Veritas™ Cluster Server Agent for Sybase Installation and Configuration Guide

Linux

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symantec™

Veritas Cluster Server Agent for Sybase Installation and Configuration Guide

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350 Ellis Street
Mountain View, CA 94043

http://www.symantec.com

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Chapter 1

Introducing the Veritas Cluster Server Agent for Sybase

This chapter includes the following topics:

About the Veritas Cluster Server Agent for Sybase

The Veritas Cluster Server Agent for Sybase brings the configured Sybase servers online, monitors them, and takes them offline.

The following agents work together to make Sybase highly available in a VCS cluster.

- Agent for SQL Server- Sybase
- Agent for Backup Server- SybaseBk

The agents include type declarations and agent executables, and are represented with Sybase and SybaseBk resource types, respectively.

Note: Veritas agent for Sybase provides "active/passive" support for Sybase. For "active/active" support, contact Sybase for their agent.

What's new in this release

The Veritas Cluster Server agent for Sybase includes the following new or enhanced features:

- The VCS agent binaries for Sybase are now part of VRTSvcsea package. This package also includes the VCS agent binaries for DB2 and Oracle.
- If you installed the VCS agent binaries using the installer program, the program updates the main.cf file to include the appropriate agent types.cf files.
- The Sybase agent supports the IPC cleanup feature.
- The agent supports a new attribute WaitForRecovery. If this attribute is enabled, during the online function, the agent waits till recovery has been completed and all databases that can be made online are brought online.
- The agent supports a new action called checkpoint all. Performs "checkpoint all" for the Sybase dataserver by connecting to isql session.

Supported software for Sybase

The Veritas agent for Sybase supports the following software versions:

Sybase	Sybase Adaptive Server Enterprise (ASE) 12.5.x and 15.x
Veritas Cluster Server	VCS 5.1 on Linux
Linux	The agent supports the following Linux distributions: ■ Red Hat Enterprise Linux 5 (Update 3) ■ SUSE Linux Enterprise Server 10 with SP2 ■ Oracle Enterprise Linux based on RHEL 5 Update 1

How the agent makes Sybase highly available

The agent for Sybase can perform different levels of monitoring and different actions which you can configure. In the basic monitoring mode, the agent detects

an application failure if a configured Sybase server process is not running. In the optional detail monitoring mode, the agent detects application failure if it cannot perform a transaction in the test table in the Sybase database server.

When the agent detects that the configured Sybase server is not running on a system, the Sybase service group is failed over to the next available system in the service group's SystemList. The configured Sybase servers are started on the new system, thus ensuring high availability for the Sybase server and data.

About the Sybase agent functions

The functions an agent performs are called entry points. The Veritas agent for Sybase can perform different operations or functions on the database. These functions are online, offline, monitor, clean, and action.

Review the functions for the following agents that are part of the Veritas Cluster Server agent suite for Sybase:

- Sybase (SQL server) agent functions
  See "Sybase agent functions" on page 11.
- Sybase Bk (Backup Server) agent functions
  See "Sybase Bk agent functions" on page 12.

Sybase agent functions

The agent for Sybase starts a Sybase SQL server, monitors the server processes, and shuts down the server.

Table 1-1 lists the Sybase agent for SQL server functions.

Table 1-1 Sybase agent for SQL server functions

Agent function	Description
Online	Starts the Sybase SQL server by using the following command. `startserver -f $SYBASE/$SYBASE_ASE/install/RUN_$Server` If the WaitForRecovery attribute is enabled, the agent waits either till recovery has been completed and all databases that can be made online are brought online, or till the OnlineTimeout value is reached. The agent uses the AEPTimeout attribute to get the time out value for the entry point. By default, the WaitForRecovery attribute is not enabled.

Table 1-1 Sybase agent for SQL server functions *(continued)*

Agent function	Description
Monitor	In the basic monitoring mode, the agent scans process table for the dataserver process. In detail monitoring mode, the agent runs the script that is specified in Monscript as an option. See "Monitoring options for the Sybase agent" on page 14.
Offline	Stops the Sybase SQL server by using the `isql` command in the following manner. The agent first executes the `shutdown with wait` command. If this command fails, the offline script executes the `shutdown with nowait` command.
Clean	Forcefully stops the Sybase SQL server by using the `isql` command in the following manner. The agent first executes the `shutdown with wait` command . If this command fails, the clean script executes the `shutdown with nowait` command. If the process does not respond to the `shutdown` command, the agent scans the process table for the processes that are associated with the configured database and kills them.
Action	Performs the predefined actions on a resource. See "Action function for the VCS agent for Sybase" on page 15.

Sybase Bk agent functions

The agent for SybaseBk starts a Sybase Backup server, monitors the server process, and shuts down the server.

Table 1-2 lists the Sybase agent for Backup server functions.

Table 1-2 Sybase agent for Backup server functions

Agent operation	Description

Online	Starts the Sybase Backup server by using the following command.
	`startserver -f $SYBASE/$SYBASE_ASE/`
	`install/RUN_$BackupServer`

Monitor	Scans the process table for the backupserver process.

Table 1-2 Sybase agent for Backup server functions *(continued)*

Agent operation	Description
Offline	Stops the Sybase Backup server by using the `isql` command in the following manner. The agent first executes the command `shutdown SYB_BACKUP with wait`. If this command fails, the offline script executes `shutdown SYB_BACKUP with nowait`.
Clean	Forcefully stops the Sybase Backup server by using the `isql` command in the following manner. The agent first executes the command `shutdown SYB_BACKUP with wait`. If this command fails, the clean script executes `shutdown SYB_BACKUP with nowait`. If the process does not respond to the `shutdown` command, the agent scans the process table for the processes that are associated with the configured Sybase Backup server and kills them.

Using the IPC Cleanup feature for the Sybase agent

When the Adaptive Server starts, it creates shared memory files in $SYBASE to store information about the shared memory segments that it uses. Adaptive Server start-up parameter -M can be used to change the location of directory that stores shared memory files. The start-up parameter -M should be updated in RUN_$Server file.

If the Sybase home directory is unmounted, the Sybase clean script cannot access the shared memory files and does not clean the IPC resources that are allocated by the Sybase processes. Hence, the agent requires shared memory files to be present in the following directory on local system /var/tmp/sybase_shm/$Server.

In the $SYBASE/$SYBASE_ASE/install directory, edit the RUN_$Server file. Change the location of the directory that stores shared memory files to /var/tmp/sybase_shm/$Server using the -M option.

For example, the file RUN_Sybase_Server resembles the following before the change:

```
/home/sybase/ASE-15_0/bin/dataserver \

-sSybase_Server \

-d/home/sybase/data/master.dat \
```

```
-e/home/sybase/ASE-15_0/install/Sybase_Server.log \

-c/home/sybase/ASE-15_0/Sybase_Server.cfg \

-M/home/sybase/ASE-15_0 \
```

After the replacement, the file resembles:

```
/home/sybase/ASE-15_0/bin/dataserver \

-sSybase_Server \

-d/home/sybase/data/master.dat \

-e/home/sybase/ASE-15_0/install/Sybase_Server.log \

-c/home/sybase/ASE-15_0/Sybase_Server.cfg \

-M/var/tmp/sybase_shm/Sybase_Server \
```

Here Sybase_Server is the Adaptive server name.

Note: Make sure you create the /var/tmp/sybase_shm/Sybase_Server directory with proper permissions.

Monitoring options for the Sybase agent

The Veritas agent for Sybase provides two levels of application monitoring: basic and detail.

In the basic monitoring mode, the agent for Sybase monitors the Sybase daemon processes to verify whether they are running.

In the detail monitoring mode, the agent performs a transaction on a test table in the database to ensure that Sybase functions properly. The agent uses this test table for internal purposes. Symantec recommends that you do not perform any other transaction on the test table.

See "About setting up detail monitoring for the agent for Sybase" on page 36.

When the agent detects that the configured Sybase server is not running on a system, the Sybase service group is failed over to the next available system in the

service group's SystemList. The configured Sybase servers are started on the new system, thus ensuring high availability for the Sybase server and data.

Action function for the VCS agent for Sybase

The agent for Sybase supports the Action function, which enables you to perform predefined actions on a resource.

To perform an action on a resource, type the following command:

```
# hares -action res token [-actionargs arg1 ...] \
[-sys system] [-clus cluster]
```

You can also add custom actions for the agent.

For more information, refer to the *Veritas Cluster Server Agent Developer's Guide*.

Table 1-3 describes the agent's predefined action.

Table 1-3 Predefined agent action

Action	Description
checkpoint_all	Performs "checkpoint all" for the Sybase dataserver by connecting to isql session.

Typical Sybase configuration in a VCS cluster

In a typical configuration, VCS is configured in a two node cluster. The Sybase data is installed on shared disks. The Sybase server binaries can be installed locally on both nodes or on shared disks. The agent for Sybase is installed on both nodes. The shared disks can be managed using Symantec Volume Manager (VxVM).

Figure 1-1 illustrates a sample configuration in which the Sybase servers, including binaries and data are installed completely on shared disks or shared cluster disk groups managed using VxVM.

Figure 1-1 Sybase binaries and data on shared disks

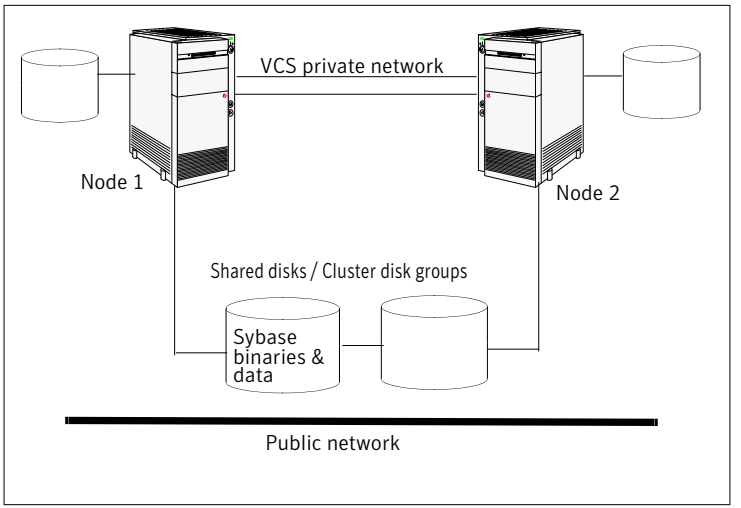
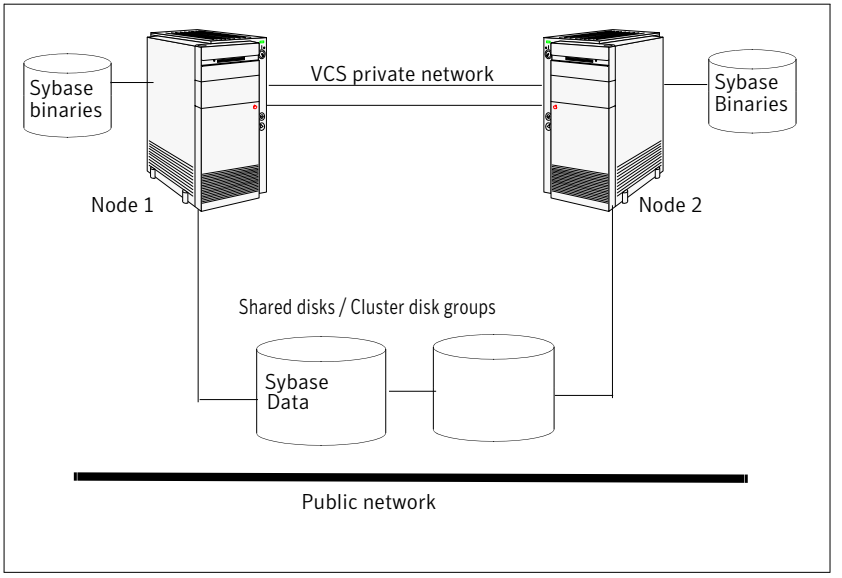


Figure 1-2 illustrates a sample configuration in which Sybase binaries are installed locally on each node in the cluster and the Sybase data is on shared disks or shared cluster disk groups managed using VxVM.

Figure 1-2 Binaries on local disk and Sybase data on shared disks



Chapter 2

Installing and configuring Sybase

This chapter includes the following topics:

VCS requirements for installing Sybase

Review the following requirements before you install Sybase in a VCS cluster. Before installing Sybase, make sure that the systems in the cluster have adequate resources to run Sybase and VCS.

Sybase installation directory

The Sybase installation directory can be located on a local disk or a shared storage.

Review the following prerequisites:

- If the Sybase binaries are installed on a local disk, verify that the installation path is same on all the nodes in the cluster. Make sure the Sybase configuration files are identical on all the nodes in the cluster.
- If the Sybase binaries are installed on shared disks, make sure the mount points for the shared disks are same on all the nodes. The Sybase installation directory is specified by the environment variable $SYBASE. Create the same $SYBASE mount points on each system.

$SYBASE directory on shared disks

All database devices, including master devices, sybsystemprocs, and information about Sybase user must be located on shared disks. If the database devices are created on file systems, the file systems must also be located on shared disks. Create the same file system mount points on each system to access the shared disks.

Database dbspaces

If you use shared disks for dbspaces, change the permissions, or access mode on the disk groups that store the Sybase data. Change the permissions for sybase to 660.

For example, if you use Veritas Volume Manager, type

```
# vxedit -g diskgroup_name set group= dba\
user=sybase mode=660 volume_name
```

Transparent TCP/IP failover

For Sybase server failover to be transparent to Sybase clients, create an IP address as part of the Sybase service group. This IP address must match the dataserver and backup server entries in the $SYBASE/interfaces file. For information on the format for adding entries to the $SYBASE/interfaces file, refer to the Sybase documentation.

System user for Sybase home directory

Make sure you have a system user, with the same username and ID, on all cluster nodes. Also, the system user should have the ownership of the Sybase home directory on the shared disk. Type the following commands:

```
# useradd -u user_id user_name
# chown -R user_name $SYBASE
```

Long pathname limitation for $SYBASE

The Linux and Solaris process table limits process names to 79 characters.

A process having a longer pathname is truncated in the table, making it unrecognizable. The Sybase home directory ($SYBASE) could possibly have such a long pathname. In this case, you can create a soft link to the $SYBASE directory and use it in place of the long filename in the appropriate Sybase installation files.

Using a soft link pathname avoids the problems that arise due to the long pathname.

After creating the soft link on each system, you must edit the following files, by making the appropriate substitutions.

- The file RUN_Server in the directory $SYBASE/$SYBASE_ASE/install.
- The file RUN_Server_back in the directory $SYBASE/$SYBASE_ASE/install.

The following example demonstrates how to replace a $SYBASE pathname with a soft link.

To replace a $SYBASE pathname with a soft link

1 On each system in the cluster, create a soft link to the long pathname.

For example,

```
# ln -s /opt/apps/sybase/home/directory/is/longer/than\
    eighty/characters/sybase /opt/link_to_longpath
```

Now the process is invoked with the short pathname of the soft link.

2 Example: The file RUN_Server resembles the following before the change:

```
/opt/apps/sybase/home/directory/is/longer/than/eighty
  /characters/sybase/ASE-12_5/bin/dataserver\
-d/dev/vx/rdsk/db_dg1/vol2\
-e/opt/apps/sybase/home/directory/is/longer
  /than/eighty  /characters/sybase/install/fw17i.log\
-M/opt/apps/sybase/home/directory/is/longer/than/eighty
  /characters/sybase\
-sfw17i\
```

After the replacement, the file resembles as follows:

```
/opt/link_to_longpath/ASE-12_5/bin/dataserver\
-sfw17i\
-d/dev/vx/rdsk/db_dg1/vol2\
-e/opt/link_to_longpath/install/fw17i.log\
-M/opt/link_to_longpath\
```

Make sure that the -s option and its argument (fw17i in the example) are the first to be listed. It must be placed within the first eighty characters of the file. Failure to do this will not bring the service group online.

For example, if you do not put the -s option and the argument in the first eighty characters, the command string that will be considered is as follows:

```
/opt/apps/sybase/home/directory/is/longer/than/eighty
  /characters/sybase/ASE-12_5/
```

In this case, the -s option will be omitted and the service group will fail to come online. However, if you moved the -s to be the first option, the first eighty characters of the command string for the same example will be as follows:

```
/opt/link_to_longpath/ASE-12_5/bin/dataserver\
  -sfw17i\
  -d/dev/vx/rdsk/db_dg1/vol2
```

In this case, the -s option is among the first eighty characters.

3 For example: Home = "/opt/link_to_longpath"

See "Sybase resource type" on page 43.

Language settings for the Sybase agent

For the Veritas agent for Sybase to function with the desired locale, make sure that the Sybase installation has the correct localization files. For example, if the Sybase server requires 'LANG=en_US.UTF-8' environment variable, verify that the localization files corresponding to language 'en_US.UTF-8' are installed with Sybase Also, edit the file $VCS_HOME/bin/vcsenv to contain the following:

```
LANG=en_US.UTF-8;export LANG
```

This change affects all the agents that are configured on the nodes.

Configure Sybase for detail monitoring

This section describes the tasks to be performed to configure a Sybase server for detail monitoring.

See "About setting up detail monitoring for the agent for Sybase" on page 36.

Note: The steps that are described here are specific to the sample script, SqlTest.pl, provided with the agent. If you use a custom script for detail monitoring, you must configure the Sybase database accordingly.

Perform these steps only once in a Sybase cluster.

To configure Sybase for detail monitoring

1. Source the SYBASE.sh file or SYBASE.csh file (depending on the user shell) to set the $SYBASE and $SYBASE_ASE environment variables.
2. Start the Sybase server.

   ```
   # $SYBASE/$SYBASE_ASE/install/RUN_server_name
   ```

3. Start the Sybase client on any cluster node.

   ```
   # isql -Usa
   ```

   Enter the administrator password when prompted to do so.
4. Connect to the master database.

   ```
   # use master
   # go
   ```

5. Create a Sybase user account.

   ```
   # sp_addlogin user_name, password
   # go
   ```

   The detail monitor script should use this account to make transactions on the database.
6. Create a database.

   ```
   # create database database_name
   # go
   ```

   The detail monitor script should make transactions on this database.
7. If required, restrict the size of the log file for the database.

   ```
   # sp_dboption database_name, " log on chkpt", true
   # go
   ```

8. Connect to the database that is created in step 6.

   ```
   # use database_name
   # go
   ```

9. Associate the user created in step 5 with the database created in step 6.

   ```
   # sp_adduser user_name
   # go
   ```

10 Change the user to the one created in step 5.

```
# setuser user_name
# go
```

11 Create a table in the database.

```
# create table table_name (lastupd datetime)
# go
```

The detail monitor script should make transactions on this table.

If you use the SqlTest.pl for detail monitoring, make sure you create a table with a lastupd field of type datetime.

12 Verify the configuration by adding an initial value to the table.

```
# insert into table_name (lastupd) values (getdate())
# go
```

13 Exit the database.

```
# exit
```

Installing Sybase in a VCS environment

For information on how to install Sybase, refer to Sybase documentation.

Chapter 3

Installing, upgrading, and removing the agent for Sybase

This chapter includes the following topics:

Before you install or upgrade the agent for Sybase

Ensure that you meet the following prerequisites to install the Veritas agent for Sybase:

- Verify that VCS is installed and configured. Symantec recommends installing the VCS graphical user interface. If required, review the *Veritas Cluster Server Installation Guide*.
- Verify that Sybase is installed and configured on all cluster nodes on which you will install the agent. Review the Sybase documentation for more information.
  See "VCS requirements for installing Sybase" on page 17.

- Verify that the sybase account is valid and identical on all cluster systems that will run Sybase. Verify that the sybase user account has permissions to execute Sybase binaries.
  See "System user for Sybase home directory" on page 18.

Installing the agent for Sybase

The agent binaries for Veritas Cluster Server agent for Sybase is part of VRTSvcsea package. The VRTSvcsea package is already installed if you chose to install all packages or recommended packages during VCS installation. You must manually install the VRTSvcsea package if you installed minimal packages during VCS installation.

You can install the Veritas Cluster Server agent for Sybase from the product disc.

Install the agent for Sybase on each node in the cluster.

To install the agent on Linux systems

1. Log in as superuser.
2. Make sure that the agent is not already installed.

   Navigate to /opt/VRTSagents/ha/bin and list the contents of the directory. If the command returns the VCS agents for Sybase, you can skip this procedure.
3. Insert the software disc that contains the Sybase agent software into the system's drive. The disc automatically mounts.

   If the disc does not automatically mount, enter:

   ```
   # mount -o ro /dev/cdrom /mnt/cdrom
   ```
4. Navigate to the folder that contains the agent software.

   ```
   # cd /mnt/cdrom/dist_arch/cluster_server_agents/
   sybase_agent/rpms
   ```

   Where

   dist is rhel5 or sles10

   arch is x86_64 for RHEL and x86_64 for SLES

5 Install the agent software.

For RHEL5:

```
# rpm -I VRTSvcsea-5.1.00.00_RHEL5.i686.rpm
```

For SLES 10:

```
# rpm -I VRTSvcsea-5.1.00.00_SLES10.i586.rpm
```

The VRTSvcsea package includes the agent binaries for the Sybase agent. The package also installs the VCS agents for DB2 and Oracle.

6 Copy the file SybaseTypes.cf from /etc/VRTSagents/ha/conf/Sybase/ directory to/etc/VRTSvcs/conf/config directory.

Disabling the agent for Sybase

To disable the agent on a system, you must first change the Sybase service group to an OFFLINE state. You can stop the application completely, or switch the service group to another system.

To disable the agent

1 Determine if the service group is online. At the prompt, type:

```
# hagrp -state service_group -sys system_name
```

2 If the service group is online, take it offline. At the prompt, type:

```
# hagrp -switch service_group -to system_name
```

Or

```
# hagrp -offline service_group -sys system_name
```

3 Stop the agent on the system. At the prompt, type:

```
# haagent -stop Sybase -sys system_name
```

```
# haagent -stop SybaseBk -sys system_name
```

4 When you get the message "`Please look for messages in the log file,`" check the file /var/VRTSvcs/log/engine_A.log for a message confirming the agent has stopped.

You can also use the `ps` command to verify that the agent has stopped.

5 When the agent has stopped, you can remove the system, the service group, or the resource type from the VCS configuration.

For more information, refer to the chapter on reconfiguring VCS from the command line in *Veritas Cluster Server Administrator's Guide*.

Removing the agent for Sybase

This section provides steps to remove the agent from the cluster.

Warning: The agent package VRTSvcsea includes the VCS agents for Oracle, Sybase, and DB2. So, the following procedure to remove the VCS agent for Sybase removes all the other agents also.

To remove the agent for Sybase

1 Take the Sybase and SybaseBk resources offline.

2 Stop the agent for Sybase.

```
# haagent -stop Sybase -system system_name
```

Perform this step on all nodes on which the agent for Sybase is running.

3 Stop the agent for SybaseBk.

```
# haagent -stop SybaseBk -system system_name
```

Perform this step on all nodes on which the agent for SybaseBk is running.

4 Type the following command to remove the agent from all nodes in the cluster. Answer prompts accordingly.

```
# rpm -e VRTSvcsea
```

Upgrading the agent for Sybase

This section describes the procedure to upgrade the Veritas agent for Sybase in a VCS cluster. Perform the following procedure on each node of the VCS cluster.

To upgrade the VCS agent 4.1 for Sybase on Linux systems

1 Save the VCS configuration and stop the VCS engine.

```
# haconf -dump -makero
# hastop -all -force
```

2 Take a back up of the configuration file (main.cf) to a location on the cluster node.

3 Perform the following steps on all systems that have the agent for Sybase installed.

- Remove the agent for Sybase.

```
#  rpm -e VRTSvcssy
```

- Delete the file /etc/VRTSvcs/conf/config/SybaseTypes.cf.
- Install the Veritas Cluster Server Agent for Sybase.
  See "Installing the agent for Sybase" on page 24.

4 Make sure that you have copied the SybaseTypes.cf file from the /etc/VRTSagents/ha/conf/Sybase/ directory to /etc/VRTSvcs/conf/config directory.

Make sure to update the newly copied SybaseTypes.cf file with all the type-level changes that you had made to the older SybaseTypes.cf file.

For example, if you had changed the value of the MonitorInterval attribute from the default 60 to 120 seconds, the SybaseTypes.cf file gets updated. You must apply these type-level changes manually to the newly copied SybaseTypes.cf file.

5 Copy the main.cf from the backed up location to /etc/VRTSvcs/conf/config directory.

6 Verify the configuration.

```
# cd /etc/VRTSvcs/conf/config
# hacf -verify
```

7 Start VCS on the local node.

8 Start VCS on other nodes.

Chapter 4

Configuring VCS service groups for Sybase

This chapter includes the following topics:

About configuring service groups for Sybase

Configuring the Sybase service group involves configuring service group resources and defining attribute values for the configured resources. You must have administrator privileges to create and configure a service group. Before you configure the agent, review the Sybase resource types and their attributes.

Before configuring the service group for Sybase

Before you configure the Sybase service group, you must meet the following prerequisites:

- Verify that VCS is installed and configured on all nodes in the cluster where you plan to configure the service group. For more information on installing VCS:
  See the *Veritas Cluster Server Installation Guide*.
- Verify that Sybase is installed and configured identically on all nodes in the cluster.
  See "VCS requirements for installing Sybase" on page 17.
- Verify that the Veritas agent for Sybase is installed on all nodes in the cluster.
  See "Installing the agent for Sybase" on page 24.
- Verify the type definition for Veritas agent for Sybase is imported into the VCS engine.
  See "Importing the SybaseTypes.cf file" on page 30.

Importing the SybaseTypes.cf file

Before you configure the Sybase service group, you must import the SybaseTypes.cf file to the VCS engine.

To import the SybaseTypes.cf file using the Cluster Manager

1. On one of the nodes in the cluster, start the Cluster Manager (Java Console). Type:

   ```
   # hagui&
   ```

2. Log in to the cluster and wait for the Cluster Explorer to launch.
3. From the **File** menu select **Import Types**. Switch to the read/write mode if prompted.
4. In the Import Types dialog box, select the file:

   ```
   /etc/VRTSagents/ha/conf/Sybase/SybaseTypes.cf
   ```

5. Click **Import** and wait for the file to import.
6. Save the configuration.

To import the SybaseTypes.cf file using the command line

1. Log in to a cluster system as superuser.
2. Make the cluster configuration as read-only. This action ensures that all changes to the existing configuration have been saved and further changes are prevented while you modify main.cf:

   ```
   # haconf -dump -makero
   ```

3 To ensure that VCS is not running while you edit main.cf, issue the following command to stop the VCS engine on all systems. Leave the resources that are available online.

```
# hastop -all -force
```

4 Make a backup copy of the main.cf file.

```
# cd /etc/VRTSvcs/conf/config
# cp main.cf main.cf.orig
```

5 Edit the main.cf file to include the SybaseTypes.cf file.

```
# include "SybaseTypes.cf"
```

The Sybase types definition is imported to the VCS engine. The agent for Sybase can be configured without interrupting or stopping VCS.

Configuring the service groups for Sybase

You can configure the service groups for Sybase using the following methods:

- By using VCS Cluster Manager (Java Console) to edit a resource group template for the agent.
  See "Configuring the service group for Sybase from Cluster Manager (Java console)" on page 31.
- By using the types configuration files and directly editing the sample main.cf file supplied with the agent. This method requires you to restart VCS before the configuration takes effect.
  See "Configuring the service group for Sybase using the command line" on page 33.
- By using Veritas Cluster Server (VCS) Management Console.
  Refer to *Veritas Cluster Server Management Console Implementation Guide* for more information.

Configuring the service group for Sybase from Cluster Manager (Java console)

A template for the Sybase resource groups is automatically installed with the Veritas agent for Sybase. Using the VCS cluster Manager (Java console), you can view the template, which displays the Sybase service group, its resources and

their attributes. You can dynamically modify the attributes' values as necessary for your configuration.

To configure a service group from the Java console

1. Make sure that the Sybase type definition file SybaseTypes.cf is imported in your configuration.

   See "Configuring the service groups for Sybase" on page 31.

2. Launch the Cluster Configuration wizard using any of the following ways:

   - From the Cluster Explorer menu, select **Tools > Configuration Wizard**.
   - If no service groups exist on the system, Cluster Explorer prompts you to launch the Cluster Configuration wizard. Click **Yes** when prompted.

   The Loading Templates Information window appears, and launches the wizard.

3. Review the information in the Welcome dialog box and click **Next**.
4. Specify the name of the service group and the target systems on which the service group is configured.

   - Enter the name of the service group.
   - From the **Available Systems** box, select the systems on which to configure the service group.
   - Click the right arrow to move the selected systems to the **Systems for Service Group** box. To remove a system from the box, select the system and click the left arrow.
   - Specify system priority for the service group to failover. System priority is numbered sequentially, with the lowest assigned number denoting the highest priority.
   - Select the **Service Group Type** as Failover and click **Next**.

5. On the **Would you like to use a template to configure the service group?** dialog box, click **Next** to configure the service group using a template.
6. Select the **SybaseGroup** template to configure a Sybase service group.

   If applicable, a window opens notifying that names of some resources within the new service group are already in use. Resolve the name clashes, if any and click **Next**.

7. Click **Next** to create the service group that is based on the selected template.

   A progress indicator displays the percentage of the commands that are executed to create the service group. The actual commands are displayed at the top of the indicator.

8 After the service group is created, click **Next** to edit the attributes for the resources.

The left pane in the dialog box lists all the resources for the Sybase service group. Select a resource from the left pane to list the attributes on the right pane. The attributes in bold denote mandatory attributes. You can modify the attribute values as given in the procedure that follows .

9 Click **Finish** to accept the default values and complete the configuration.

To edit the Sybase service group resource attributes

1 Select the resource from the list on the left pane. The resource attributes appear in the right pane.

2 Select the attribute to be modified and click the edit icon in the **Edit** column.

3 In the Edit Attribute dialog box, enter the attribute values. To modify the scope of the attribute, choose the **Global** or **Local** option.

4 Click **OK**.

5 Repeat the procedure for each resource and click **Finish**. Edit the attributes for all the resources according to your configuration.

6 Follow the wizard instructions to complete the configuration. Click **Finish** to quit the wizard.

Caution: For added security, you must always provide a secure value for passwords.

See "Encrypting passwords for Sybase" on page 35.

Configuring the service group for Sybase using the command line

The Veritas agent for Sybase contains a sample configuration file that can be used as reference to directly modify your present configuration file. This method requires you to restart VCS before the configuration takes effect.

To configure a service group for Sybase from the command line

1 Log in to a cluster system as superuser.

2 Make sure the Sybase type definition is imported into VCS engine.

See "Configuring the service groups for Sybase" on page 31.

3 Edit the main.cf file. Use the file /etc/VRTSagents/ha/conf/Sybase/sample_main.cf for reference.

- Create a Sybase service group.
- Create the Sybase and SybaseBk resources.
  See "Sybase resource type" on page 43.
  See "SybaseBk resource type" on page 47.
- Edit the default attributes to match the parameters in your configuration. For added security, you must always provide a secure value for passwords.
  See "Encrypting passwords for Sybase" on page 35.
- Assign dependencies to the newly created resources. Refer to the sample file /etc/VRTSagents/ha/conf/Sybase/sample_main.cf. See the *Veritas Cluster Server Administrator's Guide* for more information on assigning dependencies.

4 Save and close the file.

5 Verify the syntax of the file `/etc/VRTSvcs/conf/config/main.cf`

```
# hacf -verify config
```

6 Start VCS on local node.

```
# hastart
```

7 Start VCS on other nodes.

8 Verify that all Sybase service group resources are brought online.

```
# hagrp -state
```

9 Take the service group offline and verify that all resources are stopped.

```
# hagrp -offline service_group -sys system_name

# hagrp -state
```

10 Bring the service group online again and verify that all resources are available.

```
# hagrp -online service_group -sys system_name

# hagrp -state
```

11 Start the VCS engine on the other node.

```
# hastart
```

12 Switch the Sybase service group to the other node.

```
# hagrp -switch service_group -to system_name
```

13 Verify that all Sybase service group resources are brought online on the other node.

```
# hagrp -state
```

14 On all systems, look at the following log files for any errors or status.

```
/var/VRTSvcs/log/engine_A.log
/var/VRTSvcs/log/Sybase_A.log
/var/VRTSvcs/log/SybaseBk_A.log
```

Encrypting passwords for Sybase

VCS provides a vcsencrypt utility to encrypt user passwords. Encrypt passwords before specifying them for Sybase and SybaseBk resource type definition.

To encrypt passwords

1 From the path $VCS_HOME/bin/, run the vcsencrypt utility.

2 Type the following command.

```
# vcsencrypt -agent
```

The utility prompts you to enter the password twice. Enter the password and press Return.

```
Enter New Password:
Enter Again:
```

3 The utility encrypts the password and displays the encrypted password.

4 Enter this encrypted password as the value for the attribute.

Copy the encrypted password for future reference.

About setting up detail monitoring for the agent for Sybase

The Veritas agent for Sybase provides two levels of application monitoring: basic and detail. In basic monitoring, Sybase resource monitors the Sybase daemon processes to verify that they are continuously active.

In detail monitoring, the Sybase resource performs transactions on a test table in the database to ensure that the Sybase server functions properly. The agent uses this test table for internal purposes. Symantec recommends that you do not perform any other transaction on the test table. The agent uses the script that is defined in the attribute Monscript of the Sybase resource. During detail monitoring, the agent executes the specified script. If the script successfully executes, the agent considers the database available. You can customize the default script according to your configurations.

To activate detail monitoring, the DetailMonitor attribute must be set to a positive integer and User, UPword, Db, and Table attributes must not be empty (""). The attribute Monscript, which contains the path of the detail monitor script, must also exist and must have execute permissions for the root.

Disabling detail monitoring for the agent for Sybase

Perform the following steps to disable detail monitoring.

To disable detail monitoring

- Disable detail monitoring for Sybase.

```
# hares -modify Sybase_resource DetailMonitor 0
```

Enabling detail monitoring for the agent for Sybase

Perform the following steps to enable detail monitoring on a database.

To enable detail monitoring

1. Make sure Sybase server is configured for detail monitoring.

   See “Configure Sybase for detail monitoring” on page 20.

2. Make the VCS configuration writable.

```
# haconf -makerw
```

3 Enable detail monitoring for Sybase.

```
# hares -modify Sybase_resource DetailMonitor 1
# hares -modify Sybase_resource User user
# hares -modify Sybase_resource UPword encrypted-password
# hares -modify Sybase_resource Db database_name
# hares -modify Sybase_resource Table table_name
# hares -modify Sybase_resource Monscript
"/opt/VRTSagents/ha/bin/Sybase/SqlTest.pl"
```

4 Save the configuration.

```
# haconf -dump [-makero]
```

Note: If detail monitoring is configured and the database is full, the SQL queries take considerable time to commit the results. In such a case, the monitor routine for the agent fails and attempts to fail over the service group. This issue is not encountered if detail monitoring is not configured.

Chapter 5

Administering VCS service groups for Sybase

This chapter includes the following topics:

About administering service groups for Sybase

You can administer service groups with the Cluster Manager (Java Console), the Veritas Cluster Server Management Console, or from the command line. The following procedures use the Cluster Manager (Java Console).

Bringing the Sybase service group online

Perform the following steps to bring a service group online. Note that in the initial few cycles of bringing a service group online, the memory usage by the agent can spike.

To bring a service group online

1. From Cluster Explorer, click the **Service Groups** tab in the configuration tree.
2. Right-click the service group and click **Enable Resources** to enable all the resources in this group.
3. Right-click the service group, hover over **Enable**, and select either the node or all the nodes where you want to enable the service group.
4. Save and close the configuration. Click **File > Save Configuration**, then **Close Configuration**.
5. Right-click the service group, pause over Online, and select the system where you want to bring the service group online.

Taking the Sybase service group offline

Perform the following procedure from Cluster Manager (Java Console) to take the service group offline. Note that in the initial few cycles of taking a service group offline, the agent's memory usage can spike.

To take a service group offline

1. In the Cluster Explorer configuration tree with the Service Groups tab selected, right-click the service group that you want to take offline.
2. Choose **Offline**, and select the appropriate system from the pop-up menu.

Switching the Sybase service group

The process of switching a service group involves taking it offline on its current system and bringing it online on another system. Perform the following procedure from Cluster Manager (Java Console) to switch the service group.

To switch a service group

1. In the Cluster Explorer configuration tree with the Service Groups tab selected, right-click the service group.
2. Choose **Switch To**, and select the appropriate system from the pop-up menu.

Modifying the Sybase service group configuration

You can dynamically modify the Sybase agent using several methods, including the Cluster Manager (Java Console), Cluster Manager (Web Console), Veritas Cluster Management Console, and the command line.

See the *Veritas Cluster Server Administrator's Guide* for more information.

Viewing the agent log for Sybase

The Veritas agent for Sybase logs messages to the following files:

/var/VRTSvcs/log/engine_A.log

/var/VRTSvcs/log/Sybase_A.log

/var/VRTSvcs/log/SybaseBk_A.log

Appendix A

Resource type definitions for Sybase

This appendix includes the following topics:

About the resource type and attribute definitions for Sybase

The resource type represents the VCS configuration definition of the agent, It also specifies how the the configuration file, main.cf, defines the agent. Configuring the agent involves assigning values to the resource type attributes.

For the resource type attributes:

See "Attribute definitions for the Sybase agent" on page 44.

See "Attribute definitions for the SybaseBk agent" on page 48.

For the sample main.cf configuration files:

Sybase resource type

The type definitions and attribute definitions for the Sybase resource type are described as follows.

Type definition for the Sybase agent

The resource type definition for the agent for Sybase is as follows.

```
type Sybase (
    static boolean AEPTimeout = 1
    static keylist SupportedActions = { "checkpoint_all" }
    str Server
    str Owner
    str Home
    str Version
    str SA
    str SApswd
    int DetailMonitor = 0
    str User
    str UPword
    str Db
    str Table
    str Monscript = "/opt/VRTSagents/ha/bin/Sybase/SqlTest.pl"
    boolean WaitForRecovery = 0
    static str ArgList[] = { Server, Owner, Home, Version, SA, SApswd,
    User, UPword, Db, Table, Monscript, DetailMonitor, WaitForRecovery }
    static str AgentDirectory = "/opt/VRTSagents/ha/bin/Sybase"
    )
```

Attribute definitions for the Sybase agent

Review the description of the Sybase agent attributes. The agent attributes are classified as required, optional, and internal.

Table A-1 lists the required attributes.

Table A-1 Required attributes

Required Attributes	Definition
Server	The $DSQUERYASE name. Only one server should be configured in a Sybase service group. The advantage of configuring sybase resources in a separate service group is, each sybase dataserver can failover independently. When multiple sybase resources are configured in a single service group, even if one of the “n” dataservers fail, the whole service group will be failed over. Type and dimension: string-scalar

Table A-1 Required attributes *(continued)*

Required Attributes	Definition
Owner	Sybase user as the defined owner of executables and database files in any of the sources (such as NIS+, /etc/hosts, and so on) specified in the /etc/nsswitch.conf file for passwd entry. The Sybase executables and database files are accessed in the context of this user. Type and dimension: string-scalar See "System user for Sybase home directory" on page 18.
Home	The $SYBASE path to Sybase binaries and configuration files. Type and dimension: string-scalar
Version	Version of Sybase ASE. Type and dimension: string-scalar
SA	Sybase database administrator. This attribute is required to connect to the ASE for shutdown. Type and dimension: string-scalar
SApswd	Encrypted password for Sybase database administrator. This password is required to connect to the ASE for shutdown. Type and dimension: string-scalar See "Encrypting passwords for Sybase" on page 35. **Note:** You need not specify a value for this attribute if the SA user does not require a password.

Table A-2 lists the optional attributes.

Table A-2 Optional attributes

Optional Attributes	Definition
DetailMonitor	Specifies whether the Sybase server is monitored in detail. Value 1 indicates that the resource monitors the Sybase server in detail. Value 0 denotes it does not. Default is 0. Type and dimension: int-scalar

Table A-2 Optional attributes *(continued)*

Optional Attributes	Definition
User	The database user, in the context of which, the transactions are performed on the database. Type and dimension: string-scalar **Note:** You must specify a value for this attribute if DetailMonitor is set to a non-zero value.
UPword	Encrypted password for the database user. See "Encrypting passwords for Sybase" on page 35. Type and dimension: string-scalar **Note:** You must specify a value for this attribute if DetailMonitor is set to a non-zero value. However, you need not specify a value for this attribute if the database user does not require a password.
Db	Name of the database used for detailed monitoring. The table used by the detail monitor script resides in this database. Type and dimension: string-scalar **Note:** You must specify a value for this attribute if DetailMonitor is set to a non-zero value.
Table	Name of the table on which the detail monitoring script performs the transactions. Type and dimension: string-scalar **Note:** You must specify a value for this attribute if DetailMonitor is set to a non-zero value.
Monscript	The path to the detail monitor script; the default value for this attribute is the path for the script, SqlTest.pl, provided with the agent. Type and dimension: string-scalar **Note:** You must specify a value for this attribute if DetailMonitor is set to a non-zero value.

Table A-2 Optional attributes *(continued)*

Optional Attributes	Definition
WaitForRecovery	The recovery procedures rebuild the server's databases from the transaction logs. This boolean attribute indicates if the agent should wait during Online agent function, till recovery has been completed and all databases that can be made online are brought online. This feature is not supported for pre-12.5.1 Sybase ASE server. The default value for WaitForRecovery is 0. Type and dimension: boolean-scalar

Table A-3 lists the internal attribute for Sybase agent.

This attribute is for internal use only. Symantec recommends not to modify the value of this attribute.

Table A-3 Internal attribute

Internal attribute	Definition
AgentDirectory	Specifies the location of the binaries, scripts, and other files related to the agent for Sybase. Type and dimension: static-string

SybaseBk resource type

Type definition for the SybaseBk agent

The resource type definition for the agent for Sybase is as follows.

```
type SybaseBk (
   str Backupserver
   str Owner
   str Home
   str Version
   str Server
   str SA
   str SApswd
   static str ArgList[] = { Backupserver, Owner, Home, Version,
   Server, SA, SApswd }
   static str AgentDirectory = "/opt/VRTSagents/ha/bin/SybaseBk"
)
```

Attribute definitions for the SybaseBk agent

Review the description of the SybaseBk agent attributes. The agent attributes are classified as required and internal.

Table A-4 lists the required attributes for SybaseBk resource.

Table A-4 Required attributes

Attributes	Definition
Server	The $DSQUERY Backup name. Only one server should be configured in a Sybase service group. The advantage of configuring sybase resources in a separate service group is, each sybase dataserver can failover independently. When multiple sybase resources are configured in a single service group, even if one of the “n” dataservers fail, the whole service group will be failed over. Type and dimension: string-scalar
Owner	Sybase user as the defined owner of executables and database files in any of the sources (such as NIS+, /etc/hosts, and so on) specified in the /etc/nsswitch.conf file for passwd entry. The Sybase executables and database files are accessed in the context of this user. Type and dimension: string-scalar
Home	The $SYBASE path to Sybase binaries and configuration files. Type and dimension: string-scalar
Version	Version of Sybase Backup Server. Type and dimension: string-scalar
Backupserver	The $BACKUP SYBASE Backup Server name. Type and dimension: string-scalar
SA	Sybase database administrator. This attribute is required to connect to the ASE for shutdown. Type and dimension: string-scalar
SApswd	Encrypted password of Sybase database administrator. This password is required to connect to the ASE for shutdown. Type and dimension: string-scalar See “Encrypting passwords for Sybase” on page 35. **Note:** You need not specify a value for this attribute if the SA user does not require a password.

Table A-5 lists the internal attribute for SybaseBk agent.

This attribute is for internal use only. Symantec recommends not to modify the value of this attribute.

Table A-5 Internal attribute

Internal attribute	Definition
AgentDirectory	Specifies the location of the binaries, scripts, and other files related to the agent for Sybase. Type and dimension: static-string

Appendix B

Sample configurations for Sybase

This appendix includes the following topics:

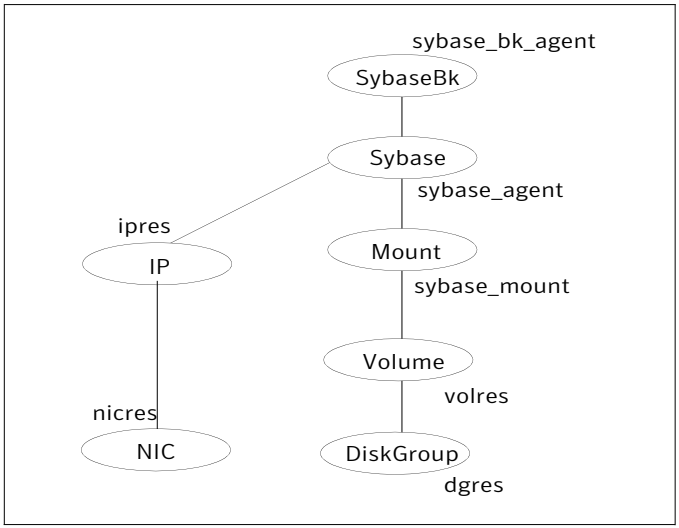
About the sample configuration for the Sybase agent

This appendix describes a typical service group that is configured to monitor the state of Sybase servers in a VCS cluster. The sample configuration graphically depicts the resource types, resources, and resource dependencies within the service group. Review these dependencies carefully before you configure the agent. For more information about these resource types, see the *Veritas Cluster Server Bundled Agents Reference Guide*.

Resource dependency graph for the Sybase agent

Figure B-1 illustrates the configuration's dependency graph for Linux.

Figure B-1 Dependency graph



The dependency graph depicts a single Sybase instance configuration. The configuration contains a disk group with a single volume. The volume is monitored using a Volume resource and mounted using a Mount resource. The Mount resource requires Volume resource, which in turn requires the DiskGroup resource. The service group IP address for Sybase server is monitored using the IP and NIC resource types. The Sybase server can be started after each of these resources are brought online. The Backup Server is started after the Sybase SQL Server is online.

Note: If your configuration does not use Veritas Volume Manager, use the LVMVolumeGroup and LVMLogicalVolume resource types to configure shared storage instead of DiskGroup and Volume resource types.

Sample configuration for a Sybase service group on Linux systems

The following sample depicts a basic configuration with a Sybase service group configured with one NIC, one database instance configured with detail monitoring, and one backup instance.

```
include "types.cf"
 include "/etc/VRTSagents/ha/conf/Sybase/SybaseTypes.cf"
```

```
cluster vcs_cluster (
        UserNames = { admin = anoGniNkoJooMwoInl }
        CounterInterval = 5
        )

system system1 (
        )

system system2 (
        )

group Sybase_group (
        SystemList = { system1 = 0, system2 = 1 }
        )

IP ipres (
   Device = eth0
   Address = "16.9.1.9"
   NetMask = "255.255.0.0"
   )

Mount sybase_mount (
   MountPoint = "/sybase"
   BlockDevice = "/dev/vx/dsk/vxdgG01/vxvolG01"
   FSType = ext3
   MountOpt = rw
   FsckOpt = "-y"
   )

Volume sybase_volres (
   Volume="vxvolG01"
   DiskGroup="vxdgG01"
   )

DiskGroup sybase_dres (
   DiskGroup = "vxdgG01"
       StartVolumes=0
   StopVolumes=0
   )

NIC nicres (
   Device = eth0
   NetworkHosts = { "16.9.10.1", "16.9.10.2" }
```

```
    )

Sybase sybase_agent (
    Server = SYB15LNX32
    Owner = sybase
    Home = "/home/sybase/"
    Version = "15.0.0"
    SA = sa
    DetailMonitor = 1
    User = vcsuser
    UPword = GSNsLSoSLsPSt
    Db = vcsdb
    Table = vcstable
    Monscript = "/opt/VRTSvcs/bin/Sybase/SqlTest.pl"
    )

SybaseBk sybase_bk_agent (
    Server = SYB15LNX32
    Owner = sybase
    Home = "/home/sybase"
    Version = "15.0.0"
    Backupserver = SYB15LNX32_BS
    SA = sa
    )


ipres requires nicres
sybase_agent requires ipres
sybase_agent requires sybase_mount
sybase_mount requires sybase_volres
sybase_volres requires sybase_dres
sybase_bk_agent requires sybase_agent
```

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