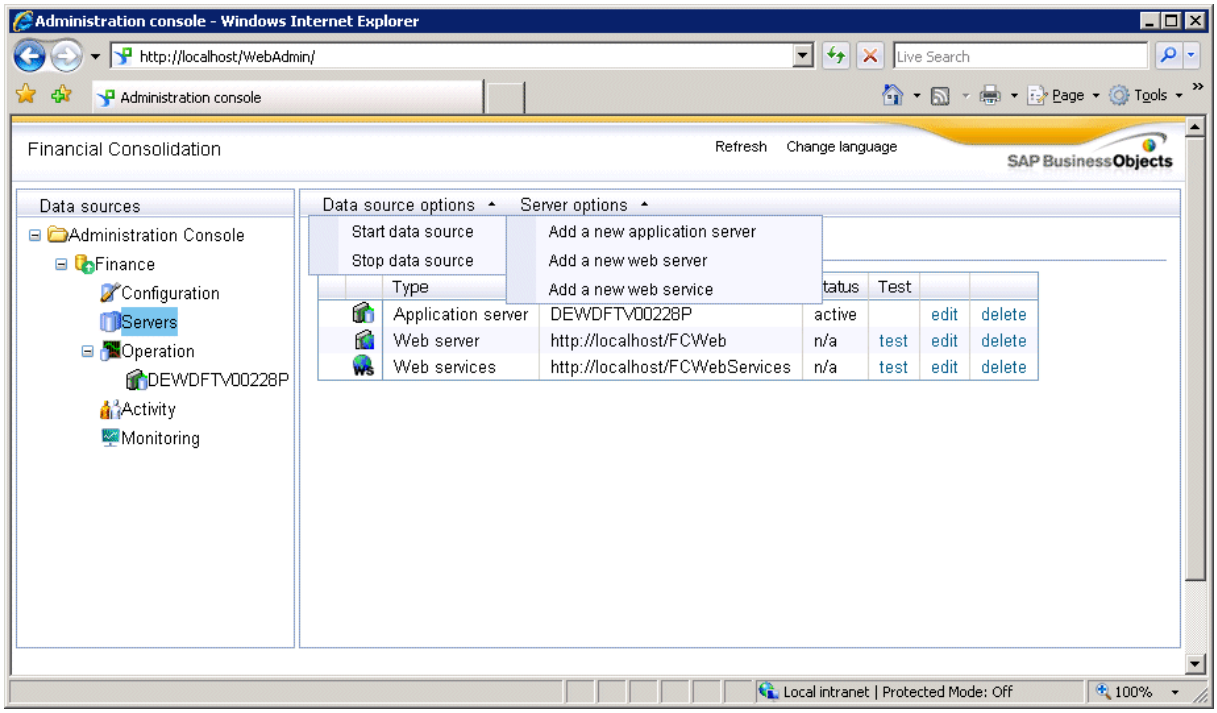


- *Start data source*
  Here, you can start the data source and all of the instances defined on all of the servers belonging to the source whose status is Active.

  > → Tip
  >
  > If a WebServerURL has been defined, the *Start data source* command will also start the Web server.

- *Stop data source*
  Here, you can stop all of the instances on all of the active computers belonging to the data source. The mode will then change to Stopped. If there are clients connected to the application, this command will wait for them to disconnect before stopping the instances. Even if a new user connects, it will not be possible to automatically start a new instance.
- *Set password*
  For more information on how to set a password, see Configuring passwords in the Administration console [page 25].
- *Set password for the activity view*
  For more information on how to set a password for the activity view, see Configuring passwords in the Administration console [page 25].

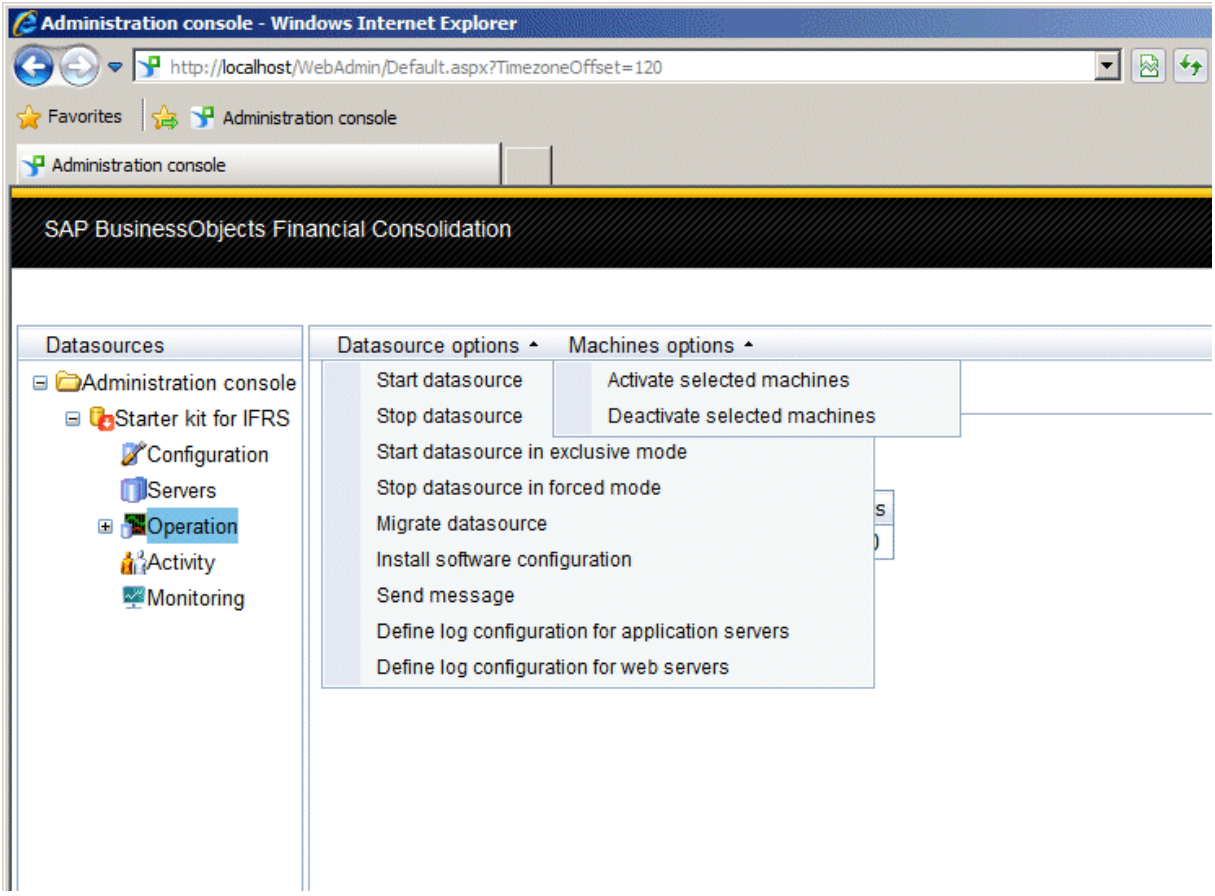
3.2.3.3 Commands available for Servers



- *Add a new application server*
  Here, you can enter the name of the application servers you want to add to your configuration.
- *Add a new web server*
  Here, you can enter the URLs for the applications deployed on the different web servers. For example, the syntax of the web server URL is: http://my_server/finance.
- *Add a new web service*
  Here, you add the URL of the web service. For example, the syntax of the web services URL is: http://my_server/webservices/services.disco. For more information on how to deploy the SAP Financial Consolidation web service, see the SAP Financial Consolidation Installation guide.

> **i Note**
>
> This step is optional. However, you can use it to store the web services URLs.

3.2.3.4 Commands available in Operation



The commands available at this level enable you to manage the data source.

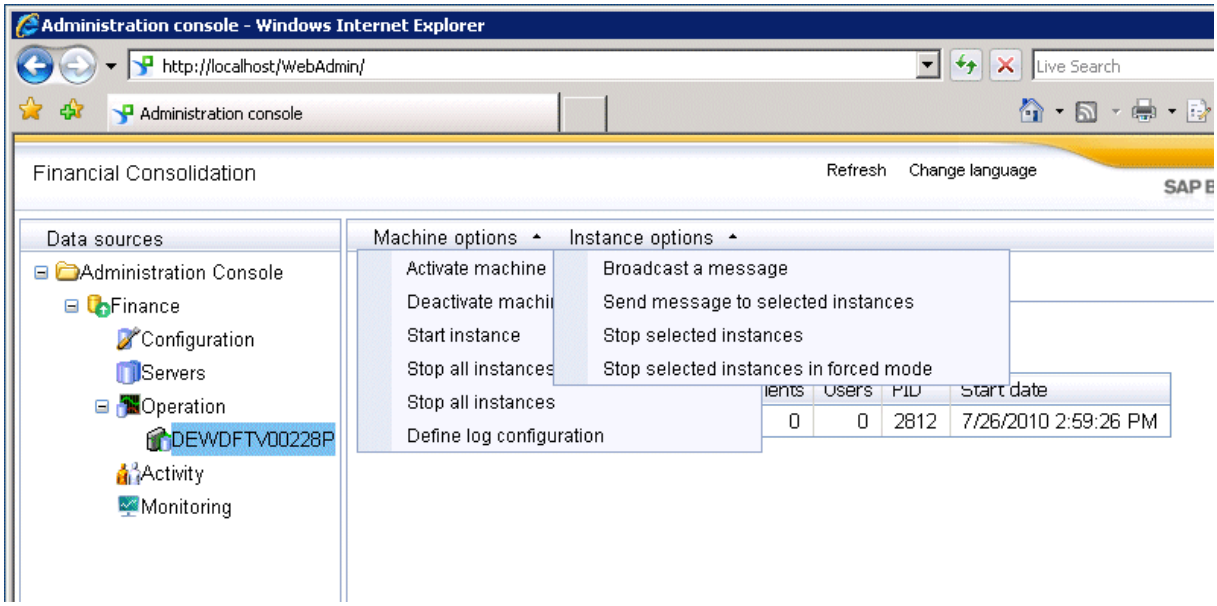
- *Start data source*
  Here, you can start the data source and all of the instances defined on all of the servers belonging to the source whose status is Active.

  > → Tip
  >
  > If a WebServerURL has been defined, the *Start data source* command will also start the Web server.

- *Stop data source*
  Here, you can stop all of the instances on all of the active computers belonging to the data source. The mode will then change to Stopped. If there are clients connected to the application, this command will wait for them to disconnect before stopping the instances. Even if a new user connects, it will not be possible to automatically start a new instance.
- *Start data source in exclusive mode*
  Here, you can start the data source in exclusive mode. A single instance will be started on one of the computers belonging to the data source in order to perform operations which require only the administrator to be connected (i.e. receiving a configuration).
- *Stop data source in forced mode*
  Here, you can stop all of the instances on all of the active computers immediately without waiting for the clients to disconnect. The connected clients will be disconnected by force.

- *Migrate data source*
  Here, you can execute the migration of the database to the current version of SAP Financial Consolidation.
- *Install software configuration*
  This command allows you to install or update the starter kit in the selected data source. To find out more, see the "Installing the Starter Kit" chapter in the SAP Financial Consolidation Installation Guide.
- *Send message*
  Here, you can send a message to all of the users connected to the data source.
- *Define log configuration for application servers*
  Here, you can upload a configuration log file on all your data source servers at the same time. By default, the file you must upload is the CtServerLogConfig.xml file.
- *Define log configuration for web servers*
  Here, you can upload a configuration log file on all your data source web servers at the same time. By default, the file you must upload is the WebLogConfig.xml file.

3.2.3.5 Commands available for Machines and Instances



Commands at this level enable you to manage the machines of a data source and the instances on each active machine.

- *Activate machine*
  This command activates the computer. The instances are not started automatically as is the case when a data source is started. They are automatically started when users log on.
- *Deactivate machine*
  Deactivate the machine The existing instances are stopped.
- *Start instance*
  This command enables you to start a new instance over and above those that are already running.
- *Stop all Instances in forced mode*
  This command stops all of the instances that are running and throws out any connected users.
- *Stop all instances*

This command waits for the clients to disconnect before stopping all of the instances that are running.

> **i Note**
>
> Stopping an instance does not stop the machine.

- *Define log configuration*
  Here, you can upload a configuration log file on the data source server. By default, the file you must upload is the CtServerLogConfig.xml file.
- *Broadcast a message*
  Here, you can send a message to all of the users connected on each active machine.
- *Send message to selected instances*
  This command enables you to send a message to all of the users connected to the instance running.
- *Stop selected instances*
  Stops the instance currently running.
- *Stop selected instances in forced mode*
  This command stops the instance that is running and throws out any connected users.

Once you have started the data source, the Administration console will display the following information:

- The number of CtServer.exe process instances being run by active servers.
- The number of clients connected indicates the number of executables connected to the instance.
- The number of users indicates the number of user sessions that are open in the instance.

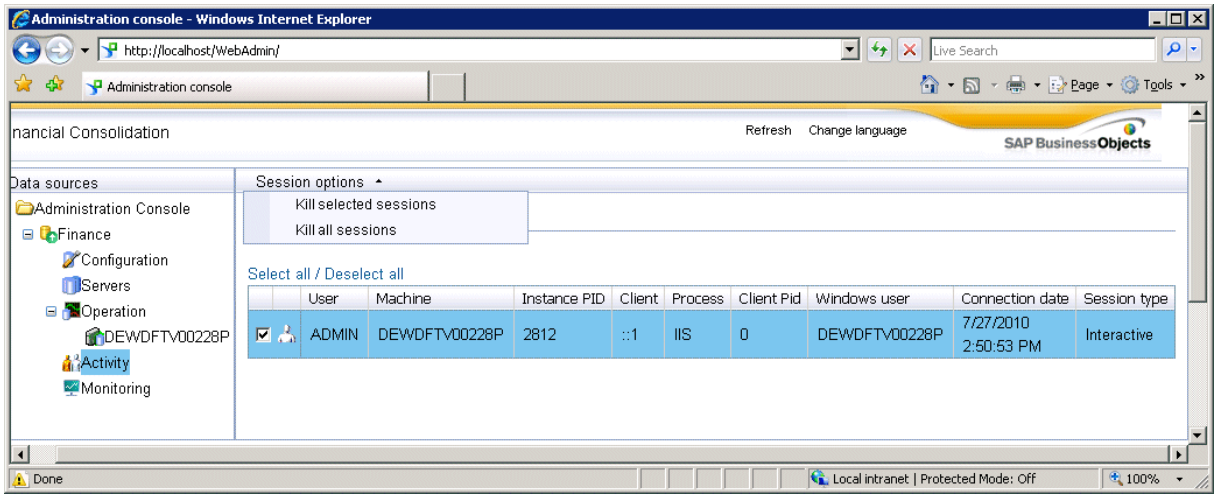
Instances can have one of the following statuses:

- *Initialized*: The instance has been started and clients can connect to it.
- *Stopped*: The instance has been stopped. If the application is started and the server is active, an instance can start automatically.
- *Unavailable*: the server might be unavailable for any of the following reasons: the machine has stopped, typo when entering the console's settings, DCOM configuration issue, etc.
- *Does not accept any more connections*: The server is in the process of stopping (not "forced"). The instance is waiting for all connected users to disconnect before stopping.
- *Migration*: The server is migrating the database.
- *Stop*: The instance is in the process of stopping.
- *Initialization*: The instance is being started.

> **i Note**
>
> In the case of a stand-alone installation, connecting the SAP Financial Consolidation Windows client to a local data source will automatically start this data source.

3.2.4 Managing users

The *Activity* view displays the information on the sessions open on the server.



In this example, the user ADMIN is connected.

> **Note**
>
> To disconnect a user, select the user and in the *Session options* menu, click *Kill selected sessions* or *Kill all sessions* if you want to disconnect all users.

The table displays the following information:

- *User*: this indicates the SAP Financial Consolidation login used.
- *Machine*: this indicates the application server to which the user is connected.
- *Instance PID*: this indicates the process ID of the application server.
- *Client*: this indicates the name of the client computer.
- *Process*: this indicates the executable used by the client. Finance.exe for a Windows client, CtServer.exe for the Web, and Excel.exe for Excel Link.
- *Client PID*: this indicates the process ID of the client executable.
- *Windows User*: this indicates the Windows login used by the client. For Web clients, the login is the Windows account used to run the Web server.
- *Connection date*.
- *Session type*: the session type can be:
  - *Interactive*: each client session is interactive.
  - *Batch processing*: this indicates an independent session opened to run scheduled tasks.

3.3 Limiting Access to the Administration Console

This chapter describes how to limit access to the Administration Console.

3.3.1 Configuring passwords in the Administration console

Context

You can define secured access to a data source in the Administration Console with different levels:

- For access to the data source with full administration rights
- For access to the data source *Activity* and *Monitoring* views.

> ⚠ Caution
>
> You must stop the data source before creating a password.

Procedure

1. Select the *Configuration* view of your data source.
2. Choose the *Data source options* menu and select:
   - The *Set the administrator password* option if you want to set a password for all data source administration operations.
   - The *Set password for the Activity view* option if you want to set a password for accessing the *Activity* and *Monitoring* views only.

     > i Note
     >
     > A user who has the password of the Activity view can disconnect all active sessions.
3. The *Change Password* dialog box opens.
4. Enter the new password in the *New password* field.
5. Confirm the password.
6. If the data source already has a password and you want to change it, enter it in the *Old password* field.
7. Click *OK*.

   The next time you open the Administration console and select a view of the protected data source, the *Password required* dialog box will appear.
8. Restart the data source.

   > i Note
   >
   > For security reasons, the *ApplicationDataSources.xml* file is also encrypted. You cannot edit it in an Internet browser or in a text file. If you try to open it, nothing will be displayed.

   > ⚠ Caution
   >
   > If you have protected the data source by assigning a password in standalone configuration, the application server will not start automatically.

3.3.2 Filtering the Data Sources

Context

You can, if required, make only certain data sources appear in the SAP Financial Consolidation *Start the Application* dialog box.

> **i** Note
>
> This applies to SAP Financial Consolidation Windows and the action must be carried out on client computers.

Procedure

1. On each of the client computers where you want to restrict the data sources displayed, you must create a registry key called *DatasourceFilter* in *HKEY_CURRENT_USER/Software/Cartesis/APCom/Connection/*.
2. In *DatasourceFilter*, you must create one registry key for each data source that you want to display.

   > **i** Note
   >
   > The case of the registry keys (upper or lower) must be identical to that of the data sources.

Example

The four data sources below were configured for the server shown in the example.

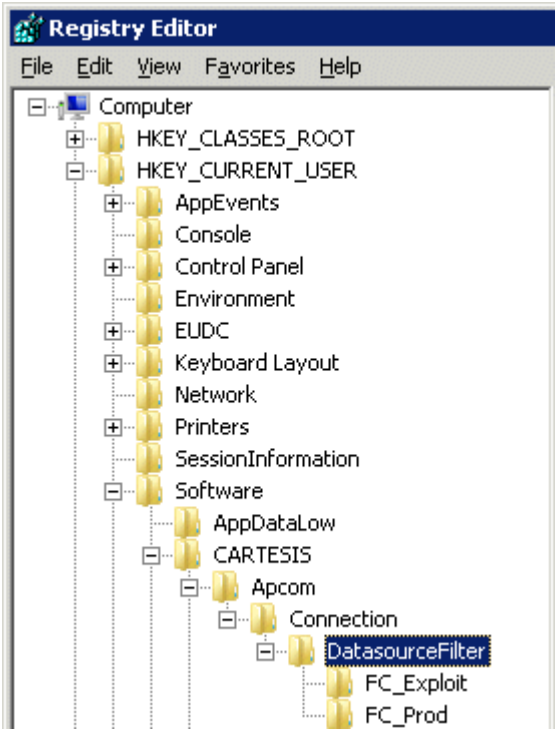
- FC_Prod
- FC_Exploit
- FC_Test
- FC_Dev

Because the FC_Test and FC_Dev data sources are used only for testing purposes, the administrator does not want them to appear when users connect to the application.

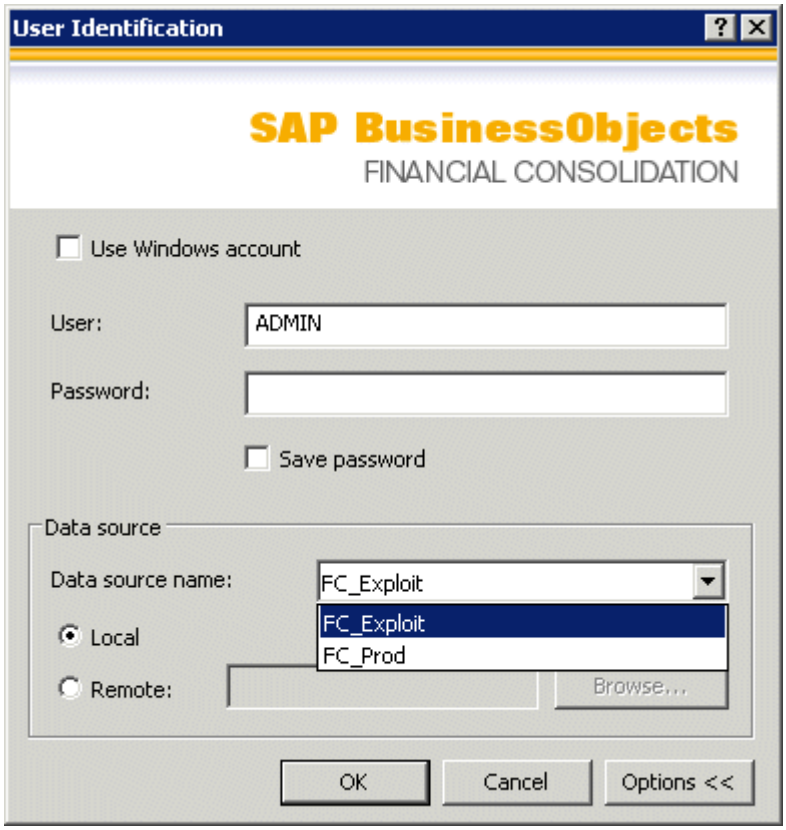
To display the other two data sources, the administrator must therefore create the following registry keys:

- *HKEY_CURRENT_USER/Software/Cartesis/APCom/Connection/DatasourceFilter/FC_Prod*
- *HKEY_CURRENT_USER/Software/Cartesis/APCom/Connection/DatasourceFilter/FC_Exploit*

You should create these two registry keys as shown in the example below.



When a user connects to SAP Financial Consolidation, the data sources available in *Start the Application* dialog box will appear.



3.3.3 Defining the location of the ApplicationDataSources.xml file

Context

By default, this file is stored in the SAP Financial Consolidation installation folder.

You can, however, move it to another folder, e.g. a folder where backups are performed on a regular basis. By storing the file in another folder, you ensure that the same data source configuration is kept when upgrading product versions as the setup will not overwrite the file.

To store the *ApplicationDataSources.xml* file somewhere other than the installation folder, you create a registry key that will specify its location.

Procedure

1. You create a new string value called *DataSourceFilePath* in the following tree structure: *HKEY_CURRENT_USER\Software\Cartesis\Broker* or *HKEY_LOCAL_MACHINE\Software\Cartesis\Broker*. If the key is created in both locations, the system will use the HKEY_CURRENT_USER key first.
2. Specify the path to the *ApplicationDataSources.xml*.

> **i** Note
>
> You must create this registry key on the machine hosting the data source manager.

3.4 Creating scheduled tasks for starting and stopping data sources or instances

By using the Windows Scheduled Task Wizard, you can schedule the data sources to start and stop (or an instance to stop) automatically at a given time, on a regular basis if required.

For example, you can schedule the data source to stop at night if your RDBMS must be stopped before performing the backup of the database.

You can use the following scripts to schedule these tasks:

- *CtStopDataSource.vbe*
- *CtStartDataSource.vbe*
- *CtStopServer.vbe*
- *CtSendMessage.vbe* (you can use this script to warn users still connected to a server)

3.4.1 CtStopDataSource.vbe

This script is used to stop all the instances of a data source on a server or to stop the entire source.

```
/BrokerComputerName:<broker_host>
/DatasourceName:<datasourcename>
[/DatasourcePassword:<datasourcepwd>]
[/ForceUninit:<True|False>]
```

Its parameters are the following:

Parameter	Definition	Default value
BrokerComputerName	Name of the machine hosting the data source manager	No default value Compulsory setting
DataSourceName	Name of the data source	No default value Compulsory setting
DataSourcePassword	Password for accessing the data source	N/A
ForceUninit	Boolean "True" or "False" value indicating whether or not the server should be stopped, even if clients are still connected to it.	False Optional setting

Example

`CtStopDataSource.vbe /BrokerComputerName:DATASOURCESRV /DataSourceName:Finance /DataSourcePassword:"pwd"`

This command means that the server will not establish any new connections and will wait for the users connected to disconnect before stopping the source.

`CtStopDataSource.vbe /BrokerComputerName:DATASOURCESRV /DataSourceName:Finance /ForceUninit:True`

This command will stop the source in forced mode, and therefore will also stop all instances in forced mode.

3.4.2 CtStartDataSource.vbe

This script enables you to start a data source.

```
/BrokerComputerName:<broker_host>
/DatasourceName:<datasourcename>
[/DatasourcePassword:<datasourcepwd>]
```

Its parameters are the following:

Parameter	Definition	Default value
BrokerComputerName	Name of the computer hosting the data source manager	No default value Compulsory setting
DataSourceName	Name of the data source	No default value Compulsory setting
DataSourcePassword	Password for accessing the data source	N/A

Example

```
CtStartDataSource.vbe /BrokerComputerName:DATASOURCESRV /DataSourceName:Finance /
DataSourcePassword:"pwd"
```

This command will start all the servers defined for the data source in the `DATASOURCESRV` data source manager. The password "`pwd`" is defined for this source.

3.4.3 CtStopServer.vbe

This script enables you to stop an instance.

```
/BrokerComputerName:<broker_host>
/datasourcename:<datasourcename>
[/DatasourcePassword:<datasourcepwd>]
/ServerInstanceIds:<broker_host>/CtServer_PID
```

Its parameters are the following:

Parameter	Definition	Default value
BrokerComputerName	Name of the computer hosting the data source manager	No default value Compulsory setting
DataSourceName	Name of the data source	No default value Compulsory setting
DataSourcePassword	Password for accessing the data source	N/A
ServerInstanceIds	ID of the CtServer process you want to stop	Compulsory setting No default value

Example

```
CtStopServer.vbe /BrokerComputerName:localhost /datasourcename:FC_DATA_SOURCE /
ServerInstanceIds:localhost/1864
```

This command will stop the instance ID number 1864 from the data source `FC_DATA_SOURCE`.

3.4.4 CtSendMessage.vbe

This script enables you to send a warning to users who are still connected to a server.

```
[/BrokerComputerName:<broker_host>]
/DatasourceName:<datasourcename>
[/DatasourcePassword:<datasourcepwd>]
[/ServerComputerName:<server_host>]
/Message:<message>
```

Its parameters are the following:

Parameter	Definition	Default value
BrokerComputerName	Name of the machine hosting the data source manager	No default value Compulsory setting
DataSourceName	Name of the data source	No default value Compulsory setting
DataSourcePassword	Password for accessing the data source	N/A
ServerComputerName	Name of the machine hosting the server to be started	No default value Optional setting
Message	Message to be sent	N/A

Example

This command will send `"message"` to all of the servers defined for this data source.

```
CtSendMessage.vbe_/BrokerComputerName:DATASOURCESRV_/DataSourceName:Finance_/
Message:"message"
```

Examples of how scheduled tasks can be used:

- You can create a *CtStopServer* task to stop the server in order to perform backups.
- You can create a *CtStartServer* task to restart the application server once the backup process has ended.
- You can create a task to restart the server automatically when the system starts. This is useful in case of a power failure or in case you forget to do so manually.

You create a scheduled task using the *Scheduled Task Wizard* in the Windows *Control Panel*.

> **i** Note
>
> You can also schedule tasks using other types of software.

3.4.5 Procedure for creating scheduled tasks

Context

To schedule a task using the Scheduled Task Wizard in Windows.

Procedure

1. Create a .bat file containing the stop server or start server commands with the settings corresponding to the SAP Financial Consolidation environment.

   In this .bat file, you must enter the full path for the .vbe file. Example: D:\Businessobjects Finance \CtStartServer.vbe.
2. In the Windows *Control Panel*, double-click on *Scheduled Tasks* and then on *Add Scheduled Task*.

   The Scheduled Task Wizard appears.
3. Click *Next*.

   The next dialog box is used to select the program you want to run.
4. Click *Browse* and select the .bat file created in step 1.
5. Click *Next*.
6. Enter a name for the task and specify when the task should be performed.
7. Click *Next*.

   The following dialog box is used to specify the frequency of the task, depending on the option selected in the previous dialog box.
8. Specify the time and if required, the day, month or date the task should be performed.
9. Click *Next*.

   The following dialog box is used to indicate the user account used to run the task.
10. Enter the name and password of the user whose account will run the task.
11. Click *Next*.
12. Check the *Open advanced properties for this task when I click Finish* option. Click on *Finish*.

    The advanced properties dialog box for the task appears.

    > **i** Note
    >
    > You can change the scheduling of the task if required.

4 Monitoring the Application

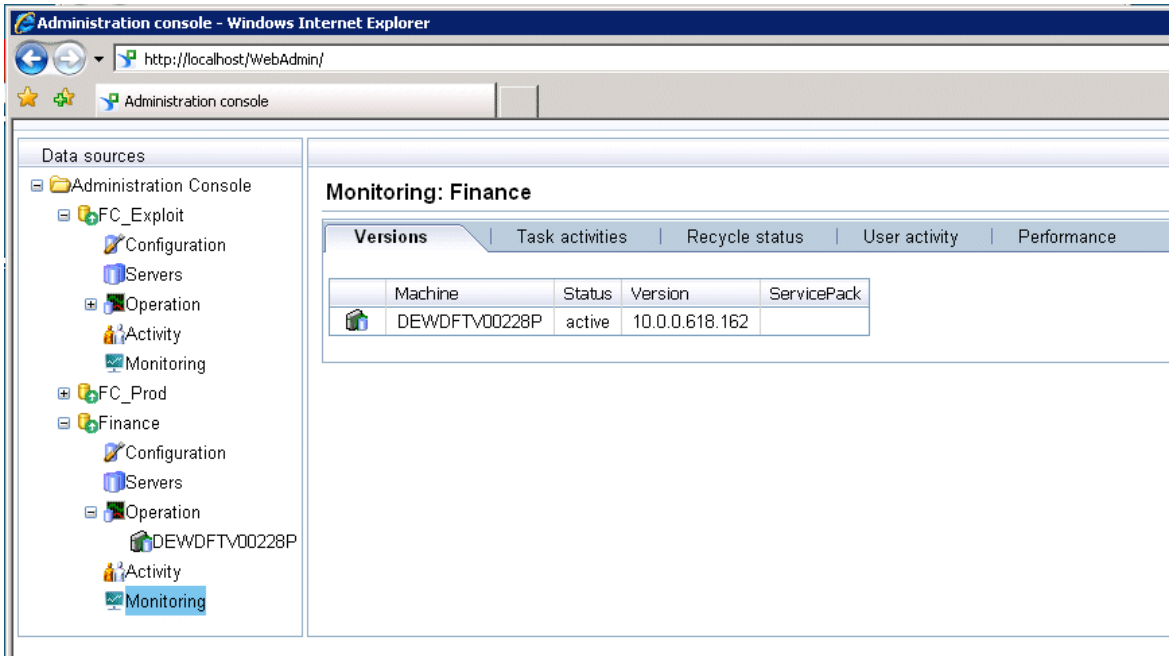
There are different possibilities to monitore the SAP Financial Consolidation and Cube Designer applications:

- The *Monitoring* view of the Administration console.
- The *BFC Monitoring service*, that enables you to open performance counters through the Windows Performance Monitor.
- The Deployment Audit tool, that enables you to monitor Cube deployments.

4.1 Monitoring the Application in the Administration Console

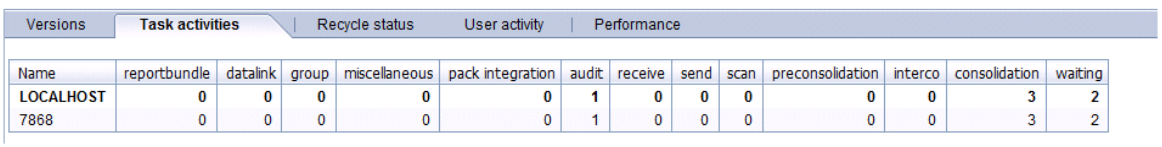
The *Monitoring* view of the Administration console displays the following information on the application:

- *Version* tab:



  The *versions* tab displays the version number of the application servers of the data source and their statuses.

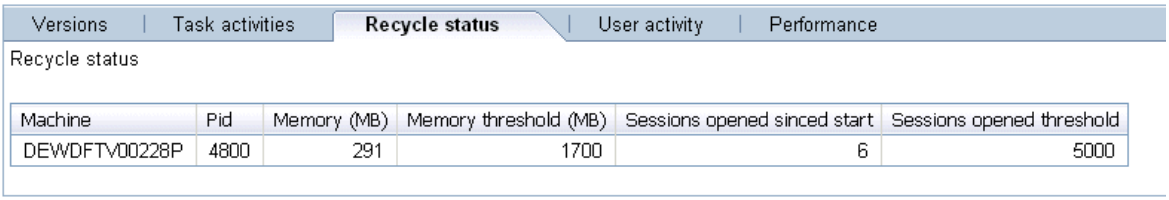
- *Task activities* tab:



Name	reportbundle	datalink	group	miscellaneous	pack integration	audit	receive	send	scan	preconsolidation	interco	consolidation	waiting
LOCALHOST	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**2**
7868	0	0	0	0	0	1	0	0	0	0	0	3	2

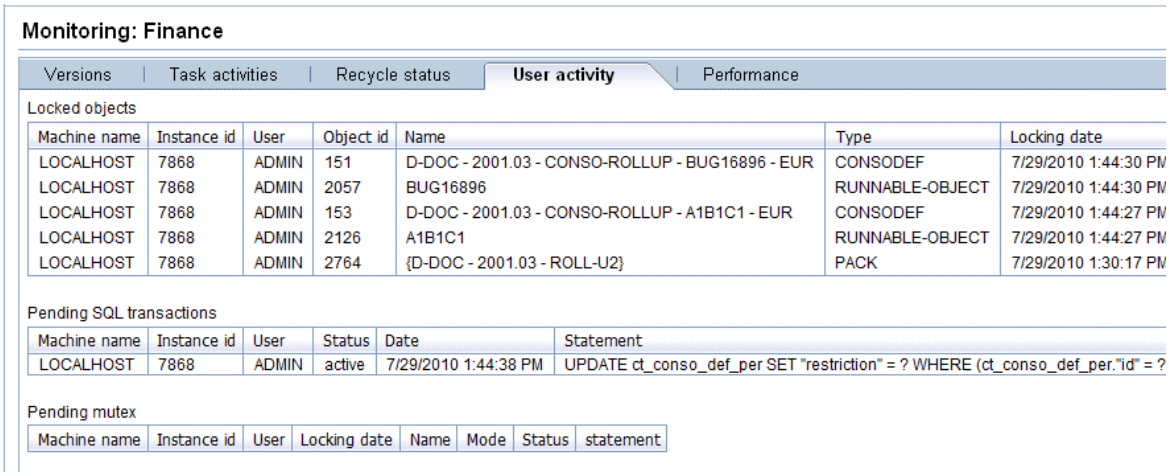
  The *Task activities* tab displays the number of tasks that are running for each instance, and by category. The waiting column displays the tasks not yet executed.

- *Recycle status* tab:



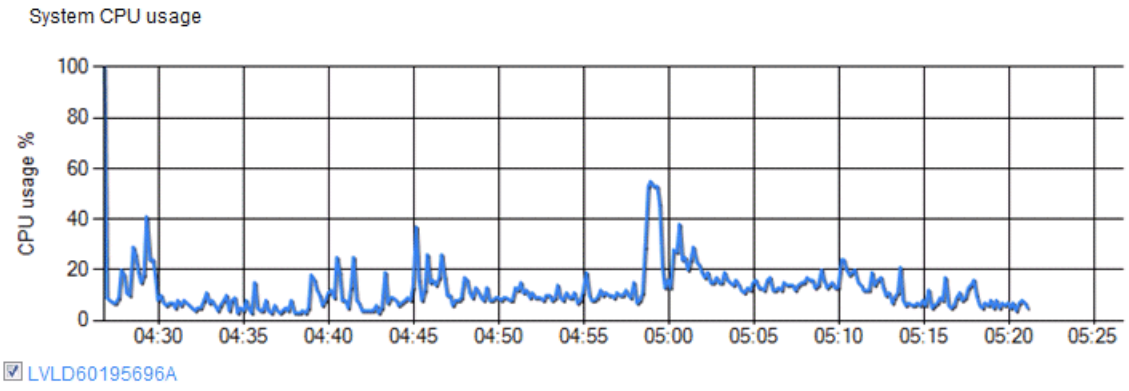
The *Recycle status* tab displays the state of an instance, in order to know when this instance is going to be recycled. A task is recycled when the limit memory or the maximum sessions opened have been reached.

- *User activity* tab:



The *Locked objects* table displays the list of locked objects (i.e being used).
The *Pending SQL transactions* table displays the statement of pending SQL transactions.
The *Pending mutex* table displays the list of locks in the database.

- *Performace* tab:



These graphics only display the performances for the last hour.
You can display the following graphics:

- Application memory: displays the memory usage per instance.
- Application CPU usage: displays the CPU usage per instance.
- System memory: displays the memory usage per server.
- System CPU usage: displays the CPU usage per server.
- Sessions opened since start : displays the number of opened sessions per instance.
- Active sessions: displays the number of active sessions per instance.

4.1.1 Available Counters for the BFC Monitoring Service

Folder	Counter Name	Explanation
Web administration console / Monitoring	App memory	
	App CPU usage	
	System memory	
	System CPU usage	
	Sessions opened since start	
	Active sessions	
BFC Monitoring service	General statistics of the Rich client	
	General statistics of the Sessions	
	Instances status for login denied instances	
	Instances status for Migrating instances	
	Instances status for Running instances	
	Instances status for Starting instances	
	Instances status for Stopping instances	
	Instances status for Unavailable instances	
	Recycling open sessions since startup	
	Recycling virtual memory (bytes)	
	Task engine activity for all running tasks	
	Task engine activity for Audit	
	Task engine activity for Consolidation	
	Task engine activity for Datalink	
	Task engine activity for Enqueued tasks	

Folder	Counter Name	Explanation
	Task engine activity for Group tasks	
	Task engine activity for Miscellaneous tasks	
	Task engine activity for Package integration	
	Task engine activity for Preconsolidation	
	Task engine activity for Receive tasks	
	Task engine activity for Reconciliation	
	Task engine activity for Report bundle	
	Task engine activity for Scan tasks	
	Task engine activity for Send tasks	

4.2 Monitoring the Application using the BFC Monitoring Service

Prerequisites

The BFC Monitoring Service is installed by default with SAP Financial Consolidation server.

Context

To use this service, you must:

- Configure the `BFCMonitoringService.exe.config` file
- Install the X.509 certificate
- Configure the CtBroker.config file

Procedure

1. In the SAP Financial Consolidation installation folder, open the `CtBroker.config` file.

```
<?xml version="1.0" encoding="utf-8"?>
<configuration xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xmlns:xsd="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
xmlns="http://schemas.sap.com/2008/09/15/CtBroker/Configuration">
    <SharedTrustedCertificates>
        <!-- Uncomment next line to trust the default Extended Analytics X509
Certificate (intended for development or test platforms) -->
        <!--
        <Certificate subjectName="CN=Extended Analytics Deployer, O=BOBJ,
C=FR"/>
        -->
    <!-- Uncomment next line to trust the default BFC Monitoring Service
(intended for development or test platforms) -->
    <!--
    <Certificate subjectName="CN=BFC Monitoring Service, O=BOBJ, C=FR"/>
    -->
    </SharedTrustedCertificates>
    <DataSources>
    </DataSources>
</configuration>
```

2. In the `<SharedTrustedCertificates>` section, uncomment the lines if you want to use the default certificate installed by the setup. Alternately, you can install another certificate and then enter its distinguish name.

> **i Note**
>
> For more information on how to install an X.509 certificate, see the SAP Financial Consolidation Security Guide.

3. Install the public key on the server where the SAP Financial Consolidation data source manager (CtBroker component) is installed.
4. Install the private key on the machine where the BFC Monitoring Service is installed.
5. In the SAP Financial Consolidation installation folder, open the `BFCMonitoringService.exe.config` file.

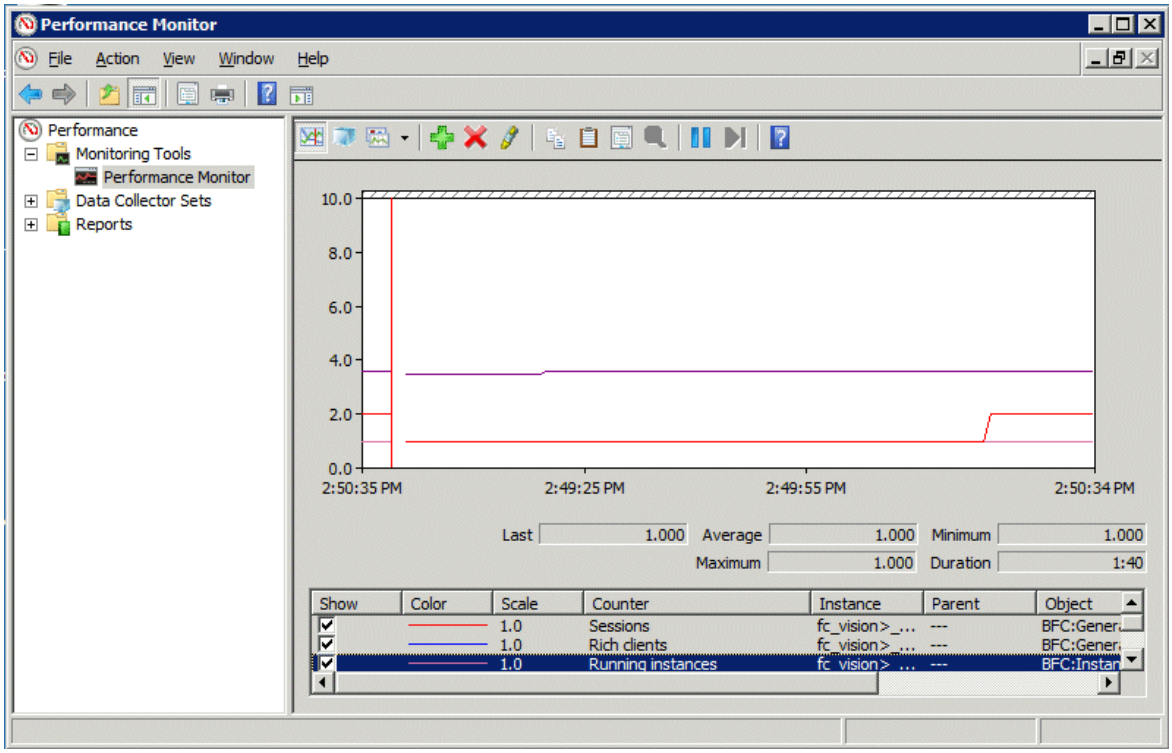
```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
 <configSections>
    <section name="log4net"
type="log4net.Config.Log4NetConfigurationSectionHandler,log4net"/>
   <section name="dataSources"
type="SAP.Finance.Monitoring.DSConfigurationSectionHandler,BFCMonitoringServic
e"/>
  </configSections>
  <appSettings>
    <!--Name of the machine hosting CtBroker -->
    <add key="broker" value="localhost"/>
    <!-- interval between 2 requests (in seconds)-->
    <add key="period" value="60"/>
  </appSettings>
  <!-- Datasources to be monitored -->
  <dataSources>
    <dataSource name="MyDatasource"/>
    <dataSource name="MyOtherDatasource"/>
  </dataSources>
  <!-- Log configuration -->
  <log4net update="Overwrite">
```

```
    <appender name="FileAppender" type="log4net.Appender.FileAppender">
      <file value=".\Logs\BFCMonitoringLog.log" />
      <appendToFile value="false" />
      <layout type="log4net.Layout.PatternLayout">
        <conversionPattern value="%d [thread %t] %-5p %c - %m%n" />
      </layout>
    </appender>
    <root>
      <level value="info" />
      <appender-ref ref="FileAppender" />
    </root>
  </log4net>
</configuration>
```

6. In the `<appSettings>` section, enter the name of the server where the SAP Financial Consolidation data source manager (CtBroker component) is installed.
7. In the `<dataSources>` section, enter the name of the data sources you want to monitor.

> **i Note**
>
> You can enter a list of several data sources if you want to monitor several data sources at the same time.

8. In the `<Log configuration>` section, configure the different settings if you want to set a technical log for this application.
9. Save the file.
10. On the machine where you want to open SAP Financial Consolidation performance counters, start the BFC Monitoring Service.
11. Click *Start > Run*, type `perfmon` and click *OK*.
    The *Reliability and Performance Monitor* opens.
12. Click the *Performance Monitor* view.
13. Click the *Add* button.
14. In the *Available counters* pane, select one or several counters available under:
    - BFC: General statistics
    - BFC: Instances status
    - BFC: Recycling
    - BFC: Task engine activity
15. Add it to the right pane.
16. Click *OK*.
    The Performance Monitor now displays the counters you have selected.



→ Tip

You can consult the log file of the BFC Monitoring Service. This file is named BFCMonitoringLog.log and located in the `C:\Program Files (x86)\SAP BusinessObjects\Financial Consolidation \Logs` folder.

4.3 Monitoring Cube Deployments

Context

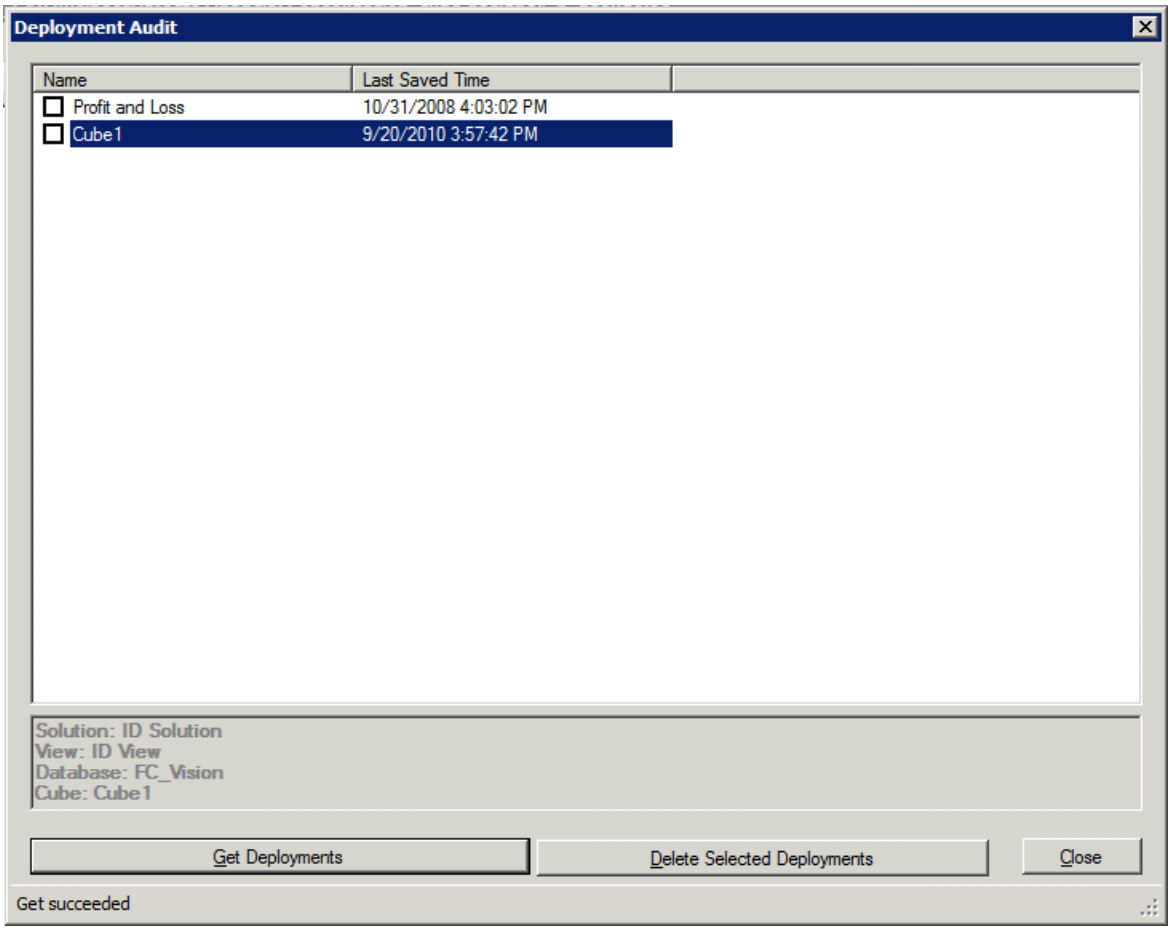
The AnalyticsBatch.exe file enables you to deploy or process an SSAS cube, deploy or process an SAP NetWeaver Business Intelligence (SAP NetWeaver BI) cube, update a cube (for SSAS only) or deploy a star schema.

You can monitor these different synchronizations using the Deployment Audit option in the Cube Designer File menu, or the DeploymentAuditer.exe file.

Procedure

1. In the Cube Designer application, select *File* > *Deployment Audit* or in the Cube Designer installation folder, execute the DeploymentAuditer.exe file.

The Deployment Audit tool opens.



2. Click *Get Deployments*.
   The list of deployments opens.
3. Select one deployment to see its status (In progress, Succeeded, Error).

> **i Note**
>
> You can select one or several cube deployment and delete them if necessary.

5 Administrating Microsoft SQL Server Databases

This section describes how to administrate your SAP Financial Consolidation Microsoft SQL Server databases.

5.1 Recommendations for Improving Performance

In order to increase the performance of the Microsoft SQL Server engine, we recommend the following:

- Use a dedidated server for the SQL Server engine and the SAP Financial Consolidation database
- Increase the RAM to allow SQL to cache more data in RAM (more RAM can improve consolidation processing time)
- Above 4 GB of RAM you must install SQL Server on a 64 bit Operating System
- More processors can reduce the load if you have many concurrent users (however, this does not reduce the consolidation processing time)
- that you separate the data files from the log files and store them on different disks. You can also distribute data on several data files. For more information, see the Customizing the Configuration of Tables in the SAP Financial Consolidation Database [page 67] chapter.
- Files containing data should ideally be stored on one secure disk volume, while log files should be stored on another. These two volumes can be managed by two RAID controllers with cache memory or by one SAN bay. The speed of the hard disks will directly affect the processing speed of the database.
- When the space available in the database is less than 15%, SQL Server's performance will decrease. We therefore recommend that you monitor the database to ensure that there is always 20% available disk space in it.

5.2 Backing up Databases Using the Simple Recovery Model

> ⚠ Caution
>
> For a production database, it is strongly recommend that you use the *Full* recovery model.

If the *Simple* recovery model is used for a SQL Server database, *bcp* or *insert into* type commands cannot be used when backing up the database.

Since SAP Financial Consolidation uses commands such as *insert into* during consolidation operations, running a consolidation operation at the same time as a backup is performed may cause the consolidation to fail.

We recommend you switch the database to the *Bulk-Logged* recovery model before performing the backup. You can then switch the database back to the *Simple* recovery model.

You can switch from one model to another using the following SQL queries:

- To switch the database to "*bulk logged*" recovery model:
  ALTER DATABASE <MyBase> SET RECOVERY BULK_LOGGED
- To switch the database to the *Simple* recovery model:
  ALTER DATABASE <MyBase> SET RECOVERY SIMPLE

These commands can be included in backup scripts so that the consolidation processing can run correctly during backup operations.

6 Administrating Oracle Databases

This section describes how to administrate your SAP Financial Consolidation Oracle databases.

6.1 Recommendations for Improving Performance

In order to increase the performance of the Oracle engine, we recommend also the following:

- Allow a dedidated server for the Oracle engine and the SAP Financial Consolidation database
- Increase the RAM to allow Oracle to cache more data in RAM (more RAM can improve consolidation processing time). To find out more, see the Initialization parameters [page 43] chapter.
- More processors can reduce the load if you have many concurrent users (however, this does not reduce the consolidation processing time)
- that you separate the data files from the log files and store them on different disks. You can also distribute data on several data files. For more information, see the Configuration of Tablespaces and Database Object Storage [page 44] chapter.
- Files containing data should ideally be stored on one secure disk volume, while log files should be stored on another. These two volumes can be managed by two RAID controllers with cache memory or by one SAN bay. The speed of the hard disks will directly affect the processing speed of the database.

6.1.1 Initialization parameters

We first recommend that you check that your Oracle parameters correspond to the parameters described in the *SAP Note 1431798 - Oracle 11.2.0: Database Parameter*.

The appropriate values for the Oracle initialization parameters depend on the following:

- The resources available on the server.
- Size of SAP Financial Consolidation consolidated data tables.

For optimum performance, the value of the *db_cache_size* parameter should be at least three times the size of the largest consolidated data table. You should also take the RAM available on the server into account when setting the value of this parameter.

An Oracle connection uses 500 KB to 1 MB of RAM on the server. Because there can be as many open connections as users connected in SAP Financial Consolidation, you should ensure that there is sufficient memory available on the server to manage these connections. You can also use the Shared Server mode.

For most of the Oracle parameters, you can use the default values for SAP Financial Consolidation. The parameters we recommend be changed are listed below. This example is valid for a server that has 1 GB of RAM for the Oracle instance. With Oracle 10g, automatic management of the settings is supported but you will get better performance if you set the parameters manually.

```
DB_BLOCK_SIZE = 16384 (*)
DB_CACHE_SIZE= 629145600 (**)
SHARED_POOL_SIZE = 67108864
SHARED_POOL_RESERVED_SIZE = 0
JAVA_POOL_SIZE = 0
LARGE_POOL_SIZE = 0
PROCESSES = 300 (**)
WORKAREA_SIZE_POLICY= AUTO
PGA_AGGREGATE_TARGET=209715200 (**)
OPEN_CURSORS = 1000
RECYCLEBIN=OFF
```

(*) depending on the type of server e.g. Windows, Unix, etc.

(**) depending on the server characteristics e.g. RAM, number of users, etc.

Moreover, Oracle recommends setting a PGA_AGGREGATE_TARGET parameter to define the total amount of memory available for all user sessions, instead of using the SORT_AREA_SIZE parameter, used only for backward compatibility. The amount of RAM dedicated to the sort area is no longer limited to a fixed value per connection as was the case in Oracle8i. Instead, it is now allocated dynamically from Oracle9i.

If more memory is available on the server, you should increase the values of the DB_CACHE_SIZE and PGA_AGGREGATE_TARGET parameters.

Please note that the value of the DB_CACHE_SIZE parameter depends on the memory available on the server and on the size of the SAP Financial Consolidation consolidated data tables. For optimum performance, its value should be at least three times the size of the largest Businessobjects Finance consolidated data table.

For example, if your database contains a consolidated data table whose size is 150 MB, the value of the DB_CACHE_SIZE parameter should be 471859200, i.e. 450 MB of RAM.

6.1.2 Configuration of Tablespaces and Database Object Storage

In SAP Financial Consolidation, you can specify the settings for storing tables and indexes using the WDDLHOOK table. To find out more, see Customizing the Configuration of Tables in the SAP Financial Consolidation Database [page 67]. Specifying the correct values enables you to use the space available optimally and to improve performance.

SAP Financial Consolidation manages the following types of table:

- Tables containing the SAP Financial Consolidation setup.
- Tables containing user data e.g. packages, consolidations, journal entries, etc.
- Worktables, which may be compared to temporary tables.

The tables containing the setup are not large and grow slowly as SAP Financial Consolidation is used.

The tables containing data are generally large and tend not to be modified once they are created. They are generally filled in as soon as they are created, and are rarely modified afterwards.

The user data tables whose name starts with CT_PK, CT_CO, CT_CO_ENTRY, CT_PC, CT_PC_ENTRY, CT_PK_ENTRY and CT_OPBAL.

The worktables can contain a large amount of data, but their life span is limited. The name of these tables always starts with letter T. Furthermore, since these tables are only used for processes, it is not necesary to

archive their contents. The ARCHIVE_LOG mode can therefore be deactivated on these tables to improve performance. To do this, create a TABLESPACE dedicated to these worktables with the NOLOGGING option.

For ease of administration, the storage configuration for the three tables above can be different.

You can also use temporary tables by activating the *Use Temporary Table* option in the administration console (by editing the properties of the *AdvancedDBString* parameter). If you do so, the largest worktables are managed like temporary tables. You should therefore provide enough space for the temporary TABLESPACE.

From the Oracle 9i engine, you can manage the size of segments automatically. This is known as local mode, and replaces the dictionary mode available in Oracle 8i. With this mode, you no longer need to specify the size for the segments, and performance should be improved.

This mode is configured at tablespace level.

Example

```
CREATE TABLESPACE <Table_Space> DATAFILE ….

EXTENT MANAGEMENT LOCAL AUTOALLOCATE;
```

You can, however, set specific storage parameters for each table using the WDDLHOOK table.

For worktables, you should create a dedicated tablespace in NOLOGGING mode. You should also configure the WDDLHOOK table so that the temporary tables will use this dedicated tablespace.

Example of a tablespace creation script for worktables :

```
/* Create tablespace in NOLOGGING mode */

CREATE TABLESPACE tbs_data_MAGTEMP

DATAFILE 'd:\oracle\oradata\cart\finance\tbs_data_MAGTEMP.dbf' SIZE 500M

EXTENT MANAGEMENT LOCAL AUTOALLOCATE NOLOGGING;

/* Create WDDLHOOK table to take the dedicated tablespace into account */

CREATE TABLE WDDLHOOK (TABLENAME char(65) CONSTRAINT wddlhook_tablename_pk PRIMARY
KEY, TYPO char(65), CREATETBL varchar2(256), CREATEIDX varchar2(256));

INSERT INTO WDDLHOOK (TABLENAME, CREATETBL, CREATEIDX)

VALUES ('T*','TABLESPACE tbs_data_MAGTEMP',' TABLESPACE tbs_data_MAGTEMP ');
```

> **i Note**
>
> If the worktables are managed like temporary tables, you do not have to manage them using the WDDLHOOK table.

6.1.3 Configuring the Optimizer

You must verify that all your database parameters starting with `optimizer_` are configured with the values described in the SAP Note *SAP Note 1431798 - Oracle 11.2.0: Database Parameter*.

From Oracle 10g and 11g, the GATHER-STATS-JOB collects the statistics. The execution window for this job is WEEKNIGHT-WINDOW (Monday to Friday between 10 p.m. and 6 a.m.) and WEEKEND-WINDOW (noon Saturday to noon Sunday). Depending on your environment, it may be necessary to modify the execution windows to minimize their impact.

7 Administrating SAP HANA Databases

Except for regular backups, you do not have any specific tasks to perform regarding SAP HANA databases optimization.

7.1 Prerequisites for creating SAP HANA Modeling Views with Cube Designer

SAP HANA Modeling Views are are built on top of a fact table. This table contains all or sub-parts of consolidated amounts of the Financial Consolidation database.

To generate this fact table, you must use the stored procedure named FC_CREATE_FACT_DATA.

When you run this stored procedure, this will create or update the CT_FACT_DATA table.

This stored procedure must be executed:

- at least once before generating SAP HANA Modeling Views with Financial Consolidation Cube Designer,
- and each time you want to update the fact table when consolidated data has been modified.

This stored procedure can be triggered manually or you can also create pre-consolidated tasks that can be scheduled periodically.

As SAP HANA Modeling Views are only based on the fact table, you do not need to deploy Cube Designer solutions each time the fact table is updated: modelling views are always real time updated.

Syntax of this stored procedure:

```
FC_CREATE_FACT_DATA ((
    IN sCA NVARCHAR(12)    DEFAULT '%',
    IN sDP NVARCHAR(12)    DEFAULT '%',
    IN sSC NVARCHAR(12)    DEFAULT '%',
    IN sVE NVARCHAR(12)    DEFAULT '%',
    IN sCC NVARCHAR(12)    DEFAULT '%',
    IN nMode INT          DEFAULT 0)
```

The parameters are the following:

- sCA: Financial Consolidation category code. Default % (all values)
- sDP: Financial Consolidation data entry period code. Default % (all values)
- sSC: Financial Consolidation scope code. Default % (all values)
- sVE: Financial Consolidation consolidation version code. Default % (all values)
- sCC: Financial Consolidation consolidation currency code. Default % (all values)
- nMode: 0 = update, 2 = create (and drop previous table). Default 0

Examples:

- `CALL "FCSCHEMA"."FC_CREATE_FACT_DATA"()`

Creates or updates the fact table with all consolidated data.

- `CALL "FCSCHEMA"."FC_CREATE_FACT_DATA"('A','2010.12',0)`

  Updates the fact table with consolidated data from category A and the data entry period December 2010.

- `CALL"FCSCHEMA"."FC_CREATE_FACT_DATA"('%','2012%',2)`

  Recreates the fact table with all consolidated data from the year 2012.

- `CALL"FCSCHEMA"."FC_CREATE_FACT_DATA"('A','2012.12','GROUP','YTD','EUR',0)`

  Updates the fact table with the consolidated data from category A, data entry period 2012.12, scope GROUP , consolidation version YTD and consolidation currency EURO.

7.2 Deleting Rights created during Cube Deployements

During cube deployments, SAP Financial Consolidation generates SAP HANA objects to manage security. These objects are the following:

- Stored procedures
- Analytics Privileges
- Roles

If you want to clean up your database from all these objects, you can use the following stored procedure below:

```
drop PROCEDURE DROP_AP_ARTIFACTS;
CREATE PROCEDURE DROP_AP_ARTIFACTS()
LANGUAGE SQLSCRIPT AS
BEGIN
DECLARE name NVARCHAR(256) := '';
DECLARE CURSOR cur_proc (name NVARCHAR(256)) FOR SELECT PROCEDURE_NAME FROM
"PUBLIC"."PROCEDURES" WHERE schema_name = CURRENT_SCHEMA and (PROCEDURE_NAME
LIKE '%SAPFC_FILTER%' OR PROCEDURE_NAME LIKE '%SAP_FILTER%' );
DECLARE CURSOR cur_func (name NVARCHAR(256)) FOR SELECT FUNCTION_NAME FROM
"PUBLIC"."FUNCTIONS" WHERE schema_name = CURRENT_SCHEMA and (FUNCTION_NAME LIKE
'%SAPFC_FILTER%' OR FUNCTION_NAME LIKE '%SAP_FILTER%' );
DECLARE CURSOR cur_priv (name NVARCHAR(256)) FOR SELECT DISTINCT
STRUCTURED_PRIVILEGE_NAME FROM "PUBLIC"."STRUCTURED_PRIVILEGES"
 WHERE STRUCTURED_PRIVILEGE_NAME LIKE CURRENT_SCHEMA || '%_SAPFC_%'
OR STRUCTURED_PRIVILEGE_NAME LIKE CURRENT_SCHEMA || '%_ct_%'
OR STRUCTURED_PRIVILEGE_NAME LIKE CURRENT_SCHEMA || '%_bofc%';
DECLARE CURSOR cur_role (name NVARCHAR(256)) FOR SELECT ROLE_NAME FROM
"PUBLIC"."ROLES" WHERE ROLE_NAME LIKE CURRENT_SCHEMA || '%_SAPFC_%'
OR ROLE_NAME LIKE CURRENT_SCHEMA || '%_ct_%'
OR ROLE_NAME LIKE CURRENT_SCHEMA || '%_bofc%';
FOR cur_row as cur_priv(name) DO
       EXEC 'DROP STRUCTURED PRIVILEGE "' || cur_row.STRUCTURED_PRIVILEGE_NAME
|| '"';
END FOR;
FOR cur_row AS cur_proc(name) DO
       EXEC 'DROP PROCEDURE "' || cur_row.PROCEDURE_NAME || '"';
END FOR;
FOR cur_row AS cur_func(name) DO
       EXEC 'DROP function "' || cur_row.FUNCTION_NAME || '"';
END FOR;
FOR cur_row as cur_role(name) DO
       EXEC 'DROP ROLE "' || cur_row.ROLE_NAME || '"';
```

```
END FOR;
END;
```

7.3 SAP HANA Table Partitioning (Single-Table Mode)

When you run a consolidation process in Financial Consolidation, the application creates and stores a series of consolidated data in CT_CO_XXX tables. For example if 10 different consolidations are run, 10 CT_CO tables are created and stored in the database.

If you are using SAP HANA Modeling Views that can be accessed in real-time by Microsoft Excel or Business Intelligence (BI) tools, the partitioned CT_CO_XXX tables (multi-table mode) need to be aggregated into a single SAP HANA table.

There is a stored procedure which performs this aggregation automatically, as indicated in the Prerequisites for creating SAP HANA Modeling Views with Cube Designer [page 47] chapter. This stored procedure creates the CT_FACT_DATA fact table which is then consumed by Microsoft Excel or BI (business intelligence) reporting tools through SAP HANA views.

However, this method has two main drawbacks:

- It creates a copy of the consolidated data in the database, which consumes storage space and memory.
- Each time a consolidation process is run, the CT_FACT_DATA table must be updated, which is a time-consuming operation.

In order to avoid these drawbacks, a new partitioning method called SAP HANA Single-Table Mode is now available: Financial Consolidation tables are now stored in a single SAP HANA table (named CT_CO), which is then natively partitioned by SAP HANA. The CT_CO_XXX tables and the CT_FACT_DATA table are no longer used. With this innovation, the previously required stored procedure for duplicating and transforming consolidated data in the Fact Table is no longer needed, and the SAP HANA database database size, with regards to the consolidation data, is reduced by half..

> **i Note**
>
> This native SAP HANA Single-Table Mode has no impact on the performance or speed of the software consolidation process.

> **⚠ Caution**
>
> You cannot run these two modes (multi-table mode and single-table mode) on the same database: once you have migrated to Financial Consolidation single-table mode, all the past consolidation data is stored in a single table and you can no longer activate the multi-table mode for subsequent consolidations. However, in the same environment, you can have different databases running in the two different modes (for example, one top database in single-table mode, and several child databases in multi-table mode).

7.3.1 Migrating from Financial Consolidation Multi-Table Mode to SAP HANA Single-Table Mode

Context

To migrate to this new mode, you must execute the migration from the Administration console in the Financial Consolidation application, and then run an executable as described in the following procedure:

Procedure

1. Stop the data source.
2. Restart the SAP HANA instance.

   > **i Note**
   >
   > Restarting the SAP HANA instance allows you to free its memory space.

3. Open a command prompt or a PowerShell and execute the *HANATablePartitioningMigration.exe* file, located at the root of the installation folder of SAP BusinessObjects Financial Consolidation.

   This executable contains the following arguments that you must modify before executing it:

   ```
   HANATablePartitioningMigration.exe  --datasourcename <> --brokername <> --
   datasourcepassword <> --username <> --password <>
   ```

   > **⚠ Caution**
   >
   > The arguments are case-sensitive.

   This executable runs the procedure to migrate all CT_CO_XXX tables into one single CT_CO table.

   > **i Note**
   >
   > Since this executable runs in transaction mode, you can run it again if an error occurs.

   > **⚠ Caution**
   >
   > This process can take up to several hours (depending on the number of tables and the number of rows in each table); you must not stop it. This is why you should back up your database before running the script.

7.3.2 Post-Migration Tasks to Perform

After the migration of the consolidation tables, you must review and adapt some customized elements to fit this new mode.

1. External programs and custom developments:
   All external programs and custom developments must be reviewed and adapted, everywhere that they refer to different consolidation tables, as there is only one consolidation table after the migration.
2. In the Financial Consolidation application:
   Rules using coefficients, SQL queries, and every script referring to different consolidation tables must be reviewed and adapted.
3. SAP HANA Modeling Views in th Cube Designer component:
   When deploying an SAP HANA Modeling View in Cube Designer, the data foundation refers to the CT_CO table and no longer refers to the CT_FACT_DATA table. Therefore, you should replace all previous views containing a foundation with the CT_FACT_DATA table with the CT_CO table.
   Additionally, it is recommended that after these modifications, you delete the CT_FACT_DATA table and the stored procedure that updates it (fc_create_fact_data). However, if you prefer to keep it for historical reason, it is possible.

8 Interoperability with SAP S/4HANA

With SAP Financial Consolidation 10.1 SP05 and higher, a new feature allows end users to directly import SAP S/4HANA data into packages via a Data Link definition.

The list of functional prerequisites below summarizes product enhancements related to this new feature:

- Defining a Data Link definition of the new S/4HANA type in the Windows client:
  - A new S/4HANA data source type is now available in Data Link definitions in addition to the file and table legacy data source types.
  - In S/4HANA Data Link definitions, SAP HANA calculation views can be selected as data source in addition to tables and SQL views.
  - The deployment of S/4HANA Data Link definitions triggers the creation of HANA artifacts in the S/4HANA system. They are used to transform source data as per the cross-reference mappings contained in the Data Link definitions.
- Granting the new user right to the user's profile: "Import data from S/4HANA into a package".
- Running package import using SAP Financial Consolidation Web HTML5 client:
  - A new S/4HANA data source type is now available for package import in addition to the file and table legacy source types.
  - S/4HANA Data Link definitions can be selected as source of the package import in the Web HTML5 client.
  - This functionality is available neither in the Windows client nor in the legacy Web client.

The technical prerequisites are the following:

- Running SAP Financial Consolidation on SAP HANA.
- Creating a dedicated SAP HANA user in the SAP S/4HANA system.
- On Financial Consolidation servers, defining an ODBC data source (HDBODBC32 Driver) referring the S/4HANA system.
- Defining an ODBC data source (HDBODBC32 Driver) based on the S/4HANA system.

As explained above, SAP HANA calculation views can be used as sources of S/4HANA Data Link definitions. This allows you to make the most of the SAP HANA modeling capabilities and transform S/4HANA data on-the-fly for it to be consumed by the consolidation system with no intermediate data storage step.

A default source calculation view is provided by SAP: S4H_YTD. It illustrates how financial data can be extracted from S/4HANA and processed in order to prepare the Data Link source data. The main data transformations performed by this calculation view are the following:

- filtering transactional data relevant to financial consolidation,
- calculation of year-to-date data from S/4HANA periodic data,
- adding metadata information.

The S4H_YTD calculation view can be used as a starting point and enhanced to meet your data import requirements.

Related Information

Customizing the Calculation Views [page 60]

8.1 Setting up the Interoperability with SAP S/4HANA

In order to meet the technical requirements above, both the SAP S/4HANA system and the SAP BusinessObjects Financial Consolidation servers must be updated as per the procedures explained in the SAP BusinessObjects Financial Consolidation Installation Guide (see the "Installing and Configuring Components for Interoperability with SAP S/4HANA" chapter). The procedures concerning the SAP S/4HANA system must therefore be followed by IT people responsible for this system.

One of these procedures explains how to import an SAP HANA delivery unit into the SAP HANA system that hosts the S/4HANA database. This delivery unit is available on SAP Support Portal (Software Downloads) alongside the SAP BusinessObjects Financial Consolidation 10.1 SP5 installation package. It includes two calculation views designed by SAP: the main S4H_YTD calculation view mentioned earlier, and a second calculation view designed to map source periods and target periods: YTD_PERIOD_MAP16T12 (To find out more, see Understanding the SAP Calculation Views [page 53]).

8.2 Understanding the SAP Calculation Views

This chapter explains the design principles and calculation logic of the S4H_YTD and YTD_PERIOD_MAP16T12 calculation views.

SAP recommends you to read it thoroughly before making any change to the calculation views.

> **i** Note
>
> A good understanding of the S/4HANA data structure - notably the ACDOCA table - and semantics is required to fully benefit from these explanations.

8.2.1 S4H_YTD Calculation View: Calculation Steps

The following table explains the purpose of each calculation node of the S4H_YTD calculation view. The steps are listed in the reverse order of the calculation sequence in order to match the presentation of calculation nodes in SAP HANA Studio.

Step	Node Type	Node Name	Purpose
9	Aggregation	Aggregation	Final aggregation
8	Join	Add_SKA1_Info	Adding account-related information: company group code (BILKT)
7	Join	Add_T001_Info	Adding company-related information (Reporting Unit): currency (WAERS), company's reporting code (RCOMP)
6	Aggregation	Aggr_YTDandOP	Aggregating records, notably by year-to-date period (YTD_PER column). **i Note** At step 4, each periodic data is replicated by target period. Calculating the FC data entry period value (BOFC_DP).
5	Union	YTD_Union_OP	Grouping records from the year-to-date calculation and the opening position calculation (i.e., both join nodes at step 4).
4	Joins	Calcul_YTD	Preparing the calculation of year-to-date data: replicating periodic data by source period for each associated target period, by currency type (join with YTD_PERIOD_MAP16T12).
		Calcul_OP	Calculating the opening period data on dedicated amount columns, by currency type (join with YTD_PERIOD_MAP16T12).

Step	Node Type	Node Name	Purpose
3	Projections	FilterP0	Filtering the posting period: selecting opening data only via the posting period (C_POPER=0). The objective is to expose opening amount in dedicated columns in order to simplify the Data Link definition for the Flow dimension.
2	Join	Add_CURPOS_Info	• Handling the compatibility with legacy GL data model: calculating the KSL and OSL amounts from the CURPOS[x] information. • Calculating the posting period ID (C_POPER) from POPER
1	Aggregation	ACDOCA_Extract	Selecting columns relevant to the Data Link definition Filtering the following: • Client ID (RCLNT, referring to the MANDT information, by default '000'), • Actual data via the record type (RRCTY in ('0', '2'), • Ledger (by default RLDNR in ('0L', 'Z1')) • the Fiscal Year Period (PERIV='K4'). • The document status (BSTAT in ('M', 'D'))

8.2.2 YTD_PERIOD_MAP16T12 Calculation View: Objective

One of the objectives of the calculation view is to infer the target SAP BusinessObjects Financial Consolidation data entry period – codified "YYYY.PP" – from the ACDOCA year and posting period information.

The default scenario consists in mapping fiscal periods that match a calendar year both in SAP S/4HANA and SAP BusinessObjects Financial Consolidation.

The ACDOCA_Extract aggregation node filters data on the K4 code for Fiscal Period Variants (PERIV) as per the default scenario.

The YTD_PERIOD_MAP16T12 calculation view is delivered alongside and used in the main S4H_YTD calculation view. It is intended to calculate year-to-date data from periodic data. It returns the list of the relations between source periodic periods and target year-to-date periods.

The view returns three columns whose names and content is explained below:

- SRC_PER_INDEX: index of the source period. It corresponds to the posting period number in table ACDOCA extracted from the POPER column (from 1 to 16 as per the K4 Fiscal Period Variant);
- TRG_PER_INDEX: index of the month of the target year-to-date data entry period in SAP BusinessObjects Financial Consolidation (from 1 to 12)
- TRG_PER_ID: identifier of the month of the target year-to-date data entry period in SAP BusinessObjects Financial Consolidation, used in the period name as per the "YYYY.MM" format. It matches the target period index when the fiscal year implemented in SAP BusinessObjects Financial Consolidation matches the calendar year, from January To December, which is the case by default. If it is not the case, the output of this column must be updated. To find out more, see Adapting the Configuration to a Different Fiscal Period Variant [page 61].

Example with target period 3

SRC_PER_INDEX	TRG_PER_INDEX	TRG_PER_ID
...	...	...
0	3	3
1	3	3
2	3	3
3	3	3
...	...	...

Year-to-date amounts for month #3 are calculated by aggregating periodic amounts stored on period 0 (opening position), 1, 2 and 3. By joining the ACDOCA-based calculation nodes with the SOURCE_PER column of this calculation view, ACDOCA amounts are duplicated by target year-to-date period.

8.2.3 S4H_YTD Calculation View: Timestamp Management

In SAP S/4HANA, transactions are timestamped by year, month, day of month, hour, minute and second: in the ACDOCA universal journal table, the timestamp column stores the UTC timestamp information in numerical format as per the following pattern: YYYYMMDDhhmmss. SAP Financial Consolidation leverages this information to provide the user with the following features in the S/4HANA Data Monitor page of the HTML5 web client:

- Transformation log,
- Information about the availability of new data records in S/4HANA since the last package import.

The prerequisite is to define the timestamp output column in the source calculation view and to populate it properly with data from the timestamp column of the ACDOCA table.

The S4H_YTD calculation view is configured accordingly. Since the data extracted from ACDOCA is aggregated in the first calculation node of the calculation view, the MAX function is applied to the timestamp column so that the latest timestamp is computed for each remaining output row. In business terms, the date of the latest transaction is calculated for a given combination of fiscal year, period, company, account, movement, cost center, etc.

8.2.4 S4H_YTD Calculation View: Focus on Step 2 to Step 6

The table below explains how year-to-date calculation is performed from step 2 to step 6 for year-to-date periods 1, 2 and 3.

Step	Node data extract							Comment
2 and 3	RYEAR	RBUKRS	RACCT	...	C_POPER	HSL	HSL_OP	Extracting periodic data.
	2018	UNIT01	001000	...	0	-	100	
	2018	UNIT01	001000		2	50	-	
	2018	UNIT01	001000		3	20	-	
4 and 5	RYEAR	RBUKRS	RACCT		TRG_PER_ID	HSL	HSL_OP	
	2018	UNIT01	001000	...	1		100	Calcul_OP node: selecting the opening position from the '0' period and duplicating it by target period.
	2018	UNIT01	001000		2		100	
	2018	UNIT01	001000		3		100	
	2018	UNIT01	001000		1	100		Calcul_YTD node: duplicating periodic amounts by target period.
	2018	UNIT01	001000		2	100		
	2018	UNIT01	001000		3	100		
	2018	UNIT01	001000		2	50	-	
	2018	UNIT01	001000		3	50	-	
	2018	UNIT01	001000		3	20	-	
6		RBUKRS	RACCT		BOFC_DP			After aggregation, the opening and closing information is available for each Fi-
		UNIT01	001000	...	2018.01	100	100	
		UNIT01	001000		2018.02	150	100	

	UNIT01	001000		2018.03	170	100	nancial Consolida-tion data entry pe-riod.

Step 6: data entry period calculation in column BOFC_DP

The Financial Consolidation data entry period is computed in the BOFC_DP column by concatenating the YEAR value and target month identifier.

8.2.5 S4H_YTD Calculation View: Default Output columns

The table below lists the default output columns. The next chapter explains how to add or remove output columns.

Columns ID	Type	Description
BOFC_DP	Attribute	FC Data Entry Period
RBUKRS	Attribute	Company
RCOMP	Attribute	Group Code
WAERS	Attribute	Company Currency
RACCT	Attribute	Account
BILKT	Attribute	Group Account
RMVCT	Attribute	Movement Type
RASSC	Attribute	Trading Partner
RTCUR	Attribute	Transaction Currency - Currency
RHCUR	Attribute	Local Currency - Currency
RKCUR	Attribute	Global Currency - Currency
RWCUR	Attribute	Original Transaction Currency - Cur-rency
TIMESTAMP	Attribute	S/4HANA Timestamp
TSL	Measure	Transaction Currency – Closing Amount

Columns ID	Type	Description
TSL_OP	Measure	Transaction Currency - Opening Amount
HSL	Measure	Local Currency - Closing Amount
HSL_OP	Measure	Local Currency - Opening Amount
KSL	Measure	Global Currency - Closing Amount
KSL_OP	Measure	Global Currency - Opening Amount
OSL	Measure	Other Currency - Closing Amount
OSL_OP	Measure	Other Currency - Opening Amount
VSL	Measure	Fourth Currency - Closing Amount
VSL_OP	Measure	Fourth Currency - Opening Amount
FSL	Measure	Fifth Currency - Closing Amount
FSL_OP	Measure	Fifth Currency - Opening Amount
WSL	Measure	Original Transaction Currency - Closing Amount
WSL_OP	Measure	Original Transaction Currency - Opening Amount
MSL	Measure	Quantity - Closing Amount
MSL_OP	Measure	Quantity - Opening Amount

> **i Note**
>
> In the HTML5 web client, users can download transformation preview files and transformation log files. These files explain how data is transformed between S/4HANA and SAP Financial Consolidation by Data Link definition rules during the package import process. The files include source columns used in the mapping rules and destination columns.
>
> Source columns are sorted first by type (text columns, then numerical columns), then by name (alphanumerical order). Consequently, changing the order of source columns for a type in the transformation preview and the transformation log implies changing the name of output columns in the source calculation view. This change applies to all HTML5 web client users.

8.3 Customizing the Calculation Views

This chapter provides you with guidance on modifying the calculation views to meet your financial reporting requirements.

As explained in SAP BusinessObjects Financial Consolidation Installation Guide, SAP recommends you to copy the default calculation views into a dedicated native package on the SAP S/4HANA system and to modify them rather than modifying the calculation views imported via the delivery unit.

8.3.1 Adding / Removing Output Columns

The pre-configured S4H_YTD calculation view includes a default set of attributes corresponding to the standard Financial Consolidation dimensions.

Output columns can easily be added to or deleted from the pre-configured S4H_YTD calculation view per the dimensions and amount types required as part of your financial reporting. This can be the case for columns that contain segment reporting information, like SEGMENT or LAND1 for instance.

To do so, proceed as following in the first ACDOCA_Extract modeling node, which selects the ACDOCA table as modeling data source:

- Adding an output column:
  1. Right-click on the column name and click *Propagate to Semantics*.
  2. In the last Semantics node, check the type of the new output column: Attribute or Measure.

  > ⚠ Caution
  >
  > Check that the column mapping has been properly processed in the union nodes of the calculation view. Complete the mapping between new source columns and new target columns if necessary.
- Removing an output column:
- 1. In the list of output columns, right-click on the column name and click *Remove*.
     Successive warning messages indicate that the output column will be removed from all the calculation nodes up to the Semantics node.
  2. Accept by clicking *OK*.

  > ⚠ Caution
  >
  > With SAP Financial Consolidation 10.1 SP07 and higher, the S/4HANA Data Monitor enables you to download transformation logs and to get information about newly available S/4HANA data (“New S/4HANA Data Available” and “S/4HANA Last Updated on” columns).
  >
  > These new features are based on the timestamp column. Consequently, if you remove the timestamp column from the calculation view, or rename it, or change its calculation formula, these features will not be available.

8.3.2 Updating Filters in Node ACDOCA_Extract

Filtering data in the calculation view is essential both to ensure data correctness and performance of data import into SAP Financial Consolidation:

- Only some ACDOCA records are relevant to consolidation (Client, Ledger, Record Type, Document Status)
- In terms of operations, it is recommended to filter the current data to limit the number of records returned by the calculation view and increase the performance of data transfer into SAP Financial Consolidation packages.

In both cases, such filters are preferably configured at lowest level, that is when extracting data from the view data source. Therefore, the ACDOCA_Extract calculation node includes the following filters that must be updated per your configuration once the S4H_YTD calculation view is imported into your S/4HANA system:

- RCLNT – Client: update the value per your client identifier (i.e. T000-MANDT)
- RLDNR - Ledger: include in this filter the identifier of the reference ledger. If this is an extension ledger, also select the identifier of the underlying base ledger.
- RRCTY – Record Type: check whether actual assessment/distribution data must be included in the reporting (RRCTY=2)
- BSTAT – Document Status: check whether other status than template entries ('M' and 'D') should be filtered out.

In addition to the static filters above, and for performance reasons, it is recommended to add a filter on the RYEAR column to filter the data of the current year only, and update it over time.

8.3.3 Adapting the Configuration to a Different Fiscal Period Variant

The SAP default calculation views are configured to meet the case when the fiscal period variant matches the calendar year both in SAP S/4HANA (ACDOCA-PERIV="K4") and in SAP Financial Consolidation (e.g. 2017.12 refers to December 2017). This principle is applied in the calculation views as follows:

- Calculation view S4H_YTD, base node ACDOCA_Extract: filtering the PERIV column. Only records posted on the "K4" value are selected.
- Calculation view YTD_PERIOD_MAP16T12, output column TRG_PER_ID: defining the month identifier of the target year-to-date data entry period.

Should the fiscal period variant be different from the calendar year, both configuration items above must be updated accordingly. For example, if the fiscal year spans from July of year Y to June of year Y+1 in SAP Financial Consolidation, then the values of the TRG_PER_ID output column must be updated row by row in the SQL code of the YTD_PERIOD_MAP16T12 calculation view as follows: 7, 8, 9, 10,11, 12, 1, 2, 3, 4, 5, 6 (instead of 1 to 12).

8.4 S/4HANA Data Link Definitions: Best Practices

The principles described in this chapter explain further the design of the default calculation views and should be followed when it comes to designing your own calculation views used as S/4HANA Data Link sources.

8.4.1 Creating Cross-Reference Mappings Dedicated to Category, Data Entry Period, and Reporting Unit

At the beginning of S/4HANA import processes, the program identifies the packages to be imported and focuses on the mappings for dimensions that identify packages in order to generate the corresponding output values: category, data entry period and reporting unit.

Therefore, in S/4HANA Data Link definitions, for performance reasons, SAP recommends creating one to three cross-reference mappings dedicated to these three dimensions: category, data entry period and reporting unit. These dimensions can be managed in separate cross-reference mappings or combined in the same cross-reference mapping. However, it is recommended that other dimensions (account, flow, etc.) are managed in other cross-reference mappings distinct from the cross-reference mappings dedicated to the category, data entry period and reporting unit dimensions. By doing so, the data transformation for other dimensions are performed only for packages to be imported, which saves processing time.

8.4.2 Managing Opening and Closing Position

The opening position of reporting units that are consolidated for the first time (incoming reporting units) must be imported into SAP Financial Consolidation packages for it is not carried forward from the closing position of the previous consolidation.

In this respect, the default S4H_YTD calculation has been designed in a way that facilitates the definition of cross-reference mappings for closing positions as well as opening positions. Closing and opening position amounts are exposed in separate columns in the calculation view (e.g. HSL and HSL_OP for local currency amounts), which is convenient to specify the destination flow (“F99”, “F00”, “Y99”) and source amount for package amount ([HSL] or [HSL_OP]) depending on the source account (balance sheet, revenue or expense).

9 Microsoft SSAS Settings

9.1 SSAS database backup / restore

You cannot save or restore individual cubes; the Backup/Restore functionality applies at the database level. You can access this functionality through SQL Server Management Studio.

Since the cubes generated by SAP Financial Consolidation, cube designer are MOLAP cubes (data is stored in SSAS), the backup of the SSAS database contains a complete image (structure and data) of this database. During the restore process, the data saved in the backup will be stored in the cube: there is no resynchronization with the relational database:

- If proactive caching/live access is not activated, this backup can be restored independently of the relational database (SAP Financial Consolidation database).
- If proactive caching/live access is activated, the cubes and their related dimensions will resynchronize when modifications are made in the SAP Financial Consolidation database. In this case, the cubes would not be up to date: they would be synchronized with dimensions and partitions that have been modified in SAP Financial Consolidation since the last restore of the SSAS database, but not with other dimensions and partitions. It is therefore strongly recommended that you resynchronize the SSAS database with the SAP Financial Consolidation database if it uses proactive caching.

To resynchronize a restored SSAS database with a relational database (i.e. to update the data, the structure itself does not change), it must be reprocessed: the process command is accessible in SQL Server Management Studio. The process command must be executed on the complete database using the process full option. Once the database is restored, you must check that the security options of the database are correctly configured as explained in SSAS database backup / restore [page 63].

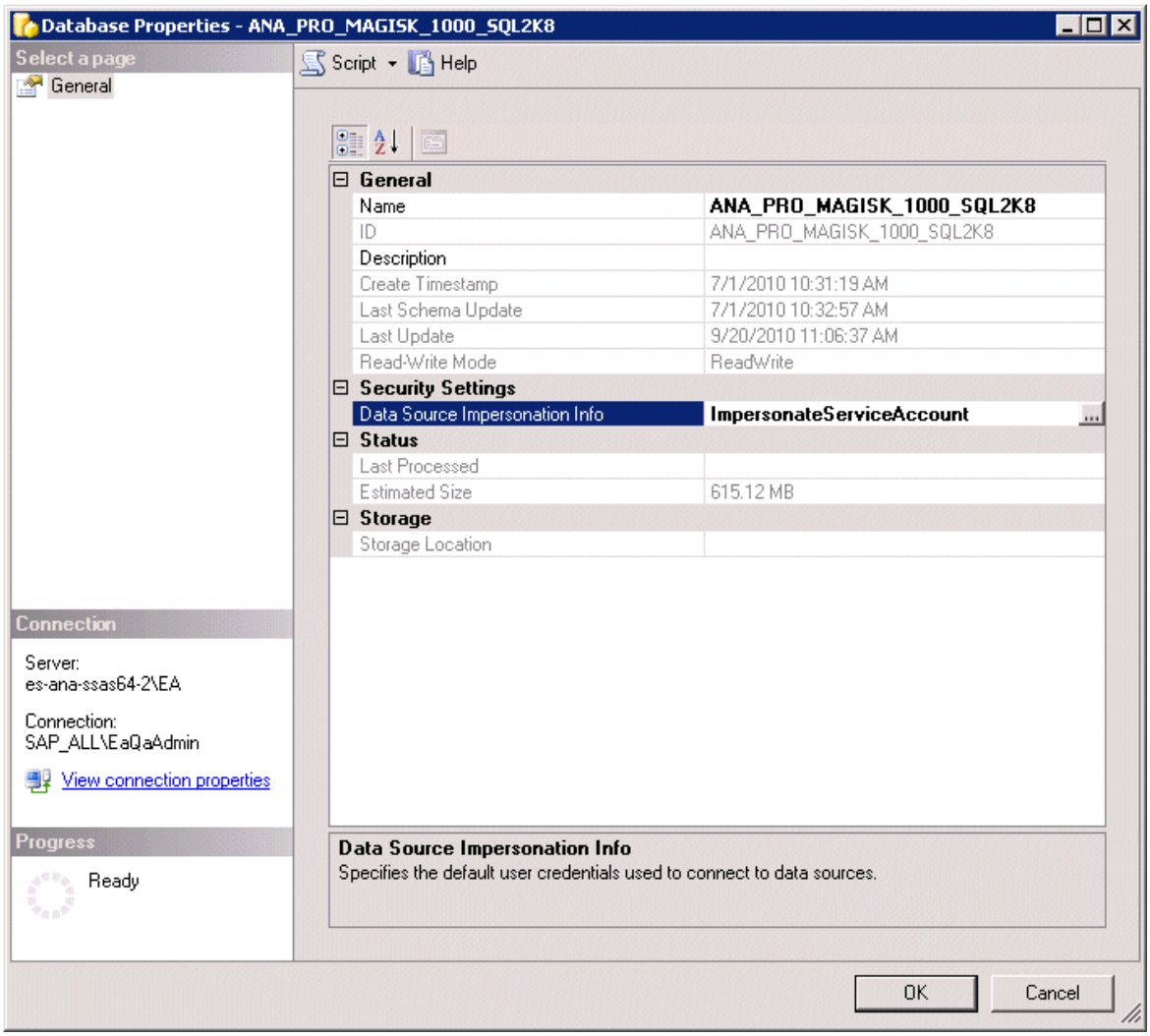
9.2 SSAS database security configuration

Context

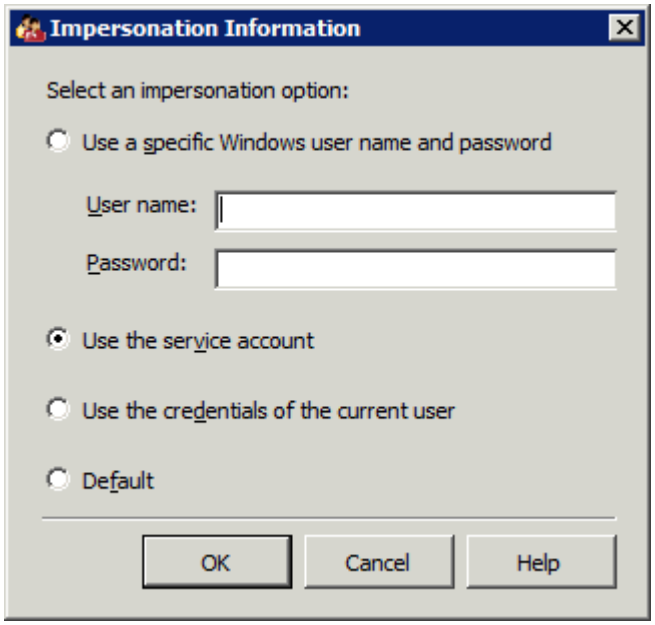
When SAP Financial Consolidation Cube Deployer creates the database, the security options are configured properly. However, if you restore a database or if you encounter any problems, you may want to check the security options.

Procedure

1. Open the database properties.
2. In the *Security Settings* section, click *ImpersonateServiceAccount*.



3. Check that the *Use the service account* or Default is selected. If other options are selected, the database will not function.



9.3 Cubes optimization

Cube Designer has no functionality for optimizing cubes: all Cube Designer cubes have the same settings (dimensions and MOLAP partitions, no aggregation). The SSAS administrator can manually modify these settings using Microsoft tools (Visual Studio and Management Studio). However, Cube Designer does not recognize these modifications and thus will overwrite them when the cube is redeployed.

Nevertheless, the Microsoft recommendation is increase the memory as much as possible to enhance performance.

9.4 Configuring Deployer Performances

You can improve Cube Deployer performances, specifically deployment performances when the *Live Access* option is activated, by modifying some parameters of the Cube Deployer SSAS instance.

This is helpful when the server has to process large MDX queries and cube deployments at the same time. These parameters , with the values given below,allow topause the MDX queries, so that they are processed in thebackground.

1. Right-click the SSAS instance that the Deployer component is using and click *Properties*.
2. In the *General* menu, set the value of *CommitTimeout* to 0.

> **i** Note
>
> This parameter sets the number of milliseconds before pending commit operations time out.

3. In the *General* menu, set the value of *ForceCommitTimeout* to 5000.

> **i** Note
>
> This parameter sets the timeout, in milliseconds, before a commit will cancel other commands that preceded the current command, including queries in process.

4. Without modifying the value of any other parameters, restart the server for the new settings to be taken into account.

10 Customizing the Configuration of Tables in the SAP Financial Consolidation Database

10.1 Description of the WDDLHOOK Table

SAP Financial Consolidation dynamically creates different types of tables and indexes when specific tasks are run. For example, when you run a consolidation processing operation, the server will send SQL statements to the database server so that it creates a new consolidation table with one or more indexes, which in turn will use several temporary worktables during the processing.

To create these database objects, SAP Financial Consolidation uses standard ANSI-compliant SQL syntax, valid for all currently supported databases. These SQL statements can be customized to add the proprietary syntax of the Microsoft SQL Server or Oracle database server. This enables you to store different types of tables in different locations, to separate tables from indexes and to use specific storage parameters unique to the RDBMS thus improving I/O performance.

> **i** Note
>
> For SAP HANA database: since SAP HANA is an in-memory database, the storage location has no impact on performances.

The mechanism used to adapt the settings of the databases and to modify the SQL command generated by SAP Financial Consolidation is called WDDLHOOK. This is a table that contains the syntax corrections that need to be applied to the SQL commands that are used to create the tables and indexes.

10.2 Creating the WDDLHOOK Table

To implement this mechanism in the database, you must manually create a table called WDDLHOOK for Oracle ("wddlhook" in the lower case for SQL Server). This table must be created before the control tables of the SAP Financial Consolidation application are created when the database is initialized via the administration console. If this is not done before initialization, the WDDLHOOK configuration will not be applied.

The table below describes the WDDLHOOK table:

Column	Type	Description
TABLENAME	CHAR(65) NOT NULL	Regular expression corresponding to the name of the table to be customized (e.g. ct_co* or T*)

Column	Type	Description
TYPO	CHAR(65)	Enables the existing definition to be reused for the regular expression
CREATETBL	VARCHAR(256)	SQL query customizing the creation of the table
CREATEIDX	VARCHAR(256)	SQL query customizing the creation of the indexes

- The first column, TABLENAME, contains a regular expression corresponding to a table name. For example: ct_pk* corresponds to the tables that start with ct_pk, and ct_co*1 corresponds to tables that start with ct_co and that end with 1.

  > **i Note**
  >
  > The names of the tables must be entered in lowercase, except for T* tables, which must be entered in uppercase.

- If the second column, TYPO, also contains a regular expression, SAP Financial Consolidation will use the row of the table whose TABLENAME column contains the regular expression.
- The CREATETBL column contains a character string. This string will be added to the end of the table-creation query.
- The CREATEIDX column contains a character string. This string will be added to the end of the index-creation of the table queries.

The syntax you use to create the WDDLHOOK table will depend on your database engine:

> **i Note**
>
> For Oracle, BusinessObjects Technical Support can provide a sample WDDLHOOK script, which can be edited to suit the requirements of your site.

10.2.1 For Microsoft SQL Server

```
create table wddlhook (
   tablename   char(65) not null,
   typo        char(65),
   createtbl   varchar(256),
   createidx   varchar(256))
go
create unique index wddlhook_i1 ON wddlhook ("tablename" )
go
```

10.2.2 For Oracle

```
CREATE TABLE WDDLHOOK (
TABLENAME char(65) CONSTRAINT wddlhook_tablename_pk PRIMARY KEY,
TYPO char(65),
CREATETBL varchar2(256),
CREATEIDX varchar2(256));
```

10.3 Configuring the WDDLHOOK Table

When a new table is created, SAP Financial Consolidation will check if the WDDLHOOK table exists. If it does not exist, the table and its indexes will be created without any specific configuration.

If it exists, SAP Financial Consolidation will check the TABLENAME column to see if one of the regular expressions corresponds to the name of the table. If so, the contents of the CREATETBL field will be added to the query for creating the table and the contents of the CREATEIDX field will be added to the query for creating the indexes.

If none of the regular expressions correspond to the name of the table in the TABLENAME column, then the table and its indexes will be created without any specific configuration.

> ⚠ Caution
>
> Because the contents of the CREATETBL and CREATEIDX fields are added to the queries for creating the table and the indexes without any modification, you should check that the syntax is correct. If it is not, the application will not be able to create the new table or indexes.

> ⚠ Caution
>
> The option that enables you to manage the work tables as temporary tables only applies to tables containing large volumes of data. Activating this option will not delete the small T* tables in the SAP Financial Consolidation database.

Example: In an Oracle database, the WDDLHOOK table contains the following data:

TABLENAME	TYPO	CREATETBL	CREATEIDX
T*	N/A	tablespace CT_TEMP_DATA nologging	tablespace CT_TEMP_DATA nologging
ct_co*	N/A	tablespace CT_AMOUNTS	tablespace CT_INDEX

TABLENAME	TYPO	CREATETBL	CREATEIDX
ct_pk*	ct_co	N/A	N/A
ct_*	N/A	tablespace CT_APP	tablespace CT_INDEX

In this example of the WDDLHOOK table, the creation of tables will be customized as follows:

T15393065 Table

Table T15393065 corresponds to the regular T* expression. SAP Financial Consolidation will therefore take the character strings in the first row of the WDDLHOOK table:

- `create table T15393065(id int(4)) tablespace CT_TEMP_DATA nologging;`
- `create index T15393065_idx on T15393065(id) tablespace CT_TEMP_DATA nologging;`

CT_CO0992 Table

The CT_CO0992 table corresponds to the ct_co* regular expression. The strings of characters from the second row of the table will be used:

- `create table CT_CO0992(accnt …) tablespace CT_AMOUNTS;`
- `create index CT_CO0992I on CT_CO0992(accnt)tablespace CT_INDEX;`

CT_PC0105 Table

The CT_PC0105 table corresponds to the ct_pc* regular expression. In the WDDLHOOK table, this expression is redirected to the ct_pk* expression. The strings of characters from the ct_pk* row will therefore be used:

- `create table CT_PC0105(period …)tablespace CT_AMOUNTS;`
- `create index CT_PC0105_IDX1 on CT_PC0105(entity, accnt) tablespace CT_INDEX;`

CT_ENTITY Table

The only regular expression corresponding to CT_ENTITY is ct_*. The strings of characters from the last row of the WDDLHOOK table will be used:

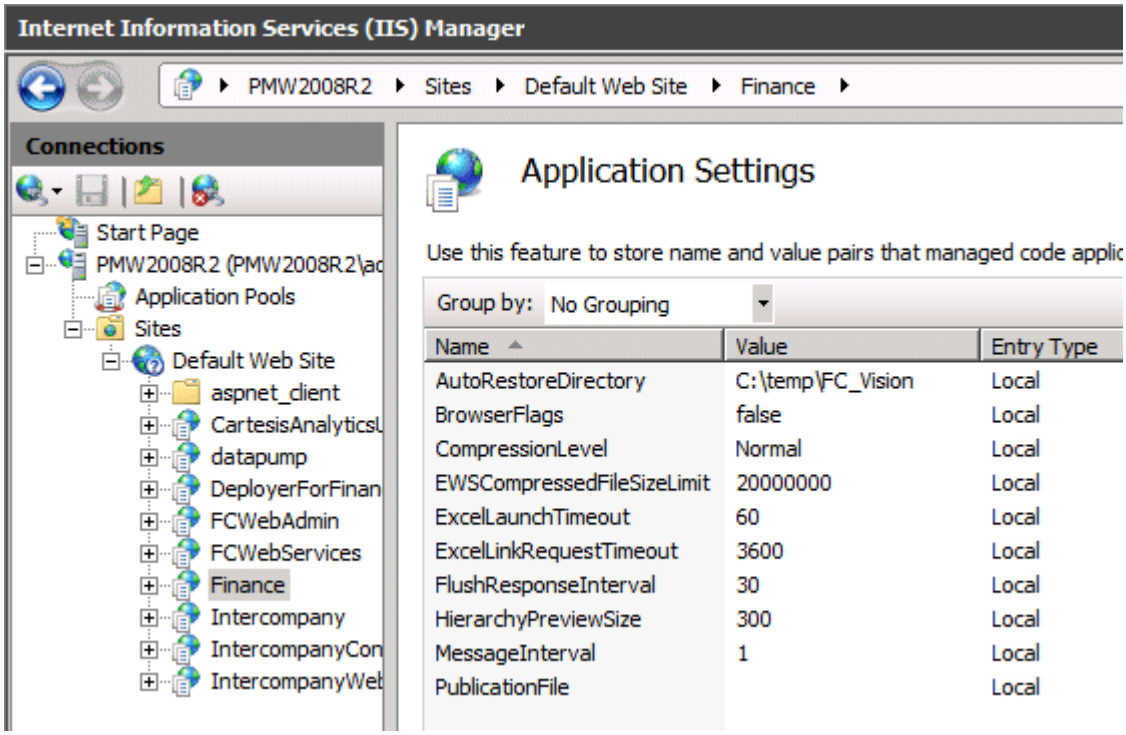
- `create table CT_CONTROL(id …) tablespace CT_APP;`
- `create index CT_CONTROL_IDX on CT_CONTROL(id) tablespace CT_INDEX;`

11 Configuring SAP Financial Consolidation Web Site

11.1 Configuring SAP Financial Consolidation Web Site Advanced Settings

You can change several optional SAP Financial Consolidation web site settings. These settings are stored in the *web.config* file located in the SAP Financial Consolidation application deployment folder. For example, *\Inetpub \wwwroot\FCWebSite*.

- Open the IIS Manager, select the SAP Financial Consolidation web site you have deployed and click the *Application Settings* feature:



> **i Note**
>
> These settings will only be taken into account once you restart the HTTP engine and SAP Financial Consolidation.

These settings are the following:

Application Settings	Description
`<add key="AutoRestoreDirectory" value="" />`	When problems arise on the Web server, e.g. the HTTP engine stops or the connection is broken, the SAP Financial Consolidation Web connector can locate the application servers to which it was connected before the incident occurred. This can be done when you specify the name of the folder containing the connection information in the *AutoRestoreDirectory* parameter.
`<add key="Log4NetInitFile" value="" />`	The *Log4NetInitFile* parameter is used to indicate that the technical log for the Web will be enabled. You specify the location of the XML configuration file for the deployed application and its name.
`<add key="FlushResponseInterval" value="30" />`	Certain components of the network infrastructure (firewalls, proxy, etc.) can interrupt HTTP connections that are open but unused. As some HTTP queries can require a lot of time to run, SAP Financial Consolidation uses a "keep-alive" mechanism to maintain the sessions open. The length of time is indicated in seconds and the default value is 30 seconds.
`<add key="WebSiteLangages" value="en;fr;de;es;ja" />`	The *WebSiteLangages* parameter is used to indicate which languages can be used in SAP Financial Consolidation Web and the order in which they will be displayed in the user preferences. You can indicate one language only if required.
`<add key="BrowserFlags" value="false" />`	The following parameter applies to the configuration of SAP Financial Consolidation Excel Web Schedules.
`<add key="EWSCompressedFileSizeLimit" value="20000000" />`	The following variable is used to specify the maximum size for Excel folders saved on the database. It is expressed in bytes and the default value is 20 000 000.
`<add key="PublicationFile" value="name and path of the XML publication file " />`	You can run SAP Financial Consolidation schedules via a simple URL. However, for security reasons, you should not authorize users to run a schedule with just any values. The administrator must therefore define the documents that are to be run and their initialization values. This is known as publishing. The number of publications is not limited. Publishing is defined in an XML configuration file. The name of this XML file (as well as its path) must be specified in the setting below.
`<add key="HierarchyPreviewSize" value="300" />`	This parameter enables you to restrict the number of reference values to be displayed when you initialize a schedule containing hierarchies. The more reference values you authorize, the longer the pages will take to display. By default, the value of the parameter is set to 300. This corresponds to a page weighing approximately 100KB.
`<add key="MessageInterval" value="1" />`	The SAP Financial Consolidation environment administrator can send messages to all the Windows client computers using the `CtSendMessage.vbe` program delivered with SAP Financial Consolidation. To ensure that Web client workstations also receive the messages, the Web client regularly checks the Web

Application Settings	Description
	server to see if any messages have been sent. The parameter below enables you to set how frequently the client checks the server for messages. The default value is every 1 minute.
`<add key="CompressionLevel" value="Normal" />`	The following settings are used to enable or disable HTTP compression. You now enable HTTP compression directly in SAP Financial Consolidation. You should therefore not enable it in IIS. If you do so, SAP Financial Consolidation will not function properly. **→ Tip** If you want to deactivate HTTP compression or change the compression level, refer to the following options: • None: compression is not enabled. • Low: when this option is selected, speed is the priority. • High: when this option is selected, high compression is the priority • Normal: the rate of compression is normal. HTTP compression is enabled by default and set to "Normal". **i Note** You should not change the other settings of the compression filter.
`<sessionState mode="InProc" stateConnectionString="tcpip=127.0.0.1:42424" sqlConnectionString="data source=127.0.0.1;Trusted_Connection=yes" cookieless="false" timeout="20" />`	When users are logged on to SAP Financial Consolidation Web, they remain connected to the application even if they do not use it. However, if they are unexpectedly disconnected, i.e. due to a network problem, the ASP.NET session can be shut down automatically after a certain space of time. This will enable you to free up any locks that are still open on SAP Financial Consolidation objects. The *timeout* parameter enables you to set the number of minutes after an unexpected disconnection that the ASP.NET session can be shut down automatically. **i Note** We recommend that you set the timeout at less than 5 minutes.
`<httpRuntime maxRequestLength=""/>`	You can modify the maximum size of HTTP queries and therefore, for example, the maximum size of the Excel import files or the maximum size of an attachment for the packages on the web: 1. Edit the web.config file. 2. Under the `<system.web>` section, add the following line: <httpRuntime maxRequestLength=""/>.

Application Settings	Description
	3. Assign the value 16384 to the <maxRequestLength> parameter to define the maximum size of HTTP queries. **i Note** The default value is 4MB. We recommend that you set it at 16 MB depending on the size of your documents. (The value 16384 corresponds to 16 MB files).
`<add key="FinanceWSTimeout" value="5000" />`	Session Timeout between the Deployer Component and the SAP Financial Consolidation Web Services: The Deployer component connects to the SAP Financial Consolidation Web Services to retrieve connection and security information. There is a timeout configured for this parameter; its default value is set to 5 seconds. If you want to modify this value, you can do it in the web.config file under the `<add key="FinanceWSTimeout" value="5000" />` parameter. **i Note** You can modify this value if you encounter network problems, for example.
`<add key="UseHTTPS" value="true"/>`	For security reasons, it is recommended to setup an SSL configuration. When you setup this SSL configuration, it is also recommended that you add the following parameter to the "web.config" file and set its value to true.
`<add key="WebSitePath" value="" />`	The *WebSitePath* parameter allows you to secure session cookies. If you want to use it, you must specify the path of the website you deployed.
`<add verb="*" path="CtExcelWebPersonalInformationHandler.ashx" type="Cartesis.Magnitude.Web.HttpHandlers.ExcelWeb.CtExcelWebPersonalInformationHandler, Cartesis.Magnitude.Web.HttpHandlers" />`	In order to properly display the Personal information in the Web Excel Link client, you need to add a row in the web.config file of the Legacy web client 1. Edit the web.config file. 2. Under the `<system.web>` section, find the `<httpHandlers>` sub-section. 3. Add the following line: `<add verb="*" path="CtExcelWebPersonalInformationHandler.ashx" type="Cartesis.Magnitude.Web.HttpHandlers.ExcelWeb.CtExcelWebPersonalInformationHandler, Cartesis.Magnitude.Web.HttpHandlers" />`

11.2 Customizing the SAP Financial Consolidation Web Site Home page

You can customize a section of the SAP Financial Consolidation Web Logon window and Home page as well as the Contacts window.

Context

You can customize these areas as follows:

Procedure

1. Create a file called *left_side.html*, containing the HTML code of the web page that you want to display in the banner of the Logon window and Home page.
2. Copy and paste this file in the *custom* folder located at the root of the SAP Financial Consolidation application deployment folder. This will replace the sample file of the same name provided with SAP Financial Consolidation.
3. If you want to add and customize your contacts, you should create a file called *contacts.html* and insert it in the same place.

> **i Note**
>
> This operation must be repeated for each application deployed on your Web servers.

Example: You should insert the left_side.html file in ..\XXX\SAP\Financial Consolidation\custom.

11.3 Publishing documents via a URL

To run a schedule via a URL, the following information must be configured in an XML publication file.

The name of this XML file as well as its path and location must be specified in the web.config file of the application you deployed, as shown in the setting below.

```
<add key="PublicationFile" value="name and path of the XML publication file " />
```

The XML configuration file must contain the following information:

- The name of the publication

> **i Note**
>
> A file can contain several publications.

- The name of the SAP Financial Consolidation user who runs the schedule
- The name of the SAP Financial Consolidation schedule to be run
- The data sources that are to be queried
- The dimensions that are to be queried
- The sheet selected in the case of multi-sheet schedules

11.3.1 XML file structure

```
<?xml version="1.0" encoding="utf-8" ?>
<publicationslist>
<publication name="name of the publication">
<user>login</user>
<schedule>name of the schedule</schedule>
<sourceslist>
<source>description of source 1</source>
<source>description of source 2</source>
…
</sourceslist>
<dimensionslist>
     <dimension>description of dimension 1</dimension>
     <dimension>description of dimension 2</dimension>
…
</dimensionslist>
<sheet>description  of the sheet </sheet>
</publication>
<publication name="name of the publication">
…
</publications>
…
</publicationlist>
```

11.3.2 Configuration

The following are required settings:

- `<publication name>`: name of the publication to be specified in the URL
- `<user>`: name of the SAP Financial Consolidation user who will run the schedule
- `<schedule>`: name of the SAP Financial Consolidation schedule to be run

The following are optional settings:

- `<sourceslist>`: the data sources to be queried
- `<dimensionslist>`: the dimensions to be specified
- `<sheet>`: the sheet selected, in the case of a multi-sheet schedule

> **i Note**
>
> If optional settings required for running the schedule are not specified, the dialog boxes for selecting their value will appear, enabling the user to set these required variables.

11.3.2.1 Data Sources

If you want to query data sources, the settings to be specified in the `<source>` field are the values concerning the following sources:

- Consolidated data
- Preconsolidated data
- Package data

You can specify properties for each type of source, as well as an amount type.

The syntax will be as follows:

[<Name of the source>]:[<Name of the property>]

The values for the various fields are as follows:

- Consolidated data
  - Name: `CO-AMOUNT`
  - Properties: `AMOUNT, CONVAMOUNT, CONSAMOUNT, DATA-COMMENT`
- Preconsolidated data
  - Name: `PC-AMOUNT`
  - Properties: `AMOUNT, DATA-COMMENT`
- Package data
  - Name: `PK-AMOUNT`
  - Properties: `AMOUNT, DATA-COMMENT`

If a setting is incorrect both in terms of syntax and code validity, the dialog box for selecting the corresponding source will be displayed.

11.3.2.2 Dimensions

If you want to query dimensions, the settings to be entered in the `<dimension>` field are the dimension codes as well as the initialization methods.

The syntax takes the following form:

- `<CodeAlpha Dimension>:ALLVALUES [:<Grouping method>]`: corresponds to the All Values selection method.
- `<CodeAlpha Dimension>:NULLANDALL[:<Grouping method>]`: corresponds to the All or No Values selection method.
- `<CodeAlpha Dimension>:NULLVALUE[:<Grouping method>]`: corresponds to the No Value selection method.

- `<CodeAlpha Dimension>:VALUE:<Name of the reference value>`: corresponds to the All Values selection method.
- `<CodeAlpha Dimension>:FILTER:<CodeAlpha of the filter>[:<Grouping method>]`: corresponds to the Filter selection method.
- `<CodeAlpha Dimension>:CHARAC:<CodeAlpha of the characteristic>:<CodeAlpha of the value of the charact.>[:<Grouping method>]`: corresponds to the characteristic of a dimension value.
- `REFPERIOD:<Code of the reference data entry period >`: corresponds to date type dimensions with relative values.

The <dimension> flags may appear in any given order, except for identical dimensions that appear in different blocks.

In the former case, the nth initialization of the dimension in the publication is associated with the nth dimension to be set with the same ID.

If it is missing or invalid, the dialog box for selecting the dimension values will be displayed.

Like for the sources to be set, for each dimension whose initialization is not specified in the publication or that is incorrect (syntax, validity of the codes, consistency of selection methods, values, etc.), the dialog box for selecting the dimension values will be displayed.

If a grouping method is used, it can have the following values:

AGGREGATED	Aggregated
HEADERDETAILTOTAL	Header, itemized, total
DETAILTOTAL	Itemized, total after
TOTALDETAIL	Total before, itemized
HEADERDETAIL	Header, itemized
DETAILLED	Itemized

This method is optional and will only need to be specified if it is to be set. If there is a grouping method but it has not been specified in the publication file, the AGGREGATED value will be used by default.

11.3.2.3 Multi-sheets

In the case of multi-sheet schedules, the settings to be entered in the `<sheet>` field are the values necessary for identifying the sheet. Only the last one is taken into account.

A sheet is described by the list of dimension and /or characteristic values that characterize it.

The syntax takes the following form: `<Value1>:<Value2>:<Value3>`.

Each value must appear in exactly the same order set in the schedule. The number of dimensions/ characterisitics to be set for the sheet should at least be equivalent.

Each value will take the following form:

- <CodeAlpha of the RefValue>
- NULL
- TOTAL

If no sheet corresponds to the settings of the publication, the dialog box for selecting the sheet will be displayed.

Example: Example of XML file

```
<?xml version="1.0" encoding="utf-8" ?>
                            <publicationslist>

                              <!--
==================================================-->
                              <publication name="MULTIDIM-VALIDVAL">
                                <user>DOC</user>
                                <schedule>D-EXE02</schedule>
                                <sourceslist>
                                </sourceslist>
                                <dimensionslist>
                                  <dimension>RU:VALUE:AUHE001</dimension>
                                  <dimension>REFPERIOD:VALUE:2001.12</dimension>
                                  <dimension>DP:VALUE:2001.12</dimension>
                                  </dimensionslist>
                              </publication>
                              <!--
==================================================-->
                               <publication name="MULTIDIM-MIXEDVAL">
                                <user>DOC</user>
                                <schedule>D-EXE02</schedule>
                                <sourceslist>
                                </sourceslist>
                                <dimensionslist>
                                  <dimension>RU:VALUE:WRONGRU</dimension>
                                  <dimension>DP:VALUE:2001.12</dimension>
                                  <dimension>REFPERIOD:2001.12</dimension>
                                  </dimensionslist>
                              </publication>
                            <publication name="MULTISHEETS">
                            <user>PACKAGE1</user>
                            <schedule>D-MF01</schedule>
                            <sourceslist />
                            <dimensionslist />
                            <sheet>A21500:TOTAL</sheet>
                            <sheet>A27600:FRDR003</sheet>
                            <sheet>A31300:USFO003</sheet>
                            </publication>
                              <!--
==================================================--
```

11.3.3 URL syntax

The URL used for running a schedule must specify a publication name. It will take the following form:

http(s)://serveur/appli/URLExecute.ashx?Name=<publication name>

12 Configuring SAP Financial Consolidation Web HTML5 Site

12.1 Configuring SAP Financial Consolidation Web HTML5 Site Advanced Settings

You can change several optional SAP Financial Consolidation web site settings. These settings are stored in the *web.config* file located in the SAP Financial Consolidation Web HTML5 site deployment folder. For example, *\Inetpub\wwwroot\FCWebHTML5*.

You modify the web site application settings by selecting the SAP Financial Consolidation web HTML5 site you have deployed and clicking the *Application Settings* feature.

> **i Note**
>
> These settings will only be taken into account once you restart the HTTP engine and SAP Financial Consolidation.

These settings are the following:

Application Settings	Description
BrokerHostName	Name of the server where the CBroker component is installed.
DataSourceName	Name of the data source to which this specific HTML5 web site is connected.
ForceHttps	By default, this parameter is set to `true`, as SSL must be activated for the web site in which the application is deployed. However, if you want to delegate SSL encryption to another tier, like a reverse-proxy, you can set this parameter to `false`.
Log4NetInitFile	This parameter is used to specify the location of the XML configuration file for the deployed HTML5 web site.
AutoLogoutTimeout	This parameter allows you to automatically disconnect inactive users after a certain period of time. By default, this parameter is set to 300 minutes, you can change it to 0 if you want to deactivate it.
CachingDimensionIds	List of dimension IDs where values will be stored in browser cache. The default values are the following: `-524287;-524286;-524284;-524283;-524282;-524281;-524280;-524277;-524276;-524273;-524271;-524270`.

Application Settings	Description
	The default values correspond to the following dimensions: *Category*, *Period closing month*, *Currency*, *Account*, *Flow*, *Period*, *Audit ID*, *Scope*, *Variant*, *Technical origin*, *Ledger and Consolidation currency*.
CachingResetDelayTime	Internal browser cache lifetime for dimension values expressed in minutes. If the value is 0 or non-existent, a 30 mn lifetime will be used. **⚠ Caution** Do not modify these cache values without SAP support feedback.
PackageDataEntryAutoRefresh	This parameter is used to automatically refresh package schedules after each data input. By default, this parameter is set to "True". If you encounter performance issues while working on large schedules, you can disable the auto-refresh mode by setting this key to false.
LegacyWebURL	If you are using a browser compatible with the legacy web client, a tile opens in the Financial Consolidation HTML5 web site Homepage. This tile is a link to the URL set in this key to access the legacy web.
WebSitePath	This parameter allows you to secure session cookies. If you want to use it, you must specify the path of the website you deployed in the value field.
XRayEnabled	This parameter allows you to enable access to the web assistant feature of the HTML5. By default, this parameter is set to "false". To enable web assistant, you must set it to "true".To find out more, see the next section: Enabling Access to the Web Assistant [page 83].

If you want to enable HTTP compression directly in SAP Financial Consolidation, you can modify the following parameters in the IIS Compression section of the IIS Manager:

- *Enable dynamic content compression*
- *Enable static content compression*

If you want to export very large mulitple sheets reports or schedules to Microsoft Excel, you can add the following *maxJsonLength* parameter to the web.config file:

```
<configuration>
  <system.web.extensions>
    <scripting>
      <webServices>
        <jsonSerialization maxJsonLength="5000"/>
      </webServices>
    </scripting>
  </system.web.extensions>
</configuration>
```

The maximum value is 2147483647 characters. The default value is 2097152 characters, which is equivalent to 4 MB of Unicode string data.

12.2 Customizing the SAP Financial Consolidation Web HTML5 Site Home and Login Pages

You can customize the background pictures of the SAP Financial Consolidation Web HTML5 Login page.

Context

You can customize it as follows:

Procedure

1. Select the folder where you deployed the web HTML5 site and open the *WebHtml5\Scripts\img* sub-folder.
2. In this folder, copy the pictures you want to be displayed as background.

> ⚠ Caution
>
> The new pictures must have exactly the same names as the original ones.

> ⚠ Caution
>
> When deploying a patch, these images are deleted.

12.3 Enabling Access to the Web Assistant

Context

Web assistant (also known as "in-app help") is a context help that provides context specific information for UI elements directly within the application. For SAP Financial Consolidation SP07 version, this context help is available for all tiles of the HTML5 web client.

> ℹ Note
>
> By default, this feature is disabled.

If you want to enable access to the web assistant, you must do the following:

Procedure

1. On the web server, open the *web.config* file located in the SAP Financial Consolidation Web HTML5 site deployment folder. For example, *\Inetpub\wwwroot\FCWebHTML5*.
2. Locate the `<add key="XRayEnabled" value="false" />` parameter.
3. Set this parameter to "true".
4. If your web server is located behind a proxy, enter the proxy adress and the port number of this server:

```
<add key="HttpProxyHost" value="myproxy.mycompany.corp" />
<add key="HttpProxyPort" value="8080" />
```

5. Restart the web server.

12.4 Editing Web Assistant Content

Context

Any Web Assistant content delivered as default by SAP can now easily be customized for the HTML5 SAP Financial Consolidation web site.

With respective edit permissions, you can set the Web Assistant into edit mode. By clicking on a tile, the editor allows customization of the help tiles or bubble texts.

> ⚠ Caution
>
> You must first purchase a SAP Enable Now licence to be able to perform this action.

Procedure

1. Open the *xray.config* file.
2. Add the following new key into this file. This key has been given to you when you purchased the SAP Enable Now license.

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <appSettings>
    <add key="ResourcesUrl" value="https://myserver.sap.ondemand.com/
xRayControls/resources/sap/dfa/help/"/>
    <add key="ContentUrl" value="https://myserver.sap.ondemand.com/srv/"/>
   <add key="ExtensionUrl" value="https://myserver.sap.ondemand.com/
myserver/ww/test"/>
  </appSettings>
</configuration>
```

3. Save the *xray.config* and restart IIS.

12.5 Restricting Languages Displayed on the Logon Page

Context

On the logon page of the SAP Financial Consolidation web HTML5 site, if you want to only display the languages that have been installed with the language pack, follow this procedure:

Procedure

1. In the deployment folder of the Financial Consolidation web HTML5 application, open the *i18n* folder located in `...\Program Files (x86)\SAP\Financial Consolidation\WebHtml5\Scripts`.
2. Remove all the files corresponding to the language that you don't want to display.

   For example, remove the *i18n_ko.properties* file if you don't want to display the application in Korean.

   The following files correspond to the following languages:

File Name	Language
i18n_da.properties	Danish
i18n_de.properties	German
i18n_en.properties	English
i18n_es.properties	Spanish
i18n_fi.properties	Finnish
i18n_fr.properties	French
i18n_hu.properties	Hungarian
i18n_it.properties	Italian
i18n_ja.properties	Japanese
i18n_ko.properties	Korean
i18n_lt.properties	Lithuanian
i18n_nb.properties	Norwegian_Bokmal
i18n_nl.properties	Dutch
i18n_pl.properties	Polish
i18n_pt.properties	Portuguese_brazil
i18n_ro.properties	Romanian
i18n_ru.properties	Russian
i18n_sv.properties	Swedish
i18n_tr.properties	Turkish
i18n_zh_CN.properties	Chinese_simplified

3. Once you have deleted the relevant files, restart IIS.

13 Configuring High Availibility on the SAP Financial Consolidation Platform

13.1 Availability management

Availability management is the ability to deliver consistent, predictable access to both application and data so that interruptions resulting from planned or unplanned events do not affect users.

This chapter describes how you can ensure data and application accessibility in the SAP Financial Consolidation environment during planned and unplanned downtime.

This chapter:

- Identifies the planned and unplanned events that can occur.
- Lists the requirements to be met in order to ensure availability.
- Describe how the SAP Financial Consolidation environment can provide availability management solutions for planned or unplanned downtime.

13.1.1 Planned downtime

There are two types of planned downtime:

- Downtime due to operations performed on the system:
  - upgrading hardware or software components.
  - updating the operating systems.
  - replacing disks.
  - etc.
- Downtime due to specific operations performed on the database:
  - defragmenting the disk on which the database is located
  - performing maintenance tasks on the database
  - performing cold backups
  - etc.

13.1.2 Unplanned downtime

There are three types of unplanned downtime:

- Downtime due to the occurrence of disasters, requiring a disaster recovery plan.
- Downtime due to problems in the system, e.g. hardware or software failure.
- Downtime due to data corruption, requiring the restoration of the database.

13.1.3 Requirements

By applying availability management solutions, planned or unplanned downtime can be reduced or eliminated. You should, however, first ensure that requirements are met for the following elements:

13.1.3.1 Environment

This refers to the whole physical environment surrounding the application and the machines. You can check the following points:

- the storage conditions for the machines: provide adequate climate control, maintain humidity control, take precautions against fire risks, ensure adequate wall thickness, etc.
- Power conditioning: provide an uninterruptible power supply (UPS).
- Data storage: perform regular backups and archive backup tapes at a remote location. If storage servers are used, these should also be located offsite.
- Serviceability: ensure regular maintenance of equipment, components, etc. through contractual arrangements made with suppliers or third parties.

13.1.3.2 Network and security

In order to manage availability, you should first have a secure network and reliable security.

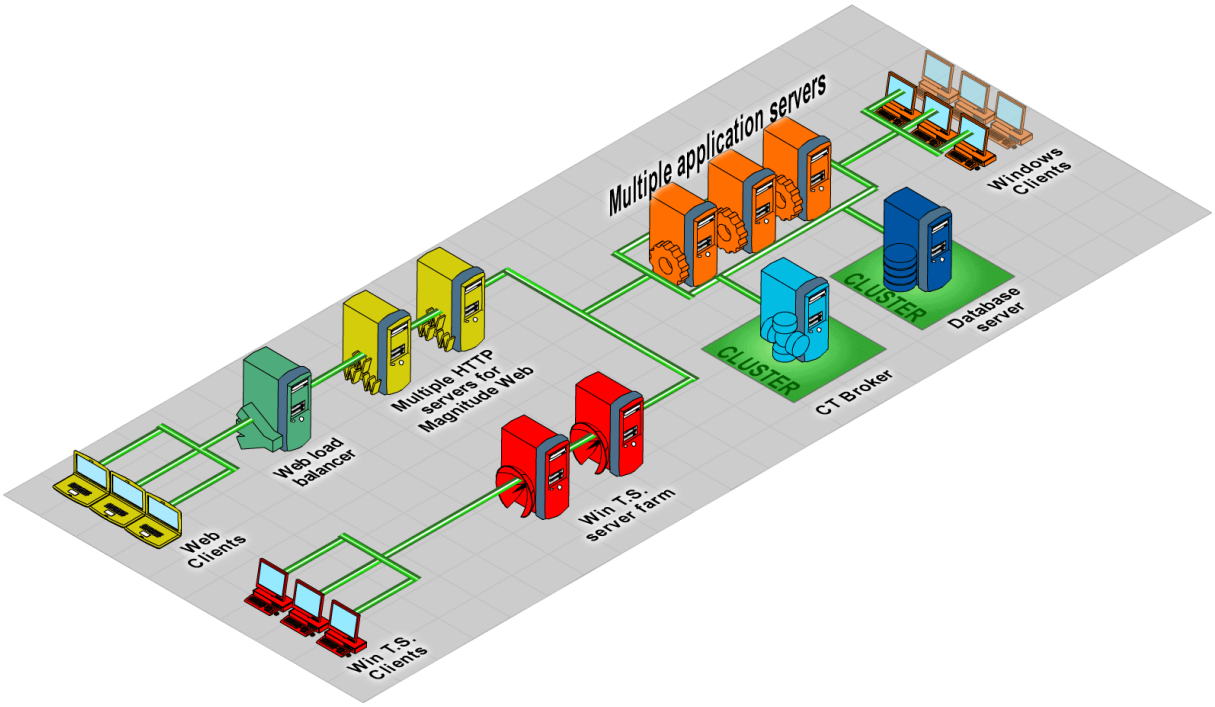
- Network reliability: ensure that both active and passive components are taken into account.
  - Passive components:
    Use the required network accessories and ensure adequate interconnection of computers with cables, duplicated network cards, etc.
  - Active components:
    Implement Internet access with proxies, firewalls, etc. and use Web load balancers, compression and encryption software.
- Security:
  - Implement intrusion detection software and other software security measures.
  - Authenticate users using a reliable method, e.g. by implementing rolling password changes to protect against data corruption or denial-of-service attacks.

13.1.3.3 SAP Financial Consolidation components

The table below lists the components that are unique and should be deployed in a clustered environment and those that may be duplicated.

COMPONENTS IN A CLUSTERED ENVIRONMENT	COMPONENTS IN A MULTI-SERVER ENVIRONMENT
Database server	Application server
Data source manager (CtBroker.exe)	Windows Terminal Services server

Example



In the example above, SAP Financial Consolidation is installed using an architecture that ensures high availability.

- The database engine is installed in a clustered environment that provides failover support or load balancing. The RDBMS providers supported by SAP Financial Consolidation, i.e. Microsoft, Oracle and IBM, can provide clustering solutions with specific product versions.
  This ensures high availability of your database.
- SAP Financial Consolidation is used with multiple application servers and multiple Web servers.
  If one of the application or Web servers should fail, only the users connected to the failed server will be disconnected. They can, however, reconnect immediately to the application using one of the other servers.
  This ensures that the SAP Financial Consolidation application remains accessible at all times.
- The CtBroker component must be unique in SAP Financial Consolidation and is deployed in a clustered environment providing failover support. If the module stops, the next attempt by one of the SAP Financial Consolidation components to access it will restart it automatically. If the cluster node hosting the module fails, CtBroker will also stop. However, the next attempt by one of the SAP Financial Consolidation components to access the module will restart it automatically.
  Once the module restarts, it will revert to its previous state automatically and quickly (a few seconds). The temporary unavailability of the module does not affect the users.
- Access to the SAP Financial Consolidation Web servers is ensured by the Web load-balancer installed before the Web servers.

13.1.4 Availability management in SAP Financial Consolidation

You can apply the availability management solutions described below in order to reduce or eliminate planned and unplanned downtime.

13.1.4.1 Upgrading hardware or software components

The recycling of server processes enables you to upgrade components on the application servers or Web servers without disrupting application or data accessibility.

The recycling process means that although a server is unavailable for an undetermined length of time while maintenance tasks are being performed on it, users can continue working. Before the server is recycled, the users connected are warned that they will be disconnected after a specific time and that they can reconnect immediately. Once they do so, they will be allocated to one of the available servers.

> **i** Note
>
> In order to be able to recycle server processes, you must configure SAP Financial Consolidation in multi-server mode.

> **i** Note
>
> The components mentioned above do not include Businessobjects Finance components. If you need to upgrade the version of the application, you must stop the entire system.

Related Information

Configuring SAP Financial Consolidation in multi-server mode [page 98]

13.1.4.2 Operations performed on the database

When hot backups are performed, neither the database engine nor the application need to be shut down. However, with certain engines, it is necessary to carry out cold backups. This type of activity then requires a planned shutdown of the application.

13.1.4.3 Disaster recovery

Unplanned downtime may occur as a result of natural disasters, fires, floods or terrorist attacks, etc. The countermeasure in this case is the recovery of data and application accessibility. Depending on the recovery time and budget available, you can do this in two ways:

- Perform data duplication:
  Data duplication consists of storing backups of the database performed on a regular basis (e.g. daily) at a remote location as well as product installation CDs in order to reinstall the application and restore the database quickly. In SAP Financial Consolidation, all of the product configuration settings are stored in the database itself. This makes data recovery easier as nothing is stored on the application servers.
- Set up a redundant environment:
  This method consists of setting up the same environment at another site by using redundant servers and deploying a redundant network with the relevant network accessories in a side-by-side configuration. By maintaining a hot site or disaster-recovery site, you ensure complete operation continuity because no time is lost in reinstalling the application or restoring the database.
  You should, however, ensure that the data at the redundant site is constantly updated with that from the production site. In the case of Oracle, you can also back up and replay the transaction logs against the duplicated database to maintain the data. As all of the product configuration settings are stored in the database, this makes data synchronization easier.

13.1.4.4 Data corruption

Data may be corrupted as a result of manipulation errors or software failure, etc. The countermeasure consists of conducting regular backups and restoring the database from backups to the last point before the corruption occurred. As all of the product configuration settings are stored in the database, there is no risk of data loss and you can revert back easily to the most current version.

> **i** Note
>
> Site redundancy does not protect you from data corruption due to manipulation errors, as this can also affect the duplicated database.

13.1.4.5 Component failure

There are two types of component failure: hard disk failure on any of the computers in the application environment or hardware/software failure, which is more difficult to detect.

- The countermeasure to hard disk failure consists of ensuring application accessibility by using secured disk storage, e.g. RAID 1 or RAID 5.
- The countermeasure to hardware and software failure consists of adopting the two-pronged approach below:
  - Clustering for all the components that are unique: database, SAP Financial Consolidation synchronization components (CtBroker). In a cluster with failover support, users do not need to reconnect to the application during an outage. They can continue working by simply repeating the operation that failed.

> **i Note**
>
> A user saves a package at the same time as a component becomes unavailable: In such a case, either the recovery is transparent, or the user will get an error message and will have to repeat the save operation. The user will not need to reconnect to the application.

- All other components are in multi-server configuration: application servers, SAP Financial Consolidation Web servers, TSE servers. Having serveral servers makes it possible to offer machine redundancy, and therefore machines can be stopped without affecting the application. This chapter provides details on how to deploy SAP Financial Consolidation in a multi-server configuration. For more information, Configuring SAP Financial Consolidation in multi-server mode [page 98].
  In a multi-server architecture, the user must reconnect. However, this can be done quickly. Users do not need to wait for the machine to restart since the connection is supported by other machines that are already running and available. In a clustered environment, components must be restarted on another cluster node thus leading to a slight delay in response, whereas in a multi-server environment, all of the servers are running and immediately available.

13.2 Installing SAP Financial Consolidation components on a cluster

The *CtBroker* module can be used in a Microsoft cluster providing failover support. The other SAP Financial Consolidation components may not be used in a cluster because they can be installed in a multi-server configuration.

There can only be a single *CtBroker.exe* module in each SAP Financial Consolidation environment. To ensure availability at all times, you should therefore install this module in a cluster.

13.2.1 Requirements

You must have a Cluster Service that functions under Windows 2003 or 2008 on at least two machines providing failover support. The load balancer is not supported.

> **i Note**
>
> To find out more about the requirements, the installation and the configuration of the Microsoft clusters, please consult the Microsoft documentation.

SAP Financial Consolidation must be installed on each cluster node.

13.2.2 Installation

We strongly recommend that SAP Financial Consolidation be installed on the standard Quorumcluster , as the CtBroker.exe process will be linked to the "Cluster Group".

We recommend that SAP Financial Consolidation be installed on each node after the other node has been physically shut down. This is because the system setup may reboot the computer during the installation process and the Quorum disk may then be taken over by the other node.

SAP Financial Consolidation must be installed in the same folder on both nodes.

You install the application in the cluster nodes in the same way as you install the application on a server. You must select *Administration console* to install the *CtBroker.exe* process

13.2.3 Configuration

You must then create a new cluster resource:

- The resource type is "Generic Service" and it will be assigned to the "Cluster Group" resource group.
- You are not required to run this resource in a separate resource monitor.
- This resource should depend on the "Cluster Name" resource.
- The service name to be used is CtBroker, and there are no Start Parameters.
- You must select the "Use Network Name for Computer Name" option.
- You are not required to specify the registry keys to be replicated.

Once you have created the resource, you should only use the name and IP address of the cluster and not those of its nodes.

In no case should the Administration console be started connected to a node. It should always be connected to the cluster.

> → Tip
>
> Do not start the Administration console directly on one of the nodes. Connect via another computer and connect the Administration console to the cluster (not the nodes).

> ℹ Note
>
> Only the *CtBroker.exe* process can be used in a clustered environment. You must not start other SAP Financial Consolidation processes on the cluster nor try to define them as cluster resources.

Example

- The cluster is made up of two nodes: Node1 and Node2. The cluster resource configured for these two nodes is called ClusterMag.
- SAP Financial Consolidation is installed on the Node1 and Node2 computers.
- The data source manager is defined for the ClusterMag cluster. In the Administration console, you connect to ClusterMag to manage the data sources.

13.2.4 Operation

The CtBroker component starts automatically when a SAP Financial Consolidation component accesses it (CtServer, Finance.exe, etc.). You do not need to start this module manually on the cluster.

If CtBroker fails, the next attempt by one of the components to access it will restart it automatically. Because all of the information managed by CtBroker is located in the *ApplicationDataSources.xml* file, CtBroker reverts to its previous state as soon as it restarts.

> **i Note**
>
> If you install SAP Financial Consolidation on the private disk of each node, you must update the *ApplicationDataSources.xml* file for each node every time you make changes in the Administration console.

Users will not experience any downtime when the CtBroker stops and restarts.

If a cluster node fails, CtBroker will also stop. The cluster will immediately switch over to the other node and the component will restart automatically as explained above. This ensures that the system is fault tolerant.

> **i Note**
>
> You must never start an Administration console on a physical node of the cluster, as the console tries to connect to the CtBroker.exe of the local machine. If the latter is not started, it will start automatically. You will then be working with a broker that is started on the physical node, but that is not managed by the cluster. You must always work with the broker of the virtual node.

> **i Note**
>
> You can therefore manage the data sources either by opening a Terminal Services session on the virtual node of the cluster hosting the broker, or from a computer that is not part of the cluster, and by connecting to the virtual node.

13.2.5 Configuring the Web Administration Console in Fault Tolerant Architecture

It is possible to secure the Web Administration Console component by installing it on two different servers. One server will be used as the main server, the other one will be used as a backup server. You can automatically switch from one server to the other with a load balancing mechanism.

If you want users to connect to the Web Administration Console using one URL only, you can specify this using a load balancer in fail-over mode.

You need to install the Web Administration Console on two different machines with the same settings and the same URL. The load balancing can be handled with either Microsoft NLB or a load balancer device. On a two-node NLB cluster, install the Web Administration Console on each node with the same settings.

> **⚠ Caution**
>
> The load balancing device must be configured in fail-over mode, not in load balancing mode. Only one server can be used at a time.

> **i Note**
>
> Once you have deployed the Web Administration Console, do not forget to configure the web.config file with the name of the machine where the CtBroker component is hosted. This parameter is the BrokerHostName and is set by default to Localhost.

14 Configuring High Availibility on the Cube Designer Components

14.1 Securing the Deployer component

It is possible to secure the Deployer component by installing it on two different servers. One server will be used as the main Deployer server, the other one will be used as a backup server. You can automatically switch from one server to the other with a load balancing mechanism.

If you want users to connect to Deployer using one URL only, you can specify this using a load balancer in fail-over mode.

You need to install Deployer on two different machines with the same settings and the same URL. The load balancing can be handled with either Microsoft NLB or a load balancer device. On a two-node NLB cluster, install Deployer on each node with the same settings.

> ⚠ Caution
>
> The load balancing device must be configured in fail-over mode, not in load balancing mode. Only one Deployer server can be used at a time.

14.2 Installing the UDF for Security component on a cluster

14.2.1 Requirements

You can use the SSAS engine with Cube Designer in a Microsoft failover cluster. In this scenario, the UDF for Security configuration differs from its standard installation.

You must have a Cluster Service that functions with Windows 2003 on at least two computers providing failover support with SSAS Service Pack 2 installed in Failover mode.

IIS must be installed on each node.

> ℹ Note
>
> To find out more about the requirements, installation and configuration of Microsoft clusters, please consult the Microsoft documentation.

14.2.2 Installation

Context

> ⚠ Caution
>
> In the case of a clustered SSAS installation, the UDF administration web service does not work correctly if instance names are different on the virtual node and on the physical nodes.

UDF for Security must be installed on each cluster node. The SSAS Cluster group must be hosted by the physical node when you are installing the component.

The UDF component must be installed in the same folder on both nodes, i.e in the same folder of the shared disk of the SSAS cluster group.

You install the UDF component in the cluster nodes in the same way that you install the application on a server.

Procedure

1. Activate the first node.
2. Execute the UDF for Security component (included into Fix Pack 2) and run the setup.
3. Install the UDF component on the disk of the SSAS cluster group.
4. When the setup is finished, move the SSAS cluster group to the second node.
5. On the second node, execute the setup exactly the same way you did in step 2.

14.2.3 Configuration

Context

If you have not yet deployed any SSAS data sources:

Procedure

1. Open the Central Management Console.
2. Configure your *EPM Connections* as specified in the Installation Guide, chapter «Installing SAP BusinessObjects EPM Solutions Connection Manager on the BOE platform».
3. In the *Server name* field, enter the name of the SSAS cluster group.
4. You do not need to modify the other fields.
5. Click *Save*.

6. Exit the Central Management Console.
7. Move your SSAS cluster group to the other cluster node.
8. Open the Central Management Console.
9. Open the platform you deployed on the first node.
10. Click *Save*.

    If you have already deployed an SSAS data source on the cluster and you need to modify it, you only need to modify the Central Management Console and then click *Save* on each node.

    > ⚠ Caution
    >
    > Do not forget to perform this action on each node.

14.2.4 Uninstallation

Procedure

1. Open a session on the cluster node running the SSAS cluster group.
2. Make a copy of the folder where the UDF for Security is installed. This copy will be used later in the process to uninstall the cluster.
3. Uninstall the UDF component using the *Control Panel > Add/Remove Programs* command.
4. Once it is uninstalled, restore the copy of the UDF installation folder to its initial location. This will allow you to properly uninstall the UDF component on the other node.
5. Move your SSAS cluster group to the other cluster node.
6. Open a session on the other cluster node.
7. Uninstall the UDF component using the *Control Panel > Add/Remove Programs* command.

15 Configuring Ramp-up in SAP Financial Consolidation

15.1 Configuring SAP Financial Consolidation in multi-server mode

Context

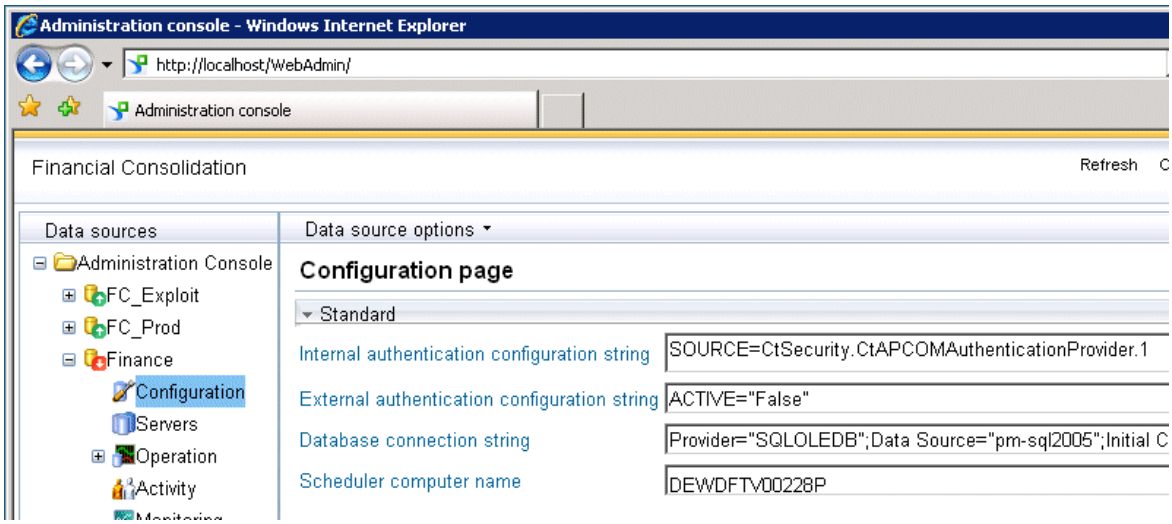
The tasks scheduled in the *Task list* view of Financial Consolidation are run on the application server. In a multi-server architecture, you should specify the server on which the tasks will be performed. In the Administration console, you specify the information on the processing server in the following parameter: *Scheduler computer name*.

> **i** Note
>
> If you run a task scheduled for immediate execution, the properties defined in *Scheduler computer name* will not be taken into account. Tasks that have been scheduled for immediate execution will be run on the application server to which you are connected.

> **⚠** Caution
>
> You cannot enter "localhost" for this parameter; instead, you must specify the NetBIOS name of the application server on which you want to run Scheduled tasks.

Procedure

1. In the Administration console, enter the relevant information in the *Scheduler computer name* parameter of the Configuration page.

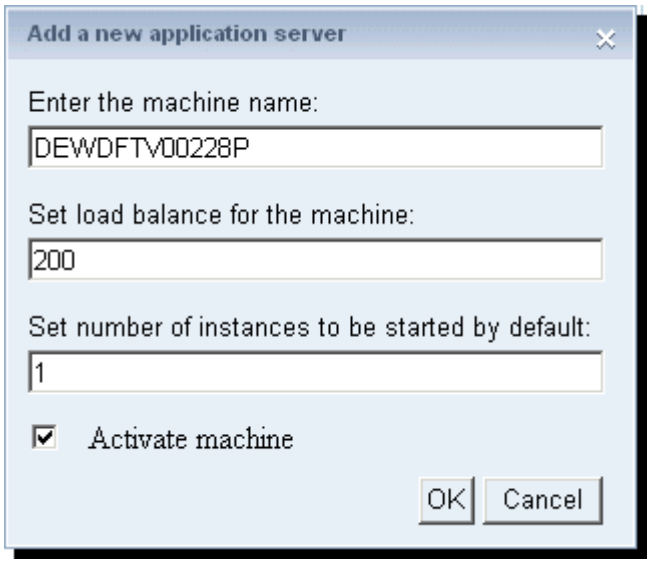


2. Specify the computer that will host the first server in the architecture.

   Once you have done this, you can add as many servers as required directly in the Servers page of the Administration console.

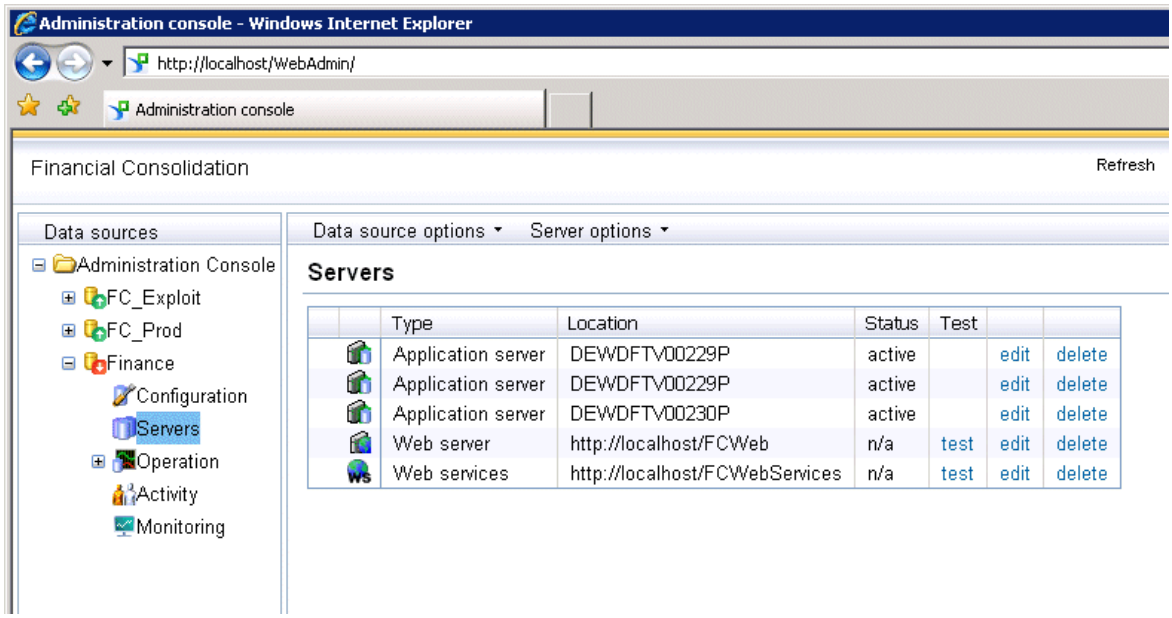
3. To add a server, select Servers and in the Server options menu, click *Add a new application server*.

   The *Add a new application server* window appears.



4. Select the computer that will host the new server.
5. Set the load balance for the server in order to specify the number of concurrent users that can connect to the server. The default value is 100 users. This is used to avoid overloading the capacity of each application server.
6. Click *OK*.
7. Repeat this procedure as many times as necessary to add the required number of application servers.

   The application servers will be listed in the configuration view of the Administration console.



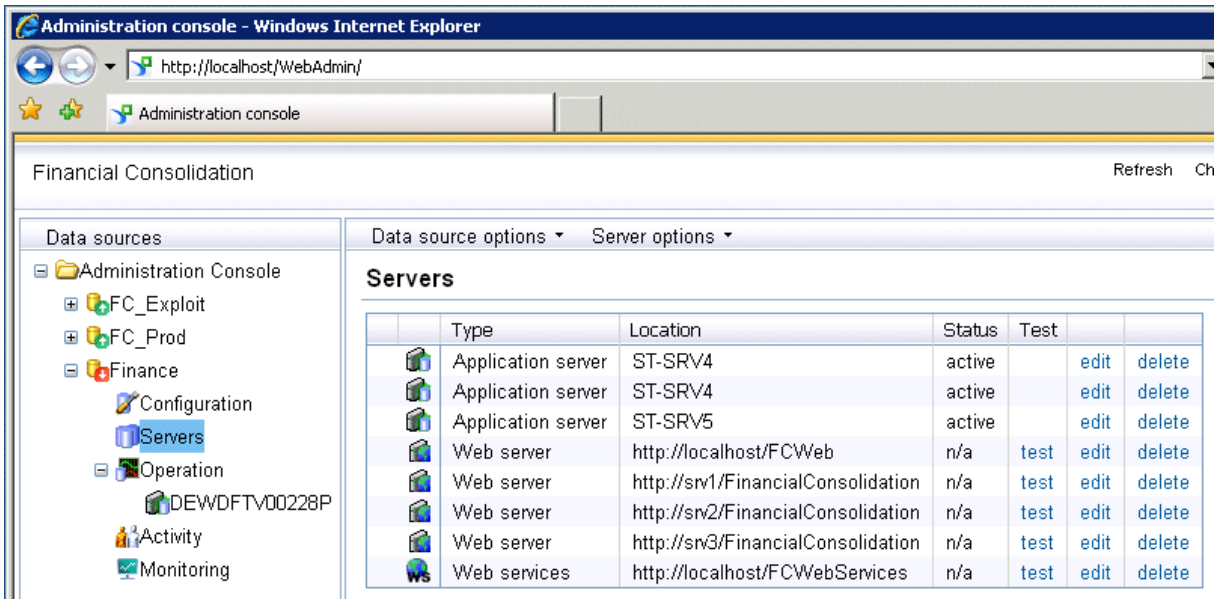
8. Select the server on which the tasks will be run by filling in the *SchedulerComputerName* field.

Results

> → Tip
>
> In a multi-server configuration, you can activate and deactivate the servers independently of each other.

15.1.1 Load balancing between servers

You can set the load balance variable for a given server so that the concurrent users connected to the application can be distributed over the servers available.



In the example above, the first server, called ST-SRV4, has a load balance of 100 while ST-SRV5 has a load balance of 200.

This means that the first server will be able to manage up to 100 concurrent users while the second will be able to manage a maximum of 200 concurrent users out of a total of 300 concurrent users connected. This enables you to allocate users or clients according to the performance of the computers hosting the application servers.

When a user connects, the application will allocate:

- ST-SRV4 for 1 connection out of 3.
- ST-SRV5 for 2 connections out of 3.

> ℹ Note
>
> When you run a task, it counts as one connected user during the time required for processing. A task run in the Task List view runs on the server currently in use, while a scheduled task runs on the *Scheduler computer name* server.

The data source manager uses a Weighted Round Robin algorithm to balance the load among the available servers. This algorithm takes the capacity of each server into account, as well as the number of users who are already connected. Users are distributed based on each server's load.

Example

- Server1: Load balance 100, 40 users connected.
- Server2: Load balance 50, 30 users connected.
- Server1 index: 40/100 = 0.4. This server is using 40% of its maximum load capacity.
- Server2 index: 30/50 = 0.6. This server is using 60% of its maximum load capacity.

The next user who connects will therefore be connected to the first server.

This indicator is recalculated in real time each time a new user connects.

15.2 Configuring SAP Financial Consolidation in multiple HTTP server mode

Context

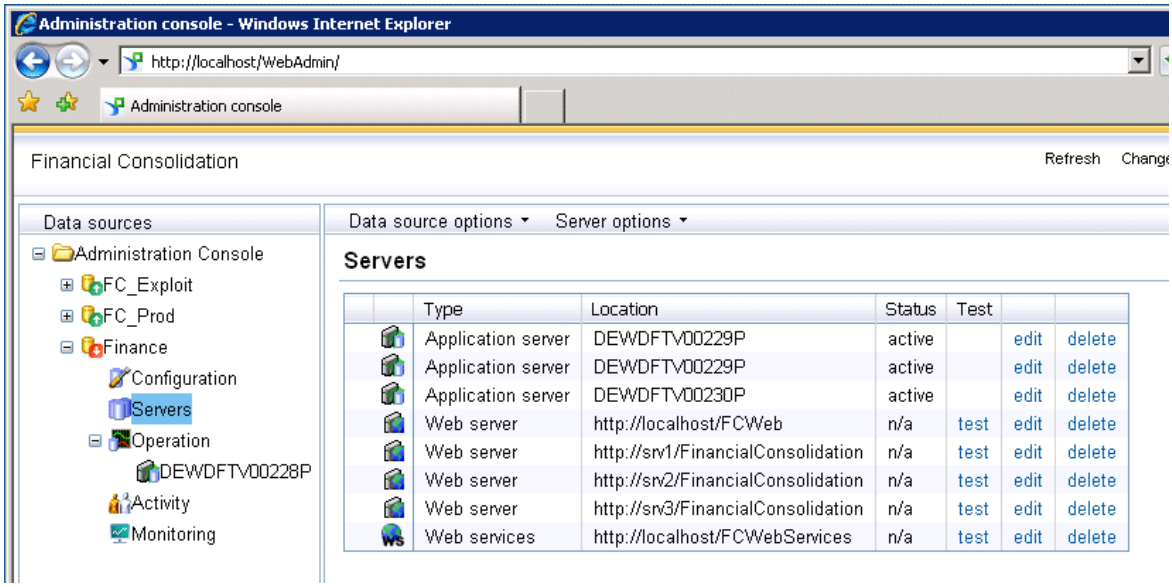
You must first deploy the SAP Financial Consolidation Web applications on each of the HTTP servers in your architecture. For more information on application deployment, see the chapters called Deploying the Finance Web Site and Web HTML5 Site in the installation guide.

Once this is done, you configure the Administration console.

Procedure

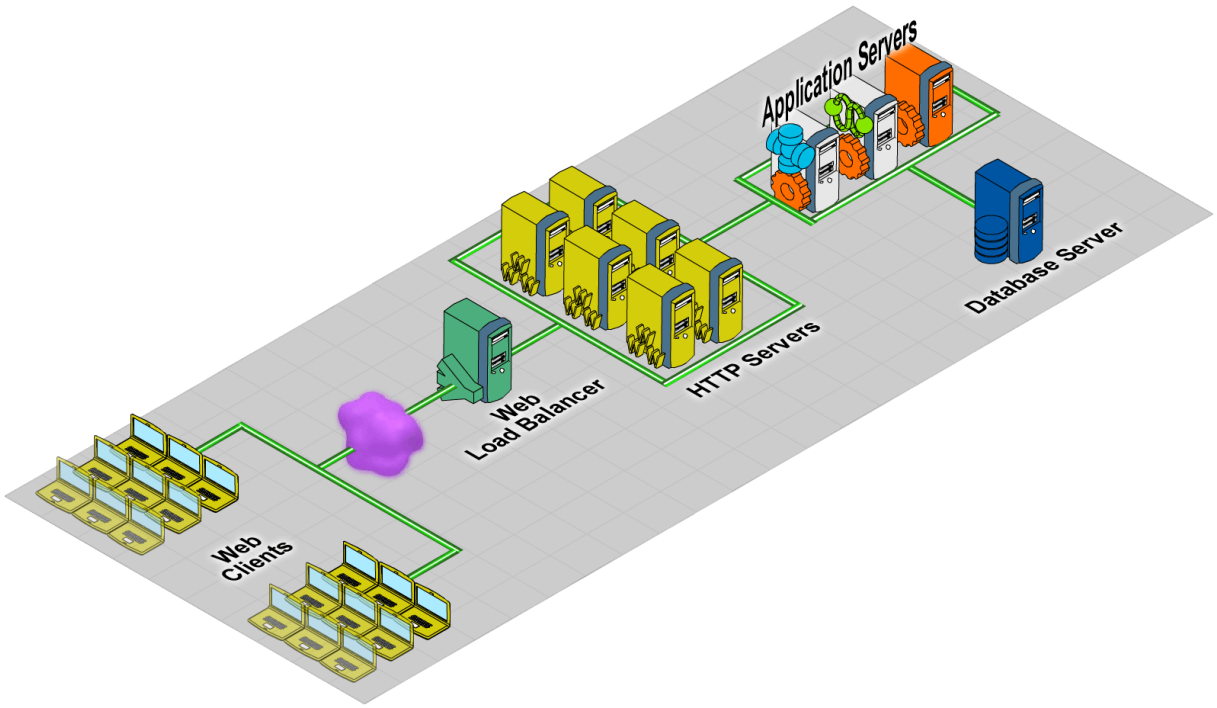
1. Open the Administration console and stop de data source.
2. Open the *Servers* page and in the *Server options* menu, select *Add a new web server*.
3. Enter the URLs for the applications deployed on the different HTTP servers.
4. Click *OK*.

   The Administration console will indicate that SAP Financial Consolidation Web is configured with multiple HTTP servers.



15.2.1 Configuring Web load balancing

When SAP Financial Consolidation uses multiple HTTP servers, several URLs can be used for connecting to the Web application. If you want users to connect to the Web application using one URL only, you can specify this using a load balancer that maintains session affinity.



15.2.1.1 How load balancers work

The SAP Financial Consolidation Web site is compatible with load balancers that maintain session affinity, also known as "sticky" sessions. This means that when a client browser is directed to a HTTP server by the load balancer, then future queries from that same browser session (using sessions IDs, known as Finance_SessionId) will always be directed to the same HTTP server. Each time a query is sent between the HTTP engine and the web client, the Finance_SessionId identifies the client so that the query is always sent back to the same web server. This ID remains unchanged throughout the session.

The SAP Financial Consolidation Web HTML5 site does not require session affinity and no session affinity configuration.

15.2.1.2 Session affinity algorithm

> **i** Note
>
> This section applies only to the SAP Financial Consolidation legacy web site.

Step 1

The client sends a first query to the load balancer. This query does not have any Finance_SessionId.

```
GET /Finance/ HTTP/1.1
Accept: image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, application/x-
shockwave-flash, application/vnd.ms-excel, */*
Accept-Language: fr
Accept-Encoding: gzip, deflate
User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.2; .NET CLR
1.1.4322)
Host: tl3web1
Connection: Keep-Alive
Cookie: WebSiteLanguage=0
```

Step 1b

When the load balancer processes the incoming request, it cannot find an Finance_SessionId. It redirects the request to one of the HTTP servers, depending on the load balancing algorithm deployed, e.g. round robin, cost-based, etc. In the diagram below, the request is redirected to Web server 2.

Step 2

The query is then processed by the HTTP engine which sends an answer containing the *Set-Cookie* field. This field contains the first occurrence of the Finance_SessionId.

```
Date: Thu, 16 Jun 2005 15:06:57 GMT
Server: Microsoft-IIS/6.0
X-Powered-By: ASP.NET
MicrosoftOfficeWebServer: 5.0_Pub
X-AspNet-Version: 1.1.4322
Content-Encoding: deflate
Set-Cookie: Finance_SessionId=dv32yt45ygx2ub55w4lywk55; path=/
Cache-Control: private
Content-Type: text/html; charset=iso-8859-1
Content-Length: 284
```

Step 2b

The server response is then processed and analyzed by the load balancer, which will take note of the Finance_SessionId value and lock it to the server.

Step 3

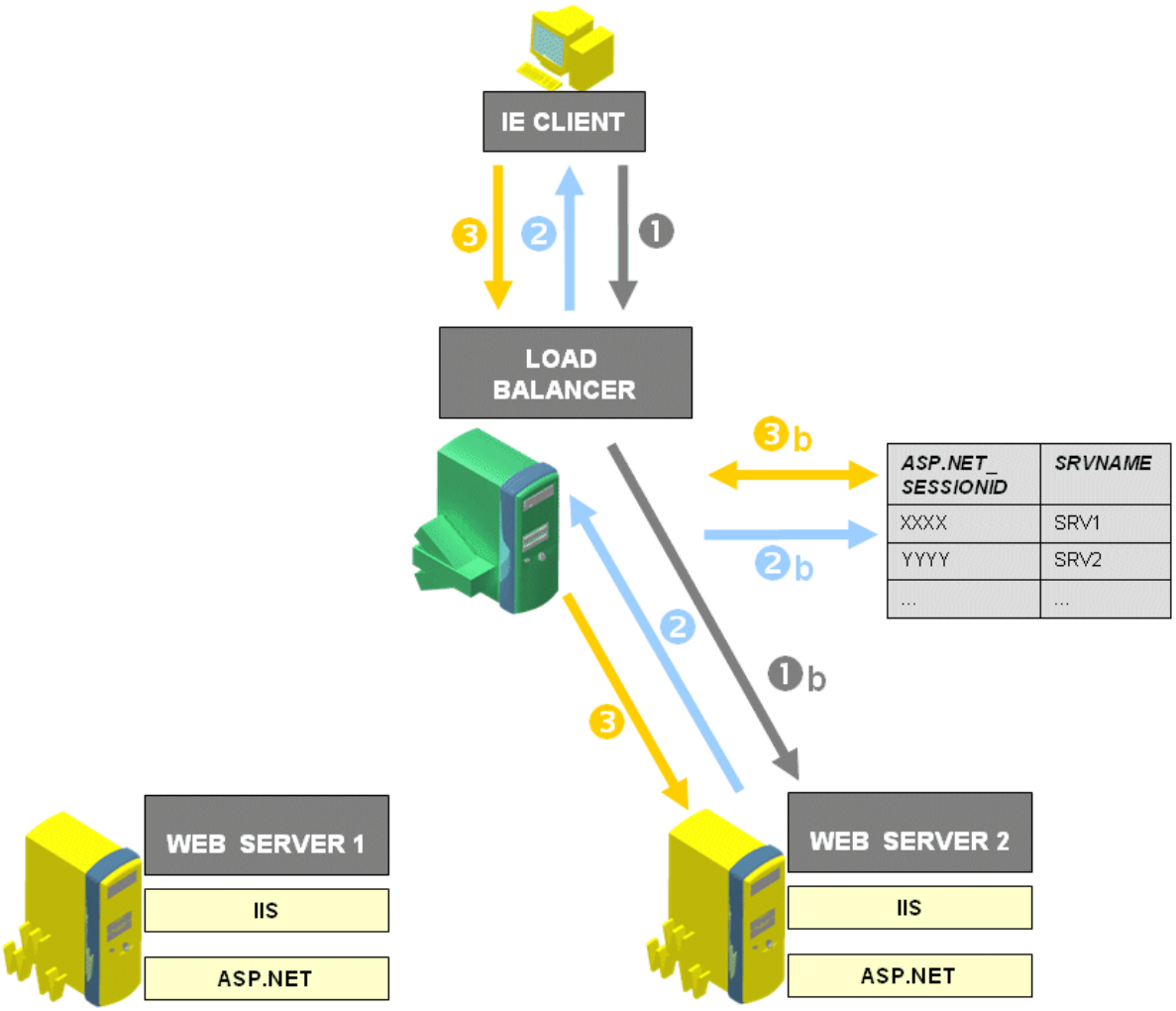
In receiving the response, the Web client learns the cookie it should present on subsequent requests. These queries will then contain a *Cookie* header field containing the same session ID value.

```
GET /Finance/emptywhite.html HTTP/1.1
Accept: image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, application/x-
shockwave-flash, application/vnd.ms-excel, */*
Referer: http://tl3web1/Finance/
Accept-Language: fr
Accept-Encoding: gzip, deflate
If-Modified-Since: Mon, 13 Jun 2005 18:54:41 GMT
If-None-Match: "c19b705b4970c51:22ec"
User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.2; .NET CLR
1.1.4322)
Host: tl3web1
Connection: Keep-Alive
Cookie: WebSiteLanguage=0; Finance_SessionId=dv32yt45ygx2ub55w4lywk55
```

Step 3b

The load balancer processes each request and redirects them to the corresponding Web server.

Diagram



1

Finance Web connection query

1b

Search for ASP.NET_SessionId. No ID created yet, so the query is randomly redirected to Web server 2

2

Web server 2 returns a query with a Set-Cookie=XXXX

2b

This ID is added to the Load Balancer table

3

New query from the same client

3b

The Load Balancer find an ASP.NET_SessionId, and so redirects the query to Web server 2

15.3 Recycling the servers

Since recycling is now automatically supported by SAP Financial Consolidation, including in standalone configuration, without service interruption, it is no longer necessary to set up recycling tasks as was the case with previous versions.

15.4 Optimizing memory use for application servers

If you are using a complex configuration and/or if a large number of users simultaneously connect to your servers, the 4 GB of RAM allocated for the CtServer.exe process may be insufficient. In such cases, the process is stopped.

The following solution may be implemented:

Start two instances per server instead of one. This way, each instance will manage half as many users.

This can be done in the standard settings of the Administration console, in the ServerComputerName parameter. You must modify the Set number of instances to be started by default field and set it to 2.

15.5 Optimizing memory use for web servers

In case of "out of memory" issues on .NET, the workstation garbage collector can be changed to the workstation mode to increase the stability of the system.

To modify the workstation garbage collector:

1. Open the `C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\Aspnet.config` file.
2. Add the following parameter `<gcServer enabled="false"/>` to this file:

```
<?xml version="1.0" encoding="UTF-8" ?>
<configuration>
<runtime>
<legacyUnhandledExceptionPolicy enabled="false" />
<legacyImpersonationPolicy enabled="true"/>
<alwaysFlowImpersonationPolicy enabled="false"/>
<SymbolReadingPolicy enabled="1" />
<gcServer enabled="false"/>
</runtime>
</configuration>
```

3. Restart the server.

15.6 Customizing the application server connection

Users in a multi-server configuration may at times require a connection to a specific server in the SAP Financial Consolidation environment. In order to do so, you can start the client using a command line. This command line will include the options for connecting to a specific server and not to the servers selected by the data source manager.

> **i Note**
>
> If this command line is used, the window for connecting to SAP Financial Consolidation no longer appears when the application is started.

> **i Note**
>
> You can use the command lines for Windows and Web clients.

You can start SAP Financial Consolidation Windows using the following command lines:

```
Finance.exe_/broker_<"datasource_manager_name">_/
datasource_<"datasource_name">_/user_<"user_name">_/password_<"user_password">_/
servers_<"server1">;<"server2">
```

- `Finance.exe_/broker_<"datasource_manager_name">`
  This is the name of the computer where the data source manager is hosted (the broker).
  If you do not enter a computer name, then the computer on which SAP Financial Consolidation is started will be used.
- `/datasource_<"datasource_name">`
  This is the name of the data source specified in the data source manager.

  > **⚠ Caution**
  >
  > This parameter is compulsory and you must enter the data source name in the correct case.
- `/user_<"user_name">`
  This is the name of the user specified in the Start the Application dialog box.
  If you do not enter any user name, then the Windows user account whose session is currently open will be used.
- `/password_<"user_password">`
  If you do not enter a password, then the password will be taken as null.
- `/servers_<"server1">;<"server2">`
  These are the application servers specified for the data sources indicated above. You must already have started the servers in the Administration console, otherwise the client will not be able to start.

  > **⚠ Caution**
  >
  > If ou do not enter the variables between quotation marks, the command may fail.

You can start SAP Financial Consolidation Web using the following command lines:

```
http://<HTTPserver>/<ConnectionURL>?Servers=server1;server2
```

This indicates:

- the name of the HTTP server
- followed by the URL in the Administration console and in IIS,
- followed by the different application servers defined in the Administration console

Specifying several servers will enable the user to connect to the next available application server on the list if any of the servers are unavailable or stopped. The command will function until the connection is established.

The servers specified here, and not those indicated in the Administration console, will be taken into account when the application is started.

> **i Note**
>
> If the server to which the command line refers is stopped, SAP Financial Consolidation will not start. In the standard startup, however, if one of the servers is stopped, the client is connected to another server.

16 Archiving tool

You can use the Archiving Tool to store historical consolidated data in archive databases and still access it from the SAP Financial Consolidation application.

The tool:

- Decreases the size of SAP Financial Consolidation production databases
- Better monitors the volume of consolidated data
- Guarantees a high level of performance for the data most accessed by users
- Reduces the need for additional fast disk storage devices

The features included in the current version are:

- Archival of consolidation tables and history logs
- Restoration of consolidation tables and history logs
- Logging all database updates during archive/restore operations
- Job scheduling
- Graphical dashboard of real-time SAP Financial Consolidation data in
- General Information for each archive
- Evaluation of the archiving / restoring time
- Database size gain simulation
- Clean-up of SAP Financial Consolidation objects

16.1 Installing and Accessing the Archiving Tool

Prerequisites

The following components must be present before you install the Archiving Tool on the server:

- SAP Financial Consolidation databases, 10.1
- Microsoft Windows 2008, 2008 R2, 2012 Server (64bits)
- Oracle Server 11g
- Microsoft SQL Server 2008, 2008 R2 or 2012

  > **i Note**
  >
  > With Microsoft SQL Server, you cannot use two different database servers for the source database and the archive database. Both databases must be located on the same server.

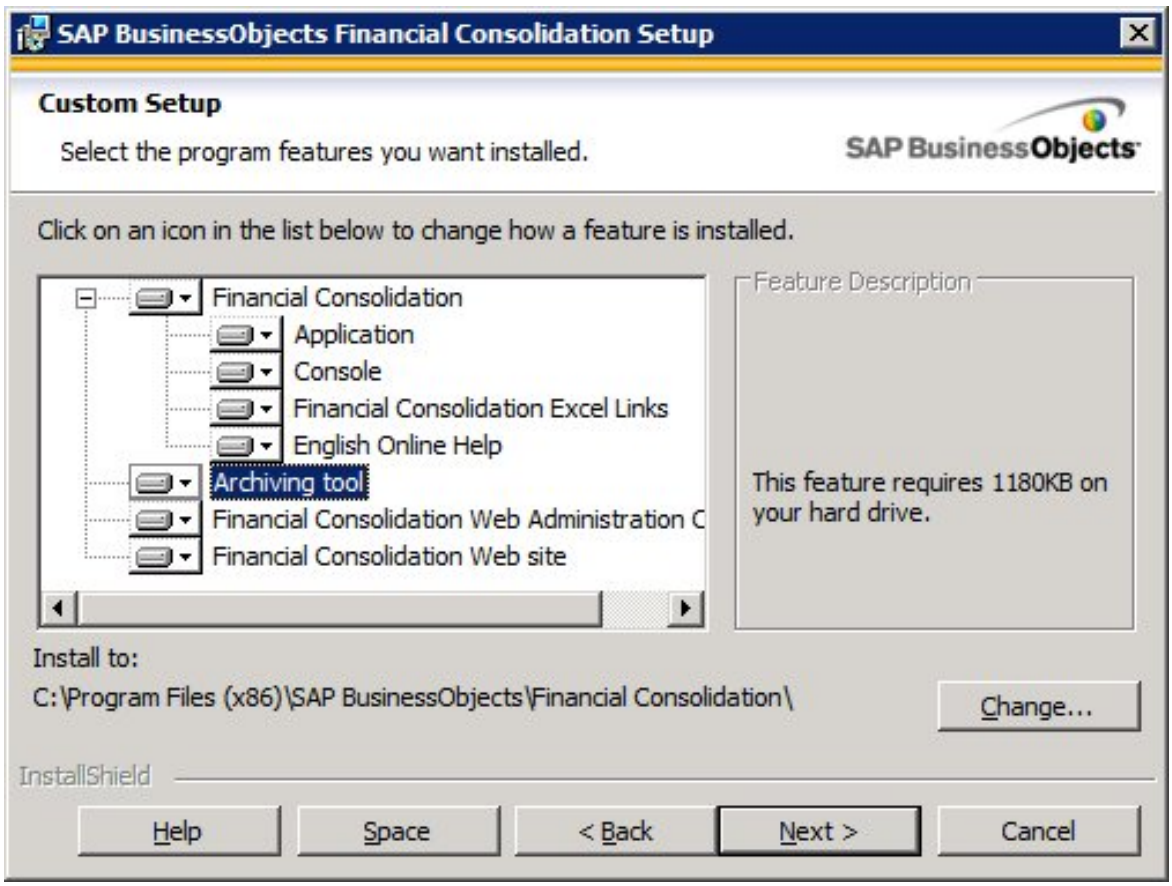
- SAP HANA Database Revision 93 or higher

  > **i Note**
  >
  > With SAP HANA, you cannot use two different database servers for the source database and the archive database. Both databases must be located on the same server and on the same tenant.

- Oracle Net client, SQL Server client or SAP HANA client 32-bit installed on the same machine as the Archiving Tool
- Internet Explorer with Flash Player (for the rendering of graphical charts) and Acrobat Reader (for the online help) installed on the same machine as the Archiving Tool

Procedure

1. Run the SAP Financial Consolidation setup.
2. In the *Setup Type* dialog box, select the *Server installation* type.



3. In the *Custom Setup* dialog box, select the *Archiving tool* option.
4. Click *Next* and complete the setup.
5. Once the program is installed, create an empty database that will be used as a new archive.

> → Tip
>
> You can define multiple archives for one SAP Financial Consolidation database, for example, one per year.

   - On Oracle: We recommend that you create the archive database on the same instance as the SAP Financial Consolidation database. The owner of the Finance database must have CREATE VIEW privileges.

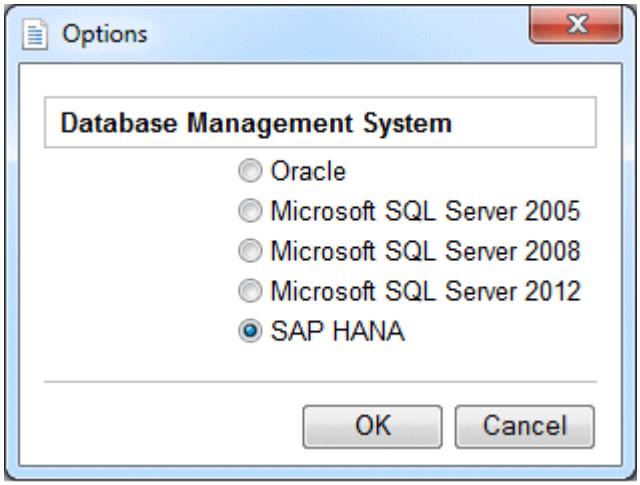
> ⚠ Caution
>
> If you want to use separate instances, you have to setup a database link in the Finance database. The name of this link must be the same as the user schema of the archive database. For example if your archive instance is named "Archive" and the schema for archiving is named "BFC", the database link you create must be named "BFC" and configured to connect with this user.

- On SQL Server: Only one login is required to connect to the SAP Financial Consolidation and archive databases with SQL Server. This login must be the dbo of the SAP Financial Consolidation database, and can be different from the sa login. The database collation of both databases should be the same.
- On SAP HANA: before using the archiving tool with a SAP HANA database, you must run the following query:`grant select on schema "archive_schema" to "FC_schema_owner"`

> ⚠ Caution
>
> You cannot log in using an account with the same rights as the dbo.

> ⚠ Caution
>
> With Microsoft SQL Server, you cannot use two different database servers for the source database and the archive database. Both databases must be located on the same server.

6. Once the database is created, connect to the program by selecting *Start* > *All Programs* > *SAP Financial Consolidation* > *Archiving Tool*.
7. At the first connection, go to the *Options* menu and select the database type you are using.



> ℹ Note
>
> By default, the options are saved for the next time you start the application.

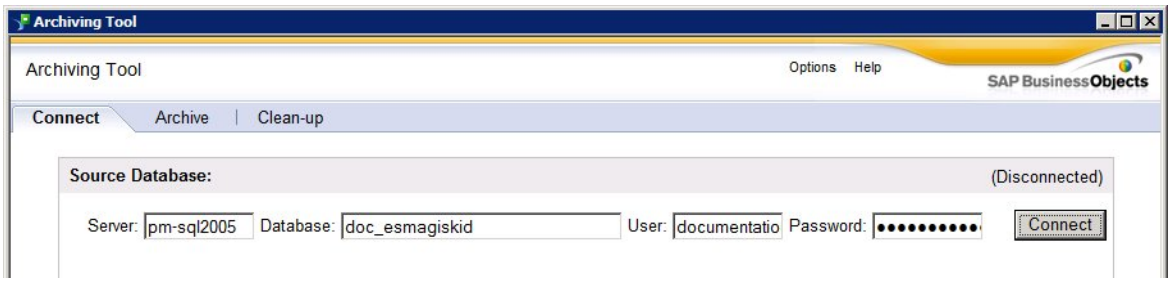
16.2 Database Connection

Context

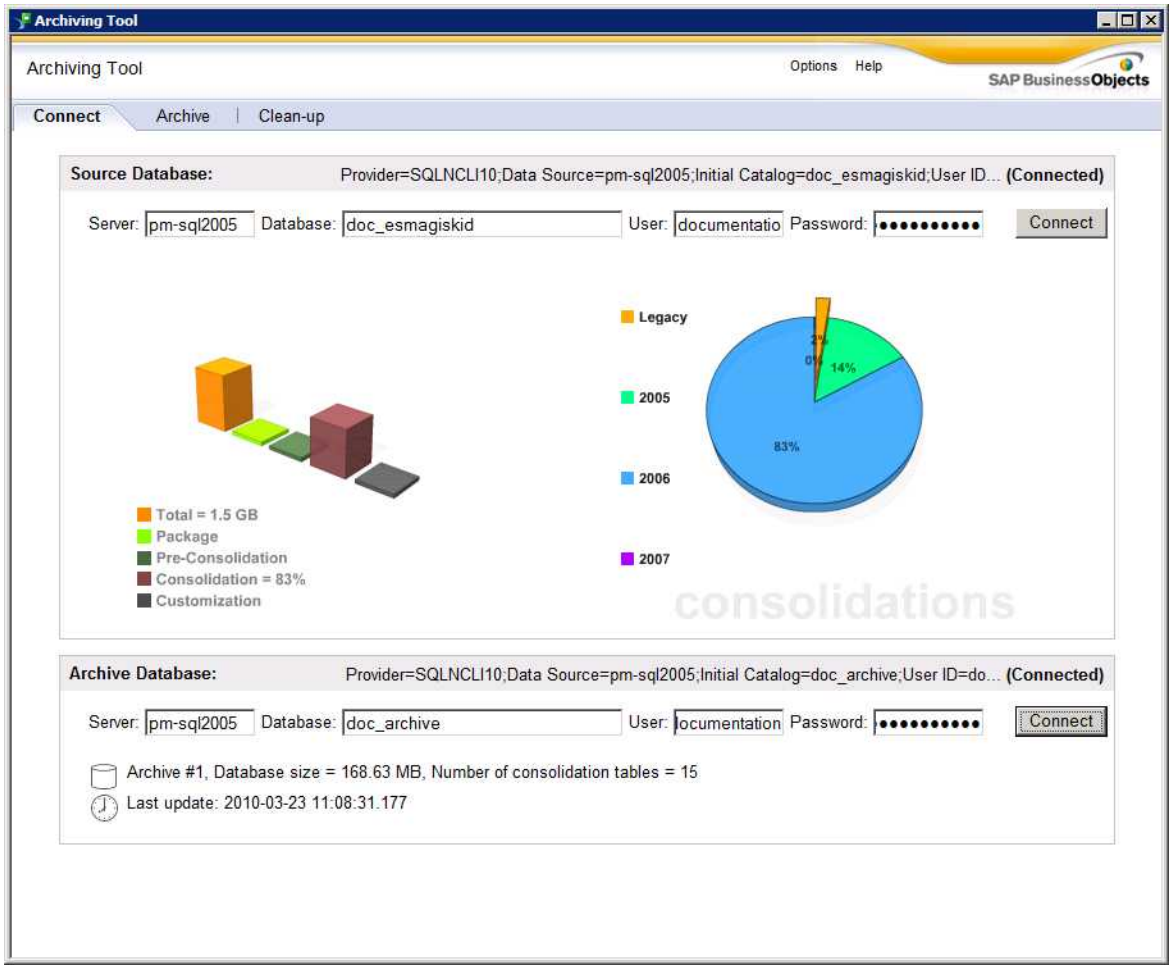
Once you have started the Archiving Tool, you connect to the source and the target databases.

Procedure

1. Enter the connection parameters to the SAP Financial Consolidation source database, depending on the database type:
   - If you are using a SQL Server database, enter the username and password of the database owner, the name of the server which hosts SQL Server and the database name.
   - If you are using an Oracle database, enter the username and password of the schema's owner and the TNSNAME of the Oracle instance.
   - If you are using a SAP HANA database, enter the username and password of the database owner and the name of the ODBC 32-bit data source.



2. Click *Connect*.
   If the connection is successful, the database connection string appears in the header of the connection panel and column and pie charts appear.

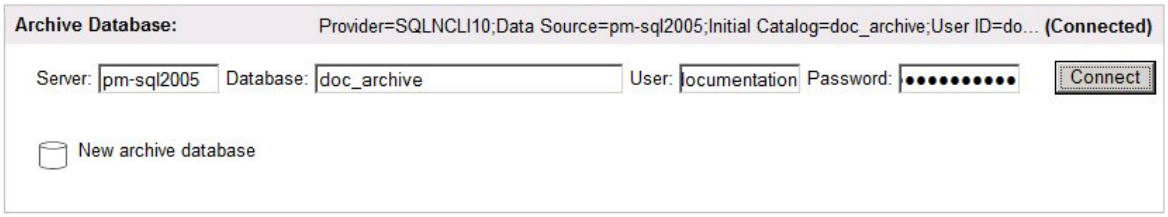


- The column chart shows the allocated size for each type of SAP Financial Consolidation objects. The first column indicates the total database size. After a few years, the consolidations tend to comprise the bulk of the database's size (see percentage size). When moving the cursor over the diagram, the exact size for each objects' type is displayed.
- The pie chart shows the share per annual data entry period of all consolidations. If the "Legacy" (older than 3 years) section is large, we recommend that you archive the consolidated data.

3. Enter the connection parameters to the target database, depending on the database type:
   - If you are using a SQL Server database, enter the username and password of the database owner, the name of the server which hosts SQL Server and the database name.
   - If you are using an Oracle database, enter the username and password of the schema's owner and the TNSNAME of the Oracle instance.
4. Click *Connect* to connect to the archive and get an overview of the database.
   The following information is displayed:
   - the database size
   - the number of archived consolidations stored in the database
   - the last update of the archive
   - the archive rank

     Use the Archiving Tool to define multiple archives for one SAP Financial Consolidation database (for instance, one per year). The example below shows the second archive defined for the source database

If the archive is empty, *New archive database* appears under the *Server* box.



You can also click *Connect* to verify that one or several archived consolidations were not re-run in the source database. In that case, the archived consolidations are no longer valid and the tool will suggest that you to synchronize the source and the archive databases.

16.3 Consistency check

Consistency checks between the source and the archive databases are performed by the Archiving Tool at the connection step in order to prevent any loss of data. You cannot connect to either database if:

- The profiles do not match.
- Some of the archived consolidations are not from the source database.

Example 1: The platform is composed of two SAP Financial Consolidation production databases, CENTRALPROD and DIVISIONPROD. After consolidations are moved from CENTRALPROD to an empty archive, the archive database is permanently linked to CENTRALPROD, so you cannot connect this archive with DIVISIONPROD as a source database.

Example 2: There is a weekly backup of CENTRALPROD into CENTRALTEST, then additional consolidations are moved from CENTRALPROD to the archive database. You cannot link the archive to CENTRALTEST, although it looks like the same database. The tool will display the following error message when connecting to either database: *Invalid profile*.

Example 3: the first time you archive consolidations from CENTRALPROD, the current archive database is ranked number 1. Then you connect a new archive to CENTRALPROD for transferring additional consolidations, this archive is ranked number 2, and so on.

On Oracle, after you connect to both databases, the tool automatically grants the necessary privileges in order to allow the archiving and restoration of data.

On the source database, the following statement is run by the tool:

```
grant select any table to (owner of archive schema)
```

On the archive database, the following statement is run by the tool:

```
grant select any table to (owner of source schema)
```

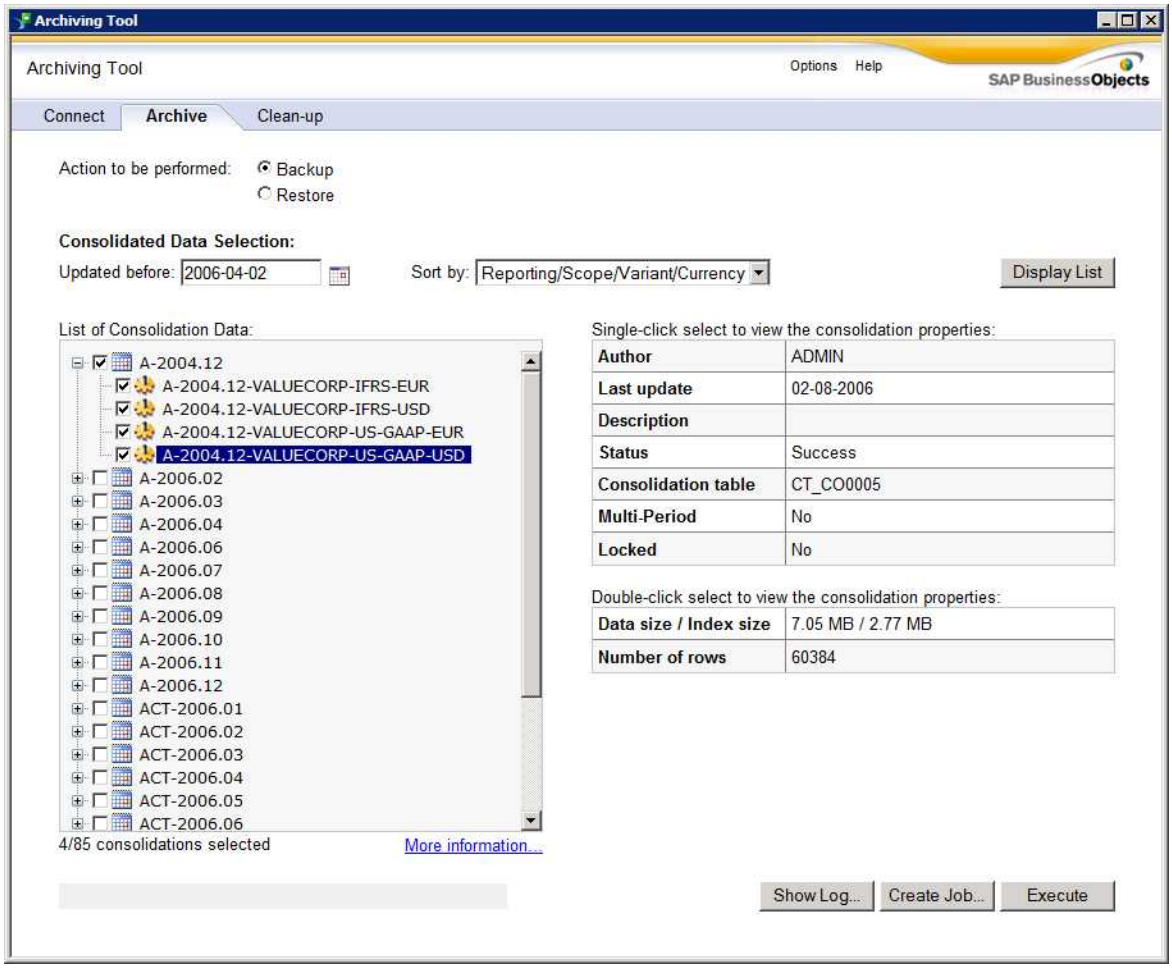
16.4 Archiving Consolidations

Context

> ⚠ Caution
>
> The archive should not be a Financial Consolidation database.

Procedure

1. After you have connected to the source and archive databases, select the *Archive* tab.



2. For the *Action to be performed*, select *Backup*.
3. To set the *Updated before* date, click the calendar icon.

   This option helps you to select the list of consolidations which have not been updated since a specified date.

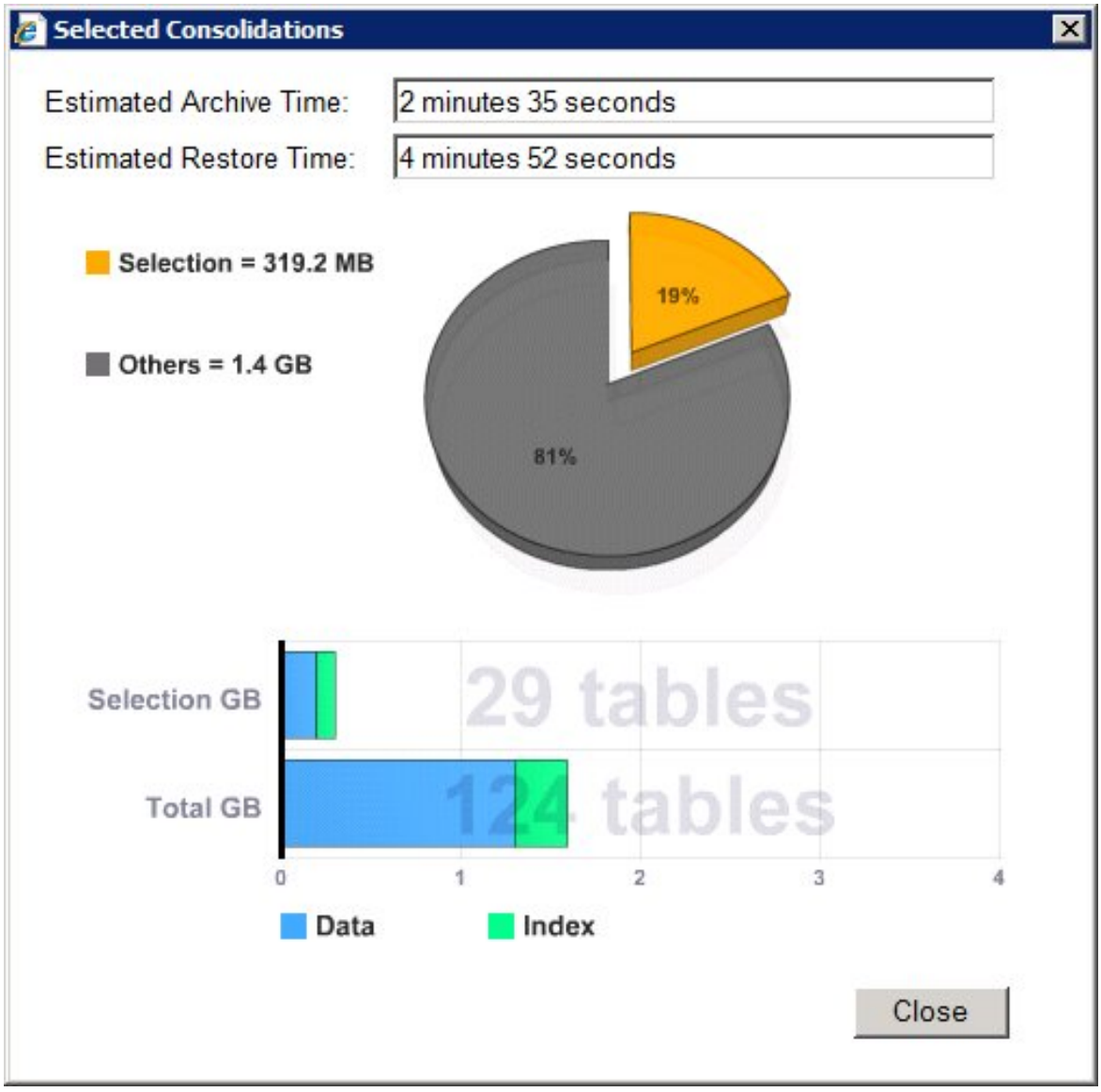
> → Tip
>
> if you select a date before the first reporting period, all copy consolidations will be fetched.

4. From the *Sort by* list, select the sort critera for the tree view.
5. Click *Display List* to display the tree view of the selected consolidations from the Financial Consolidation database.
   Each item in the tree view corresponds to one consolidation. All consolidations are grouped by node depending on the sort criteria specified previously.
6. Click once on a consolidation to display its general properties.
   The following elements are displayed:
   - author of the consolidation definition
   - last update of the consolidation data
   - consolidation's long description
   - status of the last execution
   - consolidation table name in the database
   - multi-period selection
   - locked selection
7. Double-click a consolidation in order to display its general properties and sizing information.
   The following elements are displayed:
   - allocated size in database for the consolidated data and indexes
   - number of rows in the consolidation tables, which indicates the number of consolidated amounts
8. Select in the tree view the checkboxes for the consolidations you want to archive.

   > ℹ Note
   >
   > You can select the root folder of a group of consolidations to save time.

   At the bottom of the tree view, the number of selected consolidations and all listed consolidations is displayed.

   For information on the selected consolidations, click *More information*. The following dialog box opens:



The *Selected Consolidations* dialog box provides:

- the estimated archival time for the selected consolidations
- the estimated restoration time for the selected consolidations
- the share between the size of the selected consolidations and all others
- the data and index size of the selected consolidations compared with all consolidations

Click *Close* to return to the Archiving Tool and execute the consolidations.

9. Click *Execute* to archive the selected consolidations.

> ⚠ Caution
>
> We recommend that you stop Financial Consolidation before launching the archiving process.

A dialog box lists the table name of the consolidations to be archived.

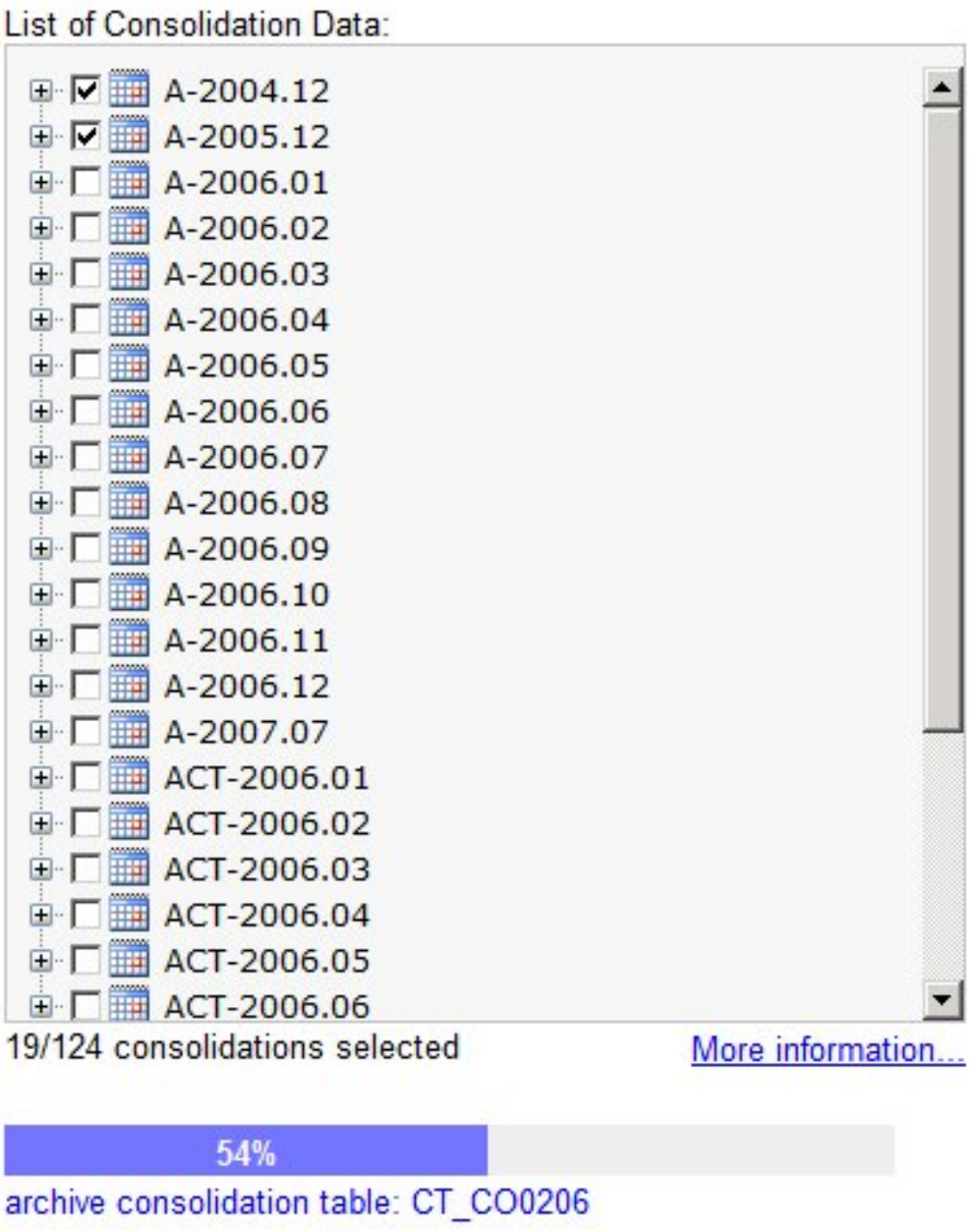
10. Click *OK* to confirm.

    The archival process is divided into the following steps:

    1. Copy the consolidation table.
    2. Rename the consolidation table.
    3. Create a view in the archive.
    4. Delete the consolidation table.
    5. Lock the consolidation definition.

    The progress bar located at the bottom of the window shows you the status of the archiva process. When the archiving is completed, the status *Completed* appears and the tree view content is refreshed. If any error has occurred, the following message appears: *An error occurred. See log*.

    Repeat this task for each selected consolidation. If any errors occur, the Archive Tool reverts to the last consistency check point. This means that all completed consolidations stay archived, the current consolidation returns to its initial state, and no change is applied to the remaining consolidations.



11. After the archival process is complete, restart the data source.
    You can display the archival date and time of all archived consolidations by selecting the field "Archiving date" on the Financial Consolidation desktop.

Results

To check the log file, click *Show Log*.

Example: Sample log file

```
Tuesday, March 23, 2010 11:07:08 AM - query: SELECT COUNT(1) AS "COUNT" FROM
sysobjects WHERE type = 'U' AND name = 'wctversion'
Tuesday, March 23, 2010 11:07:08 AM - duration: 0.015 s
Tuesday, March 23, 2010 11:07:08 AM - query: SELECT * INTO wctversion FROM
Doc_ESMAGISKID.dbo.wctversion
Tuesday, March 23, 2010 11:07:08 AM - duration: 0.015 s
Tuesday, March 23, 2010 11:07:08 AM - query: SELECT COUNT(1) AS "COUNT" FROM
sysobjects WHERE type = 'U' AND name = 'ct_config'
Tuesday, March 23, 2010 11:07:08 AM - duration: 0.015 s
Tuesday, March 23, 2010 11:07:08 AM - query: SELECT id,name INTO ct_config FROM
Doc_ESMAGISKID.dbo.ct_config
Tuesday, March 23, 2010 11:07:08 AM - duration: 0.016 s
Tuesday, March 23, 2010 11:07:09 AM - query: SELECT COUNT(1) AS "COUNT" FROM
sysobjects WHERE type = 'U' AND name = 'ct_phase'
Tuesday, March 23, 2010 11:07:09 AM - duration: 0.015 s
Tuesday, March 23, 2010 11:07:09 AM - query: SELECT id,name INTO ct_phase FROM
Doc_ESMAGISKID.dbo.ct_phase
Tuesday, March 23, 2010 11:07:09 AM - duration: 0.016 s
Tuesday, March 23, 2010 11:07:09 AM - query: SELECT COUNT(1) AS "COUNT" FROM
sysobjects WHERE type = 'U' AND name = 'ct_scope_code'
Tuesday, March 23, 2010 11:07:09 AM - duration: 0 s
Tuesday, March 23, 2010 11:07:09 AM - query: SELECT id,name INTO ct_scope_code
FROM Doc_ESMAGISKID.dbo.ct_scope_code
Tuesday, March 23, 2010 11:07:09 AM - duration: 0 s
Tuesday, March 23, 2010 11:07:09 AM - query: SELECT COUNT(1) AS "COUNT" FROM
sysobjects WHERE type = 'U' AND name = 'ct_variant'
Tuesday, March 23, 2010 11:07:09 AM - duration: 0.015 s
Tuesday, March 23, 2010 11:07:09 AM - query: SELECT id,name INTO ct_variant FROM
Doc_ESMAGISKID.dbo.ct_variant
```

16.5 Scheduling the Archival Jobs

Context

You can automate and schedule the archiving process, for example during the night or the weekend.

Procedure

1. In the tree view, select the consolidations you want to archive.
2. Click *Create Job*.
   The following message appears: *The config.xml file has been saved.*
3. Click *OK*.

   To see the effect of the job creation, open the *config.xml* file located by default in `C:\Users\<user_name>\AppData\Local\Temp\`.

   ```
   <?xml version="1.0"?>
   <copy action="archive">
   ```

```
<sourcedatabase>Provider=SQLNCLI10;Data Source=pm-sql2005;Initial
Catalog=Doc_ESMAGISKID;User ID=documentation;Password=}vzlt|wmxmpvw;</
sourcedatabase>
<archivedatabase>Provider=SQLNCLI10;Data Source=pm-sql2005;Initial
Catalog=doc_archive;User ID=documentation;Password=}vzlt|wmxmpvw;</
archivedatabase>
<conso>
<item>CT_CO0141</item>
<item>CT_CO0106</item>
<item>CT_CO0142</item>
<item>CT_CO0162</item>
<item>CT_CO0107</item>
<item>CT_CO0130</item>
<item>CT_CO0136</item>
<item>CT_CO0102</item>
<item>CT_CO0140</item>
<item>CT_CO0133</item>
<item>CT_CO0135</item>
<item>CT_CO0134</item>
<item>CT_CO0104</item>
<item>CT_CO0217</item>
<item>CT_CO0213</item>
</conso>
</copy>
```

This configuration file stores all needed parameters for archival:

- the action to process: `<copy action="archive"></copy>`
- the connection string to the source database: `<archivedatabase></archivedatabase>`
- the connection string to the archive database: `<sourcedatabase></sourcedatabase>`
- the list of selected consolidations: `<conso></conso>`

4. Create a .bat file containing the following command:

   ```
   cd /d <archive root folder>
   Archiveconso.wsf <path>\config.xml
   ```

   It is possible to add a Scheduled Task using the Windows Configuration Panel that runs on a defined day and time the following command:

   ```
   <archive root folder>\Archiveconso.wsf <path>\config.xml
   ```

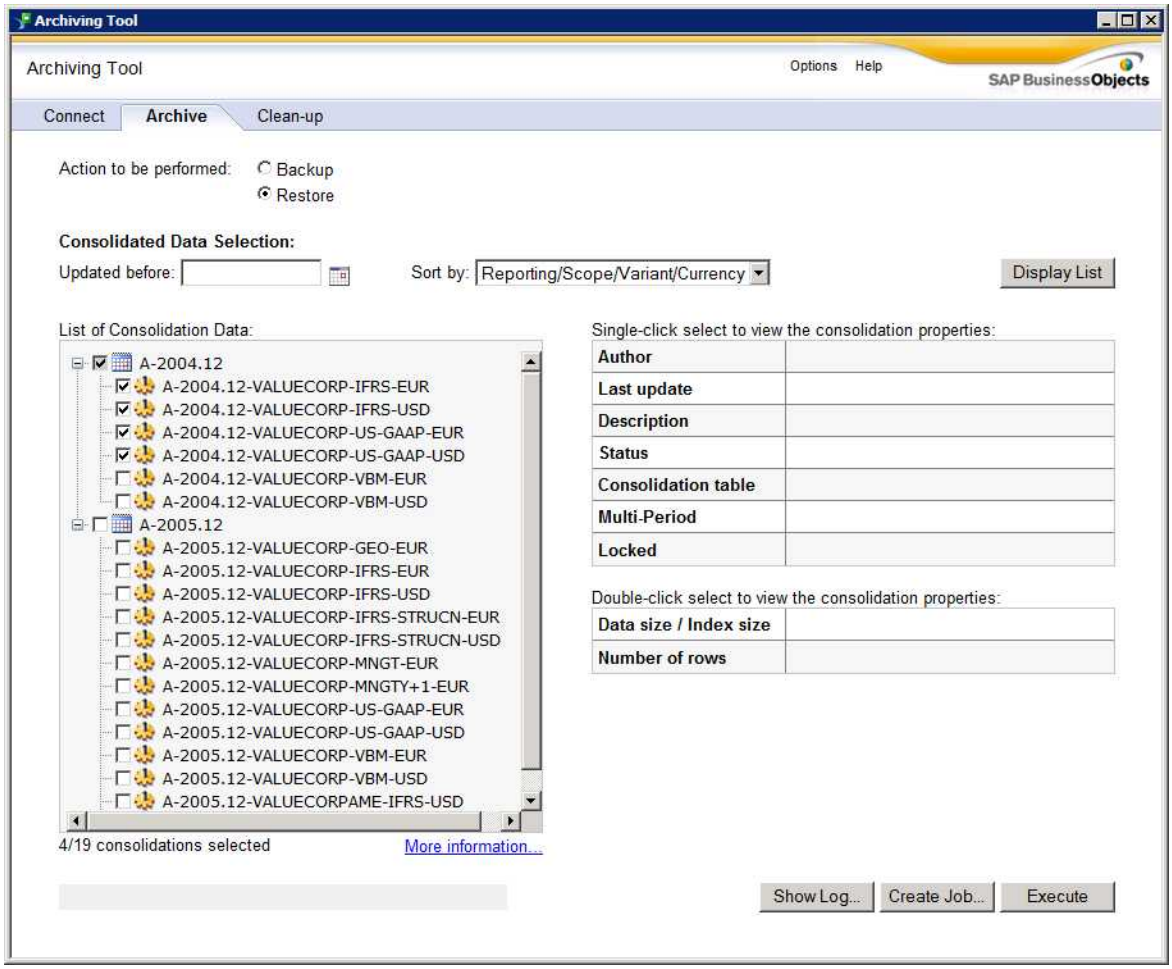
5. Open the Scheduled Task Wizard of Windows and select the .bat created at step 4.

> → Remember
>
> Always backup the archive database after archiving consolidations.

16.6 Restoring Archived Consolidations

Procedure

1. After you have connected to the source and archive databases, select the *Archive* tab.



2. For the *Action to be performed*, select *Restore*.
3. To set the *Updated before*, click the calendar icon.

   This option helps you to select the list of consolidations which have not been updated since a specified date.

> → Tip
>
> If you select a date before the first reporting period, all copy consolidations will be fetched.

4. From the *Sort by* list, select the sort criteria for the tree view.
5. Click *Display List* to display the consolidations in the archive database.
   Each item of the tree view corresponds to one consolidation. All consolidations are grouped by node depending on the sort criteria specified previously.
6. Click once on a consolidation in order to display its general properties and double-click it to also display sizing information.
7. Select the checkboxes of the consolidations you want to restore. You can also select the root folder for a group of consolidations. At the bottom of the tree view, the number of selected consolidations and all listed consolidations are displayed.

   To see information on the consolidations, click *More information*.

   The *Selected Consolidations* panel appears and shows:

- the estimated archival time for the selected consolidations
- the estimated restoration time for the selected consolidations
- the share between the size of the selected consolidations and all others
- the data and index size of the selected consolidations compared with all consolidations

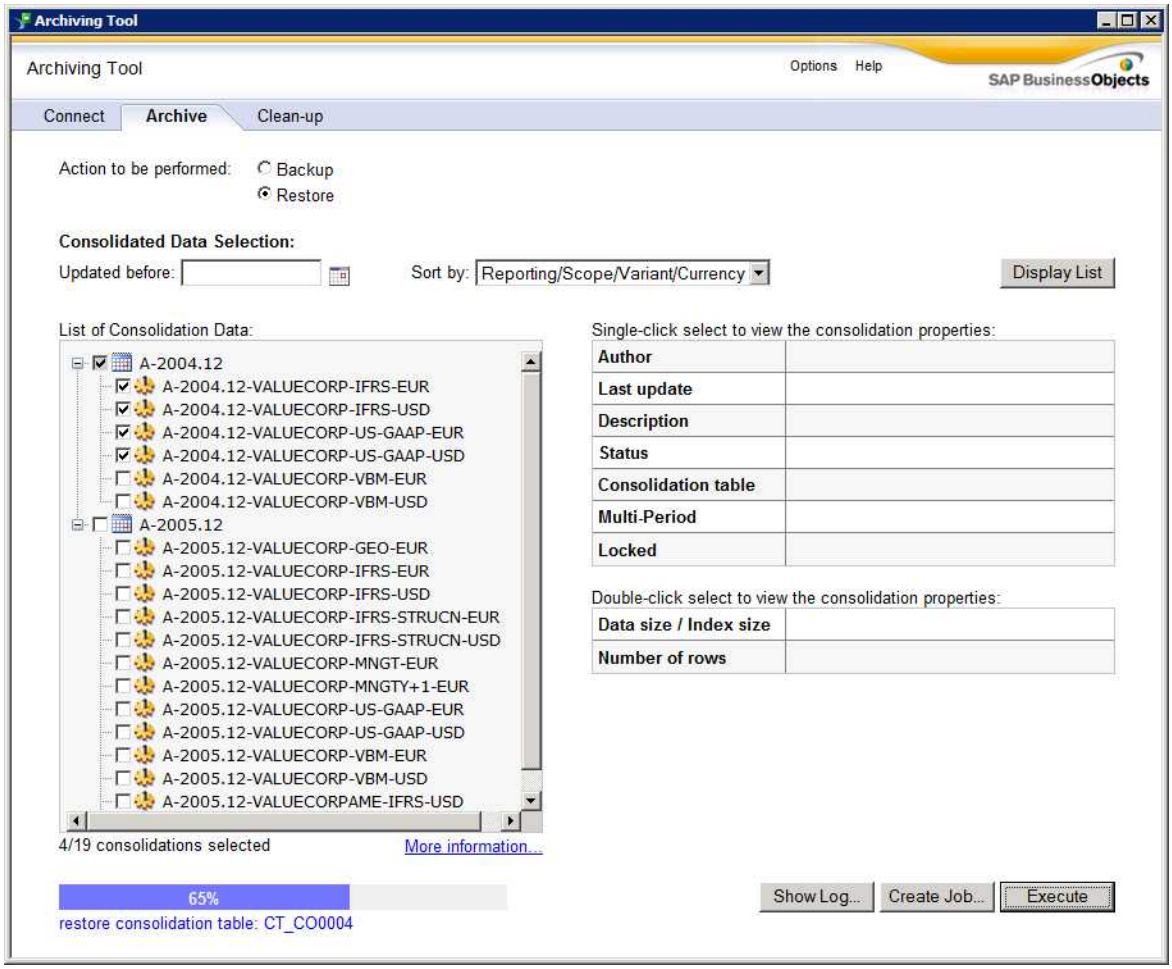
Click *Close* to return to the Archiving Tool.

8. Click *Execute* to archive the selected consolidations.

> ⚠ Caution
>
> We recommend that you stop Financial Consolidation before launching the restoring process. You cannot restore consolidations on a database different from the original source database

A dialog box lists the table name of the consolidations to be restored.

9. Click *OK* to confirm.



The restoring process is divided into the following steps:

1. Drop the view on the archive.
2. Copy the consolidation table.
3. Drop the consolidation table from the archive.
4. Restore the index on the consolidation table.

Results

The progress bar located at the bottom of the window shows the status of the process. When the restoration process is complete, the status *Completed* appears, and the tree view content is refreshed. If any error has occurred, the following status appears: *An error occurred. See log.*

It is possible to automate and schedule the restoring process, for example during the night or the weekend. For more information, see Scheduling the Archival Jobs [page 120]

Example: Sample archive log

To check the log file, click *Show Log*.

```
Tuesday, March 30, 2010 11:29:08 AM - query: DROP VIEW CT_CO0001
Tuesday, March 30, 2010 11:29:08 AM - duration: 0.078 s
Tuesday, March 30, 2010 11:29:10 AM - query: SELECT COUNT(1) AS "COUNT" FROM
sysobjects WHERE type = 'U' AND name = 'CT_CO0001'
Tuesday, March 30, 2010 11:29:10 AM - duration: 0.016 s
Tuesday, March 30, 2010 11:29:10 AM - query: SELECT * INTO ct_co0001 FROM
doc_archive.dbo.CT_CO0001
Tuesday, March 30, 2010 11:29:11 AM - duration: 0.937 s
Tuesday, March 30, 2010 11:29:11 AM - query: SELECT 'CREATE ' + case when
IDX.type_desc='CLUSTERED' then 'CLUSTERED' else 'NONCLUSTERED' end  + ' INDEX '+
IDX.name +' ON '+ OBJ.name +' ('+  replace((select COL2.name+ case when
idxc.is_descending_key=0 then ' ASC' else ' DESC' end +','   from sys.columns
COL2   where COL.object_id = COL2.object_id   and
col2.object_id=idxc.object_id   and col2.column_id in (select column_id from
sys.index_columns where object_id=IDXC.object_id and index_id=IDXC.index_id)
order by COL2.object_id FOR XML PATH('') ) +' ',', ','') +')' CREATE_INDEX  FROM
sys.index_columns IDXC  INNER JOIN sys.objects OBJ ON IDXC.object_id =
OBJ.object_id  INNER JOIN sys.indexes IDX ON (IDXC.object_id = IDX.object_id AND
IDXC.index_id = IDX.index_id)  INNER JOIN sys.columns COL ON (IDXC.column_id =
COL.column_id AND OBJ.object_id = COL.object_id)  WHERE (OBJ.type = 'U' OR
OBJ.type = 'V')  AND OBJ.NAME='CT_CO0001' group by
idx.name,idxc.is_descending_key,col.object_id,IDXC.object_id,IDX.type_desc,OBJ.na
me,IDXC.index_id
Tuesday, March 30, 2010 11:29:11 AM - duration: 0.234 s
Tuesday, March 30, 2010 11:29:11 AM - query: CREATE NONCLUSTERED INDEX
ct_co0001i ON ct_co0001 (accnt ASC)
Tuesday, March 30, 2010 11:29:12 AM - duration: 0.36 s
Tuesday, March 30, 2010 11:29:12 AM - query: CREATE NONCLUSTERED INDEX
ct_co0001j ON ct_co0001 (entity ASC)
Tuesday, March 30, 2010 11:29:12 AM - duration: 0.359 s
Tuesday, March 30, 2010 11:29:12 AM - query: DROP TABLE CT_CO0001
Tuesday, March 30, 2010 11:29:12 AM - duration: 0.016 s
Tuesday, March 30, 2010 11:29:12 AM - query: SELECT b.name AS "table_name",
a.name AS "index_name" FROM sysindexes a, sysobjects b WHERE a.id = b.id AND
a.indid > 0 AND a.indid < 255 AND (a.status & 8388608)=0 AND (a.status & 64)=0
AND b.name = 'CT_CO0001' AND a.name = 'CT_CO001I' order by b.name,a.name
Tuesday, March 30, 2010 11:29:12 AM - duration: 0.094 s
Tuesday, March 30, 2010 11:29:12 AM - query: CREATE INDEX ct_co001i ON CT_CO0001
(ACCNT)
Tuesday, March 30, 2010 11:29:13 AM - duration: 0.188 s
Tuesday, March 30, 2010 11:29:13 AM - query: UPDATE ct_conso_def SET
archive_date = NULL WHERE id = (SELECT d.id FROM ct_coref r, ct_conso_def d,
ct_conso_def_per f WHERE r.phase = d.phase AND r.updper = d.updper AND r.variant
= d.variante AND r.curncy = d.curncy AND d.main_period = f.id AND f.scope_code =
r.scope AND r.id =1)
Tuesday, March 30, 2010 11:29:13 AM - duration: 0.063 s
```

16.7 Clean-up of Objects

Context

The Clean-up tab allows you to clean-up the Financial Consolidation database through a graphical interface, without having to run queries directly into the database.

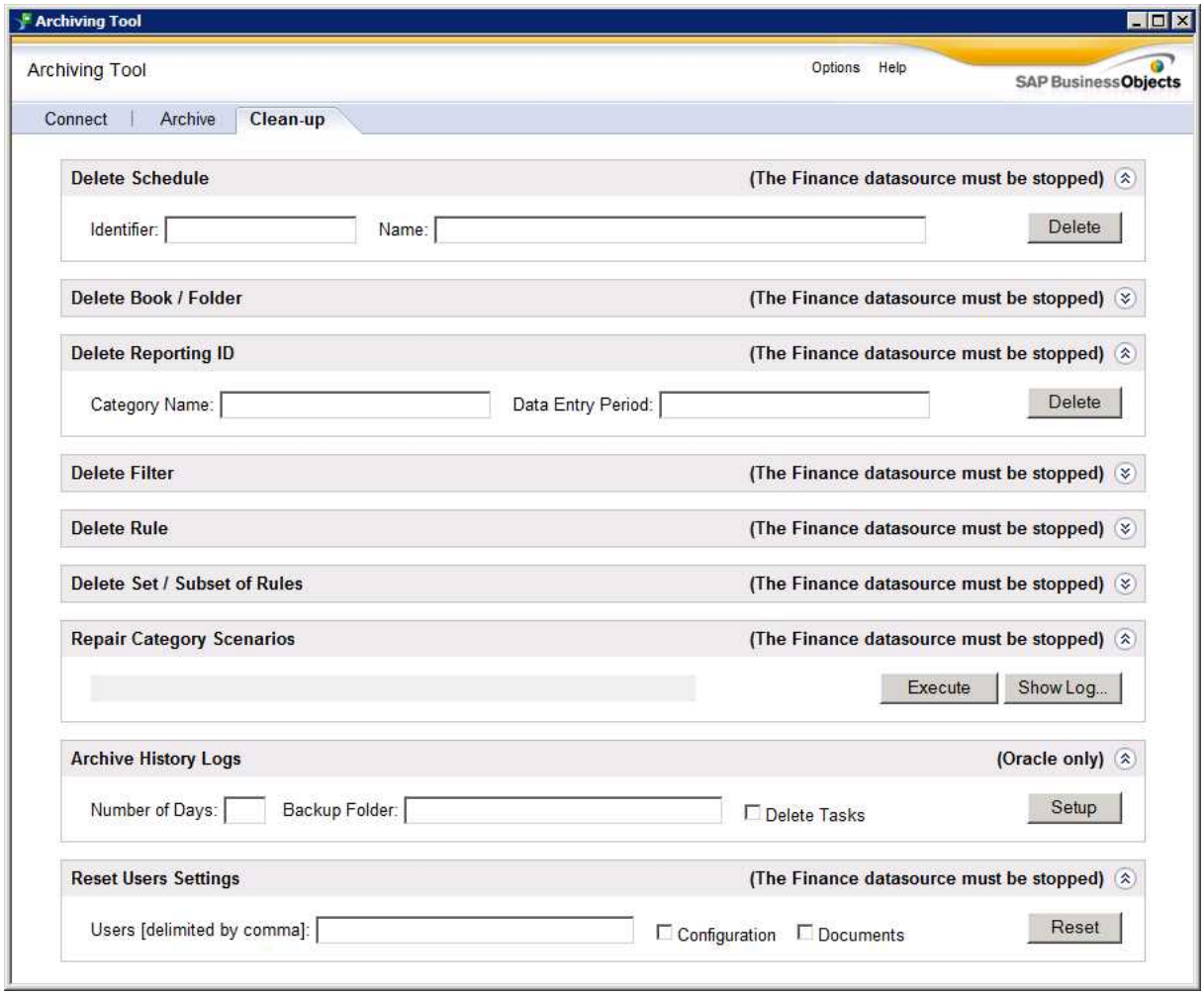
You can delete the following objects:

- schedule
- report
- folder
- reporting ID
- category scenarios
- filter
- rule
- set of rules
- subset of rules

> **i** Note
>
> Stop the data source before proceeding with the clean-up.

When the cleanup is complete, restart the data source.

The *Clean-up* tab contents the following objects.



Procedure

1. Open the *Clean-Up* tab.
2. To expand a particular section, click the down arrow on the right side of the section.
3. Select the object you want to delete.
4. Click the button in the corresponding section. For ewample, in the case of *Delete Schedule* click *Delete* to launch the operation.

> **i** Note
>
> Deletion operations must be validated first in a test environment.

16.7.1 Archiving History Logs

Context

> ⚠ Caution
>
> The implementation of the Archive History Logs is based on the import and export utilities of Oracle. They must be installed on the machine. SQL Server and SAP HANA are not supported.

Archive History Logs are used to schedule the removal of old history logs in the Financial Consolidation application and store them in flat files. You can also restore history logs from a specified time period in an empty Financial Consolidation database and view them in the Financial Consolidation desktop.

> ⚠ Caution
>
> You need to stop the Financial Consolidation data source before launching the archival process.

The main benefits of these logs are:

- The performance of the application is greatly improved because the *Task List* and *Log* views of the Financial Consolidation desktop consume fewer resources.
- The company keeps track of all legacy information for auditors and for technical comparison purposes.

To configure the history logs:

Procedure

1. In the Archiving Tool, connect to the source Financial Consolidation database.
2. In the *Clean-Up* tab, expand the *Archive History Logs* panel.
3. Enter the following parameters:
   - *Number of Days*: the period of time the history logs are kept in the Financial Consolidation database. For instance, if Number of Days is 30, all history logs before Today – 30 will be archived.
   - *Backup Folder*: the destination directory of the archive file.
4. Select *Delete Tasks* to delete all tasks not processed during the period of time.
5. Click *Setup* to generate the `launcher.bat` file.

   This `launcher.bat` file contents the following parameters:

   ```
   "C:\Program Files\XXXXXXX\Archive\archivelogs.bat" user/password@finance "D:
   \Archive" 30 true
   ```

   Where:
   - The connection string to the source database is `user/password@finance`.
   - The number of days is 30.
   - The backup folder is `D:\Archive`.
   - The delete tasks checkbox activated with `true`.

Next Steps

You can use the scheduler in the database server to automate the Archive Logs process. For instance, run the `launcher.bat` command file every weekend.

If the operating system of the database server is UNIX, you may need to adapt the DOS batch command files.

The launcher program calls the `archivelogs.bat` command file that automatically executes the following actions:

1. Exports the history data generated before (Today – Number of Days) from the following tables:
   - ct_runnableobjects
   - ct_schedulings
   - ct_execresults
   - ct_executions
   - ct_history
   - ct_history_detail
2. Compresses the six dump files in one archive file named history(timestamp).zip located in the backup folder.
   If the archiving of logs is scheduled every weekend, then an archive will contain the history content of one week.
3. Deletes from the tables pre-existing data (Today – Number of Days).

> ⚠ Caution
>
> The first restart of Financial Consolidation after the cleanup of history logs can take several minutes.

16.7.2 Restoring History Logs

Context

To restore history logs, you need to setup an empty Financial Consolidation database by using the *Migrate* function of the administration console. This database will be the recipient database of the restored history logs.

In order to restore the history logs for a period of time, ask your database administrator to run the `restorelogs.bat` command file. This program restores the following parameters:

- the system connection string of the Oracle instance where the empty Financial Consolidation database is located
- the owner of the source Financial Consolidation database schema
- the owner of the recipient Financial Consolidation database schema
- the backup folder in which the archive file is stored
- the timestamp, in order to identify the archive file

Example:

```
"C:\Program Files\XXXX\Archive\restorelogs" system/password@sid source archive
"D:\archive" 1511071631
```

This command restores the history logs from the `history1511071631.zip` archive file, generated on the 15th of November 2007 at 4:31 PM and located in the `D:\archive directory`, into an empty Financial Consolidation database called archive.

The `restorelogs.bat` command file executes the following actions:

1. In the recipient database, it truncates the following tables:
   - ct_runnableobjects
   - ct_schedulings
   - ct_execresults
   - ct_executions
   - ct_history
   - ct_history_detail
2. It uncompresses the file named `history(timestamp).zip` located in the Backup Folder.
3. It imports the history data from the dump files.

You can use the scheduler located in the database server to automate the Archive Logs process. For instance, run the `launcher.bat` command file every weekend.

If the operating system of the database server is UNIX, you may need to adapt the DOS batch command files.

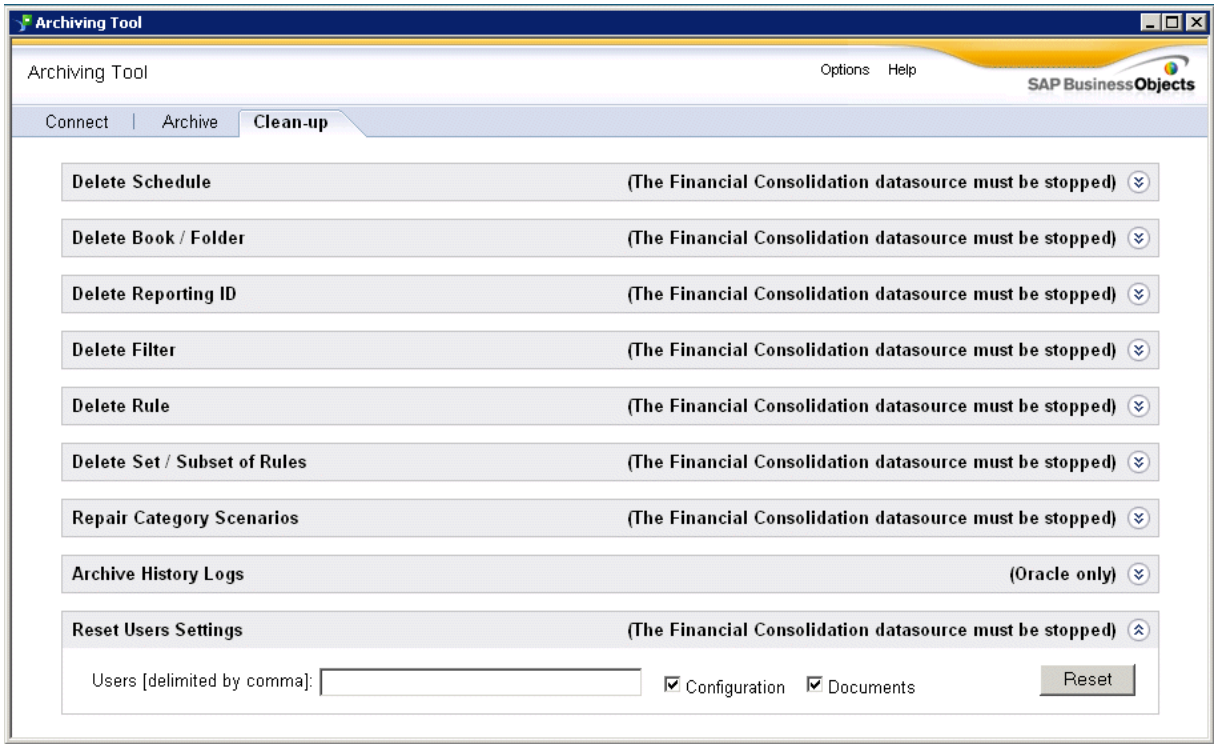
The launcher program calls the `archivelogs.bat` command file, which automatically executes the following actions:

1. It exports the history data generated previously (Today – Number of Days) from the following tables:
   - ct_runnableobjects
   - ct_schedulings
   - ct_execresults
   - ct_executions
   - ct_history
   - ct_history_detail
2. It compresses the dump files in one archive file named `history(timestamp).zip`, located in the backup folder.
   If the archiving of logs is scheduled for every weekend, then one archive will only contain the history content of one week.
3. It deletes from the tables the preexisting data (Today – Number of Days).

> ⚠ Caution
>
> The first restart of Financial Consolidation after you cleanup of history logs can take several minutes.

16.7.3 Resetting Users Settings

The *Reset Users Settings* option allows you to reset preferences that have been saved for a defined user.



To reset a user settings:

1. In the Archiving Tool, connect to the source Financial Consolidation database.
2. In the *Clean-Up* tab, expand the *Reset Users Settings* panel.
3. In the *Users* field, enter the CODE of the user you want to reset.

> **i Note**
>
> If you want to reset several users settings, you must enter each user code separated by a comma.

4. Select the *Configuration* and / or the *Documents* options, depending on which settings you want to reset.
5. Click *Reset*.

17 User Import Export Tool

The User Import Export Tool allows you to export or import users and all user-related objects between Financial Consolidation and different types of flat files.

The User Import Export Tool setup is included in the Financial Consolidation installation folder; however, you must install the tool before using it.

17.1 Installing the User Import Export Tool

This section provides information on how to install the User Import Export Tool.

Prerequisites

Before you install the User Import Export Tool, make sure you have met the following requirements:

- SAP Financial Consolidation 10.1 is installed.
- Microsoft Windows installer 3.1 is installed.
- The Microsoft .NET Framework 3.5 is installed.

Procedure

1. In the Financial Consolidation installation folder, launch the *Import Export Users.msi* file.
   The *Welcome to the Import Export Users Setup Wizard* dialog box opens.
2. Click *Next*.
   The *Select Installation Folder* dialog box opens.
3. Select the folder in which you want to install the application and click *Next*.
   The *Confirm Installation* dialog box opens.
4. Click *Next* to start the installation process.
   Once the installation process is over, the *Installation Complete* dialog box opens.
5. Click *Close* to end the installation.

17.2 Exporting Users with the User Import Export Tool

This section provides information on how to export users with the User Import Export Tool.

Context

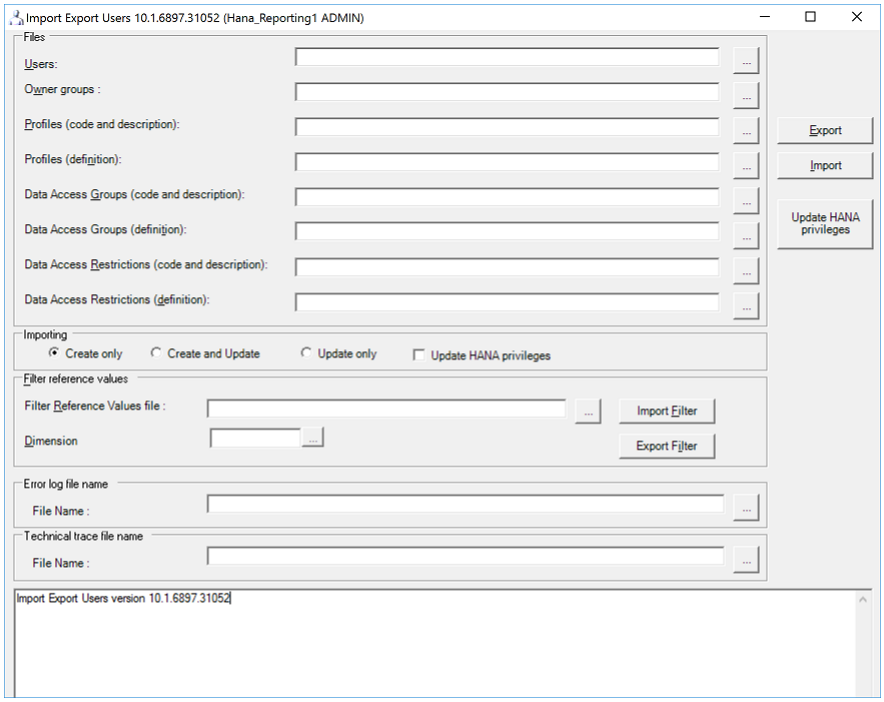
Once it is installed, you access the User Import Export Tool in the `C:\Program Files (x86)\SAP BusinessObjects\Import Export Users` folder.

Procedure

1. Open the `C:\Program Files (x86)\SAP\Financial Consolidation\Import Export Users` folder.
2. Double-click the *Import Export Users.exe* file.

   > ⚠ Caution
   >
   > Do not execute the *UsersImportExport.exe* file, as this one is only used to execute the tool in a command line.

3. The *User Identification* dialog box opens.
4. Enter your credentials and select the data source you want to connect to.
5. Click *OK*.
   The *User Import Export Tool* opens.



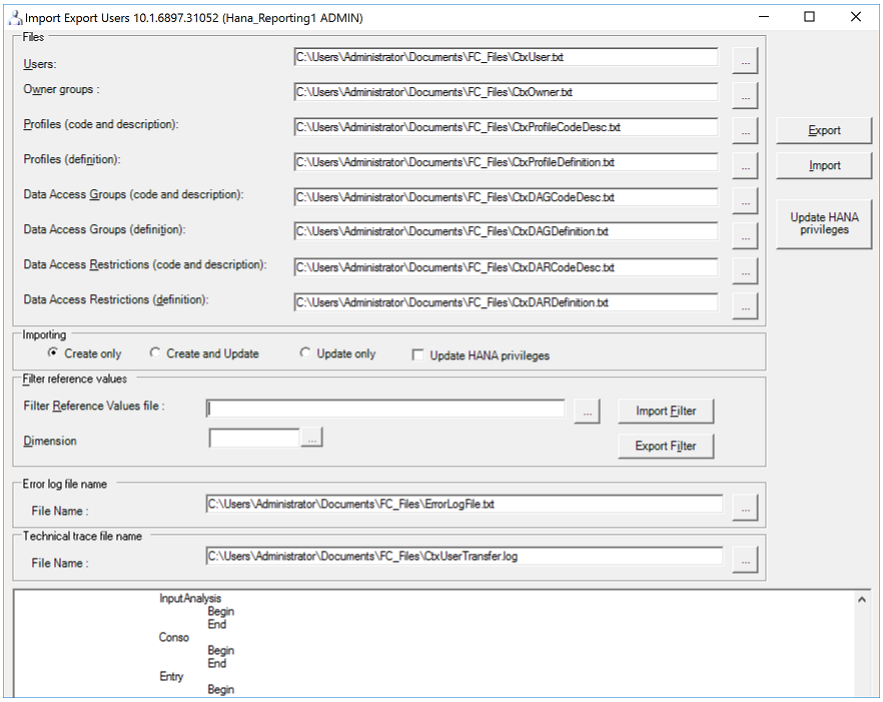
6. In the *Files* area of this window, specify all the file names and their extensions (.txt, .csv or .xml) that will be used for exporting users as well as all the objects related to them:
    - Users
    - Owners groups
    - Profiles (code and description)
    - Profiles (definition)
    - Data Access Groups (code and description)
    - Data Access Groups (definition)
    - Data Acess Restrictions (code and description)
    - Data Acess Restrictions (definition)

    > **i Note**
    >
    > If you do not specify a file name, no action will be taken for the corresponding object.

    > **i Note**
    >
    > By default, the format is .txt, but .csv or .xml formats are also supported.

    > **i Note**
    >
    > You can add the following parameters to the file name so that you can see the date and time of export: «D % » for Date and « %T » for Time. For example: C:\Users\EPMADM\Documents\CtxUser_%D_%T.txt

    > **i Note**
    >
    > You cannot export the technical ADMIN user created by default when installing Financial Consolidation and used to initialize the database cannot be exported.
7. In the *Error Log file name* field, specify a file name if you want to configure a log of the export process.
8. In the *Technical trace file name* field, specify a file name if you want to configure a trace report of the export process.
9. Click *Export*.
   A message appears with the result of the export in the lower part of the window.



The result of the export can be seen in the export folder you specified: as many files as specified in the *Files* area of the tool has been created.

17.3 Importing Users with the User Import Export Tool

This section provides information on how to import users with the User Import Export Tool.

Context

Once it is installed, you access the User Import Export Tool in the `C:\Program Files (x86)\SAP BusinessObjects\Import Export Users` folder.

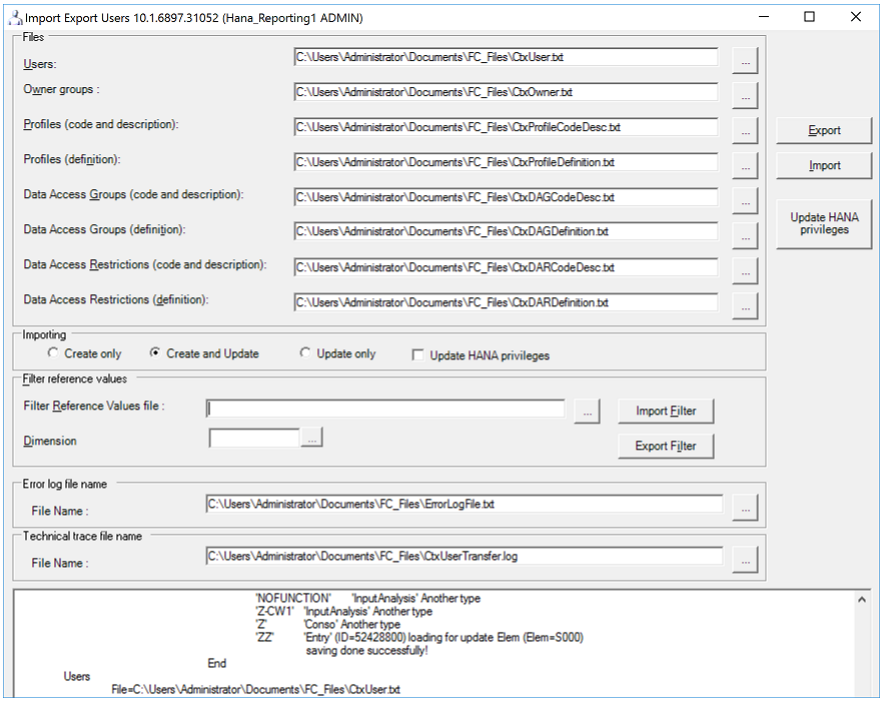
Procedure

1. Open the `C:\Program Files (x86)\SAP BusinessObjects\Import Export Users` folder.
2. Double-click the *Import Export Users.exe* file.

> ⚠ Caution
>
> Do not execute the *UsersImportExport.exe* file, as it is only used to execute the tool in a command line.

3. The *User Identification* dialog box opens.
4. Enter your credentials and select the data source you want to connect to.
5. Click *OK*.
6. In the *Files* area of the User Import Export Tool, specify all the file names and their extensions (.txt, .csv or .xml) that contain all the information on users and their related objects that you want to import to the Financial Consolidation application:
    - Users
    - Owners groups
    - Profiles (code and description)
    - Profiles (definition)
    - Data Access Groups (code and description)
    - Data Access Groups (definition)
    - Data Acess Restrictions (code and description)
    - Data Acess Restrictions (definition)

    > **i Note**
    >
    > If you do not specify a file name, no action will be taken for the corresponding object.
7. In the *Error Log file name* field, specify a file name if you want to configure a log file of the import process.
8. In the *Technical trace file name* field, specify a file name if you want to configure a trace report of the import process.
9. In the *Importing* area of the User Import Export Tool, specify the import options:
    - *Create only*: if you want only new objects to be created into the Financial Consolidation database,
    - *Create or Update*: if you want to add new objects and update existing ones,
    - *Update only*: if you want to update existing objects only.
    - *Update HANA privileges*: if you want to import Data Access Groups into the Financial Consolidation database and update the corresponding privileges into the SAP HANA database as well.
10. Click *Import*.
    A message appears with the result of the import in the lower part of the window.



17.4 Importing or Exporting Filter Reference Values

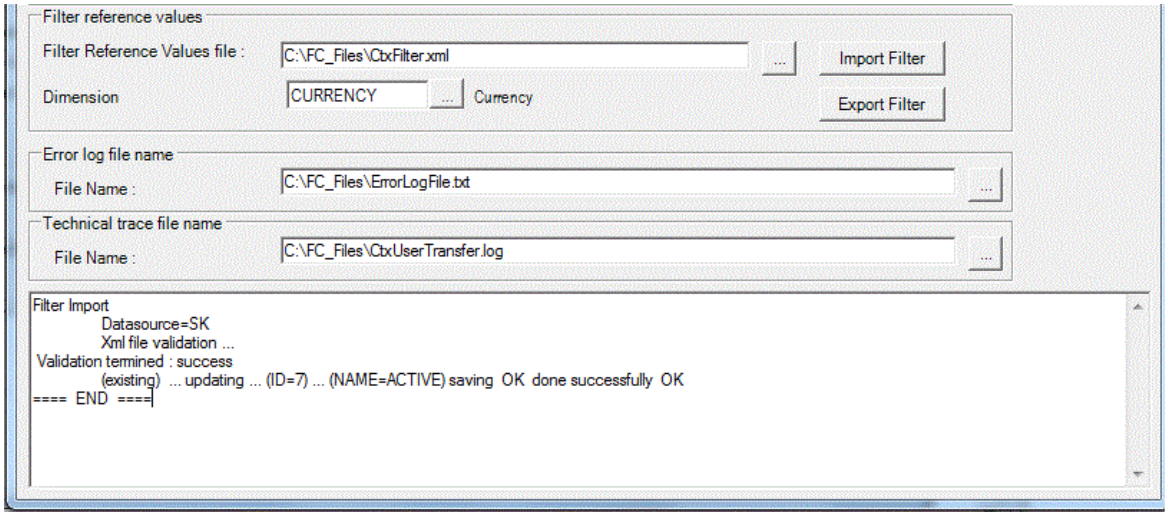
This section explains you how to import or export filter reference values that are contained in the Access Definitions module of the Financial Consolidation application.

Procedure

1. In the *Filter Reference Values file*, select the file containing the filters you want export or import.
2. In the *Dimension* zone, select a dimension if you want to restrict the import / export to a specific dimension.

   > **i Note**
   >
   > This parameter is not mandatory.

3. If you are importing filters, select an import option:
   - *Create only*: if you want only new filters to be created into the Financial Consolidation database,
   - *Create or Update*: if you want to add new filters and update existing ones,
   - *Update only*: if you want to update existing filters only.
4. Click *Import Filter* or *Export Filter*.
   You can see the result of the import or export process in the lower part of the User Import Export Tool.



> **i Note**
>
> All types of filters can be imported or exported.

> **i Note**
>
> During the filter import process, a file named DARDimRej.csv is automatically generated and contains all the data access restrictions that were not imported correctly.

17.5 Using the User Import Export Tool via a Command Line

This section explains how to configure the User Import Export Tool to use it via a command line.

Procedure

1. Create a configuration file for import/export parameters. You can take the *CreateUpdateAll.config.SAMPLE* file as example:

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
<configSections>
<section name="ConnectionSettings"
type="CtxUserTransfer.ConnectionSettings,UsersImportExport" />
<section name="LogSettings"
type="CtxUserTransfer.LogSettings,UsersImportExport" />
<section name="FileSettings"
type="CtxUserTransfer.FileSettings,UsersImportExport" />
<section name="ImportSettings"
type="CtxUserTransfer.ImportSettings,UsersImportExport" />
<section name="FilterSettings"
type="CtxUserTransfer.FilterSettings,UsersImportExport" />
</configSections>
```

```
 <appSettings/>
<ConnectionSettings broker="LVLN60178276A" server="LVLN60178276A"
datasource="Finance105" user="ADMIN" password="IxFg0pPQfd0=" />
<LogSettings errorLog="C:\Finance\ImportExport\ErrorLog.log" technicalLog="C:
\Finance\ImportExport\TechnicalLog.log" />
<FileSettings     users="C:\Finance\ImportExport\CtxUser.txt"
                  ownerGroups="C:\Finance\ImportExport\Ctxowner.txt"
                  profiles="C:\Finance\ImportExport\CtxProfileId.txt"
                  profilesFn="C:\Finance\ImportExport\CtxProfileFn.txt"
                  dataAccessGroups="C:\Finance\ImportExport\CtxDAGid.txt"
                  dataAccessGroupsPh="C:\Finance\ImportExport\CtxDAGph.txt"
                  dataAccessRestrictions="C:\Finance\ImportExport
\CtxDARid.txt"
                  dataAccessRestrictionsDim="C:\Finance\ImportExport
\CtxDARdim.txt" />
<ImportSettings createOnly="false" createUpdate="true" updateOnly="false" />
<FilterSettings referenceValuesFile="C:\Finance\ImportExport\CtxFilter.xml"
dimension="" />
</configuration>
```

2. In this file, you need to configure the following parameters:

Parameter	Description
configSections	**⚠ Caution** You must not modify this section
ConnectionSettings	This section contains the connection information to the Financial Consolidation application
broker	Financial Consolidation broker (data source mananger) machine name
server	Financial Consolidation server **i Note** This parameter is optional
datasource	Financial Consolidation Data Source name
user	The user name used to connect to the Financial Consolidation application
password	The user password used to connect to the Financial Consolidation application **⚠ Caution** You must use the Crypt.exe tool to encrypt the password. This encryption is mandatory.
LogSettings	This section contains information about technical log files the tool generates
errorLog	Error log file's name
technicalLog	Technical log file's name
FileSettings	This section contains the file names used for exporting or importing users and their related objects. This corresponds to the *Files* area of the *User Import Export Tool*.

Parameter	Description
users	Users file's name
ownerGroups	Owner groups file's name
profiles	Functional profiles file's name
profilesFn	Functional profiles codes and descriptions file's name
dataAccessGroups	Data access groups file's name
dataAccessGroupsPh	Data access groups and category file's name
dataAccessRestrictions	Data access restrictions file's name
dataAccessRestrictionsDim	Data access restrictions and dimension file's name
ImportSettings	This section provides information on how the data will be managed when importing
createOnly	Only new objects are imported
createUpdate	New objects are imported and existing objects are updated
updateOnly	Only existing objects are updated
FilterSettings	This section contains information about the import / export of filters
referenceValuesFile	Filters reference values file's name
dimension	Name of the dimension if you want to restrict the import / export to a specific dimension.

3. Once you have modified all the parameters corresponding to your Financial Consolidation environment, save the file.
4. Configure the command line with the mandatory three sections that are indicated in the table below:

Option	Description
Part 1	Full path to the *User Import Export Tool*'s installation folder
Part 2	Full path to the *UsersImportExport.exe.config* configuration file that is used to execute the command with all the relevant parameters of your environment
Part 3	Parameter that indicates if you want to export or import data. The two values available are the following: "-E" for Export "-I" for Import

5. Execute the *UsersImportExport.exe* file.

> **i Note**
>
> One example of a configuration file and one example of a command line are provided in the installation folder of the User Import Export Tool:
> - ExtractAll.bat.SAMPLE
> - CreateUpdateAll.config.SAMPLE

Example

Command line sample:

“C:\Program Files\SAP BusinessObjects\Import Export Users\UsersImportExport.exe” “C:\Program Files \SAP BusinessObjects\Import Export Users\ExtractAll.config” -E

Explanation:

“C:\Program Files\SAP BusinessObjects\Import Export Users\UsersImportExport.exe” represents the Part 1 in the command line (full path to the Users Import Export tool’s installation folder).

“C:\Program Files\SAP BusinessObjects\Import Export Users\ExtractAll.config” represents the Part 2 in the command line (full path to the configuration file the application will use to execute the command).

-E represents the Part 3 in the command line, which means exporting data.

18 Restrictions on Uploading Attachments

To ensure security, you can specify whether end users are allowed to upload certain file types and if a virus scanning application (if installed) can perform a virus-scan on these file attachments.

In the Financial Consolidation installation folder, the `AllowedExtension.txt` file enables you to configure a `blacklist` or a `whitelist` and also contains the `Virus scanning` parameter.

```
################################################
# In this file, you can specify which file types can be uploaded to the server.
# You can choose between two authorization types:
# Blacklist - blocks all extensions defined in the following string.
# Whitelist - authorizes only the extensions defined in the following string.
#
#
WhiteList=.CSV;.DOC;.DOCX;.PDF;.RTF;.ODT;.TXT;.DOT;.DOTX;.XLS;.XLSX;.XLSB;.ODS;.P
PT;.PPTX;.PPS;.PPSX;.ODP;.JPG;.JPEG;.PNG;.BMP;.GIF;.TIF;.TIFF;
#
#BlackList=.ade;.adp;.app;.asa;.ashx;.asmx;.asp;.bas;.bat;.cdx;.cer;.chm;.class;.
cmd;.com;.config;.cpl;.crt;.csh;.dll;.exe;.fxp;.hlp;.hta;.htr;.htw;.ida;.idc;.idq
;.ins;.isp;.its;.js,.jse;.ksh;.lnk;.mad;.maf;.mag;.mam;.maq;.mar;.mas;.mat;.mau;.
mav;.maw;.mda;.mdb;.mde;.mdt;.mdw;.mdz;.msc;.msh;.msh1;.msh1xml;.msh2;.msh2xml;.m
shxml;.msi;.msp;.mst;.ops;.pcd;.pif;.prf;.prg;.printer;.pst;.reg;.rem;.scf;.scr;.
sct;.shb;.shs;.shtm;.shtml;.soap;.stm;.url;.vb;.vbe;.vbs;.ws;.wsc;.wsf;.wsh
#

# The Virus scanning parameter enables you to specify if all the attached files
uploaded to the server
# must be scanned by the anti-virus installed on this server.
Virus scanning=true
```

You configure these two parameters as follows:

- The `whitelist` parameter is activated by default. The extension list is populated by default and can be modified.
  Each list can be activated by removing the # at the beginning of the line.

  > ⚠ Caution
  >
  > Only one list can be activated.

  The restrictions apply to both the Windows and Web clients for attachments in packages, manual journal entries, consolidations and so on.
- The `Virus scanning` parameter is activated by default. If you want to deactivate the virus-scan on file attachments, you must set it to `false` or comment this parameter.

  > ℹ Note
  >
  > This parameter is only taken into account only if an antivirus application is installed. In that case, Financial Consolidation will automatically connect to it. If no antivirus is installed on the machine, the parameter will be ignored.

> **i Note**
>
> After modifying `AllowedExtension.txt`, you must restart the `CtServer`.

19 Disabling the Automatic Refresh of the Users View in the SAP Financial Consolidation Windows Client

Context

For better application performance, you can disable the automatic refresh of the *Users* View in the SAP Financial Consolidation Windows client. To do so, use the `ignoreRefreshLastConnectionDate_x64.reg` file located in the *Tools* sub-folder of the SAP Financial Consolidation installation folder. When enabled, you will have to manually refresh the *Users* View by pressing F5 in order to display the last connection date by users.

Procedure

In the application server, go to the *Tools* sub-folder located in the SAP Financial Consolidation installation folder and run the `ignoreRefreshLastConnectionDate_x64.reg` file.

This file creates the *IgnoreRefreshUI* registry key in `HKEY_LOCAL_MACHINE\Software\Wow6432Node\CARTESIS\Apcom\LastConnectionDate`, with a dword value higher than 0.

> **i Note**
>
> If you want to restore the standard behavior of the application (the *Users* view is automatically refreshed), you can run the `autoRefreshLastConnectionDate_x64.reg` file.

> **i Note**
>
> If you have a standalone SAP Financial Consolidation application running under a 32-bit operating system, you must use the `ignoreRefreshLastConnectionDate.reg` and `autoRefreshLastConnectionDate.reg` files.

20 Administrating EPM Add-in for Microsoft Office

All administration tasks performed in the EPM Add-in for Microsoft Office are described in the different chapters of the EPM Add-in for Microsoft Office User Guide.

For more information, see the *SAP BusinessObjects EPM solutions, Add-in for Microsoft Office User Guide 10.0* from the http://help.sap.com/businessobject/product_guides/ SAP Help Portal.

20.1 Technical Log for the EPM Connector

The technical log of the EPM Connector enables you to trace all actions performed.

This log file is available in C:\Documents and Settings\[UserName]\Application Data\Macromedia\Flash Player\#SharedObjects\[UNIQUE_ID] \#localWithNet\BPC_XC_Log.so, where [UserName] is the Windows user and [UNIQUE_ID] is a character string that is randomly generated (for example: "H28UF7KW").

21 Importing / Exporting Dimension Members through Web Services

You can import or export dimensions and dimension members into or from other applications or files, via the following two web services:

- MetadataViewServices.asmx: exports the SAP Financial Consolidation structure (dimensions or reference members) into other applications or files.
- MasterdataGovernanceService.asmx: imports members or reference members into the SAP Financial Consolidation structure.

To use those web services, you must perform the following actions:

- Deploy the web services as specified in the Installation guide, chapter *Installing and configuring SAP Financial Consolidation Web Services*.
- Ensure that you have the following relevant functional rights to use the web services:
  - To use the Export Web Service: you must have the *Consult the Structure* functional right.
  - To use the Import Web Service: you must have the *Load data in database structure* functional right.
- The login credentials (user name and password) must be sent in the HTTP service Header each time the web service is queried.

Export

The default URL to request the Export web services is as follows: `http:///web_service_URL/setup/MetadataViewServices.asmx`

The Export Web Service parameters are as follows:

- `GetDimensionsInfos(int[]dimensionIds)`
  This method returns the list of dimension identifiers. For example: -524287 for CA.
  A `WSDimensionInfo` is returned containing the following:
  - Id
  - Code
  - Type (CA, DP, RU... UserDefined)
  - ShortDescriptions and LongDescriptions: short and long descriptions (in all languages)
  - RefTableId: the reference table ID
  - RefValueCount: the number of reference members
  - Characteristics (WSCharacteristicInfo) is the list of first level Characteristics: this list contains the ID, the Code, the Type (Charac_Company, Charac_Level, Charac_Sign, Charac_UserDefined), ShortDescriptions, LongDescriptions, the reference table ID (TargetRefTableID) and whether it can be included in a hierarchy (IsAvailableForHierarchy).
  - Properties (WSPropertyInfo) is the list of Properties. It contains: ID, Code, ShortDescriptions, LongDescriptions and Type (Boolean, Date, Integer, Text...)

> **Note**
>
> If an empty or incorrect value is passed, all of the dimensions are returned.

- `GetLanguagesInfo()` This method returns the list of working languages and their descriptions as defined in the Financial Consolidation application, in the order in which they appear in the application.
  The `WSLanguageInfo` contains:
  - LanguageCode: language code (fr, en, ja...)
  - LangId : Numerical identifier of the language (from 1 to 6)
  - Descriptions: language descriptions in all languages
- `GetReferenceValueFromCodes(int dimensionID, string[] refValuesCodes)`
  In entry, you must specify the dimension code (ex -524287 for CA) and the reference members identified by their codes that you want to retrieve (if an empty or incorrect value is passed, all of the dimensions are returned).
  Returns a WSReferenceValue table:
  - ID
  - Code
  - RefTableId ID of the reference table.
  - ShortDescriptions, LongDescriptions in the languages returned by GetLanguagesInfo (in the order in which they appear in the application).
  - WSPropertyValue: the list of properties: ID, Value (Value) and Type (Boolean, Date, Integer, Text...).
  - WSCharacteristicValue: the list of characteristics (first level): ID (CharacteristicId), Value (ValueId).

Import

The default URL to request the Import web services is as follows: `http:///web_service_URL/setup/MasterdataGovernanceService.asmx`

The Import Web Service parameters are as follows:

- `ModifyDimensions`: Input parameter is a DimensionSet, containing the DimensionMemberList, which is a list of all of the reference members in a dimension, and contains:
  - DimensionCode: the dimension code (CA, DP,...)
  - LanguageKeys: the list of languages with the short and long (fr, en,...)
  - MemberCharacteristics and MemberProperties: the list of Characteristics and Properties.
  - MemberAttributes: an attribute that is neither a property nor a characteristic.
  - DimensionMember: the list of reference members: Code, ShortDescriptionValues, LongDescriptionValues, AttributeValues, CharacteristicValues, PropertyValues.

  This method sorts the input list between the existing members and the new members. Existing members are updated and new members are created. Any errors are returned (invalid dimensions, invalid codes, compulsory properties or characteristics...).
- `UpdateDimensions`: Input parameters of DimensionSet type are insertDimSet and updateDimSet. This method attempts to create the members of the insertDimSet list; already existing members are not created but rather returned in error. This method attempts to update the members of the updateDimSet list; if the members do not already exist, they are not created but rather returned in error.

For boolean type properties, the values "1" and "true" are TRUE; all other values are FALSE.

Date type properties take the format YYYYxMMyDD (where x and y are optional separators). Examples:the dates 2012/09/17, 20120917 and 2012-09/17 are accepted; the dates 201209/12 and 2012/0912 are rejected.

To empty a property or characteristic, you must pass an empty string "", instead of null.

21.1 Examples of Export Web Services

XML file example of the `GetDimensionsInfos` method:

Input parameters

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
 <soap:Header>
 <FpmSoapHeader xmlns="http://www.cartesis.com/">
 <serializedSession>string</serializedSession>
 </FpmSoapHeader>
 <IdentificationSoapHeader
xmlns="http://www.cartesis.com/">
 <User>string</User>
 <Password>string</Password>
 </IdentificationSoapHeader>
 <PassportSoapHeader xmlns="http://www.cartesis.com/">
 <SAPPassport>string</SAPPassport>
 </PassportSoapHeader>
 </soap:Header>
 <soap:Body>
 <GetDimensionsInfos xmlns="http://www.cartesis.com/">
 <dimensionIds>
 <int>int</int>
 <int>int</int>
 </dimensionIds>
 </GetDimensionsInfos>
 </soap:Body>
 </soap:Envelope>
```

Returned values

```
 <ArrayOfWSDimensionInfo xmlns="http://www.cartesis.com/">
 <WSDimensionInfo>
 <Type>CA or DP or RU or CU or AC or FL or PE or AU or PA or SH or SC or VA or
NU or ORU or TO or GO or LE or CC or UserDefined</Type>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions>
 <string>string</string>
 <string>string</string>
 </ShortDescriptions>
 <LongDescriptions>
 <string>string</string>
 <string>string</string>
 </LongDescriptions>
 <RefTableId>int</RefTableId>
 <RefValueCount>int</RefValueCount>
 <Characteristics>
```

Returned values

```
      <WSCharacteristicInfo>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/
XMLSchema-instance"/>
 <LongDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/XMLSchema-
instance"/>
 <Type>Charac_Company or Charac_Level or Charac_Sign or Charac_Class or
Charac_Currency or Charac_CurrencyAuditId or Charac_ConsolidationAuditId or
Charac_OpeningBalanceAuditId or Charac_TechOriginType or Charac_TechOriginLevel
or Charac_UserDefined</Type>
 <TargetRefTableId>int</TargetRefTableId>
 <IsAvailableForHierarchy>boolean</IsAvailableForHierarchy>
 </WSCharacteristicInfo>
 <WSCharacteristicInfo>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/
XMLSchema-instance"/>
<LongDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/XMLSchema-
instance"/
 <Type>Charac_Company or Charac_Level or Charac_Sign or Charac_Class or
Charac_Currency or Charac_CurrencyAuditId or Charac_ConsolidationAuditId or
Charac_OpeningBalanceAuditId or
Charac_TechOriginTypeor Chrac_TechOriginLevel or Charac_UserDefined</Type>
 <TargetRefTableId>int</TargetRefTableId>
 <IsAvailableForHierarchy>boolean</IsAvailableForHierarchy>
 </WSCharacteristicInfo>
 </Characteristics>
 <Properties>
 <WSPropertyInfo>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/
XMLSchema-instance"/>
 <LongDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/XMLSchema-
instance"/>
 <Type>Boolean or Date or Real or Integer or Text or Rate or Memo or Binary or
Unknown</Type>
 </WSPropertyInfo>
 <WSPropertyInfo>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/
XMLSchema-instance"/>
 <LongDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/XMLSchema-
instance"/>
 <Type>Boolean or Date or Real or Integer or Text or Rate or Memo or Binary or
Unknown </Type>
 </WSPropertyInfo>
 </Properties>
 <LastModified>int</LastModified>
 </WSDimensionInfo>
 <WSDimensionInfo>
 <Type>CA or DP or RU or CU or AC or FL or PE or AU or PA or SH or SC or VA or
NU or ORU or TO or GO or LE or CC or UserDefined </Type>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions>
 <string>string</string>
 <string>string</string>
 </ShortDescriptions>
 <LongDescriptions>
```

Returned values

```
 <string>string</string>
 <string>string</string>
 </LongDescriptions>
 <RefTableId>int</RefTableId>
 <RefValueCount>int</RefValueCount>
 <Characteristics>
 <WSCharacteristicInfo>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/
XMLSchema-instance"/>
<LongDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/XMLSchema-
instance"/>
 <Type>Charac_Company or Charac_Level or Charac_Sign or Charac_Class or
Charac_Currency or Charac_CurrencyAuditId or Charac_ConsolidationAuditId or
    Charac_OpeningBalanceAuditId or Charac_TechOriginType or
Charac_TechOriginLevel or Charac_UserDefined </Type> <TargetRefTableId> int </
TargetRefTableId>
    <IsAvailableForHierarchy> boolean </IsAvailableForHierarchy>
</WSCharacteristicInfo>
 <WSCharacteristicInfo>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/
XMLSchema-instance"/>
 <LongDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/XMLSchema-
instance"/>
 <Type>Charac_Company or Charac_Level or Charac_Sign or Charac_Class or
Charac_Currency or Charac_CurrencyAuditId or Charac_ConsolidationAuditId or
Charac_OpeningBalanceAuditId or Charac_TechOriginType or Charac_TechOriginLevel
or Charac_UserDefined</Type>
 <TargetRefTableId>int</TargetRefTableId>
 <IsAvailableForHierarchy>boolean</IsAvailableForHierarchy>
 </WSCharacteristicInfo>
 </Characteristics>
 <Properties>
 <WSPropertyInfo>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/
XMLSchema-instance"/>
 <LongDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/XMLSchema-
instance"/>
 <Type>Boolean or Date or Real or Integer or Text or Rate or Memo or Binary or
Unknown </Type>
 </WSPropertyInfo>
 <WSPropertyInfo>
 <Id>int</Id>
 <Code>string</Code>
 <ShortDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/
XMLSchema-instance"/>
 <LongDescriptions d5p1:nil="true" xmlns:d5p1="http://www.w3.org/2001/XMLSchema-
instance"/>
 <Type>Boolean or Date or Real or Integer or Text or Rate or Memo or Binary or
Unknown </Type>
 </WSPropertyInfo>
 </Properties>
 <LastModified>int</LastModified>
 </WSDimensionInfo>
 </ArrayOfWSDimensionInfo>
```

XML file example of the `GetLanguagesInfo` method:

Input parameters

```
 POST /FC-ws/setup/MetadataViewServices.asmx
HTTP/1.1
 Host:lvld60197672a.dhcp.par.sap.corp
 Content-Type: text/xml; charset=utf-8
 Content-Length: length
    SOAPAction: "http://www.cartesis.com/GetLanguagesInfo"
 <?xml version="1.0" encoding="utf-8"?>
 <soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://
schemas.xmlsoap.org/soap/envelope/">
<soap:Header>
 <FpmSoapHeader xmlns="http://www.cartesis.com/">
 <serializedSession>string</serializedSession>
 </FpmSoapHeader>
 <IdentificationSoapHeader xmlns="http://www.cartesis.com/">
 <User>string</User>
 <Password>string</Password>
 </IdentificationSoapHeader>
 <PassportSoapHeader xmlns="http://www.cartesis.com/">
 <SAPPassport>string</SAPPassport>
 </PassportSoapHeader>
 </soap:Header>
 <soap:Body>
 <GetLanguagesInfo xmlns="http://www.cartesis.com/"/>
 </soap:Body>
 </soap:Envelope>
 HTTP/1.1 200
```

Returned values

```
<?xml version="1.0 "encoding="utf-8"?>
 <WSLanguagesInfo xmlns="http://www.cartesis.com/">
 <Languages>
 <WSLanguageInfo>
 <LanguageCode>string</LanguageCode>
 <LangId>int</LangId>
 <ShortDescriptions>
 <string>string</string>
 <string>string</string>
 </ShortDescriptions>
 <LongDescriptions>
 <string>string</string>
 <string>string</string>
 </LongDescriptions>
 </WSLanguageInfo>
 <WSLanguageInfo>
 <LanguageCode>string</LanguageCode>
 <LangId>int</LangId>
 <ShortDescriptions>
 <string>string</string>
 <string>string</string>
 </ShortDescriptions>
 <LongDescriptions>
 <string>string</string>
 <string>string</string>
 </LongDescriptions>
 </WSLanguageInfo>
 </Languages>
 <SubstitutionLanguage>
 <LanguageCode>string</LanguageCode>
```

Returned values

```
 <LangId>int</LangId>
 <ShortDescriptions>
 <string>string</string>
 <string>string</string>
 </ShortDescriptions>
 <LongDescriptions>
 <string>string</string>
 <string>string</string>
 </LongDescriptions>
 </SubstitutionLanguage>
 </WSLanguagesInfo>
```

XML file example of the `GetReferenceValueFromCodes` method:

Input parameters

```
 <soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
 <soap:Header>
 <FpmSoapHeader xmlns="http://www.cartesis.com/">
 <serializedSession>string</serializedSession>
 </FpmSoapHeader>
 <IdentificationSoapHeader xmlns="http://www.cartesis.com/">
 <User>string</User>
 <Password>string</Password>
 </IdentificationSoapHeader>
 <PassportSoapHeader xmlns="http://www.cartesis.com/">
 <SAPPassport>string</SAPPassport>
 </PassportSoapHeader>
 </soap:Header>
 <soap:Body>
 <GetReferenceValueFromCodes xmlns="http://www.cartesis.com/">
 <dimensionId>int</dimensionId>
 <refValueCodes>
 <string>string</string>
 <string>string</string>
 </refValueCodes>
 </GetReferenceValueFromCodes>
 </soap:Body>
 </soap:Envelope>
```

Returned values

```
<ArrayOfWSReferenceValue xmlns="http://www.cartesis.com/">
 <WSReferenceValue>
 <Id>string</Id>
 <RefTableId>int</RefTableId>
 <Code>string</Code>
 <ShortDescriptions>
 <string>string</string>
 <string>string</string>
 </ShortDescriptions>
 <LongDescriptions>
 <string>string</string>
 <string>string</string>
 </LongDescriptions>
 <Characteristics>
```

Returned values

```
 <WSCharacteristicValue>
 <CharacteristicId>int</CharacteristicId>
 <ValueId>string</ValueId>
 </WSCharacteristicValue>
 <WSCharacteristicValue>
 <CharacteristicId>int</CharacteristicId>
 <ValueId>string</ValueId>
 </WSCharacteristicValue>
 </Characteristics>
 <Properties>
 <WSPropertyValue>
 <Id>int</Id>
 <Type>Boolean or Date or Real or Integer or Text or Rate or Memo or Binary or
Unknown</Type>
 <Value>string</Value>
 </WSPropertyValue>
 <WSPropertyValue>
 <Id>int</Id>
 <Type>Boolean or Date or Real or Integer or Text or Rate or Memo or Binary or
Unknown</Type>
 <Value>string</Value>
 </WSPropertyValue>
 </Properties>
 <LastModified>int</LastModified>
 </WSReferenceValue>
 <WSReferenceValue>
 <Id>string</Id>
 <RefTableId>int</RefTableId>
 <Code>string</Code>
 <ShortDescriptions>
 <string>string</string>
 <string>string</string>
 </ShortDescriptions>
 <LongDescriptions>
 <string>string</string>
 <string>string</string>
 </LongDescriptions>
 <Characteristics>
 <WSCharacteristicValue>
 <CharacteristicId>int</CharacteristicId>
 <ValueId>string</ValueId>
 </WSCharacteristicValue>
 <WSCharacteristicValue>
 <CharacteristicId>int</CharacteristicId>
 <ValueId>string</ValueId>
 </WSCharacteristicValue>
 </Characteristics>
 <Properties>
 <WSPropertyValue>
 <Id>int</Id>
 <Type>Boolean or Date or Real or Integer or Text or Rate or Memo or Binary or
Unknown </Type>
 <Value>string</Value>
 </WSPropertyValue>
 <WSPropertyValue>
 <Id>int</Id>
 <Type>Boolean or Date or Real or Integer or Text or Rate or Memo or Binary or
Unknown </Type>
 <Value>string</Value>
 </WSPropertyValue> </Properties>
 <LastModified>int</LastModified>
 </WSReferenceValue>
 </ArrayOfWSReferenceValue>
```

21.2 Example of Import Web Services

XML file example of the `ModifyDimensions` method:

Input parameters

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
 <soap:Header>
 <FpmSoapHeader xmlns="http://schemas.sap.com/2010/02/FinancialConsolidation/
Setup/DimensionBuilder">
 <serializedSession>string</serializedSession>
 </FpmSoapHeader>
 <IdentificationSoapHeader
xmlns="http://schemas.sap.com/2010/02/FinancialConsolidation/Setup/
DimensionBuilder">
 <User>string</User>
 <Password>string</Password>
 </IdentificationSoapHeader>
 <PassportSoapHeader xmlns="http://schemas.sap.com/2010/02/
FinancialConsolidation/Setup/DimensionBuilder">
 <SAPPassport>string</SAPPassport>
 </PassportSoapHeader>
 </soap:Header>
 <soap:Body>
 <ModifyDimensions xmlns="http://schemas.sap.com/2010/02/FinancialConsolidation/
Setup/DimensionBuilder">
 <dimSet>
 <Dimensions>
 <DimensionMemberList>
 <DimensionCode>string</DimensionCode>
 <LanguageKeys xsi:nil="true"/>
 <MemberAttributes xsi:nil="true" />
 <MemberCharacteristics xsi:nil="true" />
 <MemberProperties xsi:nil="true" />
 <Members xsi:nil="true"/>
 </DimensionMemberList>
 <DimensionMemberList>
 <DimensionCode>string</DimensionCode>
 <LanguageKeys xsi:nil="true"/>
 <MemberAttributes xsi:nil="true" />
 <MemberCharacteristics xsi:nil="true" />
 <MemberProperties xsi:nil="true" />
 <Members xsi:nil="true"/>
 </DimensionMemberList>
 </Dimensions>
 </dimSet>
 </ModifyDimensions>
 </soap:Body>
 </soap:Envelope>
```

Returned values

```
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
 <soap:Body>
 <ModifyDimensionsResponse
```

Returned values

```
xmlns="http://schemas.sap.com/2010/02/FinancialConsolidation/Setup/
DimensionBuilder">
 <ModifyDimensionsResult>
 <ErrorInfo>
 <ErrorStack>
 <string>string</string>
 <string>string</string>
 </ErrorStack>
 </ErrorInfo>
 <InvalidDimensions>
 <string>string</string>
 <string>string</string>
 </InvalidDimensions>
 <DimensionErrors>
 <DimensionError>
 <DimensionCode>string</DimensionCode>
 <InvalidAttributes xsi:nil="true" />
 <InvalidCharacteristics xsi:nil="true" />
 <InvalidProperties xsi:nil="true" />
 <MissingMandatoryCharacteristics xsi:nil="true"/>
 <MissingMandatoryProperties xsi:nil="true" />
 </DimensionError>
 <DimensionError>
 <DimensionCode>string</DimensionCode>
 <InvalidAttributes xsi:nil="true"/>
 <InvalidCharacteristics xsi:nil="true" />
 <InvalidProperties xsi:nil="true" />
 <MissingMandatoryCharacteristics xsi:nil="true"/>
 <MissingMandatoryProperties xsi:nil="true" />
 </DimensionError> </DimensionErrors>
 <DimensionCode>string</DimensionCode>
 <InvalidLanguages xsi:nil="true" />
 <InvalidMembers xsi:nil="true"/>
 <ExistingMembers xsi:nil="true"/>
 <MissingMembers xsi:nil="true"/>
 <MemberErrorDetail xsi:nil="true" />
 </DimensionMemberListError>
 <DimensionMemberListError>
 <DimensionCode>string</DimensionCode>
 <InvalidLanguages xsi:nil="true" />
 <InvalidMembers xsi:nil="true"/>
 <ExistingMembers xsi:nil="true"/>
 <MissingMembers xsi:nil="true"/>
 <MemberErrorDetail xsi:nil="true" />
 </DimensionMemberListError>
 </MemberErrors>
 </ModifyDimensionsResult>
 </ModifyDimensionsResponse>
 </soap:Body>
 </soap:Envelope>
```

XML file example of the `UpdateDimensions` method:

Input parameters

```
 <soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
 <soap:Header>
```

Input parameters

```
 <FpmSoapHeader xmlns="http://schemas.sap.com/2010/02/FinancialConsolidation/
Setup/DimensionBuilder">
 <serializedSession>string</serializedSession>
 </FpmSoapHeader>
 <IdentificationSoapHeader
xmlns="http://schemas.sap.com/2010/02/FinancialConsolidation/Setup/
DimensionBuilder">
 <User>string</User>
 <Password>string</Password>
 </IdentificationSoapHeader>
 <PassportSoapHeader xmlns="http://schemas.sap.com/2010/02/
FinancialConsolidation/Setup/DimensionBuilder">
 <SAPPassport>string</SAPPassport>
 </PassportSoapHeader>
 </soap:Header>
 <soap:Body>
 <UpdateDimensions xmlns="http://schemas.sap.com/2010/02/FinancialConsolidation/
Setup/DimensionBuilder">
 <insertDimSet>
 <Dimensions>
 <DimensionMemberList>
 <DimensionCode>string</DimensionCode>
 <LanguageKeys xsi:nil="true"/>
 <MemberAttributes xsi:nil="true" />
 <MemberCharacteristics xsi:nil="true" />
 <MemberProperties xsi:nil="true" />
 <Members xsi:nil="true"/>
 </DimensionMemberList>
 <DimensionMemberList>
 <DimensionCode>string</DimensionCode>
 <LanguageKeys xsi:nil="true"/>
 <MemberAttributes xsi:nil="true" />
 <MemberCharacteristics xsi:nil="true" />
 <MemberProperties xsi:nil="true" />
 <Members xsi:nil="true"/>
 </DimensionMemberList>
 </Dimensions>
 </insertDimSet>
 <updateDimSet>
 <Dimensions>
 <DimensionMemberList>
 <DimensionCode>string</DimensionCode>
 <LanguageKeys xsi:nil="true"/>
 <MemberAttributes xsi:nil="true" />
 <MemberCharacteristics xsi:nil="true" />
 <MemberProperties xsi:nil="true" />
 <Members xsi:nil="true"/>
 </DimensionMemberList>
 <DimensionMemberList>
 <DimensionCode>string</DimensionCode>
 <LanguageKeys xsi:nil="true"/>
 <MemberAttributes xsi:nil="true" />
 <MemberCharacteristics xsi:nil="true" />
 <MemberProperties xsi:nil="true" />
 <Members xsi:nil="true"/>
 </DimensionMemberList>
 </Dimensions>
 </updateDimSet>
 </UpdateDimensions>
 </soap:Body>
 </soap:Envelope>
```

Returned values

```
 <soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
 <soap:Body>
 <UpdateDimensionsResponse
xmlns="http://schemas.sap.com/2010/02/FinancialConsolidation/Setup/
DimensionBuilder">
 <UpdateDimensionsResult>
 <ErrorInfo>
 <ErrorStack>
 <string>string</string>
 <string>string</string>
 </ErrorStack>
 </ErrorInfo>
 <InvalidDimensions>
 <string>string</string>
 <string>string</string>
 </InvalidDimensions>
 <DimensionErrors>
 <DimensionError>
 <DimensionCode>string</DimensionCode>
 <InvalidAttributes xsi:nil="true" />
 <InvalidCharacteristics xsi:nil="true" />
 <InvalidProperties xsi:nil="true" />
 <MissingMandatoryCharacteristics xsi:nil="true"/>
 <MissingMandatoryProperties xsi:nil="true" />
 </DimensionError>
 <DimensionError>
 <DimensionCode>string</DimensionCode>
 <InvalidAttributes xsi:nil="true"/>
 <InvalidCharacteristics xsi:nil="true" />
 <InvalidProperties xsi:nil="true" />
 <MissingMandatoryCharacteristics xsi:nil="true"/>
 <MissingMandatoryPropertiesxsi:nil="true" />
 </DimensionError>
 </DimensionErrors>
 <MemberErrors>
 <DimensionMemberListError>
 <DimensionCode>string</DimensionCode>
 <InvalidLanguages xsi:nil="true" />
 <InvalidMembers xsi:nil="true"/>
 <ExistingMembers xsi:nil="true"/>
 <MissingMembers xsi:nil="true"/>
 <MemberErrorDetail xsi:nil="true" />
 </DimensionMemberListError>
 <DimensionMemberListError>
 <DimensionCode>string</DimensionCode>
 <InvalidLanguages xsi:nil="true" />
 <InvalidMembers xsi:nil="true"/>
 <ExistingMembers xsi:nil="true"/>
 <MissingMembers xsi:nil="true"/>
 <MemberErrorDetail xsi:nil="true" />
 </DimensionMemberListError>
 </MemberErrors>
 </UpdateDimensionsResult>
 </UpdateDimensionsResponse>
 </soap:Body>
 </soap:Envelope>
```

21.3 Import Web Service Error Processing

An XML file named `DimensionUpdateError` is returned, containing the following error types:

- ProcessingError: generic processing errors
- InvalidDimensions : the list of invalid dimension codes
- DimensionErrors : detailed list of rejected dimensions, containing:
  - the dimension code,
  - the list of invalid codes for the caracteristics, properties and attributes,
  - the list of mandatory caracteristics and properties not entered.
- MemberErrors: detailed list of rejected members, named `DimensionMemberListError` containing:
  - the dimension code,
  - the list of invalid languages codes,
  - the ist of members to create but already exist,
  - the list of members to modify that do not exist,
  - the list of detailed errors named `DimensionMemberError` containing:
    - the member code,
    - the list of invalid codes of caracteristics and properties,
    - the list of mandatory caracteristics and properties that are not filled.

Example of the returned errors XML file for the `UpdateDimension` method:

```
<UpdateDimensionsResponse xmlns="http://schemas.sap.com/2010/02/
FinancialConsolidation/Setup/DimensionBuilder">
 <UpdateDimensionsResult>
 <ErrorInfo>
 <ErrorStack>
 <string>string</string>
 <string>string</string>
 </ErrorStack>
 </ErrorInfo>
 <InvalidDimensions>
 <string>string</string>
 <string>string</string>
 </InvalidDimensions>
 <DimensionErrors>
 <DimensionError>
 <DimensionCode>string</DimensionCode>
 <InvalidAttributes xsi:nil="true" />
 <InvalidCharacteristics xsi:nil="true" />
 <InvalidProperties xsi:nil="true" />
 <MissingMandatoryCharacteristics xsi:nil="true"/>
 <MissingMandatoryProperties xsi:nil="true" />
 </DimensionError>
 <DimensionError>
 <DimensionCode>string</DimensionCode>
 <InvalidAttributes xsi:nil="true"/>
 <InvalidCharacteristics xsi:nil="true" />
 <InvalidProperties xsi:nil="true" />
 <MissingMandatoryCharacteristics xsi:nil="true"/>
 <MissingMandatoryProperties xsi:nil="true" />
 </DimensionError>
 </DimensionErrors>
 <MemberErrors>
```

```
<DimensionMemberListError>
<DimensionCode>string</DimensionCode>
<InvalidLanguages xsi:nil="true" />
<InvalidMembers xsi:nil="true"/>
<ExistingMembers xsi:nil="true"/>
<MissingMembers xsi:nil="true"/>
<MemberErrorDetail xsi:nil="true" />
</DimensionMemberListError>
<DimensionMemberListError>
<DimensionCode>string</DimensionCode>
<InvalidLanguages xsi:nil="true" />
<InvalidMembers xsi:nil="true"/>
<ExistingMembers xsi:nil="true"/>
<MissingMembers xsi:nil="true"/>
<MemberErrorDetail xsi:nil="true" />
</DimensionMemberListError>
</MemberErrors>
</UpdateDimensionsResult>
</UpdateDimensionsResponse>
```

22 Technical logs

22.1 SAP Financial Consolidation Technical Log

Because SAP Financial Consolidation is a complex distributed environment involving different components running across different layers, it is helpful to enable logging so that problems that occur can be located.

The technical log enables you to trace the events and problems generated by application processes. It is the only tool that provides a precise context on all of the system processes.

You can define the log parameters using an XML file. You can customize the log configuration as required, such as the type of event logged, the log contents or the output destination. The target of the log output can be a text file or the Windows Event Viewer, etc.

This chapter:

- explains the concepts involved.
- describes the XML configuration files.
- illustrates with examples of logs.

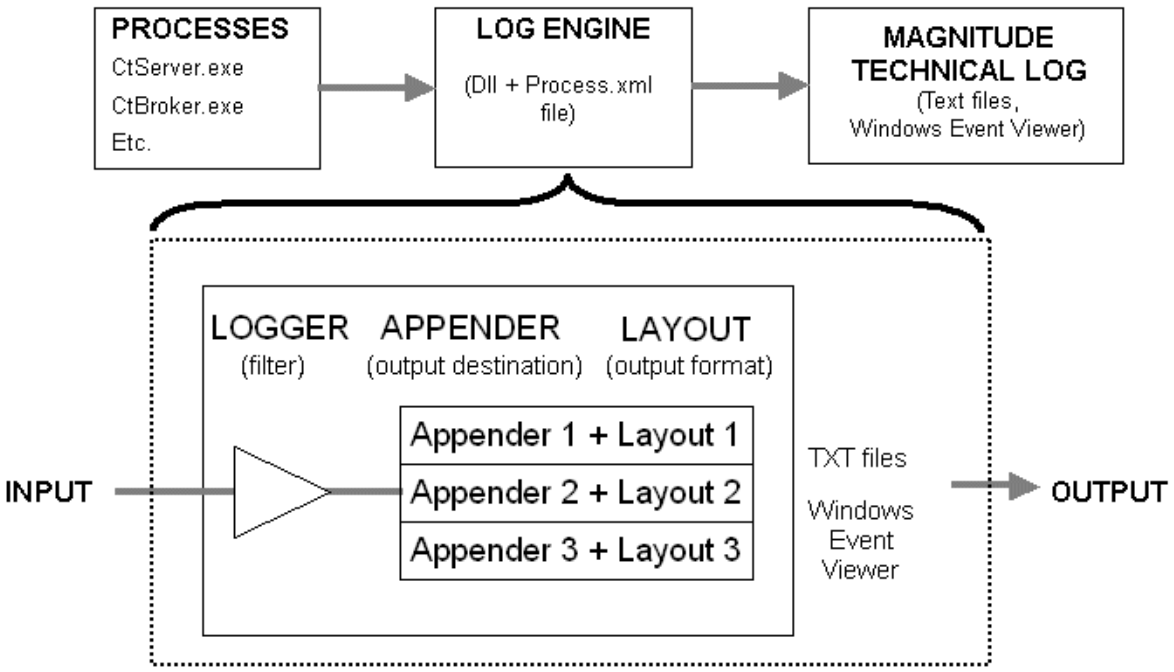
> **i** Note
>
> We recommend that you take special care when activating logs and defining their configuration files as this may affect the performance of the application.

22.1.1 Concepts of the SAP Financial Consolidation technical log

The Financial Consolidation log is made up of three main components:

- Appender: this component is used to specify the target of the log output.
- Layout: this component is used to specify the log message format and properties.
- Logger: this component is used to filter the events to be reported.

The technical log functions as follows:



Each process generates a number of events that can be logged.

The following events can be logged:

- events external to SAP Financial Consolidation, such as those related to the system (e.g. network interface or hard disk) or to the RDBMS (e.g. SQL errors or queries), etc.
- events within SAP Financial Consolidation, such as those related to the opening of packages, the running of tasks or user connection.

The basic information unit is the event, which is made up of the following elements:

- a message
- a category
- a level

Message:

The text in the message can either originate from the product's code or from third-parties such as Windows or the DBMS. In either case, you cannot change or translate it.

> **i Note**
>
> Example: "OLE DB error"

Category:

This specifies a hierarchy that gives you run-time control over which statements are logged. Categories use severity levels, which are separated by dots (e.g. security.user), to determine whether or not a log statement is reported. If a category is not assigned a level, then it inherits one from its closest ancestor in the hierarchy that has an assigned level. For example, "security" is the ancestor of the logger named "security.user", and "security.user" is the descendant. The root logger resides at the top of the logger hierarchy.

Level:

The standard levels of severity that appear in messages are displayed from most to least severe below:

- FATAL: Messages concerning serious errors that could cause the shutdown of the application, the integrity of the data is no longer ensured.
- ERROR: Messages concerning unexpected errors but that allow the application to continue to run, but that can nevertheless compromise the integrity of the data.
- WARN: Warning messages concerning unexpected errors but that do not compromise the integrity of the data. For example, a user who enters the wrong password will generate a warning. Instance shutdowns and startups are processed at the WARN level.
- INFO: this message appears to inform you of the processing being run.

The log components appear as variables in the XML configuration file as shown below:

```
<?xml version="1.0" encoding="UTF-8" ?>
<log4cplus>
  <Appender name="myfile" class="FileAppender">
      <param name="File"   value="D:\\AppLog.log" />
      <layout class="TTCCLayout">
          <param name="CategoryPrefixing" value="true"/>
      </layout>
  </appender>
  <logger name="task.engine">
      <level value ="info" />
      <appender-ref ref="myfile"/>
  </logger>
</log4cplus>
```

22.1.1.1 Logger

The logger is used to indicate the type of event to be reported in the technical log and the output destination (appenders).

You should specify the following parameters for the logger:

- a category: this is used to define the functional filter used to log events. For example, the "task.engine" value will trace events that occur in the processing engine.
- a level: this is the maximum level of the events recorded. For example, setting a severity level of ERROR specifies that the levels ERROR and FATAL will be reported.
- a user: it is possible to define a user name for each level of logger. It is optional.

You should also specify the appender(s) to be used for reporting the events.

22.1.1.2 Appender

The appender is used for specifying the target of the log output and its settings.

Several appenders can be attached to one logger. If this is the case, then events will be reported in all of the output destinations specified.

There are three types of output destination:

- Simple file: FileAppender
  The events are recorded in a text file. The file can be called up at any time and its location may be configured (for example, in a network folder). The events of several processes may be stored in the same file..
- Archive file: RollingFileAppender
  This is similar to the simple file but is used to backup the log files when they reach a certain size, thus saving disk space. You can specify the maximum size of the file and once this size is reached, the file will be saved with the suffix ".1" and a new file will be created. You can then specify the number of backup files you want to keep.

  > ⚠ Caution
  >
  > If RollingFileAppender is used, you should not send the events from multiple processes to the same file because this may result in the loss of data when the file is renamed.

  When you use the two appenders above, events will be logged synchronously in the file, i.e. rows are added when the event is generated. You can, however, use a bounded buffer so that the file is updated only once for a series of events. This enables fewer system resources to be used.

  > ℹ Note
  >
  > If the process stops, all the messages in the bounded buffer will be lost. The size of the buffer is set at 2048 characters.
- Windows Event Viewer: NtEventLogAppender
  Log events are appended to the Windows event log system. A Windows event is characterized by two main parameters which are the log in which it is reported and the associated source.
  You can define the two parameters in the appender. If you define a new log or source in the XML file for the appender tag, the log system will create it automatically by updating the following registry key: SYSTEM \CurrentControlSet\Services\Eventlog.

  > ℹ Note
  >
  > You should restart the computer once the log has been created by the log engine.

22.1.1.3 Layout

The layout lets you choose the format of the event. An appender corresponds to a layout. There are two formats available:

- SimpleLayout: this format displays the severity level in the logger (e.g. WARN, INFO, etc.) followed by the message.
- TTCCLayout: this format displays the date, time, thread number, severity level, category and the message.

22.1.2 XML configuration files

When run, each process in the system will search for its XML configuration file. Most of these files must be created if you want to use them, but four files are available by default when SAP Financial Consolidation is

installed. These files are available in the *Tools* sub-folder located in the SAP BusinessObjects Finance installation folder. You should move them to the root of the installation folder if you want to activate them.

You can configure an XML file for each process on a server.

The XML configuration file is located in the same place as the .EXE process file.

> **i Note**
>
> You are not required to create a configuration file for each process. However, no log will be generated for processes without a configuration file.

> **i Note**
>
> If you make changes to the configuration file, you should restart the corresponding process in order for the changes to be taken into account.

22.1.2.1 Configuration file names

SAP Financial Consolidation process	Corresponding configuration file
CtBroker.exe	CtBrokerLogConfig.xml
CtServer.exe	CtServerLogConfig.xml
Finance.exe	FinanceLogConfig.xml
CtController.exe	CtControllerLogConfig.xml
SetPassword.exe	SetPasswordLogConfig.xml

22.1.2.2 Specifying configuration files by data source

In an architecture with several data sources, the same process is used several times on the same physical computer. However, you may want to manage the log differently, depending on the data source (for example, a CtServer process without a log and another CtServer process with maximum information).

To do this, you should add the name of the data source as a prefix to the configuration file name. You should ensure that the name of the data source is identical to the one configured in the Administration console.

Example: " SOURCE1ctserverlogconfig.xml "

> **i Note**
>
> This does not apply to the CtBroker process or the client as neither is associated with a data source.

If you use one of the administration console menus (*Define log configuration for application servers* or *Define log configuration for web servers*) to specify configuration files, the files are automatically named according to the data source. The files are named when the data source is still running, and you do not need to restart it.

22.1.2.3 Tags in the XML configuration files

The general architecture is as follows: a layout is included in an appender, which is in turn included in a logger.

> **i** Note
>
> A logger can have one or more appenders but each appender can have only one layout.

22.1.2.3.1 Layout

Main HTML tag: `layout`

Attribute:

`class` = type of layout. Parmi SimpleLayout and TTCCLayout

Sub-elements:

`Param` = parameters specific to the type of layout

Attribute: `name` = parameter name

`value` = parameter value

Flag table: (the default values appear in bold font)

Type of layout	Parameter	Possible values	Compulsory	Description
TTCCLayout	ThreadPrinting	*true* / false	No	Displays the thread number
	CategoryPrefixing	*true* / false	No	Displays the logger name
	FilePrinting	true / *false*	No	Displays the name of the file that generated the event

Example

```
<layout class = "SimpleLayout">
        <Param name = "ThreadPrinting" value = "false"/>
</layout>
```

22.1.2.3.2 Appender

Main HTML tag: `appender`

Attributes:

`name` = name (as required, no particular syntax)

`class` = type of appender. Parmi NtEventLogAppender, FileAppender, RollingFileAppender.

Sub-elements:

`Param` = parameters specific to the type of appender

Attribute: `name` = parameter name

`value` = parameter value

`Layout` = layout associated with the appender (see paragraph above

Flag table: (the default values appear in bold font)

Type of appender	Parameter	Possible values	Compulsory	Description
FileAppender	File	Text field	Yes	File name and path
	Append	*true* / false	No	If the value is "false", then each time the process is restarted, the file will be emptied.
	bufferedIO	true / *false*	No	Asynchronous logging
RollingFileAppender	Append	*true* / false	No	If the value is "false", then each time the process is restarted, the file will be emptied.
	File	Text	Yes	File name
	maxBackupIndex	Integer	Yes	Number of files kept

Type of appender	Parameter	Possible values	Compulsory	Description
	maxFileSize	Integer (KB, MB or GB)	Yes	Maximum size of each file
NtEventLogAppender	server	Text	No	Computer where the events will be stored. If blank, it is the local computer.
	log	Text	No	Name of the log. If this is not filled in, then events will be logged in the default application log.
	source	Text	Yes	Value of the "Source" column in the Windows Event Viewer.
All	threshold	FATAL ERROR WARN INFO	No	Used to overwrite the value set in the logger

Example

```
<appender name = "Appender1" class="FileAppender">
        <Param name = "File" value = "D:\\Businessobjects\\FinanceLog"/>
        <Param name = "Append" value = "true"/>
        <Layout ...
        ...
        </Layout>
</appender>
```

If you need to use the UTF-8 format for SAP Financial Consolidation log files, you must ensure that you have set the "UTF8Encoding" appender parameter value to true (by default, its value is set to false), as indicated below:

```
:<?xml version="1.0" encoding="UTF-8"?>
<log4cplus>
<appender name="CtServerLogConfig" class="FileAppender">
<param name="File" value="D:\Devel\ServerLogs\tmp\Server.log" />
<param name="Append" value="true"/>
<param name="BufferedIO" value="false"/>
<param name="UTF8Encoding" value="true"/>
<layout class="TTCCLayout">
<param name="ThreadPrinting" value="true"/>
<param name="CategoryPrefixing" value="true"/>
<param name="ContextPrinting" value="true"/>
<param name="FilePrinting" value="false"/>
</layout>
</appender>
<root>
<level value="INFO" />
<appender-ref ref="CtServerLogConfig" />
</root>
</log4cplus>
```

> ⚠ Caution
>
> If you previously used the default "UCS-2" file format, you must delete all file instances before you start using the "UTF-8" format as only one file format is supported by SAP Financial Consolidation technical logs.

22.1.2.3.3 Logger

Main HTML tag: `logger`

Attribute:

`Name` = category of events to be saved

Sub-elements:

`Level` = threshold of the severity level of the events to be reported, `User` = allows to define a specific level of technical log for a given user. If you do not specify a user, all users are taken into account

Attribute: `value` = value of the threshold (FATAL, ERROR, WARN, INFO)

`Appender-ref` = appender

Attribute: `ref` = name of the appender (= attribute name of the appender tag)

Example

```
<logger name = "task.processengine">
        <level value ="info" user="user1"/>
        <appender-ref ref = "Appender1"/>
        <appender-ref ref = "Appender2"/>
</logger>
```

22.1.2.3.4 List of SAP Financial Consolidation loggers

Name of logger tag	Processes involved	Comment
Loggers related to the SAP Financial Consolidation environment		
system	CtServer.exe / CtBroker.exe / Finance.exe	System exceptions (e.g. Access violation, Stack overflow, Divide by zero, etc.)
system.database	CtServer.exe	Problems arising from or information on the database
system.database.command.dll	CtServer.exe	
system.database.command.dml	CtServer.exe	
system.net	CtServer.exe / CtBroker.exe / Finance.exe	Problems arising from or information on the network
system.net.http	CtBroker.exe	Problems arising from or information on the HTTP protocol
system.rpc	CtServer.exe / CtBroker.exe / Finance.exe	Problems arising from or information on DCOM
system.database.schema	CtServer.exe	
system.memory	CtServer.exe	
system.process	CtServer.exe	
system.process.uninitialization	CtServer.exe	
system.transaction	CtServer.exe	
Loggers related to the general functioning of servers and clients		

Name of logger tag	Processes involved	Comment
client.desk	Finance.exe	Problems arising from or information on the SAP Financial Consolidation Desktop
broker	CtBroker.exe	Problems arising from or information on the broker
broker.operation	CtBroker.exe	Information on starting, stopping or migrating the servers
broker.configuration	CtBroker.exe	Problems arising from or information on the configuration of the data source
broker.activity	CtBroker.exe	Information on problems arising when trying to terminate a session from the Administration console. Warning and error level only.
controller	CtController.exe	Problems arising from or information on the controller
application.migration	CtServer.exe	Migrating the application
application.migration.plugin		
ctdb.schema	CtServer.exe	Problems arising from or information relating to the updating of the database schema
application.recycling	CtServer.exe	Recycling of the application
application.start	CtServer.exe	Starting the application
web.start	CtServer.exe	Messages on starting the Web application
application.stop	CtServer.exe	Stopping the application
application.Lock		
web.stop	CtServer.exe	Messages on stopping the Web application
caching	Ctserver.exe / Finance.exe	Problems arising from or information on the cache
caching.cleaning	CtServer.exe /Finance.exe	Problems arising from or information on cleaning the cache

Name of logger tag	Processes involved	Comment
util.configurationstring	CtServer.exe / Finance.exe	Configuration strings for the technical log
datasource	CtBroker.exe	Problems arising from the configuration of a data source
Cartesis.Framework.Messaging	CtServer.exe	Information about server's internal messages
Loggers related to Web server messages		
web	CtServer.exe	General messages on the Web application
web.connexion	CtServer.exe	Messages on Web user session activity (user connection or disconnection)
web.servlet	CtServer.exe	Messages on the communication between the CtServer process and the SAP Financial Consolidation Web connector
web.smtp	CtServer.exe	Errors when using the smtp protocol
Loggers related to the IDM (loading the data, changing the data, saving the data, etc.)		
multidimensional	CtServer.exe	Loading database structure and amounts into memory
multidimensional.definition	CtServer.exe	Manipulating items in the structure that have been loaded into memory, e.g. dimensions, characteristics or filters
multidimensional.requesting	CtServer.exe	Queries for retrieving amounts loaded into memory
multidimensional.concurrency	CtServer.exe	Locking objects loaded into memory
multidimensional.hierarchy	CtServer.exe / Finance.exe	Loading hierarchies
categoryscenario.validation	CtServer.exe	Validation of category scenarios
categoryscenario.validation.formula		
categoryscenario.validation.report		
dataengine	Finance.exe	Information on the data engine, i.e. the module that loads data from the database into memory

Name of logger tag	Processes involved	Comment
queryengine	CtServer.exe	Information on the query engine, i.e. the module that loads data from the database into memory
Loggers related to the manipulation of business objects		
schedule	Finance.exe	Problems arising from or information on schedules
data.requesting	CtServer.exe	Loading business objects into memory
data.concurrency	CtServer.exe	Locking objects
data.identification	CtServer.exe	Identifying objects
data.storage.relational.conversion	CtServer.exe	Queries on storing objects in the database
data.storage.serialization	CtServer.exe	Module for saving objects in the database
CtXMLConfig.StreamLogger.print	CtServer.exe / Finance.exe	Setup and print of business objects
print.htmlprint	CtServer.exe / Finance.exe	Print of business objects
Loggers related to the tasks run		
task.data	Finance.exe / CtServer.exe	Problems arising from or information on tasks, e.g. technical messages
task.engine	CtServer.exe	Queries in the processing engine
scheduling.engine	CtServer.exe	Problems arising from the calculation of scheduled tasks
reportbundles.task	CtServer.exe	Information on the report bundles run
consolidation.task	CtServer.exe	Information on the consolidation processing run
audit.task	CtServer.exe	
datalink.task	CtServer.exe	
preconsolidation.task	CtServer.exe	
reconciliation.task	CtServer.exe	
transfer.task	CtServer.exe	

Name of logger tag	Processes involved	Comment
package.rule.task	CtServer.exe	
Loggers related to the application of security in SAP Financial Consolidation		
security.authentication	Finance.exe	Problems arising from or information on user authentication
security.data	Finance.exe / CtServer.exe	Problems arising from or information on security objects, e.g. technical messages
security.principal	CtServer.exe	Opening or closing sessions
security.user.function	CtServer.exe	Checking user access rights to product functionalities
security.configuration	CtServer.exe	Loading of security
security.dataaccess	Finance.exe / CtServer.exe	Security on data access
security.function	CtServer.exe	Rights initialization
Loggers related to the operations performed on packages		
package.opening	Finance.exe	Information on the opening of packages
package.process	Finance.exe	Information on the publication or integration of packages
package.journalentry	Finance.exe	Information on local manual journal entries
reporting.packageworkflow.import	CtServer.exe	Import of package workflow
package.validation	Finance.exe	Information on the validation of the package
package.reset	Finance.exe	Information on the reset of packages
package.multiusers	Finance.exe	Information on multi users data entry in packages
package.file	Finance.exe	Information on files embedded by the packages
Cartesis.Magnitude.Operation.DataExchange.DataExportServices	CtServer.exe	Information on export of data
Loggers related to reporting units		

Name of logger tag	Processes involved	Comment
reporting	Finance.exe	Information on reporting units
reporting.generate	Finance.exe / CtServer.exe	Information on reporting units generation
Loggers related to report bundles		
reportbundles	Finance.exe	Information on reports
viewpoint	Finance.exe	Information on viewpoints
Loggers related to report		
document	Finance.exe	Information about reports
stylebook	Finance.exe / CtServer.exe	Information about reports stylebooks
Loggers related to journal entries		
journalentry	Finance.exe / ctserver.exe	Information on central manual journal entries
journalentry.files	Finance.exe	Information on files embedded in journal entries
Logger related to the execution of hooks		
hook.execution	CtServer.exe	Information on hooks
Loggers related to the category scenario		
Categoryscenario	Finance.exe	Information on the category scenario, e.g. validation or distribution
Loggers related to scopes		
scope	CtServer.exe	Information on scopes
scopeui	Finance.exe	Information on scopes
Loggers related to the consolidation		
consolidation	CtServer.exe	Information on consolidation
interco	CtServer.exe	Information on consolidation
Logger related to the Starter Kit installation		
starterkit	CtServer.exe	Information on the starter kit installation process and the related errors
Loggers related to services implementation		

Name of logger tag	Processes involved	Comment
Apcom.Framework.SessionService.SessionService	CtServer.exe	Information on session management
Cartesis.Magnitude.Operation.Package.Controls.ControlServices	CtServer.exe	Information on controls
Cartesis.Magnitude.Operation.Package.PackageDataImportSession	CtServer.exe	Information on data import
Cartesis.Magnitude.Operation.Package.PackageServices	CtServer.exe	Information on packages
Cartesis.Finance.Operation.Reporting.ReportingServices	CtServer.exe	Information on reporting
Cartesis.Magnitude.Security.UserManagementServices	CtServer.exe	Information on user management
Cartesis.Magnitude.Security.UserPreferencesServices	CtServer.exe	Information on user preferences management
Cartesis.Magnitude.Setup.Dimension.DimensionServices	CtServer.exe	Information on dimensions
Loggers related to SAP HANA Modeling Views		
hana.olap.security		Information on SAP HANA security stored procedure creation
dataaccessrights.hanaolapsecurity		Information on SAP HANA analytical security objects when modifying an SAP Financial Consolidation Data Access Group
restriction.hanaolapsecurity		Information on SAP HANA analytical security objects when modifying an SAP Financial Consolidation restriction

22.1.2.3.5 Root logger

The root logger has a specific tag used to define a filter for the level and the appenders for all categories. It does not have a "name" attribute because it includes all categories. It must however have the "level" and "appender-ref" attributes.

Example

```
<root>
        <level value ="info" />
        <appender-ref ref = "Appender1"/>
        <appender-ref ref = "Appender2"/>
</root>
```

To find out more about log4cplus, consult the following documentation:

- http://logging.apache.org/log4cxx/manual/Introduction.html

22.1.3 Example of an XML configuration file using the Windows Events Viewer

The administrator wants to log all events with the "fatal" and "error" severity levels using the Windows Event Viewer on the local computer for the CtBroker and CtServer processes.

22.1.3.1 Explanation

There should be one XML configuration file for each process. You should therefore create 2 XML files, similar to one another.

In the file, the TTC layout is used with all of the default options.

The name of the NTEventLogAppender appender is "logapplication" and is used to report events to the Windows Event Viewer. The only parameter you should change in the XML configuration files is "source". This parameter appears in the "Source" column in the Windows Event Viewer. "Finance Broker" values are used for events generated by CtBroker.exe while "Finance Server" values are used for events generated by CtServer.exe. No "server" parameter is set because the event viewer on the local computer is used (default setting).

The only logger used is the root logger because you want to log all events without filtering them. The severity level is "error". This means that events with the "error" and "fatal" severity levels will be logged. The "logapplication" appender defined at the start of the file will be associated with the logger.

22.1.3.2 CtBrokerLogConfig.xml file

```
<?xml version="1.0" encoding="UTF-8" ?>
 <log4cplus>
 <appender name="logapplication" class="NTEventLogAppender">
 <param name="Source" value="Finance Broker" />
 <layout class="TTCCLayout">
 </appender>
 <root>
 <level value="error" />
 <appender-ref ref="logapplication" />
 </root>
</log4cplus>
<?xml version="1.0" encoding="utf-8"?>
<log4cplus>
<appender name="myfile" class="FileAppender">
<param name="File" value="C:\Program Files (x86)\SAPBusinessObjects\Financial
Consolidation\Logs\Broker-%date%-%time%-%pid%.log"/>
<param name="Append" value="true" />
<param name="BufferedIO" value="false" />
<layout class="TTCCLayout">
<param name="ThreadPrinting" value="true" />
<param name="CategoryPrefixing" value="true" />
<param name="ContextPrinting" value="true" />
<param name="FilePrinting" value="false" />
</layout>
</appender>
<root>
<level value="info" />
<appender-ref ref="myfile" />
</root>
</log4cplus>
```

22.1.3.3 CtServerLogConfig.xml file

```
 <?xml version="1.0" encoding="UTF-8" ?>
 <log4cplus>
 <appender name="logapplication" class="NTEventLogAppender">
 <param name="Source" value="Finance Server" />
 <layout class="TTCCLayout"/>
 </appender>
 <root>
 <level value="error" />
 <appender-ref ref="logapplication" />
  </log4cplus>
</root>
```

22.1.4 Example of an XML configuration file using different output destinations involving a remote computer

The administrator wants to save the errors from the data source manager in the Windows Event Viewer on the same remote server called: SRV-FINANCE. Furthermore, the administrator wants to log events with the "info"

severity level for the "broker.operation" category of the CtBroker process in the Windows Event Viewer on the local computer.

Events with the "error" severity level should be logged in the Windows Event Viewer on SRV-FINANCE. All of the events generated should be stored in a file on the server's hard disk.

This means that events with the "fatal", "error", "warn" and "info" severity levels will be logged in a file and those with the "fatal" and "error" severity levels will be logged in the Windows Event Viewer.

22.1.4.1 Explanation

- The log of the CtBroker has 2 appenders: one for the Windows Event Viewer of the local computer and another for the Windows Event Viewer of the remote computer. The Windows Event Viewer of the local computer, should only contain the information of the "broker.operation" category. You should therefore specify a special logger associated with this category that displays the "info" severity level and whose appender is called "loglocal". For the other logger, which is a root logger, you can reuse the same definition as CtWebApp.
- For CtServer, two appenders are defined: one for the event viewer and another for a file. The "myfile" appender specifies that the output destination is a file in C:\FinanceServer.log. Because no specific category is required, the root logger is used with the "logapplication" and "myfile" appenders. In the root logger, the severity level is "info". This means that events with the "fatal", "error", "warn" and "info" severity levels will be reported. If you change the value of the threshold parameter to "error" in the "logapplication" appender, then events with the "fatal" and "error" severity levels will be reported.

22.1.4.2 CtBrokerLogConfig.xml file

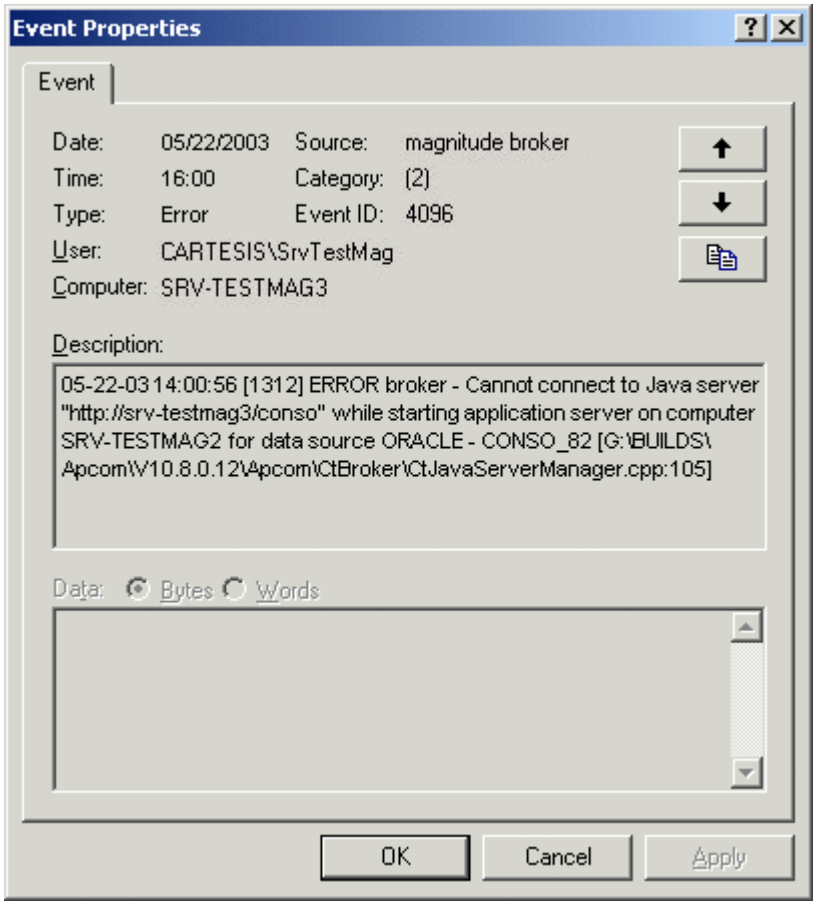
```
<?xml version="1.0" encoding="UTF-8" ?>
  <log4cplus>
  <appender name="logapplication" class="NTEventLogAppender">
  <param name="Source" value="Finance Datasource" />
  <param name="Server" value="SRV-FINANCE" />
  <layout class="TTCCLayout"/>
  </appender>
  <appender name="loglocal" class="NTEventLogAppender">
  <param name="Source" value="Finance Web" />
  <layout class="TTCCLayout"/>
  </appender>
  <root>
  <level value="error" />
  <appender-ref ref="logapplication" />
  </root>
  <logger name="broker.operation">
  <level value="info"/>
  <appender-ref ref="loglocal" />
  </logger>
</log4cplus>
```

22.1.4.3 CtServerLogConfig.xml file

```
<?xml version="1.0" encoding="UTF-8" ?>
<?xml version="1.0" encoding="UTF-8" ?>
<log4cplus>
<appender name="logapplication" class="NTEventLogAppender">
<param name="Source" value="Finance Server" />
<param name="Server" value="FINANCE_SERVER" />
<param name="threshold" value="error" />
<layout class="TTCCLayout"/>
</appender>
<appender name="myfile" class="FileAppender">
<param name="File" value="C:\\FinanceServer.log" />
<param name="Append" value="true"/>
<param name="BufferedIO" value="false"/>
<layout class="TTCCLayout"/>
</appender>
<root>
<level value="info"/>
<appender-ref ref="myfile"/>
<appender-ref ref="logapplication" />
</root>
</log4cplus>
```

22.1.5 Examples of logs

You can see an example of a log generated in the Windows Event Viewer below.



You can see an example of a log generated in a text file below.

```
01-26-04 16:12:27 [2420] INFO application.start - Initializing application
server, datasource="test", version=10.8.1.11
01-26-04 16:12:33 [2420] INFO ctdb.schema - scheme 'MAG' initialized
01-26-04 16:12:35 [2420] INFO ctdb.schema - scheme 'ProcEng' initialized
01-26-04 16:12:35 [2420] INFO ctdb.schema - scheme 'CtCore' initialized
01-26-04 16:12:36 [2420] INFO ctdb.schema - scheme 'History' initialized
01-26-04 16:12:36 [2420] INFO ctdb.schema - scheme 'APCom' initialized
01-26-04 16:12:36 [2420] INFO ctdb.schema - schemes initialization end
01-26-04 16:13:09 [2420] INFO caching.cleaning - Initializing cache cleaning:
cleaning period=86400 seconds, heap max size=1536 Mb.
01-26-04 16:13:14 [2420] INFO task.engine - initializing process engine
01-26-04 16:13:26 [2420] INFO application.start - application server initialized
01-26-04 16:15:58 [2436] INFO security.user.session - logon required with
credentials 'UID=ADMIN'
01-26-04 16:15:58 [2436] INFO security.user.session - logon succeeded
01-26-04 16:17:04 [2648] INFO security.user.session - session ended by user
'UID=ADMIN'
01-26-04 16:17:07 [2436] INFO application.stop - Uninitializing application
server
01-26-04 16:17:07 [2436] INFO task.engine - shutting down process engine
01-26-04 16:17:08 [2436] INFO ctdb.schema - unloading schemes
01-26-04 16:17:08 [2436] INFO application.stop - The application server
uninitialized.
```

22.2 SAP Financial Consolidation Web site technical log

The technical log for the SAP Financial Consolidation Web (Log4net) uses a concept similar to the one used for the SAP Financial Consolidation (Log4cplus) application. The XML configuration file contains similar parameters.

22.2.1 SAP Financial Consolidation Web technical log configuration

The XML log configuration file is located in a sub-folder of the Financial Consolidation web site called *TechnicalLog*.

> ⚠ Caution
>
> This file must be named `WebLogConfig.xml`.

By default, this file does not exist. You can create it using one of the following two options:

- create the file manually and name it `WebLogConfig.xml` (in this case, you must restart the data source manager),
- or use the *Define log configuration for all web servers* menu in the Administration Console. You do not have to restart the data source.

22.2.1.1 Tags in the XML configuration file

Most of the tags are similar to the ones in the technical log for the SAP Financial Consolidation application. The only difference is in the main tag and the prefixes of layouts and appenders.

- The main HTML tag in log4net is: `<log4net>`.
- The prefix to be added to layouts and appenders is `log4net`.

22.2.1.1.1 List of loggers

Name of logger tag	Comment
application	Communication errors with the application server
application.connection	Managing user sessions and authentication
application.ping	Connection between the ASP.NET and the Web server

Name of logger tag	Comment
application.restore	ASP.NET automatic restart option
application.start	Starting the application
application.stop	Stopping the application
application.error	Web application exception
exception.connector	ASP.NET - Web server connector exception
exception.enhancementmanagerprocessor	Exception specific to enhancements for the SAP Financial Consolidation Excel Web Schedules module
exception.fixedcolumnsparser	Exception when reading a row in text with separators
exception.include	Exception when changing libraries
exception.aspx	Exception generated in a JSP file
exception.session	Exception linked to the management of a user session
navigation	Messages associated with browsing through views and domains
ressource.workinglanguages	Messages associated with application and working languages
xml.parser	XML parser messages
xml.transformerbase	Messages generated during XSL transformation

22.2.1.1.2 Example of Log4Net

```
 <?xml version="1.0" encoding="utf-8" ?>
<log4net>
    <appender name="FileAppender" type="log4net.Appender.FileAppender">
        <file value="D:/dvt/Config Files/logfile.txt" />
        <appendToFile value="false" />
        <layout type="log4net.Layout.PatternLayout">
            <conversionPattern value="%d [thread %t] %-5p %c [%x] - %m%n" />
        </layout>
    </appender>
    <root>
        <level value="DEBUG" />
        <appender-ref ref="FileAppender" />
    </log4net>
</root>
```

> **i Note**
>
> The layouts and appenders described above are configured in the same way as those for the technical log.

To find out more about the log4net, go to the links below:

http://logging.apache.org/log4net/release/features.html

To find out more about examples with the log4net, go to the links below:

http://logging.apache.org/log4net/release/config-examples.html

Related Information

Appender [page 161]
Layout [page 162]

22.3 SAP Financial Consolidation web HTML5 site technical log

The parameter used to specify the location of the XML configuration file for the deployed WebHTML5 application is the *Log4NetInitFile* parameter.

You modify this parameter by selecting the Financial Consolidation web site HTML5 you have deployed and clicking the *Application Settings* feature.

22.3.1 List of loggers for the SAP Financial Consolidation web HTML5 site technical log

Name of logger	Comment
Loggers related to the web HTML5 site	
application.start.sld	SLD registration
ServiceOrchestration	Technical logger
ConnectionService	Technical logger
Web HTML5	Problems with incoming web requests
Web	Technical logger
Loggers related to Rest Services	

Name of logger	Comment
SessionServiceController	Problems related to sessions management
ControlServicesController	Problems related to controls
PackageDataImportSessionController	Problems related to data import
PackageServicesController	Problems related to packages
ReportingServicesController	Problems related to reporting
UserManagementServicesController	Problems related to user management
UserPreferencesServicesController	Problems related to user preferences management
DimensionServicesController	Problems related to dimensions

22.4 SAP Financial Consolidation Cube Designer Components technical log

Cube Deployer

First, you must modify the web site settings, in order to activate the log:

1. On the Cube Deployer server, open IIS.
2. Open the DeployerForFinance web site.
3. Open the *Application Settings* feature.
4. In the *Actions* panel, click the *Add* button.
5. In the *Edit Application Settings* dialod box, enter the following information:
6. In the *Name* field, enter the `<Log4NetInitFile>` value, and in the *Value* field, enter the `<./Cartesis.InformationDelivery.Deployment.WebService-LogConfig.xml>` value.

> **i** Note
>
> If you notice performances issues, you can deactivate the log by comenting the previous keys that have been to the web.config file under the <appSettings> section.

Then you configure the log file of the Deployer component in the Cartesis.InformationDelivery.Deployment.WebService-LogConfig.xml (located in the `C:\Program Files\SAP BusinessObjects\Financial Consolidation\Cube Deployer` installation folder).

The contents of the file is the following:

```
<configuration>
    <configSections>
        <section name="log4net"
type="System.Configuration.IgnoreSectionHandler" />
```

```
    </configSections>
    <log4net>
        <appender name="DefaultLogFileAppender"
type="log4net.Appender.FileAppender">
            <file value=".\log
\Cartesis.InformationDelivery.Deployment.WebService.log" />
            <appendToFile value="true" />
            <layout type="log4net.Layout.PatternLayout">
                <conversionPattern value="--------------------%newline %date
     [%thread] %-5level %logger [%ndc] &lt;%property{auth}&gt; - %newline
Message: %message%newline" />
            </layout>
        </appender>
        <appender name="DefaultTraceFileAppender"
type="log4net.Appender.FileAppender">
            <file value=".\log
\Cartesis.InformationDelivery.Deployment.WebService.trc" />
            <appendToFile value="true" />
            <layout type="log4net.Layout.PatternLayout">
                <conversionPattern value="--------------------%newline %date
    [%thread] %-5level %logger [%ndc] &lt;%property{auth}&gt; - %newline
Message: %message%newline" />
            </layout>
        </appender>
        <logger name="Log">
            <level value="ERROR" />
            <appender-ref ref="DefaultLogFileAppender" />
        </logger>
        <logger name="Trace">
            <level value="ERROR" />
            <appender-ref ref="DefaultTraceFileAppender" />
        </logger>

    </log4net>
</configuration>
```

You can configure two files:

- A log file - by default named `Cartesis.InformationDelivery.Deployment.WebService.log` and configured in the `file value` of the `DefaultLogFileAppender` section.
- A trace file - by default named `Cartesis.InformationDelivery.Deployment.WebService.trc` and configured in the file value of the `DefaultTraceFileAppender` section.

All standard log levels are available.

Cube Designer

The configuration log file of the Designer component is the same as for the Deployer component.

UDF for Security

You can retrieve logs for components of the UDF for Security:

- A log for the AnalyticsUdfAdminService administration component.
  Like the Deployer component, a log file
  (`Cartesis.InformationDelivery.AnalyticsUdfAdminService.WebService.log`) and a trace

(`Cartesis.InformationDelivery.AnalyticsUdfAdminService.WebService.trc`) file are available by default and can be configured in the `Cartesis.InformationDelivery.AnalyticsUdfAdminService.WebService-LogConfig.xml` file.

- A log containing retrieval information on SSAS connections. This log is configured through the `AnalysisServices-LogConfig.xml` file. It is installed on the SSAS server when you create the first EPM Connection in the BOE platform.
  For each new EPM connection, a new section is created in the `AnalysisServices-LogConfig.xml` file. Each new section corresponds to each new SSAS catalog.

```
<configuration>
  <configSections>
    <section name="log4net"
type="System.Configuration.IgnoreSectionHandler" />
  </configSections>
  <log4net>
    <appender name="FCCubeDesignerCatalogLogFileAppender"
type="log4net.Appender.FileAppender">
      <file value="..\log\FCCubeDesignerCatalog.log" />
      <appendToFile value="true" />
      <rollingStyle value="Date" />
      <layout type="log4net.Layout.PatternLayout">
        <conversionPattern value="----%newline %date [%thread] %-5level
%logger
[%ndc] &lt;%property{auth}&gt; - %newline Message: %message%newline" />
      </layout>
    </appender>
    <logger name="Log.FCCubeDesignerCatalog">
      <level value="ERROR" />
      <appender-ref ref="FCCubeDesignerCatalogLogFileAppender" />
    </logger>
  </log4net>
</configuration>
```

> **i Note**
>
> You can change log levels in real time, you do not need to stop and restart the application.

22.4.1 Cube Designer Log categories

Category name	Application / Process	Comment
AnalyticsBatch		
Designer.Finance.WebService		
Designer.Export		Log pour le module Export
Designer.Import		
Designer.UserSettings		
Designer		
Designer.UI		

Category name	Application / Process	Comment
Designer.Solution		log et trace pour manipulation des objets métiers
Designer.Deployment		
Designer.DeploymentAudit		
Designer.Deployment.WebServices		log et trace des appels de Designer vers deployer
Designer.BOE.Platform		
Deployer.WebService		All communication messages related to Deployer
Deployer.DeploymentDefinition		log et trace qui donne l'enveloppe des objets que l'on veut déployer
Deployer.UpdateInformation		log et trace pour les services de récupération d'information sur l'état du système
Deployer.ServiceContext		Messages related to Deployer security context log et trace pour la gestion de traitement asynchrone
Deployer.CommandOptimization		All messages related to Deployer message queue optimization
Deployer.Scheduling		All messages related to scheduling
Deployer.SSAS.ConnectionManagement		All messages related to connection with SSAS
Deployer.Deployment		log et trace des messages envoyer à designer
Deployer.Metadata		log et trace pour récupérer les informations de connexion à FC
Deployer.SSAS.Query		log et trace des requêtes créées pour SSAS
Deployer.BW		log et trace de traitement sur BW
Deployer.BW.Query		log et trace des requêtes créées pour SSAS
Deployer.BW.Mapping		log et trace du mapping des technical name des objets de BW
Deployer.SLD		
Performance		trace pour mesurer les performances
Udf.Security		log et trace de la sécurité de l'UDF
Udf.Security.Cache		log et trace du cache de la sécurité de l'UDF
Udf.Security.TokenCache		log et trace du cache des token de la sécurité de l'UDF

Category name	Application / Process	Comment
Udf.Security.Configuration		log et trace du fichier de configuration de sécurité de l'UDF
Udf.Security.web.services		log et trace des appels sortant de l'UDF
Udf.AdminService.Implementation		log et trace du service d'administration de l'udf
Udf.AdminService.WebService		log et trace du service d'administration de l'udf

> **i** Note
>
> There are no hierarchies between categories. This means that if youselect the Deployer category, the Deployer.WebService will not also be selected.

23 Troubleshooting

23.1 Object: Connection error

Symptoms

Message: "*Failed to initialize structure. Failed to load one or more objects of type 'configuration'. Failed to initialize the cooperation services. Machine ABC is unavailable or does not exist.*

Explanation

The computer on which the cooperation module is installed is not accessible. The setting in the Administration console is incorrect.

23.2 Object: Connection error

Symptoms

Error initializing the authentication provider. Failed to connect to the LDAP directory.

Explanation

The LDAP settings in the Administration console are incorrect.

23.3 Object: Problem when printing

Symptoms

In SAP Financial Consolidation, PDF reports generated using activeServer PDF and viewed in Acrobat Reader 6 display squares instead of spaces.

Explanation

This is a problem specific to Acrobat Reader 6. You can consult the solution at the following website: http://www.activepdf.com/en/support/ViewKB.asp?ID=1540 .

23.4 Object: Problems opening an SAP Financial Consolidation Excel Web Schedules schedule

Version: all SAP Financial Consolidation

Symptoms

A problem occurs when downloading and the Excel Web schedule does not open.

Explanation

If add-ins are enabled on the computer, you should proceed as described below:

1. Disable all add-ins.
2. Open the Excel Web schedule.
3. Enable all add-ins again.

23.5 Object: Web server or servers do not start

Platform: Windows 2003

Version: 9.1 SP1

Symptoms

When you start the application server via the Administration console, the Web server or servers do not start and the following message appears:

It displays the following details on the error:

```
Cannot connect to one or more Java servers when starting the application server
located on machine "server_name" for the "data_source_name" data source.
Syntax error in "SOURCE:CtSecurity.CtAPCOMUserLoader" character 36
Syntax error in "SOURCE:CtSecurity.CtAPCOMAuthenticationProvider" character 48
```

Explanation

1. Configure all the Financial Consolidation DCOM objects on all the servers in your environment with the same login (same user name and same password).
2. Start the *CtBroker* service with an account other than the "system" account. If possible, use the same account as the other objects.

23.6 Object: Problem connecting to Financial Consolidation Web

Platform: All

Version: All SAP Financial Consolidation

Symptoms

When you start the application server via the Administration console, the Web server or servers do not start and the following message appears:

```
Warning - an error has just occurred
Please inform your system administrator that:
The web server has been shut down
```

If the Financial Consolidation log has been activated, you can see the following message: `ERROR request.servlet.admin [] - Admin task failed (action=start)`

This is a .NET framework configuration problem.

Explanation

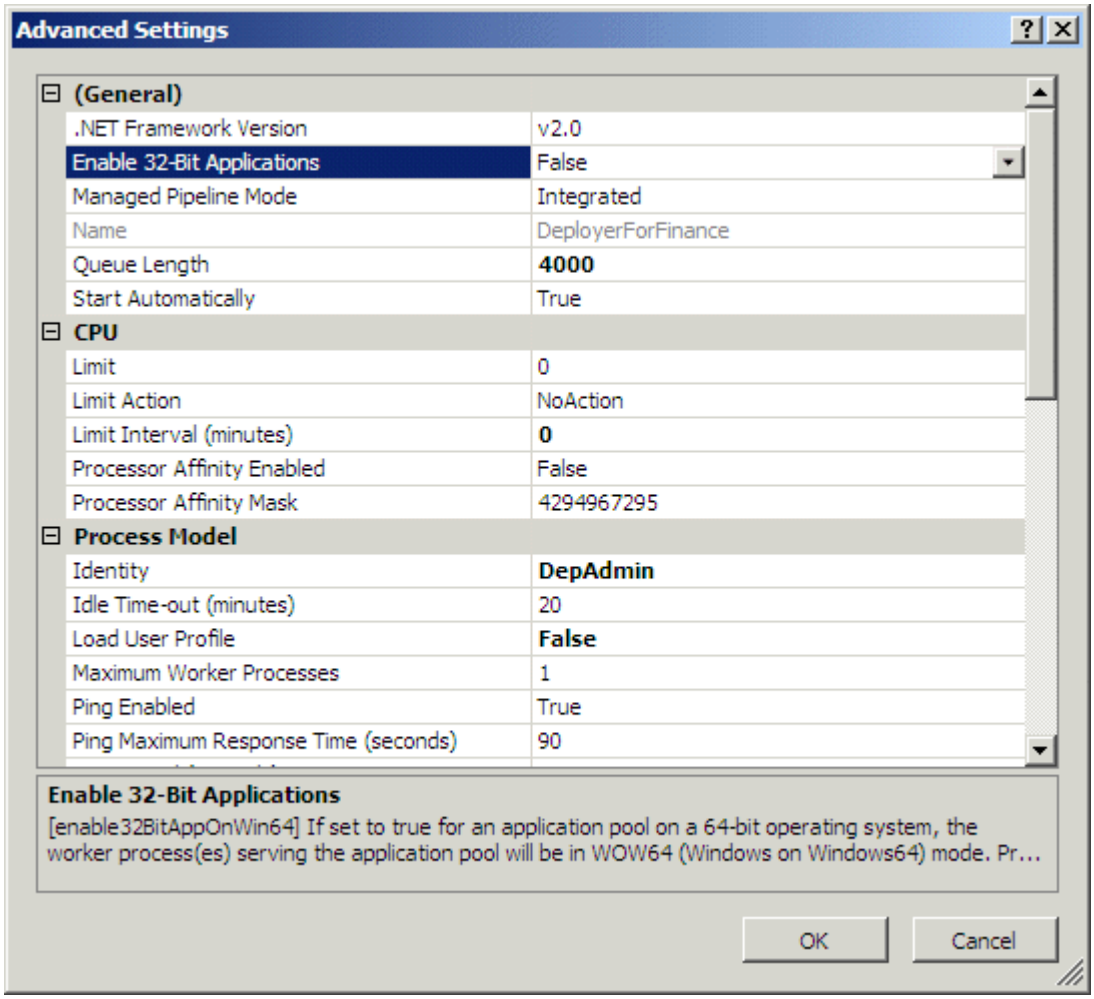
1. Edit the *machine.config* file located in the *\Microsoft.NET\Framework\v2.0.50727\CONFIG* folder.
2. Search for the following rows:

```
<processModel
      enable="true"
      timeout="Infinite"
      idleTimeout="Infinite"
      shutdownTimeout="0:00:05"
      requestLimit="Infinite"
      requestQueueLimit="5000"
      restartQueueLimit="10"
      memoryLimit="60"
      webGarden="false"
      cpuMask="0xffffffff"
      userName="name"
      password="password"
      logLevel="Errors"
      clientConnectedCheck="0:00:05"
      comAuthenticationLevel="Connect"
      comImpersonationLevel="Impersonate"
      responseDeadlockInterval="00:03:00"
      maxWorkerThreads="20"
      maxIoThreads="20"/>
```

3. In the *UserName* and *password* fields, enter the login and password of a user account with local administrator rights.

23.7 Object: Application Pools Configuration

As Deployer for Finance and the UDF for Security application only run on a 64-bit server, you must verify that the Deployer for Finance and the UDF for Security application pools are configured with the following option: the *Enable 32-Bit Applications* must be set to *False*.


Advanced Settings
(General)
.NET Framework Version
v2.0
Enable 32-Bit Applications
False
Managed Pipeline Mode
Integrated
Name
DeployerForFinance
Queue Length
4000
Start Automatically
True
CPU
Limit
0
Limit Action
NoAction
Limit Interval (minutes)
0
Processor Affinity Enabled
False
Processor Affinity Mask
4294967295
Process Model
Identity
DepAdmin
Idle Time-out (minutes)
20
Load User Profile
False
Maximum Worker Processes
1
Ping Enabled
True
Ping Maximum Response Time (seconds)
90
Enable 32-Bit Applications
[enable32BitAppOnWin64] If set to true for an application pool on a 64-bit operating system, the worker process(es) serving the application pool will be in WOW64 (Windows on Windows64) mode. Pr...
OK
Cancel

24 Appendix

24.1 Cube Designer Configuration File

Context

If you want to modify the settings of your Cube Designer environment, you will have to apply these modifications in the `Cartesis.InformationDelivery.Workbench.exe.config` file.

Procedure

1. In the Designer client, navigate to the `C:\Program Files (x86)\SAP BusinessObjects\Financial Consolidation\Cube Designer` folder.
2. Open the `Cartesis.InformationDelivery.Workbench.exe.config` file and modify the following rows:

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
<appSettings>
<add key="SLD.Host" value=""></add>
<add key="SLD.UserName" value=""></add>
<add key="SLD.Password" value=""></add>
<add key="SLD.Port" value=""></add>
<add key="SLD.IsSecured" value=""></add>
<add key="SLD.LocalSystemName"
value="BOBJ_EADES"></add>
<add key="SLD.ProductID"
value="01200615320900004560"></add>
<add key="SLD.ProductName" value="BOBJ FINANCE
CONSOLIDATION"></add>
<add key="SLD.ProductVendor"
value="sap.com"></add>
<add key="SLD.ProductVersion" value="800"></add>
<add key="SLD.SoftwareComponentID"
value="01200314690200012536"></add>
<add key="SLD.SoftwareComponentVendor"
value="sap.com"></add>
<add key="SLD.SoftwareComponentName"
value="BOBJ_EADES"></add>
<add key="SLD.SoftwareComponentVersion"
value="800"></add>
<add key="Log4NetInitFile"
value="./Cartesis.InformationDelivery.Workbench.exe-LogConfig.xml"></add>
<add key="DuplicateElementsAllowed"
value="true"></add>
<add key="iAnalysisStarSchemaTableNames"
value="false"></add>
<add key="StarSchemaAggregation"
value="true"></add>
<add key="IsAccountDimensionAggregatable"
value="false"></add>
```

```
<add key="DeployerUrl" value="
http://vm-epm10car.dhcp.pgdev.sap.corp/DeployerForFinance/
DeploymentService.asmx"></add>
<add key="MergeMemberMaxDisplay"
value="5000"></add>
<add key="MultiMeasureGroupAnalysis"
value="false"></add>
<add key="WebClientTimeout"
value="100000"></add>
<add key="DeployerPollingTimer"
value="5000"></add>
<add key="AttributeRelationshipType"
value="Flexible"></add>
<add key="BiPlatformWSUrl" value="http://vm-pmbobjsuite:8080/dswsbobje/
services/Session"></add>
</appSettings>
</configuration>
```

- The `<add key="DeployerUrl" value=""/>` tag corresponds to the Deployer URL.
- The `<add key="WebClientTimeout" value=""/>` tag corresponds to the timeout value for all web service requests, this includes calls to the deployer service and the calls to the Finance web services. The unit of measure is milliseconds.
- The `<Add key="DeployerPollingTimer" value=""/>` corresponds to the refresh timeout used during cube deployments. The unit of measure is milliseconds.
- The `<add key="BiPlatformWSUrl" value=""/>` corresponds to the URL of the Business Objects XI platform you indicated during the Designer setup.

24.2 SAP Financial Consolidation Limitations

	Theoretical limits	Comments
Code / Description / Comment size		
Maximum number of characters in the code	12 (except adress book)	
Maximum number of characters in the short description	30	
Maximum number of characters in the long description	120	
Maximum number of characters in the extra-long description	253	

	Theoretical limits	Comments
Reference tables		
Maximum number of dimensions	45 in V10 (40 in Version 7.5) 22 user-defined dimensions	If the TOP site uses the 45 dimensions, subgroups will also have to use them and will not be able to create their own.
Maximum number of characteristics	80 (structural limit) for one dimension (all levels)	The display limit (17 inch screen with a resolution of 1024 x 768) for items displayed during initialization in a

	Theoretical limits	Comments
		schedule is 40. For a dimension, 31 (40-9 selection methods) for the first characteristic level then 40 for the second level in the characteristic hierarchy.
Maximum number of characteristic levels in a hierarchy	No tested limit available	Restricted to the maximum number of characteristics
Maximum number of properties	80 for one dimension	
Maximum number of codes (packages, reporting sets, user doc preferences) for a reference table a site can create	4 billion in version 10 524,288 in version 7.5	
Maximum number of rows in a reference table	No tested limit available	

	Theoretical limits	Comments
Category scenario		
Maximum number of periods for a category	256 (periods used in the category scenario as data entry periods and all periods used in formulas but not declared)	
Number of accounts in a category scenario	8 000	
Maximum number of analysis hierarchy levels for a given indicator	6	
Maximum Maximum number of controls in a subset number of formulas and controls	Calculated data is limited by context (initialization, package, manual journal entry) and this limit depends upon the size of formulas (trigger condition, size and complexity of the expression)	Progress bars indicate the category scenario limits. These bars are displayed in the Statistics tab of the Validation window.
Maximum number of controls in a subset	65 535	
Maximum number of read-only flows (period and flow codes)	No tested limit available	

	Theoretical limits	Comments
Schedules		
Maximum number of schedules simultaneously open during data entry or data retrieval	4 096	
Maximum size of a schedule	No tested limit available	
Maximum number of categories accessed at the same time during data entry or data retrieval	4 096	

	Theoretical limits	Comments
Maximum number of graphic objects in a schedule	No tested limit available	
Maximum number of character fonts in a schedule	No tested limit available	
Maximum number of characters when entering comments for an item of data	2 000	Each space and carriage return counts as one character. The limits for displaying and printing the field where comments are entered are as follows: DISPLAY: If you specify the standard display options in Arial 9 font with a cell that takes up the entire width and height of the screen, without any title columns or rows, you can display the following number of characters: - Screen resolution of 1024 x 768 via the Web interface: 75 characters for the width, 32 for the height - Screen resolution of 1024 x 768 via the Windows interface: 86 characters for the width, 32 for the height - Screen resolution of 800 x 600 via the Web interface: 54 characters for the width, 21 for the height - Screen resolution of 800 x 600 via the Windows interface: 66 characters for the width, 26 for the height For the purposes of our test, we used the letter "W", which is the largest character. These limits depend on the character (for example, upper or lower case), the font used, the screen resolution, the size of the cell, and the cell settings (for example, fixed or variable length). Please note that it is not technically possible to enable a cell to be displayed in variable length via the Web. This is possible only when printing the cell. You can view comments that are hidden by clicking in the cell and scrolling down in both the Web and Windows interfaces, or by scrolling in the dialog box displaying the Web comments. PRINTING: If the comments entered exceed one page, then you cannot print them correctly. The comments are truncated. This means that even though the theoretical limit is 2,000 characters, you cannot print the width or the height of a page containing 2,000 characters. You can print the following number of characters in 100% of the normal format with 1 cm margins: - In Portrait via the Web and Windows interfaces:

	Theoretical limits	Comments
		64 characters for the width, 32 for the height - In Landscape via the Web and Windows interfaces: 78 characters for the width, 32 for the height For the purposes of our test, we used the letter "W", which is the largest character. In both cases, the maximum width of the page was used. The height, however, is set in the component itself and is less than the total height of the page (in both Portrait and Landscape).
Maximum number of characters when entering comments for an item of data	2 000	
Maximum number of row blocks in a schedule	32 768	
Maximum number of column blocks in a schedule	32 768	
Maximum number of dimensions and characteristics used to retrieve data in a schedule	62	
Maximum number of characteristics used to retrieve data within a block	No tested limit available	
Maximum number of cells connected to the engine in a data entry schedule	32 768	
Maximum number of matrix cells displayed on one page	No tested limit available	
Maximum number of characters in a formula (spreadsheet or display)	No tested limit available	
Maximum number of characters in an initialization formula in the block	255	
Maximum number of characters in a comment entered in a Microsoft Excel schedule	255	In Excel Link, you can have comments that contain a maximum of 255 characters. You will not be able to display comments that exceed this amount(limit in Microsoft Excel - limit for text type constants in formulas).
Maximum of cells in an EWS schedule	3 000	if the report has more than 3,000 cells, the blue triangle icon for edit does not appear after 3,000 cells

	Theoretical limits	Comments
Operation Limits		
Maximum number of working languages	5	
Maximum number of sites	81,89 signature sites	

	Theoretical limits	Comments
Maximum number of conversion rates	No tested limit available	
Maximum number of packages	A site can generate (at the current site) a maximum of 500,000 packages	
Maximum number of journal entry rows (in a preconsolidated or consolidated data table)	More than 4 billion	
Maximum number of formulas when importing in Microsoft Excel	18,000 formulas	When this limit is exceeded, the import process is stopped and the following message appears "Microsoft Excel is waiting for the end of an OLE action from another application"

	Theoretical limits	Comments
Technical Limits		
Minimum connection speed for web access	64 Kbps	
Number of processors for the web server	1 for 25 users	
Database size	50 GB for a mid-size central database and 200 GB for a bigger database	
Number of processors on the database server to start different consolidation tasks simultaneously	1 processor for each consolidation task to be run simultaneously (otherwise, tasks are run one after the other)	
Number of processors for the application server	1 processor for 50 users connected simultaneously	
Maximum number of tasks in the console: maximum allowed tasks to run on each CtServer in interactive mode	4	

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