HP Data Protector software A.06.00

Installation and Integration Guidelines for Data Protector Cell Manager on HP UX 11.23 with Veritas Cluster

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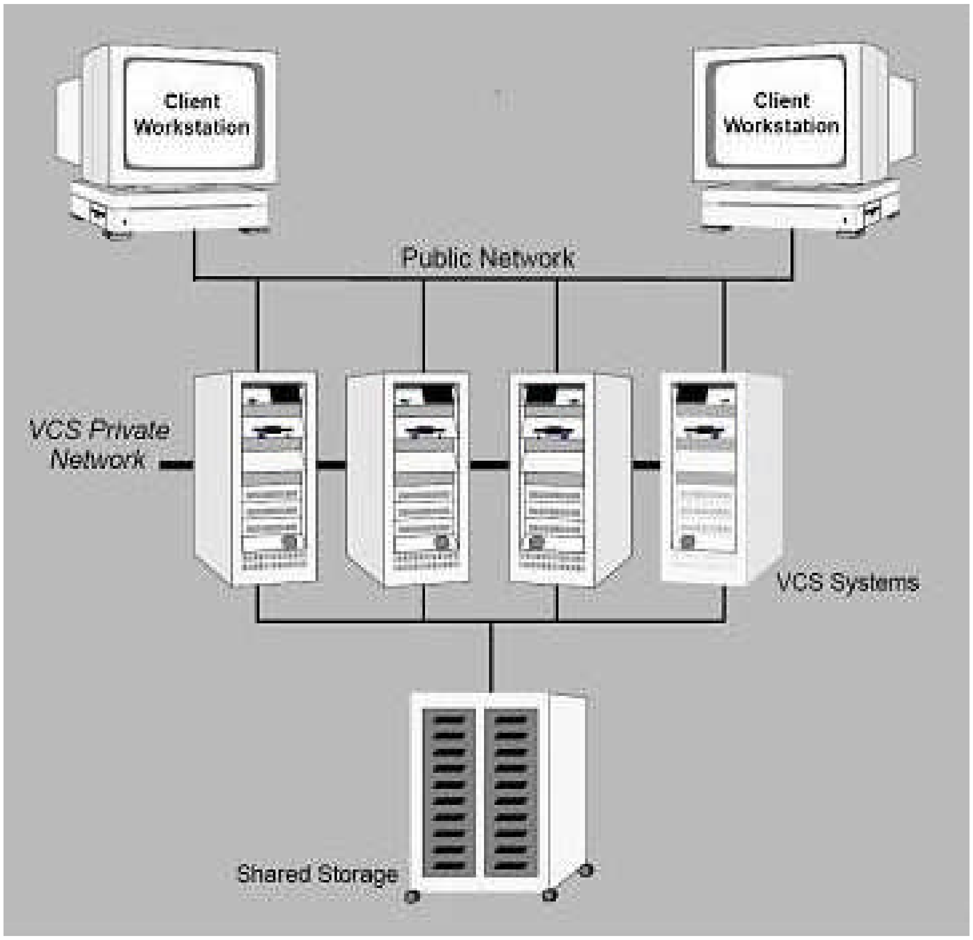
Introduction

This document describes how to install and configure Data Protector 06.00 Cell Manager with Veritas Cluster on an HP-UX 11.23 platform.

Veritas Cluster Server by Symantec software is a high-availability solution for cluster configuration. Veritas Cluster Server (VCS) monitors system and application services, and restart services when hardware or software fails, See Figure 1 for more details.

Figure 1: Veritas Cluster Server Configuration



Installation of Veritas Cluster products

The following section describes the installation of Veritas cluster products.

Configuring SSH or remsh before installing products

You can install Veritas products to a remote system by using secure shell (SSH) or remote shell (remsh). SSH is the default and recommended method of installation.

Enabling SSH

The SSH program enables you to log into and execute commands on a remote system. SSH enables encrypted communications and an authentication process between two un-trusted hosts over an insecure network. SSH is the preferred method of remote communication because it provides a greater level of security than the remote shell suite of protocols. The following is an example of an SSH setup procedure:

1. Log in as root on the source system from which you want to install the Veritas product.
2. To generate a DSA key pair on the source system, enter:

   ```
   # ssh-keygen -t dsa S
   ```

   The system displays the following output:

   ```
   Generating public/private dsa key pair.

   Enter file in which to save the key (//.ssh/id_dsa):
   ```
3. Press **Enter** to accept the default location of /.ssh/id_dsa.

   System output similar to the following is displayed:

   ```
   Enter pass phrase (empty for no pass phrase):
   ```
4. Do not enter a pass phrase.

   Press Enter: Enter same pass phrase again:

   Press Enter again.
5. Ensure that the /.ssh directory is on all the target installation systems. If that directory is missing, create it on the target system and set the write permission to root only:

   ```
   # mkdir /.ssh# chmod go-w /.ssh
   ```
6. Ensure that the Secure file transfer program (SFTP) is enabled on all the target installation systems. To enable SFTP, the /opt/ssh/etc/sshd_config file must contain the following two lines:

   PermitRootLogin yes Subsystem

   sftp /opt/ssh/libexec/sftp-server If the lines are not there, add them

7. Restart SSH:

   ```
   # /sbin/init.d/secsh start
   ```
8. To copy the public DSA key, /.ssh/id_dsa.pub to each target system, type the following commands:

   ```
   # sftp target_sys
   ```

   If this is the first time this command is run on a system, the following output is displayed:

   ```
   Connecting to target_sys...

   The authenticity of host 'target_sys (10.182.00.00)' can't be established. DSA key fingerprint is fb:6f:9e:61:91:9e:44:6b:87:86:ef:68:a6:fd:87:7d.

   Are you sure you want to continue connecting (yes/no)?
   ```
9. Enter yes. Output similar to the following is displayed:

   ```
   Warning: Permanently added 'target_sys,10.182.00.00'(DSA) to the list of known hosts.root@target_sys password:
   ```
10. Enter the root password.
11. At the sftp prompt, type the following command:

    ```
    sftp> put /.ssh/id_dsa.pub
    ```

    The following output is displayed:

Uploading /.ssh/id_dsa.pub to /id_dsa.pub

12. To quit the SFTP session, enter:

```
sftp> quit
```

13. To begin the ssh session on the target system, enter:

```
# ssh target_sys
```

14. Enter the root password at the prompt: password:

15. *After logging in, enter the following command to append the authorization key to the id_dsa.pub file:*

```
# cat /.ssh/id_dsa.pub >> /.ssh/authorized_keys
```

16. To delete the id_dsa.pub public key file after it is copied to the target (host) system and added to the authorized keys file, enter:

```
# rm /id_dsa.pub
```

17. To log out of the ssh session, enter:

```
# exit
```

18. When installing from a source system that is also an installation target, add the local system id_dsa.pub key to the local /.ssh/authorized_key file:

```
# cat /.ssh/id_dsa.pub >> /.ssh/authorized_keys
```

    The installation can fail if the installation source system is not authenticated

19. Run the following commands on the source installation system. These commands bring the private key into the shell environment and make the key globally available for the user root:

```
# exec /usr/bin/ssh-agent $SHELL# ssh-addIdentity added: /.ssh/identity
```

    This is a shell-specific step and is valid only while the shell is active. You must execute the procedure again if you close the shell during the session.

20. To verify that you can connect to the target system, Enter:

```
# ssh -l root target_sys uname –a
```

    The commands are executed on the remote system without the system requesting a pass phrase or password.

    For more information about enabling SSH, see the ***SSH documentation and online manual pages" and OpenSSH website*** .

    Contact your OS support provider for issues regarding SSH configuration.

Enabling remsh

Remote shell functionality is automatically enabled after the installation of the VERITAS Cluster Products on an HP-UX system.

To enable remote installation modify the .rhosts file in the $HOME directory for each user to remotely access the system using remsh.

Each line in the .rhosts file must contain a fully qualified domain name or IP address for each remote system that has access to the local system.

For example, if the root user must remotely access system1 from system2, add an entry for system2.companyname.com to the .rhosts file on system1.

```
# echo "system2.companyname.com" >> $HOME/.rhosts
```

After completion of the installation procedure, to ensure security, delete the .rhosts file from each user's $HOME directory.

```
# rm -f $HOME/.rhosts
```

For more information about remote shell configuration, see the ***Operating System documentation and the remsh (1M) manual page***.

Installation methods for Veritas Cluster products

There are two ways to install Veritas products:

- Using the product installer
- Invoking product installation scripts from the command line

For more information about the other installation methods, see the product installation guide.

Do not make /opt a VxFS file system

There are two installation modes:

- Single node local
- Multiple remote target systems

You can install products remotely by using SSH or RSH.

For shell configuration information, see **Configuring SSH or remsh before installing products** on Using the product installer

The product installer displays a menu that simplifies the selection of installation and upgrade options. Selecting a product to install or upgrade from the menu invokes that product's installation script. HP recommends this method.

If you use the Veritas Enterprise Administrator (VEA) GUI on your system, stop the VEA service before performing a new installation, uninstall, or an upgrade.

To stop the VEA service, on each system type the following command:

```
# /opt/VRTS/bin/vxsvcctrl stop
```

Using Product Installer

1. Locate the name of the product to install on the product software disc. Insert the disc into a drive attached to your system and mount it.
2. Change to the directory where the software disc is mounted.
3. From the mount directory, do one of the following.

- To invoke the installer script using SSH (recommended), type the following command:

```
#. /installer
```

- To invoke the installer script using remsh, type the following command:

```
#. /installer –rsh
```

4. The product installer displays a list of products, their installation, and licensing status as displayed in the following example. A list of tasks to perform follows the product status:

```
Storage Foundation and High Availability Solutions 5.0
```

Symantec Product Version Installed Licensed

Veritas Cluster Server	**4.1**	**yes**
Veritas Volume Replicator	no	no
Veritas Storage Foundation	4.1	yes
Veritas Storage Foundation for Oracle	no	no
Veritas Storage Foundation Cluster File System	no	no
Veritas Storage Foundation for Oracle RAC	no	no

I) Install/Upgrade a Product

C) Configure an Installed Product

L) License a Product

P) Perform a Pre-installation Check

U) Uninstall a Product

D) View a Product Description

Q) Quit

?) Help

Enter a Task: [I, C, L, P, U, D, Q,?] i

Select a task. Enter (?) to display option descriptions.

HP recommends that you run the pre-installation check for all systems before installing a product.

5. Select I, to display the list of products and options.

Storage Foundation and High Availability Solutions 5.0

1) Veritas Cluster Server

2) Veritas Volume Manager

3) Veritas Volume Replicator

4) Veritas Storage Foundation

5) Veritas Storage Foundation for Oracle

6) Veritas Storage Foundation Cluster File System

7) Veritas Storage Foundation for Oracle RAC

8) Veritas Cluster Management Console

9) Symantec Product Authentication Service

b) Back to previous menu

Select a product to install: [1-9, b, and q] q

Select “b” (“back”) to return to a previous section of an installation procedure. This feature is context-sensitive, so it returns to the beginning of a grouped section of questions. If an installation procedure does not respond, use Control–c to stop and exit the program.

6. Enter the number of the product to install and press **Return**. Follow the instructions described in the product installation guide.

Installation options

The installer provides three installation options:

- Install required packages: This option installs the packages required to operate the licensed product.
- Install required and optional packages: This option installs optional packages such as documentation and client features that are not required to operate the licensed product.
- Install additional packages to allow easy upgrade to higher product level: This option installs all packages of higher product level. For example, if you install Storage Foundation for Oracle, you can install additional packages for Storage Foundation for Oracle RAC. This enables you to upgrade by entering an additional product license key. Although the extra packages are installed, only the selected product and its licensed options are configured. This is the default option.

Invoking product installation scripts from the command line

You can also install Veritas products by running the following installation scripts from the command line Interface:

installcmc	**Veritas Cluster Server Management Console**
installsf	Veritas Storage Foundation
installsfcfs	Veritas Storage Foundation Cluster File System
installsfora	Veritas Storage Foundation for Oracle
installsfrac	Veritas Storage Foundation for Oracle RAC
installvcs	Veritas Cluster Server
installvm	Veritas Volume Manager
installvvr	Veritas Volume Replicator

Before you begin an installation using a command-line script, read the product release notes and installation guide.

For further information see “**Veritas™ Storage Foundation and High Availability Solutions Getting Started Guide HP-UX 5.0**”.

Installation of Data Protector Cell Manager on a cluster

The following section describes the installation of Data Protector Cell Manager on Veritas Cluster

See the concepts guide:

http://bizsupport.austin.hp.com/bc/docs/support/SupportManual/c00751562/c00751562.pdf

and to installation guide:

http://bizsupport.austin.hp.com/bc/docs/support/SupportManual/c00751873/c00751873.pdf

Veritas Cluster Integration

As part of its high-availability support, Data Protector provides a full integration of the Data Protector Cell Manager with Veritas Cluster on HP-UX systems.

For information about supported operating system versions, supported configurations, and level of cluster support, see official support matrix:

www.hp.com/go/dataprotector

- Support matrices
- HP Data Protector V6.0 Software
- DP 6.0 Platform & Integration Support Matrices

This section provides specific information for integration of Data Protector and Veritas Cluster and assumes that you are familiar with clustering concepts and concepts related to Veritas Cluster.

Licensing and VERITAS Cluster

When you purchase a license for the Data Protector Cell Manager, the license will be bound to a virtual server and will work regardless of any physical node inside a Veritas cluster, the Data Protector Cell Manager executes as long as the package is running on one of the nodes. If the Cell Manager is installed on a cluster using the same virtual IP address for all nodes within the cluster, only one starter pack is required.

Installation of Cell Manager on Veritas Cluster

Prerequisites for Installation

To install Data Protector Cell Manager on Veritas Cluster, the server must meet the following requirements:

- Obtain the following information from the network administrator:
  - Virtual server name (the hostname specified in the cluster package)
  - Package IP or virtual IP-address

- Create a shared disk which is accessible on both the nodes at the same time (ACTIVE-ACTIVE).
- Ensure that the cluster nodes and the package IP (virtual IP) are on the same subnet.
- Ensure that all the cluster nodes and the package IP are registered with the DNS server.

If you need to add additional software components on cluster nodes using the Data Protector GUI, ensure that the node to which you add the components is active.

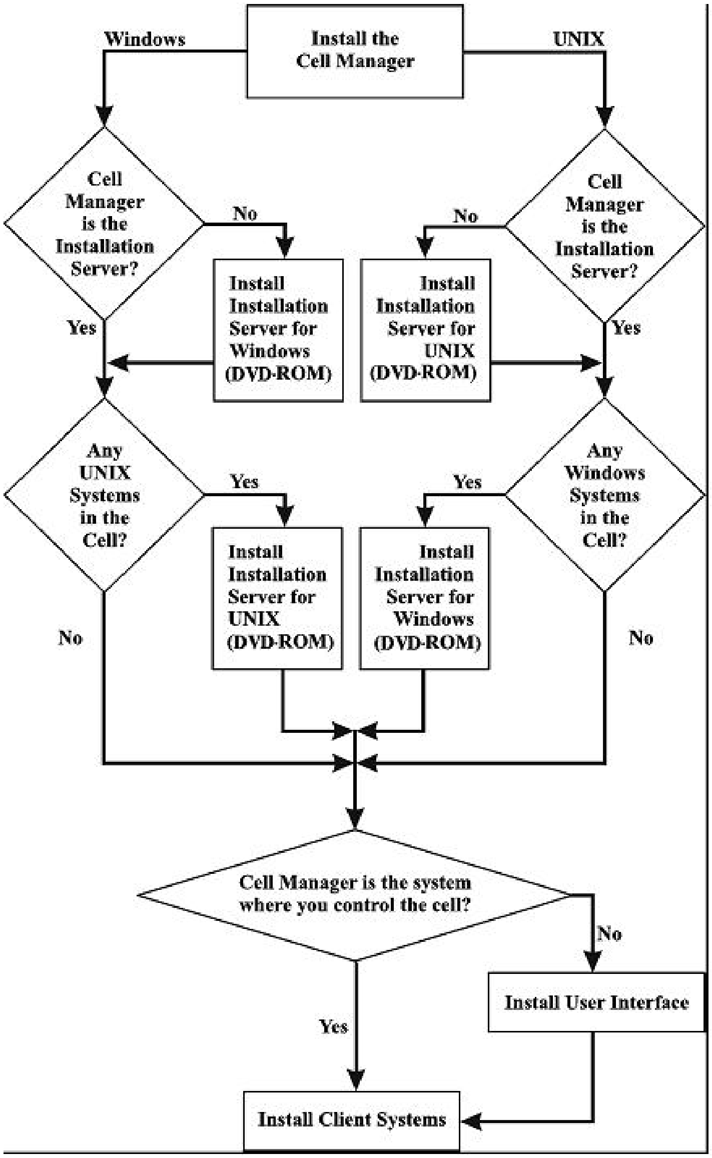
If the Cell Manager is to be cluster-aware, the virtual server IP address must be used for licenses.

Steps before installation of Cell Manager

Before you install a Data Protector Cell Manager on Veritas Cluster, check the following:

- Decide which systems are going to be the Primary Cell Manager and the Secondary Cell Managers. All of them must have Veritas Cluster Software installed and must be configured as cluster members.
- Data Protector Cell Manager with recommended patches and all other Data Protector Software components required for the integrations in the cluster must be installed on the primary node and each of the Secondary nodes. . See figure 2 for the complete flow chart of installation and configuration of Data Protector on Veritas Cluster.

Figure 2: Flow chart of installation and configuration of Data Protector on Veritas Cluster


Install the Cell Manager
Windows
UNIX
Cell Manager is the Installation Server?
No
Yes
Install Installation Server for Windows (DVD-ROM)
Install Installation Server for UNIX (DVD-ROM)
Cell Manager is the Installation Server?
No
Yes
Any UNIX Systems in the Cell?
Yes
No
Install Installation Server for UNIX (DVD-ROM)
Install Installation Server for Windows (DVD-ROM)
Any Windows Systems in the Cell?
Yes
No
Cell Manager is the system where you control the cell?
No
Yes
Install User Interface
Install Client Systems

This section provides step-by-step instructions for installing a UNIX Cell Manager.

Prerequisites

The Cell Manager on HP-UX, Solaris or Linux System must meet the following requirements:

- Have sufficient disk space for the Data Protector software.

For more information, see **HP OpenView Storage Data Protector Product Announcements, Software Notes, and References**.

Install Data Protector to the linked directories to overcome the shortage of space in the server.

- Have sufficient disk space (about 2% of the planned data to be backed up) for the Internal Database. See **HP OpenView Storage Data Protector Product Announcements, Software Notes, and References**.

  The IDB design enables the database binary files to relocate if growth in database size makes it necessary. See the online Help index: IDB, calculating the size of.

- Support for long filenames. To find out whether your file system supports long filenames, use the getconf NAME_MAX <directory> command.
- inetd daemon running.
- Port number 5555 (default) free.
- The Microsoft implementation of the TCP/IP protocol must be installed and running.

  The protocol must be able to resolve hostnames. The computer name and the hostname must be identical.

  For information on the installation and configuration of the TCP/IP protocol, see "**Setting Up the TCP/IP Protocol on Windows Systems**" in the installation guide.
- Access to a DVD-ROM drive.
- Must recognize the Cell Manager, if NIS server is used.
- ksh shell installed.
- You must have root permissions on the target system.

Setting Kernel Parameters

On an HP-UX server, HP recommends setting the kernel parameter maxdsiz (Max Data Segment Size) to at least 134217728 bytes (128 MB), and the kernel parameter semmnu (Number of Semaphore Undo Structures) to at least 256. After committing these changes, recompile the kernel and reboot the system.

On Solaris, HP recommends setting the kernel parameter shmsys:shminfo_shmmax (maximum shared memory segment size (SHMMAX)) in /etc/system to at least 67108864 bytes (64 MB). After committing this change, reboot the system.

Installation Procedure

TIP If you install the Cell Manager and Installation Server on the same system, you can perform the installation in one step by executing omnisetup.sh -CM -IS. For a description of the omnisetup.sh command, see the README file located in the <Mount_point>/LOCAL_INSTALL directory on the DVD-ROM or the "HP OpenView Storage Data Protector Command Line Interface Reference" located in the <Mount_point>/DOCS/C/MAN directory on the DVD-ROM.

To install the Cell Manager on an HP-UX, Solaris, or Linux system:

1. Insert and mount the UNIX installation DVD-ROM to a mount point.

   Example:

   ```
   # mkdir /dvdrom
   # mount /dev/dsk/c0t0d0 /dvdrom
   ```

Optionally, you can install Data Protector from a depot on the disk:

To copy the DP_DEPOT, AUTOPASS, and LOCAL_INSTALL directories, where the installation files are stored, to your local disk, run:

```
# mkdir <directory>
# cp -r /dvdrom/<platform_dir>/DP_DEPOT <directory>
# cp -r /dvdrom/<platform_dir>/AUTOPASS <directory>
# cp -r /dvdrom/<platform_dir>/LOCAL_INSTALL <directory>
```

Where <platform_dir> is:

hpux_ia for HP-UX 11.23 on IA-64 systems
hpux_pa for HP-UX on PA-RISC systems
linux_x86_64 for Linux systems on AMD64/Intel EM64T
solaris for Solaris systems

To copy the whole DVD-ROM to your local disk, run:

```
# cp -r /dvdrom <dvd_image_dir>
```

2. Run the omnisetup.sh command. To run this command from the DVD-ROM, type:

```
# cd /dvdrom/LOCAL_INSTALL
# ./omnisetup.sh –CM
```

To start the installation from disk:

- If you have copied the DP_DEPOT, AUTOPASS, and LOCAL_INSTALL directories to your local disk in the directory <directory>, run:

```
# cd <directory>/LOCAL_INSTALL
# ./omnisetup.sh -source <directory> -CM
```

- If you have copied the whole DVD-ROM to <dvd_image_dir>, run the omnisetup.sh command with the -CM parameter:

```
# cd <dvd_image_dir>/LOCAL_INSTALL
# ./omnisetup.sh -CM
```

3. On HP-UX and Solaris, omnisetup.sh prompts you to install or upgrade the HP OpenView AutoPass utility if you want to download and install passwords for the purchased licenses directly through the internet from the HP password delivery center web server. HP recommends installation of AutoPass. If AutoPass is installed on a Veritas cluster, it must be installed on all nodes. When prompted, press **Return** to install or upgrade AutoPass. If you do not need to install or upgrade AutoPass, press **n**.

   On Linux, HP OpenView AutoPass is not installed.

If you have installed or upgraded the Cell Manager on Solaris 9 or Solaris 10, remotely install the Disk Agent on the Cell Manager after the installation or upgrade is complete, using an Installation Server. This replaces the generic Solaris Disk Agent with the Solaris 9 or Solaris 10 Disk Agent.

If you need to install an Installation Server for UNIX on your Cell Manager, perform this task at this point.

When the installation completes, the core Data Protector software is located in the /opt/omni/bin directory and the Installation Server for UNIX in the /opt/omni/databases/vendor directory. The following list shows the Data Protector subdirectories and their contents:

IMPORTANT

To install Data Protector to linked directories, for instance:

```
# /opt/omni/ -> /<prefix>/opt/omni/
# /var/opt/omni/ -> /<prefix>/var/opt/omni/
 # /etc/opt/omni/ -> /<prefix>/etc/opt/omni/
```

You must create the links before the installation and ensure that the destination directories exist.

/opt/omni/bin for All commands

/opt/omni/gui for GUI items

/opt/omni/gui/help for Online Help files

/opt/omni/lbin for Data Protector internal commands

/opt/omni/sbin for Superuser commands

/opt/omni/sbin/install for Installation scripts

/etc/opt/omni for Configuration information

/opt/omni/lib for Shared libraries for compression, data encoding, and device handling

/opt/omni/doc/C for Online documentation (optional)

/var/opt/omni/log and /var/opt/omni/server/log for Log files

/opt/omni/lib/nls/C for Message catalog files

/opt/omni/lib/man for Man pages

/var/opt/omni/tmp for Temporary files

/var/opt/omni/server/db40 for IDB files

Installing a Cluster-Aware Client

The Data Protector cluster-aware clients must be installed on all the cluster nodes.

The installation procedure is standard procedure for installing Data Protector on an UNIX client.

Data Protector cluster-aware clients must be installed locally, from a DVD-ROM, on every node within the cluster. The nodes (Data Protector cluster clients) are imported to the specified cell during the installation process and the virtual server hostname has to be manually imported to the Data Protector cell.

You can import a cluster to a Data Protector cell that is managed either by the standard Cell Manager or by the cluster-aware Cell Manager

Prerequisites

If you need an application backup to be cluster-aware, that is, accessible through its virtual server, check the following:

- An application integration module must be installed on all application-preferred owners (nodes). Only in this way the Data Protector Integration agents start the backup on the cluster node where the application currently resides.
- A cluster must be installed properly with all of its functionality on all cluster nodes. For example, you must be able to move groups from one to another node as many times as needed with no problems with shared disks.
- Each system of the cluster must be up and running properly. If a system in the cluster has the Data Protector software installed, you must to uninstall it prior to the setup.

- If Oracle8 is installed on cluster nodes, HP recommends stopping Oracle8 database services on the cluster nodes.

Installation procedure

- The cluster client setup is the same as for the Windows local client setup, except that the cluster Administrator account is required to perform the installation.
- In addition to the Data Protector client components such as Disk Agents and Media Agents, install the Cluster Integration component, which is selected by default during the installation.

  For information about how to locally install a Data Protector Windows client system, see the **HP OpenView Storage Data Protector Installation and Licensing Guide**.

  During the installation, Data Protector detects the cluster and prompts to specify the Cell Manager (cell) for the Data Protector cluster clients.

  After the installation, verify that the Data Protector software has been properly installed.

  To see the name of the cluster-aware client system, execute

  ```
  # <Data_Protector_home>\bin\omnirsh <cluster_client_system> INFO_CLUS
  ```

  If the output returns 0 “NONE”, Data Protector is not installed in the cluster-aware mode.
- Import the virtual server hostname (a cluster client system) to the Data Protector cell.

Importing a Cluster Aware Client

When the installation is completed, you must import the virtual server (the hostname specified in the cluster package) to the Data Protector cell.

To import a specific cluster node or a virtual server, right click its cluster in the Scoping Pane and click Import Cluster Node or Import Cluster Virtual Server. Steps to import MC/Service Guard, Veritas, Tru64, and Novell NetWare Cluster Services are described below.

Steps

- In the Context List, click **Clients**.
- In the Scoping Pane, right-click **Clients** and click **Import Client**.
- Type the hostname of the virtual server as specified in the application cluster package, or browse the network to select the virtual server (on Windows GUI only) you want to import.
- Select the Virtual Host option to indicate that this is a cluster virtual server.
- Click **Finish** to import the virtual server.
- The Results Area displays the name of the imported cluster client.

Configuration of Data Protector Cell Manager on cluster

Prerequisites for Configuration

Before configuring Data Protector with Veritas Cluster, check the following:

- The cluster must be installed and running.
- Identify the Primary Cell Manager and the Secondary Cell Manager(s) systems.
- Systems chosen to be the Primary Cell Manager and the Secondary Cell Manager(s) must have Veritas cluster installed, with recommended patches, and must be configured as members of the same cluster.
- Data Protector Cell Manager, with recommended patches, and all other Data Protector Software components for the integrations you want to have in the cluster must be installed on the primary node and each of the Secondary nodes.

See the **HP OpenView Storage Data Protector Installation and Licensing Guide** for instructions.

Configuring the Primary and Secondary Cell Managers

The following sections describe how to configure the Primary and Secondary Cell Managers.

- The following sections provide step-by-step examples to configure the Primary and Secondary Cell Managers. Directory and file names, numbers, and other variables will differ from the following examples according to the environment.
- The shared volume group will contain the IDB and configuration files to be used when considering the size of the shared disk.
- The SHARED_DISK_ROOT variable must contain the name of the mount point directory (for example, SHARED_DISK_ROOT=/omni_shared). The CS_SERVICE_HOSTNAME variable must contain the name of the virtual Cell Manager, as it is known to the network. Each package in the cluster requires its own virtual IP address and its virtual server network name (for example, CS_SERVICE_HOSTNAME=ob2cl.company.com).

Configuring the Primary Cell Manager

To configure the Primary Cell Manager, first mount the share disk on both servers. Mount the logical volume to a directory (for example, /omni_shared), with the following steps:

1. Create a mount point directory:

   ```
   $ mkdir /omni_shared
   ```
2. Mount the filesystem to the mount point directory with cluster option.

   ```
   $mount -F vxfs -o cluster /dev/vx/dsk/vmdg/sh_vol  /OMNI_SHARE
   ```
3. Modify the /etc/opt/omni/server/sg/sg.conf template file.
4. Configure the Primary Cell Manager. Make sure not to be positioned in the /etc/opt/omni or /var/opt/omni directory or their subdirectories when running the script. Make also sure to have no mounted subdirectories in the /etc/opt/omni or /var/opt/omni.

   ```
   $ /opt/omni/sbin/install/omniforsg.ksh –primary
   ```

   After running this script, the Data Protector services are stopped.

Configuring the secondary Cell Manager

To configure the secondary Cell Manager on system2:

1. Create the same mount point directory as you have created on the Primary Cell Manager (/omni_shared):

   ```
   $ mkdir /omni_shared
   ```
2. Mount the filesystem to the mount point directory with cluster option.

   ```
   $mount -F vxfs -o cluster /dev/vx/dsk/vmdg/sh_vol  /OMNI_SHARE
   ```
3. Configure the Secondary Cell Manager:

   ```
   $ /opt/omni/sbin/install/omniforsg.ksh -secondary
    $ /omni_shared
   ```

For More Information

HP Data Protector software

www.hp.com/go/dataprotector

HP Data Protector software support matrix

http://h20000.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?lang=en&cc=us&taskId=101&prodClassId=1&contentType=SupportManual&docIndexId=179911&prodTypeId=18964&prodSeriesId=3241176

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