SYBASE®

Sybase Control Center for Replication

Sybase Control Center 3.1

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Contents

About Sybase Control Center for Replication

Sybase® Control Center for Replication is a Web-based solution that replaces Replication Monitoring Services (RMS), a middle-tier server, in monitoring the status and availability of servers in a replication environment.

Sybase Control Center for Replication allows you to monitor and manage large, complex, and geographically dispersed replication environments. It lets you search, sort, and filter servers and component objects to support a larger environment than what the current Replication Manager and Replication Monitoring Services can handle.

Sybase Control Center for Replication provides status information at a glance, using server monitors and a heat chart for displaying the availability or status of a specific server. The server monitors display high-level information, such as server version and platform. The server monitors also display critical performance counters to aid you in troubleshooting replication performance.

To help you control the flow of data and configure replication parameters to improve server performance, Sybase Control Center for Replication provides a quick administration tool that you can easily access through every replication monitor.

In addition to the monitors, Sybase Control Center for Replication provides a topology view that graphically displays the servers, the connections between servers, data flow in the environment, and replication path's sources and targets. Graphs and charts are also available for monitoring performance counters.

You can set user roles to limit access to different features and servers in your environment, therefore providing better data security.

Replication Environment

A replication environment is a set of servers—including Replication Servers, data servers, and Replication Agents—that participate in replication.

A replication environment does not need to contain all the server types in a replication system domain. It can be a subset of the replication domain identified by the ID Server. In the replication system, one Replication Server® serves as the ID Server. The ID Server assigns unique ID numbers to every Replication Server and database in the system. The ID Server also maintains version information for the system.

These are the servers that you can monitor in your Sybase Control Center replication environment:

- **Data Server**– a database within a data server may act as the source (primary database) of transaction data or may be the destination (replicate or standby database) of transaction data.
- **Replication Agent™ for Adaptive Server Enterprise (ASE)** – is embedded within an Adaptive Server Enterprise and is called RepAgent Thread. The RepAgent Thread reads the transaction data from the primary database transaction log and sends it to Replication Server for distribution to the replicate databases.
- **Replication Server** – receives the replicated transaction data from a replication agent or another Replication Server, converts it into SQL, and applies the SQL to the replicate or standby databases. Replication Server delivers operational data across complex and broadly distributed data-infrastructures in near real-time. The primary and replicate databases can be Sybase or non-Sybase data servers.
- **Replication Agent** – reads the primary database transactions from database transaction logs, then sends those transactions to Replication Server for distribution to the replicate databases. Replication Agents allow non-Sybase data servers to act as the primary data servers in a replication system based on Sybase replication technology.
- **Mirror Replication Agent** – a component in a Mirror Activator disaster recovery environment and, in conjunction with a storage replication system, reads the primary database transactions from mirror log devices, then sends those transactions to Replication Server for distribution to the standby databases. The Mirror Activator provides an integrated disaster recovery solution with:
  - Standby databases protected from disk corruption (by logical, not literal, replication).
  - Synchronous replication, with zero data loss and guaranteed data integrity (transaction consistency).
  - Complete coverage for databases, as well as non-database systems.
- **Sybase IQ** – a highly optimized analytics server that works with diverse data, including unstructured data and different data sources. It serves as a replicate database in the replication environment.

The replication environment also includes:

- **Components** – are objects in a server in a replication environment. Examples of components in a Replication Server are connections, routes, and queues.
- **Replication path** – is the set of servers through which transactions pass when moving from the primary to the replicate database.

See also

- *Data Flow Control* on page 62
- *Replication Servers* on page 63
- *Replication Agents* on page 70
- *Replication Paths* on page 72
- *Compatibility Matrix* on page 3

Compatibility Matrix

Know the version of the replication environment servers that are compatible with Sybase Control Center.

Server	Version
Replication Server	12.6 or later
Replication Agent	15.0 or later
Mirror Replication Agent	15.0 or later
Adaptive Server Enterprise	15.0.2 or later for Sybase Control Center for Adaptive Server, which offers full monitoring capabilities. 15.0.3 or later for Adaptive Server Cluster Edition monitoring 12.5.4 or later for Sybase Control Center for Replication, which monitors only the RepAgent threads in the registered Adaptive Server.
Sybase IQ	15.1 ESD #2.1 or later

See also

- *Replication Environment* on page 1
- *Data Flow Control* on page 62
- *Replication Servers* on page 63
- *Replication Agents* on page 70
- *Replication Paths* on page 72
- *Resources*
- *Common Display Options*
- *Registering a Replication Server, Replication Agent, or Mirror Replication Agent* on page 8

New Features in Sybase Control Center for Replication

A brief description for each new and enhanced feature, and links to associated topics.

Table 1. New and enhanced Sybase Control Center for Replication features

Feature	Topics
New script to start and stop Sybase Control Center: • In Windows: **scc.bat** • In UNIX: **scc.sh**	*Launching Sybase Control Center*
Use the **scc** script to start and stop servers, configure ports, enable and disable services, and more.	*scc Command*
Import and register servers in a batch from an interfaces file.	*Importing Resources* on page 9
Sybase Control Center automatically schedules default collections to gather data from managed resources.	*Replication Data Collections* on page 17
Tools for backing up and restoring the Sybase Control Center data repository.	*Repository*
Write a script and configure Sybase Control Center to execute it when a particular alert is triggered.	*Alert-Triggered Scripts* on page 50 *Creating an Alert* on page 40
Configure alerts on child objects (such as routes and paths) that are components of managed resources.	*Creating an Alert* on page 40
Determine the source, target, and the path of the data flow anywhere in the replication environment through replication tracing.	*Replication Tracing* on page 59
Control data flow and configure replication parameters to resolve performance issues using the Quick Admin tool.	*Data Flow Control* on page 62 *Setting Replication Parameters* on page 35
Set up the latency monitoring process to monitor the performance of the replication environment.	*Setting Up the Latency Monitoring Process* on page 13
Hide connection thread status in a warm standby environment and in an environment with a non-Adaptive Server primary database to avoid providing misleading information.	*Hiding Connection Thread Status* on page 65

Feature	Topics
Monitor the RepAgent thread in an Adaptive Server, either single instance or shared disk cluster.	*Displaying RepAgent Thread Status in Adaptive Server* on page 71
View Sybase IQ servers in the replication topology as part of the replication environment. **Note:** Sybase Control Center for Replication supports Sybase IQ only as a replicate database.	*Replication Topology* on page 58
Monitor additional Replication Server statistics for queues and Data Server Interface (DSI) thread.	*Graphing Performance Counters* on page 56
View information about logical connections associated with a Replication Server.	*Displaying Logical Connection Status* on page 64
Check the status bar for information of what is currently happening in the monitoring view, as well as warning and error messages. Launch the Sybase Control Center log viewer through the button in the left side of the status bar.	*Replication Monitors* on page 60
Maximize or minimize a chart view in a replication monitor view.	*Replication Monitors* on page 60

Configure

Configure login accounts, statistics collection, and other replication monitoring options.

1. *Registering a Replication Server, Replication Agent, or Mirror Replication Agent*

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

   Import and register multiple servers from an interfaces or sql.ini file.
3. *Creating a Perspective*

   Create a perspective in which you can add and manage resources.
4. *Adding a Resource to a Perspective*

   Add a resource to the current perspective.
5. *Configuring a Login Account to Monitor Replication*

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

   Specify the login account Sybase Control Center will use when it connects to your server or other resource to collect monitoring data.
7. *Setting Up the Latency Monitoring Process*

   Start the latency monitoring process for replication paths in the replication environment.
8. *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.
9. *Setting Replication Parameters*

   Configure replication parameters to improve server performance. Sybase Control Center for Replication allows you to configure the parameters for Replication Server, Replication Agent, connection and logical connection, route, and Adaptive Server RepAgent thread.
10. *Creating an Alert*

    Use the Add Alert wizard to create an alert instance for your resource.
11. *Optional Configuration Steps*

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

Registering a Replication Server, Replication Agent, or Mirror Replication Agent

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:

Table 2. New resource type details

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: • ASE Server, Replication Only (12.5.0.0) – monitor only the RepAgent threads for an Adaptive Server that is older than version 15.0.2.0. Choose this type for an Adaptive Server that is part of a replication environment. • Replication Agent (15.5.0.0) – monitor Replication Agent. • Replication Server (15.5.0.0) – monitor Replication Server.
Description	A brief description to help you identify the resource.

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

Table 3. New resource connection details

Field	Description
Server Host Name/Host Name	Local host name
Port Number	Local host port number
RSSD Host Name	(Required) Name of the RSSD host
RSSD Port Number	(Required) RSSD host port number

Note: RSSD Host Name and **RSSD Port Number** are required only if you are registering a Replication Server.

5. Click **Finish**.

See also

- *Importing Resources* on page 9
- *Resources*
- *Common Display Options*
- *Compatibility Matrix* on page 3

Importing Resources

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.

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.
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.**
   The Confirmation page displays a list of the resources you have selected.
10. Click **Finish** if you are ready to import, or click **Back** to return to the previous screen and change your selections.
    When you click **Finish**, Sybase Control Center imports and registers the resources and displays a summary page.
11. Click **Close** to finish the wizard.

The newly imported resources appear in the Resource Explorer.

Next

Add the new resources to a perspective so you can monitor and manage them.

See also

- *Registering a Replication Server, Replication Agent, or Mirror Replication Agent* on page 8
- *Creating a Perspective* on page 10
- *Resources*

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**.

See also

- *Importing Resources* on page 9
- *Adding a Resource to a Perspective* on page 11
- *Removing a Perspective*
- *Renaming a Perspective*

- *Perspectives*

Adding a Resource to a Perspective

Add a resource to the current perspective.

Add a server or other resource to a perspective so you can monitor and manage it 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. Select multiple resources by pressing the **Ctrl** key while you select. Then 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

- *Creating a Perspective* on page 10
- *Configuring a Login Account to Monitor Replication* on page 11
- *Resources*

Configuring a Login Account to Monitor Replication

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.

Assign the repMonitor and repAdminRole to any login account to perform monitoring and management tasks in Sybase Control Center.

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 to which you want to assign a role.
5. Click the **Roles** tab.
6. From the **Available roles for resource** list, select the role, then click **Add**.

   For example, to grant administrative privileges, add the SCC Service:sccAdminRole.

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

7. Click **OK**.

See also

- *Adding a Resource to a Perspective* on page 11
- *Authenticating a Login Account for a Monitored Resource* on page 12
- *User Authorization*

Roles or Permissions to Set Up Replication Monitoring Accounts

Sybase Control Center uses the user name and password account that you provide when you authenticate a server to retrieve monitoring information.

The user account you have specified must have these roles or permissions:

- Replication Server – a 'create object' or 'sa' permission.
- Replication Server System Database (RSSD) database – read privilege on all tables and create and execute privileges on stored procedures in the RSSD database. It is recommended to use the account created by **rs_init** for the RSSD.
- Replication Agent or Mirror Replication Agent – an administrative account. There is only one administrative account in a Replication Agent.
- Adaptive Server for RepAgent threads – a system administrator role. Sybase Control Center uses the **dbcc monitor** command to retrieve statistics.

Note: 'sa' or 'dbo' permission are required for setting parameters and controlling data flow.

Authenticating a Login Account for a Monitored Resource

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

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

Note: You can also authenticate a server when you create a collection job.

1. Connect a browser to Sybase Control Center and log in.
2. In the Perspective Resources view, right-click the icon for your resource and select **Authenticate**.
3. Select **Use my current SCC login** or **Specify different credentials**.
4. If you chose **Specify different credentials**, enter the login and password for Sybase Control Center to use to connect to your resource.
5. If the selected server is a Replication Server, also enter the RSSD user name and password.

6. Click **OK** to exit the dialog.

See also

- *Configuring a Login Account to Monitor Replication* on page 11
- *Setting Up the Latency Monitoring Process* on page 13
- *User Authorization*

Setting Up the Latency Monitoring Process

Start the latency monitoring process for replication paths in the replication environment.

Prerequisites

- Install and configure all the servers to be monitored. Verify that these servers have been registered and added to the Perspective Resources, and that you have the permission to perform this task.
- To use **rs_ticket** in a replication environment to measure the latency of non-Sybase replicate databases, you must install JDBC drivers to enable Sybase Control Center for Replication. See "Installing the JDBC Drivers for Non-Sybase Replicate Databases" in the *Sybase Control Center Installation Guide*.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Paths**.
3. Select a path from the list.

   Note: When selecting or highlighting a path, click outside the Path Name column. Clicking the path name opens the path dashboard.
4. Click **Quick Admin** to display the latency monitoring process administration view for the selected path.

   Note: The selected path's primary and replicate Replication Server versions must be 15.1 or later, otherwise the **Quick Admin** option is disabled. For a non-Sybase primary database, the Replication Agent must also be version 15.1 or later.

   All replicate databases to which the selected path replicates data are listed in the administration view. For Adaptive Server databases, all parameters are populated automatically. For non-Sybase databases, you need to provide the parameters manually in the administration view.
5. Specify the replicate database information, start and end dates, and the repeat interval time.
6. For non-Sybase databases, click **Test Connection** to verify that the connection information is valid.

Note: Repeat this step for all the listed replicate databases.

7. Click **Start**.

You can click the bar graph icon in the upper-right corner of the Latency window in the Replication Server Monitor's Paths view or in the Replication Path Dashboard to see the detailed latency history.

See also

- *Authenticating a Login Account for a Monitored Resource* on page 12
- *Setting Up Statistics Collection* on page 15
- *Stopping the Latency Monitoring Process* on page 74
- *Displaying Latency* on page 74
- *Latency Chart Details* on page 75
- *Replication Latency* on page 73
- *Data on Dashboards or Charts Is Missing* on page 77

Latency Monitoring Process

Latency monitoring means executing the **rs_ticket** command at the primary database, retrieving the latency data from the replicate database, and storing the results in the Sybase Control Center repository.

rs_ticket gathers time information at various points in the replication path as it flows from the primary database to the replicate database. You can then use this latency information to identify bottlenecks in the replication path. Latency information helps ensure that data is flowing efficiently between the primary and replicate databases.

The latency monitoring process collects data on a specified schedule for each replicate Replication Server and for the primary Replication Server for the path you configured. The primary collection executes the **rs_ticket** command in the primary database. Each replicate collection performs a collection in all its paths. When a path collection occurs, the results of the **rs_ticket** command are retrieved from the replicate database, stored in the repository, and displayed in the latency history chart in the Replication Server Monitor's Paths view or in the Replication Path Dashboard for server performance monitoring.

Each collection repeats until the end date or until you manually stop the latency monitoring process. Once the process is stopped, all collections are deleted from the scheduler.

See also

- *Displaying Replication Path Status* on page 73
- *Displaying Latency* on page 74
- *Stopping the Latency Monitoring Process* on page 74

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.

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 60 seconds or more.

1. In the Perspective Resources view, select a resource and select **Resource** > **Properties.**
2. Select **Collection Jobs**.
3. Click **Create Job**.
   The Create Collection Job window opens.
4. If this resource has not been authenticated yet, the Authentication page appears. Enter a user name and password that Sybase Control Center can use to log in to the resource. Then click **Authenticate** to allow Sybase Control Center to verify your credentials.
5. Select the data collection that this job will run and click **Next**.
6. (Optional) If you do not want to create a schedule yet, click to uncheck **Create a schedule for this job**.
7. Specify details for the new schedule:

Table 4. New schedule details

Field	Description
Name	A name for this schedule
Description	A description of the schedule
Start date	The day when the schedule will take effect
Time	The time when the schedule will take effect

Note: Enter dates and times using the server's local time.

8. Choose an option to specify the duration of this schedule:
   - **Run once**
   - **Repeat until**
     For **Repeat until**, specify these details:

Field	Description
Repeat interval	Interval, in seconds, between recurrences to be added to the schedule
Repeat until	End date
Time	Time when the job is to end

- **Repeat indefinitely**

  For **Repeat indefinitely**, specify these details:

Field	Description
Repeat interval	Interval, in seconds, between recurrences to be added to the schedule

9. Click **Finish**.

See also

- *Setting Up the Latency Monitoring Process* on page 13
- *Setting Replication Parameters* on page 35
- *Job Scheduling*

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.

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 your Sybase Control Center product module 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.)

See also

- *Replication Data Collections* on page 17
- *Key Performance Indicators and Key Performance Areas for Replication* on page 18

Replication Data Collections

Lists and describes predefined data collections you can use to create jobs for Replication.

Table 5. Replication data collection

Replication Objects	Replication Data Collection	Description
Replication Server	Monitoring Statistics (default collection*) **Note:** This collection must be scheduled to enable alerts.	Collects the availability metrics displayed in the Replication Server Monitor and heat chart.
	Performance Counters	Collects historical performance metrics that you can later graph in the statistics chart.
ASE Server, Replication Only	RepAgent Statistics (default collection*) **Note:** This collection must be manually started if the Adaptive Server is registered as an ASE Server type. "collection_ase_rat" is the name of the RepAgent Statistics collection in an ASE Server registered Adaptive Server.	Collects availability metrics for RepAgent thread.

Replication Objects	Replication Data Collection	Description
Replication Agent	RA Monitoring Statistics (default collection*)	Collects availability metrics displayed in the Replication Agent Monitor and heat chart.
	Performance Counters	Collects historical performance metrics that you can later graph in the statistics chart.
*Default collections are automatically created upon authentication and are set to repeat indefinitely at a 60-second interval.		

See also

- *About Statistics* on page 16
- *Alerts*
- *Creating an Alert* on page 40
- *Assigning a Role to a Login or a Group*
- *Configuring the E-mail Server*

Key Performance Indicators and Key Performance Areas for Replication

Lists and describes the key performance indicators (KPIs) and key performance areas (KPAs) that provide the statistics displayed on Replication screens and charts in Sybase Control Center.

Each Replication KPA includes a subset of the KPIs.

Table 6. Key performance indicators

KPI	Description
Managed Object States	
Primary State	Managed object primary state.
Secondary State	Managed object seconday state.
Replication Server Performance Statistics	
Insert commands	Insert command on active object.
Update commands total	Update command on active object.
Delete commands total	Delete command on active object.
Writetext commands total	Writetext command on active object.

KPI	Description
Execute commands total	Execute command on active object.
AIO collect time total	Amount of time that the Asynchronous I/O Daemon spent in collecting async I/O requests in which Daemon is obliged to poll until notified of their completion.
AIO after poll total	Number of pending asynchronous I/O requests just after the Async I/O Daemon finishes polling for their completion.
AIO before poll total	Number of pending asynchronous I/O requests just before the Async I/O Daemon goes off to poll for their completion.
AIO poll time total	Amount of time that the Asynchronous I/O Daemon spent in polling I/O completions. This includes the time taken to notify AIO clients of their I/O requests completion.
AIO read retry total	The number of times an async read is made and the OpSys tells the client that it must try again.
AIO write retry total	The number of times an async write is made and the OpSys tells the client that it must try again.
Alarm milliseconds spent total	Number of milliseconds actually spent before the alarm was expired.
Alarm cancel total	Number of alarms cancelled.
Alarm examined total	Number of examined alarms to determine whether they are expired or not.
Alarm expired cancelled total	Number of alarms that were found canceled upon each 'handle expiration' execution.
Alarm expired total	Number of alarms that have expired upon each 'handle expiration' execution.
Alarm milliseconds expired interval total	Number of milliseconds until the next alarm expiration.
Alarm expired time total	Amount of time elapsed while handling expired alarms.
Alarm milliseconds requested total	Number of milliseconds originally requested for the alarm when it was set.
Alarm set total	Number of alarms set.
Thread start total	Total number of started threads.
Thread stop total	Number of threads stopped.

KPI	Description
Begins total	Begin Tran statements sent to Replication Server System Database (RSSD).
Deletes total	Delete statements sent to RSSD.
Inserts total	Insert statements sent to RSSD.
Selects total	Select statements sent to RSSD.
Cache exceed total	Number of time System Table Services (STS) cached was exceeded.
Updates total	Update statements sent to RSSD.
Replication Server	
Replication Server State	The state of the Replication Server.
% Memory usage	The percent of the current memory used by the server.
Maximum Latency	The highest latency of any replication path in the server.
% Partition Usage	The percent full of all partitions in the Replication Server.
Path	
Path Status	The state of the replication path between a primary and a replicate database.
Path Latency	The time between when a transaction is committed at the primary database and when it is committed at the replicate database.
Change in Path Activity	The number of commands sent to the replicate database by the Data Server Interface (DSI) thread since the last monitoring cycle.
Path Data Loss	Indicates possible data loss between the primary and replicate databases.
rs_ticket Count	The ticket's unique sequence number.
Primary Database Start Time	The time, in milliseconds, the **rs_ticket** was executed at the primary database.
Executor Thread Latency	The number of milliseconds from the start, to the time the ticket passes through the executor thread.

KPI	Description
Distributor Thread Latency	The number of milliseconds from the primary Replication Server time, to the time the ticket passes through the distributor thread.
Replication Server Interface Latency	The number of milliseconds from the distributor (DIST) thread time, to the time the ticket passes through the Replication Server Interface (RSI) thread.
Data Server Interface Thread	The number of milliseconds from the RSI thread time, to the time the ticket passes through the DSI thread.
Path RDB Latency	The number of milliseconds from the DSI thread time, to the time the ticket arrived at the replicate database.
Connection	
Time closing an OB fadeout total	The amount of time spent closing a connection marked to be faded out.
Time waiting on OB fadeout total	The amount of time spent waiting for a connection marked to be faded out.
Commands read total	Commands read from an inbound queue by a DIST thread.
Resolved delete statements total	Delete commands encountered by a DIST thread and resolved by subscription resolution engine (SRE).
Unresolved statements total	DIST commands with no subscription resolution that a DIST thread discarded. This implies either there is no subscription or the 'where' clause associated with the subscription does not result in row qualification.
Resolved insert statements total	Insert commands that a DIST thread encountered, which SRE resolved.
Resolved update statements total	Update commands that a DIST thread encountered, which SRE resolved.
TD Begins total	Begin transaction commands that a DIST thread propagated.
TD Commits or Rollbacks total	Commit or Rollback commands that a DIST thread processed.
Transactions processed total	Transactions read by DIST thread from an inbound queue.
All large threads used total	This counter is incremented each time a Large Parallel Transaction must wait because there are no available parallel DSI threads.

KPI	Description
All threads used total	This counter is incremented each time a Parallel Transaction must wait because there are no available parallel DSI threads.
Commands applied successfully total	Commands that a DSI successfully applied to the target database.
Time dispatching large groups total	Time spent by the Data Server Interface, scheduler thread (DSI/S) dispatching a large transaction group to a DSI/E. This includes the time spent finding a large group to dispatch.
Time dispatching regular groups total	Time that the DSI/S spent dispatching a regular transaction group to a DSI/E.
Time finding regular groups total	Time that the DSI/S spent finding a group to dispatch.
Time loading SQT cache total	Time that the DSI/S spent loading Stable Queue Transaction (SQT) cache.
Time executing special group total	Time that the DSI/S spent determining if a transaction is special, and executing it if it is.
DSI/E in sleep mode total	Number of DSI/E threads that the DSI/S put to sleep prior to loading SQT cache. These DSI/E threads have just completed their transaction.
Time putting DSI/E in sleep mode total	Time that the DSI/S spent putting free DSI/E threads to sleep.
Transaction groups read total	Transaction groups that the DSI read. If grouping is disabled, grouped and ungrouped transaction counts are the same.
Ungrouped transactions read total	Ungrouped transactions that the DSI read. If grouping is disabled, grouped and ungrouped transaction counts are the same.
Transaction groups committed total	Transactions that a DSI thread successfully committed.
Transaction groups sent total	Transaction groups that the DSI thread sent to the target database. A transaction group can contain at most **dsi_max_xacts_in_group** transactions. This counter is incremented each time a 'begin' for a grouped transaction is executed.
Transaction groups success total	Transaction groups that a DSI thread successfully applied to a target database. This includes transactions that were successfully committed or rolled back according to their final disposition.

KPI	Description
Transaction groups committed total	Transactions in groups sent by a DSI thread that committed successfully.
Transaction groups sent total	Transactions contained in transaction groups that a DSI thread sent.
Closed groups maximum bytes total	Transaction groups that a DSI thread closed due to the next transaction that caused the **dsi_xact_group_size** to exceed.
Closed groups next new origin total	Transaction groups that a DSI closed due to no open group from the origin of the next transaction. For example, there is a new origin in the next transaction, or the schedule forced a flush of the current group from the origin leaving no open group from that origin.
Closed groups partitioning total	Transaction groups that a DSI thread closed because of a Transaction Partitioning rule.
Closed groups maximum log transaction total	Transaction groups that a DSI thread closed due to the next transaction that caused the **dsi_max_xacts_in_group** to exceed.
Groups wait partitioning total	Transaction groups forced to wait for another group to complete (processed serially based on Transaction Partitioning rule).
True return of **rs_dsi_check_thread_lock** total	Number of **rs_dsi_check_thread_lock** invocations returning true. The function determined the calling thread holds locks required by other threads. A rollback and retry occurred.
Delete statements read total	**rs_delete** commands that a DSI executor (DSIEXEC) thread processed.
Batch size total	Size, in bytes, of commands batches, which a DSI submitted.
Batch time total	Time, in milliseconds, to process command batches, which a DSI submitted.
Bytes succeed total	Bytes that a DSI/E successfully applied to the target database.
Commands read total	Commands read from an outbound queue by a DSIEXEC thread.
Commands succeed total	Commands that a DSI/E successfully applied to the target database.
Function string mapping time total	Time, in milliseconds, to perform function string mapping on commands.

KPI	Description
Input command count total	Number of input commands in command batches that a DSI submitted.
Output command count total	Number of output commands in command batches that a DSI submitted.
Result time total	Time, in milliseconds, to process the results of commands batches that a DSI submitted.
Sequencing check on command batches time total	Time, in milliseconds, to check the sequencing on command batches, which required some kind of synchronization such as **wait_for_commit**.
Sequencing check on commits time total	Time, in milliseconds, to check the sequencing on commits.
Transaction time total	Time, in milliseconds, for a DSI/E thread to process transactions. This includes function string mapping, sending and processing results. A transaction may span command batches.
Errors deadlock total	Times that a DSI thread failed to apply a transaction due to deadlocks in the target database (ASE Error 1205).
Errors out of lock total	Times that a DSI thread failed to apply a transaction due to no locks available in the target database (ASE Error 1204).
Writetext total	**rs_writetext** commands that a DSIEXEC thread processed.
Insert total	**rs_insert** commands that a DSIEXEC thread processed.
MemUsed group total	Memory that a DSI/S thread consumed for transaction groups.
Send RPC time total	Time, in milliseconds, spent in sending RPCs to the RDS.
Send time total	Time, in milliseconds, spent in sending command buffers to the RDS.
System transaction read total	Internal system transactions that a DSIEXEC thread processed.
Transaction groups scheduled total	Transactions groups scheduled to a DSIEXEC thread.
Ungrouped transactions scheduled total	Transactions in transaction groups scheduled to a DSIEXEC thread.
Updates read total	**rs_update** commands that a DSIEXEC thread processed.
Bytes received total	Bytes that a RepAgent thread received. This size includes the TDS header size when in 'passthru' mode.

KPI	Description
Mini abort total	**mini-abort** commands (in Adaptive Server, SAVEXACT records) that a RepAgent thread processed. **mini-abort** instructs Replication Server to rollback commands to a specific OQIQ value.
Commands received total	Commands that a RepAgent thread received.
Write wait time total	The amount of time the RepAgent spent waiting for the Stable Queue Manager (SQM) Writer thread to drain the number of outstanding write requests to get the number of outstanding bytes to be written under the threshold.
Yield time total	The amount of time the RepAgent spent yielding the processor while handling Log Transfer Language (LTL) commands each time the processor was yielded.
Execution time total	The amount of time, in milliseconds, RepAgent user thread is scheduled by Open Client/Server (OCS).
Receive time total	The amount of time, in milliseconds, spent receiving network packets or language commands.
Update rs_locator total	Updates to RSSD. **rs_locater** where type = 'e' executed by a RepAgent thread.
Replication Agent Thread State	The state of the Replication Agent thread in the Replication Server that is associated with the connection.
DSI State	The state of the DSI thread in the Replication Server that is associated with the connection.
DSI Activity	The number of commands that the DSI thread sent to the replicate database.
DSI Activity per Second	The number of commands that the DSI thread sent to the replicate database per second.
Transaction Ignored	The number of transactions that were ignored.
Transaction Skipped	The number of transactions that were skipped.
Transaction Succeeded	The number of transactions that were successfully committed to the replicate database.
Transaction Failed	The number of transactions that were failed.
Transaction Retried	The number of transactions that were retried.

KPI	Description
DSI SQT Cache Percent Used	The percent of DSI SQT cache size used.
Transactions removed per second	The number of transactions removed from the DSI SQT cache per second.
SQT cache low boundry	The smallest size to which DSI SQT cache is configured before transactions start being removed from the cache.
Transactions read per second	The number of transactions that the DSI read per second.
Commands per Transaction	The number of commands per transaction.
Transactions per Group	The number of transactions per group.
Commands per Batch	The number of commands per batch.
Logical Connection	
Operation in Progress State	The state of the operation in progress.
Route	
Route State	The state of the route at both the origin and destination Replication Servers.
Route Activity	The number of bytes sent to the destination Replication Server.
Route Activity per Second	The number of bytes sent to the destination Replication Server per second.
Alarm time spent total	Number of milliseconds actually spent before an alarm expired.
Time spent cancelling alarms total	Amount of time elapsed while canceling an alarm.
Expired alarms to be cancelled total	Number of alarms that were found to have been expired while attempting to cancel them.
Alarm required time total	Number of milliseconds originally requested for the alarm when it was set.
Alarm set total	Amount of time elapsed while setting an alarm.
Connection active time total	Amount of time elapsed while a thread makes a connection active.
Connection charset time total	Amount of time elapsed while checking a connection's character set.

KPI	Description
Connection fadeout freetime total	Amount of time elapsed while this thread's free connections are marked for fadeout. Note that this thread is probably *not* the thread doing the work. Most likely it is the Alarm Handler doing the work.
Connection fadeout time total	Amount of time elapsed while this thread's assigned connections are marked for fadeout. Note that this thread is probably *not* the thread doing the work. Most likely it is the Alarm Handler doing the work.
Connection give-up total	Number of times the thread gave up a connection.
Connection give-up time total	Amount of time elapsed while a thread gives up a connection.
Connection idle time total	Amount of time elapsed while a thread makes a connection idle.
Connection open total	Number of times the thread made a connection request and received one that had to be opened.
Connection request total	Number of times the thread made a connection request and received one that was already open.
Connection sort order time total	Amount of time elapsed while checking a connection's sort order.
Connection time total	Amount of time elapsed while a thread obtains a connection.
Message queue get time total	Number of centiseconds spent getting a message from an internal message queue.
Message queue put time total	Number of centiseconds spent putting a message on an internal message queue.
Sleep time total	Amount of time elapsed after a thread puts itself to sleep.
Yield time total	Amount of time elapsed after a thread yields the CPU.
Blocks read total	Number of blocking (**SQM_WAIT_C**) reads that an RSI thread performed against SQM thread that manages a RSI queue.
Bytes sent total	Bytes that an RSI sender thread delivered.
Messages sent total	RSI messages that an RSI thread sent. These messages contain the distribute command.
Packets sent total	Packets that an RSI sender thread sent.
Send packet time total	Time, in milliseconds, spent in sending packets of data to the RRS.

KPI	Description
Bytes received total	Bytes that an RSI user thread received. This size includes the TDS header size when in 'passthru' mode.
Command length total	Length of an RSI command.
Commands received total	Commands that an RSI user thread received. Includes RSI message, get truncation requests, etc.
Execution time total	The amount of time, in milliseconds, RSI User thread is scheduled by OCS.
Receive packet time total	The amount of time, in milliseconds, spent receiving network packets.
GetTrunc send time total	The amount of time, in milliseconds, spent responding to 'get truncation' requests.
SetTrunc send time total	The amount of time, in milliseconds, spent responding to 'set truncation' requests.
Queue	
Queue Writes	The number of commands written to the queue in the Replication Server.
Queue Writes per Second	The number of commands written to the queue in the Replication Server per second.
Queue Reads	The number of commands read from the queue in the Replication Server.
Queue Reads per Second	The number of commands read from the queue in the Replication Server per second.
Queue Bytes	The number of bytes written to the queue in the Replication Server.
Queue Bytes per Second	The number of bytes written to the queue in the Replication Server per second.
Queue Size	The size of the queue in the Replication Server.
Queue SQT Cache Percent Used	The percent of SQT cache size used for inbound queue.
Duplicates Transaction during monitoring interval	The number of duplicate commands detected and ignored by the SQM.
Transactions removed per second	The number of transactions removed from the SQT cache per second.

KPI	Description
SQT cache low boundry	The smallest size to which SQT cache would be configured before transactions start being removed from cache.
Commands processed by DIST per second	The number of commands that the distributor thread processed for an inbound queue per second.
Commands processed without rep def per second	The number of commands that did not have an associated replication definition, which the distributor thread processed for an inbound queue per second.
Percent of blocks that were full when written to the queue	The percentage of blocks that were full when written to the queue.
Percent of reads that came directly from the cache	The percentage of reads that came directly from the cache.
Blocks full write total	Number of full blocks that an SQM thread wrote. Individual blocks can be written due either to block full state or to sysadmin command **slow_queue** (only one message per block).
Blocks written total	Number of 16K blocks that an SQM thread wrote to a stable queue.
Bytes written total	Bytes that an SQM thread wrote to a stable queue.
Commands written total	Commands that an SQM thread wrote to a stable queue.
Command size total	Command size written to a stable queue.
Segments active total	Active segments of an SQM queue: the number of rows in **rs_segments** for the given queue where **used_flag** = 1.
Queue segments allocated total	Segments allocated to a queue during the current statistical period.
Queue segments deallocated total	Segments deallocated from a queue during the current statistical period.
Time new segments allocated total	The elapsed time, in milliseconds, to allocate a new segment. Timer starts when a segment is allocated. Timer stops when the next segment is allocated.
Updates to **rs_oqid** total	Updates to the RSSD. **rs_oqid** table by an SQM thread. Each new segment allocation may result in an update of **rs_oqid** value stored in **rs_oqid** for recovery purposes.
Write requests total	Message writes that an SQM client requested.

KPI	Description
Write timer pop total	SQM writer thread initiated a write request due to timer expiration.
Blocks read total	Number of 16 blocks that an SQM Reader (SQMR) thread read from a stable queue.
Blocks read cached total	Number of 16K blocks that an SQMR thread read from a cache.
Commands read total	Commands that an SQMR thread read from a stable queue.
Time waiting for queue write total	The amount of time SQMR wait for a queue write.
Unread blocks total	The number of blocks within a partially read segment that are yet to be read.
Unread segments total	The number of segments yet to be read.
Read time total	The amount of time taken for SQMR to read a block.
Memory used total	SQT thread memory use. Each command structure allocated by an SQT thread is freed when its transaction context is removed. For this reason, if no transactions are active in SQT, SQT cache usage is zero.
Transactions added closed total	Transactions added to the Closed queue.
Transactions removed closed total	Transactions removed from the Closed queue.
Commands read total	Commands read from SQM. Commands include **XREC_BEGIN**, **XREC_COMMIT**, **XREC_CHECKPT**.
Commands in tran total	Commands in transactions completely scanned by an SQT thread.
Transactions added total	Transactions added to the Open queue.
Transactions removed total	Transactions removed from the Open queue.
Transactions added Read Q total	Transactions added to the Read queue.
Transactions removed Read Queue total	Transactions removed from the Read queue.
Cache lower bound size total	The smallest size to which SQT cache can be configured before transactions start being removed from cache.
Closed transactions total	Current closed transaction count.
Open transactions total	Current open transaction count.

KPI	Description
Read transactions total	Current read transaction count.
Truncation queue transaction total	Current truncation queue transaction count.
Transactions removed total	Transactions whose constituent messages have been removed from memory. Removal of transactions is most commonly caused by a single transaction exceeding the available cache.
Truncation queue transactions added total	Transactions added to the Truncation queue.
Truncation queue transactions removed total	Transactions removed from the Truncation queue
Partition	
Partition State	The state of the partition in the Replication Server.
Partition Usage	The percent of the partition in the Replication Server that is currently in use.
RepAgent	
Replication Agent State	The state of the Replication Agent.
RepAgent VM	
VM maximum memory	Maximum memory (in bytes) available to the Java Virtual Machine (VM).
VM total memory allocated	Total memory (in bytes) allocated to the Java VM at start-up.
VM free memory	Memory (in bytes) allocated but not used by the Java VM.
VM memory usage	Memory (in bytes) allocated and in use by the Java VM.
VM % max memory used	Percentage of the the maximum memory available to the Java VM, currently in use by the Java VM.
RepAgent LTI Statistics	
Number of LTL commands sent	Total number of LTL commands sent to Replication Server.
LTL Commands Sent per Second	LTL commands sent to Replication Server per second.
Avg LTL command size	Average size (in bytes) of each LTL command sent to Replication Server.
Avg LTL commands/sec	Average number of LTL commands sent per second to Replication Server.

KPI	Description
Total bytes sent	Number of bytes sent to Replication Server.
Avg Bytes/second during transmission	Average bytes per second sent over connection to Replication Server.
Avg LTL buffer cache time	Average time (in milliseconds) it takes between placing the LTL commands into the LTL buffer to the time it is actually sent to the Replication Server.
Avg Rep Server turnaround time	Average time (in milliseconds) it takes Replication Server to acknowledge each LTL command buffer sent.
Avg data arrival time	Average time (in milliseconds) log transfer interface (LTI) waits between receiving change sets from Log Reader.
Avg time to create distributes	Average time (in milliseconds) LTI takes to convert a change-set into LTL.
Avg LTL buffer size	Average size (in bytes) of each LTL buffer sent to Replication Server
Avg LTM buffer utilization (%)	Average utilization (in percentage of LTL buffer size) of each LTL buffer sent to Replication Server.
Avg LTL commands/buffer	Average number of LTL commands per buffer sent to Replication Server.
LTI encoded column name cache size	Encoded column name cache size.
LTI input queue size	Number of change sets in the LTI input queue
LTI output queue size	Current number of LTL commands in the LTI output queue.
RepAgent Log Reader Statistics	
Total operations scanned	Number of operations read from the database transaction log.
Operations Scanned per Second	Number of operations read from the database transaction log per second.
Total operations processed	Number of operations processed from the database transaction log.
Operations Processed per Second	Number of operations process from the database transaction log per second.
Total operations skipped	Number of operations read from the database transaction log and skipped for any reason.

KPI	Description
Operations Skipped per Second	Number of operations read from the database transaction log and skipped for any reason per second.
Current operation queue size	Current size (in bytes) of the Log Reader input queue.
Current scan buffer size	Current size (in bytes) of the Log Reader scan buffer.
Total maintenance user operations filtered	Number of maintenance-user operations read from the database transaction log and skipped.
Total Maintenance User Operations Filtered per Second	Number of maintenance-user operations read from database transaction log and skipped per second.
RepAgent LTM Statistics	
Items held in Global LRU Cache	Number of object references in the internal Least Recently Used cache.
Adaptive Server RepAgent Thread	
ASE Replication Agent Thread Status	The status of the Adaptive Server RepAgent thread in the data server.
ASE Replication Agent Thread Log	The difference between the current marker and the end of the log.
ASE Replication Agent Thread Operations Scanned	The number of operations scanned from the Adaptive Server transaction log since the last monitoring cycle.
ASE Replication Agent Thread Commands Processed	The number of commands processed and sent to the Replication Server since the last monitoring cycle.

Table 7. Key performance areas

KPA	Description
KPA_RS_PERF_STATS	Replication Server common statistics.
KPA_RS_HEATCHART	Replication Server heat chart statistics.
kpa_path	Replication path statistics.
KPA_PATH_RS_TICKET	The latency times at various points in the path between the primary database and the replicate database.
kpa_connection	Replication Server connection statistics.
KPA_CONNECTION_PERF_STATS	Replication Server connection performance statistics.

KPA	Description
kpa_logical_connection	Replication Server logical connection statistics.
kpa_route	Replication Server route statistics.
KPA_ROUTE_PERF_STATS	Replication Server route performance statistics.
kpa_queue	Replication Server queue statistics.
KPA_QUEUE_PERF_STATS	Replication Server queue performance statistics.
kpa_partition	Replication Server partition statistics.
Availability Statistics	Replication Agent availability statistics.
VM Statistics	Replication Agent performance statistics on JAVA VM component.
LTM component Statistics	Replication Agent performance statistics on log transfer manager (LTM) component.
LTI component Statistics	Replication Agent performance statistics on LTI component.
LR component Statistics	Replication Agent performance statistics on log reader (LR) component.
kpa_ase	Adaptive Server statistics
kpa_rat_ctrl_availability	Adaptive Server RepAgent thread controller availability statistics.
kpa_rat_availability	Adaptive Server RepAgent thread availability statistics.

See also

- *Historical Performance Monitoring* on page 56
- *Heat Chart* on page 55
- *Replication Latency* on page 73
- *Availability Monitoring* on page 58
- *About Statistics* on page 16
- *Alerts*
- *Creating an Alert* on page 40
- *Assigning a Role to a Login or a Group*
- *Configuring the E-mail Server*

Setting Replication Parameters

Configure replication parameters to improve server performance. Sybase Control Center for Replication allows you to configure the parameters for Replication Server, Replication Agent, connection and logical connection, route, and Adaptive Server RepAgent thread.

See also

- *Setting Up Statistics Collection* on page 15
- *Creating an Alert* on page 40

Configuring Replication Server and Replication Agent Parameters

Configure Replication Server and Replication Agent parameters.

Prerequisites

Add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have the permission to perform this task.

1. From the Perspective Resources view, right-click a server and select **Monitor**.
2. Click **Quick Admin**.
3. In the Configure tab, modify the current value of the server parameter in the Run Value column.

   Note: Use the filter text box and check box options to search for the parameter you want to modify.
4. Click **Apply All**.
5. (Optional) Click **Reset All** to undo modifications that have not been applied.

   Note: Not all of Replication Server and Replication Agent parameters can be configured. If a parameter cannot be configured, the text box in the administration view is greyed out.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38

- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Configuring Connection Parameters for Replication Server

Configure connection parameters that affect database connections originating from the Replication Server.

Prerequisites

Add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have the permission to perform this task.

1. From the Perspective Resources view, right-click a server and select **Monitor**.
2. Click **Connections**.
3. Select a connection and click **Quick Admin**.
4. In the Configure tab, modify the current value of the connection parameter in the Run Value column.

   Note: Use the filter text box and check box options to search for the parameter you want to modify.
5. Click **Apply All**.
6. (Optional) Select **Recycle connection** before you click **Apply All** to allow Replication Server to suspend, then resume connection.

   Note: This option allows the new parameters to be applied to the connection. If you click **Apply All** without selecting **Recycle connection**, the parameters are not applied to the connection until the connection is restarted.
7. (Optional) Click **Reset All** to undo modifications that have not been applied.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Configuring Logical Connection Parameters for Replication Server

Configure Replication Server parameters that apply to logical connections for warm standby applications.

Prerequisites

Add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have the permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Logical Connection**.
3. Select a logical connection and click **Quick Admin**.
4. In the Configure tab, modify the current value of the logical connection parameter in the Run Value column.

   Note: Use the filter text box and check box options to search for the parameter you want to modify.
5. Click **Apply All**.
6. (Optional) Click **Reset All** to undo modifications that have not been applied.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Configuring Route Parameters for Replication Server

Configure parameters that affect routes from the current Replication Server to other Replication Servers.

Prerequisites

Add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have the permission to perform this task.

1. From the Perspective Resources view, right-click a server and select **Monitor**.
2. Click **Routes**.
3. Select a route and click **Quick Admin**.
4. In the Configure tab, modify the current value of the route parameter in the Run Value column.

   Note: Use the filter text box and check box options to search for the parameter you want to modify.
5. Click **Apply All**.
6. (Optional) Select **Recycle route** before you click **Apply All** to allow Replication Server to suspend, then resume the route.

   Note: This option allows the new parameters to be applied to the route. If you click **Apply All** without selecting **Recycle route**, the parameters are not applied to the route until the route is restarted.
7. (Optional) Click **Reset All** to undo modifications that have not been applied.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Configuring Adaptive Server RepAgent Thread Parameters

Configure Adaptive Server RepAgent thread parameters that affect replication performance.

Prerequisites

Add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have the permission to perform this task.

1. From the Perspective Resources view, right-click an Adaptive Server and select **Monitor**.
2. Select a RepAgent thread.

3. Click **Quick Admin**.
4. In the Configure tab, modify the current value of the RepAgent thread parameter in the Run Value column.

   Note: Use the filter text box and check box options to search for the parameter that you want to modify.
5. Click **Apply All**.
6. (Optional) Click **Reset All** to undo modifications that have not been applied.

   Note: Not all of Adaptive Server RepAgent thread parameters can be configured. If a parameter cannot be configured, the text box in the administration view is greyed out.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Configuring Replication Server to Gather Zero Values for Counters

Set the Replication Server parameter to gather zero values for performance counters when you run a collection job.

Prerequisites

Add all the servers to be monitored in the Perspective Resources, and verify that you have permission to perform this task.
If you want zero values to be gathered for performance counters, run this command in the Replication Server:

```
configure replication server set stats_show_zero_counters to
"on"
```

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68

- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Data Flow Control* on page 62

Creating an Alert

Use the Add Alert wizard to create an alert instance for your resource.

Prerequisites

- You must have administrative privileges (sccAdminRole) to perform this task.
- Specify an e-mail server for Sybase Control Center to use for alerts. If an e-mail server is not configured, you cannot create alert subscriptions.
- Schedule data collections. Alerts for each product module are based on one or more data collections. If the correct collection or collections are not scheduled to run, the alert system cannot function and no alerts are generated. See the data collections topic for your product module for information on which collections you need to schedule to enable alerts.
- (Optional) If you want this alert to trigger the execution of a shell script, copy the script to a location on or accessible from the machine that hosts your Sybase Control Center server.

Warning! Use caution in writing scripts. A poorly designed script can cause a blocking situation, creating a lock-up in your Sybase Control Center server.

Note: Only alerts on Adaptive Server or Replication Server resources can trigger script execution.

1. In the Perspective Resources view, click the server or other resource and select **Resource > Properties** in the view's menu bar.
2. Select **Alerts** in the left pane and click **Add**.
   The Add Alert Wizard opens. If the selected resource supports child alerts, the wizard opens to the Resource page. If the resource does not support child alerts, the wizard opens to the Type page.
3. On the Resource page of the wizard, select the object on which you want to set the alert. Expand the folder representing the server or agent to select lower-level child objects.
4. Click **Next**.
   The Type page of the wizard appears.
5. Select the alert type and click **Next**.

For this step and the next one, see the topic on key performance indicators for information on what this alert monitors and how it is triggered. (Each alert is based on a KPI.)

6. Based on the type of alert you selected, do one of the following:
   - For a state-based alert: Select a severity level for each alert state.

     Note: You can associate only one severity level with each state.
   - For a threshold-based alert: Review and if necessary adjust the range of values that defines each severity.
7. Click **Next**.
   The Storm Suppression page of the wizard appears.
8. Enter the storm suppression period, which suppresses redundant alerts resulting from the same condition (an alert storm) for the specified period of time. (The default is 60 seconds.) Enter this value in seconds, minutes, or hours in **Storm Suppression Period** and click **Next**.
9. (Optional; not available for alerts on Sybase IQ servers) To configure this alert to trigger the execution of a script:
   a) **Type Configuration** specifies the alert severity level that triggers the script. Select **Critical**, **Warning**, or both.

      Critical is more serious than Warning.
   b) Enter or browse to the location of the script.
   c) Enter parameter values in the **Execution Parameters** box.

      The string you enter is passed on the command line to the script. You can include a number of predefined substitution parameters, which are replaced by values from the alert. See the example (below) and the substitution parameters topic (linked below) for more information.
   d) Click **Next**.

   If the selected resource has sibling resources (databases or devices of the same type, for example) that support this alert type, the Duplicates page appears. If the selected resource has no identical siblings, the Subscription page appears.
10. (Optional) On the Duplicates page, select any resources that should use this alert definition as a template for their own alerts. Click the box at the top of the list to select all the resources listed. Then click **Next**.

    This step saves time when you need to configure similar alerts for several resources of the same type.
11. (Optional) On the Subscription page, specify e-mail addresses if you want this alert to issue e-mail notifications when it fires.

    The e-mail addresses default to the address in your user profile, but you can override the defaults.

    For both critical and warning alerts:

Table 8. Alert subscription details

Option	Description
E-mail Message	To send an e-mail notification when this alert fires, click the **E-mail Message** box and enter the e-mail address of one user or list.
Escalation E-mail	To escalate this alert (by sending an e-mail notification to another address when this alert has not been responded to after a specified period of time), click the **Escalation E-mail** box and enter the e-mail address of one user or list. Note that you cannot enter an escalation address unless you enter an address for primary notification first.
Time Period	Enter the amount of time to wait, following the initial alert notification, before Sybase Control Center sends an e-mail notification to the escalation address.

12. Click **Finish**.

Example: An alert-triggered script

This sample script is a Windows `.bat` file:

```
@echo off
@echo. >> stest.txt
@echo %date% %time% >> stest.txt
@echo arg0: %0 >> stest.txt
@echo arg1: %1 >> stest.txt
@echo arg2: %2 >> stest.txt
@echo arg3: %3 >> stest.txt
@echo arg4: %4 >> stest.txt
@echo arg5: %5 >> stest.txt
@echo arg6: %6 >> stest.txt
@echo arg7: %7 >> stest.txt
@echo arg8: %8 >> stest.txt
@echo arg9: %9 >> stest.txt
@echo. >> stest.txt
```

This is a sample execution parameter string for the script above:

```
Time:%Time%
Severity:%Severity%
Resource:%Resource%
Server:%Top_resource%
KPI:%KPI%
State:%Current_state%
URL:%SCC_URL%
```

The script's ouput might look like this:

```
Tue 12/15/2009 14:54:45.58
arg0: C:\project\sccmain\script-test.bat
arg1: Time:"Mon Dec 21 21:30:04 2009"
arg2: Severity:CRITICAL
arg3: Resource:"SCC Tester 1"
arg4: Server:"SCC Tester 1"
arg5: KPI:kpi_scc_mostate_primary
```

```
arg6: State:ERROR
arg7: HYPERLINK "http://ik-scc.sybase.com:8282/scc"URL:http://ik-
scc.sybase.com:8282/scc
arg8:
arg9:
```

See also

- *Setting Replication Parameters* on page 35
- *Optional Configuration Steps* on page 52
- *Alerts*
- *Replication Data Collections* on page 17
- *Key Performance Indicators and Key Performance Areas for Replication* on page 18

Replication Alert Templates

Lists and describes alert templates you can use to create alert instances for Replication.

The alert templates are based on the same key performance indicators (KPIs) that are collected for the performance and availability monitor displays, and for the Statistics Chart.

Replication Objects	Alert Template	Description	Alert Type
Replication Server	State Change	The alert to send when a Replication Server state changes.	State
	Memory Usage	The alert to send when a Replication Server memory usage is above the configured threshold.	Threshold
	Partition Usage	The alert to send when a Replication Server partition's usage is above the configured threshold.	Threshold
Paths	Path State Change	The alert to send when a replication path's state changes.	State
	Change in Path Activity	The alert to send when the numbers of operations sent on a replication path is above the configured threshold.	Threshold
Connections	Connection State Change	The alert to send when a Replication Server connection for the primary database changes state.	State

Replication Objects	Alert Template	Description	Alert Type
	DSI Activitiy	The alert to send when the numbers of operations sent on a Replication Server DSI connection is above the configured threshold.	Threshold
	DSI Activity per Second	The alert to send when the numbers of operations sent on a Replication Server DSI connection per second is above the configured threshold.	Threshold
Logical Connections	Logical Connection State Change	The alert to send when a Replication Server logical connection changes state.	State
Routes	Route State Change	The alert to send when a Replication Server route's state changes.	State
	Route Activity	The alert to send when the change in number of bytes sent through a Replication Server route is above the configured threshold.	Threshold
	Route Activity per Second	The alert to send when the number of bytes sent through a Replication Server route per second is above the configured threshold.	Threshold
Queues	Number of Commands Written	The alert to send when the number of commands written to a Replication Server queue is above the configured threshold.	Threshold
	Number of Commands Written per Second	The alert to send when the number of commands written to a Replication Server queue per second is above the configured threshold.	Threshold
	Number of Commands Read	The alert to send when the number of commands read from a Replication Server queue is above the configured threshold.	Threshold

Replication Objects	Alert Template	Description	Alert Type
	Number of Commands Read per Second	The alert to send when the number of commands read from a Replication Server queue per second is above the configured threshold.	Threshold
	Size of Commands Written	The alert to send when the number of commands bytes written to a Replication Server queue is above the configured threshold.	Threshold
	Size of Commands Written per Second	The alert to send when the number of bytes written to a Replication Server queue is above the configured threshold.	Threshold
	Queue Size	The alert to send when the size of a Replication Server queue is above the configured threshold.	Threshold
Partitions	Partition Usage	The alert to send when a Replication Server partition's usage is above the configured threshold.	Threshold
Replication Agent and Mirror Replication Agent	State Change	The alert to send when a Replication Agent state changes.	State
	Memory Usage	The alert to send when a Replication Agent memory usage is above the configured threshold.	Threshold
	LTI Input Queue Size	The alert to send when the number of change sets in a Replication Agent Log Transfer Interface (LTI) input queue is above the configured threshold.	Threshold
	LTI Output Queue Size	The alert to send when the number of change sets in a Replication Agent LTI output queue is above the configured threshold.	Threshold

Replication Objects	Alert Template	Description	Alert Type
	Number of LTL Commands Sent	The alert to send when the number of Replication Agent Log Transfer Language (LTL) commands sent to Replication Server is above the configured threshold.	Threshold
	Number of LTL Commands Sent per Second	The alert to send when the number of Replication Agent LTL commands sent to Replication Server per second is above the configured threshold.	Threshold
	Number of Operations Scanned	The alert to send when the number of operations scanned by a Replication Agent Log Reader is above the configured threshold.	Threshold
	Number of Operations Scanned per Second	The alert to send when the number of operations scanned by a Replication Agent Log Reader per second is above the configured threshold.	Threshold
	Number of Operations Processed	The alert to send when the number of operations processed by a Replication Agent Log Reader is above the configured threshold.	Threshold
	Number of Operations Processed per Second	The alert to send when the number of operations processed by a Replication Agent Log Reader per second is above the configured threshold.	Threshold
	Number of Operations Skipped	The alert to send when the number of operations skipped by a Replication Agent Log Reader is above the configured threshold.	Threshold
	Number of Operations Skipped per Second	The alert to send when the number of operations skipped by a Replication Agent Log Reader per second is above the configured threshold.	Threshold

Replication Objects	Alert Template	Description	Alert Type
	Number of Maintenance-User Operations Skipped	The alert to send when the number of maintenance-user operations skipped by a Replication Agent Log Reader is above the configured threshold.	Threshold
	Number of Maintenance-User Operations Skipped per Second	The alert to send when the number of maintenance-user operations skipped by a Replication Agent Log Reader per second is above the configured threshold.	Threshold
	Log Reader Queue Size	The alert to send when the size (in bytes) of a Replication Agent Log Reader input queue is above the configured threshold.	Threshold
	Log Reader Scan Buffer Size	The alert to send when the size (in bytes) of a Replication Agent Log Reader scan buffer is above the configured threshold.	Threshold
Adaptive Server Enterprise	State Change	The alert to send when an Adaptive Server state changes.	State
Adaptive Server RepAgent Thread	RepAgent Thread State Change	The alert to send when an Adaptive Server RepAgent Thread changes state.	State
	Transaction Log Size	The alert to send when the size of an Adaptive Server RepAgent Thread's transaction log is above the configured threshold.	Threshold
	Number of Log Operations Scanned per Second	The alert to send when the number of log operations scanned per second by an Adaptive Server RepAgent Thread is above the configured threshold	Threshold
	Number of Log Operations Processed per Second	The alert to send when the number of log operations processed per second by an Adaptive Server RepAgent Thread is above the configured threshold.	Threshold

See also

- *Alert Types, Severities, and States for Replication* on page 48
- *Substitution Parameters for Scripts* on page 51
- *Alert-triggered Scripts* on page 50

Alert Types, Severities, and States for Replication

Learn about the properties that define and control alerts.

An alert's type determines what causes it to fire.

Table 9. Alert types

Type	Description
State	A state alert fires when the metric on which it is based changes to a particular state. The possible states are running, pending, stopped, warning, error, and unknown.
Threshold	A threshold alert fires when the metric on which it is based passes a preset level.

Alert severities control when an alert is issued. You can configure the states or threshold values for each alert.

Table 10. Alert severities

Severity	Description
Normal	No alert is issued.
Warning	A problem has given cause for concern. An alert is issued; you can subscribe to alerts that fire at the Warning level.
Critical	A serious problem exists. An alert is issued; you can subscribe to alerts that fire at the Critical level.

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

Table 11. Replication States

Replication Object	State	Description
Replication Server	Running	Replication Server is in Active or Quiesce state.
	Warning	Replication Server is in Suspect state.
	Stopped	Replication Server is in Rebuilding, Hibernating, Recovering, and Standalone state.
	Error	Replication Server is in Down state.

Replication Object	State	Description
	Unknown	The state of the Replication Server cannot be determined.
Replication Server Connection	Running	Replication Server connection is in Active or Hidden state.
	Stopped	Replication Server connection is in Suspended state.
	Unknown	The state of the Replication Server connection cannot be determined.
Replication Server Logical Connection	Running	Replication Server logical connection is in Active state.
	Stopped	Replication Server logical connection is in Suspended state.
	Unknown	The state of the Replication Server logical connection cannot be determined.
Replication Server Route	Running	Replication Server route is in Active state.
	Stopped	Replication Server route is in Suspended state.
	Unknown	The state of the Replication Server route cannot be determined.
Replication Path	Running	Replication path is in Active state.
	Stopped	Replication path is in Suspended state.
	Unknown	The state of the Replication path cannot be determined.
Replication Agent	Running	Replication Agent is in Replicating state.
	Stopped	Replication Agent is in Admin state.
	Error	Replication Agent is in Down state.
	Unknown	The state of the Replication Agent cannot be determined.
Adaptive Server Replication Agent Thread	Running	Adaptive Server Replication Agent thread is in Active state.

Replication Object	State	Description
	Stopped	Adaptive Server Replication Agent thread is in Suspended state.
	Error	Adaptive Server Replication Agent thread is in Down state.
Replication-Only Adaptive Server	Running	Replication-only Adaptive Server is in Active state.
	Error	Replication-only Adaptive Server is in Down state.
	Unknown	The state of the Replication-only Adaptive Server cannot be determined.

See also

- *Replication Alert Templates* on page 43
- *Substitution Parameters for Scripts* on page 51
- *Alert-triggered Scripts* on page 50

Alert-triggered Scripts

You can write a shell script and configure an alert to execute the script.

Use scripts to help manage and respond to alerts. A script might trigger a visual alarm in a control center or send e-mail about the alert to a list of addresses (a way of supplementing the alert subscription feature, which accepts a single address).

When you configure an alert to execute a script, you:

- Specify the states or thresholds that set off the alert
- Specify the severity level that triggers execution of the script
- Supply an execution parameter string to be passed to the script

Scripts are executed under the login account used to start Sybase Control Center. Make sure that account has permissions that allow it to perform the actions contained in all scripts.

Warning! Use caution in writing scripts. A poorly designed script can cause a blocking situation, creating a lock-up in your Sybase Control Center server.

See also

- *Replication Alert Templates* on page 43
- *Alert Types, Severities, and States for Replication* on page 48
- *Substitution Parameters for Scripts* on page 51

Substitution Parameters for Scripts

In the execution parameter string you supply to be passed to your shell script, you can include substitution parameters that are replaced at execution time with values from the alert that triggers the script.

Substitution parameters are available for both state-based and threshold-based alerts.

Table 12. Substitution Parameters for State-based Alerts

Parameter	Description
%Alert%	A three-part name supplied by the alert system. It includes the names of this alert, the resource, and the key performance indicator on which this alert is based.
%Current_state%	The current state of the resource on which this alert is configured.
%KPI%	The name of the key performance indicator on which this alert is based.
%Resource%	The name of the resource with which this alert is associated.
%SCC_URL%	A link to Sybase Control Center, where more information about the alert may be available.
%Severity%	The severity of this alert: critical or warning.
%Source_application%	The application on the managed resource that generated this alert.
%Time%	The date and time at which the alert fired, in this format: Tue Sep 15 10:10:51 2009
%Top_resource%	The name of the alerted resource's top-level parent resource. This is valuable when the alerted resource is a component of a larger system (a database in a server, for example). If the alerted resource has no parent, %Top_resource% and %Resource% have the same value.

Table 13. Substitution Parameters for Threshold-based Alerts

Parameter	Description
%Alert%	A three-part name supplied by the alert system. It includes the names of this alert, the resource, and the key performance indicator on which this alert is based.

Parameter	Description
%Datapoint%	The current value, on the alerted resource, of the KPI on which this alert is based.
%KPI%	The name of the key performance indicator on which this alert is based.
%Resource%	The name of the resource with which this alert is associated.
%SCC_URL%	A link to Sybase Control Center, where more information about the alert may be available.
%Severity%	The severity of this alert: critical or warning. (Critical is more serious.)
%Source_application%	The application on the managed resource that generated this alert.
%Threshold%	The threshold value at which this alert fires.
%Time%	The date and time at which the alert fired, in this format: Tue Sep 15 10:10:51 2009
%Top_resource%	The name of the alerted resource's top-level parent resource. This is valuable when the alerted resource is a component of a larger system (a database in a server, for example). If the alerted resource has no parent, %Top_resource% and %Resource% have the same value.

See also

- *Replication Alert Templates* on page 43
- *Alert Types, Severities, and States for Replication* on page 48
- *Alert-triggered Scripts* on page 50

Optional Configuration Steps

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

Table 14. 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).	*User Authorization*
Authentication	Add authentication modules to allow Windows, UNIX, or LDAP users to log in to Sybase Control Center.	*Setting Up Security*
Alerts	Modify alert thresholds and subscriptions and delete alerts.	*Alerts*
Data collection	Modify collection intervals and schedules, suspend and resume the schedule, and delete collection jobs.	*Job Scheduling*
Resources	Unregister resources, add them to perspectives, or remove them.	*Resources*
Perspectives	Create, remove, and rename perspectives.	*Perspectives*
Repository	Set purging options and schedule backups of the repository database.	*Repository*

See also

- *Creating an Alert* on page 40

Manage and Monitor

Manage and Monitor the servers and their components in the replication environment.

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. You can also search and sort the results by column. From within the Perspective Heat Chart, you can right-click a resource to see a menu of 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.

See also

- *Historical Performance Monitoring* on page 56
- *Replication Latency* on page 73
- *Availability Monitoring* on page 58
- *Key Performance Indicators and Key Performance Areas for Replication* on page 18

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) Right-click the resource's row to view a menu of 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.**

See also

- *Graphing Performance Counters* on page 56
- *Configuring Repository Purging*

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.

See also

- *Heat Chart* on page 55
- *Replication Latency* on page 73
- *Availability Monitoring* on page 58
- *Key Performance Indicators and Key Performance Areas for Replication* on page 18

Graphing Performance Counters

Generate a graph for any set of performance counters to show performance trends.

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 is displayed, data is being collected.

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 additional 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.
7. (Optional) You can click the date/time that appear above the slider. Use these to change the start and end date/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*
- *Displaying Resource Availability* on page 55

Manage and Monitor Sybase Control Center for Replication

Manage and monitor Sybase Control Center for Replication through performance statistics information and component's activity logs.

Viewing the Replication Component Log

Launch the Sybase Control Center Log Viewer to display replication activity log.

Prerequisites

Verify the you are in a replication monitoring view.
From any replication monitoring view, click the notebook icon in the left corner of the status bar. The status bar is at the bottom of a monitoring view.

See also

- *Logging*

Manage and Monitor the Replication Environment

Monitor the availability of the servers in the replication environment, control the flow of data and configure replication parameters to improve server performance.

Availability Monitoring

The statistics allow you to monitor the availability of each server and the state of the components, such as connections and routes, in a replication environment.

The status of a server is determined by its availability, whether it is up or down, and the state of the components within the server. The status of the server is a roll-up of the status of all the components within it.

Availability monitoring provides you with the information to determine not only the availability of the servers but also their effectiveness in the replication environment. There are a number of availability monitoring statistics that are gathered for replication. The process of gathering these statistics is turned on by default with the default interval time.

See also

- *Historical Performance Monitoring* on page 56
- *Heat Chart* on page 55
- *Replication Latency* on page 73
- *Key Performance Indicators and Key Performance Areas for Replication* on page 18

Replication Topology

Replication topology is a graphical representation of how the servers in a replication environment are connected to each other. A topology or network diagram illustrates how data moves in a replication environment.

It provides a visual map of the availability of the replication environment. The lines on a topology diagram represent the servers, connections, and routes from the source to the target data server.

See also

- *Replication Latency* on page 73
- *Replication Monitors* on page 60

Replication Tracing

Replication tracing provides the information you need to determine the source, target, and the path of the data flow anywhere in the replication environment.

Replication tracing supports large, complex, and geographically dispersed networks and these component types:

- **Sources** – these are servers, databases, tables, stored procedures, and all components to which Replication Agents provide access.
- **Targets** – these are servers, databases, tables, and stored procedures.
- **Replication Paths** – these are connections, routes, and intermediate Replication Servers.

Displaying Replication Tracing from Target to Source

Select a database server and show the data flow path.

Prerequisites

Add all the servers to be monitored to the Perspective Resources view, and verify that you have the permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **View Replication Topology**.
2. Right-click a target database server and select **Trace Replication Sources**.
   The traced servers, connections, and routes are highlighted in the topology view. The list of servers that participate in the trace are displayed in the Replication Tracing tab.

   Note: There can be more than one source, depending on the replication environment.
3. (Optional) To remove the replication tracing, right-click a server and select **Clear Replication Tracing.**

See also

- *Displaying Replication Tracing from Source to Target* on page 59
- *Displaying Replication Tracing for a Replication Server* on page 60

Displaying Replication Tracing from Source to Target

Select a database server and show the data flow path, which includes the final target destination.

Prerequisites

Add all the servers to be monitored to the Perspective Resources view, and verify that you have the permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **View Replication Topology**.
2. Right-click a source database server and select **Trace Replication Targets**.

The traced servers, connections, and routes are highlighted in the topology view. The list of servers that participate in the trace are displayed in the Replication Tracing tab.

Note: There can be more than one target, depending on the replication environment.

3. (Optional) To remove the replication tracing, right-click a server and select **Clear Replication Tracing.**

See also

- *Displaying Replication Tracing from Target to Source* on page 59
- *Displaying Replication Tracing for a Replication Server* on page 60

Displaying Replication Tracing for a Replication Server

Select a Replication Server and display all the data flow paths through the replication environment, including other Replication Servers, Replication Agents, and database servers.

Prerequisites

Add all the servers to be monitored to the Perspective Resources view, authenticate these servers, and verify that you have the permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **View Replication Topology**.
2. Right-click a Replication Server and select **Trace Replication Server**.
3. (Optional) To change the layout type and orientation of the topology, use the **View Controls** tab on the left. You can also use the additional options that control the way the topology appears.
4. (Optional) To view the list of nodes and edges included in the current topology, select the **Details** tab on the left.

To retain any changes you have made to the default layout settings of the replication topology, close Sybase Control Center without closing the Replication Topology view.

See also

- *Displaying Replication Tracing from Target to Source* on page 59
- *Displaying Replication Tracing from Source to Target* on page 59

Replication Monitors

Replication monitors display the availability and critical performance statistics of a particular component in the replication environment.

The replication monitors provide the status of Replication Servers, Replication Agents, and replication paths. Each monitor also provides a Quick Admin view to allow you to control the flow of data and configure replication parameters, a list of replication paths, and a status bar for each view.

The Replication Server Monitor includes these views:

- **Overview** – displays high-level information, such as the server name, version, and its status. It also displays the memory usage graph, and a bar chart for partitions and the Top 10 queues by size.
- **Paths** – displays a table of Replication Server paths, including its state, activity, latency, and latency monitoring status information. It also displays the latency history chart of a Replication Server.
- **Connections** – displays the information for Replication Server connections, which include the name, Replication Agent (RA) status, and Data Server Interface (DSI) status. It also shows these graphs for the selected connection:
  - DSI activity and Stable Queue Transaction (SQT) cache
  - Transactions removed from SQT
  - Transaction activity
  - Transaction success rate
  - Group and batch size
- **Logical Connections** – displays the Replication Server logical connection information in a warm-standby environment.
- **Routes** – displays the Replication Server route information, which includes the name, route status, and the route's activity graph.
- **Queues** – displays Replication Server queues information, which includes the name and type. It also shows these graphs for the selected queue :
  - Queue reads and writes
  - Queue bytes and cache
  - SQT cache (only for inbound queues)
  - Backlog
  - Duplicates detected
  - Transactions Removed from SQT (only for inbound queues)
  - Distributor activity (only for inbound queues)

The Replication Agent Monitor includes this view:

- **Overview** – displays high-level information, which includes the status, name, version number of the server, primary connection, primary host, Replication Server connection, and the information on when it was last started. It displays a list of paths, which you can click to open a path dashboard. It also displays these graphs:
  - Java Virtual Machine (JVM) memory usage
  - LTI activity and queue sizes
  - Log Reader activity, queue sizes, and scan buffer

The Adaptive Server Replication Agent Thread Monitor has this view:

- **Overview** – displays high-level information, such as the name, status, and controlling Replication Server. It also displays the log and activity details in a graph format.

The Replication Path Dashboard has this view:

- **Overview** – displays a detailed information of a particular path, which includes its name, status, data loss detection result, and these graphs:
  - Adaptive Server RepAgent thread commands sent per second
  - Inbound queue activity for the primary database
  - Outbound queue activity for the replicate database
  - Database Server Interface (DSI) commands sent per second
  - Latency
  - Latency history

See also

- *Replication Latency* on page 73
- *Replication Topology* on page 58

Data Flow Control

Controlling data flow comprises one part of troubleshooting in your replication environment.

The other part is tuning servers and components. You use either or both of the methods based on the problems in the environment.

See also

- *Replication Environment* on page 1
- *Replication Servers* on page 63
- *Replication Agents* on page 70
- *Replication Paths* on page 72
- *Compatibility Matrix* on page 3
- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39

Replication Servers

Replication Server maintains replicated data in multiple databases while ensuring the integrity and consistency of the data.

Replication Server provides clients using databases in the replication system with local data access, thereby reducing load on the network and centralized computer systems.

See also

- *Replication Environment* on page 1
- *Data Flow Control* on page 62
- *Replication Agents* on page 70
- *Replication Paths* on page 72
- *Compatibility Matrix* on page 3
- *Replication Agents* on page 70
- *Replication Paths* on page 72

Displaying Replication Server Status

View the most recent Replication Server statistics. Sybase Control Center automatically updates the page when new status and statistical values are collected.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
   The Replication Server monitor view appears, with the Overview as the default display.
2. (Optional) To maximize or minimize a window within the monitor view, click the maximize or restore window icon in its right corner.

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

See also

- *Displaying Logical Connection Status* on page 64
- *Hiding Connection Thread Status* on page 65
- *Displaying Queue Status* on page 66
- *Displaying Route Status* on page 66
- *Logical Connection View Details* on page 64

Displaying Logical Connection Status

View the information of all logical connections of a Replication Server in a warm standby replication environment.

Prerequisites

Verify that the replication environment has been configured, and all servers have been registered and authenticated, and that the monitoring collection has been running.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Logical Connections.**
   A list of all logical connection names along with their state information, active and standby connection names, their respective state information, and the inbound queue information for each logical connection appears in a table.
3. (Optional) Click the active or standby connection in the list to go to the Connections view, and see the status information of the physical connections that are associated with the logical connections.
4. (Optional) Click the inbound queue under its corresponding column to go to the Queues view.

See also

- *Displaying Replication Server Status* on page 63
- *Hiding Connection Thread Status* on page 65
- *Displaying Queue Status* on page 66
- *Displaying Route Status* on page 66
- *Logical Connection View Details* on page 64

Logical Connection View Details

The columns on the **Logical Connection** view show different information about the logical connections of a Replication Server.

Column	Description
Name	The DBID (database ID) for the current logical connection.
State	The state of the current logical connection. The possible values are: • Active • Switching Active Connection • Creating Standby Connection
Active Connection	The DBID, the data server, and the database name for the current active database.

Column	Description
Active State	The state of the active connection's RepAgent thread. The possible values are: • Active • Suspended
Standby Connection	The DBID, the data server, and the database name for the current standby database.
Standby State	Shows the Data Server Interface (DSI) state of the standby connection. The possible values are: • Active • Suspended
Inbound Queue	The name of the inbound queue for a logical connection.

See also

- *Displaying Replication Server Status* on page 63
- *Displaying Logical Connection Status* on page 64
- *Hiding Connection Thread Status* on page 65
- *Displaying Queue Status* on page 66
- *Displaying Route Status* on page 66

Hiding Connection Thread Status

Hide the connection status of a Replication Agent or Data Server Interface (DSI) thread.

Prerequisites

Verify that the replication environment has been configured and that all servers have been registered, authenticated, and replicating data correctly.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Connections**.
3. Select a Replication Server connection.
4. Click **Quick Admin**.
5. In the Hide Connection Status section of the **Control** tab, click either **Hide RepAgent Status** or **Hide DSI Status** to override the connection's current configuration.
6. Click **Apply**.

See also

- *Displaying Replication Server Status* on page 63

- *Displaying Logical Connection Status* on page 64
- *Displaying Queue Status* on page 66
- *Displaying Route Status* on page 66
- *Logical Connection View Details* on page 64

Displaying Queue Status

View the status information of Replication Server queues in a replication environment.

Prerequisites

Verify that the replication environment has been configured, all servers have been registered and authenticated, and that monitoring collection has been running.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Queues**.
3. Select a queue from the table to view its corresponding activity graphs.
4. (Optional) To maximize or minimize a window within the monitor view, click the maximize or restore window icon in its right corner.

See also

- *Displaying Replication Server Status* on page 63
- *Displaying Logical Connection Status* on page 64
- *Hiding Connection Thread Status* on page 65
- *Displaying Route Status* on page 66
- *Logical Connection View Details* on page 64

Displaying Route Status

View the status information of Replication Server routes in a replication environment.

Prerequisites

Verify that the replication environment has been configured, all servers have been registered and authenticated, and that monitoring collection has been running.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Routes**.
   You can see a route's status in the Replication Server Routes table.
3. Select a route from the table to view its corresponding activity graph.
4. (Optional) To maximize or minimize a window within the monitor view, click the maximize or restore window icon in its right corner.

See also

- *Displaying Replication Server Status* on page 63

- *Displaying Logical Connection Status* on page 64
- *Hiding Connection Thread Status* on page 65
- *Displaying Queue Status* on page 66
- *Logical Connection View Details* on page 64

Quiescing or Resuming Replication Server

Shut down data flow from all sources and quiesce the current Replication Server or resume data flow from the up-stream replication path. You may need to quiesce all Replication Servers in your environment to recover databases, alter routes, and troubleshoot the system.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, verify that the default collection is running, and that you have permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Quick Admin**.
3. In the Control tab, click **Quiesce** or **Resume All**.

See also

- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Suspending or Resuming a Connection's Replication Agent

Suspend or resume a connection's Replication Agent that is associated with a Replication Server.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, verify that the default collection is running, and that you have permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.

2. Click **Connections**.
3. Select a connection.
4. Click **Quick Admin**.
5. In the Replication Agent section of the Control tab, click **Supend** or **Resume**.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Suspending or Resuming a Connection

Suspend or resume a Replication Server connection.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, verify that the default collection is running, and that you have permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Connections**.
3. Select a connection.
4. Click **Quick Admin**.
5. In the Data Server Interface section of the Control tab, click **Suspend** or **Resume**.
6. (Optional) Click **Suspended Immediately**.
7. (Optional) Select one of these options when resuming a connection:
   - Skip the first transaction. This option is available only for versions of Replication Server 15.0 or earlier.
   - Resume after skipping transactions. Provide the number of transactions to skip. This option is available only for versions of Replication Server 15.1 and later.
   - Execute sytem transaction.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Route* on page 69
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Suspending or Resuming a Route

Suspend or resume a route associated to a Replication Server.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, verify that the default collection is running, and that you have permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Routes**.
3. Select a route.
4. Click **Quick Admin**.
5. In the Control tab, click **Suspend** or **Resume**.
6. (Optional) Click **Skip transaction with large message** when resuming a route.

   Note: This option applies only to direct routes where the site version at the replicate site is 12.1 or earlier.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38

- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62

Replication Agents

Replication Agents enable the movement and sharing of data where and when it is needed - into data warehouses, data marts, OLTP applications and mobile workforce.

Replication Agents allows heterogeneous data servers to act as primary data servers in a replication system based on Sybase replication technology.

See also

- *Replication Environment* on page 1
- *Data Flow Control* on page 62
- *Replication Servers* on page 63
- *Replication Paths* on page 72
- *Compatibility Matrix* on page 3
- *Replication Servers* on page 63
- *Replication Paths* on page 72

Displaying Replication Agent Status

Review high-level server availability by viewing the Replication Agent or Mirror Replication Agent status.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Agent and select **Monitor**.

   The monitor view appears displaying high-level information, which includes the status of the selected Replication Agent.
2. (Optional) To maximize or minimize a window within the monitor view, click the maximize or restore window icon in its right corner.

See also

- *Displaying RepAgent Thread Status in Adaptive Server* on page 71
- *Suspending or Resuming a Replication Agent or Mirror Replication Agent* on page 71
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72

Displaying RepAgent Thread Status in Adaptive Server

View the RepAgent thread status in an Adaptive Server, either single instance or shared disk cluster, for replication.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have permission to perform this task.

1. From the Perspective Resources view, right-click an Adaptive Server and select **Monitor**.
   The Replication Agent Thread Monitor appears. You can view the status of an Adaptive Server RepAgent thread in the displayed table with its name and the controlling Replication Server information.
2. (Optional) To maximize or minimize a window within the monitor view, click the maximize or restore window icon in its right corner.

See also

- *Displaying Replication Agent Status* on page 70
- *Suspending or Resuming a Replication Agent or Mirror Replication Agent* on page 71
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72

Suspending or Resuming a Replication Agent or Mirror Replication Agent

Suspend or resume a Replication Agent or a Mirror Replication Agent in a replication environment.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, verify that the default collection is running, and that you have permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Agent or a Mirror Replication Agent and select **Monitor**.
2. Click **Quick Admin**.
3. In the Control tab, click **Suspend** or **Resume**.

See also

- *Displaying Replication Agent Status* on page 70
- *Displaying RepAgent Thread Status in Adaptive Server* on page 71
- *Starting or Stopping an Adaptive Server RepAgent Thread* on page 72

Starting or Stopping an Adaptive Server RepAgent Thread

Start or stop a RepAgent thread of an Adaptive Server.

1. From the Perspective Resources view, right-click an Adaptive Server and select **Monitor**.
2. Select a RepAgent thread (ASE Server, Replication Only) or click **Replication Agent** in the left pane, then select a RepAgent thread (ASE Server).
3. Click **Quick Admin**.
4. In the Control tab, click **Start** or **Stop**.
5. (Optional) Click **Stop immediately** before clicking **Stop**.

See also

- *Quiescing or Resuming Replication Server* on page 67
- *Suspending or Resuming a Connection's Replication Agent* on page 67
- *Suspending or Resuming a Connection* on page 68
- *Suspending or Resuming a Route* on page 69
- *Configuring Replication Server and Replication Agent Parameters* on page 35
- *Configuring Connection Parameters for Replication Server* on page 36
- *Configuring Logical Connection Parameters for Replication Server* on page 37
- *Configuring Route Parameters for Replication Server* on page 37
- *Configuring Adaptive Server RepAgent Thread Parameters* on page 38
- *Configuring Replication Server to Gather Zero Values for Counters* on page 39
- *Data Flow Control* on page 62
- *Displaying Replication Agent Status* on page 70
- *Displaying RepAgent Thread Status in Adaptive Server* on page 71
- *Suspending or Resuming a Replication Agent or Mirror Replication Agent* on page 71

Replication Paths

A replication path is the set of all servers and internal components that transactions travel through when moving from the primary to the replicate database.

See also

- *Replication Environment* on page 1
- *Data Flow Control* on page 62
- *Replication Servers* on page 63
- *Replication Agents* on page 70
- *Compatibility Matrix* on page 3
- *Replication Servers* on page 63
- *Replication Agents* on page 70

Displaying Replication Path Status

View the status of the servers, connections, routes, and queues that make up a replication path.

Prerequisites

Register and add all the servers to be monitored to the Perspective Resources view, authenticate them, and verify that you have permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server or a Replication Agent and select **Monitor**.
2. Click a replication path.
   The Replication Path Dashboard for the selected replication path appears.
3. (Optional) To maximize or minimize a window within the monitor view, click the maximize or restore window icon in its right corner.

If new statistics are collected while the replication path dashboard is displayed, Sybase Control Center automatically updates the information on the current page.

See also

- *Displaying Latency* on page 74
- *Latency Monitoring Process* on page 14

Replication Latency

Replication latency is the amount of time it takes for a transaction that occurs in the primary database to be applied to the replicate database.

The time includes Replication Agent processing, Replication Server processing, and network usage. Replication latency appears on the path dashboard.

See also

- *Historical Performance Monitoring* on page 56
- *Heat Chart* on page 55
- *Availability Monitoring* on page 58
- *Key Performance Indicators and Key Performance Areas for Replication* on page 18
- *Setting Up the Latency Monitoring Process* on page 13
- *Replication Topology* on page 58
- *Replication Monitors* on page 60

Displaying Latency

View latency information to determine the amount of time it takes for a transaction to be applied from the primary database to the replicate database.

Prerequisites

Add all the servers to be monitored in the Perspective Resources view. Verify that you have permission to perform this task and that the latency monitoring process has already been started.

1. From the Perspective Resources view, right-click a server and select **Monitor**.
2. Click **Paths**.
3. Select or click a path from the path list.
   When you select a path, its latency information appears below the path list. When you click a selected path, its dashboard opens, displaying the latency history graph.
4. (Optional) Click the bar graph icon in the top right corner of the Latency window to toggle between the overall latency and the latency monitoring history of the path.

See also

- *Setting Up the Latency Monitoring Process* on page 13
- *Stopping the Latency Monitoring Process* on page 74
- *Latency Chart Details* on page 75
- *Displaying Replication Path Status* on page 73
- *Latency Monitoring Process* on page 14

Stopping the Latency Monitoring Process

Stop the latency monitoring process.

Prerequisites

Verify that all servers to be monitored have been registered, authenticated, and added to the Perspective Resources, that latency monitoring process is running, and that you have the permission to perform this task.

1. From the Perspective Resources view, right-click a Replication Server and select **Monitor**.
2. Click **Paths**.
3. Select a path where the "Monitoring" value is true.
4. Click **Quick Admin** to display the latency monitoring process administration view for the selected path.
5. Click **Stop.**

See also

- *Setting Up the Latency Monitoring Process* on page 13
- *Displaying Latency* on page 74
- *Latency Chart Details* on page 75
- *Latency Monitoring Process* on page 14

Latency Chart Details

Learn about the threads that represent the latency chart in the path dashboard.

Table 15. Latency threads

Latency thread	Description
Replication Executor Thread (EXEC)	The number of seconds from the start, to time the ticket passes through the EXEC thread.
Distribution (DIST) Thread	The number of seconds from the primary Replication Server time to the time the ticket passes through the DIST thread. For each primary database managed by a Replication Server, there is a DIST, which in turn uses Stable Queue Transaction (SQT) to read from the inbound queue, and Stable Queue Manager (SQM) threads to write transactions to the outbound queue.
Replication Server Interface (RSI) Thread	The number of seconds from the DIST thread time to the time the ticket passes through the RSI thread. RSI threads send messages from one Replication Server to another. There is one RSI thread for each destination Replication Server.
Data Server Interface (DSI) Thread	The number of seconds from the RSI thread time to the time the ticket passes through the DSI thread. The DSI thread translates the transaction modifications into remote procedure calls (RPC) or the language as specified by the function strings in the function-string class assigned to the destination database. Replication Server starts the DSI threads to submit transactions to a replicate database to which it has a connection.
Replicate Database	The number of seconds from the DSI thread time to the time the ticket arrived at the replicate database.
Total Latency	The number of seconds between the time at origin and destination for the transaction committed.

See also

- *Setting Up the Latency Monitoring Process* on page 13
- *Stopping the Latency Monitoring Process* on page 74

- *Displaying Latency* on page 74

Troubleshoot Sybase Control Center for Replication

Troubleshoot problems that occur in Sybase Control Center for Replication.

Collection Job for Adaptive Server Fails

Problem: A collection job for Adaptive Server may fail when the number of open databases is too low.

Solution: Modify the value of number of open databases by using either the Server Configuration screen of the Adaptive Server monitor, or these steps:

1. Log in to the Adaptive Server.
   ```
   isql -S<server_name> -U<sa user name> -P<sa password>
   ```
2. Run this command to display the current configuration value:
   ```
   sp_configure 'number of open databases'
   ```
3. Run this command to change the current configuration value:
   ```
   sp_configure 'number of open databases', <number>
   ```
   Add 10 to the current configuration value and substitute this number for *<number>*.

Data on Dashboards or Charts Is Missing

Problem: There is no data displayed on the dashboards or on the charts.

Solution: Create collection jobs for Replication Server statistics collections.

See also

- *Setting Up the Latency Monitoring Process* on page 13

No Data Is Returned for Performance Counters Collection Job

Problem: No data is returned for the Performance Counters collection job after completing its execution.

Solution: Let the job execution complete for three cycles. The Replication Server Performance Counters collection job returns data in the Statistics Chart only after it completes execution of approximately three cycles.

Same Data Is Displayed for Two or More Adaptive Server Collection Job Executions

Problem: If the interval time of the Adaptive Server RepAgent thread collection job is set to less than 60 seconds, Sybase Control Center still works but you may get the same data for two or more continuous executions of the job.

Solution: Do not set the interval time for the Adaptive Server RepAgent thread collection job to less than 60 seconds. This is because the collection data are updated only once during 60 seconds for better performance.

Servers Are Missing in the Topology View

Problem: There are servers missing when you display the topology view.

Solution: Verify that all the servers have been added to the current perspective because the topology view can only display servers from current perspective.

Servers, Routes, or Connections Display an Unknown Status

Problem: "Unknown" status is displayed for servers, routes, or connections.

Solution: Verify that a collection job is scheduled and running to display the correct status in the Replication Topology view.

Some Connector Lines Do Not Display a Status Icon

Problem: Some connector lines do not display a status icon.

Solution: Not all connector lines are associated with a managed object. Those associated with a managed object are the only ones that display a status icon. Currently, status icons are displayed only on Replication connections and routes.

Topology Display Is Incorrect When Two Replication Servers With the Same Name Are Registered

Problem: When you register two Replication Servers with the same name in a given replication environment, the replication topology view is displayed incorrectly.

Solution: Do not use the same name for two replication resources. The servers in a replication environment must have unique names.

Topology View Displays Blank Canvas

Problem: The Replication Topology view displays blank canvas.

Solution: From the Replication Topology view, click Reset to restore the default layout. This problem is usually due to a layout that is actually displayed off-screen.

Topology View Takes a Long Time to Display

Problem: The Replication Topology view takes a long time to display.

Solution: The Replication Topology view requires data from each server to be displayed. For large environments, this may take 10 to 15 seconds.

Unable to Retrieve Topology Relationship Data or Server Objects

Problem: An error message "Unable to retrieve topology relationship data" or "Unable to retrieve topology server objects" is displayed.

Solution: These errors are displayed for a number of reasons. Perform these:

- Verify that you have the repMonitorRole for each server in the topology assigned to your login.
- Verify that each server in the topology has been authenticated.
- The server relationship data cannot be retrieved from the Replication Management plug-in or one or more servers cannot be retrieved from the Sybase Control Center.
  Check the plug-in and the Unified Agent Framework (UAF) agent log files for errors:
  For Windows
  - `%SYBASE%\SCC-3_1\plugins\RMAP\log\rmap.log`
  - `%SYBASE%\SCC-3_1\log\agent.log`

  For UNIX

- `$SYBASE/SCC-3_1/plugins/RMAP/log/rmap.log`
- `$SYBASE/SCC-3_1/log/agent.log`

Glossary: Sybase Control Center for Replication

Definitions of Sybase Control Center terms related to Replication.

- **alert –** a mechanism for notifying administrators when a managed resource experiences a status change, or when a performance metric passes a user-specified threshold.
- **alert instance –** a copy of an alert type that has been configured to generate a particular kind of alert for a specific managed resource.
- **alert notification –** an indication that an alert has fired. Alert notifications appear in the Alert Monitor view. If e-mail notification is enabled, alert notifications are also delivered to the specified e-mail address.
- **alert target –** the destination for an alert notification and source of an alert response.
- **alert type –** (1) A template that defines the resource type and the key performance indicator associated with an alert instance. (2) The basis on which an alert fires: state or threshold. Some alerts are triggered by the state of their key performance indicator (for example, running or stopped), while other alerts are triggered when their KPI's numerical value passes a specified threshold.
- **alert storm –** the result of issuing many redundant alerts associated with a common or root occurrence. See also alert suppression.
- **alert storm suppression –** a Sybase Control Center feature that can be configured to prevent alert storms by suppressing repeat alert notifications for a specified period of time.
- **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.
- **component –** A server object in a replication environment. Examples of components are connections, routes, and Replication Agent threads.
- **connection –** A connection from a Replication Server to a database.
- **database –** A set of related data tables and other objects that are organized and presented to serve a specific purpose.
- **data server –** A server that provides the functionality necessary to maintain the physical representation of a replicated table in a database. An example of a data server is Sybase Adaptive Server.
- **Data Server Interface (DSI) –** Replication Server threads corresponding to a connection between a Replication Server and replicate database. DSI threads submit transactions from the DSI outbound queue to a replicate database. They consist of a scheduler thread and one or more executor threads. The scheduler thread groups the transactions by commit order and dispatches them to the executor threads. The executor threads map functions to

function strings and execute the transactions in the replicate database. DSI threads use an Open Client connection to a database. See also connection.

- **edge –** A topology object representing a relationship between two nodes, displayed in the form of a line that connects the topology node icons. Edges are usually defined with a direction.
- **Enterprise Connect Data Access (ECDA) –** An Open-Server-based software gateway that supports DB-Library and CT-Library application program interfaces and Open Database Connectivity (ODBC) protocols. It serves as a fundamental building block for database middleware applications that provides access to non-Sybase databases.
- **environment –** A set of servers that interact to perform replication. It can be a subset of the replication domain identified by the ID server.
- **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 in the current perspective.
- **ID Server –** A Replication Server in a replication system. It assigns unique ID numbers to every Replication Server and database in the system and maintains the version information for the system.
- **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 Server Availability and Number of Blocked Processes.
- **latency –** The measure of the time it takes to distribute a data modification operation from a primary database to a replicate database. The time includes Replication Agent processing, possibly ECDA processing—if the replicate database is non-Sybase—Replication Server processing, and network overhead.
- **Mirror Activator –** Provides an integrated, zero-loss disaster recovery solution when used in conjunction with a storage replication system. Replication Server, Mirror Replication Agent, and Enterprise Connect Data Access (ECDA) are the components of Mirror Activator.
- **Mirror Replication Agent –** A component of a Mirror Activator disaster recovery system that reads the mirror transaction log of the primary database and sends transaction data as LTL commands for replicated tables and replicated stored procedures to the primary Replication Server, which converts the LTL commands into SQL and applies the SQL to the replicate database.
- **node –** A topology object representing a server or other entity type, displayed visually in the form of an icon.
- **partition –** A raw disk partition or operating system file that a Replication Server uses for stable queue storage. See also stable queue.

- **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 ways that make sense in your environment—for example by location, department, or project.
- **RepAgent thread –** The Replication Agent for a primary Adaptive Server. It reads the transaction log and sends the transaction data as LTL commands for replicated tables and replicated stored procedures to the primary Replication server, which converts the LTL commands into SQL and applies the SQL to the replicate database.
- **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.
- **Replication Agent –** Reads the transaction log of a primary, non-Sybase database, and sends transaction data as LTL commands for replicated tables and replicated stored procedures to the primary Replication Server, which converts the LTL commands into SQL and applies the SQL to the replicate database.
- **replication path –** The set of all servers and internal components, such as threads and queues, that transactions travel through when moving from the primary to the replicate database.
- **repository –** a database 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.
- **route –** A one-way message stream from a source Replication Server to a destination Replication Server. Routes carry data modification commands (including those for RSSDs) and replicated functions or stored procedures between Replication Servers.
- **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.
- **stable queue manager (SQM) –** A thread within Replication Server that manages the stable queues. Replication Server uses one SQM thread for each stable queue, whether inbound or outbound.
- **stable queue –** A store-and-forward queue where Replication Server stores messages destined for a route or database connection. Replication Server builds stable queues using its disk partitions.

- **topology –** A graphical representation of how the servers in a replication environment are connected to each other. It is a network diagram that provides a visual map of the availability of the replication 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.

Index

A

C

D

E

G

H

I

J

K

L

M

N

P

Q

R

S

T

V