



Sybase Control Center for Data Assurance

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About Sybase Control Center for Data Assurance

Sybase[®] Control Center for Data Assurance (DA) is a Web-based tool for managing and monitoring the DA server environment.

Sybase Control Center for Data Assurance provides availability, historical, and real-time monitoring in a scalable Web application that is integrated with management modules for other Sybase products. It offers shared, consolidated management of heterogeneous resources from any location, real-time notification of availability and performance, and intelligent tools for spotting performance and usage trends, all via a thin-client, rich Internet application delivered through your Web browser.

Sybase Control Center for Data Assurance supports data comparison from a primary database to one or more replicate databases. The product also supports task scheduling, which allows each comparison task to be run based on a schedule you have specified. It uses and deploys its own SQL Anywhere database, which stores system and configuration settings, tasks, and task history. An automatic reconciliation option identifies missing, orphaned, and inconsistent rows when you create DA jobs.

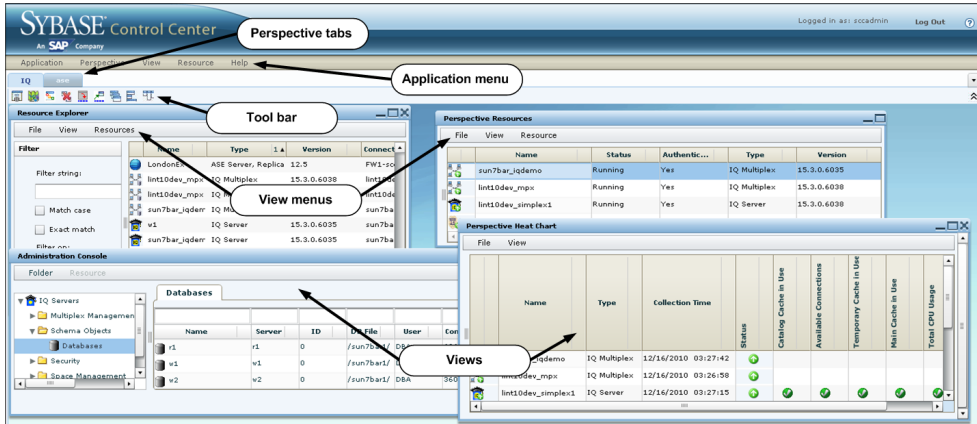
You can monitor servers and agents using the DA monitor, topology view, heat chart, and administration console. History reports for comparison tasks and statistics help you monitor data discrepancies and identify common or recurring problems.

Sybase Control Center for Data Assurance is designed to be integrated with Replication Server[®] to support comparison of large tables. When you use a Sybase Control Center wizard to create a DA job based on a Replication Server system database (RSSD), the wizard is populated automatically with replication definition and subscription information so you can easily create a job with an optimal configuration.

User Interface Overview

This illustration labels important elements of the Sybase Control Center user interface so you can identify them when they appear in other help topics.

Figure 1: Sybase Control Center User Interface








Toolbar Icons

Describes the icons in the Sybase Control Center toolbar for launching and managing views.

Table 1. Toolbar icons

Icon	Name	Description
	Show/Hide Perspective Resources View	Displays or minimizes the Perspective Resources view, which lists registered resources in this perspective.
	Launch Resource Explorer	Opens the resource explorer, which lists reachable resources (both registered and unregistered).
	Launch Heat Chart	Opens the perspective heat chart, which gives a status overview of the registered resources in this perspective.
	Close All Open Views	Closes all open and minimized views.







Icon	Name	Description
	Minimize All Views	Minimizes all open views.
	Restore All Minimized Views	Returns all minimized views to their original size.
	Cascade All Open Views	Arranges open views to overlap each other.
	Tile All Open Views Vertically	Arranges open views in a vertical manner.
	Tile All Open Views Horizontally	Arranges open views in a horizontal manner.

Status Icons

Sybase Control Center uses icons to indicate the status of resources and key performance indicators (KPIs).




Resource status icons indicate the condition of each resource in the heat chart. In addition, they are used as badges (small overlays) on server icons in both the heat chart and the Perspective Resources view. The Perspective Resources view also has a Status column that displays the same status as the badge in English text.

Table 2. Resource status icons: Perspective Resources view and heat chart

Icon	Status	Description
	Running	Resource is up and running
	Pending	State is changing—check again
	Stopped	Resource has been shut down
	Warning	Resource has encountered a potentially harmful situation
	Error	Resource has encountered a serious problem
	Unknown	Resource is unreachable—state cannot be determined

The heat chart uses KPI status icons to indicate the health of the KPIs it displays.

Table 3. KPI status icons: heat chart

Icon	Status	Description
	Normal	Value of performance indicator is within the normal range
	Warning	Value of performance indicator is in the warning range
	Critical	Value of performance indicator is in the critical range

Common Display Options

Use data display features to view resource status and to sort, search by resource name and type, and rearrange status information.

Column Options












The Administration Console, Perspective Resources view, Resource Explorer, Alert Monitor, heat chart, and other views in Sybase Control Center—including those in product modules—use a tabular grid format to display information about managed resources. You can use options provided by the grid format to sort and organize displayed data.

Table 4. Column Sorting Options

Sorting Option	Description
Simple column-based sorting	Click a column name to sort the table based on that column in ascending or descending order. The arrow in the column's sorting tab (to the right of the column name) points up when data is sorted in ascending order or down when data is sorted in descending order.
Reversing the order of a column-based sort	Click a column's sorting tab to reverse its sort from ascending to descending order or vice versa.
Nested sorting based on multiple columns	Click the column name for the primary sort. For subsidiary sorts, click the column's sorting tab. Choose the columns for subsidiary sorts in the order you want to apply them. After you click a sorting tab, it displays its sorting level (1 for the primary sort, 2 for the secondary sort, and so on).
Rearranging columns	Move columns by dragging and dropping them.

The figure below shows a table of servers sorted first by resource type; within type by software version; and within version by server name. The Type and Name columns sort in ascending order and the Version column sorts in descending order.

Figure 2: Resources sorted by type, version, and name

	Name	3 ▲	Type	1 ▲	Version	2 ▼
	mira8		ASE Server		15.0.2	
	mira9		ASE Server		15.0.2	
	LondonDR		ASE Server, Replication Only		12.5	
	LondonEx		ASE Server, Replication Only		12.5	
	NYEx		ASE Server, Replication Only		12.5	
	lint10dev_mpx		IQ Multiplex		15.3.0.6038	
	lint10dev_mpx		IQ Multiplex		15.3.0.6038	
	sun7bar_iqdemo		IQ Multiplex		15.3.0.6035	
	lamd6supt_r2		IQ Server		15.3.0.6038	
	lint10dev_cn		IQ Server		15.3.0.6038	
	lint10dev_r1		IQ Server		15.3.0.6038	


Filter by Column

The Administration Console provides a filtering field at the top of each column. Enter a filtering term to narrow the range of objects displayed. For example:

- Enter the name of a resource at the top of the Name column to display only that server, database, group, or other named object. The display reacts as you enter each character, so you might not need to enter the entire name.
- Enter a version number at the top of the Version column to display only resources running that software version.


You can filter on multiple columns; for example, in a listing of servers, use the Status column to display only running servers, then use the Version column to display running servers using the desired software version. Delete the filtering terms to return to the original display. Filtering terms are not case sensitive.

Full Screen Mode

To increase the screen area available in Sybase Control Center for views and perspectives, click the  icon at the upper-right corner of the perspective area. Click the icon again to return to the original screen configuration.

Tip: To increase the screen area available to SCC, press **F11** to switch Internet Explorer or Firefox to full screen mode. Press **F11** again to return to the original browser configuration.

Maximize a Section of a View

Some areas within views have a square minimize/maximize icon () in the upper-right corner. Click the icon to expand that area to fill the entire view. Click the icon again to restore the area to its former size.

View Menu

The Perspective Resources view, the Resource Explorer, the Alert Monitor, and the heat chart each have a View menu. From the View menu, you can:

- Display the filtering tool for searches. (In the heat chart, the Filter option also displays the column selection tool.)
- Toggle between an icon view and a detail view of your resources (Perspective Resources view only)
- Refresh the display (Resource Explorer only)

Note: For these tasks, use the View menu in the view window, not the application-level View menu.

Style and Syntax Conventions

A reference to the fonts and special characters used to express command syntax and to represent elements of system output and user input.

Table 5. Style Conventions

Key	Definition
<code>monospaced (fixed-width)</code>	<ul style="list-style-type: none">• SQL and program code• Commands to be entered exactly as shown• File names• Directory names
<i>italic monospaced</i>	In SQL or program code snippets, placeholders for user-specified values (see example below).
<i>italic</i>	<ul style="list-style-type: none">• File and variable names• Cross-references to other topics or documents• In text, placeholders for user-specified values (see example below)• Glossary terms in text

Key	Definition
bold sans serif	<ul style="list-style-type: none"> • Command, function, stored procedure, utility, class, and method names • Glossary entries (in the Glossary) • Menu option paths • In numbered task or procedure steps, user-interface (UI) elements that you click, such as buttons, check boxes, icons, and so on

A placeholder represents a system- or environment-specific value that you supply. For example:

```
installation directory\start.bat
```

where *installation directory* is where the application is installed.

Table 6. Syntax Conventions

Key	Definition
{ }	Curly braces indicate that you must choose at least one of the enclosed options. Do not type the braces when you enter the command.
[]	Brackets mean that choosing one or more of the enclosed options is optional. Do not type the brackets when you enter the command.
()	Parentheses are to be typed as part of the command.
	The vertical bar means you can select only one of the options shown.
,	The comma means you can choose as many of the options shown as you like, separating your choices with commas that you type as part of the command.
...	An ellipsis (three dots) means you may repeat the last unit as many times as you need. Do not include ellipses in the command.

Accessibility Features

Accessibility ensures access to electronic information for all users, including those with disabilities.

Documentation for Sybase products is available in an HTML version that is designed for accessibility.

Vision impaired users can navigate through the online document with an adaptive technology such as a screen reader, or view it with a screen enlarger.

About Sybase Control Center for Data Assurance

Sybase HTML documentation has been tested for compliance with accessibility requirements of Section 508 of the U.S Rehabilitation Act. Documents that comply with Section 508 generally also meet non-U.S. accessibility guidelines, such as the World Wide Web Consortium (W3C) guidelines for Web sites.

Note: You may need to configure your accessibility tool for optimal use. Some screen readers pronounce text based on its case; for example, they pronounce ALL UPPERCASE TEXT as initials, and MixedCase Text as words. You might find it helpful to configure your tool to announce syntax conventions. Consult the documentation for your tool.

For information about how Sybase supports accessibility, see the Sybase Accessibility site: <http://www.sybase.com/products/accessibility>. The site includes links to information about Section 508 and W3C standards.

You may find additional information about accessibility features in the product documentation.

Sybase Control Center Accessibility Information

Sybase Control Center uses the Adobe Flex application.

For the most current information about Adobe Flex keyboard shortcuts, see http://livedocs.adobe.com/flex/3/html/help.html?content=accessible_5.html.

Note: To use Sybase Control Center with JAWS for Windows screen reading software effectively, download and install the appropriate Adobe scripts. See <http://www.adobe.com/accessibility/products/flex/jaws.html>.

Get Started

Set up Sybase® Control Center.

Quick Start for an Evaluation

(Optional) Get started using Sybase Control Center quickly if you do not need the full set of security features. This simplified process is suitable for a small-scale, temporary evaluation or proof-of-concept project, or for checking your installation.

Prerequisites

Install Sybase Control Center.

Task

Use these tasks to start Sybase Control Center, log in, register and authenticate a server, and monitor that server.

Note: After completing the tasks below and confirming that SCC is working, set up SCC for a production environment if you intend to continue using it.

1. *Registering the ODBC Driver in Windows*

In Windows, run scc.bat with administrative privileges to register the ODBC driver.

2. *Launching Sybase Control Center*

Use the scc command to start Sybase Control Center.

3. *Getting Started After Installing*

Perform postinstallation testing and configuration.

4. *Registering a Data Assurance Server*

Register a resource (for example, a server that can be monitored) to make Sybase Control Center aware of it and its connection information.

5. *Authenticating a Login Account for a Managed Resource*

Specify the login account Sybase Control Center will use when it connects to your server or agent to collect monitoring data or manage the resource.

6. *Displaying Resource Availability*

Use the heat chart to view availability information on the servers in the current perspective.

7. *Viewing Data Assurance Server and Agent Status*

The Data Assurance (DA) monitor shows high-level server and agent information.

See also

- *Get Started in a Production Environment* on page 14

Registering the ODBC Driver in Windows

In Windows, run **scc.bat** with administrative privileges to register the ODBC driver.

When Sybase Control Center starts for the first time on a Windows machine, it registers its ODBC driver. Because the automatic registration of the ODBC driver edits the registry settings, you must execute **scc.bat** using elevated administrative privileges. If you launch for the first time without adequate privileges, Sybase Control Center generates an error and fails to start.

In Windows Vista, Windows 2008, and Windows 7, you must use the **Run as administrator** setting to launch Sybase Control Center even if you already have administrative privileges. This process is described below.

In other versions of Windows, you must be logged in as an administrator to start Sybase Control Center for the first time. You need not follow the steps below.

1. In Windows Vista, Windows 2008, or Windows 7, open the Command Prompt window with administrative privileges:
 - Select **Start > All Programs > Accessories**. Right-click **Command Prompt** and select **Run as administrator**.
 - Alternatively, enter **cmd** in the Start Menu search box and press **Shift+Ctrl+Enter**.
2. Run **scc.bat**.

Launching Sybase Control Center

Use the **scc** command to start Sybase Control Center.

Prerequisites

Install Adobe Flash Player in the browser you will use for Sybase Control Center.

Task

1. Start Sybase Control Center.
 - Windows – navigate to `<install_location>\SCC-3_2\bin` and double-click **scc.bat**.
 - UNIX – execute **scc.sh**.

Messages on the progress of the launch appear in a command window. When Sybase Control Center is running, the command window becomes the Sybase Control Center console; you can issue commands to get status information on SCC and its ports, plug-ins, and services.

2. Open a Web browser and enter `https://<hostname>:8283/scc`.

Getting Started After Installing

Perform postinstallation testing and configuration.

Prerequisites

Start Sybase Control Center.

Task

1. Install Adobe Flash Player 10.1 or later in the Web browser you will use to connect to Sybase Control Center.

Flash Player is a free plug-in. You can download the latest version from <http://get.adobe.com/flashplayer/>.

If Flash Player is already installed but you are not sure which version you have, go to the Adobe test site at <http://adobe.com/shockwave/welcome>. Click the link that says **Test your Adobe Flash Player installation**. The version information box on the next page that appears displays your Flash Player version.

2. To connect to Sybase Control Center, direct your browser to:

`https://<scc_server_hostname>:8283/scc`

Note: If you changed the default HTTPS port during installation, use the new port number instead of 8283.

3. If you see an error about the security certificate, add Sybase Control Center to your browser's trusted sites zone (Internet Explorer) or add a security exception (Firefox).
4. Log in. Sybase Control Center has two default login accounts:
 - sccadmin – for initial configuration and setting up permanent authentication.
 - sccuser – for testing.

Neither of these accounts requires a password.

Note: The sccadmin and sccuser accounts and the simple login module on which they are based are not intended for use in a production environment. Sybase recommends that you pass authentication responsibility to your operating system or to LDAP, as described in the *Sybase Control Center > Get Started > Setting Up Security* section of the online help.

Sybase further recommends that you disable sccadmin and sccuser as soon as you have set up and tested authentication, and that you set passwords on the accounts if you do not plan to set up and test authentication right away.

5. (Optional) Configure passwords or disable sccadmin and sccuser—see the *Sybase Control Center Installation Guide* for instructions.

Registering a Data Assurance Server

Register a resource (for example, a server that can be monitored) to make Sybase Control Center aware of it and its connection information.

1. In the Resource Explorer, select **Resources > Register**.
2. Specify:

Field	Description
Resource Name	(Required) Name of the resource to register. Enter the actual name of the server, using uppercase and lowercase letters. If the name registered in Sybase Control Center does not exactly match the server name, some monitoring functions, including the topology view, do not work.
Resource Type	Select a resource type: <ul style="list-style-type: none">• Data Assurance Server – monitor Data Assurance server.
Description	A brief description to help you identify the resource.

3. Click **Next**.
4. Specify the connection information for your resource:

Field	Description
Host Name	Local host name
Port Number	Local host port number

5. Click **Next**.
6. (Optional) Click **Add this resource to the current perspective**. You must add a resource to a perspective (not necessarily the current perspective) before you can manage or monitor it.
7. (Optional) Click **Open the resource explorer to view this new resource**. (This option is not present when the Resource Explorer is open.)
8. Click **Finish**.

Authenticating a Login Account for a Managed Resource

Specify the login account Sybase Control Center will use when it connects to your server or agent to collect monitoring data or manage the resource.

Perform this task for each resource registered with Sybase Control Center.

Note: You can also authenticate a server during administrative tasks like creating an alert or a collection job.

1. Connect a browser to Sybase Control Center and log in.

2. If the Perspective Resources view is not open, click the **Show/Hide Perspective Resources View** icon in the toolbar.
3. In the Perspective Resources view, select your resource and select **Resource > Authenticate** from the view menu.
4. Select **Use my current SCC login** or **Specify different credentials**.
5. If you chose **Specify different credentials**, enter the login and password for Sybase Control Center to use to connect to your resource.
6. If the selected server is a Replication Server, also enter the RSSD user name and password.
7. Click **OK** to save and exit the dialog.

Displaying Resource Availability

Use the heat chart to view availability information on the servers in the current perspective.

1. From the application menu bar, select **View > Open > Heat Chart**.
2. (Optional) To display tools for filtering (narrowing the list of resources in the heat chart) or changing the columns, select **View > Filter** from the Perspective Heat Chart menu bar. The Filter and Column tools appear in the left pane.
3. (Optional) To use filtering, select **View > Filter** from the view's menu bar and enter a search term in the **Filter string** field.
The search term can be any string that appears in the tabular portion of the heat chart, such as the name, or part of the name, of a server or a resource type (ASE Server, for example).
4. (Optional) Select a filtering setting:
 - **Match case** – search for resources whose displayed data includes the search term, including uppercase and lowercase letters; or
 - **Exact match** – search for resources whose displayed data includes an item identical to the search term.
5. (Optional) Select a column from the **Filter on** list to restrict your search to that column.
6. (Optional) Click **Columns** to customize your heat chart.
7. (Optional) Unselect any column that should not appear in your heat chart.
8. (Optional) Click the sorting arrow in the column headers to sort the column values in either ascending or descending order.
9. (Optional) Click the resource's row and pull down the menu to the right of the resource name to view options for the selected resource.
10. (Optional) To resize the Filter and Columns tools pane, move your mouse over the border between the tools pane and the resource table. When the mouse cursor changes to a resize icon, click and drag the border to the left or the right.
11. (Optional) To hide the Filter and Columns tools, unselect **View > Filter**.

Viewing Data Assurance Server and Agent Status

The Data Assurance (DA) monitor shows high-level server and agent information.

Prerequisites

- Register and add the server to be monitored to the Perspective Resources view.
- Authenticate the server.

Task

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Monitor**.

Note: You can also view the server status through the status badges on the server icons in the Perspective Resources, Heat Chart, Resource Explorer, and topology views.

Get Started in a Production Environment

Perform a complete set-up of Sybase Control Center, including configuration of user authentication and other one-time set-up tasks.

Prerequisites

Install Sybase Control Center and complete the follow-up tasks described in the *Sybase Control Center Installation Guide*.

1. *Starting and Stopping Sybase Control Center in Windows*

There are several ways to start and stop Sybase Control Center or the SCC agent. You can start manually, which is useful for testing and troubleshooting, or set the service to start automatically and to restart in case of failure.

2. *Starting and Stopping Sybase Control Center in UNIX*

You can start Sybase Control Center or the SCC agent manually, which is useful for testing and troubleshooting, or you can set up a service to start automatically and to restart in case of failure.

3. *Configuring Memory Usage*

(Optional) Determine whether you need to configure how much memory Sybase Control Center uses, and if so which configuration method to use.

4. *Logging in to Sybase Control Center*

Enter the Sybase Control Center Web console.

5. *Setting Up Security*

Configure login authentication and map roles.

6. *Configuring the Automatic Logout Timer*

(Optional) Set Sybase Control Center to end login sessions when users are inactive for too long.

7. *User Authorization*

The authorization mechanism in Sybase Control Center employs login accounts and task-based roles.

8. *Configure*

Configure Sybase Control Center for Replication Server Data Assurance Option.

Starting and Stopping Sybase Control Center in Windows

There are several ways to start and stop Sybase Control Center or the SCC agent. You can start manually, which is useful for testing and troubleshooting, or set the service to start automatically and to restart in case of failure.

This topic applies to both Sybase Control Center (the server) and the Sybase Control Center agent that runs on each product server managed by SCC. It applies to both singleton installations and instances of SCC agents and servers running from a shared disk.

If you run Sybase Control Center or the SCC agent manually, you must issue a command every time you start or shut down. If you run as a service (which is recommended), you can configure the service to start and restart automatically. These are the options:

- Use the **scc.bat** command to start Sybase Control Center or the SCC agent manually. The command gives you access to the Sybase Control Center console, which you can use to shut down and to display information about services, ports, system properties, and environment variables. You can also use **scc.bat** to change the logging level for troubleshooting purposes. Using **scc.bat** prevents you from taking advantage of the automatic start and restart features available to services.
- Use the Services list under the Windows Control Panel to start, stop, and configure the Sybase Control Center service for an SCC server or agent.
- Use the **net start** and **net stop** commands. This is another way to run Sybase Control Center or the SCC agent as a service.

Note: To start an SCC agent or server as a service:

- In a singleton installation, you must have selected **Yes** in the installer to install the agent or server as a service.
 - In a shared disk installation, the agent or server must have been deployed using the **-service** option of the **sccinstance** command.
-

In a singleton installation, the installer lets you start Sybase Control Center or the SCC agent as a service and configures the service to restart automatically. Before starting, check the Windows Services list for a Sybase Control Center service.

Here are the steps for each starting and stopping option:

- **Start Sybase Control Center or the SCC agent:**

- a) (Skip this step for the SCC agent.) If you are starting Sybase Control Center for the first time in Windows Vista, Windows 2008, or Windows 7, set the **Run as Administrator** option on the command prompt so that Sybase Control Center can register its ODBC driver. (This is necessary even if you are logged in as an administrator.)

- b) Enter the **scc** command.

For a singleton installation:

```
%SYBASE%\SCC-3_2\bin\scc.bat
```

For an instance:

```
%SYBASE%\SCC-3_2\bin\scc.bat -instance <instance-name>
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

- **Stop Sybase Control Center or the SCC agent:**

- a) Enter the **scc --stop** command.

For a singleton installation:

```
%SYBASE%\SCC-3_2\bin\scc.bat --stop
```

For an instance:

```
%SYBASE%\SCC-3_2\bin\scc.bat --stop -instance <instance-name>
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

Note: You can also enter **shutdown** at the `scc-console>` prompt.

- **Start or stop from the Windows Control Panel; configure automatic start and restart:**

- a) Open the Windows Control Panel.
- b) Select **Administrative Tools > Services**.
- c) Locate "Sybase Control Center" in the Services list. It may be followed by a release number; if the service is for an instance, it is also followed by the instance name. Service names do not distinguish between agents and servers. If the service is running, the Status column displays "Started."
- d) To start or stop the service, right-click the **Sybase Control Center** entry in the Services list and choose **Start** or **Stop**.
- e) To configure automatic starting, double-click the service.

- f) To set the service to automatically start when the machine starts, change the **Startup type** to Automatic.
- g) To restart the service in case of failure, choose the **Recovery** tab and change the First, Second, and Subsequent failures to Restart Service.
- h) Click **Apply** to save the modifications and close the dialog.
- **Start or stop the Sybase Control Center service (controlling either Sybase Control Center or the SCC agent) from the Windows command line:**
 - a) To start the service, enter the **net start** command.

For a singleton installation:

```
net start "sybase control center 3.2.4"
```

```
The Sybase Control Center 3.2.4 service is starting.....
The Sybase Control Center 3.2.4 service was started
successfully.
```

For an instance, include the instance name in parentheses:

```
net start "sybase control center 3.2.4 (Boston-1)"
```

```
The Sybase Control Center 3.2.4 (Boston-1) service is
starting.....
The Sybase Control Center 3.2.4 (Boston-1) service was
started successfully.
```

- b) To stop the service, enter the **net stop** command.

For a singleton installation:

```
net stop "sybase control center 3.2.4"
```

```
The Sybase Control Center 3.2.4 service is stopping.....
The Sybase Control Center 3.2.4 service was stopped
successfully.
```

For an instance, include the instance name in parentheses:

```
net stop "sybase control center 3.2.4 (Boston-1)"
```

```
The Sybase Control Center 3.2.4 (Boston-1) service is
stopping.....
The Sybase Control Center 3.2.4 (Boston-1) service was
stopped successfully.
```

Starting and Stopping Sybase Control Center in UNIX

You can start Sybase Control Center or the SCC agent manually, which is useful for testing and troubleshooting, or you can set up a service to start automatically and to restart in case of failure.

This topic applies to both Sybase Control Center (the server) and the Sybase Control Center agent that runs on each product server managed by SCC. It applies to both singleton installations and instances of SCC agents and servers running from a shared disk.

If you start Sybase Control Center or the SCC agent manually, you must issue a command every time you start or shut down. If you run as a service (which is recommended), you can configure the service to start and restart automatically. These are the options:

- Use the **scc.sh** script to start Sybase Control Center or the SCC agent manually. You can either:
 - Run **scc.sh** in the foreground to get access to the Sybase Control Center console, which you can use to shut down and to display information about services, ports, system properties, and environment variables.
 - Run **scc.sh** in the background to suppress the console.

You can use **scc.sh** to run Sybase Control Center at a nondefault logging level for troubleshooting. When you start manually with **scc.sh**, you cannot take advantage of the automatic start and restart features available to services.

- Use the **sccd** script to configure a service that starts Sybase Control Center or the SCC agent automatically.

Here are the steps for each starting and stopping option:

- **Before you start Sybase Control Center or the SCC agent for the first time, set environment variables.** Do this only once.
 - a) Change to the Sybase directory (the parent of the Sybase Control Center installation directory).
 - b) Execute one of the following to set environment variables.

Bourne shell:

```
. SYBASE.sh
```

C shell:

```
source SYBASE.csh
```

- **Run Sybase Control Center or the SCC agent in the foreground.**

Running in the foreground is a method of manually starting; you must issue commands to stop and restart Sybase Control Center or the SCC agent.

- a) To start Sybase Control Center or the SCC agent and drop into the console when the start-up sequence is finished, enter the **scc** command.

For a singleton installation:


```
$SYBASE/SCC-3_2/bin/scc.sh
```

For an instance:

```
$SYBASE/SCC-3_2/bin/scc.sh -instance <instance-name>
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

- **Run Sybase Control Center or the SCC agent in the background.**

You can use **nohup**, **&**, and **>** to run Sybase Control Center or the SCC agent in the background, redirect output and system error to a file, and suppress the SCC console. Running in the background is a method of manually starting; you must issue commands to stop and restart Sybase Control Center or the SCC agent.

- a) Execute a command similar to the sample below that matches your shell. Both sample commands direct output to the file `scc-console.out`. If the output file already exists, you might need to use additional shell operators to append to or truncate the file.

Bourne shell (sh) or Bash

For a singleton installation:

```
nohup ./scc.sh 2>&1 > scc-console.out &
```

For an instance:

```
nohup ./scc.sh -instance <instance-name> 2>&1 > scc-console-  
your-instance.out &
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

C shell

For a singleton installation:

```
nohup ./scc.sh >& scc-console.out &
```

For an instance:

```
nohup ./scc.sh -instance <instance-name> >& scc-console.out &
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

- **Shut down Sybase Control Center or the SCC agent.**

- a) To shut down from the `scc-console>` prompt, enter:

```
shutdown
```

Warning! Do not enter **shutdown** at a UNIX prompt; it shuts down the operating system.

To shut down from the UNIX command line, enter the **scc --stop** command.

For a singleton installation:

```
$SYBASE/SCC-3_2/bin/scc.sh --stop
```

For an instance:

```
$SYBASE/SCC-3_2/bin/scc.sh --stop -instance <instance-name>
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

- **Configure Sybase Control Center or the SCC agent to run as a service.**

A UNIX service is a daemon process that starts automatically after the machine is started and runs in the background. UNIX installations of Sybase Control Center include a shell script, **sccd**, which you can use to configure the Sybase Control Center service. (Some UNIX platforms supply tools that make service configuration easier; Linux **chkconfig** is an example.)

Note: Sybase recommends that if you are not familiar with setting up services in UNIX, you delegate this task to a system administrator or consult the system administration documentation for your UNIX platform.

a) Copy `$SYBASE/SCC-3_2/bin/sccd` into this directory:

- AIX (SCC agent only): `/etc/rc.d/init.d`
- HP-UX (SCC agent only): `/sbin/init.d`
- All other platforms: `/etc/init.d`

b) Open `sccd` and make these changes:

- Change the line that sets the SYBASE variable to the location of your Sybase installation (that is, the parent of `SCC-3_2`, the Sybase Control Center installation directory). By default, this directory is called `Sybase`.
- If you are not using shared-disk mode, or you are using shared-disk mode to run a single instance whose name is the same as the host name, skip to step *5.c* on page 21 or step *5.d* on page 21.
- If you are using shared-disk mode to run a single instance whose name is not the host name, or to run multiple instances on the same host, add the instance name to the script name. Change:

```
SCRIPT_NAME=scc.sh
```

to:

```
SCRIPT_NAME="scc.sh -instance <instance-name>"
```

- If you are using shared-disk mode to run multiple instances on the same host, append the instance name to the name of the output log file. Change:

```
./${SCRIPT_NAME} --start 2>&1 >> ${SCC_HOME}/log/scc-service.out &
```

to:

```
./${SCRIPT_NAME} --start 2>&1 >> ${SCC_HOME}/log/scc-service_<instance-name>.out &
```

- If you are using shared-disk mode to run multiple instances on the same host, save a copy of the `sccd` script for each instance, giving each copy a unique name. In each

copy, add the instance name to the script name and append the instance name to the output log file name as described above. Perform the remaining steps in this procedure for each copy of `sccd`.

- c) In Linux, configure the service to run in run levels 2, 3, 4, and 5:

```
/usr/sbin/chkconfig --add sccd
/usr/sbin/chkconfig --level 2345 sccd
```

You can test the `sccd` script with `/usr/sbin/service sccd status`. (The **service** command accepts these options: **start** | **stop** | **status** | restart.)

- d) On non-Linux platforms, locate this directory:

- AIX (SCC agent only): `/etc/rc.d/rc<X>.d`
- HP-UX (SCC agent only): `/sbin/rc<X>.d`
- Solaris: `/etc/rc<X>.d`

where `<X>` is the run level (for example, 3). Make two soft links in the directory for your platform and set the links to point to:

- AIX (SCC agent only):
`/etc/rc.d/init.d/sccd: S90sccd and`
`/etc/rc.d/init.d/sccd: K10sccd`
- HP-UX (SCC agent only):
`/sbin/init.d/sccd: S90sccd and`
`/sbin/init.d/sccd: K10sccd`
- Solaris:
`/etc/init.d/sccd: S90sccd and`
`/etc/init.d/sccd: K10sccd`

The `S90sccd` link starts the service and the `K10sccd` link stops the service. The two-digit numbers in the links indicate the start and stop priorities of the service.

- e) Use the `S90sccd` and `K10sccd` links to test starting and stopping the service. The links are called automatically when the machine is started or shut down.

Configuring Memory Usage

(Optional) Determine whether you need to configure how much memory Sybase Control Center uses, and if so which configuration method to use.

It is not usually necessary to configure memory usage for Sybase Control Center. This table lists memory options you can set and circumstances under which you should consider changing them.

Modify this value	When	Guidelines
<p>Maximum memory</p> <ul style="list-style-type: none"> • <code>jvmopt=-Xmx</code> – if you are running SCC as a Windows service • <code>SCC_MEM_MAX</code> – if you are running SCC as a UNIX service • <code>SCC_MEM_MAX</code> – if you are starting SCC from the command line 	<ul style="list-style-type: none"> • You need to prevent Sybase Control Center from using more than a given amount of memory • SCC fails to start and may display an error: Could not create the Java Virtual machine. • An OutOfMemory error says SCC is out of heap space • A warning message about system memory appears during the start process • The machine where SCC is installed has less than 2GB of memory. (Starting SCC on a machine with less than 2GB of memory triggers the startup warning message about system memory.) 	<p>On machines with less than 2GB of memory, set maximum memory to 256MB or more.</p> <p>Default value: none. (On machines with 2GB or more of memory, maximum memory is set dynamically and is effectively limited only by the amount of system memory available.)</p>
<p>Permanent memory</p> <ul style="list-style-type: none"> • <code>jvmopt=-XX:MaxPermSize</code> – if you are running SCC as a Windows service • <code>SCC_MEM_PERM</code> – if you are running SCC as a UNIX service • <code>SCC_MEM_PERM</code> – if you are starting SCC from the command line 	<p>An OutOfMemory error says SCC is out of permanent generation space</p>	<p>Increase by 32MB increments. If you reach a value equal to twice the default and still see the OutOfMemory error, contact Sybase technical support.</p> <p>Default value: 128MB</p>

You can change memory options in two ways:

- For Sybase Control Center started from the command line – execute commands to set one or more environment variables before executing the **scc** command to start Sybase Control Center. When you use this method, your changes to the memory options last only as long as the current login session. This method is useful for testing new option values.

- For the Sybase Control Center service – modify a file used by the SCC service. When you use this method, your changes to the memory options persist—Sybase Control Center uses them every time it starts as a service.

See also

- *Logging in to Sybase Control Center* on page 24

Changing a Memory Option on the Command Line

Before you start Sybase Control Center from the command line, you can issue a command to change the value of a memory option temporarily.

Changes made using this method last only as long as the current login session. This method is useful for testing new option values.

1. If Sybase Control Center is running, shut it down.
2. Set the environment variable. Specify a size in megabytes but do not indicate the units in the command.

Windows example:

```
> set SCC_MEM_MAX=512
```

UNIX example:

```
bash$ export SCC_MEM_MAX=512
```

3. Use the **scc** command to start Sybase Control Center.

See also

- *Changing a Memory Option for an SCC Windows Service* on page 23
- *Changing a Memory Option for an SCC UNIX Service* on page 24

Changing a Memory Option for an SCC Windows Service

Add a **jvmopt** command to the `scc.properties` file to change a memory option (`-Xmx` or `-XX:MaxPermSize`) for a Sybase Control Center Windows service.

When you use this method to set memory options, your changes are permanent—Sybase Control Center uses them every time it starts as a service.

1. If Sybase Control Center is running, shut it down.
2. Open the SCC properties file:

```
<SCC-install-directory>\SCC-3_2\bin\scc.properties
```
3. Add (or modify, if it already exists) a **jvmopt** line specifying the memory size in Java format. Use `m` for megabytes or `g` for gigabytes.

For example:

```
jvmopt=-Xmx512m
```

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4. Save the file and start the Sybase Control Center Windows service.

See also

- *Changing a Memory Option on the Command Line* on page 23
- *Changing a Memory Option for an SCC UNIX Service* on page 24

Changing a Memory Option for an SCC UNIX Service

To change a memory setting for a Sybase Control Center UNIX service, add the appropriate environment variable (*SCC_MEM_MAX* or *SCC_MEM_PERM*) to the sccd script.

When you use this method to set memory options, your changes are permanent—Sybase Control Center uses them every time it starts as a service.

1. If Sybase Control Center is running, shut it down.
2. Open the sccd file: `/etc/init.d/sccd`
3. Add the environment variable at the top of the file (after the comments). Specify a size in megabytes but do not indicate the units in the command.

For example:

```
SCC_MEM_MAX=512
```

4. Save the file and start the Sybase Control Center UNIX service.

See also

- *Changing a Memory Option on the Command Line* on page 23
- *Changing a Memory Option for an SCC Windows Service* on page 23

Logging in to Sybase Control Center

Enter the Sybase Control Center Web console.

Prerequisites

Install Adobe Flash Player in the browser you will use for SCC. See the *Sybase Control Center Installation Guide*.

Task

Sybase Control Center typically authenticates users through the operating system or an LDAP directory service. Consult your SCC administrator if you are not sure which login account to use for SCC.

Note: When logging in to a newly installed Sybase Control Center for which secure authentication has not been configured, use the sccadmin account (with no password, by default). For more information, see the *Sybase Control Center Installation Guide*.

1. Connect to the Sybase Control Center server. In your Web browser, enter: `https://scc-hostname:8283/scc`.
2. Enter your user name and password, and click **Login**.

Tip: If you use a Windows account to log in to SCC, enter your user name in the format `username@domain`. Omit top-level domain extensions such as `.com` or `.net`—for example, enter `fred@sybase`, not `fred@sybase.com`.

See also

- *Configuring Memory Usage* on page 21

Setting Up Security

Configure login authentication and map roles.

Read about security and follow these procedures before you configure Sybase Control Center product modules.

Note: These security topics are intended for use in a production environment. If you are evaluating or testing SCC, see the *Installation Guide* for instructions on getting started quickly.

1. *Security*

Sybase Control Center can authenticate user logins through an LDAP server, through the operating system, or both.

2. *Configuring Authentication for Windows*

Authentication through the Windows operating system is enabled by default, but it requires some configuration. First, set Sybase Control Center to create an account when a Windows user logs in to Sybase Control Center.

3. *Configuring a Pluggable Authentication Module (PAM) for UNIX*

Set up Sybase Control Center to support username and password login using accounts on the UNIX operating system. Optionally, have Sybase Control Center create an account when a UNIX user first logs in to Sybase Control Center.

4. *Configuring an LDAP Authentication Module*

Configure an LDAP authentication module for Sybase Control Center by editing the security properties file to point to the correct LDAP server.

5. *Mapping Sybase Control Center Roles to LDAP or OS Groups*

To grant Sybase Control Center privileges to users who are authenticated through LDAP or the operating system, associate roles used in Sybase Control Center with groups in LDAP or the operating system.

6. *Encrypting a Password*

Use the `passencrypt` utility to encrypt passwords and other values that must be kept secure while stored in text files.

7. *Configuring Ports*

(Optional) Use the `scc --port` command to assign Sybase Control Center services to new ports.

See also

- *Configuring the Automatic Logout Timer* on page 42

Security

Sybase Control Center can authenticate user logins through an LDAP server, through the operating system, or both.

- Sybase Control Center can be configured to authenticate through any LDAP server that supports the `inetOrgPerson` (RFC 2798) schema.
- When Sybase Control Center authenticates through the operating system, it uses the operating system of the Sybase Control Center server machine (not the client).

Although you can create native user accounts in Sybase Control Center, Sybase does not recommend this approach to authentication. It is simpler and safer to configure Sybase Control Center to authenticate using existing LDAP, Windows, or UNIX login accounts.

Sybase strongly recommends that you use a common authentication provider for all Sybase products, including Sybase Control Center. A common authentication provider ensures that single sign-on works for users of Sybase Control Center and its managed servers.

Sybase Control Center requires each authenticated login account to have a predefined role. When a login is authenticated, roles for the login are retrieved by the security module and are mapped to Sybase Control Center predefined roles. Authorization is resolved through the mappings between the security module native roles and Sybase Control Center roles. You can enable mappings by creating a "sybase" group in your operating system or LDAP server and adding all Sybase Control Center users, or by modifying the Sybase Control Center `roles-map.xml` file to configure the mapping of native roles to Sybase Control Center roles. The security module authenticates the logins and authorizes access to managed resources.

Sybase Control Center provides a set of predefined login modules for authentication. All login modules are defined in the `<install_location>/SCC-3_2/conf/csi.properties` file. The syntax is defined by the Sybase Common Security Infrastructure (CSI) framework. You can configure the different login modules to customize security strength. The login modules are:

- **Simple Login** – defines a user name, password, and a list of roles. The default user name is "sccadmin" with a blank password and a native role of "sccAdminRole". You can create additional accounts by adding simple login modules to `csi.properties`. However, Sybase does not recommend the use of simple login modules for authentication in production environments.

Note: Add a password for the sccadmin account as soon as possible after you install Sybase Control Center. See the *Sybase Control Center Installation Guide* for instructions.

- NT Proxy Login – delegates authentication to the underlying Windows operating system. When you log in to Sybase Control Center through an NT Proxy Login module, enter your user name in the format *username@nt-domain-name*. For example, *user@sybase*. Windows authentication is enabled by default, but it requires some configuration.
- UNIX Proxy Login – delegates authentication to the underlying UNIX or Linux operating system using Pluggable Authentication Modules (PAM). When you log in to Sybase Control Center through a UNIX PAM, enter your UNIX user name and password. UNIX authentication is enabled by default, but it requires some configuration.
- LDAP Login – delegates authentication to an LDAP server you specify. When you log in to Sybase Control Center through an LDAP server, enter your LDAP user name and password. LDAP authentication is not enabled by default; you must configure the login module.

Configuring Authentication for Windows

Authentication through the Windows operating system is enabled by default, but it requires some configuration. First, set Sybase Control Center to create an account when a Windows user logs in to Sybase Control Center.

This task is optional. However, if you choose not to create Sybase Control Center accounts automatically as described here, you must enter them manually. Sybase Control Center needs the accounts for purposes of setting authorization (user privileges).

1. Log in to Sybase Control Center using an account with administrative privileges. (The login account or its group must have `sccAdminRole`.)
2. Select **Application > Administration > Security**.
3. Check the box labeled **Automatically add SCC login records for authenticated logins**.
4. Check the box labeled **Automatically grant sccUserRole to newly created logins**.
5. Click **OK** to close the Security dialog.

Next

There are two next steps:

- If you opted not to automatically create Sybase Control Center login accounts, enter each account into Sybase Control Center manually.
- Whether you add accounts automatically or manually, you must grant privileges to any login accounts that require more than basic user access. You can grant privileges by assigning Sybase Control Center roles directly to the login accounts, or by assigning the login accounts to groups and mapping Sybase Control Center roles to the groups. The group approach is generally more efficient.

Configuring a Pluggable Authentication Module (PAM) for UNIX

Set up Sybase Control Center to support username and password login using accounts on the UNIX operating system. Optionally, have Sybase Control Center create an account when a UNIX user first logs in to Sybase Control Center.

1. Using a login account with root privileges, configure the pluggable authentication module for your platform:

Platform	Action
Solaris	Append the contents of the <SCC-install-dir>/utility/sunos/pam.conf file (provided with Sybase Control Center) to the /etc/pam.conf file on your Solaris platform.
Linux	Copy the <SCC-install-dir>/utility/linux/sybase-ua file (provided with Sybase Control Center) to the /etc/pam.d directory on your Linux platform. Note: The sybase-ua file provided with Sybase Control Center is not compatible with the most recent SUSE Linux versions. For SUSE 11 and later, see the example at the end of this topic.

Note: In the table above, the portion of the path that indicates the operating system might differ slightly from what is shown.

2. If the host UNIX system is not using a directory lookup for authentication (yp or NIS, for example) and authentication is carried out against the local /etc/passwd file, change the permissions on /etc/shadow to provide read access to the login account that executes SCC.
3. (Skip if you configured a PAM before starting Sybase Control Center) Restart Sybase Control Center.
4. (Optional) If you want Sybase Control Center to create an account when a UNIX user logs in to Sybase Control Center, execute these steps. If you choose not to create Sybase Control Center accounts automatically, you must enter them manually. Sybase Control Center needs the accounts for purposes of setting authorization (user privileges).
 - a) Log in to Sybase Control Center using an account with administrative privileges (scAdminRole).
 - b) Select **Application > Administration > Security**.
 - c) Check the box labeled **Automatically add SCC login records for authenticated logins**.
 - d) Click **OK** to close the Security dialog.

Example: PAM for SUSE Linux 11 and later

For SUSE 11 and later, do not use the sybase-ua file provided with Sybase Control Center. Instead, in your /etc/pam.d directory, create a sybase-ua file that contains:

```
# sybase-ua PAM Configuration (SUSE style)
auth        include      common-auth
account     include      common-account
password    include      common-password
session     include      common-session
```

Next

There are two next steps:

- If you opted not to automatically create Sybase Control Center login accounts, enter each account into Sybase Control Center manually.
- Whether you add accounts automatically or manually, you must also grant privileges to the login accounts. You can grant privileges by assigning Sybase Control Center roles directly to the login accounts, or by assigning the login accounts to groups and mapping Sybase Control Center roles to the groups. The group approach is generally more efficient.

Configuring an LDAP Authentication Module

Configure an LDAP authentication module for Sybase Control Center by editing the security properties file to point to the correct LDAP server.

1. Open the <SCC-install-dir>\conf\csi.properties file.
2. Uncomment the LDAP module in the properties file by removing the # symbol at the beginning of each line (or, if necessary, add an LDAP module to the file). The sample module below specifies the LDAP server that will provide user authentication.

The sample module shows the properties used for an OpenDS LDAP server. See the example at the end for values that work for ActiveDirectory. Configuration properties you can use in the LDAP module are described in a subtopic.

Each line of the LDAP server module of the properties file must begin with "CSI.loginModule." followed by a module number. (The module number in this sample is 7.) The module number you assign must be unique in the properties file, and you must use the same module number in every line of the module.

```
CSI.loginModule.
7.options.AuthenticationSearchBase=ou=users,dc=example,dc=com
CSI.loginModule.7.options.BindDN=cn=Directory Manager
CSI.loginModule.7.options.BindPassword=secret
CSI.loginModule.7.options.DefaultSearchBase=dc=example,dc=com
CSI.loginModule.7.options.ProviderURL=ldap://localhost:10389
CSI.loginModule.
7.options.RoleSearchBase=ou=groups,dc=example,dc=com
CSI.loginModule.7.options.ServerType=openldap
CSI.loginModule.7.options.moduleName=LDAP Login Module
CSI.loginModule.7.controlFlag=sufficient
CSI.loginModule.
7.provider=com.sybase.ua.services.security.ldap.LDAPLoginModule
```

Note: Change the values of bolded lines only.

Get Started

3. Save the file.
4. If your LDAP server's SSL certificate is signed by a nonstandard certificate authority (for example, if it is a self-signed certificate), use the **keytool** utility to configure your JVM or JDK to trust the certificate. Execute a command similar to this:

```
keytool -import -keystore <sybase-dir>/shared/JRE-6_0_6/bin/  
keytool/lib/security/cacerts -file  
<your cert file and path> -alias ldapcert -storepass changeit
```

LDAP configuration values for ActiveDirectory

For an ActiveDirectory server, use these values for configuration properties in your LDAP login module:

```
ServerType: msad2k  
DefaultSearchBase: dc=<domainname>,dc=<tld> or o=<company  
name>,c=<country code>  
    E.g. dc=sybase,dc=com or o=Sybase,c=us  
ProviderUrl: ldaps://<hostname>:<port>  
    E.g.: ldaps://myserver:636  
AuthenticationFilter: (&(userPrincipalName={uid})  
(objectclass=user))  
BindDN: <User with read capability for all users>  
BindPassword: <Password for BindDN user>  
RoleFilter: (|(objectclass=groupofnames) (objectclass=group))  
controlFlag: sufficient
```

Next

There are two additional steps:

- Set up roles and passwords for LDAP
- Map Sybase Control Center role to LDAP groups

See also

- *Mapping Sybase Control Center Roles to LDAP or OS Groups* on page 38

Setting Up Roles and Passwords

Set the initial user roles and passwords required for Sybase Control Center to authenticate through an LDAP server.

Prerequisites

Configure an LDAP authentication module.

Task

1. Open the <SCC-install-dir>\conf\roles-map.xml file and add an LDAP login module.

Insert an LDAP login module similar to this at the end of the security-modules portion of the file, just before `</security-modules>`:

```
<module name="LDAP Login Module">
  <role-mapping modRole="sybase"
    uafRole="uaAnonymous,uaPluginAdmin,sccUserRole" />
  <role-mapping modRole="administrators"
    uafRole="uaAnonymous,sccAdminRole" />
</module>
```

2. Ensure that the roles defined in the LDAP repository match the roles defined in `roles-map.xml`.
3. In the `<SCC-install-dir>\conf\csi.properties` file, set the `BindPassword` and `ProviderURL` properties with values used in your deployment.
Sybase recommends that you encrypt sensitive values before saving them in `csi.properties`.

Next

Map Sybase Control Center roles to LDAP groups.

See also

- *LDAP Configuration Properties* on page 32

LDAP Configuration Properties

Use these properties in your `csi.properties` file to control your LDAP service.

Property	Default Value	Description
ServerType	None	<p>Optional. The type of LDAP server you are connecting to:</p> <ul style="list-style-type: none"> • <code>sunone5</code> -- SunOne 5.x OR iPlanet 5.x • <code>msad2k</code> -- Microsoft ActiveDirectory, Windows 2000 • <code>nsds4</code> -- Netscape Directory Server 4.x • <code>openldap</code> -- OpenLDAP Directory Server 2.x <p>The value you choose establishes default values for these other authentication properties:</p> <ul style="list-style-type: none"> • <code>RoleFilter</code> • <code>UserRoleMembership</code> • <code>RoleMemberAttributes</code> • <code>AuthenticationFilter</code> • <code>DigestMD5Authentication</code> • <code>UseUserAccountControl</code>
ProviderURL	<code>ldap://localhost:389</code>	<p>The URL used to connect to the LDAP server. Use the default value if the server is:</p> <ul style="list-style-type: none"> • Located on the same machine as your product that is enabled with the common security infrastructure. • Configured to use the default port (389). <p>Otherwise, use this syntax for setting the value:</p> <p><code>ldap://<hostname>:<port></code></p>

Property	Default Value	Description
DefaultSearchBase	None	<p>The LDAP search base that is used if no other search base is specified for authentication, roles, attribution and self registration:</p> <ol style="list-style-type: none"> 1. <code>dc=<domainname>,dc=<tld></code> For example, a machine in sybase.com domain would have a search base of <code>dc=sybase,dc=com</code>. 2. <code>o=<company name>,c=<country code></code> For example, this might be <code>o=Sybase,c=us</code> for a machine within the Sybase organization.
SecurityProtocol	None	<p>The protocol to be used when connecting to the LDAP server.</p> <p>To use an encrypted protocol, use "ssl" instead "ldaps" in the url.</p> <hr/> <p>Note: ActiveDirectory requires the SSL protocol when setting the value for the password attribute. This occurs when creating a user or updating the password of an existing user.</p> <hr/>
AuthenticationMethod	simple	<p>The authentication method to use for all authentication requests into LDAP. Legal values are generally the same as those of the <code>java.naming.security.authentication</code> JNDI property. Choose one of:</p> <ul style="list-style-type: none"> • simple — For clear-text password authentication. • DIGEST-MD5 — For more secure hashed password authentication. This method requires that the server use plain text password storage and only works with JRE 1.4 or later.

Property	Default Value	Description
AuthenticationFilter	<p>For most LDAP servers: (&(uid={uid}) (object- class=person))</p> <p>or</p> <p>For Active Directory email lookups: (&(userPrinci- palName={uid}) (object- class=user)) [ActiveDirec- tory]</p> <p>For Active Directory Windows username lookups: (&(SAMAc- count- Name={uid}) (object- class=user))</p>	<p>The filter to use when looking up the user.</p> <p>When performing a username based lookup, this filter is used to determine the LDAP entry that matches the supplied username.</p> <p>The string "{uid}" in the filter is replaced with the supplied username.</p>
AuthenticationScope	onelevel	<p>The authentication search scope. The supported values for this are:</p> <ul style="list-style-type: none"> • onellevel • subtree <p>If you do not specify a value or if you specify an invalid value, the default value is used.</p>
AuthenticationSearchBase	none	<p>The search base used to authenticate users. If this value is not specified, the LDAP DefaultSearch-Base is used.</p>

Property	Default Value	Description
BindDN	none	<p>The user DN to bind against when building the initial LDAP connection.</p> <p>In many cases, this user may need read permissions on all user records. If you do not set a value, anonymous binding is used. Anonymous binding works on most servers without additional configuration.</p> <p>However, the LDAP attributer may also use this DN to create the users in the LDAP server. When the self-registration feature is used, this user may also need the requisite permissions to create a user record. This behavior can occur if you do not set <code>useUserCredentialsToBind</code> to <code>true</code>. In this case, the LDAP attributer uses this DN to update the user attributes.</p>
BindPassword	none	<p>BindPassword is the password for BindDN, which is used to authenticate any user. BindDN and BindPassword are used to separate the LDAP connection into units.</p> <p>The <code>AuthenticationMethod</code> property determines the bind method used for this initial connection.</p> <p>If you use an encrypted the password using the CSI encryption utility, append <code>.e</code> to the property name. For example:</p> <pre>CSI.loginModule.7.options. BindPassword.e=1-AAAAEgQQOLL+LpX JO8fO9T4SrQYRC9lRT1w5ePfdczQTDs P8iACk9mDAbm3F3p5a1wXWKK8+NdJuk nc7w2nw5aGJlyG3xQ==</pre>
RoleSearchBase	none	<p>The search base used to retrieve lists of roles. If this value is not specified, the LDAP <code>DefaultSearchBase</code> is used.</p>

Property	Default Value	Description
RoleFilter	<p>For SunONE/iPlanet: (&(object-class=ldapsu-bentry) (objectclass=nsroledefinition))</p> <p>For Netscape Directory Server: (object-class=groupof-names) (object-class=groupofuniquenames))</p> <p>For ActiveDirectory: (object-class=groupof-names) (object-class=group))</p>	<p>The role search filter. This filter should, when combined with the role search base and role scope, return a complete list of roles within the LDAP server. There are several default values depending on the chosen server type. If the server type is not chosen or this property is not initialized, no roles are available.</p>
RoleMemberAttributes	<p>For Netscape Directory Server: member,unique-member</p>	<p>The role's member attributes defines a comma-delimited list of attributes that roles may have that define a list of DN's of people who are in the role.</p> <p>These values are cross referenced with the active user to determine the user's role list. One example of the use of this property is when using LDAP groups as placeholders for roles. This property only has a default value when the Netscape server type is chosen.</p>
RoleNameAttribute	cn	<p>The attribute for retrieved roles that is the common name of the role. If this value is "dn" it is interpreted specially as the entire dn of the role as the role name.</p>
RoleScope	onelevel	<p>The role search scope. The supported values for this are:</p> <ul style="list-style-type: none"> • onelevel • subtree <p>If you do not specify a value or if you specify an invalid value, the default value is used.</p>

Property	Default Value	Description
UserRoleMembershipAttributes	For iPlanet/SunONE: nsRoleDN For ActiveDirectory: memberOf For all others: none	The user's role membership attributes property is used to define an attribute that a user has that contains the DN's of all of the roles as user is a member of. These comma-delimited values are then cross-referenced with the roles retrieved in the role search base and search filter to come up with a list of user's roles.
UserFreeformRoleMembershipAttributes	None	The "freeform" role membership attribute list. Users who have attributes in this comma-delimited list are automatically granted access to roles whose names are equal to the attribute value. For example, if the value of this property is "department" and user's LDAP record has the following values for the department attribute, { "sales", "consulting" }, then the user will be granted roles whose names are "sales" and "consulting".
Referral	ignore	The behavior when a referral is encountered. The valid values are those dictated by LdapContext, for example, "follow", "ignore", "throw".
DigestMD5AuthenticationFormat	DN For OpenLDAP: User-name	The DIGEST-MD5 bind authentication identity format.
UseUserAccountControlAttribute	For most LDAP servers: false For ActiveDirectory: true	The UserAccountControl attribute to be used for detecting disabled user accounts, account expirations, password expirations and so on. ActiveDirectory also uses this attribute to store the above information.
controlFlag	optional	Indicates whether authentication with this login module is sufficient to allow the user to log in, or whether the user must also be authenticated with another login module. Rarely set to anything other than "sufficient" for any login module. Note: controlFlag is a generic login module option rather than an LDAP configuration property.

See also

- *Setting Up Roles and Passwords* on page 30

Mapping Sybase Control Center Roles to LDAP or OS Groups

To grant Sybase Control Center privileges to users who are authenticated through LDAP or the operating system, associate roles used in Sybase Control Center with groups in LDAP or the operating system.

You can configure Sybase Control Center to enable users to authenticate through their local operating system or through an LDAP server. To make this type of authentication work, SCC roles must be mapped to groups that exist in the system providing authentication (LDAP or the operating system) or in the login module.

By default, SCC assumes there is a “sybase” group in the authenticating system and maps the LDAP or OS “sybase” group to SCC roles to provide basic privileges. The table lists additional default mappings of LDAP and OS groups to SCC roles.

Login Module	OS Group	Sybase Control Center Roles
UNIX Proxy	root	uaAnonymous, uaAgentAdmin, uaOSAdmin
	sybase	uaAnonymous, uaPluginAdmin, sccUserRole
	user	uaAnonymous, uaUser
	guest	uaAnonymous, uaGuest
NT Proxy	Administrators	uaAnonymous, uaAgentAdmin, uaOSAdmin
	sybase	uaAnonymous, uaPluginAdmin, sccUserRole
	Users	uaAnonymous, uaUser
	Guests	uaAnonymous, uaGuest
LDAP	sybase	uaAnonymous, uaPluginAdmin, sccUserRole

There are two ways to accomplish the mapping:

- (Recommended) Add a “sybase” group to the operating system or LDAP server Sybase Control Center is using to authenticate users, and add all users who need to access Sybase Control Center to the “sybase” group.
- Configure Sybase Control Center to use an existing group in LDAP or the operating system by editing the `roles-map.xml` file. This option is described here.

1. If Sybase Control Center is running, shut it down.
2. In a text editor, open:

```
<SCC-install-directory>/conf/roles-map.xml
```

3. Locate the appropriate login module: UNIX or NT (for Windows).

4. Copy the line that maps the “sybase” group and paste it into the module just above the original sybase line.
5. Change “sybase” to the name of the group in your operating system to which Sybase Control Center users belong.

For example, if the group is `SCCusers`, the new line should look like this:

```
<role-mapping modRole="SCCusers"
  uafRole="uaAnonymous,uaPluginAdmin,sccUserRole" />
```

6. Save the file and exit.
7. Start Sybase Control Center.

See also

- *Configuring an LDAP Authentication Module on page 29*

Encrypting a Password

Use the **passencrypt** utility to encrypt passwords and other values that must be kept secure while stored in text files.

You can safely store an encrypted password in a properties file. Enter the password in clear text (unencrypted) when you execute **passencrypt** and when you use the password to log in.

passencrypt, which is located in the Sybase Control Center bin directory, uses the DES encryption algorithm.

1. Open a command window and change to the bin directory:

Windows: `cd <SCC-install-directory>\bin`

UNIX: `cd <SCC-install-directory>/bin`

2. To encrypt a password, enter **passencrypt**. Enter your new password at the resulting prompt.
passencrypt encrypts the password you enter (which does not appear on the screen) and displays the password in encrypted form.
3. Copy the encrypted password.
4. Paste the encrypted password where needed.

Configuring Ports

(Optional) Use the **scc --port** command to assign Sybase Control Center services to new ports.

Prerequisites

Check for port conflicts between Sybase Control Center and other software running on the same host.

Task

Sybase Control Center cannot function properly if other services use its ports. If you discover a conflict with any port listed in the right column below, you can either reconfigure the other service's port or reconfigure Sybase Control Center as described here.

Port Name	Description	Service Names	Property Names	Default Port
db	Database port Present on SCC server	SccSADataserver Messaging Alert Scheduler	com.sybase.asa.server.port messaging.db.port alert.database.port org.quartz.data-Source.ASA.URL	3638
http	Web HTTP port Present on SCC server	EmbeddedWebCon- tainer	http.port	8282
https	Web HTTPS (secure HTTP) port Present on SCC server	EmbeddedWebCon- tainer	https.port	8283
jiniHttp	JINI HTTP server Present on SCC server and SCC agent	Jini	httpPort	9092
jiniR- mid	JINI remote method in- vocation daemon Present on SCC server and SCC agent	Jini	rmidPort	9095
msg	Messaging port Present on SCC server	Messaging	messaging.port	2000
rmi	RMI port Present on SCC server and SCC agent	RMI	port	9999

Port Name	Description	Service Names	Property Names	Default Port
tds	Tabular Data Stream™ port (used to communicate with other Sybase products) Present on SCC server and SCC agent	Tds	tdsPort	9998

1. Shut down Sybase Control Center.
2. Execute **scc --info ports** to display a list of Sybase Control Center services, their properties, and their assigned ports.
3. To reassign a port, enter a command in one of these formats:

```
scc --port port-name=port-number
```

```
scc --port service-name:property-name=port-number
```

Use the first, simpler format unless you want to configure the database services to use different ports. (By default, they all use the same port.)

4. Start Sybase Control Center.
5. Execute **scc --info ports** again to confirm that the port has been reassigned.

Examples

Set all four database services (data server, messaging, database alert, and scheduler) to the same port, 3639. (The database is SQL Anywhere, used by the Sybase Control Center internal repository.)

```
scc --port db=3639
```

Set only the database messaging service to port 3639.

```
scc --port Messaging:messaging.db.port=3639
```

Set the HTTP port to 9292.

```
scc --port http=9292
```

Set the Jini RMI daemon to port 9696.

```
scc --port jiniRmid=9696
```

Set the main Sybase Control Center messaging service to port 2001.

```
scc --port msg=2001
```

Set the RMI port to 9991.

```
scc --port rmi=9991
```

Set the Tabular Data Stream port to 9997.

```
scc --port tds=9997
```

Note: **scc** commands that include a port-setting option (**-p** or **--port**) do not start Sybase Control Center. To start SCC, execute a separate **scc** command.

Configuring the Automatic Logout Timer

(Optional) Set Sybase Control Center to end login sessions when users are inactive for too long.

Prerequisites

Launch Sybase Control Center and log in using an account with administrative privileges. (The login account or its group must have sccAdminRole.)

Task

1. From the menu bar, select **Application > Administration**.
2. Select **General Settings**.
3. Click the **Auto-Logout** tab.
4. Enter the number of minutes after which an idle user will be automatically logged out. Enter 0 or leave the box empty to disable automatic logout.
5. Click **OK** (to apply the change and close the properties dialog) or **Apply** (to apply the change and leave the dialog open).

See also

- *Setting Up Security* on page 25

User Authorization

The authorization mechanism in Sybase Control Center employs login accounts and task-based roles.

Access to Sybase Control Center is controlled by login accounts. You grant permissions to a login account by assigning predefined roles that control tasks the user can perform in Sybase Control Center, such as administration and monitoring of particular types of Sybase servers. The roles can be assigned directly to login accounts or to groups; a login account inherits the roles of any group to which it belongs. Component product modules assign some roles automatically.

Sybase Control Center classifies roles as follows:

- System roles – define how a user can interact with Sybase Control Center.
- Product roles – define how a user can interact with a particular managed resource in Sybase Control Center, for example the Replication Server named RepBoston01.

Note: The tools described here are for managing SCC-enabled login accounts; you cannot use them to manage accounts and groups that are native to your managed resource.

See also

- *Configure* on page 46

Assigning a Role to a Login or a Group

Use the security configuration options to add one or more roles to a Sybase Control Center login account or to a group. Roles enable users to perform tasks such as monitoring servers or administering Sybase Control Center.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task. To assign a monitoring role for a server, first register the server.

Task

Assign the sccAdminRole to any login account that will perform administrative tasks in Sybase Control Center.

1. From the application menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Click **Logins** or **Groups**.
4. In the table, select the login account or group to which you want to assign a role.
5. Click the **Roles** tab.
6. In the **Available roles for resource** list, select the role, then click **Add**. For example, to grant administrative privileges, add the SCC Service:sccAdminRole. To grant monitoring privileges, add the MonitorRole for the desired server and server type.

Note: Sybase Control Center product modules assign certain roles automatically, so you might not need to add a MonitorRole.

If a role appears in the **Has following roles** list, this account or group has already been configured with that role.

7. Click **OK**.

See also

- *Adding a Group* on page 44
- *Adding a Login Account to a Group* on page 44
- *Logins, Roles, and Groups* on page 45

Adding a Group

Use the security configuration options to create a new group.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

Groups can make roles easier to manage. Rather than assigning roles to individual users, assign roles to groups and add users to the groups or remove them as needed.

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Select **Groups**.
4. Click **Create Group**.
5. Enter a group name and a description.
6. Click **Finish**.

See also

- *Assigning a Role to a Login or a Group* on page 43
- *Adding a Login Account to a Group* on page 44
- *Logins, Roles, and Groups* on page 45

Adding a Login Account to a Group

Use the security configuration options to add one or more login accounts to a group.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Click **Groups**.
4. Select the group to which you want to assign an account.
5. Click the **Membership** tab.
6. Select the account, then click **Add**.
7. Click **OK**.

See also

- *Assigning a Role to a Login or a Group* on page 43
- *Adding a Group* on page 44
- *Logins, Roles, and Groups* on page 45

Logins, Roles, and Groups

Sybase Control Center includes predefined login accounts and roles.

In Sybase Control Center, a login account identifies a user who can connect to the application. An account may have roles that specify the tasks the user is allowed to perform.

Sybase Control Center is designed to delegate user authentication to the operating system or to an LDAP directory service. Delegation requires some configuration, however, so Sybase Control Center comes with two predefined login accounts. Sybase recommends using the predefined accounts only for installing and setting up Sybase Control Center. These accounts are not intended for use in a production environment.

Table 7. Predefined accounts

Login name	Description
sccadmin	Can use all the administration features in Sybase Control Center
sccuser	Test account with no special privileges

A role is a predefined profile that can be assigned to a login account or a group. Roles control the access rights for login accounts. Sybase Control Center comes with predefined roles that are intended for use in production environments.

Table 8. Predefined roles

Role	Description
sccUserRole	Provides nonadministrative access to Sybase Control Center. Required for every user.
sccAdminRole	Provides administrative privileges for managing Sybase Control Center.

Monitoring privileges for SCC product modules are assigned automatically.

A group is made up of one or more login accounts; all the accounts in a group have the roles granted to the group. In Sybase Control Center you can create groups to suit your business requirements.

See also

- *Assigning a Role to a Login or a Group* on page 43
- *Adding a Group* on page 44
- *Adding a Login Account to a Group* on page 44

Configure

Configure Sybase Control Center for Replication Server Data Assurance Option.

1. *Registering a Data Assurance Server*

Register a resource (for example, a server that can be monitored) to make Sybase Control Center aware of it and its connection information.

2. *Configuring Data Assurance Server for Monitoring*

Authenticate a Data Assurance (DA) server to monitor using Sybase Control Center. When a resource is authenticated, Sybase Control Center enables the DA server monitoring option.

3. *Importing Resources for Batch Registration*

(Optional) Import and register multiple servers from an interfaces or sql.ini file.

4. *Creating a Perspective*

Create a perspective in which you can add and manage resources.

5. *Adding a Resource to a Perspective*

Add one or more resources to the current perspective.

6. *Authenticating a Login Account for a Managed Resource*

Specify the login account Sybase Control Center will use when it connects to your server or agent to collect monitoring data or manage the resource.

7. *Setting Up Statistics Collection*

Use the Properties view of your managed resource to create a data collection job and add a schedule to the job.

8. *Creating an Agent Connection*

Create a Data Assurance (DA) agent connection required to create comparesets and schema jobs.

9. *Creating a Database Connection*

Set up a primary and replicate database connection in a Data Assurance (DA) server.

10. *Creating a Single or Cluster Connection from an Interface File*

Import Data Assurance (DA) resources from an interface file.

11. *Optional Configuration Steps*

Perform additional configuration, including user authorization, alerts, data collection scheduling, backups, and setting purging options for the repository.

See also

- *User Authorization* on page 42
- *Logins, Roles, and Groups* on page 86
- *Setting Up Security* on page 62

- *Assigning a Role to a Login or a Group* on page 80

Launching Sybase Control Center

Use the **scc** command to start Sybase Control Center.

Prerequisites

Install Adobe Flash Player in the browser you will use for Sybase Control Center.

Task

1. Start Sybase Control Center.

- Windows – navigate to `<install_location>\SCC-3_2\bin` and double-click **scc.bat**.
- UNIX – execute **scc.sh**.

Messages on the progress of the launch appear in a command window. When Sybase Control Center is running, the command window becomes the Sybase Control Center console; you can issue commands to get status information on SCC and its ports, plug-ins, and services.

2. Open a Web browser and enter `https://<hostname>:8283/scc`.

See also

- *Sybase Control Center Console* on page 136

Registering the ODBC Driver in Windows

In Windows, run **scc.bat** with administrative privileges to register the ODBC driver.

When Sybase Control Center starts for the first time on a Windows machine, it registers its ODBC driver. Because the automatic registration of the ODBC driver edits the registry settings, you must execute **scc.bat** using elevated administrative privileges. If you launch for the first time without adequate privileges, Sybase Control Center generates an error and fails to start.

In Windows Vista, Windows 2008, and Windows 7, you must use the **Run as administrator** setting to launch Sybase Control Center even if you already have administrative privileges. This process is described below.

In other versions of Windows, you must be logged in as an administrator to start Sybase Control Center for the first time. You need not follow the steps below.

1. In Windows Vista, Windows 2008, or Windows 7, open the Command Prompt window with administrative privileges:

- Select **Start > All Programs > Accessories**. Right-click **Command Prompt** and select **Run as administrator**.
- Alternatively, enter **cmd** in the Start Menu search box and press **Shift+Ctrl+Enter**.

2. Run **scc.bat**.

Starting and Stopping Sybase Control Center in Windows

There are several ways to start and stop Sybase Control Center or the SCC agent. You can start manually, which is useful for testing and troubleshooting, or set the service to start automatically and to restart in case of failure.

This topic applies to both Sybase Control Center (the server) and the Sybase Control Center agent that runs on each product server managed by SCC. It applies to both singleton installations and instances of SCC agents and servers running from a shared disk.

If you run Sybase Control Center or the SCC agent manually, you must issue a command every time you start or shut down. If you run as a service (which is recommended), you can configure the service to start and restart automatically. These are the options:

- Use the **scc.bat** command to start Sybase Control Center or the SCC agent manually. The command gives you access to the Sybase Control Center console, which you can use to shut down and to display information about services, ports, system properties, and environment variables. You can also use **scc.bat** to change the logging level for troubleshooting purposes. Using **scc.bat** prevents you from taking advantage of the automatic start and restart features available to services.
- Use the Services list under the Windows Control Panel to start, stop, and configure the Sybase Control Center service for an SCC server or agent.
- Use the **net start** and **net stop** commands. This is another way to run Sybase Control Center or the SCC agent as a service.

Note: To start an SCC agent or server as a service:

- In a singleton installation, you must have selected **Yes** in the installer to install the agent or server as a service.
 - In a shared disk installation, the agent or server must have been deployed using the **-service** option of the **sccinstance** command.
-

In a singleton installation, the installer lets you start Sybase Control Center or the SCC agent as a service and configures the service to restart automatically. Before starting, check the Windows Services list for a Sybase Control Center service.

Here are the steps for each starting and stopping option:

- **Start Sybase Control Center or the SCC agent:**
 - a) (Skip this step for the SCC agent.) If you are starting Sybase Control Center for the first time in Windows Vista, Windows 2008, or Windows 7, set the **Run as Administrator**

option on the command prompt so that Sybase Control Center can register its ODBC driver. (This is necessary even if you are logged in as an administrator.)

- b) Enter the **scc** command.

For a singleton installation:

```
%SYBASE%\SCC-3_2\bin\scc.bat
```

For an instance:

```
%SYBASE%\SCC-3_2\bin\scc.bat -instance <instance-name>
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

- **Stop Sybase Control Center or the SCC agent:**

- a) Enter the **scc --stop** command.

For a singleton installation:

```
%SYBASE%\SCC-3_2\bin\scc.bat --stop
```

For an instance:

```
%SYBASE%\SCC-3_2\bin\scc.bat --stop -instance <instance-name>
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

Note: You can also enter **shutdown** at the `scc-console>` prompt.

- **Start or stop from the Windows Control Panel; configure automatic start and restart:**

- a) Open the Windows Control Panel.
- b) Select **Administrative Tools > Services**.
- c) Locate “Sybase Control Center” in the Services list. It may be followed by a release number; if the service is for an instance, it is also followed by the instance name. Service names do not distinguish between agents and servers. If the service is running, the Status column displays “Started.”
- d) To start or stop the service, right-click the **Sybase Control Center** entry in the Services list and choose **Start** or **Stop**.
- e) To configure automatic starting, double-click the service.
- f) To set the service to automatically start when the machine starts, change the **Startup type** to Automatic.
- g) To restart the service in case of failure, choose the **Recovery** tab and change the First, Second, and Subsequent failures to Restart Service.

- h) Click **Apply** to save the modifications and close the dialog.
- **Start or stop the Sybase Control Center service (controlling either Sybase Control Center or the SCC agent) from the Windows command line:**

- a) To start the service, enter the **net start** command.

For a singleton installation:

```
net start "sybase control center 3.2.4"
```

```
The Sybase Control Center 3.2.4 service is starting.....  
The Sybase Control Center 3.2.4 service was started  
successfully.
```

For an instance, include the instance name in parentheses:

```
net start "sybase control center 3.2.4 (Boston-1)"
```

```
The Sybase Control Center 3.2.4 (Boston-1) service is  
starting.....  
The Sybase Control Center 3.2.4 (Boston-1) service was  
started successfully.
```

- b) To stop the service, enter the **net stop** command.

For a singleton installation:

```
net stop "sybase control center 3.2.4"
```

```
The Sybase Control Center 3.2.4 service is stopping.....  
The Sybase Control Center 3.2.4 service was stopped  
successfully.
```

For an instance, include the instance name in parentheses:

```
net stop "sybase control center 3.2.4 (Boston-1)"
```

```
The Sybase Control Center 3.2.4 (Boston-1) service is  
stopping.....  
The Sybase Control Center 3.2.4 (Boston-1) service was  
stopped successfully.
```

Starting and Stopping Sybase Control Center in UNIX

You can start Sybase Control Center or the SCC agent manually, which is useful for testing and troubleshooting, or you can set up a service to start automatically and to restart in case of failure.

This topic applies to both Sybase Control Center (the server) and the Sybase Control Center agent that runs on each product server managed by SCC. It applies to both singleton installations and instances of SCC agents and servers running from a shared disk.

If you start Sybase Control Center or the SCC agent manually, you must issue a command every time you start or shut down. If you run as a service (which is recommended), you can configure the service to start and restart automatically. These are the options:

- Use the **scc.sh** script to start Sybase Control Center or the SCC agent manually. You can either:
 - Run **scc.sh** in the foreground to get access to the Sybase Control Center console, which you can use to shut down and to display information about services, ports, system properties, and environment variables.
 - Run **scc.sh** in the background to suppress the console.
 You can use **scc.sh** to run Sybase Control Center at a nondefault logging level for troubleshooting. When you start manually with **scc.sh**, you cannot take advantage of the automatic start and restart features available to services.
- Use the **sccd** script to configure a service that starts Sybase Control Center or the SCC agent automatically.

Here are the steps for each starting and stopping option:

- **Before you start Sybase Control Center or the SCC agent for the first time, set environment variables.** Do this only once.
 - a) Change to the Sybase directory (the parent of the Sybase Control Center installation directory).
 - b) Execute one of the following to set environment variables.

Bourne shell:

```
. SYBASE.sh
```

C shell:

```
source SYBASE.csh
```

- **Run Sybase Control Center or the SCC agent in the foreground.**

Running in the foreground is a method of manually starting; you must issue commands to stop and restart Sybase Control Center or the SCC agent.

- a) To start Sybase Control Center or the SCC agent and drop into the console when the start-up sequence is finished, enter the **scc** command.

For a singleton installation:

```
$SYBASE/SCC-3_2/bin/scc.sh
```

For an instance:

```
$SYBASE/SCC-3_2/bin/scc.sh -instance <instance-name>
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

- **Run Sybase Control Center or the SCC agent in the background.**

You can use **nohup**, **&**, and **>** to run Sybase Control Center or the SCC agent in the background, redirect output and system error to a file, and suppress the SCC console. Running in the background is a method of manually starting; you must issue commands to stop and restart Sybase Control Center or the SCC agent.

Get Started

- a) Execute a command similar to the sample below that matches your shell. Both sample commands direct output to the file `scc-console.out`. If the output file already exists, you might need to use additional shell operators to append to or truncate the file.

Bourne shell (sh) or Bash

For a singleton installation:

```
nohup ./scc.sh 2>&1 > scc-console.out &
```

For an instance:

```
nohup ./scc.sh -instance <instance-name> 2>&1 > scc-console-  
your-instance.out &
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

C shell

For a singleton installation:

```
nohup ./scc.sh >& scc-console.out &
```

For an instance:

```
nohup ./scc.sh -instance <instance-name> >& scc-console.out &
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

- **Shut down Sybase Control Center or the SCC agent.**

- a) To shut down from the `scc-console>` prompt, enter:

```
shutdown
```

Warning! Do not enter **shutdown** at a UNIX prompt; it shuts down the operating system.

To shut down from the UNIX command line, enter the **scc --stop** command.

For a singleton installation:

```
$SYBASE/SCC-3_2/bin/scc.sh --stop
```

For an instance:

```
$SYBASE/SCC-3_2/bin/scc.sh --stop -instance <instance-  
name>
```

You can omit the **-instance** option if the instance's name is the same as its host name (the default).

- **Configure Sybase Control Center or the SCC agent to run as a service.**

A UNIX service is a daemon process that starts automatically after the machine is started and runs in the background. UNIX installations of Sybase Control Center include a shell script, **sccd**, which you can use to configure the Sybase Control Center service. (Some

UNIX platforms supply tools that make service configuration easier; Linux **chkconfig** is an example.)

Note: Sybase recommends that if you are not familiar with setting up services in UNIX, you delegate this task to a system administrator or consult the system administration documentation for your UNIX platform.

a) Copy `SYBASE/SCC-3_2/bin/sccd` into this directory:

- AIX (SCC agent only): `/etc/rc.d/init.d`
- HP-UX (SCC agent only): `/sbin/init.d`
- All other platforms: `/etc/init.d`

b) Open `sccd` and make these changes:

- Change the line that sets the SYBASE variable to the location of your Sybase installation (that is, the parent of `SCC-3_2`, the Sybase Control Center installation directory). By default, this directory is called `Sybase`.
- If you are not using shared-disk mode, or you are using shared-disk mode to run a single instance whose name is the same as the host name, skip to step *5.c* on page 53 or step *5.d* on page 54.
- If you are using shared-disk mode to run a single instance whose name is not the host name, or to run multiple instances on the same host, add the instance name to the script name. Change:

```
SCRIPT_NAME=scc.sh
```

to:

```
SCRIPT_NAME="scc.sh -instance <instance-name>"
```

- If you are using shared-disk mode to run multiple instances on the same host, append the instance name to the name of the output log file. Change:

```
./${SCRIPT_NAME} --start 2>&1 >> ${SCC_HOME}/log/scc-  
service.out &
```

to:

```
./${SCRIPT_NAME} --start 2>&1 >> ${SCC_HOME}/log/scc-  
service_<instance-name>.out &
```

- If you are using shared-disk mode to run multiple instances on the same host, save a copy of the `sccd` script for each instance, giving each copy a unique name. In each copy, add the instance name to the script name and append the instance name to the output log file name as described above. Perform the remaining steps in this procedure for each copy of `sccd`.

c) In Linux, configure the service to run in run levels 2, 3, 4, and 5:

```
/usr/sbin/chkconfig --add sccd  
/usr/sbin/chkconfig --level 2345 sccd
```

You can test the `sccd` script with `/usr/sbin/service sccd status`. (The **service** command accepts these options: **start** | **stop** | **status** | **restart**.)

Get Started

d) On non-Linux platforms, locate this directory:

- AIX (SCC agent only): `/etc/rc.d/rc<X>.d`
- HP-UX (SCC agent only): `/sbin/rc<X>.d`
- Solaris: `/etc/rc<X>.d`

where `<X>` is the run level (for example, 3). Make two soft links in the directory for your platform and set the links to point to:

- AIX (SCC agent only):
`/etc/rc.d/init.d/sccd: S90sccd` and
`/etc/rc.d/init.d/sccd: K10sccd`
- HP-UX (SCC agent only):
`/sbin/init.d/sccd: S90sccd` and
`/sbin/init.d/sccd: K10sccd`
- Solaris:
`/etc/init.d/sccd: S90sccd` and
`/etc/init.d/sccd: K10sccd`

The `S90sccd` link starts the service and the `K10sccd` link stops the service. The two-digit numbers in the links indicate the start and stop priorities of the service.

e) Use the `S90sccd` and `K10sccd` links to test starting and stopping the service. The links are called automatically when the machine is started or shut down.

Configuring Memory Usage

(Optional) Determine whether you need to configure how much memory Sybase Control Center uses, and if so which configuration method to use.

It is not usually necessary to configure memory usage for Sybase Control Center. This table lists memory options you can set and circumstances under which you should consider changing them.

Modify this value	When	Guidelines
<p>Maximum memory</p> <ul style="list-style-type: none"> • <code>jvmopt=-Xmx</code> – if you are running SCC as a Windows service • <code>SCC_MEM_MAX</code> – if you are running SCC as a UNIX service • <code>SCC_MEM_MAX</code> – if you are starting SCC from the command line 	<ul style="list-style-type: none"> • You need to prevent Sybase Control Center from using more than a given amount of memory • SCC fails to start and may display an error: Could not create the Java Virtual machine. • An OutOfMemory error says SCC is out of heap space • A warning message about system memory appears during the start process • The machine where SCC is installed has less than 2GB of memory. (Starting SCC on a machine with less than 2GB of memory triggers the startup warning message about system memory.) 	<p>On machines with less than 2GB of memory, set maximum memory to 256MB or more.</p> <p>Default value: none. (On machines with 2GB or more of memory, maximum memory is set dynamically and is effectively limited only by the amount of system memory available.)</p>
<p>Permanent memory</p> <ul style="list-style-type: none"> • <code>jvmopt=-XX:MaxPermSize</code> – if you are running SCC as a Windows service • <code>SCC_MEM_PERM</code> – if you are running SCC as a UNIX service • <code>SCC_MEM_PERM</code> – if you are starting SCC from the command line 	<p>An OutOfMemory error says SCC is out of permanent generation space</p>	<p>Increase by 32MB increments. If you reach a value equal to twice the default and still see the OutOfMemory error, contact Sybase technical support.</p> <p>Default value: 128MB</p>

You can change memory options in two ways:

- For Sybase Control Center started from the command line – execute commands to set one or more environment variables before executing the **scc** command to start Sybase Control Center. When you use this method, your changes to the memory options last only as long as the current login session. This method is useful for testing new option values.

Get Started

- For the Sybase Control Center service – modify a file used by the SCC service. When you use this method, your changes to the memory options persist—Sybase Control Center uses them every time it starts as a service.

Changing a Memory Option on the Command Line

Before you start Sybase Control Center from the command line, you can issue a command to change the value of a memory option temporarily.

Changes made using this method last only as long as the current login session. This method is useful for testing new option values.

1. If Sybase Control Center is running, shut it down.
2. Set the environment variable. Specify a size in megabytes but do not indicate the units in the command.

Windows example:

```
> set SCC_MEM_MAX=512
```

UNIX example:

```
bash$ export SCC_MEM_MAX=512
```

3. Use the **scc** command to start Sybase Control Center.

See also

- *Starting and Stopping Sybase Control Center in Windows* on page 48
- *Starting and Stopping Sybase Control Center in UNIX* on page 50
- *scc Command* on page 57

Changing a Memory Option for an SCC Windows Service

Add a **jvmopt** command to the `scc.properties` file to change a memory option (`-Xmx` or `-XX:MaxPermSize`) for a Sybase Control Center Windows service.

When you use this method to set memory options, your changes are permanent—Sybase Control Center uses them every time it starts as a service.

1. If Sybase Control Center is running, shut it down.
2. Open the SCC properties file:
`<SCC-install-directory>\SCC-3_2\bin\scc.properties`
3. Add (or modify, if it already exists) a **jvmopt** line specifying the memory size in Java format. Use `m` for megabytes or `g` for gigabytes.

For example:

```
jvmopt=-Xmx512m
```

4. Save the file and start the Sybase Control Center Windows service.

See also

- *Starting and Stopping Sybase Control Center in Windows* on page 48

Changing a Memory Option for an SCC UNIX Service

To change a memory setting for a Sybase Control Center UNIX service, add the appropriate environment variable (*SCC_MEM_MAX* or *SCC_MEM_PERM*) to the *sccd* script.

When you use this method to set memory options, your changes are permanent—Sybase Control Center uses them every time it starts as a service.

1. If Sybase Control Center is running, shut it down.
2. Open the *sccd* file: `/etc/init.d/sccd`
3. Add the environment variable at the top of the file (after the comments). Specify a size in megabytes but do not indicate the units in the command.

For example:

```
SCC_MEM_MAX=512
```

4. Save the file and start the Sybase Control Center UNIX service.

See also

- *Starting and Stopping Sybase Control Center in UNIX* on page 50

scc Command

Use **scc.bat** (Windows) or **scc.sh** (UNIX) to start and stop Sybase Control Center agents and servers and to perform administrative tasks like configuring ports and enabling and disabling services.

Syntax

```
scc[.bat | .sh] [-a | --address RMI-service-address]
[-b | --bitwidth]
[--dbpassword]
[-disable | --disable service-name,service-name...]
[-enable | --enable service-name,service-name...]
[-h | --help]
[-I | --info [information-category]]
[-instance [instance-name]]
[-m | --message message-level]
[-password | --password password]

[-p | --port {port-name=port-number |
service-name:property-name=port-number}]
[{-start | --start} | {-stop | --stop}]
[-status | --status]
[-user | --user login-name]
[-v | -version | --version]
```

Parameters

- **-a | --address *RMI-service-address*** – the address for the RMI service to use; must be an IP address on this machine or the name of this machine (which is the default).
- **-b | --bitwidth** – returns a string identifying the bit width (32 or 64) of the underlying platform; Sybase Control Center uses this option to determine which libraries to use for its internal database. If you use this option, the **scc** command does not start Sybase Control Center.
- **--dbpassword** – changes the password of the default dba account provided for the repository database. It prompts you for the new password, validates it, and starts the Sybase Control Center server. This option does not work if you start Sybase Control Center in the background—the server fails to start if there is no console.
- **-disable | --disable *service-name,service-name...*** – disable the specified Sybase Control Center services. This option does not work while Sybase Control Center is running or as part of a command that starts SCC. To use it, shut down SCC, execute `scc --disable`, then restart. See under `--ports` for service names; separate each service from the next with a comma.
- **-enable | --enable *service-name,service-name...*** – enable the specified Sybase Control Center services. See under `--ports` for service names; separate each service from the next with a comma. When you use this option, **scc** does not start Sybase Control Center—use a separate command to start SCC.
- **-h | --help** – display help and usage information for the **scc** command. If you use this option, **scc** does not start Sybase Control Center.
- **-I | --info [*information-category*]** – display the specified categories of information about Sybase Control Center. Separate each category from the next with a comma. The information categories are:
 - **all** – returns all the information provided by the `sys`, `ports`, and `services` categories. Default option.
 - **sys** – returns general information about this instance of Sybase Control Center, including the version, the home (installation) directory, the host machine’s name and IP address, the RMI port number, the messaging level, and details about the platform and Java installation.
 - **ports** – lists all the ports on which the Sybase Control Center agent and its services listen, indicates whether each port is in use, and shows the service running on each port.
 - **services** – lists all the services known to the Sybase Control Center agent, indicates whether each service is enabled, and lists other services on which each service depends.
 - **sysprop** – lists all the Java system properties known the Java VM and their values.
 - **env** – lists the complete Java VM process environment.

- **-instance** [*instance-name*] – use with other options (**-start** and **-stop**, for example) to specify a Sybase Control Center instance in a shared disk deployment. If you do not enter a name for the instance, it defaults to the host name.
- **-m** | **--message** *message-level* – set the amount of detail recorded in system logs; also known as the logging level. Valid values are OFF, FATAL, ERROR, WARN, INFO, DEBUG, and ALL. WARN is the default.
- **-password** | **--password** – specify the password of the user account Sybase Control Center will use to stop servers or query them for status. Use this option with **--user**. When you enter a command with **--user** but without **--password**, the console prompts you to enter a password.
- **-p** | **--port** {*port-name=port-number* | *service-name:property-name=port-number*} – configure the specified service to run on the specified port. Changing ports is useful if you discover a port conflict between Sybase Control Center and other software on the same system. When you use this option, **scc** does not start Sybase Control Center—use a separate command to start SCC.

Valid port names, service names and property names are:

Port Name	Description	Service Names	Property Names	Default Port
db	Database port Present on SCC server	SccSADataserver Messaging Alert Scheduler	com.sybase.asa.server.port messaging.db.port alert.database.port org.quartz.data-Source.ASA.URL	3638
http	Web HTTP port Present on SCC server	EmbeddedWebContainer	http.port	8282
https	Web HTTPS (secure HTTP) port Present on SCC server	EmbeddedWebContainer	https.port	8283
jiniHttp	JINI HTTP server Present on SCC server and SCC agent	Jini	httpPort	9092
jiniRmid	JINI remote method invocation daemon Present on SCC server and SCC agent	Jini	rmidPort	9095
msg	Messaging port Present on SCC server	Messaging	messaging.port	2000

Port Name	Description	Service Names	Property Names	Default Port
rmi	RMI port Present on SCC server and SCC agent	RMI	port	9999
tds	Tabular Data Stream™ port (used to communicate with other Sybase products) Present on SCC server and SCC agent	Tds	tdsPort	9998

You can also execute `scc --info ports` to display service names and associated property names; they appear in the first two columns of the output.

- **-start | --start** – start the Sybase Control Center server. This is the default option—if you execute **scc** with no options, it starts SCC. This option cannot be combined in the same command with options that set ports or enable or disable services; use a separate **scc** command to start SCC.
- **-status | --status** – display a status message indicating whether the Sybase Control Center server is running.
- **-stop | --stop** – shut down the Sybase Control Center server if it is running.
- **-user | --user [login-name]** – specify the user account Sybase Control Center will use to stop managed servers or query them for status. Use this option with **--password**. If you do not enter a login name, the console prompts you to enter one.
- **-v | --version | --version** – display the version of Sybase Control Center software running on this server. If you use this option, **scc** does not start Sybase Control Center.

Examples

- **Set the RMI port** – each of these commands sets the RMI port to 9999 (the default). The first command illustrates the port name syntax; the second illustrates the service name:property name syntax.

```
scc --port rmi=9999
scc --port RMI:port=9999
```

- **Set the RMI port and start SCC** – these commands set the RMI port to 9996, then start SCC. Two commands (separated by a semicolon here) are needed because **scc** does not start Sybase Control Center when it includes any of the port-setting options.

```
scc -p rmi=9996; scc
```

- **Set all database ports** – this command sets all four of the SQL Anywhere database ports (data server, messaging, database alert, and scheduler) to 3638. (SQL Anywhere is the Sybase Control Center internal repository.)

```
scc --port db=3638
```

- **Set the TDS port** – this command sets the TDS port to 9998 (the default):

```
scc --port Tds:tdsPort=9998
```

- **Enable a service and start SCC** – the first **scc** command enables the TDS service; the second starts SCC. (The two commands are separated by a semicolon.) The second command is needed because **scc** does not start Sybase Control Center when it includes the **-enable** option.

```
scc -enable Tds; scc
```

- **Start an SCC instance** – this command starts the SCC instance called kalamazoo. **-start** is optional because it is the default.

```
scc -start -instance kalamazoo
```

Permissions

scc permission defaults to all users. No permission is required to use it.

See also

- *Configuring Ports* on page 77
- *Logging or Message Levels* on page 135

Logging in to Sybase Control Center

Enter the Sybase Control Center Web console.

Prerequisites

Install Adobe Flash Player in the browser you will use for SCC. See the *Sybase Control Center Installation Guide*.

Task

Sybase Control Center typically authenticates users through the operating system or an LDAP directory service. Consult your SCC administrator if you are not sure which login account to use for SCC.

Note: When logging in to a newly installed Sybase Control Center for which secure authentication has not been configured, use the **sccadmin** account (with no password, by default). For more information, see the *Sybase Control Center Installation Guide*.

1. Connect to the Sybase Control Center server. In your Web browser, enter: `https://scc-hostname:8283/scc`.
2. Enter your user name and password, and click **Login**.

Tip: If you use a Windows account to log in to SCC, enter your user name in the format `username@domain`. Omit top-level domain extensions such as `.com` or `.net`—for example, enter `fred@sybase`, not `fred@sybase.com`.

Logging out of Sybase Control Center

When you finish working in Sybase Control Center, end your login session.

From the main menu bar, select **Application > Log Out**.

Alternatively, click **Log Out** in the upper-right corner of the window.

Note: If an administrator has configured the automatic logout feature, Sybase Control Center logs you out if your session is idle (no typing or mouse movement) for longer than the timeout period, which is set by the administrator.

If no automatic logout period is configured,

- A login session left open on a screen that refreshes (a monitor screen or a data collection job screen, for example) remains open indefinitely.
 - A login session left open on a screen that does not change expires after 30 minutes. The next time you make a request of the server, SCC logs you out.
-

Setting Up Security

Configure login authentication and map roles.

Read about security and follow these procedures before you configure Sybase Control Center product modules.

Note: These security topics are intended for use in a production environment. If you are evaluating or testing SCC, see the *Installation Guide* for instructions on getting started quickly.

1. *Security*

Sybase Control Center can authenticate user logins through an LDAP server, through the operating system, or both.

2. *Configuring Authentication for Windows*

Authentication through the Windows operating system is enabled by default, but it requires some configuration. First, set Sybase Control Center to create an account when a Windows user logs in to Sybase Control Center.

3. *Configuring a Pluggable Authentication Module (PAM) for UNIX*

Set up Sybase Control Center to support username and password login using accounts on the UNIX operating system. Optionally, have Sybase Control Center create an account when a UNIX user first logs in to Sybase Control Center.

4. *Configuring an LDAP Authentication Module*

Configure an LDAP authentication module for Sybase Control Center by editing the security properties file to point to the correct LDAP server.

5. *Mapping Sybase Control Center Roles to LDAP or OS Groups*

To grant Sybase Control Center privileges to users who are authenticated through LDAP or the operating system, associate roles used in Sybase Control Center with groups in LDAP or the operating system.

6. *Encrypting a Password*

Use the `passencrypt` utility to encrypt passwords and other values that must be kept secure while stored in text files.

7. *Configuring Ports*

(Optional) Use the `scc --port` command to assign Sybase Control Center services to new ports.

8. *Configuring Sybase Control Center*

For configuration instructions, see the Configure section of the help for your Sybase Control Center product module.

Security

Sybase Control Center can authenticate user logins through an LDAP server, through the operating system, or both.

- Sybase Control Center can be configured to authenticate through any LDAP server that supports the `inetOrgPerson` (RFC 2798) schema.
- When Sybase Control Center authenticates through the operating system, it uses the operating system of the Sybase Control Center server machine (not the client).

Although you can create native user accounts in Sybase Control Center, Sybase does not recommend this approach to authentication. It is simpler and safer to configure Sybase Control Center to authenticate using existing LDAP, Windows, or UNIX login accounts.

Sybase strongly recommends that you use a common authentication provider for all Sybase products, including Sybase Control Center. A common authentication provider ensures that single sign-on works for users of Sybase Control Center and its managed servers.

Sybase Control Center requires each authenticated login account to have a predefined role. When a login is authenticated, roles for the login are retrieved by the security module and are mapped to Sybase Control Center predefined roles. Authorization is resolved through the mappings between the security module native roles and Sybase Control Center roles. You can enable mappings by creating a "sybase" group in your operating system or LDAP server and adding all Sybase Control Center users, or by modifying the Sybase Control Center `roles-`

map.xml file to configure the mapping of native roles to Sybase Control Center roles. The security module authenticates the logins and authorizes access to managed resources.

Sybase Control Center provides a set of predefined login modules for authentication. All login modules are defined in the <install_location>/SCC-3_2/conf/csi.properties file. The syntax is defined by the Sybase Common Security Infrastructure (CSI) framework. You can configure the different login modules to customize security strength. The login modules are:

- Simple Login – defines a user name, password, and a list of roles. The default user name is “sccadmin” with a blank password and a native role of “sccAdminRole”. You can create additional accounts by adding simple login modules to csi.properties. However, Sybase does not recommend the use of simple login modules for authentication in production environments.

Note: Add a password for the sccadmin account as soon as possible after you install Sybase Control Center. See the *Sybase Control Center Installation Guide* for instructions.

- NT Proxy Login – delegates authentication to the underlying Windows operating system. When you log in to Sybase Control Center through an NT Proxy Login module, enter your user name in the format *username@nt-domain-name*. For example, *user@sybase*. Windows authentication is enabled by default, but it requires some configuration.
- UNIX Proxy Login – delegates authentication to the underlying UNIX or Linux operating system using Pluggable Authentication Modules (PAM). When you log in to Sybase Control Center through a UNIX PAM, enter your UNIX user name and password. UNIX authentication is enabled by default, but it requires some configuration.
- LDAP Login – delegates authentication to an LDAP server you specify. When you log in to Sybase Control Center through an LDAP server, enter your LDAP user name and password. LDAP authentication is not enabled by default; you must configure the login module.

Configuring Authentication for Windows

Authentication through the Windows operating system is enabled by default, but it requires some configuration. First, set Sybase Control Center to create an account when a Windows user logs in to Sybase Control Center.

This task is optional. However, if you choose not to create Sybase Control Center accounts automatically as described here, you must enter them manually. Sybase Control Center needs the accounts for purposes of setting authorization (user privileges).

1. Log in to Sybase Control Center using an account with administrative privileges. (The login account or its group must have sccAdminRole.)
2. Select **Application > Administration > Security**.
3. Check the box labeled **Automatically add SCC login records for authenticated logins**.

4. Check the box labeled **Automatically grant sccUserRole to newly created logins**.
5. Click **OK** to close the Security dialog.

Next

There are two next steps:

- If you opted not to automatically create Sybase Control Center login accounts, enter each account into Sybase Control Center manually.
- Whether you add accounts automatically or manually, you must grant privileges to any login accounts that require more than basic user access. You can grant privileges by assigning Sybase Control Center roles directly to the login accounts, or by assigning the login accounts to groups and mapping Sybase Control Center roles to the groups. The group approach is generally more efficient.

See also

- *Mapping Sybase Control Center Roles to LDAP or OS Groups* on page 75
- *Adding a Login Account to the System* on page 84

Configuring a Pluggable Authentication Module (PAM) for UNIX

Set up Sybase Control Center to support username and password login using accounts on the UNIX operating system. Optionally, have Sybase Control Center create an account when a UNIX user first logs in to Sybase Control Center.

1. Using a login account with root privileges, configure the pluggable authentication module for your platform:

Platform	Action
Solaris	Append the contents of the <SCC-install-dir>/utility/sunos/pam.conf file (provided with Sybase Control Center) to the /etc/pam.conf file on your Solaris platform.
Linux	Copy the <SCC-install-dir>/utility/linux/sybase-ua file (provided with Sybase Control Center) to the /etc/pam.d directory on your Linux platform. Note: The sybase-ua file provided with Sybase Control Center is not compatible with the most recent SUSE Linux versions. For SUSE 11 and later, see the example at the end of this topic.

Note: In the table above, the portion of the path that indicates the operating system might differ slightly from what is shown.

2. If the host UNIX system is not using a directory lookup for authentication (yp or NIS, for example) and authentication is carried out against the local /etc/passwd file, change

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the permissions on `/etc/shadow` to provide read access to the login account that executes SCC.

3. (Skip if you configured a PAM before starting Sybase Control Center) Restart Sybase Control Center.
4. (Optional) If you want Sybase Control Center to create an account when a UNIX user logs in to Sybase Control Center, execute these steps. If you choose not to create Sybase Control Center accounts automatically, you must enter them manually. Sybase Control Center needs the accounts for purposes of setting authorization (user privileges).
 - a) Log in to Sybase Control Center using an account with administrative privileges (`sccAdminRole`).
 - b) Select **Application > Administration > Security**.
 - c) Check the box labeled **Automatically add SCC login records for authenticated logins**.
 - d) Click **OK** to close the Security dialog.

Example: PAM for SUSE Linux 11 and later

For SUSE 11 and later, do not use the `sybase-ua` file provided with Sybase Control Center. Instead, in your `/etc/pam.d` directory, create a `sybase-ua` file that contains:

```
# sybase-ua PAM Configuration (SUSE style)
auth      include      common-auth
account   include      common-account
password  include      common-password
session   include      common-session
```

Next

There are two next steps:

- If you opted not to automatically create Sybase Control Center login accounts, enter each account into Sybase Control Center manually.
- Whether you add accounts automatically or manually, you must also grant privileges to the login accounts. You can grant privileges by assigning Sybase Control Center roles directly to the login accounts, or by assigning the login accounts to groups and mapping Sybase Control Center roles to the groups. The group approach is generally more efficient.

See also

- *Mapping Sybase Control Center Roles to LDAP or OS Groups* on page 75
- *Adding a Login Account to the System* on page 84

Configuring an LDAP Authentication Module

Configure an LDAP authentication module for Sybase Control Center by editing the security properties file to point to the correct LDAP server.

1. Open the <SCC-install-dir>\conf\csi.properties file.
2. Uncomment the LDAP module in the properties file by removing the # symbol at the beginning of each line (or, if necessary, add an LDAP module to the file). The sample module below specifies the LDAP server that will provide user authentication.

The sample module shows the properties used for an OpenDS LDAP server. See the example at the end for values that work for ActiveDirectory. Configuration properties you can use in the LDAP module are described in a subtopic.

Each line of the LDAP server module of the properties file must begin with "CSI.loginModule." followed by a module number. (The module number in this sample is 7.) The module number you assign must be unique in the properties file, and you must use the same module number in every line of the module.

```
CSI.loginModule.
7.options.AuthenticationSearchBase=ou=users,dc=example,dc=com
CSI.loginModule.7.options.BindDN=cn=Directory Manager
CSI.loginModule.7.options.BindPassword=secret
CSI.loginModule.7.options.DefaultSearchBase=dc=example,dc=com
CSI.loginModule.7.options.ProviderURL=ldap://localhost:10389
CSI.loginModule.
7.options.RoleSearchBase=ou=groups,dc=example,dc=com
CSI.loginModule.7.options.ServerType=openldap
CSI.loginModule.7.options.moduleName=LDAP Login Module
CSI.loginModule.7.controlFlag=sufficient
CSI.loginModule.
7.provider=com.sybase.ua.services.security.ldap.LDAPLoginModule
```

Note: Change the values of bolded lines only.

3. Save the file.
4. If your LDAP server's SSL certificate is signed by a nonstandard certificate authority (for example, if it is a self-signed certificate), use the **keytool** utility to configure your JVM or JDK to trust the certificate. Execute a command similar to this:

```
keytool -import -keystore <sybase-dir>/shared/JRE-6_0_6/bin/
keytool/lib/security/cacerts -file
<your cert file and path> -alias ldapcert -storepass changeit
```

LDAP configuration values for ActiveDirectory

For an ActiveDirectory server, use these values for configuration properties in your LDAP login module:

```
ServerType: msad2K
DefaultSearchBase: dc=<domainname>,dc=<tld> or o=<company>
```

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```
name>,c=<country code>
    E.g. dc=sybase,dc=com or o=Sybase,c=us
ProviderUrl: ldaps://<hostname>:<port>
    E.g.: ldaps://myserver:636
AuthenticationFilter: (&(userPrincipalName={uid})
(objectclass=user))
BindDN: <User with read capability for all users>
BindPassword: <Password for BindDN user>
RoleFilter: (|(objectclass=groupofnames) (objectclass=group))
controlFlag: sufficient
```

Next

There are two additional steps:

- Set up roles and passwords for LDAP
- Map Sybase Control Center role to LDAP groups

See also

- *Mapping Sybase Control Center Roles to LDAP or OS Groups* on page 75

Setting Up Roles and Passwords

Set the initial user roles and passwords required for Sybase Control Center to authenticate through an LDAP server.

Prerequisites

Configure an LDAP authentication module.

Task

1. Open the <SCC-install-dir>\conf\roles-map.xml file and add an LDAP login module.

Insert an LDAP login module similar to this at the end of the security-modules portion of the file, just before </security-modules>:

```
<module name="LDAP Login Module">
  <role-mapping modRole="sybase"
uafRole="uaAnonymous,uaPluginAdmin,sccUserRole" />
  <role-mapping modRole="administrators"
uafRole="uaAnonymous,sccAdminRole" />
</module>
```

2. Ensure that the roles defined in the LDAP repository match the roles defined in roles-map.xml.
3. In the <SCC-install-dir>\conf\csi.properties file, set the BindPassword and ProviderURL properties with values used in your deployment.

Sybase recommends that you encrypt sensitive values before saving them in `csi.properties`.

Next

Map Sybase Control Center roles to LDAP groups.

See also

- *Encrypting a Password* on page 76

LDAP Configuration Properties

Use these properties in your `csi.properties` file to control your LDAP service.

Property	Default Value	Description
ServerType	None	<p>Optional. The type of LDAP server you are connecting to:</p> <ul style="list-style-type: none"> • <code>sunone5</code> -- SunOne 5.x OR iPlanet 5.x • <code>msad2k</code> -- Microsoft ActiveDirectory, Windows 2000 • <code>nsds4</code> -- Netscape Directory Server 4.x • <code>openldap</code> -- OpenLDAP Directory Server 2.x <p>The value you choose establishes default values for these other authentication properties:</p> <ul style="list-style-type: none"> • RoleFilter • UserRoleMembership • RoleMemberAttributes • AuthenticationFilter • DigestMD5Authentication • UseUserAccountControl
ProviderURL	<code>ldap://localhost:389</code>	<p>The URL used to connect to the LDAP server. Use the default value if the server is:</p> <ul style="list-style-type: none"> • Located on the same machine as your product that is enabled with the common security infrastructure. • Configured to use the default port (389). <p>Otherwise, use this syntax for setting the value:</p> <p><code>ldap://<hostname>:<port></code></p>

Property	Default Value	Description
DefaultSearchBase	None	<p>The LDAP search base that is used if no other search base is specified for authentication, roles, attribution and self registration:</p> <ol style="list-style-type: none"> 1. <code>dc=<domainname>,dc=<tld></code> For example, a machine in sybase.com domain would have a search base of <code>dc=sybase,dc=com</code>. 2. <code>o=<company name>,c=<country code></code> For example, this might be <code>o=Sybase,c=us</code> for a machine within the Sybase organization.
SecurityProtocol	None	<p>The protocol to be used when connecting to the LDAP server.</p> <p>To use an encrypted protocol, use "ssl" instead "ldaps" in the url.</p> <hr/> <p>Note: ActiveDirectory requires the SSL protocol when setting the value for the password attribute. This occurs when creating a user or updating the password of an existing user.</p> <hr/>
AuthenticationMethod	simple	<p>The authentication method to use for all authentication requests into LDAP. Legal values are generally the same as those of the <code>java.naming.security.authentication</code> JNDI property. Choose one of:</p> <ul style="list-style-type: none"> • simple — For clear-text password authentication. • DIGEST-MD5 — For more secure hashed password authentication. This method requires that the server use plain text password storage and only works with JRE 1.4 or later.

Property	Default Value	Description
AuthenticationFilter	<p>For most LDAP servers: <code>(&(uid={uid}) (object- class=person))</code></p> <p>or</p> <p>For Active Directory email lookups: <code>(&(userPrinci- palName={uid}) (object- class=user)) [ActiveDirec- tory]</code></p> <p>For Active Directory Windows username lookups: <code>(&(SAMAc- count- Name={uid}) (object- class=user))</code></p>	<p>The filter to use when looking up the user.</p> <p>When performing a username based lookup, this filter is used to determine the LDAP entry that matches the supplied username.</p> <p>The string "{uid}" in the filter is replaced with the supplied username.</p>
AuthenticationScope	onelevel	<p>The authentication search scope. The supported values for this are:</p> <ul style="list-style-type: none"> • onellevel • subtree <p>If you do not specify a value or if you specify an invalid value, the default value is used.</p>
AuthenticationSearchBase	none	<p>The search base used to authenticate users. If this value is not specified, the LDAP DefaultSearch-Base is used.</p>

Property	Default Value	Description
BindDN	none	<p>The user DN to bind against when building the initial LDAP connection.</p> <p>In many cases, this user may need read permissions on all user records. If you do not set a value, anonymous binding is used. Anonymous binding works on most servers without additional configuration.</p> <p>However, the LDAP attributer may also use this DN to create the users in the LDAP server. When the self-registration feature is used, this user may also need the requisite permissions to create a user record. This behavior can occur if you do not set <code>useUserCredentialsToBind</code> to <code>true</code>. In this case, the LDAP attributer uses this DN to update the user attributes.</p>
BindPassword	none	<p>BindPassword is the password for BindDN, which is used to authenticate any user. BindDN and BindPassword are used to separate the LDAP connection into units.</p> <p>The <code>AuthenticationMethod</code> property determines the bind method used for this initial connection.</p> <p>If you use an encrypted the password using the CSI encryption utility, append <code>.e</code> to the property name. For example:</p> <pre>CSI.loginModule.7.options. BindPassword.e=1-AAAAEgQQOLL+LpX JO8fO9T4SrQYRC9lRT1w5ePfdczQTDs P8iACk9mDAbm3F3p5a1wXWKK8+NdJuk nc7w2nw5aGJlyG3xQ==</pre>
RoleSearchBase	none	<p>The search base used to retrieve lists of roles. If this value is not specified, the LDAP <code>DefaultSearchBase</code> is used.</p>

Property	Default Value	Description
RoleFilter	<p>For SunONE/iPlanet: (&(object-class=ldapsu-bentry) (objectclass=nsroledefinition))</p> <p>For Netscape Directory Server: (object-class=groupof-names) (object-class=groupofunique-names))</p> <p>For ActiveDirectory: (object-class=groupof-names) (object-class=group))</p>	<p>The role search filter. This filter should, when combined with the role search base and role scope, return a complete list of roles within the LDAP server. There are several default values depending on the chosen server type. If the server type is not chosen or this property is not initialized, no roles are available.</p>
RoleMemberAttributes	<p>For Netscape Directory Server: member,unique-member</p>	<p>The role's member attributes defines a comma-delimited list of attributes that roles may have that define a list of DN's of people who are in the role.</p> <p>These values are cross referenced with the active user to determine the user's role list. One example of the use of this property is when using LDAP groups as placeholders for roles. This property only has a default value when the Netscape server type is chosen.</p>
RoleNameAttribute	cn	<p>The attribute for retrieved roles that is the common name of the role. If this value is "dn" it is interpreted specially as the entire dn of the role as the role name.</p>
RoleScope	onelevel	<p>The role search scope. The supported values for this are:</p> <ul style="list-style-type: none"> • onelevel • subtree <p>If you do not specify a value or if you specify an invalid value, the default value is used.</p>

Property	Default Value	Description
UserRoleMembershipAttributes	For iPlanet/SunONE: nsRoleDN For ActiveDirectory: memberOf For all others: none	The user's role membership attributes property is used to define an attribute that a user has that contains the DN's of all of the roles as user is a member of. These comma-delimited values are then cross-referenced with the roles retrieved in the role search base and search filter to come up with a list of user's roles.
UserFreeformRoleMembershipAttributes	None	The "freeform" role membership attribute list. Users who have attributes in this comma-delimited list are automatically granted access to roles whose names are equal to the attribute value. For example, if the value of this property is "department" and user's LDAP record has the following values for the department attribute, { "sales", "consulting" }, then the user will be granted roles whose names are "sales" and "consulting".
Referral	ignore	The behavior when a referral is encountered. The valid values are those dictated by LdapContext, for example, "follow", "ignore", "throw".
DigestMD5AuthenticationFormat	DN For OpenLDAP: User-name	The DIGEST-MD5 bind authentication identity format.
UseUserAccountControlAttribute	For most LDAP servers: false For ActiveDirectory: true	The UserAccountControl attribute to be used for detecting disabled user accounts, account expirations, password expirations and so on. ActiveDirectory also uses this attribute to store the above information.
controlFlag	optional	Indicates whether authentication with this login module is sufficient to allow the user to log in, or whether the user must also be authenticated with another login module. Rarely set to anything other than "sufficient" for any login module. Note: controlFlag is a generic login module option rather than an LDAP configuration property.

Mapping Sybase Control Center Roles to LDAP or OS Groups

To grant Sybase Control Center privileges to users who are authenticated through LDAP or the operating system, associate roles used in Sybase Control Center with groups in LDAP or the operating system.

You can configure Sybase Control Center to enable users to authenticate through their local operating system or through an LDAP server. To make this type of authentication work, SCC roles must be mapped to groups that exist in the system providing authentication (LDAP or the operating system) or in the login module.

By default, SCC assumes there is a “sybase” group in the authenticating system and maps the LDAP or OS “sybase” group to SCC roles to provide basic privileges. The table lists additional default mappings of LDAP and OS groups to SCC roles.

Login Module	OS Group	Sybase Control Center Roles
UNIX Proxy	root	uaAnonymous, uaAgentAdmin, uaOSAdmin
	sybase	uaAnonymous, uaPluginAdmin, sccUserRole
	user	uaAnonymous, uaUser
	guest	uaAnonymous, uaGuest
NT Proxy	Administrators	uaAnonymous, uaAgentAdmin, uaOSAdmin
	sybase	uaAnonymous, uaPluginAdmin, sccUserRole
	Users	uaAnonymous, uaUser
	Guests	uaAnonymous, uaGuest
LDAP	sybase	uaAnonymous, uaPluginAdmin, sccUserRole

There are two ways to accomplish the mapping:

- (Recommended) Add a “sybase” group to the operating system or LDAP server Sybase Control Center is using to authenticate users, and add all users who need to access Sybase Control Center to the “sybase” group.
- Configure Sybase Control Center to use an existing group in LDAP or the operating system by editing the `roles-map.xml` file. This option is described here.

1. If Sybase Control Center is running, shut it down.

2. In a text editor, open:

```
<SCC-install-directory>/conf/roles-map.xml
```

3. Locate the appropriate login module: UNIX or NT (for Windows).

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4. Copy the line that maps the “sybase” group and paste it into the module just above the original sybase line.
5. Change “sybase” to the name of the group in your operating system to which Sybase Control Center users belong.

For example, if the group is `SCCusers`, the new line should look like this:

```
<role-mapping modRole="SCCusers"  
uafRole="uaAnonymous,uaPluginAdmin,sccUserRole" />
```

6. Save the file and exit.
7. Start Sybase Control Center.

See also

- *Configuring an LDAP Authentication Module* on page 67

Encrypting a Password

Use the **passencrypt** utility to encrypt passwords and other values that must be kept secure while stored in text files.

You can safely store an encrypted password in a properties file. Enter the password in clear text (unencrypted) when you execute **passencrypt** and when you use the password to log in.

passencrypt, which is located in the Sybase Control Center `bin` directory, uses the DES encryption algorithm.

1. Open a command window and change to the `bin` directory:

Windows: `cd <SCC-install-directory>\bin`

UNIX: `cd <SCC-install-directory>/bin`

2. To encrypt a password, enter **passencrypt**. Enter your new password at the resulting prompt.
passencrypt encrypts the password you enter (which does not appear on the screen) and displays the password in encrypted form.
3. Copy the encrypted password.
4. Paste the encrypted password where needed.

See also

- *Setting Up Roles and Passwords* on page 68

Configuring Ports

(Optional) Use the **scc --port** command to assign Sybase Control Center services to new ports.

Prerequisites

Check for port conflicts between Sybase Control Center and other software running on the same host.

Task

Sybase Control Center cannot function properly if other services use its ports. If you discover a conflict with any port listed in the right column below, you can either reconfigure the other service's port or reconfigure Sybase Control Center as described here.

Port Name	Description	Service Names	Property Names	Default Port
db	Database port Present on SCC server	SccSADataserver Messaging Alert Scheduler	com.sybase.asa.server.port messaging.db.port alert.database.port org.quartz.data-Source.ASA.URL	3638
http	Web HTTP port Present on SCC server	EmbeddedWebContainer	http.port	8282
https	Web HTTPS (secure HTTP) port Present on SCC server	EmbeddedWebContainer	https.port	8283
jiniHttp	JINI HTTP server Present on SCC server and SCC agent	Jini	httpPort	9092
jiniRmid	JINI remote method invocation daemon Present on SCC server and SCC agent	Jini	rmidPort	9095
msg	Messaging port Present on SCC server	Messaging	messaging.port	2000

Port Name	Description	Service Names	Property Names	Default Port
rmi	RMI port Present on SCC server and SCC agent	RMI	port	9999
tds	Tabular Data Stream™ port (used to communicate with other Sybase products) Present on SCC server and SCC agent	Tds	tdsPort	9998

1. Shut down Sybase Control Center.
2. Execute **scc --info ports** to display a list of Sybase Control Center services, their properties, and their assigned ports.
3. To reassign a port, enter a command in one of these formats:

```
scc --port port-name=port-number
```

```
scc --port service-name:property-name=port-number
```

Use the first, simpler format unless you want to configure the database services to use different ports. (By default, they all use the same port.)

4. Start Sybase Control Center.
5. Execute **scc --info ports** again to confirm that the port has been reassigned.

Examples

Set all four database services (data server, messaging, database alert, and scheduler) to the same port, 3639. (The database is SQL Anywhere, used by the Sybase Control Center internal repository.)

```
scc --port db=3639
```

Set only the database messaging service to port 3639.

```
scc --port Messaging:messaging.db.port=3639
```

Set the HTTP port to 9292.

```
scc --port http=9292
```

Set the Jini RMI daemon to port 9696.

```
scc --port jiniRmid=9696
```

Set the main Sybase Control Center messaging service to port 2001.

```
scc --port msg=2001
```

Set the RMI port to 9991.

```
scc --port rmi=9991
```

Set the Tabular Data Stream port to 9997.

```
scc --port tds=9997
```

Note: **scc** commands that include a port-setting option (**-p** or **--port**) do not start Sybase Control Center. To start SCC, execute a separate **scc** command.

See also

- *scc Command* on page 57

Configuring Sybase Control Center

For configuration instructions, see the Configure section of the help for your Sybase Control Center product module.

If you have more than one product module installed, follow the configuration instructions for each module.

Configuring the Automatic Logout Timer

(Optional) Set Sybase Control Center to end login sessions when users are inactive for too long.

Prerequisites

Launch Sybase Control Center and log in using an account with administrative privileges. (The login account or its group must have sccAdminRole.)

Task

1. From the menu bar, select **Application > Administration**.
2. Select **General Settings**.
3. Click the **Auto-Logout** tab.
4. Enter the number of minutes after which an idle user will be automatically logged out. Enter 0 or leave the box empty to disable automatic logout.
5. Click **OK** (to apply the change and close the properties dialog) or **Apply** (to apply the change and leave the dialog open).

See also

- *Launching Sybase Control Center* on page 47
- *Logging in to Sybase Control Center* on page 61

User Authorization

The authorization mechanism in Sybase Control Center employs login accounts and task-based roles.

Access to Sybase Control Center is controlled by login accounts. You grant permissions to a login account by assigning predefined roles that control tasks the user can perform in Sybase Control Center, such as administration and monitoring of particular types of Sybase servers. The roles can be assigned directly to login accounts or to groups; a login account inherits the roles of any group to which it belongs. Component product modules assign some roles automatically.

Sybase Control Center classifies roles as follows:

- System roles – define how a user can interact with Sybase Control Center.
- Product roles – define how a user can interact with a particular managed resource in Sybase Control Center, for example the Replication Server named RepBoston01.

Note: The tools described here are for managing SCC-enabled login accounts; you cannot use them to manage accounts and groups that are native to your managed resource.

See also

- *Authenticating a Login Account for a Managed Resource* on page 93

Assigning a Role to a Login or a Group

Use the security configuration options to add one or more roles to a Sybase Control Center login account or to a group. Roles enable users to perform tasks such as monitoring servers or administering Sybase Control Center.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task. To assign a monitoring role for a server, first register the server.

Task

Assign the sccAdminRole to any login account that will perform administrative tasks in Sybase Control Center.

1. From the application menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Click **Logins** or **Groups**.
4. In the table, select the login account or group to which you want to assign a role.
5. Click the **Roles** tab.

6. In the **Available roles for resource** list, select the role, then click **Add**. For example, to grant administrative privileges, add the SCC Service:sccAdminRole. To grant monitoring privileges, add the MonitorRole for the desired server and server type.

Note: Sybase Control Center product modules assign certain roles automatically, so you might not need to add a MonitorRole.

If a role appears in the **Has following roles** list, this account or group has already been configured with that role.

7. Click **OK**.

See also

- *Removing a Role from a Login or a Group* on page 81

Removing a Role from a Login or a Group

Use the security configuration options to remove one or more roles from a Sybase Control Center login account or from a group.

Prerequisites

You must have administrative privileges to perform this task.

Task

1. From the menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Click **Logins** or **Groups**.
4. Select the login account or group from which you want to remove a role.
5. Click the **Roles** tab.
6. Select the role, then click **Remove**.
7. Click **OK**.

See also

- *Assigning a Role to a Login or a Group* on page 80

Adding a Group

Use the security configuration options to create a new group.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

Groups can make roles easier to manage. Rather than assigning roles to individual users, assign roles to groups and add users to the groups or remove them as needed.

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Select **Groups**.
4. Click **Create Group**.
5. Enter a group name and a description.
6. Click **Finish**.

See also

- *Removing a Group* on page 82
- *Adding a Login Account to a Group* on page 83
- *Removing a Login Account from a Group* on page 83

Removing a Group

Use the security configuration options to remove a group.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Select **Groups**.
4. Select the group to remove.
5. Click **Delete**.
6. Click **OK** to confirm the deletion.

See also

- *Adding a Group* on page 81
- *Adding a Login Account to a Group* on page 83
- *Removing a Login Account from a Group* on page 83

Adding a Login Account to a Group

Use the security configuration options to add one or more login accounts to a group.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Click **Groups**.
4. Select the group to which you want to assign an account.
5. Click the **Membership** tab.
6. Select the account, then click **Add**.
7. Click **OK**.

See also

- *Adding a Group* on page 81
- *Removing a Group* on page 82
- *Removing a Login Account from a Group* on page 83

Removing a Login Account from a Group

Use the security configuration options to remove one or more login accounts from a group.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties, expand the **Security** folder.
3. Select **Groups**.
4. Select the group from which to remove members.
5. Click the **Membership** tab.
6. Select the login, then click **Remove**.
7. Click **OK**.

See also

- *Adding a Group* on page 81
- *Removing a Group* on page 82
- *Adding a Login Account to a Group* on page 83

Adding a Login Account to the System

Use the security configuration options to create a native login account in Sybase Control Center.

Prerequisites

- You must have administrative privileges (sccAdminRole) to perform this task.
- If you intend to use LDAP or the operating system to authenticate users, configure the appropriate authentication module.

Task

Note: Sybase does not recommend that you create a native login account for every Sybase Control Center user. It is more efficient to configure Sybase Control Center to authenticate users through their user accounts in LDAP or the operating system.

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Select **Logins**.
4. Click **Create Login**.
5. Enter a login name and expiration for the new account. Expiration is optional.
6. Click **Next**.
7. Select **Specify new user information**.
8. Enter details about the user:
 - Title
 - First name*
 - M.I. (middle initial)
 - Last name*
 - Suffix
 - E-mail address*
 - Phone
 - Ext.
 - Fax
 - Mobile
 - Supports text messaging (checkbox)

*You must fill in the **First Name**, **Last Name**, and **E-mail Address** fields.

9. Click **Finish**.

Note: If you are using the predefined Simple Login module for authentication, the default login accounts, “sccadmin” and “sccuser,” come with blank passwords. To change or modify the passwords, configure the `csi.properties` file as described in the *Installation Guide*.

Next

Grant privileges to the new login account. You can grant privileges by assigning Sybase Control Center roles directly to the login accounts, or by assigning the login accounts to groups and mapping Sybase Control Center roles to the groups. The group approach is generally more efficient.

Removing a Login Account from the System

Use the security configuration options to delete a Sybase Control Center login account.

Prerequisites

You must have administrative privileges (`sccAdminRole`) to perform this task.

Task

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Select **Logins**.
4. Select the login to delete.
5. Click **Delete**.
6. Click **OK** to confirm the deletion.

Modifying a User Profile

Use the security configuration options to suspend a login account, impose an expiration date, or modify the account’s user information.

Prerequisites

You must have administrative privileges (`sccAdminRole`) to perform this task.

Task

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, expand the **Security** folder.
3. Select **Logins**.

4. Select the login account to modify.
5. Click the **General** tab.
6. To suspend this account, click **Login disabled**.
7. To set the date on which this account will stop working, click the calendar icon next to the **Expiration** field and select a date.
8. Click **Apply**.
9. Click the **User Info** tab.
10. Edit the user information.
 When this user configures e-mail alert subscriptions, Sybase Control Center automatically populates the subscription dialog with the e-mail address you enter here.
11. Click **Apply**.

Logins, Roles, and Groups

Sybase Control Center includes predefined login accounts and roles.

In Sybase Control Center, a login account identifies a user who can connect to the application. An account may have roles that specify the tasks the user is allowed to perform.

Sybase Control Center is designed to delegate user authentication to the operating system or to an LDAP directory service. Delegation requires some configuration, however, so Sybase Control Center comes with two predefined login accounts. Sybase recommends using the predefined accounts only for installing and setting up Sybase Control Center. These accounts are not intended for use in a production environment.

Table 9. Predefined accounts

Login name	Description
sccadmin	Can use all the administration features in Sybase Control Center
sccuser	Test account with no special privileges

A role is a predefined profile that can be assigned to a login account or a group. Roles control the access rights for login accounts. Sybase Control Center comes with predefined roles that are intended for use in production environments.

Table 10. Predefined roles

Role	Description
sccUserRole	Provides nonadministrative access to Sybase Control Center. Required for every user.
sccAdminRole	Provides administrative privileges for managing Sybase Control Center.

Monitoring privileges for SCC product modules are assigned automatically.

A group is made up of one or more login accounts; all the accounts in a group have the roles granted to the group. In Sybase Control Center you can create groups to suit your business requirements.

Get Started

Configure

Configure Sybase Control Center for Replication Server Data Assurance Option.

1. *Registering a Data Assurance Server*

Register a resource (for example, a server that can be monitored) to make Sybase Control Center aware of it and its connection information.

2. *Configuring Data Assurance Server for Monitoring*

Authenticate a Data Assurance (DA) server to monitor using Sybase Control Center. When a resource is authenticated, Sybase Control Center enables the DA server monitoring option.

3. *Importing Resources for Batch Registration*

(Optional) Import and register multiple servers from an interfaces or sql.ini file.

4. *Creating a Perspective*

Create a perspective in which you can add and manage resources.

5. *Adding a Resource to a Perspective*

Add one or more resources to the current perspective.

6. *Authenticating a Login Account for a Managed Resource*

Specify the login account Sybase Control Center will use when it connects to your server or agent to collect monitoring data or manage the resource.

7. *Setting Up Statistics Collection*

Use the Properties view of your managed resource to create a data collection job and add a schedule to the job.

8. *Creating an Agent Connection*

Create a Data Assurance (DA) agent connection required to create comparesets and schema jobs.

9. *Creating a Database Connection*

Set up a primary and replicate database connection in a Data Assurance (DA) server.

10. *Creating a Single or Cluster Connection from an Interface File*

Import Data Assurance (DA) resources from an interface file.

11. *Optional Configuration Steps*

Perform additional configuration, including user authorization, alerts, data collection scheduling, backups, and setting purging options for the repository.

See also

- *User Authorization* on page 42
- *Logins, Roles, and Groups* on page 86

Configure

- *Setting Up Security* on page 62
- *Assigning a Role to a Login or a Group* on page 80

Registering a Data Assurance Server

Register a resource (for example, a server that can be monitored) to make Sybase Control Center aware of it and its connection information.

1. In the Resource Explorer, select **Resources > Register**.
2. Specify:

Field	Description
Resource Name	(Required) Name of the resource to register. Enter the actual name of the server, using uppercase and lowercase letters. If the name registered in Sybase Control Center does not exactly match the server name, some monitoring functions, including the topology view, do not work.
Resource Type	Select a resource type: <ul style="list-style-type: none">• Data Assurance Server – monitor Data Assurance server.
Description	A brief description to help you identify the resource.

3. Click **Next**.
4. Specify the connection information for your resource:

Field	Description
Host Name	Local host name
Port Number	Local host port number

5. Click **Next**.
6. (Optional) Click **Add this resource to the current perspective**. You must add a resource to a perspective (not necessarily the current perspective) before you can manage or monitor it.
7. (Optional) Click **Open the resource explorer to view this new resource**. (This option is not present when the Resource Explorer is open.)
8. Click **Finish**.

See also

- *Common Display Options* on page 4
- *Resources* on page 123
- *Unregistering a Resource* on page 124

Configuring Data Assurance Server for Monitoring

Authenticate a Data Assurance (DA) server to monitor using Sybase Control Center. When a resource is authenticated, Sybase Control Center enables the DA server monitoring option.

Importing Resources for Batch Registration

(Optional) Import and register multiple servers from an `interfaces` or `sql.ini` file.

Prerequisites

Copy the `interfaces` or `sql.ini` file to a location on or accessible from the machine that hosts your Web browser.

Task

An `interfaces` (UNIX) or `sql.ini` file (Windows) is a list of Sybase servers and their ports; it may contain other connection information as well. The file is created during the installation of a Sybase server:

- Windows: `%SYBASE%\ini\sql.ini`
- Unix: `$SYBASE/interfaces`

For more information on `interfaces` files, see the appendix on configuration files in *Configuration Guide Open Client and Open Server 15.0 for UNIX*.

For more information on `sql.ini` files, see the chapter on network communications using `sql.ini` in the Adaptive Server Enterprise 15.0 *Configuration Guide for Windows*.

Note: The Import Resources wizard imports servers in batches of a single type (Adaptive Server, Sybase IQ, or Replication Server, for example). If your `interfaces` or `sql.ini` file includes resources of more than one type, you must perform this procedure for each resource type.

1. In the application menu, select **View > Open > Resource Explorer**.
2. In the Resource Explorer, select **Resources > Import**.
The Import Resources wizard opens; **Interfaces file** is already selected.
3. Click **Next**.
The Directory Service Connection page appears.
4. Click **Browse** and navigate to the `interfaces` file you want to import from.
You cannot type in the **File name** field.

Configure

5. Click **Next**.
6. On the Import Resource Type page, select the type of server you want to import.
7. On the Resource Selection page, click to select the servers you want to import.
Select only servers of the type you chose on the Import Resource Type page. If you import servers with incorrect types, Sybase Control Center will not be able to monitor or manage them properly.
8. Resources of your chosen type may require connection parameters in addition to those present in the file—RSSD host name and port for Replication Server, for example, or character set and language for Adaptive Server. Enter any required connection parameters.
9. Click **Next**.
10. (Optional) Click **Add these resources to the current perspective**. You must add a resource to a perspective (not necessarily the current perspective) before you can manage or monitor it.
11. Click **Next**.
The Confirmation page displays a list of the resources you have selected.
12. Click **Finish** if you are ready to import, or click **Back** to return to the previous screens and change your selections.
When you click **Finish**, Sybase Control Center imports and registers the resources and displays a summary page.
13. Click **Close** to finish the wizard.

The newly imported resources appear in the Resource Explorer. If you elected to add them to the current perspective, the resources also appear in the Perspective Resources view.

See also

- *Resources* on page 123
- *Unregistering a Resource* on page 124

Creating a Perspective

Create a perspective in which you can add and manage resources.

1. From the application menu bar, select **Perspective > Create**.
2. Enter a name for your perspective. The name can contain up to 255 characters.
3. Click **OK**.

Adding a Resource to a Perspective

Add one or more resources to the current perspective.

Add servers or other resources to a perspective so you can monitor and manage them along with other resources in the same perspective.

1. From the Sybase Control Center toolbar, click the **Launch Resource Explorer** icon.
2. Select the resources to add to your perspective. Use **Shift-click** or **Control-click** to select multiple resources.
3. Perform one of these actions:
 - Select **Resources > Add Resources to Perspective**.
 - Drag and drop resources from the Resource Explorer onto the Perspective Resources view. You can select and drag multiple resources.

See also

- *Removing a Resource from a Perspective* on page 124
- *Resources* on page 123

Authenticating a Login Account for a Managed Resource

Specify the login account Sybase Control Center will use when it connects to your server or agent to collect monitoring data or manage the resource.

Perform this task for each resource registered with Sybase Control Center.

Note: You can also authenticate a server during administrative tasks like creating an alert or a collection job.

1. Connect a browser to Sybase Control Center and log in.
2. If the Perspective Resources view is not open, click the **Show/Hide Perspective Resources View** icon in the toolbar.
3. In the Perspective Resources view, select your resource and select **Resource > Authenticate** from the view menu.
4. Select **Use my current SCC login** or **Specify different credentials**.
5. If you chose **Specify different credentials**, enter the login and password for Sybase Control Center to use to connect to your resource.
6. If the selected server is a Replication Server, also enter the RSSD user name and password.
7. Click **OK** to save and exit the dialog.

See also

- *User Authorization* on page 80

Setting Up Statistics Collection

Use the Properties view of your managed resource to create a data collection job and add a schedule to the job.

Statistics gathering consumes system resources intensively; the more collection jobs you run, the greater the burden on your server. For best performance, Sybase recommends these guidelines for scheduling data collection jobs:

- Schedule only one collection job for each collection.
- Set the collection interval to 5 minutes or more. (The default is 5 minutes.)

Data collections for a managed resource do not run until the resource is authenticated.

1. In the Perspective Resources view, select a resource, click its drop-down arrow, and select **Resource > Properties**.
2. Select **Collection Jobs**.
3. Click **Create Job**.
4. If this resource has not yet been authenticated, you see the Authentication page. Enter a user name and password that Sybase Control Center can use to log in to the resource. Click **Authenticate** to verify your credentials. Data collections can run only on an authenticated resource.
5. On the Collection Information page, select the data collection that this job will run.
6. (Optional) If you do not want SCC to save data collected for this job in the repository, unselect **Save data collected from this job**.

If you choose not to save collection data, SCC updates any open views (the heat chart or a node monitor, for example) when the job runs. If the job runs when no views are open, the data is not captured.

This option cannot be modified once the job is created. If you need to change it, drop the data collections and add it again.

7. Click **Next**.
8. (Optional) If you do not want to create a schedule yet, unselect **Create a schedule for this job**.
9. Specify details for the new schedule:

Field	Description
Name	A name for this schedule

Field	Description
Description	A description of this schedule

10. Choose to start the job **Now** or **Later**.

11. Specify the duration of this schedule. The job can run:

- **Once**
- **Repetitively** at an interval you specify

Field	Description
Repeat interval	Time period (in seconds, minutes, hours, or days) between job executions

- **Until** a stop date that you specify, at an interval you specify

Field	Description
Repeat interval	Time period (in seconds, minutes, hours, or days) between job executions
Stop date	Date and time the job should stop running

Note: Enter dates and times using your local time. Sybase Control Center converts your times for remote time zones if necessary.

12. Click **Finish**.

See also

- *Creating an Agent Connection* on page 97
- *Job Scheduling* on page 120

About Statistics

Understand availability and performance statistics in Sybase Control Center.

The statistics you work with in Sybase Control Center can be divided into two types:

- Availability statistics are concerned with present conditions; they help you determine whether a resource you are monitoring (a server or an agent, for example) is running and functioning properly.
- Performance statistics are concerned with behavior of the same resources over time. They describe the flow of data through your environment. You can use performance statistics to spot trends, identify problems like resource bottlenecks, and make plans.

Sybase Control Center includes predefined key performance indicators (KPIs) for each product module; these KPIs are grouped into collections. KPIs such as server status, which serves as an availability statistic when it is fresh, have long-term value as historical performance statistics.

Configure

Availability statistics appear on the heat chart and on resource monitoring screens in each product module.

Performance statistics appear on the statistics chart and on resource monitoring screens in each product module.

Some KPIs are included in the default collection for each product module. To make other KPIs available to the heat chart, statistics chart, and resource monitoring views, you must set up collection jobs in the scheduler. See the data collections help topic for information on data collections and the KPIs contained in them.

Several configuration options affect the collection and display of data in Sybase Control Center:

- Collection repeat interval—The frequency of data collection. Set this on the collection job in the scheduler.
- Screen refresh interval—The period between screen refreshes. Refreshing the screen redraws it with the newest available data. Set the screen refresh interval in the product module. (May not be settable in all product modules.)
- Chart trend period—The period over which data is displayed in historical charts. Set the trend period in the product module. (May not be settable in all product modules.)

Data Collections for Replication Server Data Assurance Option

Data collection for Sybase Control Center for Data Assurance (DA) collects high-level server and agent information.

You may schedule collection of DA data through either a default or predefined data collection. Sybase Control Center sets up a default data collection called **collection_da_overview** when a DA server is authenticated.

See also

- *Job Scheduling* on page 120

Key Performance Indicators for Replication Server Data Assurance Option

Key performance indicators (KPIs) provide the statistics that appear on Data Assurance (DA) server dashboards and charts in Sybase Control Center.

KPI	Description
Server CPU Utilization	The server's overall CPU usage, which is presented in percentages.
Server Memory Utilization	The server's overall memory usage, which is presented in percentages.
Agent CPU Utilization	The agent's overall CPU usage, which is presented in percentages.

KPI	Description
Resource State	The state of the resource, which includes Running, Stopped, and Unknown.
Agent Memory Utilization	The agent's overall memory usage, which is presented in percentages.

States for Data Assurance Server, Agents, and Database Connection

States are used on the dashboards, heat chart, and topology icons.

State	Description
Running	The DA object is in Active state.
Stopped	DA object has been stopped.
Unknown	The state of the DA object cannot be determined.

Creating an Agent Connection

Create a Data Assurance (DA) agent connection required to create comparesets and schema jobs.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Agent Connections**.
4. Either:
 - Select **Folder > Create Agent Connection**, or,
 - Click the button that appears when you select Data Assurance Agent Connections, then select **Create Agent Connection**.
5. Specify the agent connection information:

Field	Description
Data Assurance server	(Required) Name of the DA server from the drop-down list.
Name	(Required) Name of the agent connection. Space is not allowed.
Host	(Required) Name of the server where the DA agent is installed.
Port	(Required) Port number of the DA agent.
Username	(Required) DA agent username.
Password	(Required) DA agent password.

Configure

Field	Description
Description	A brief description to help you identify the agent connection.

- (Optional) Click **Test** to verify if the provided agent connection information is correct.
- Click **OK**.

The new agent connection profile appears in the Data Assurance Agent Connections table.

See also

- *Setting Up Statistics Collection* on page 94
- *Data Assurance Agents* on page 139
- *Editing an Agent Connection* on page 140
- *Deleting an Agent Connection* on page 140
- *Viewing All Agent Connection* on page 141
- *Testing an Agent Connection* on page 141

Creating a Database Connection

Set up a primary and replicate database connection in a Data Assurance (DA) server.

- In the Perspective Resources view, select a DA server.
- Select **Resource > Administration Console**.
- Expand **Data Assurance Server**, then select **Database Connections**.
- Either:
 - Select **Folder > Create Database Connection**, or,
 - Click the button that appears when you select Database Connections, then select **Create Database Connection**.
- Specify the database connection information:

Field	Description
Data Assurance server	(Required) Name of the DA server from the drop-down list.
Name	(Required) Name of the database connection. Space is not allowed.
Description	A brief description to help you identify the database connection.
Type	(Required) Database type, which includes Adaptive Server Enterprise (ASE), ASE Cluster, and Replication Server system database (RSSD).

Field	Description
Agent	(Required) The DA agent to use in connecting to the database. It can be a local agent that comes with the DA server installation, a remote agent that is defined in the Data Assurance Agent Connections, or a new remote agent that has yet to be defined.
Database	(Required) Name of the database to connect to.
Host	(Required) Name of the server where the database is residing.
Port	(Required) Port number of the database.
Username	(Required) database username.
Password	Database password.
Properties	The properties for JDBC connection.

6. (Optional) Click **Test** to verify if you have specified the correct database information.
7. Click **OK**.

The new database connection appears in the Database Connections table.

See also

- *Database Connections* on page 141
- *Editing a Database Connection* on page 142
- *Deleting a Database Connection* on page 143
- *Viewing All the Database Connection Profiles* on page 143
- *Testing a Database Connection* on page 143

Creating a Single or Cluster Connection from an Interface File

Import Data Assurance (DA) resources from an interface file.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Connections**.
4. Either:
 - Select **Folder > Import Connection**, or,
 - Click the button that appears when you select Database Connections, then select **Import Connection**.

Configure

5. Browse through your local drive, select an interface or `sql.ini` file, then click **Next** or **Import Resource Type**.
6. Specify the DA server and resource type to use, then click **Next** or **Resource Selection**.
7. Select the resources to import and the agent that this connection is using, specify the username and password to connect to the selected agent, then click **Next** or **Confirm**.

Note: The password field is not required.

8. Click **Finish**.

See also

- *Database Connections* on page 141
- *Editing a Database Connection* on page 142
- *Deleting a Database Connection* on page 143
- *Viewing All the Database Connection Profiles* on page 143
- *Testing a Database Connection* on page 143

Optional Configuration Steps

Perform additional configuration, including user authorization, alerts, data collection scheduling, backups, and setting purging options for the repository.

Table 11. Configuration areas

Configuration area	Description	Topic
User authorization	Set up groups of users or assign roles. Make sure there are users with administrative privileges (sccAdminRole).	<i>User Authorization</i> on page 80
Authentication	Add authentication modules to allow Windows, UNIX, and LDAP users to log in to Sybase Control Center.	<i>Setting up Security</i> on page 62
Data collection	Modify collection intervals and schedules, suspend and resume the schedule, and delete collection jobs.	<i>Job Scheduling</i> on page 120
Resources	Unregister resources, add them to perspectives, or remove them.	<i>Resources</i> on page 123
Perspectives	Create, remove, and rename perspectives.	<i>Perspectives</i> on page 125
Repository	Set purging options and schedule backups of the repository database.	<i>Repository</i> on page 127

Compare Data Rows and Schemas

Compare row data and schema between two or more Adaptive Server databases, and view discrepancies.

Comparesets

Comparesets, which consist of sets of tables and columns, define the data being compared in a particular job.

A compareset includes:

- Tables to compare
- Key columns that uniquely define a row
- Columns to compare
- A **WHERE** clause that defines which rows to compare

Source and target tables and columns need not use the same name in a compareset. Each compareset must have one source and one or more targets, and can be used by any number of jobs.

Creating a Compareset

Create a compareset, which includes the database connection profile, and the source and target tables to be compared.

Prerequisites

Verify that you have created an agent connection.

Task

1. In the Perspective Resources view, select a Data Assurance server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Assurance Comparesets**.
4. Either:
 - Select **Folder > Create Compareset**, or,
 - Click the button that appears when you select Data Assurance Comparesets, then click **Create Compareset**.
5. Specify the compareset basic information, and click **Next** or **Source Table**.

Compare Data Rows and Schemas

Field	Description
Data Assurance server	(Required) Name of the DA server from the drop-down list.
Name	(Required) Name of the compareset.
Description	A brief description to help you identify the compareset.

6. Select from existing database connections or click **New** to create a new one.
7. Select a schema and a database table.
8. Select the columns to compare.
9. (Optional) Specify constraints to control the comparison job.
10. Click **Next** or **Target Table(s)**.
11. Repeat the same steps performed for the source table.
12. (Optional) Click **Add Target** to define a new target table to compare with the source table.

Note: You can compare a source table to one or more target table.

13. Click **Finish**.

See also

- *Data Assurance Agents* on page 139
- *Creating an Agent Connection* on page 97
- *Creating a Database Connection* on page 98
- *Creating a Row Comparison Job* on page 104

Editing a Compareset

Modify the details of an existing compareset.

Prerequisites

Verify that the compareset you are modifying is not being used in an executing job.

Task

1. In the Perspective Resources view, select a Data Assurance server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Comparesets**.
4. Select a compareset, then either:
 - Select **Resource > Properties**, or,
 - Click the button that appears when you select a compareset, then select **Properties**.
5. Modify the source and the target tables' details as required.

You also have the option to map the source table to another target table.

6. Click **Apply**, then click **OK**.

See also

- *Creating a Database Connection* on page 98
- *Creating a Row Comparison Job* on page 104
- *Viewing a Data Assurance Job Status and Report* on page 114

Deleting a Compareset

Remove a compareset from the list.

Prerequisites

Verify that the compareset you are deleting is not being used in an executing job.

Task

1. In the Perspective Resources view, select a Data Assurance server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Assurance Comparesets**.
4. Select a compareset, then either:
 - Select **Resource > Delete**, or,
 - Click the button that appears when you select a compareset, then select **Delete**.
5. Click **OK**.

See also

- *Viewing a Data Assurance Job Status and Report* on page 114

Viewing All Comparesets

Display all Data Assurance (DA) server comparesets.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Comparesets**.

Data Assurance Jobs

A Data Assurance (DA) job can be a row comparison or a schema comparison.

When creating a row comparison job you specify the compareset to use and set the schedule for running the job. You can set to run a row comparison job based on days, weeks, or months,

Compare Data Rows and Schemas

or you can run it manually. The schema comparison job is run manually and cannot be scheduled.

You can also create a row comparison job based on Replication Server system database (RSSD) by importing table-level replication definition and subscription from an RSSD in a Replication Server.

See the *Replication Server Data Assurance Option Users Guide > Replication Server Data Assurance Option > Jobs and Comparisons*.

Row Comparison Jobs

A row comparison sorts rows by a primary or a unique key, from all participating database tables and compares them one by one. A comparison summary is stored in the Data Assurance System Database (DASD). Detailed text or XML reports showing the row differences are stored in the data directory.

In a row job, you create a comparison object, then add a compareset to that particular comparison, set the various comparison parameters, and set the time when the comparison must take place.

Creating a Row Comparison Job

Set up a row comparison job.

Prerequisites

Verify that you have created a compareset.

Task

1. In the Perspective Resources view, select a Data Assurance server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Jobs**.
4. Either:
 - Select **Folder > Create Job**, or,
 - Click the button that appears when you select Database Assurance Jobs, then select **Create Job**.
5. Specify the row comparison job basic information:

Field	Description
Data Assurance server	(Required) Name of the DA server from the drop-down list.
Name	(Required) Name of the row comparison job.
Active	Indicates that the row job can be run if selected.

Field	Description
Description	A brief description to help you identify the row comparison job.

6. Click **Next** or **Option**.
7. Enter the value for the maximum concurrent jobs.
This is the maximum number of jobs you want to run at the same time.
8. Click **Next** or **Comparison**.
9. Specify the general information for the current comparison you are setting up.

Field	Description
Name	(Required) Name of the comparison in a row comparison job.
Active	Indicates that the comparison job can be run if selected.
Description	A brief description to help you identify the comparison.
Priority	Priority level for the comparison.
Compareset	Name of the predefined compareset, which has the source and target tables to compare.

Note: You can create more than one comparison to a row comparison job, but doing so may result in slow performance. To do this, click **Add Comparison**.

10. (Optional) In the Comparison Options tab, modify or accept the default value for the comparison options.
11. (Optional) In the Column Options tab, modify or accept the default values on the column options for each column from the compareset.
12. (Optional) Click **Next** or **Schedule**.
13. (Optional) Click **With Schedule** (s) to set the schedule for this row comparison job. Or you can set the schedule later or run it manually.
14. Click **Finish**.

See also

- *Comparesets* on page 101

Comparison and Column Options

Be familiar with the comparison and column options provided for creating a row job.

Table 12. Comparison Options

Field	Description
Abort condition (rows):	<p>Aborts row comparison if the difference count exceeds the specified value.</p> <p>Valid values: 1 to 9223372036854775807.</p> <p>Default value: 1000.</p>
Abort row count mismatch:	<p>Determines whether to abort row comparison if table row counts do not match.</p> <p>Valid values: true or false.</p> <p>Default value: false.</p>
Auto reconciliation:	<p>Indicates whether to automatically apply the reconciliation script.</p> <p>Valid values: true or false.</p> <p>Default value: false.</p> <hr/> <p>Note: To enable AUTO_RECONCILE, set CRE-ATE_COL_LOG to true.</p>
Compare mode:	<p>Specifies the row comparison mode.</p> <ul style="list-style-type: none"> • <code>row_compare</code> – compares all table rows. • <code>key_compare</code> – compares the primary key columns. • <code>row_count</code> – compress row count. <p>Default value: <code>row_compare</code>.</p>
Compress row data:	<p>Compresses the row data between the agent and the server.</p> <p>Valid values: true or false.</p> <p>Default value: false.</p>

Field	Description
Create column log:	<p>Generates a column differences log, which lists all missing, orphaned, and inconsistent row values (keys and columns). Create a column log if you want to:</p> <ul style="list-style-type: none"> • Generate a reconciliation script • Perform automatic reconciliation • Generate a detailed report <p>Valid values: true or false.</p> <p>Default value: false.</p>
Create reconciliation script:	<p>Generates a reconciliation script. To use this parameter, you must also set CREATE_COL_LOG to true.</p> <p>Valid values: true or false.</p> <p>Default value: false.</p>
Enable row count:	<p>Determines whether or not to count source and target table rows before they are compared. DA server uses the row count to estimate the comparison progress and end time.</p> <hr/> <p>Note: DA server counts rows if COMPARE_MODE is row_count. Use ENABLE_ROW_COUNT only if COMPARE_MODE is a value other than row_count.</p> <hr/> <p>Valid values: true or false.</p> <p>Default value: true.</p>
External sort:	<p>Sorts rows on the agent, thereby reducing the impact of processing the ORDER BY clause in the databases.</p> <p>Valid values: true or false.</p> <p>Default value: false.</p>
Hash type:	<p>Specifies the hash type for the comparison.</p> <ul style="list-style-type: none"> • database_hash – use the hash function provided by the database. • agent_hash – use the hash function provided by Replication Server Data Assurance Option. <p>Default value: database_hash.</p>

Field	Description
Retry option:	<p>Specifies the retry option.</p> <ul style="list-style-type: none"> • <code>never</code> – no recompare. • <code>wait_and_retry</code> – run recompare based on RETRY_MAX and RETRY_DELAY_SEC settings. <p>Default value: never.</p>
Retry delay (seconds):	<p>Specifies the number of seconds delay for each recomparison.</p> <p>Valid values: 0 to 86400.</p> <p>Default value: 10.</p>
Maximum retry:	<p>Specifies the total number of recomparison for rows that have differences resulting from a previous comparison.</p> <p>Valid values: 0 to 100.</p> <p>Default value: 3.</p>

Table 13. Column Comparison Option

Column Option	Value
Compare mode:	<p>Specifies for how each column is compared.</p> <ul style="list-style-type: none"> • <code>column_hash</code> – compares using column hash value. • <code>row_hash</code> – compares all columns with this option together with a whole hash value. • <code>literal</code> – compares using column literal value.

Editing a Row Comparison Job

Modify details of a Data Assurance (DA) row comparison job.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Job**.
4. Select a row comparison job, then either:
 - Select **Resource > Properties**, or,

- Click the button that appears when you select a row comparison job, then select **Properties**.
5. Modify the job information on the General, Comparisons, Options, and Schedules tabs as required.
To modify details in Comparisons tab:
 - a) Select a comparison, click the button that appears, then select **Properties**.
 - b) Modify the comparison information on the General, CompareSet, and Options tabs as required.
Click **Apply** after every modifications in each tab in the Comparisons tab, then click **OK**.
 6. Click **Apply**, then click **OK**.

Scheduling a Row Comparison Job

Schedule a Data Assurance (DA) row comparison job.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Jobs**.
4. Select a row comparison job, then either:
 - Select **Resource > Properties**, or,
 - Click the button that appears when you select a row comparison job, then select **Properties**.
5. Select **Schedules**, click the button that appears, then click **Create Schedule**.
6. Set the time and day to run this job.
7. Click **Apply**, then click **OK**.

Creating a Job Based on Replication Server System Database

Create a Data Assurance (DA) job based on an existing table-level replication definition and subscription in a Replication Server.

Prerequisites

Verify that you have created a Replication Server system database (RSSD) connection.

Task

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Jobs**.
4. Either:

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- Select **Folder > Import Job from RSSD**, or,
- Click the button that appears when you select Database Assurance Jobs, then select **Import Job from RSSD**.

5. Specify the job's basic information.

Field	Description
Data Assurance server	(Required) Name of the DA server from the drop-down list.
Name	(Required) Name of the RSSD job.
RSSD connection	(Required) RSSD connection that you want to use, created on the Database Connection. To choose a Replication Server system database (RSSD) connection, click Select .
Description	A brief description to help you identify the job based on RSSD.
Maximum concurrent jobs	Maximum number of RSSD jobs that you want to run at the same time.
Priority for comparison(s)	Priority level.

6. Click **Next** or **Source DB Mapping**.

7. Select the source database information in RSSD and database connection in DA server.

Note: The Selected check box filters the comparison generation. Only the replication definition whose primary database argument is in the selected database set will be used to generate a comparison.

8. Click **Next** or **Target DB Mapping**.

9. Select the target database information in RSSD and database connection in DA server.

Note: The Selected check box filters the comparison generation. Only the subscription whose replicate database argument is in the selected database set will be used to generate target argument in the auto-generated comparison.

10. Click **Next** or **Comparisons Options**.

11. Specify the comparison options.

12. (Optional) Click **Next** or **Schedule**.

13. Click **Finish**.

See also

- *Comparison and Column Options* on page 106
- *Creating a Database Connection* on page 98

Schema Comparison Jobs

Schema comparison lets you compare the schema of one primary database against one or more replicate databases. You can compare an entire database schema using automatic table name mapping, or you can compare specific tables using table name mapping.

Creating a Schema Comparison Job

Set up a schema comparison job to compare database- and table-level objects in Data Assurance (DA) server.

Prerequisites

Verify that you have created an agent connection.

Task

1. In the Perspective Resources view, select a DA server.
2. Select **Resource** > **Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Jobs**.
4. Either:
 - Select **Folder** > **Create Schema Job**, or,
 - Click the button that appears when you select Data Assurance Jobs, then select **Create Schema Job**.
5. Specify the schema job basic and option information.

Field	Description
Data Assurance server	(Required) Name of the DA server from the drop-down list.
Name	(Required) Name of the schema comparison job.
Description	A brief description to help you identify the schema comparison job.
Maximum concurrent jobs	(Required) Maximum number of schema comparison jobs that you want to run at the same time.

6. Click **Next** or **Comparisons**.
7. Click **Create** to specify the comparisons for the schema job.
8. Provide the comparison's basic information.
9. Click **Next** or **Data Sources**.
10. Click **Select Source**.
11. Select a database connection profile for the source data, then click **OK**.

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12. Click **Add Target**.

Note: You can add multiple target databases.

13. Select a database connection profile for the target data, then click **OK**.

14. Click **Next** or **Include All Tables**.

15. Select **Include all tables**.

16. (Optional) Click **Add Table** to be excluded from the schema comparison.

17. Click **Next** or **Map Tables**.

18. (Optional) Click **Add Mapping** to specify the source and target table mapping for the schema comparison.

Note: Set at least one attribute—include-all or table mapping—for one schema comparison. Table mapping allows you to compare schema of tables with different name.

19. Click **Finish** twice.

See also

- *Data Assurance Agents* on page 139
- *Comparison and Column Options* on page 106
- *Deleting a Data Assurance Job* on page 113
- *Running a Data Assurance Job* on page 113
- *Viewing All Data Assurance Jobs* on page 114
- *Viewing a Data Assurance Job Status and Report* on page 114
- *Creating an Agent Connection* on page 97

Editing a Schema Comparison Job

Modify a Data Assurance (DA) schema comparison job details.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Jobs**.
4. Select a schema comparison job, then either:
 - Select **Resource > Properties**, or,
 - Click the button that appears when you select a schema comparison job, then select **Properties**.
5. Modify the schema job information on the General, Comparisons, and Options tabs as required.

To modify details in Comparisons tab:

 - a) Select a schema comparison, click the button that appears, then select **Properties**.
 - b) Modify the schema comparison information on the General, Data Source, Include All Tables, and Map Tables tabs as required.

Click **Apply** after every modifications in each tab, then click **OK**.

6. Click **OK**.

See also

- *Comparison and Column Options* on page 106
- *Deleting a Data Assurance Job* on page 113
- *Running a Data Assurance Job* on page 113
- *Viewing All Data Assurance Jobs* on page 114
- *Viewing a Data Assurance Job Status and Report* on page 114

Manage and Run Data Assurance Jobs

Run Data Assurance jobs and view reports, job status and job history.

Running a Data Assurance Job

Run a Data Assurance (DA) row comparison or a schema comparison job.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Jobs**.
4. Select a row or schema comparison job, then either:
 - Select **Resource > Run**, or,
 - Click the button that appears when you select a row or schema comparison job, then select **Run**.

Deleting a Data Assurance Job

Remove a Data Assurance (DA) row comparison or a schema comparison job.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Assurance Jobs**.
4. Select a row comparison or a schema comparison job, then either:
 - Select **Resource > Delete**, or,
 - Click the button that appears when you select a row comparison or schema comparison job, then select **Delete**.
5. Click **OK**.

Deleting a Comparison in Data Assurance Job

Delete a comparison in a row or schema comparison job.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Assurance Jobs**.
4. Select a row comparison or a schema comparison job, then either:
 - Select **Resource > Properties**, or,
 - Click the button that appears when you select a row comparison or schema comparison job, then select **Properties**.
5. Select **Comparisons**.
6. Select a comparison, click the button that appears, then click **Delete Comparison**.

Viewing All Data Assurance Jobs

Display a list of all the Data Assurance (DA) row comparison and schema comparison jobs.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Jobs**.

Viewing a Data Assurance Job Status and Report

Check if a Data Assurance (DA) job is running, pending, finished or aborted, and show report for missing, orphaned, and inconsistent data.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Monitor**.
3. In the Data Assurance Monitor, select **Job Current Status**.

If a job is finished, a Show button appears under the Report column and its status appears in its corresponding column. Select or highlight a finished job to view its corresponding comparison details in the Comparison table.

4. Click **Show** to view the report for a finished job.
5. (Optional) Click **Abort** to stop a running job.

Data Assurance Job History

Data Assurance (DA) job history includes a list of executed jobs with the corresponding time they were submitted and completed.

You can also view a report of these jobs, which you can save as text or XML format.

Viewing a Job History Report

View the list of completed Data Assurance (DA) jobs, and display their corresponding report.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Select **Data Assurance Job Histories**.
4. Select a DA job, click the button that appears, then select **Report**.

Deleting a Job History

Remove a job history to clear server space.

1. In the Perspective Resources view, select a Data Assurance (DA) server.
2. Select **Resource > Administration Console**.
3. Select **Data Assurance Job Histories**.
4. Select a DA job, then either:
 - Select **Resource > Delete**, or,
 - Click the button that appears when you select a DA job, then select **Delete**.
5. Click **OK**.

Compare Data Rows and Schemas

Manage and Monitor

Sybase Control Center allows you to manage and monitor resource availability and view statistics information.

Heat Chart

The heat chart displays status and availability statistics for managed resources in the current perspective.

The heat chart displays the state of resources in your perspective—whether the resources are running, suspended, or down. In addition, the heat chart lists the type of each resource and provides statistical data, including the start time of the last data collection.

In the Perspective Heat Chart view, you can filter the resources that you want to see and search and sort the results by column. You can also select a resource and pull down its context menu to see monitoring and administrative options that vary based on the resource type.

Heat chart data is collected directly from managed servers, tagged with the date and time when it was collected, and stored in the Sybase Control Center repository.

Displaying Resource Availability

Use the heat chart to view availability information on the servers in the current perspective.

1. From the application menu bar, select **View > Open > Heat Chart**.
2. (Optional) To display tools for filtering (narrowing the list of resources in the heat chart) or changing the columns, select **View > Filter** from the Perspective Heat Chart menu bar. The Filter and Column tools appear in the left pane.
3. (Optional) To use filtering, select **View > Filter** from the view's menu bar and enter a search term in the **Filter string** field.

The search term can be any string that appears in the tabular portion of the heat chart, such as the name, or part of the name, of a server or a resource type (ASE Server, for example).

4. (Optional) Select a filtering setting:
 - **Match case** – search for resources whose displayed data includes the search term, including uppercase and lowercase letters; or
 - **Exact match** – search for resources whose displayed data includes an item identical to the search term.
5. (Optional) Select a column from the **Filter on** list to restrict your search to that column.
6. (Optional) Click **Columns** to customize your heat chart.

7. (Optional) Unselect any column that should not appear in your heat chart.
8. (Optional) Click the sorting arrow in the column headers to sort the column values in either ascending or descending order.
9. (Optional) Click the resource's row and pull down the menu to the right of the resource name to view options for the selected resource.
10. (Optional) To resize the Filter and Columns tools pane, move your mouse over the border between the tools pane and the resource table. When the mouse cursor changes to a resize icon, click and drag the border to the left or the right.
11. (Optional) To hide the Filter and Columns tools, unselect **View > Filter**.

Historical Performance Monitoring

Monitor performance data to determine whether your environment is working efficiently.

Obtain detailed information about the status of the resources in your environment. You can create performance graphs that illustrate resource performance over a specified period of time.

Graphing Performance Counters

To show performance trends, generate a graph for any set of performance counters.

Prerequisites

Verify that statistical data to be graphed has been collected. To verify data collection, go to the Collection Jobs page of the Resource Properties view and check the History tab for a collection job. You can also look at the resource monitor: if data appears there, data is being collected.

Task

Tip: Data collections start running when a resource is authenticated. A recently authenticated resource might not have accumulated enough data to make a useful graph.

1. In the Perspective Resources view, click a resource and select **Resource > Launch Statistics Chart** in the view menu bar.
2. Expand the folders in the Statistics tab and select the key performance indicator (KPI) you want to graph.
3. Click **Graph Statistic** or drag the KPI onto the Chart tab.
The Chart tab displays the graphed data, while the KPI with its corresponding value and the date and time it was collected appear in the Data tab.
4. (Optional) Repeat to add KPIs to the graph.

5. (Optional) Use the slider at the bottom of the Chart tab to control the amount of time covered by the graph, ranging from a minute to a year.
6. (Optional) Use <<, <, >, and >> to move the displayed graph to an earlier or later time, depending on how the slider is set.

Tip: The statistics chart displays data covering a fixed period of time, and that period does not change automatically. If you are viewing the most recent statistics and want to keep the graph current, adjust the displayed time period as new statistics are collected.

7. (Optional) You can click the date/time labels that appear above the slider. Use these to change the start and end time and the chart time span.
8. (Optional) Click **Clear Graph** to remove all the graphed statistics and start anew.

Note: You can graph a maximum of five statistics with no more than two distinct units of measure. By default, only 24 hours of statistics are available; change the repository purge options to save statistics for a longer period.

See also

- *Configuring Repository Purging* on page 131

Manage Sybase Control Center

Manage and monitor Sybase Control Center for Data Assurance through statistical information and activity logs.

Administration Console

Use the Administration Console to browse and manage the selected resources in a perspective.

Browsing and Managing Resources

Create new resources or browse and manage existing resources.

Prerequisites

If you want to view or manage existing resources, register at least one resource and add it to a perspective.

Task

The Administration Console enables you to view and manage both servers and resources below the server level, such as processes, databases, and devices.

1. Launch the Administration Console.

- To populate the Administration Console with information on one or more resources: in the Perspective Resources view, select the resources and select **Resource > Administration Console**. This method is the most efficient.
 - To populate the Administration Console with information on all the resources in the current perspective: from the main menu bar, select **View > Open > Administration Console**. If you are monitoring a large number of resources, the Administration Console may take a few minutes to load.
2. Expand the objects in the left pane to explore the hierarchy of resource types.
 3. Select a high-level resource type (a logical server, for example) in the hierarchy.
The Administration Console displays a list of resources of that type. You can use the Folder menu to create another server of the same type, or to refresh the view.
 4. Select various objects in the hierarchy.
Information about each selected object appears in the table in the right pane.
 5. In either the right or the left pane, select an object.
A dropdown arrow appears to the right of the name. If the selected object is in the right pane, the **Resource** menu becomes active.
 6. Click the dropdown arrow to display a menu of actions you can perform on that object. If the selected object is in the right pane, use the **Resource** menu to display the same actions.

Note: Some managed objects have no actions.

Job Scheduling

A schedule defines a data collection job and specifies how often the job executes in your system.

In Sybase Control Center, collection jobs provide the data that appears on monitoring screens and charts. A collection is a set of key performance indicators (KPIs). When the scheduler runs a collection job, it gathers the value of each KPI in the collection and tags the data with the date and time it was gathered. The data is stored in the repository and displayed. Each product module has predefined collections that you can schedule.

You can define schedules as one-time or repeating. You can modify the schedule for a job based on a number of attributes such as:

- Repeat interval
- Date
- Time

The job history displays the status of jobs executed each day.

See also

- *Setting Up Statistics Collection* on page 94
- *Data Collections for Replication Server Data Assurance Option* on page 96

Executing and Stopping a Data Collection Job

Use the Properties view to execute or stop a data collection job.

Most of the time, data collection jobs should run on a schedule; you should rarely need to start or stop a job manually.

1. In the Perspective Resources view, select the resource associated with the job and select **Resource > Properties**.
2. Select **Collection Jobs**.
3. Select the job and:
 - To execute a job immediately, click **Execute**.
 - To stop a job, click **Stop**, then click **Yes** to confirm.

Deleting a Data Collection Job

Use the Properties view for a resource to delete one or more data collection jobs.

1. In the Perspective Resources view, select the resource associated with the job and select **Resource > Properties**.
2. Select **Collection Jobs**.
3. Select the job and click **Delete**.
4. Click **OK** to confirm the deletion.

Resuming and Suspending a Data Collection Job

Use the Properties view for a resource to resume or suspend a data collection job.

1. In the Perspective Resources view, select the resource associated with the job and select **Resource > Properties**.
2. Select **Collection Jobs**.
3. Select the job (a top-level item in the Collection Jobs table). On the **General** tab:
 - To resume a job, click **Resume**.
 - To suspend a job, click **Suspend**, then click **Yes** to confirm the suspension.

Tip: If the **General** tab is grayed out, you have selected a schedule (child) rather than a job (parent) in the Collection Jobs table. Select the parent job to display the **General** tab.

Adding a New Schedule to a Job

Use the Properties view for a resource to add more than one schedule to a job.

1. In the Perspective Resources view, select the resource associated with the job and select **Resource > Properties**.
2. Select **Collection Jobs**.

3. Select the job.
4. Click **Add Schedule**.
5. Specify details for the new schedule:

Field	Description
Name	A name for this schedule
Description	A description of this schedule

6. Choose to start the job **Now** or **Later**.
7. Specify the duration of this schedule. The job can run:

- **Once**
- **Repetitively** at an interval you specify

Field	Description
Repeat interval	Time period (in seconds, minutes, hours, or days) between job executions

- **Until** a stop date that you specify, at an interval you specify

Field	Description
Repeat interval	Time period (in seconds, minutes, hours, or days) between job executions
Stop date	Date and time the job should stop running

Note: Enter dates and times using your local time. Sybase Control Center converts your times for remote time zones if necessary.

8. Click **Finish**.

Modifying the Data Collection Interval for a Job

Use the Properties view for a managed resource to modify the data collection schedule.

1. In the Perspective Resources view, select a server (or other resource).
2. In the view's menu bar, select **Resource > Properties**.
3. Select **Collection Jobs**.
4. Expand a job folder and select a schedule.
5. On the **Schedule** tab, modify the Repeat interval field.
6. Click **Apply**.

Resuming and Suspending the Scheduler

Use the scheduler settings to resume or suspend all scheduled jobs.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

1. From the main menu bar, select **Application > Administration**.
2. In the Sybase Control Center Properties dialog, select **Scheduler**.
3. Do one of the following:
 - To resume the scheduler, click **Resume**.
 - To suspend the scheduler, click **Suspend**.
4. Click **OK**.

Viewing the Job Execution History

Use the Properties view to display a data collection job's execution history.

1. In the Perspective Resources view, select the resource associated with the job and select **Resource > Properties**.
2. Select **Collection Jobs**.
3. Select a job.
4. Click the **History** tab.

Resources

In Sybase Control Center, a resource is a unique Sybase product component or subcomponent. A server is the most common managed resource.

Sybase products comprise many components, including servers, agents, databases, devices, and processes. A managed resource is a product component or subcomponent that Sybase Control Center lets you monitor and administer. Two important tools for resource management are the Resource Explorer and the Perspective Resources view.

- The Resource Explorer lists resources that are registered with Sybase Control Center. The list may include resources that you have not yet added to a perspective. Registration enables Sybase Control Center to connect to the resource, log in, retrieve monitoring data, and issue commands. Resources are registered at the server or agent level, and registering a server or agent also makes Sybase Control Center aware of any subcomponents. You can register resources individually or register several at once by importing them in a batch.

Manage and Monitor

- The Perspective Resources view lists registered resources that you have added to the current perspective. You must add a resource to a perspective to manage and monitor its availability and performance.

See also

- *Registering a Data Assurance Server* on page 90
- *Importing Resources for Batch Registration* on page 91

Unregistering a Resource

Remove one or more servers or other resources from Sybase Control Center.

1. From the Sybase Control Center toolbar, click the **Launch Resource Explorer** icon.
2. In the Resource Explorer, select the resources you want to unregister. Use **Shift+click** or **Control+click** to select multiple resources.
3. Select **Resources > Unregister**.
4. Click **Yes** to confirm the removal.

See also

- *Registering a Data Assurance Server* on page 90
- *Importing Resources for Batch Registration* on page 91

Adding a Resource to a Perspective

Add one or more resources to the current perspective.

Add servers or other resources to a perspective so you can monitor and manage them along with other resources in the same perspective.

1. From the Sybase Control Center toolbar, click the **Launch Resource Explorer** icon.
2. Select the resources to add to your perspective. Use **Shift-click** or **Control-click** to select multiple resources.
3. Perform one of these actions:
 - Select **Resources > Add Resources to Perspective**.
 - Drag and drop resources from the Resource Explorer onto the Perspective Resources view. You can select and drag multiple resources.

Removing a Resource from a Perspective

Remove one or more resources from the current perspective.

1. To open the Perspective Resources view, click the **Show/Hide the Resource Browser** icon in the perspective toolbar.
2. In the Perspective Resources view, select the resources to remove. Use **Shift-click** or **Control-click** to select multiple resources.

3. Select **Resource > Remove**.
4. Click **Yes** to confirm the removal.

See also

- *Adding a Resource to a Perspective* on page 93

Searching for Resources in the Resource Explorer

Search for all your managed resources or narrow your search for a particular resource.

1. Click the **Launch Resource Explorer** icon.
2. If the Filter pane is not visible in the Resource Explorer window, select **View > Filter** from the view's menu bar.
3. Enter your search term in the **Filter string** field.
The search term can be any string that appears in the tabular portion of the Resource Explorer, such as the name, or part of the name, of a server or a resource type (ASE Server, for example).
4. (Optional) Select a filtering setting:
 - **Match case** – search for resources whose displayed data includes the search term, including uppercase and lowercase letters; or
 - **Exact match** – search for resources whose displayed data includes an item identical to the search term.
5. (Optional) Select a column from the **Filter on** list to restrict your search to that column.

Perspectives

A perspective is a named container for a set of one or more managed resources. You can customize perspectives to provide the information you need about your environment.

As the main workspaces in the Sybase Control Center window, perspectives let you organize managed resources. You might assign resources to perspectives based on where the resources are located (continents, states, or time zones, for example), what they are used for, which group owns them, or which administrator manages them. Perspectives appear as tabs in the main window.

Every perspective includes a Perspective Resources view, which lists the resources in that perspective and provides high-level status and descriptive information. Use the View menu to switch from detail view to icon view and back.

You can open additional views—the heat chart, statistics chart, or alert monitor, for example—as needed to manage the perspective's resources. The views in a perspective display information only about resources in that perspective.

One resource can appear in many perspectives.

Creating a Perspective

Create a perspective in which you can add and manage resources.

1. From the application menu bar, select **Perspective > Create**.
2. Enter a name for your perspective. The name can contain up to 255 characters.
3. Click **OK**.

Removing a Perspective

Delete a perspective window.

1. Select the perspective tab you want to delete.
2. In the main menu bar, select **Perspective > Delete**.
The selected perspective disappears. If there are other perspectives, Sybase Control Center displays one.

Renaming a Perspective

Change the name of your perspective.

1. Select the perspective tab you want to rename.
2. From the main menu bar, select **Perspective > Rename..**
3. Enter the new name for your perspective.
4. Click **OK**.

Views

Use views to manage one or more resources within a perspective.

In Sybase Control Center, views are the windows you use to monitor and manage a perspective's resources. You can re-arrange, tile, cascade, minimize, maximize, and generally control the display of the views in your perspective.

Each perspective includes these views:

- Perspective Resources
- Administration Console
- Heat chart
- Alert monitor
- Component log viewer
- Views that exist for each managed resource. These vary by resource type, but typically include the statistics chart, the properties view, and a monitoring view.

Managing a View

Open, close, minimize, maximize, or restore a view in the current perspective.

You can:

Task	Action
Open a view	Do one of the following: <ul style="list-style-type: none"> • In the Perspective Resources view, click a resource, pull down its menu using the handle to the right of the resource name, and select the view to open. • In the application menu bar, select View > Open and choose a view.
Close a view	Select the view to close. In the application menu bar, select View > Close . You can also click the X in the view's upper right corner.
Maximize a view	Click the box in the view's upper right corner. The view enlarges to fill the entire perspective window. Click the box again to return the view to its former size.
Minimize a view	Click the _ in the view's upper right corner. The view shrinks to a small tab at the bottom of the perspective window.
Minimize all views	In the application menu bar, select View > Minimize All Views .
Restore a view	Click the box on the minimized tab to maximize the view. Click the box again to return the view to its former (smaller) size so you can see other views at the same time.
Bring a view to the front	In the application menu bar, select View > Select and choose the view you want from the submenu.

Arranging View Layout in a Perspective

Use the view layout options to manage your perspective space.

Click one of these icons from the Sybase Control Center toolbar:

- **Cascade all open views**
- **Tile all open views vertically**
- **Tile all open views horizontally**

In a cascade, views overlap; in tiling arrangements, they do not.

Alternatively, you can arrange view layouts from the Sybase Control Center menu bar. From the menu bar, select **Perspective > Arrange** and select your view layout.

Repository

The Sybase Control Center embedded repository stores information related to managed resources, as well as user preference data, operational data, and statistics.

You can back up the repository database on demand, schedule automatic backups, restore the repository from backups, and configure repository purging options. Full and incremental

backups are available. A full backup copies the entire repository. An incremental backup copies the transaction log, capturing any changes since the last full or incremental backup.

By default, Sybase Control Center saves backups as follows:

- Each full backup is stored in its own subdirectory in <SCC-install-directory>/backup.
- Each incremental backup is stored in a file in <SCC-install-directory>/backup/incremental.

Sybase recommends that you periodically move backup files to a secondary storage location to prevent the installation directory from becoming too large.

Scheduling Backups of the Repository

Configure full and incremental backups of the repository to occur automatically.

Prerequisites

Determine your backup strategy, including when to perform full backups and incremental backups. For example, you might schedule incremental backups every day and a full backup every Saturday.

You must have administrative privileges (sccAdminRole) to perform this task.

Task

A full backup copies the entire repository. An incremental backup copies the transaction log, capturing any changes since the last full or incremental backup.

1. From the main menu, select **Application > Administration**.
2. In the left pane, select **Repository**.
3. Click the **Full Backup** tab.
4. (Optional) To change the directory in which backups will be stored, click **Browse** and navigate to the desired directory.
5. Select **Schedule a Regular Backup**.
6. Specify the day you want scheduled backups to begin. Enter a **Start date** or click the calendar and select a date.
7. (Optional) Use the **Time** and **AM/PM** controls to specify the time at which backups occur.
8. Specify how often backups occur by setting the **Repeat interval** and selecting hours, days, or weeks.
9. (Optional) To purge the repository after each backup, select **Run a repository purge after the backup completes**.
10. If you include purging in the backup schedule, go to the **Size Management** tab and unselect **Automatically purge the repository periodically** to disable automatic purging.

11. Click **Apply** to save the schedule.
12. Click the **Incremental Backup** tab and repeat the steps above to schedule incremental backups to occur between full backups.

Next

Set purging options on the Size Management tab.

Modifying the Backup Schedule

Suspend or resume repository backups or change the backup schedule.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

1. From the main menu, select **Application > Administration**.
2. In the left pane, select **Repository**.
3. Choose the type of backup to modify:
 - Click the **Full Backup** tab, or
 - Click the **Incremental Backup** tab.
4. (Optional) To suspend or resume the backup schedule, select or unselect **Schedule a Regular Backup**.
When you unselect (uncheck) this option, the scheduling area is grayed out and scheduled backups no longer occur. However, the schedule is preserved and you can reinstate it at any time.
5. To change the backup schedule, edit the **Start date**, **Time**, **Repeat interval**, or units. You can also select or unselect **Run a repository purge after the backup completes**.
6. Click **Apply** to save the schedule.

Forcing an Immediate Backup

Perform an unscheduled full or incremental backup of the repository.

Prerequisites

You must have administrative privileges (sccAdminRole) to perform this task.

Task

1. From the main menu, select **Application > Administration**.
2. In the left pane, select **Repository**.
3. Choose the type of backup to run:

- Click the **Full Backup** tab, or
- Click the **Incremental Backup** tab.

4. Click **Back up Now**.

Sybase Control Center saves the backup to the directory shown in the Location field.

Restoring the Repository from Backups

Load backup files into the repository database to revert undesirable changes or to recover from a catastrophic failure.

If you configured Sybase Control Center to store backups somewhere other than the default location, change the source directory in the copy commands in this procedure.

1. Shut down Sybase Control Center.
2. Copy the most recent full backup from `<SCC-install-directory>/backup/<generated_directory_name>` to `<SCC-install-directory>/services/Repository`. For example:

Windows:

```
copy C:\sybase\SCC-3_2\backup\repository.  
270110161105\scc_repository.db  
C:\sybase\SCC-3_2\services\Repository
```

UNIX:

```
cp <SCC-install-directory>/backup/repository.270110161105/  
scc_repository.db  
<SCC-install-directory>/services/Repository
```

3. If you have no incremental backups to load,
 - a) Also copy the log file from `<SCC-install-directory>/backup/<generated_directory_name>` to `<SCC-install-directory>/services/Repository`. For example:

Windows:

```
copy C:\sybase\SCC-3_2\backup\repository.  
270110161105\scc_repository.log  
C:\sybase\SCC-3_2\services\Repository
```

UNIX:

```
cp <SCC-install-directory>/backup/repository.270110161105/  
scc_repository.log  
<SCC-install-directory>/services/Repository
```

- b) Skip to step 5 on page 131.
4. Start the repository database using the **-ad** option, which directs it to load transaction logs (incremental backups) from the incremental directory. (The database loads full backups automatically.) For example:

Windows:


```
cd <SCC-install-directory>\services\Repository
..\..\bin\sa\bin_<platform>\dbsrv11.exe scc_repository -ad
<SCC-install-directory>\backup\incremental
```

UNIX:

```
cd <SCC-install-directory>/services/Repository
../../bin/sa/bin_<platform>/dbsrv11 scc_repository -ad
<SCC-install-directory>/backup/incremental
```

The repository database loads the full backup and any subsequent incremental backups present in the `incremental` directory. Incremental backups are loaded in date order. After loading and saving, the database shuts down.

5. Start Sybase Control Center.

If you loaded incremental backups, SCC starts normally (that is, no further recovery occurs). If you copied a full backup to the `Repository` directory, the database recovers the repository from the full backup.

Example: Loading incremental backups into the repository database

These commands start SQL Anywhere® on a 32-bit Windows machine:

```
% cd C:\sybase\SCC-3_2\services\Repository
% ....\bin\sa\bin_windows32\dbsrv11.exe scc_repository -ad
C:\sybase\SCC-3_2\backup\incremental
```

These commands start SQL Anywhere on a 64-bit machine running Solaris:

```
$ cd /opt/sybase/SCC-3_2/services/Repository
$ ../../bin/sa/bin_sunsparc64/dbsrv11 scc_repository -ad
/opt/sybase/SCC-3_2/backup/incremental
```

Configuring Repository Purging

Change repository purging options.

Prerequisites

You must have administrative privileges (`sccAdminRole`) to perform this task.

Task

As you decide how to purge your repository, consider that:

- Purging keeps the repository from absorbing too much disk space.
- By default, purging is enabled. It occurs once a day and purges data older than one day.
- Statistics and alert history can help you detect trends in server performance and user behavior. The Sybase Control Center statistics chart can graph performance data over a

period of a year or more if the data is available. If you have enough disk space, consider saving data for a longer period of time or disabling the purging of statistics or alert history.

- Changing the purge frequency and other options might affect Sybase Control Center performance.

Note: If you configure purging as part of a scheduled backup of the repository, disable automatic purging on the Size Management tab.

1. From the main menu bar, select **Application > Administration**.
2. Select **Repository**.
3. Click the **Size Management** tab.
4. To turn automatic purging on or off, click **Automatically purge the repository periodically**.
Turn this option off if purging is configured as part of your scheduled full or incremental backups.
5. Click purge options to turn them on or off:
 - **Purge statistics**
 - **Purge alert history**
6. In **Purge data older than**, enter the number of days after which to purge repository data.
7. Click **Apply**, then **OK**.

Logging

Logging helps Sybase Control Center administrators identify and track errors and other system events by recording messages about the events in log files.

Sybase Control Center maintains these logs:

- The client log – captures messages about activities in the browser-based client components. These messages are generated by the component product modules to display information that is pertinent to the user but not critical enough to warrant a pop-up. Sybase also uses the client log to trace client browser operations.
- Server logs – capture messages about activities during the initialization sequence, such as starting services; auditing messages recording logins and logouts; errors such as missed scheduled events; and other events on the server. Server logs include:
 - Component logs, which record only events concerning individual product modules
 - The SCC agent log, which is a composite log. In an SCC server, the agent log records events in all product modules and in the Sybase Control Center framework. In an SCC agent, the agent log records events in the agent.
- The repository log – captures information about inserts and updates that have occurred in the Sybase Control Center repository, a SQL Anywhere database. This log is in `SCC-3_2\log\repository.log`.

- The alert services log – captures information about alert service status and events, including execution of alert-triggered scripts (start time, end time, and status and exit codes). This log is in `SCC-3_2\log\alert-server.log`.

Viewing the Data Assurance Component Log

View event logs for Sybase Control Center for Data Assurance.

The log files are in:

- Windows – `%SYBASE%\SCC-3_2\plugins\DAMAP\log\damap.log`
- UNIX – `$SYBASE/SCC-3_2/plugins/DAMAP/log/damap.log`

1. Use a log viewer or text editor to look at log files.
2. Look for entries of interest, such as login attempts or the failure of a service to start.

Editing the Data Assurance Log Configuration

Change the log level or logging configuration settings for Data Assurance (DA).

1. Navigate to `%SYBASE%\SCC-3_2\plugins\DAMAP`.
2. Open the `logging.properties` file, and modify the settings as needed.
3. Save and close the `logging.properties` file.
4. Restart the SCC server.

SCC for Data Assurance messages are recorded in the console and the `damap.log` file. The `damap.log` file is located at `%SYBASE%\SCC-3_2\plugins\DAMAP\log`.

Viewing Sybase Control Center Server Logs

View event logs for the Sybase Control Center server.

Sybase Control Center logs events to several places:

- The console from which Sybase Control Center is launched.
- The Sybase Control Center agent log: `<SCC-install-directory>/log/agent.log`
- The repository log: `<SCC-install-directory>/log/repository.log`
- The component log for each installed Sybase Control Center product module. The path to the component log takes this form: `<SCC-install-directory>/plugins/<component>/log/<component>.log`

1. Display one of the log files using a log viewer or a method of your choice.
2. Look for entries of interest such as login attempts or the failure of a service to start.

On the console and in the Sybase Control Center agent log file, some components prepend the component name to log entries.

Viewing the Sybase Control Center Client Log

Display the event log for the current session of your Sybase Control Center browser client.

In the perspective tab window (the main window), do either of the following to display the client log:

- Enter **Ctrl+Alt+L**.
- Select **View > Open > Log Window**.

Note: The client log reader displays the 100 most recent log messages for the current login session.

Changing the Logging Level

Adjust the logging level that determines which events Sybase Control Center records in the server logs. This task requires you to restart Sybase Control Center.

If you are having a problem with Sybase Control Center, you might be able to discover the cause of the problem by changing the server logging level so that more events are recorded.

1. Shut down Sybase Control Center.
2. Restart Sybase Control Center using the `-m` option to change the logging level. In `<SCC-installation-dir>/bin`, enter:

```
scc -m <logging-level>
```

The logging levels are OFF (logs nothing), FATAL (logs only the most severe events), ERROR, WARN, INFO, DEBUG, and ALL (logs everything).

3. Examine the server log for clues about what might be causing the problem.
4. When you have resolved the problem, set the logging level back to WARN, the default. Your log may become unmanageably large if you leave it at the DEBUG or ALL level.

Example

These commands, which must be executed in the installation directory, start Sybase Control Center with the logging level set to debug:

```
Windows: bin\scc -m DEBUG  
UNIX: bin/scc -m DEBUG
```

See also

- *Starting and Stopping Sybase Control Center in Windows* on page 48
- *Starting and Stopping Sybase Control Center in UNIX* on page 50

Logging or Message Levels

Describes values you can use to control the types of events that are logged by Sybase Control Center.

These are the logging levels, from highest to lowest. The higher the level, the more serious an event must be to be logged. Each level includes all the levels above it—for example, if you set the logging level to WARN, you log events for the WARN, ERROR, and FATAL levels.

OFF	Nothing is logged. This is the highest level.
FATAL	Logs only very severe error events that lead the server to abort. This is the highest level at which events are logged.
ERROR	Logs error events that might allow the server to continue running.
WARN	Logs potentially harmful situations. WARN is the default logging level during normal operation (that is, after system initialization).
INFO	Logs informational messages that track the progress of the server in a coarse-grained fashion. INFO is the default logging level during the system initialization process.
DEBUG	Logs a larger set of events that provides a finer-grained picture of how the server is operating. This level is recommended for troubleshooting.
ALL	Logs all loggable events. This is the lowest level.

See also

- *scc Command* on page 57

Changing Logging Configuration

Edit the logging configuration file, `log4j.properties`, to modify Sybase Control Center logging.

You can change the names, locations, or maximum size of the log files as well as the number of log files backed up.

Options for the **scc** command let you change the overall Sybase Control Center log message level when you start SCC, but if you choose the DEBUG level, the large volume of log messages generated may be inconvenient. Editing the log properties file gives you finer control; you can set logging levels for each Sybase Control Center component separately. Sybase recommends making such changes only if you are familiar with log4j and you are working with Sybase technical support; DEBUG-level log messages are not likely to be meaningful to you. (If you have not used log4j before, a good place to start is <http://logging.apache.org/log4j/1.2/manual.html>.)

1. Shut down Sybase Control Center.

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2. Make a backup copy of the `log4j.properties` file located in `<SCC-installation-directory>/conf`.
3. Open the `log4j.properties` file for editing.
4. Change values in the file to suit your needs. For example:

To	Modify
Change the name or location of a log file	<ul style="list-style-type: none">• Agent log – <code>log4j.appender.agent.File</code>• Repository log – <code>log4j.appender.repository.File</code>• Collection statistics log – <code>log4j.appender.collection-stats.File</code>• Alert server log – <code>log4j.appender.alert.File</code>• Gateway log – <code>log4j.appender.gateway.File</code>
Change the maximum size that a log file can reach before Sybase Control Center creates a new file	<ul style="list-style-type: none">• Agent log – <code>log4j.appender.agent.MaxFileSize</code>• Repository log – <code>log4j.appender.repository.MaxFileSize</code>• Collection statistics log – <code>log4j.appender.collection-stats.MaxFileSize</code>• Alert server log – <code>log4j.appender.alert.MaxFileSize</code>• Gateway log – <code>log4j.appender.gateway.MaxFileSize</code>
Change the number of log files Sybase Control Center backs up before deleting the oldest file	<ul style="list-style-type: none">• Agent log – <code>log4j.appender.agent.MaxBackupIndex</code>• Repository log – <code>log4j.appender.repository.MaxBackupIndex</code>• Collection statistics log – <code>log4j.appender.collection-stats.MaxBackupIndex</code>• Alert server log – <code>log4j.appender.alert.MaxBackupIndex</code>• Gateway log – <code>log4j.appender.gateway.MaxBackupIndex</code>

5. Save and exit the file.
6. Start Sybase Control Center to make the logging changes take effect.

See also

- *Starting and Stopping Sybase Control Center in Windows* on page 48
- *Starting and Stopping Sybase Control Center in UNIX* on page 50

Sybase Control Center Console

The console is a command-line interface for displaying details about the status of the Sybase Control Center server and its subsystems.

When you use the `scc` command to start Sybase Control Center, it displays start-up messages and then displays the console prompt.

Note: The console prompt does not appear if you start Sybase Control Center as a service, if you direct the output of `scc` to a file, or if you start Sybase Control Center in the background.

See also

- *Launching Sybase Control Center* on page 47

Console Commands

Use the Sybase Control Center console to get status information on Sybase Control Center and its ports, plug-ins, and services.

help Command

Display syntax information for one or more Sybase Control Center console commands.

Syntax

```
help [command_name]
```

Parameters

- **command_name** – optional. status, info, or shutdown. If you omit *command_name*, **help** returns information on all the console commands.

Examples

- **Example 1** – returns information on the **status** command:

```
help status
```

Permissions

help permission defaults to all users. No permission is required to use it.

info Command

Display information about specified parts of the Sybase Control Center server.

If you enter **info** with no parameters, it returns information for every parameter.

Syntax

```
info [-a | --sys]
[-D | --sysprop [system-property]]
[-e | --env [environment-variable]]
[-h | --help]
[-m | --mem]
[-p | --ports]
[-s | --services]
```

Parameters

- **-a** | **--sys** – optional. List all the services known to Sybase Control Center, indicate whether each service is enabled, and list other services on which each service depends.
- **-D** | **--sysprop** [*system-property*] – optional. Display information about the specified Java system property. Omit the system-property argument to return a list of all Java system properties and their values.
- **-e** | **--env** [*environment-variable*] – optional. List all the environment variables in the Sybase Control Center Java VM process environment. Omit the environment-variable argument to return a list of environment variables and their values.
- **-h** | **--help** – optional. Display information about the **info** command.
- **-m** | **--mem** – optional. Display information about the server's memory resources.
- **-p** | **--ports** – optional. List all the ports on which the Sybase Control Center agent and its services listen, indicate whether each port is in use, and show the service running on each port.
- **-s** | **--services** – optional. List all Sybase Control Center services, indicate whether each service is enabled, and list other services on which each service depends.

Examples

- **Example 1** – displays information about ports on this Sybase Control Center server:

```
info -p
```

Permissions

info permission defaults to all users. No permission is required to use it.

shutdown command

Stop the Sybase Control Center server if it is running.

Syntax

```
shutdown
```

Examples

- **Example 1** – shuts down Sybase Control Center:

```
shutdown
```

Permissions

shutdown permission defaults to all users. No permission is required to use it.

status Command

Display the status of the SCC agent, plug-in, or service components of Sybase Control Center.

Syntax

```
status [-a | --agent]
[-h | --help]
[-p | --plugin [plugin-name]]
[-s | --service [service-name]]
```

Parameters

- **-a | --agent** – display the status of the Sybase Control Center agent component.
- **-h | --help** – display information about the **info** command.
- **-p | --plugin [plugin-name]** – display the status of the specified Sybase Control Center plug-in (for example, ASEMap, the Adaptive Server[®] management module). Omit the plugin-name argument to return a list of plug-ins.
- **-s | --service [service-name]** – display the status of the specified Sybase Control Center service (for example, the Alert service or the Messaging service). Omit the service-name argument to return a list of services.

Examples

- **Example 1** – displays status information on the Repository service:

```
status --service Repository
```

Permissions

status permission defaults to all users. No permission is required to use it.

Manage and Monitor the Data Assurance Environment

Manage and monitor Data Assurance server and agents.

Data Assurance Agents

Data Assurance (DA) agents fetch and compress data from databases into the DA server.

There are two types of agents: the embedded local agent in DA server, and standalone (remote) agents, which DA server can use to improve job performance.

A DA agent opens a JDBC connection to one or more databases, and reads the row data used for comparison. If there are no standalone DA agents, you must use the embedded local agent.

Based on the DA server request, a DA agent:

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- Compresses rows for precomparison, if configured to do so
- Fetches rows for comparison
- Hashes rows for precomparison, if configured to do so
- Sorts rows for precomparison, if configured to do so
- Runs **insert/delete/update** statements on databases, if configured to do so

Editing an Agent Connection

Modify the details of a Data Assurance (DA) agent connection profile.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Agent Connections**.
4. Select a DA agent connection.
5. Either:
 - Select **Resource > Properties**, or,
 - Click the button that appears when you select a DA agent connection, then select **Properties**.
6. Modify the agent connection information as required, then click **Apply**.

Field	Description
Host	(Required) Name of the server where the DA agent is installed.
Port	(Required) Port number of the DA agent.
Username	(Required) DA agent username.
Password	(Required) DA agent password.
Description	A brief description to help you identify the agent connection.

7. (Optional) Click **Test** to verify if the modified agent connection information is correct.
8. Click **OK**.

See also

- *Creating an Agent Connection* on page 97

Deleting an Agent Connection

Remove a Data Assurance (DA) agent connection profile.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Agent Connections**.
4. Select a DA agent connection.

5. Either:
 - Select **Resource > Delete**, or,
 - Click the button that appears when you select a DA agent connection, then select **Delete**.
6. Click **OK**.

See also

- *Creating an Agent Connection* on page 97

Viewing All Agent Connection

Display the connection profiles of all the Data Assurance (DA) agents.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Agent Connections**.

See also

- *Creating an Agent Connection* on page 97

Testing an Agent Connection

Verify that you have properly configured a Data Assurance (DA) agent connection.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Data Assurance Agent Connections**.
4. Select a DA agent connection.
5. Either:
 - Select **Resource > Properties**, or,
 - Click the button that appears when you select a DA agent connection, then select **Properties**.
6. Click **Test**.

See also

- *Creating an Agent Connection* on page 97

Database Connections

In Sybase Control Center for Replication Server Data Assurance (DA) Option, you need to create a database connection profile, which contains the information required to establish a

database connection to allow comparison of data data between the primary and replicate databases.

See also

- *Creating a Database Connection* on page 98
- *Creating a Single or Cluster Connection from an Interface File* on page 99

Editing a Database Connection

Modify the details of a database connection in a Data Assurance (DA) server.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Connections**.
4. Select a database connection, then either:
 - Select **Resource > Properties**, or,
 - Click the button that appears when you select a database connection, then select **Properties**.
5. Modify the database connection information as required, then click **Apply**.

Field	Description
Description	A brief description to help you identify the database connection.
Agent	(Required) The DA agent to use in connecting to the database. It can be a local agent that comes with the DA server installation, a remote agent that is defined in the Data Assurance Agent Connections, or a new remote agent that has yet to be defined.
Database	(Required) Name of the database to connect to.
Host	(Required) Name of the server where the database is residing.
Port	(Required) Port number of the database.
Username	(Required) database username.
Password	Database password.
Properties	The properties for JDBC connection.

6. (Optional) Click **Test** to verify if the modified database connection information is correct.
7. Click **OK**.

See also

- *Creating a Database Connection* on page 98
- *Creating a Single or Cluster Connection from an Interface File* on page 99

Deleting a Database Connection

Remove a database connection from the Data Assurance (DA) server.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Connections**.
4. Select a database connection, then either:
 - Select **Resource > Delete**, or,
 - Click the button that appears when you select a database connection, then select **Delete**.
5. Click **OK**.

See also

- *Creating a Database Connection* on page 98
- *Creating a Single or Cluster Connection from an Interface File* on page 99

Viewing All the Database Connection Profiles

Display all the database connection profiles in a Data Assurance (DA) server.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Connections**.

See also

- *Creating a Database Connection* on page 98
- *Creating a Single or Cluster Connection from an Interface File* on page 99

Testing a Database Connection

Verify that you have properly configured a database connection.

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Administration Console**.
3. Expand **Data Assurance Server**, then select **Database Connections**.
4. Select a database connection, then either:
 - Select **Resource > Properties**, or,
 - Click the button that appears when you select a database connection, then select **Properties**.
5. Click **Test**.

See also

- *Creating a Database Connection* on page 98
- *Creating a Single or Cluster Connection from an Interface File* on page 99

Data Assurance Servers

Gather usage statistics—CPU, memory and cache memory to monitor the availability and state of Data Assurance (DA) servers and agents.

You can monitor the availability and state of objects using the topology and the DA monitor. The topology is a graphical representation of the DA system objects, which include the DA server, agents, and databases.

The monitor includes these views:

- **Overview** – displays high-level information, such as the server name, version number of the server, the server time at last refresh, server status, and memory and CPU usage displayed through chart. You can select to monitor or shutdown a DA server or DA agents using this view.
- **Job Current Status** – displays a list of jobs with their status and other related information, and a list of comparisons, both in a table form. You can choose to abort existing jobs using this view.
- **Settings** – lets you to change the value for the screen refresh interval.

See also

- *Authenticating a Login Account for a Managed Resource* on page 93

Displaying the System Topology

The Data Assurance (DA) system topology graphically monitors the DA server and agent availability.

Prerequisites

- Add the server to be monitored to the Perspective Resources view.
- Authenticate the server.

Task

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Topology**.
The topology view opens, displaying the selected DA server and its associated agents and databases.
3. (Optional) Use the View Controls and Details tabs for additional help in viewing the topology.

Viewing Data Assurance Server and Agent Status

The Data Assurance (DA) monitor shows high-level server and agent information.

Prerequisites

- Register and add the server to be monitored to the Perspective Resources view.
- Authenticate the server.

Task

1. In the Perspective Resources view, select a DA server.
2. Select **Resource > Monitor**.

Note: You can also view the server status through the status badges on the server icons in the Perspective Resources, Heat Chart, Resource Explorer, and topology views.

Configuring Data Assurance Server Parameters

Improve Data Assurance (DA) server performance by editing server system configuration.

Prerequisites

- Add the server to be monitored to the Perspective Resources view.
- Authenticate the server.

Task

1. In the Perspective Resources, select a DA server.
2. Select **Resource > Administration Console**.
3. Select **Data Assurance Server**.
4. Select a DA server, then either:
 - Select **Resource > System Configuration** , or,
 - Click the button that appears when you select a DA server, then click **System Configuration**.
5. In the Run Value column, modify the current values of the server parameters.
6. (Optional) Click **Restore to Default** to undo modifications that have not been applied.
7. Click **Apply**.

See the *Replication Server Data Assurance Option Users Guide > Performance and Tuning*.

Manage and Monitor

Troubleshoot Sybase Control Center for Data Assurance

Troubleshoot problems that occur in Sybase Control Center for Data Assurance.

Comparison Fails to Record an Inconsistency

Problem: Job comparison results are not recording inconsistencies for database hash column comparison.

Possible cause one: The inconsistency exists in a large object (LOB) column, such as `image`. By default, DA server compares only the first 1024 bytes of LOB columns, so some sections of LOB values are not compared.

Solution: Increase the `lob_fetch_size` value.

Possible cause two: The source and target column values produces the same MD5/SHA/CRC32 hash value.

Solution: Use the literal option to recompare the rows.

See also

- *Configuring Data Assurance Server Parameters* on page 145

External Sort Option Configuration

Problem: You have configured DA agent to perform external sort, but the database is still performing the sort operation.

Possible cause: The enable sort option is not activated because the number of rows in the table is less than the `external_sort_activate_size` value, which is, by default, 10 million.

Solution: Decrease the `external_sort_activate_size` to a value less than the number of rows in the source and target tables.

See also

- *Configuring Data Assurance Server Parameters* on page 145

Out of Memory Errors

Problem: DA server runs out of memory space and exhibits performance issues.

Possible cause one: During a comparison, DA server receives row data from DA agents at different rates, so at any given time, the server may be buffering tens or hundreds of rows for each source or target. If individual rows are large (user-database-table-dependent) and the number of comparisons is sufficiently high (configured by the user), this buffering might cause DA server to run out of memory.

Solution: Set **comparer_max_concurrent_threads** to a lower value.

Possible cause two: The configuration parameter **lob_fetch_size** is set to a high value.

Solution: Set **lob_fetch_size** to a lower value.

Possible cause three: The external sort option uses a large amount of memory. By default, the external sort keeps thousand of rows in memory. While this is not usually a problem, it depends on the size of each row and the simultaneous activity occurring within the same Java Virtual Machine (JVM). For instance, if there are five concurrent comparisons using the DA agent, the memory requirement increases fivefold. Or if the “localagent” is being used, the source and target agents, and the compare function are sharing the same JVM memory allocation.

Solution: Decrease the number of rows the DA agent stores in the memory by changing the **external_sort_max_size** configuration parameter value.

Global solution: For all the three possible causes for out of memory issues, configure DA server to start with more memory. By default, the JVM where the DA server runs uses 512 MB. Increase the value (dependent on the platform and the amount of system memory available) by editing the **RUN_<instance>.bat** file to change the value.

See also

- *Configuring Data Assurance Server Parameters* on page 145

Problems with Basic Sybase Control Center Functionality

Troubleshoot problems that involve basic features like starting and stopping, authentication, alerts, and scheduling.

Alerts Are Not Generated

Problem: Alerts are not being generated in Sybase Control Center.

Solution: Schedule a job to run the data collection that supports your alerts. See the data collections topic for your Sybase Control Center product module for information on which collections must be scheduled.

Sybase Control Center Fails to Start

Problem: The Sybase Control Center server does not start.

Solution 1: Port conflict

Solution: SCC might be using one or more ports that are also being used by another server or application on this machine. To check for port conflicts:

1. Execute this command:

```
scc --info ports
```

The command lists all the ports on which Sybase Control Center and its services listen, indicates whether each port is in use, and shows the service running on each port. If SCC is not running, any port shown to be in use represents a conflict.

2. If you discover a conflict, use **scc --port** to change the port used by the Sybase Control Center service.

Solution 2: Insufficient memory

You might see this error why you try to start: Could not create the Java Virtual machine . Increase the maximum memory setting.

See also

- *Configuring Ports* on page 77

Cannot Log In

Problem: Cannot log in to Sybase Control Center Web console.

Solution: Make sure that Sybase Control Center has been configured:

- To allow logins through the operating system
- To grant appropriate roles to your login account

Ask the Sybase Control Center administrator to help you check.

See also

- *User Authorization* on page 80
- *Setting Up Security* on page 62

Browser Refresh (F5) Causes Logout

Problem: Pressing the **F5** key to refresh your browser logs you out of Sybase Control Center.

Solution: Do not use **F5** when you are logged in to Sybase Control Center. Browser refresh does not refresh data inside Sybase Control Center, but refreshes the loaded application or pages in the browser—in this case, the Adobe Flash on which Sybase Control Center is built. Consequently, pressing **F5** logs you out of any servers you are currently logged in to, including Sybase Control Center.

Performance Statistics Do Not Cover Enough Time

Problem: I want to graph performance counters over a long period of time but the statistics chart displays only very recent data.

Solution: Ask your Sybase Control Center administrator to change the repository purging options to keep statistical data available for as long as you need it. By default, statistics are purged frequently to conserve disk space.

See also

- *Configuring Repository Purging* on page 131
- *Graphing Performance Counters* on page 118

Resetting the Online Help

Problem: Sybase Control Center online help is corrupted or cannot be found (404 error).

Solution: Clear online help files to force SCC to build new ones.

1. Shut down Sybase Control Center.
2. Remove this directory:

```
<SCC-installation-directory>\SCC-3_2\services  
\EmbeddedWebContainer\container\Jetty-6.1.22\work  
\Jetty_0_0_0_0_8282_help.war_help__.smpe97
```

Tip: In Windows, you might see a deletion error. Regardless of what the errors says, it might be caused by the length of the path. If deletion fails, rename the Jetty_0_0_0_0_8282_help.war_help__.smpe97 folder to something very short, such as J. Then delete the renamed folder.

3. Remove these files:

```
<SCC-installation-directory>\SCC-3_2\services  
\EmbeddedWebContainer\container\Jetty-6.1.22\contexts  
\_help.xml  
<SCC-installation-directory>\SCC-3_2\services  
\SybaseControlCenter\help\com.sybase.infocenter.scc.zip  
<SCC-installation-directory>\SCC-3_2\services  
\SybaseControlCenter\help\help.war
```

```
<SCC-installation-directory>\SCC-3_2\services  
\SybaseControlCenter\help\help_info.xml
```

4. Start SCC. After the server comes up it rebuilds the help, which takes a few minutes.
5. To display the help, go to `https://<your-SCC-host>:8283/help/index.jsp`.

Note: If you try to display the help too soon after restarting, you get a file not found error. Wait a minute or two and try again.

Data Collections Fail to Complete

Problem: A collection frequently times out or generates errors citing the REJECT_DUPLICATE_RESOURCE_AND_COLLECTION policy, but no problems with the monitored resources are evident.

The errors appear in the log and on the collection history screen.

Solution: Try to determine why the collection is taking so long. For example, are network delays slowing down traffic between Sybase Control Center and the monitored server?

In the case of network delays and other resource-related problems, the interval between collections might be shorter than the time needed to finish the collection. To fix this problem, increase the time between collections.

See also

- *Modifying the Data Collection Interval for a Job* on page 122

Memory Warnings at Startup

Problem: When Sybase Control Center starts, you see warnings about system memory or heap memory allocation.

Solution: Increase the maximum memory setting (*SCC_MEM_MAX* or `jvmopt=-Xmx`).

See also

- *Configuring Memory Usage* on page 54

OutOfMemory Errors

Problem: Sybase Control Center generates OutOfMemory errors.

Solution:

- If the OutOfMemory error says that Sybase Control Center is out of heap space, increase the maximum memory setting (*SCC_MEM_MAX* or `jvmopt=-Xmx`).

Troubleshoot Sybase Control Center for Data Assurance

- If the `OutOfMemory` error says that Sybase Control Center is out of permanent generation space, increase the permanent memory setting (`SCC_MEM_PERM` or `jvmopt=-XX:MaxPermSize`).
- Repeated `OutOfMemory` errors may indicate a memory leak. `OutOfMemory` errors generate heap dumps:
 - When Sybase Control Center runs as a service in Windows:
`C:/windows/system32`
 - When Sybase Control Center runs as a service in UNIX:
`<SCC-install-directory>/SCC-3_2/bin`Send the heap dump files to Sybase technical support for analysis.

See also

- *Configuring Memory Usage* on page 54

Glossary: Sybase Control Center for Data Assurance

Definitions of Sybase Control Center terms related to Replication Server Data Assurance (DA) Option.

availability – indicates whether a resource is accessible and responsive.

collection – a named, predefined set of key performance indicators for which values are collected from monitored servers at the same time. Collections supply the performance and availability data shown on Sybase Control Center screens and charts. Use the scheduler to view a list of collections and to control which collections run, how often they run, and the length of time for which they run.

connection profile – information required to establish a database connection.

database – a set of related data tables and other objects that are organized and presented to serve a specific purpose.

Data Assurance job – a row comparison or a schema comparison job that defines how a compareset is compared and when.

Data Assurance system database (DASD) – the DA server database that stores system and configuration settings.

Data Transfer Stream (DTS) – an application protocol used by DA agent during a comparison to stream data.

event – an activity in the system, such as a user logging in, a service starting or stopping, or a condition changing. Use the alerts feature to detect and notify you about system events.

heat chart – a graphical view of resource availability and selected performance and status metrics for all the registered resources in the current perspective.

inconsistent row – a table row that is present both in primary and replicate databases, but has different values for one or more of the columns being compared.

Java Database Connectivity (JDBC) – an application program interface (API) that allows Java applications to access multiple database management systems using Structured Query Language (SQL).

jConnect – the Sybase high-performance JDBC driver.

job – a task performed by the scheduler in Sybase Control Center.

key performance indicator (KPI) – a single metric used to evaluate the status or performance of a monitored resource. A KPI value can be a state (such as running, error, or stopped) or a numerical value. KPIs are grouped into collections (and also, for some product

modules, into key performance areas, or KPAs). KPI values are collected by scheduled collection jobs and appear on monitoring screens and in the statistics and heat charts. Examples of KPIs are resource state and CPU usage.

managed resource – a server, agent, or other entity monitored and administered by Sybase Control Center. Resources SCC can manage include Adaptive Server, Replication Server, Replication Agent, Mirror Replication Agent, and Sybase IQ.

missing row – a table row that is present in the primary, but not in the replicate database.

orphaned row – a table row that is present in the replicate, but not in the primary database.

perspective – a named tab in Sybase Control Center that displays information related to a collection of managed resources (such as servers) and a set of views associated with those resources. The views in a perspective are chosen by users of the perspective. You can create as many perspectives as you need, and customize them to monitor and manage your resources. Perspectives allow you to group resources in ways that make sense in your environment—for example by location, department, or project.

primary key – a set of table columns that uniquely identifies each row.

replication – a process by which the changes to the data in one database—including creation, updating, and deletion of records—are also applied to the corresponding records in another database.

repository – a database in Sybase Control Center that stores information related to managed resources, along with user preference data, operational data, and performance statistics.

resource – a unique Sybase product component (such as a server) or a subcomponent.

Replication Server Data Assurance (DA) Option – the Sybase server program that compares row data and schema between two or more Adaptive Server databases and reports discrepancies. In Sybase Control Center, the product module that monitors and manages the Replication Server DA Option is called SCC for DA.

Replication Server system database (RSSD) – the Adaptive Server database containing Replication Server system tables. You can choose whether to store Replication Server system tables on the RSSD or the SQL Anywhere (SA) ERSSD.

Remote Method Invocation (RMI) – a remote procedure call used for communication between DA server and DA agents.

SCC agent – a Sybase Control Center agent that runs on a managed server and enables Sybase Control Center to manage it. The SCC agent is installed automatically as part of the Sybase server.

SCC-enabled login account – a user account that has been granted privileges in Sybase Control Center by mapping appropriate Sybase Control Center roles. (Roles are typically mapped to a group to which the account belongs rather than to the account itself.) The user account and group can be native to Sybase Control Center or created in the operating system or

the LDAP directory service to which Sybase Control Center authentication is delegated. You must use an SCC-enabled account to log in to Sybase Control Center.

schedule – the definition of a task (such as the collection of a set of statistics) and the time interval at which Sybase Control Center executes the task.

schema – the structure of the database.

Tabular Data Stream (TDS) – an application protocol by which Open Clients and Open Servers exchange information.

topology – a graphical representation of how the servers in an environment are connected to each other. It is a network diagram that provides a visual map of the availability of the environment.

view – a window in a perspective that displays information about one or more managed resources. Some views also let you interact with managed resources or with Sybase Control Center itself. For example, the Perspective Resources view lists all the resources managed by the current perspective. Other views allow you to configure alerts, view the topology of a replication environment, and graph performance statistics.

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