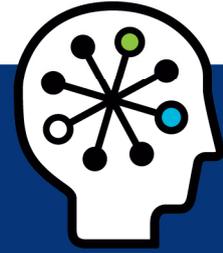




# HP Data Protector MOM Configuration and Troubleshooting Guide



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# Data Protector Manager-of-Managers concept

## Using multiple cell managers

Data Protector Cell Managers are split into multiple cells for various reasons:

- Geographical grouping of systems.
- Logical grouping of systems, for example, departments.
- Slow network connection between some systems.
- Performance considerations.
- Separate administrative control.

Data Protector provides the Manager-of-Managers (MOM) feature to centrally manage large environments with multiple cells. The MOM allows you to group multiple cells into a larger unit, called a MOM environment that can be managed from a single point. The MOM enables virtually unlimited growth of your backup environment. New cells can be added or existing ones split.

A MOM environment does not require a reliable network connection from Data Protector cells to the central MOM cell, because only the controls are sent over the long distance connections, however the backups are performed locally within each Data Protector cell. Nevertheless, this is based on the assumption that each cell has its own Media Management Database (MMDB).

## Manager-of-Manager Features

Manager-of-Managers provides the following features:

### **Centralized licensing repository**

This enables simplified license management. This is optional but useful for very large environments.

### **Centralized Media Management Database (CMMDB)**

The CMMDB allows you to share devices and media across several cells in a MOM environment. This makes devices of one cell (using the CMMDB) accessible to other cells that use the CMMDB. The CMMDB, if used, must reside in the MOM cell. In this case, a reliable network connection is required between the MOM cell and the other Data Protector cells. Note that it is optional to centralize the Media Management Database.

### **Sharing libraries**

With the CMMDB, you can share high-end devices between cells in the multi-cell environment. One cell can control the robotics, serving several devices that are connected to systems in different cells. Even the Disk Agent to Media Agent data path can go across cell boundaries.

### **Enterprise reporting**

The Data Protector Manager-of-Managers can generate reports on a single-cell basis as well as for the entire enterprise environment.

## Data Protector Central Media Management Database Concept

### IDB and CMMDB

In the Manager-of-Managers (MOM) environment, you can use the Centralized Media Management Database (CMMDB), which allows you to share devices and media across several cells.

The Internal Database (IDB) keeps information about backup, restore, and media management sessions, devices, and media. It consists of five parts — MMDB, CDB, DCBF, SMBF, and SIBF— that are located on the Cell Manager. Each part stores some specific Data Protector information. For security reasons, it is impossible to access and use this data from another Data Protector cell.

In large multi-cell environments with high-end backup devices, you may want to share the devices and media among several cells. This can be achieved by having one Centralized MMDB for all the cells and keeping an individual CDB for each cell. This allows media and device sharing while preserving the security capabilities of the multi-cell structure.

**Note:**

From the MOM server, it is not possible to configure a device connected to a client of an individual cell of MOM environment. You can configure devices which are connected to clients in individual cells only from the respective Cell Managers, not from the MOM Manager. Only devices that are connected directly to multiple Cell Managers can be configured from the MOM Manager.

To configure devices and media for any cell within your enterprise environment, either configure devices from respective Cell Manager or follow the following steps:

- In the Data Protector Manager-of-Managers, click **Clients** in the Context List.
- Select the cell that has the devices or media that you want to manage.
- In the Tools menu, click **Device & Media Administration**.
- A Data Protector Manager GUI opens with the Devices & Media context displayed.
- Configure devices and media as if you were a local administrator.

## How are media shared?

With the CMMDB, media can only be owned by the Data Protector cell that performed the first backup on those media. The media owner is displayed in the media view. While media are protected, only backups from that cell can be appended on the media. Each medium with protected data on it has information showing which cell currently owns the data. Once the protection expires, the media become available to other cells again.

## How are media initialized?

If a tape has been initialized by one cell, any other cell can use it as long as it does not have any protected data on it. If a tape is loaded in a library and not yet initialized, any cell can initialize it, assuming that there is a loose policy and no other tapes are available. The media allocation rules apply in exactly the same way to shared tapes, except that appendable media can only be appended by the cell that owns them.

## Important

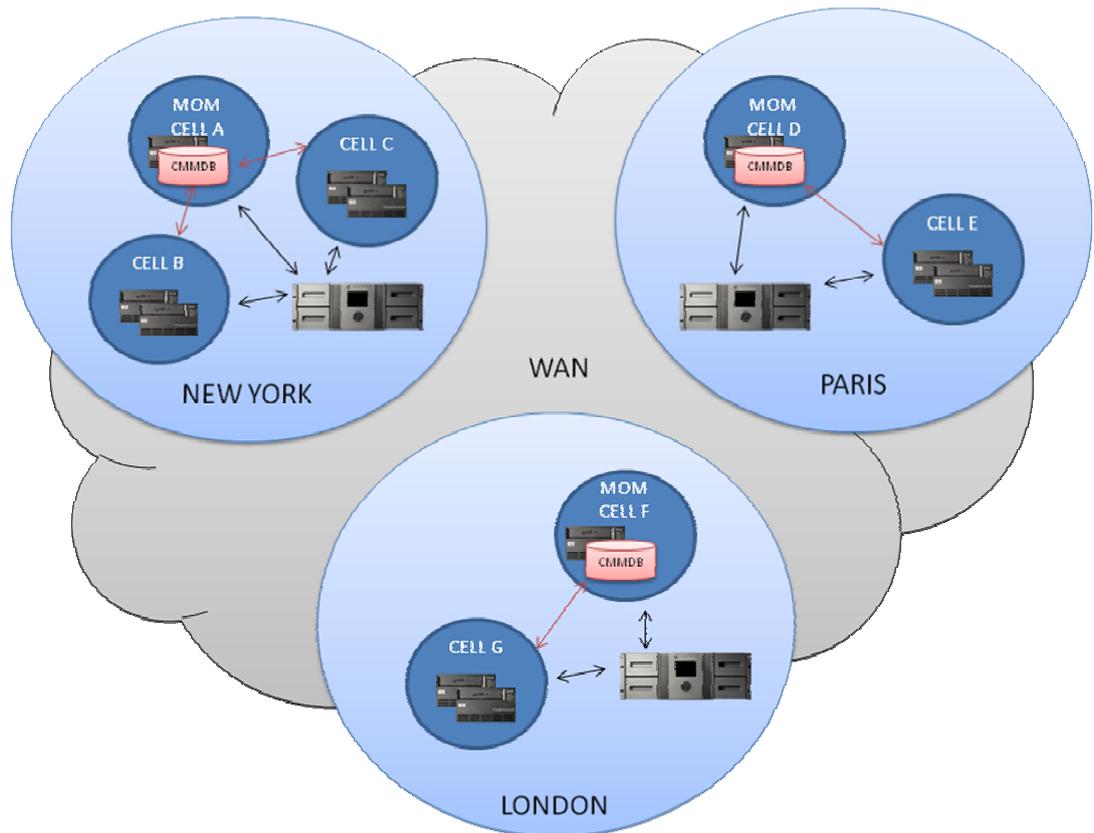
- The centralized MMDB has a significant effect on licensing. Immediately after the MMDB is changed from local to remote, all the licenses associated with libraries and devices are taken (validated) from the MOM Manager and should be removed from client cells.
- A cell in the enterprise environment must have access to the CMMDB to be able to run a backup. The backup will fail if a network failure occurs between the specific client cell and the MOM cell.

## Example

Cell A, cell B and cell C in New York will be configured into a Manager-of-Managers (MOM) cell.

In addition to that, both London and Paris will be configured into local MOM cells, each with two Data Protector client cells.

Configure cell A as the MOM cell for the New York environment, cell D as the MOM cell for the Paris environment, and cell F as the MOM cell for the London environment.



The Cell Managers and Manager-of-Managers in all the 7 cells should be Windows systems. Use a Centralized Media Management Database (CMMDB) in one of the cells in each MOM environment and Catalog Databases in each of the 7 cells. The Centralized Media Management Database allows you to share libraries between cells within each MOM environment.

Each of the three locations should have its own library.

The two cells at the Paris MOM environment should also share a Centralized Media Management Database. This should be configured on the MOM of cell D to enable the sharing of the Library between the cells.

The two cells at the London MOM environment should also share a Centralized Media Management Database. This should be configured on the MOM of cell F to enable the sharing of the Library between the cells.

The Centralized Media Management Database (CMMDB) enables all cells in a MOM environment to share devices and media. Each of the three MOM environments can then use a single library, shared by client systems in all cells in the environment. Using only one very large library for all data would not make much sense, because it would require that huge amounts of data be transferred over WAN for backup purposes.

The Data Protector Centralized Media Management Database (CMMDB) is the result of merging MMDBs from several cells in the MOM environment. It allows you to share high-end devices and media across multiple cells in a MOM environment. One cell can control the robotics, serving the devices that are connected to systems in other cells. The CMMDB must reside on the Manager-of-Managers. A reliable network connection between the MOM cell and the other Data Protector cells is highly recommended.

# MOM Installation and Setup

## Prerequisites

You must choose a system for the MOM Manager. You must choose a highly reliable system that is a Data Protector Cell Manager with the software installed.

Install the required licenses on the MOM cell and on every prospective MOM client cell.

The Cell Managers are LAN connected. The Backup Media Servers are SAN connected to the tape devices. The MOM server is LAN connected.

All servers are entered into the domain.

## Tasks

The MOM environment configuration procedure consists of several phases. Follow the steps below:

- Install and configure a Cell Manager and/or media server on Windows and/or Unix OS
- Set up the MOM Manager
- Import Data Protector cells into the MOM environment
- Create a Data Protector user in the admin user group on every cell in the MOM environment who will act as MOM administrator.
- Restart the Data Protector services.
- Optionally, you can also configure a Centralized Media Management Database, configure centralized licensing, and distribute the MOM configuration.
- Optionally, you can also configure Centralized Licensing.

### Installing and configuring a Cell Manager and/or media server on Windows

Two configurations are possible:

1. Use dedicated tape drives for each cell managers. The tape media will be shared for both cell managers by a common free pool, the drives will be dedicated to each individual cell manager in the MOM configuration.
2. Configure the tape library to use the multi-path feature, adding the library into the configuration for only 1 of the cell managers. The other cell managers will receive control over the library robotics and shared tape drives via the multi-path configuration in Data Protector.

Install Data Protector on each cell manager and configure the library following one of the options described above.

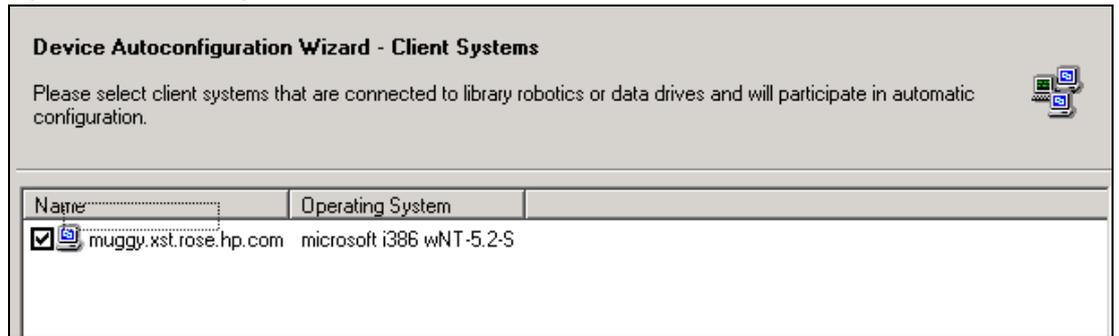
Using option 1: dedicated tape drives

1. On each cell manager, right-click on **Devices & Media, Devices, Autoconfigure Devices...**. Run the **Device Autoconfiguration Wizard** to configure the shared media devices.

Example:

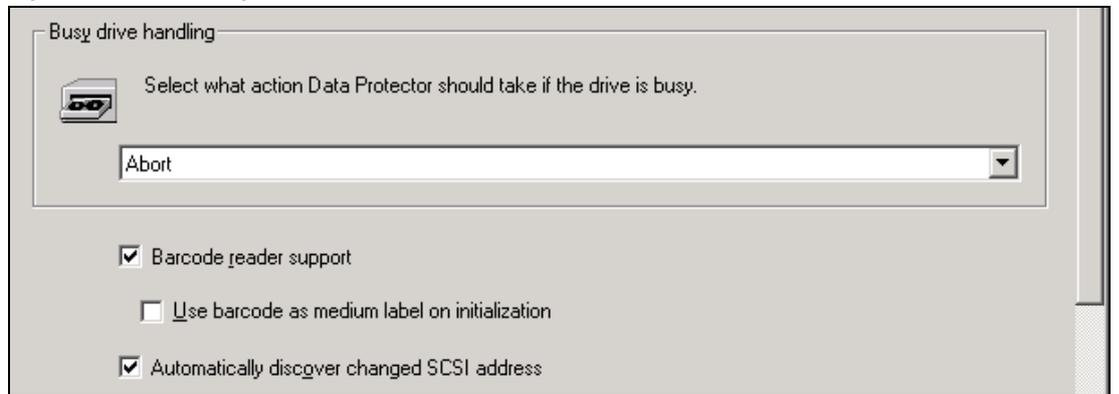
On the first cell manager, run the **Device Autoconfiguration Wizard** and add the SAN attached shared media devices:

Figure 1 Device Configuration Wizard



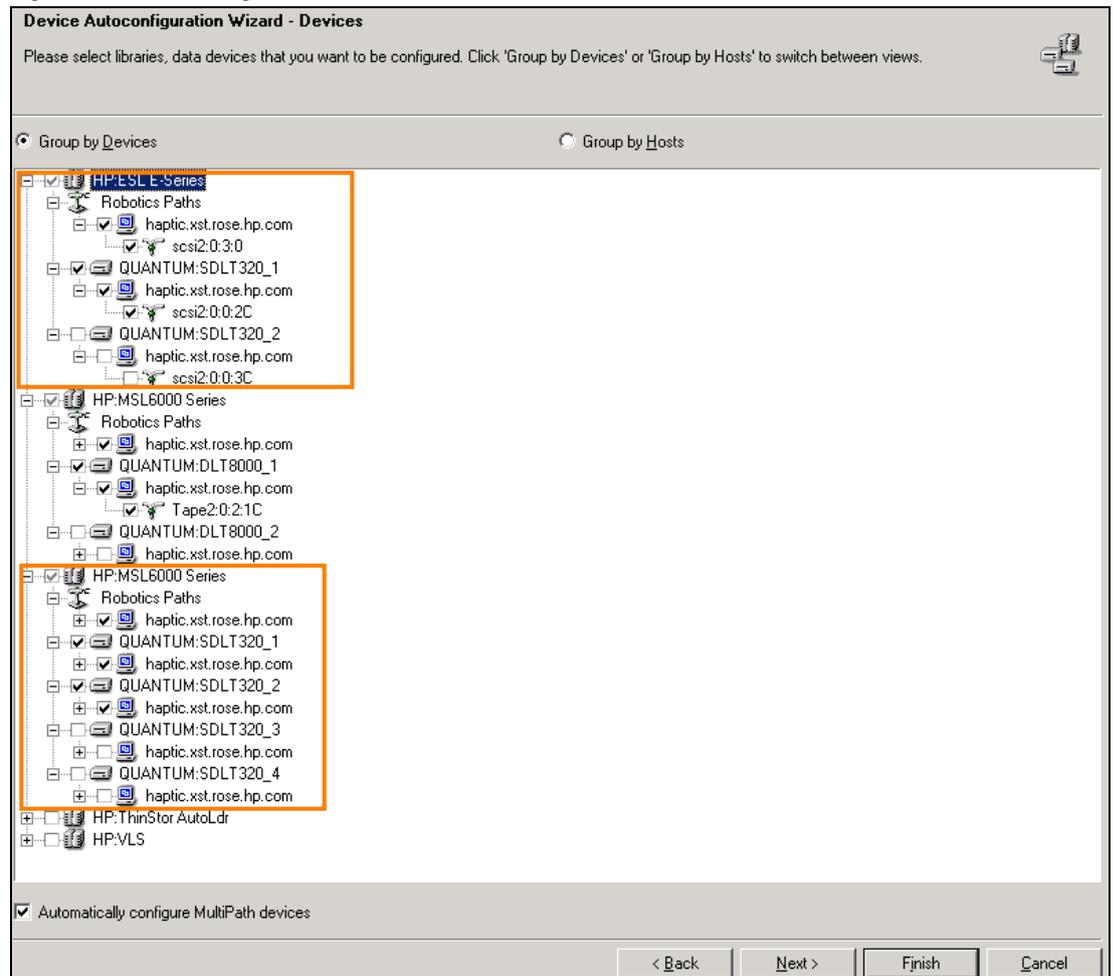
Configure additional settings on the media devices, such as multi-path device settings, barcode usage, and so on:

Figure 2 Device Configuration Wizard



Make sure only the number of drives that are dedicated to each cell manager are selected in the configuration wizard:

Figure 3 Device Configuration Wizard



2. Create dedicated pools on each of the cell managers, and a shared free pool for all cell managers. See the *HP Data Protector Getting Started guide (B6960-90155)* for more details on configuring media.

**Note:**

When merging to CMMDB, devices and pools with the same name will be renamed to create a unique name for each of the cell managers. To avoid renaming, rename all devices and pools prior to merging to CMMDB.

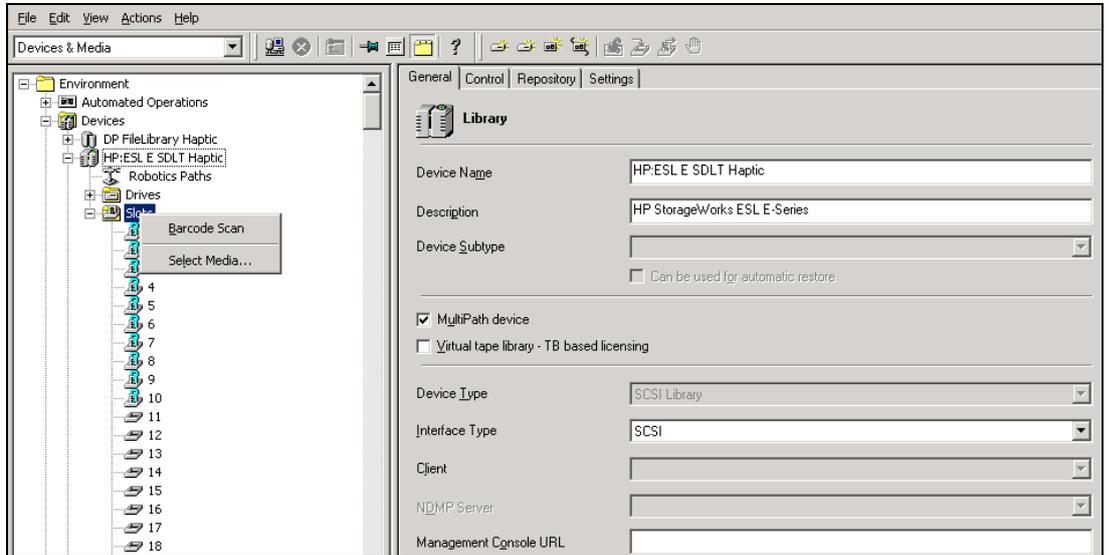
**Note:**

Media can be used for backups prior to merging to CMMDB.

Example:

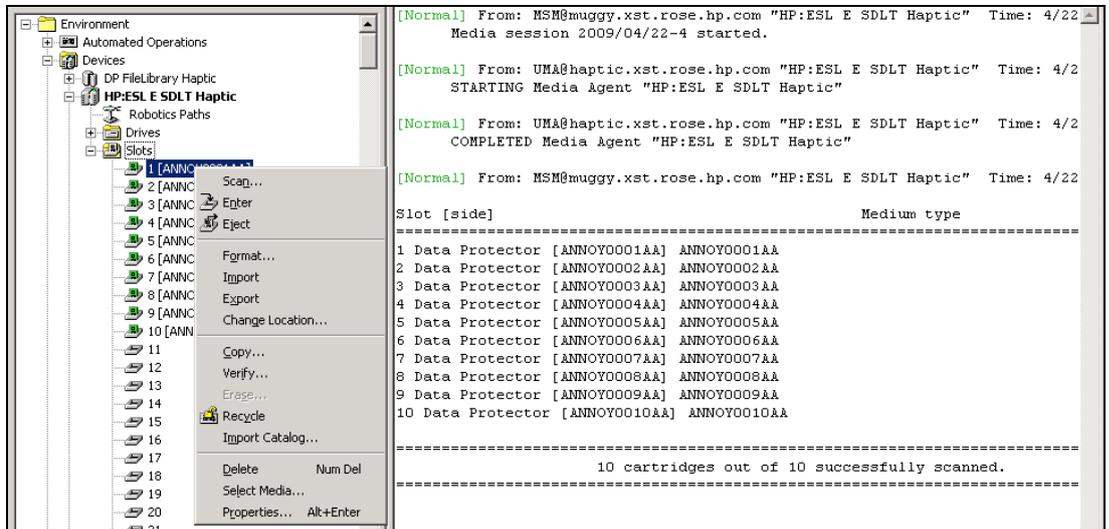
On the first cell manager, run **Barcode Scan** on the slots. Create pools and format the media into the dedicated pools. Right-click on the media and select **Barcode Scan**:

Figure 4 Tape barcode scan



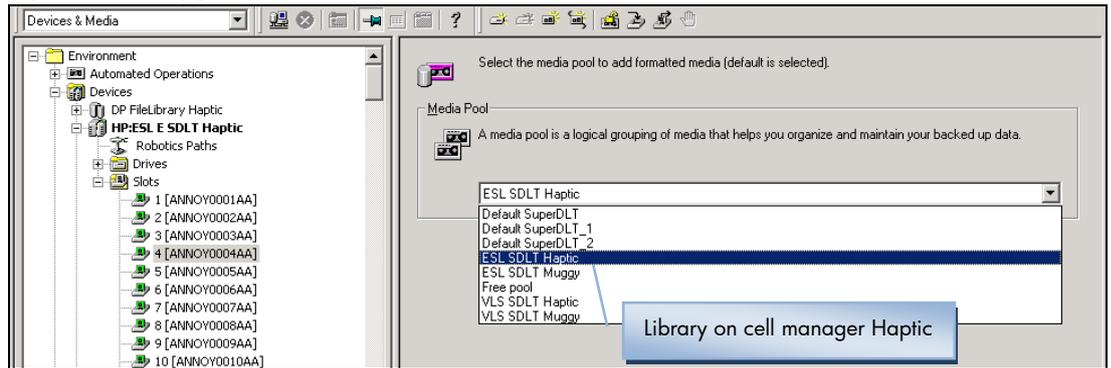
Right-click on the media and select **Format** to format the media into the pools:

Figure 5 Format tape media



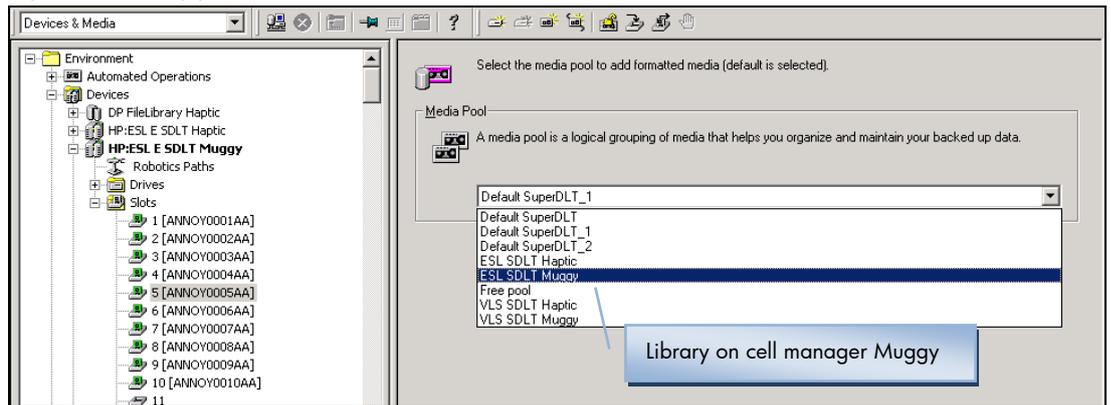
When formatting, select the media pool to add the media in:

Figure 6 Defining pools



On the second cell manager, create pools, run a barcode scan on the slots, and run a scan on the media or format the media into the dedicated pools:

Figure 7 Defining pools



The configured media view will show the media details:

Figure 8 Configured media

Slot	Side	Q...	Location	Format	Protect...	Avail...	Pool	Description
1	[ANNVOY0001AA]	Good	[HP:ESL E-Series_haptic: 1]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0001AA] ANNVOY0001AA
2	[ANNVOY0002AA]	Good	[HP:ESL E-Series_haptic: 2]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0002AA] ANNVOY0002AA
3	[ANNVOY0003AA]	Good	[HP:ESL E-Series_haptic: 3]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0003AA] ANNVOY0003AA
4	[ANNVOY0004AA]	Good	[HP:ESL E-Series_haptic: 4]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0004AA] ANNVOY0004AA
5	[ANNVOY0005AA]	Good	[HP:ESL E-Series_haptic: 5]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0005AA] ANNVOY0005AA
6	[ANNVOY0006AA]	Good	[HP:ESL E-Series_haptic: 6]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0006AA] ANNVOY0006AA
7	[ANNVOY0007AA]	Good	[HP:ESL E-Series_haptic: 7]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0007AA] ANNVOY0007AA
8	[ANNVOY0008AA]	Good	[HP:ESL E-Series_haptic: 8]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0008AA] ANNVOY0008AA
9	[ANNVOY0009AA]	Good	[HP:ESL E-Series_haptic: 9]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0009AA] ANNVOY0009AA
10	[ANNVOY0010AA]	Good	[HP:ESL E-Series_haptic: 10]	Data Protector	None	102400	ESL SDLT_Haptic	[ANNVOY0010AA] ANNVOY0010AA
11	[ANNVOY0006AA]	-	[HP:ESL E-Series_haptic: 11]	Empty	-	-	-	-
12	[ANNVOY0007AA]	-	[HP:ESL E-Series_haptic: 12]	Empty	-	-	-	-
13	[ANNVOY0008AA]	-	[HP:ESL E-Series_haptic: 13]	Empty	-	-	-	-
14	[ANNVOY0009AA]	-	[HP:ESL E-Series_haptic: 14]	Empty	-	-	-	-
15	[ANNVOY0010AA]	-	[HP:ESL E-Series_haptic: 15]	Empty	-	-	-	-

## Using option 2: multi-path device

An alternative option is to configure the media device as a multipath device.

1. The host of the CMMDB is not aware of the media agents using this device, which may reside in other cells. To overcome this problem, do the following:
  - Open the `cell_info` file on the CM. This file is located under the following location:
    - *Windows:* `<DP_Home>\Config\Server\Cell`
  - Copy the line(s) containing the MA host connected to the device in the `cell_info` file from the CM to the `cell_info` file on MOM.  
A typical line in the `cell_info` file, where only MA is installed looks like following:  
`-host "host.domain.com" -os "hp s800 hp-ux-11.31" -core A.06.10 -ma A.06.10`
  - Repeat this process for all the CMs in the environment.
  - Save the `cell_info` file on MOM and restart the GUI.

The same `cell_info` file content will need to be added to the MOM server `cell_info` file.

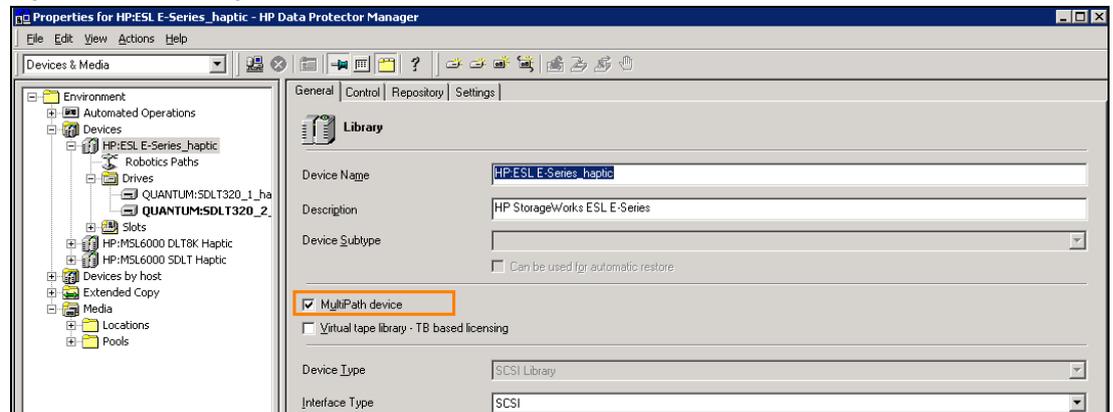
### Note:

Additional steps are required if you use the (recommended) secure cell features (`allow_hosts`).

2. Now that you have configured the `cell_info` file on the cell managers, you can configure the device as a multipath device.

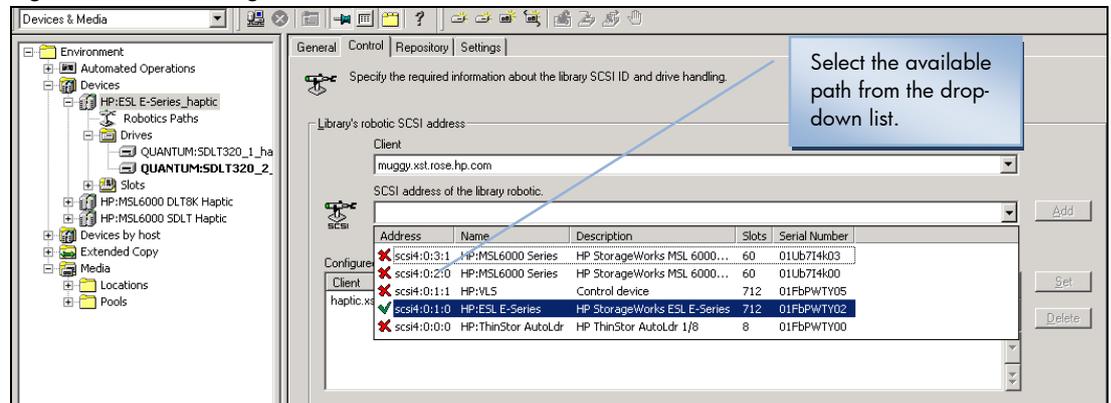
Right-click on the device to see its properties. Click on the **Multipath device** checkbox to enable library multi-pathing:

Figure 9 Media configuration



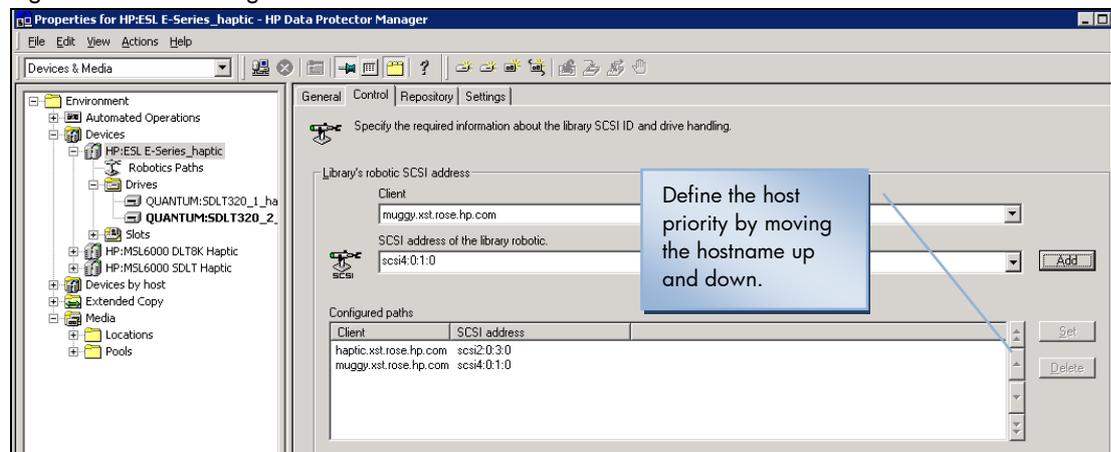
In the **Control** tab, you can see additional boxes for configuring the client and the SCSI address. Select the appropriate clients and paths for the device. Click **Add** to add all hosts to the library configuration. The path that is available in the SAN to be selected, will have a green tick in front of it. The **Add** button will become active once an available path is highlighted:

Figure 10 Media configuration



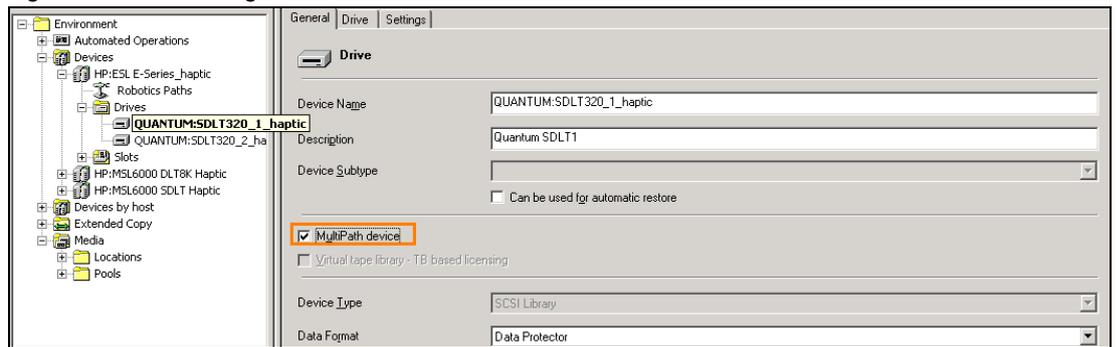
When all hosts have been added under the **Configured paths**, define the priority of the clients by moving them up or down using the arrows on the right of the **Configured paths** window:

Figure 11 Media configuration



Repeat the procedure for all the drives, configure them as multi-path drives:

Figure 12 Media configuration



**Note:**

If switching between the first and second configuration options, the same device will be configured twice from two different CMs. We need to delete one device from CM2 and just keep the device from CM1. You will have to change the “Destination” for the backups configured using the deleted device. You can either do it from the GUI or by editing the datalists/barlists located on the Cell Manager with a text editor.

Using sanconf

Sanconf is a utility for auto-configuring and modifying libraries and drives in a SAN. It allows the following tasks to be performed:

- Scan the specified Data Protector clients, gathering the information on SCSI addresses of drives and robotic controls connected to the clients in the SAN environment.
- Configure or modify settings of a library or drive for given clients using the information gathered during the scan of Data Protector Clients.
- Remove drives on all or the specified clients from a library.

In DP 6.1, this utility is limited to work within 1 cell, with no option to be used in a MOM environment.

In DP 6.11, sanconf has a new `sanconf -MOM -<existing options>` option from the MOM server. Sanconf is able to configure any device from any cell that uses the same CMMDB as the cell in which sanconf is started.

The following limitations apply:

- All cells have to use a cMMDB. Cells that use their own MMDB (even if they are part of the same MOM) cannot be configured in this way. A separate sanconf has to be run for such cells.
- If one MA client is configured in more than one cell manager, only the first cell manager will be shown during configuration. This will be visible in messages and debugs only, it has no impact on the functionality.
- In environments where security settings don't allow connections across cell managers, the functionality will not work. Clients from cells using a cMMDB will have to be configured in a way to allow sanconf from another cell to contact them directly. This is valid for firewall settings and for Data Protector Permission settings.

## Setting up MOM Manager

Two MOM configurations are possible:

1. Promote one of the cell managers to become MOM manager as well.
2. Use a dedicated server to be MOM server only.

To set up an enterprise environment, configure one of your Cell Managers as a MOM Manager, or install the MOM software on a dedicated system.

If a high number of database transactions are expected on the CMMDB, beyond 200 IDB database connections, it is recommended to use a dedicated system for the MOM Manager, separated from the cell manager IDBs transactions.

To promote a cell manager as a MOM server:

- In the **Context** List, click **Clients**
- In the **Actions** menu, click **Configure CM as Data Protector Manager-of-Managers Server**
- Restart the Data Protector services.

Option 1: Promote one of the cell managers to become MOM manager

In the **Actions** menu, click **Configure CM as Data Protector Manager-of-Managers Server**:



Figure 13 MOM configuration



## Option 2: Install a dedicated MOM server

To install the MOM software, start the DP setup and chose the MOM interface. Core DP software will be installed in addition to the MOM, but can be unselected. If this is a dedicated MOM server, you can choose to install also the documentation. If this is a cell manager upgrade, the documentation can also be unselected:

Figure 14 Installing MOM



Install the disk and media agent on the MOM server if you need backup of the local MOM server IDB, or perform any other local backup tasks on the MOM server.

Start the MOM User Interface:

- Original Data Protector GUI:
  - Windows: Select Data Protector Manager-of-Managers in the Data Protector program group.
  - Alternatively, run the `MOM.exe` command from the `<Data_Protector_home>\bin` directory.
- Data Protector Java GUI:
  - Windows: Select Data Protector Java GUI Manager-of-Managers in the Data Protector program group or run the `javadpguiMOM` command from the `<Data_Protector_home>\java\client\bin` directory.
  - Unix, run the `/opt/omni/java/client/bin/javadpguiMOM.sh` command.

When prompted to open the MOM GUI, create an empty `MOM_info` file in the directory `C:\Program Files\OmniBack\Config\Server\cell`. Restart the DP services on the MOM server, and start the MOM GUI again.

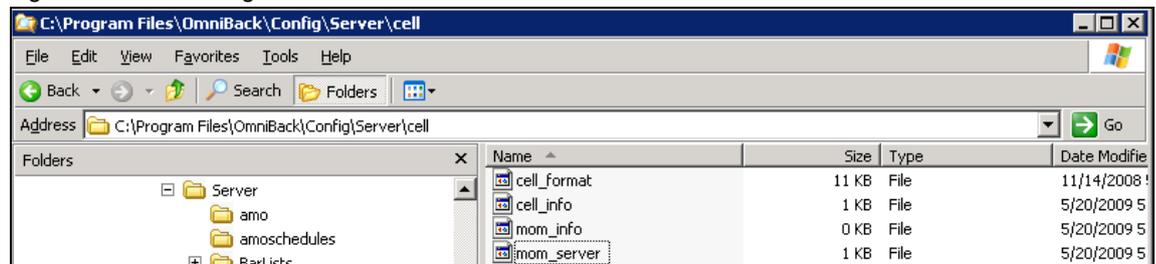
When the `mom_info` file is not created, the following popup message will appear:

Figure 15 MOM configuration



Follow the instructions, creating a `MOM_server` and `mom_info`, with the name of the MOM server in it:

Figure 16 MOM configuration



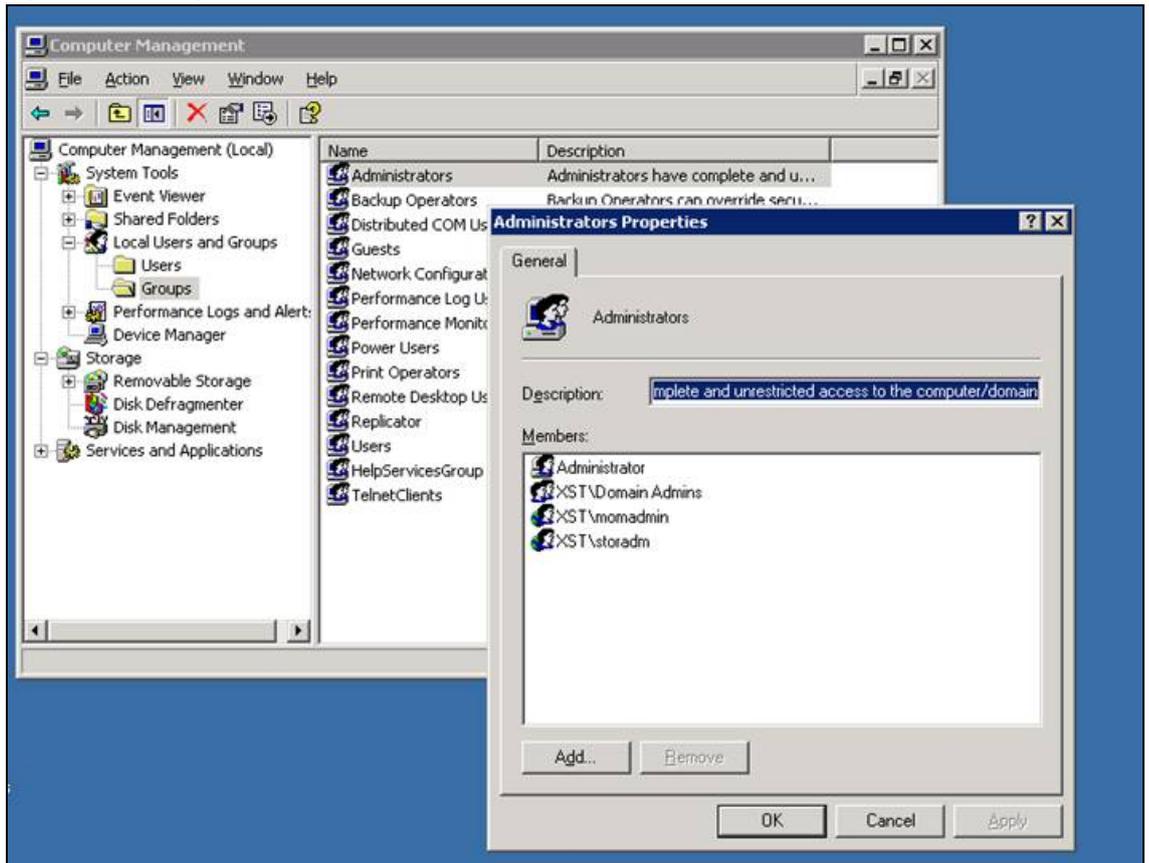
### Creating the MOM administrator user

The active user must be a member of the Admin user group on the Cell Manager of the cell to be imported. If you are using the Java GUI, make sure the user account under which the UIProxy service is running is in the Admin user group on every Cell Manager in the MOM environment.

To create a MOM user account, define a domain service account, and add it to the local system admin group on the cell managers and MOM server. Add it also to each cell manager user list. This account will then be allowed to access the MOM environment and each client cell inside the MOM setup.

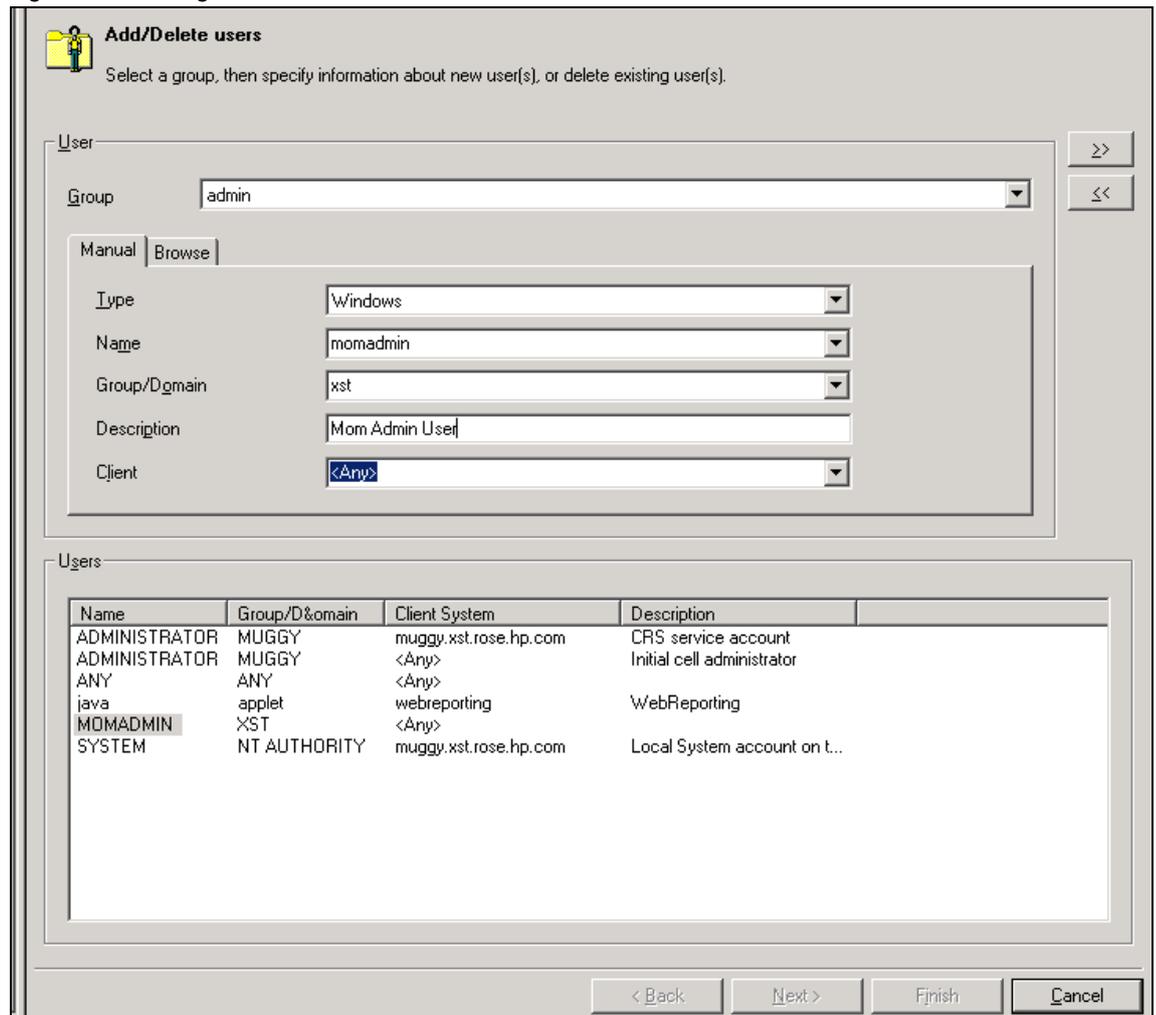
Add the account to the local system admin group on the cell managers and MOM server:

Figure 17 Creating MOM admin user



Add the account also to each cell manager admin user group:

Figure 18 Creating MOM admin user



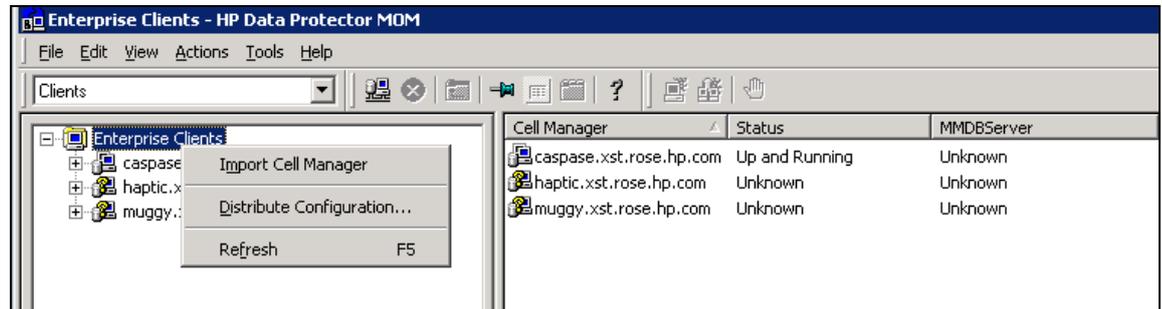
### Importing Cell Managers

Importing a DP cell into a MOM environment allows the cell manager to be centrally managed with the MOM Manager.

Cluster clients identify themselves to the MOM Manager with their virtual server names. If you import a cluster in a MOM environment, use only its virtual server name.

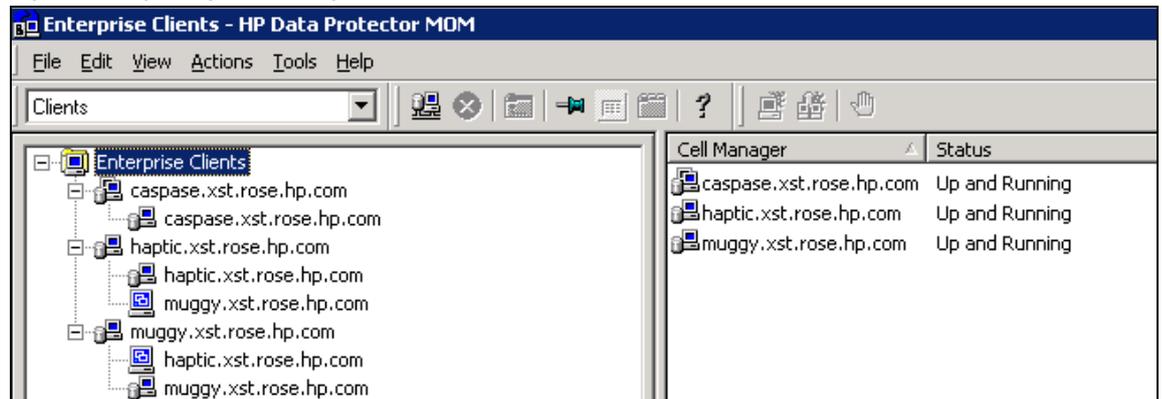
In the Data Protector Manager-of-Managers, click **Clients** in the **Context** List. Right-click **Enterprise Clients** and then click **Import Cell Manager**. Select a Cell Manager to import and click **Finish**.

Figure 19 Importing cell managers



Restart the MOM GUI to browse the imported cell managers:

Figure 20 Importing cell managers



## Configuring CMMDB

### Rules of engagement

- Set up CMMDB if you want to have central media management. If you do not set up a CMMDB, each cell will have its own MMDB.
- During the configuration, a local Media Management Database is merged into the CMMDB, if you select so. You can decide for each cell if it will use the CMMDB or its own local MMDB.
- Once you have configured the CMMDB and start using it, you cannot split it back into local MMDBs. You should not try to recover the old state of an MMDB, but rather create a new MMDB from scratch.

### Prerequisites

- Check that the Data Protector Cell Managers in all cells have the same version of Data Protector installed and running.
- Check that there are no backup, restore, or media management sessions running on any of the cells to be added to the CMMDB.

### Configuration phases

- Configuring CMMDB on MOM Manager
- Configuring CMMDB on client cell

## 1. Configuring CMMDB on MOM Manager

Run a backup of the IDB.

Alternatively, log on to the MOM Manager and copy the following directory to a temporary location for safety reasons:

- *UNIX:* /var/opt/omni/server/db40/datafiles/mmdb
- *Windows Server 2008:* <Data\_Protector\_program\_data>\db40\datafiles\mmdb
- *Other Windows systems:* <Data\_Protector\_home>\db40\datafiles\mmdb

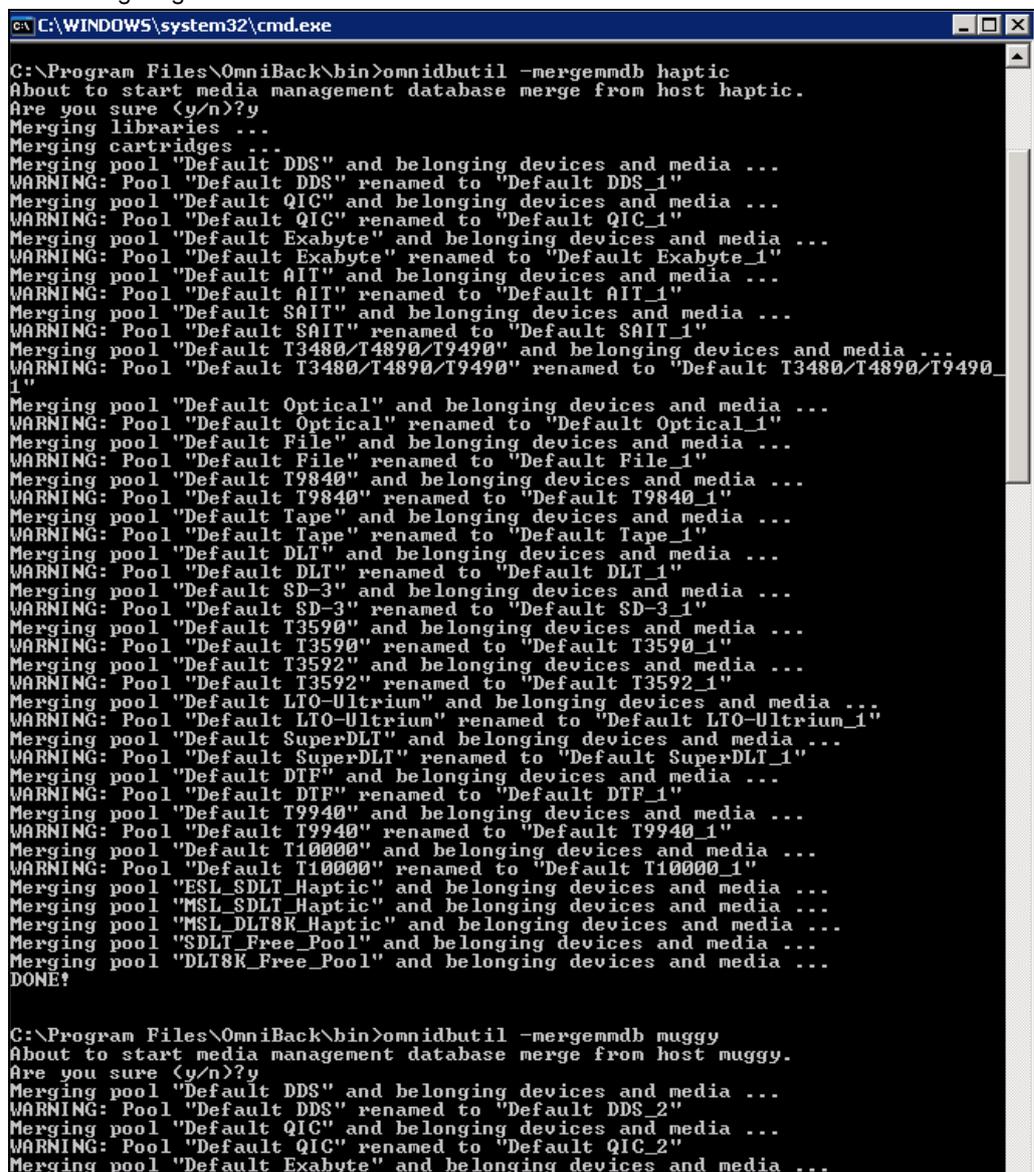
On the MOM server, run the following command to merge the local MMDB into CMMDB:

- *UNIX:* /opt/omni/sbin/omnidbutil -mergemmdb <Cell\_Server\_Hostname>
- *Windows:* <Data\_Protector\_home>\bin\omnidbutil -mergemmdb <Cell\_Server\_Hostname>

### Note:

If duplicate pool names exist, the pool name will be renamed with `_1` to reflect a unique name:

Figure 21 Configuring CMMDB



```
C:\WINDOWS\system32\cmd.exe
C:\Program Files\OmniBack\bin>omnidbutil -mergemmdb haptic
About to start media management database merge from host haptic.
Are you sure (y/n)?y
Merging libraries ...
Merging cartridges ...
Merging pool "Default DDS" and belonging devices and media ...
WARNING: Pool "Default DDS" renamed to "Default DDS_1"
Merging pool "Default QIC" and belonging devices and media ...
WARNING: Pool "Default QIC" renamed to "Default QIC_1"
Merging pool "Default Exabyte" and belonging devices and media ...
WARNING: Pool "Default Exabyte" renamed to "Default Exabyte_1"
Merging pool "Default AIT" and belonging devices and media ...
WARNING: Pool "Default AIT" renamed to "Default AIT_1"
Merging pool "Default SAIT" and belonging devices and media ...
WARNING: Pool "Default SAIT" renamed to "Default SAIT_1"
Merging pool "Default T3480/T4890/T9490" and belonging devices and media ...
WARNING: Pool "Default T3480/T4890/T9490" renamed to "Default T3480/T4890/T9490_1"
Merging pool "Default Optical" and belonging devices and media ...
WARNING: Pool "Default Optical" renamed to "Default Optical_1"
Merging pool "Default File" and belonging devices and media ...
WARNING: Pool "Default File" renamed to "Default File_1"
Merging pool "Default T9840" and belonging devices and media ...
WARNING: Pool "Default T9840" renamed to "Default T9840_1"
Merging pool "Default Tape" and belonging devices and media ...
WARNING: Pool "Default Tape" renamed to "Default Tape_1"
Merging pool "Default DLT" and belonging devices and media ...
WARNING: Pool "Default DLT" renamed to "Default DLT_1"
Merging pool "Default SD-3" and belonging devices and media ...
WARNING: Pool "Default SD-3" renamed to "Default SD-3_1"
Merging pool "Default T3590" and belonging devices and media ...
WARNING: Pool "Default T3590" renamed to "Default T3590_1"
Merging pool "Default T3592" and belonging devices and media ...
WARNING: Pool "Default T3592" renamed to "Default T3592_1"
Merging pool "Default LTO-Ultrium" and belonging devices and media ...
WARNING: Pool "Default LTO-Ultrium" renamed to "Default LTO-Ultrium_1"
Merging pool "Default SuperDLT" and belonging devices and media ...
WARNING: Pool "Default SuperDLT" renamed to "Default SuperDLT_1"
Merging pool "Default DTF" and belonging devices and media ...
WARNING: Pool "Default DTF" renamed to "Default DTF_1"
Merging pool "Default T9940" and belonging devices and media ...
WARNING: Pool "Default T9940" renamed to "Default T9940_1"
Merging pool "Default T10000" and belonging devices and media ...
WARNING: Pool "Default T10000" renamed to "Default T10000_1"
Merging pool "ESL_SDLT_Haptic" and belonging devices and media ...
Merging pool "MSL_SDLT_Haptic" and belonging devices and media ...
Merging pool "MSL_DLT8K_Haptic" and belonging devices and media ...
Merging pool "SDLT_Free_Pool" and belonging devices and media ...
Merging pool "DLT8K_Free_Pool" and belonging devices and media ...
DONE!

C:\Program Files\OmniBack\bin>omnidbutil -mergemmdb muggy
About to start media management database merge from host muggy.
Are you sure (y/n)?y
Merging pool "Default DDS" and belonging devices and media ...
WARNING: Pool "Default DDS" renamed to "Default DDS_2"
Merging pool "Default QIC" and belonging devices and media ...
WARNING: Pool "Default QIC" renamed to "Default QIC_2"
Merging pool "Default Exabyte" and belonging devices and media ...
```

Run the following command on the MOM server to synchronize the local CDB with the CMMDB:

- **UNIX:** /opt/omni/sbin/omnidbutil -cdbsync <Cell\_Server\_Hostname>
- **Windows:** <Data\_Protector\_home>\bin\omnidbutil -cdbsync <Cell\_Server\_Hostname>

Figure 22 Configuring CMMDB

```
C:\Program Files\OmniBack\bin>omnidbutil -cdbsync haptic
About to start catalog database synchronization for host haptic.
Are you sure (y/n)?y
DONE!

C:\Program Files\OmniBack\bin>omnidbutil -cdbsync muggy
About to start catalog database synchronization for host muggy.
Are you sure (y/n)?y
DONE!
```

Edit the duplicated names of media pools and devices. This duplication always happens to default pools if they exist on both cells. The duplicated names have a “\_N” appended to their name, where N represents a number. In this case, manually change the backup specifications that use these devices to use the new device names.

Repeat the steps for all the client cells that you want to add to the CMMDB.

If you are configuring a new cell (and you do not yet have devices and media configured), there is no need to merge the database. You only want to merge cells with the CMMDB that already have devices and media configured.

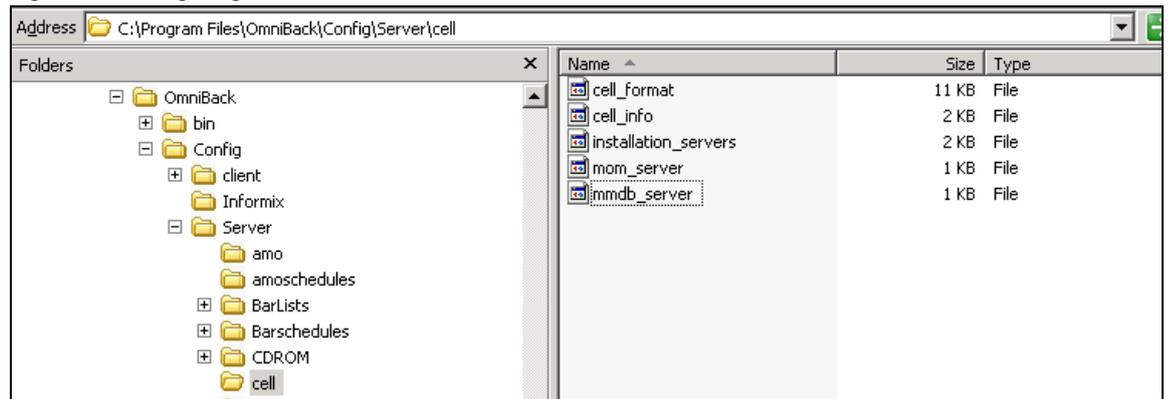
## **2. Configuring CMMDB on a client cell**

Log on to the Cell Manager of the client cell as a member of the Admin user group.

Create the file containing the name of the MMDDB Server (fully qualified):

- **UNIX:** /etc/opt/omni/server/cell/mmdb\_server
- **Windows Server 2008:**  
<Data\_Protector\_program\_data>\Config\server\cell\mmdb\_server. Save the file as Unicode.
- **Other Windows:** <Data\_Protector\_home>\Config\server\cell\mmdb\_server. Save the file as Unicode.

Figure 23 Configuring CMMDB



Restart the Data Protector services.

Update configuration files by running the following command:

- **UNIX:** /opt/omni/bin/omnicc -update\_MOM\_server
- **Windows:** <Data\_Protector\_home>\bin\omnicc -update\_MOM\_server

Verify with the `omnisv -status` command that the media is managed by the CMMDB:

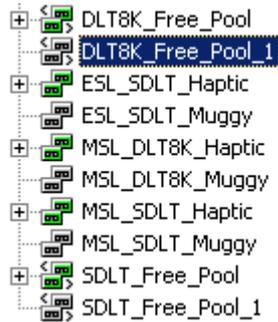
Figure 24 Configuring CMMDB

```
C:\Program Files\OmniBack\bin>omnisv -status
ProcName  Status  [PID]
=====
rds       : Active [3436]
crs       : Active [1664]
mmd       : Active (CMMDB is on caspase.xst.rose.hp.com)
kms       : Active [1704]
uproxy   : Active [2212]
omniinet : Active [1676]
Sending of traps disabled.
=====
Status: All Data Protector relevant processes/services up and running.
```

**Note:**

Whichever CM was merged first, its pool names will remain as it is. The names for the second CM, which is merged later, get changed to "Pool\_1":

Figure 25 Configuring CMMDB



### **3. Disabling the local cell managers MMDBs**

The `omnidbutil` command merges the local MMDB from the remote Cell Manager `Cell_Server_Hostname` to the CMMDB. For this action there must exist a MOM cell with CMMDB configured and a remote cell with a local MMDB.

```
omnidbutil -mergemmdb Cell_Server_Hostname
```

If the command reports no errors you can disable the local MMDB on the remote Cell Manager by removing (and possibly copying to a safe place) the directory

- *UNIX:* `/var/opt/omni/server/db40/datafiles/mmdb`
- *Windows Server 2008:* `Data_Protector_program_data\db40\datafiles\mmdb`
- *Other Windows:* `Data_Protector_home\db40\datafiles\mmdb`

### **Configuring Centralized licensing**

#### **1. Centralized versus distributed licensing**

Centralized licensing means that all licenses are configured on the MOM and can be allocated to specific cells as needed. Centralized licensing simplifies license management. Licensing administration, including the distribution and moving of the licenses, is performed by the MOM administrator for all cells in the MOM environment.

Setting up centralized licensing is optional. Instead, individual licenses can be installed on each Cell Manager. These licenses are restricted to the cell on which they are installed and all licensing administration tasks have to be performed locally.

Note: In case of central licensing with MOM, at minimum 1 TB needs to be assigned to each cell using the advanced backup to disk functionality.

#### **2. Setting up centralized licensing**

If you are consolidating existing Data Protector cells into an MOM environment, send a request to the HP Password Delivery Center to move the licenses from the existing Cell Managers to the new MOM Manager.

1. Log on to the MOM Manager and create the `licdistrib.dat` file:
  - *UNIX*: `/etc/opt/omni/server/cell/licdistrib.dat`
  - *Windows Server 2008*:  
`<Data_Protector_program_data>\Config\server\cell\licdistrib.dat`
  - *Other Windows*: `<Data_Protector_home>\Config\server\cell\licdistrib.dat`
2. Log on to each Cell Manager in the MOM environment and create the `lic_server` file with the name of the MOM Manager:
  - *UNIX systems*: `/etc/opt/omni/server/cell/lic_server`
  - *Windows Server 2008*:  
`<Data_Protector_program_data>\Config\server\cell\lic_server`
  - *Other Windows systems*:  
`<Data_Protector_home>\Config\server\cell\lic_server`
3. Stop and restart Data Protector services on each Cell Manager where you made the changes.
4. In the Data Protector Manager-of-Managers, click **Clients** in the Context List.
5. In the Scoping Pane, right-click the Cell Manager that has the licensing information you want to change and then click **Configure Licensing** to open the wizard. The types and numbers of licenses available to your selected Cell Manager are displayed.
6. Click the **Remote** option to change the licensing from local to remote. The **Used** column changes to **Allocated**.
7. Modify the license configuration. Only the **Allocated** column is available during the modification process.
  - To release (give up) a license type, thus increasing the number of available licenses, reduce its corresponding number in the **Allocated** column.
  - To assign a license type, increase its corresponding number in the **Allocated** column.
8. Click **Finish** to apply the configuration.
9. Repeat the steps for all Cell Managers for which you want to set up the centralized licensing.
10. Stop and restart the Data Protector processes using the following processes:
  - *UNIX*: `omnisv -stop` and `omnisv -start` from `/opt/omni/sbin`
  - *Windows*: `omnisv -stop` and `omnisv -start` from `<Data_Protector_home>\bin`

If the Cell Manager is configured on MC/ServiceGuard, run the `cmhaltpkg pkg_name` command to stop and the `cmrunpkg -n node_name pkg_name` to start the Data Protector package, where `pkg_name` is the name of the Data Protector cluster package.

The changes take effect after you stop and restart the Data Protector services on each Cell Manager where you made the changes.

Data Protector checks the license configuration with the MOM Manager every hour. In case of communication problems or the MOM Manager being unavailable, the licensing status is kept for 72 hours. If the problems are not resolved within this 72 hour period, local licenses are used.

### 3. Example moving licenses

If you have not configured centralized licensing, you cannot move licenses between cells without the approval of the HP Password Delivery Center. This is, however, possible in the MOM environment with configured centralized licensing, where the MOM administrator allocates licenses as needed. In the example below, the clients from one cell were moved to another. This resulted in the need to move the licenses.

#### *Enterprise environment before the reorganization*

Two Cell Managers, Aztec and Mayan, are configured in the enterprise environment with centralized licensing. Aztec is an HP-UX Cell Manager with a Cell Manager for UNIX - Single Drive license. There is also an NDMP server connected in the cell that requires an NDMP Server Backup Extension license. Mayan is also an HP-UX Cell Manager with one Cell Manager for UNIX - Single Drive license.

### *Reorganization of the enterprise environment*

The Aztec cell needs to be reorganized, with most of the clients and the NDMP server being transferred to the Mayan cell.

Mayan now needs the NDMP Server Backup Extension license.

#### *Steps*

- In the Data Protector Manager-of-Managers, click **Clients** in the Context List.
- Right-click the Aztec Cell Manager and then click **Configure Licensing**. The types and numbers of licenses available to the Aztec Cell Manager are displayed. Remove the NDMP Server Backup Extension license.
- Click **Finish** to apply the configuration.
- Right-click the Mayan Cell Manager and then click **Configure Licensing**. Add the NDMP Server Backup Extension license.
- Click **Finish** to apply the configuration.

### *Enterprise environment after reorganization*

The Aztec Cell Manager now has one Cell Manager for UNIX - Single Drive license and the Mayan Cell Manager has a Cell Manager for UNIX - Single Drive license and an NDMP Server Backup Extension license for the NDMP server.

## **4. Licensing report**

To produce a license report, the Data Protector `omnicc` command is to be used. Enter the following command:

```
omnicc -check_licenses [-detail]
```

If the `-detail` option is not specified, the command returns information on whether the Data Protector licensing is covered or not.

If the `-detail` option is specified, a detailed report is produced. The following information is returned for every license in the cell:

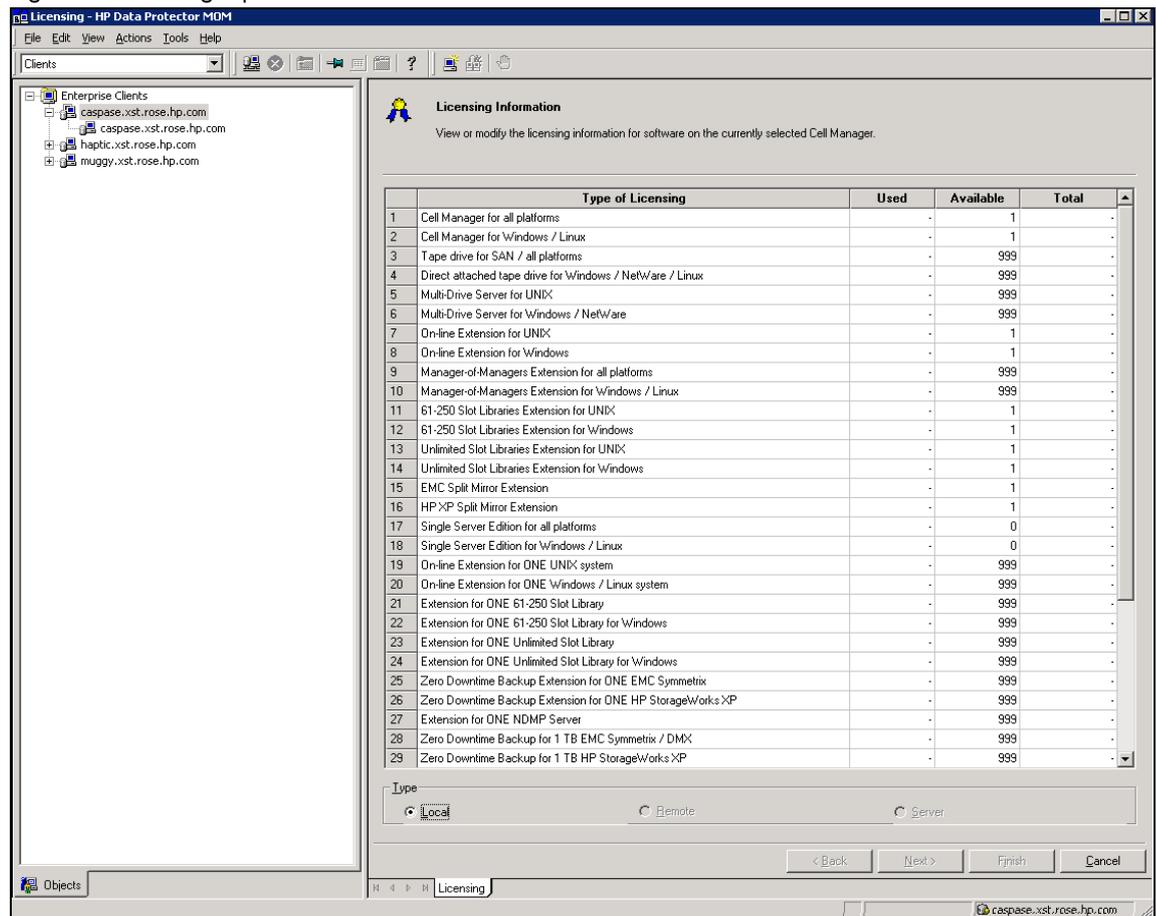
license name, licenses installed, licenses used and licenses required.

Refer to the `omnicc` man page for more information. Note that the command does not list the expiration dates for the licenses. Depending on the environment and the number of licenses installed, the report may take some time to generate. To get the information on the licenses expiration dates, enter the following command: `omnicc -password_info`.

In a MOM environment with the CMMDB configured, when producing a license report for the items that are subject to libraries and devices related licenses, such as media (including advance file device media), backup devices, drives and slots, the `omnicc` command must be run on the Cell Manager or MOM server with the CMMDB installed.

Alternatively, right click on the MOM server name, and chose **Configure Licenses**:

Figure 26 Licensing report



## 5. Deactivating Centralized Licensing

Centralized licensing can be deactivated and converted to local licensing using the following steps:

1. In the Data Protector Manager-of-Managers, click **Clients** in the Context List.
2. In the Scoping Pane, right-click the Cell Manager for which you want to deactivate centralized licensing and then click **Configure Licensing** to open the wizard. The types and numbers of licenses available to the selected Cell Manager are displayed.
3. Click the **Local** option to change licensing from remote to local.
4. Click **Finish** to apply the configuration.
5. Repeat the steps for all Cell Managers for which you want to deactivate centralized licensing.
6. Log on to the MOM Manager and mount the following directory:
  - *UNIX systems:* /etc/opt/omni/server/cell
  - *Windows Server 2008:* <Data\_Protector\_program\_data>\config\server\cell
  - *Other Windows:* <Data\_Protector\_home>\config\server\cell
7. Rename the licdistrib.dat file, for example, to licdistrib.old.

The changes take effect after you stop and restart the Data Protector services using the following commands on the MOM Manager and each Cell Manager where you made the changes:

- UNIX: omniv -stop and omniv -start from /opt/omni/sbin
- Windows: omniv -stop and omniv -start from <Data\_Protector\_home>\bin

If the Cell Manager is configured on MC/ServiceGuard, run the `cmhaltpkg pkg_name` command to stop and the `cmrunpkg -n node_name pkg_name` to start the Data Protector package, where `pkg_name` is the name of the Data Protector cluster package.

## Backup of the MOM server CMMDB

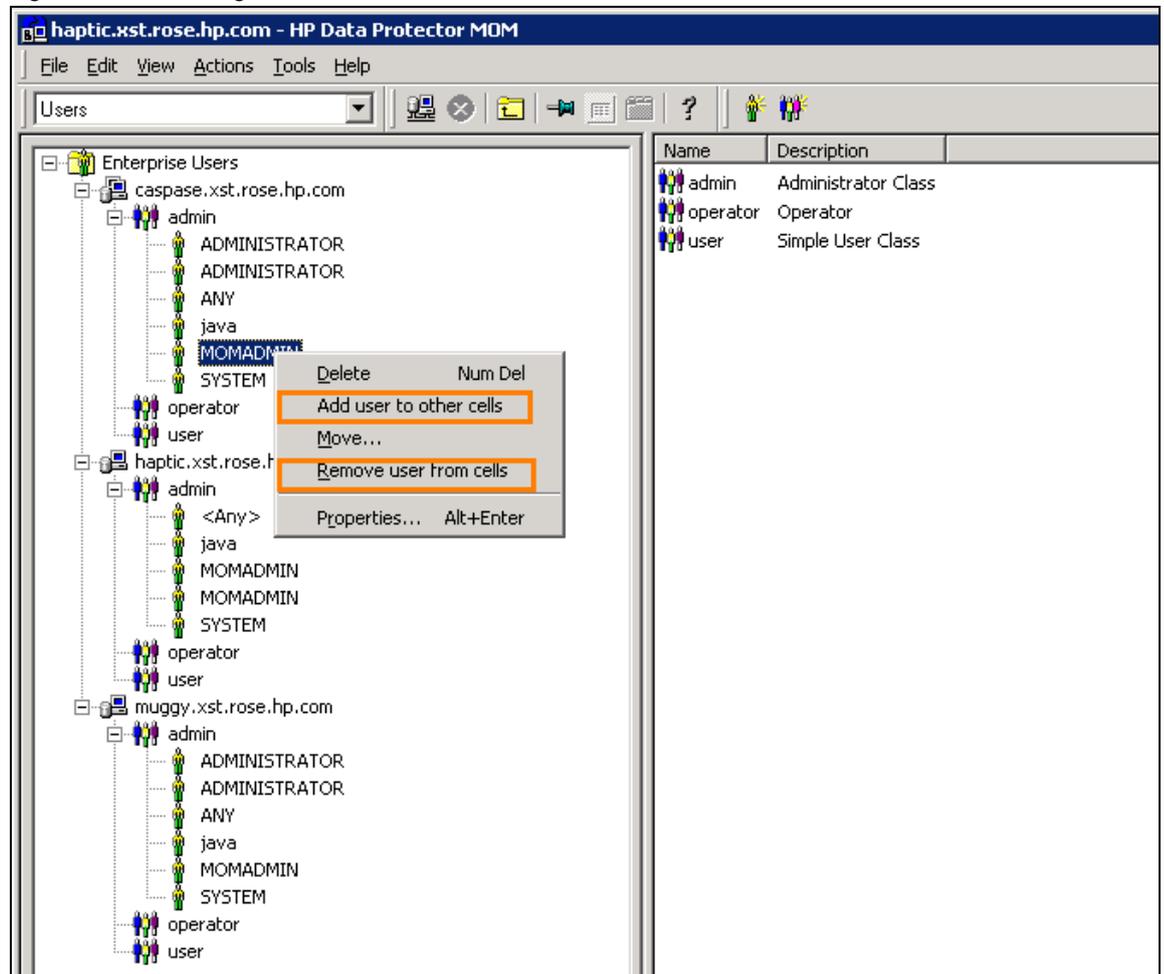
The MOM server CMMDB is under the same path as the cell managers MMDB. Use the internal database backup option to backup the CMMDB (DA and MA module required).

## MOM user creation and CM population

Users are not automatically “populated” from the MOM child server to the child cell servers. Users must first be added to the MOM and then must be manually populated to the other cells by using the MOM GUI as seen in the following example. There is no automatic synchronization between users in different cells.

To add or remove a user to and from another cell manager, right-click and chose **Add user to other cells** or **Remove user from other cells**:

Figure 27 User management



# Security

When you secure a client, the client names of the systems that are allowed to access a client, are written to the `allow_hosts` file. You can also explicitly deny access to a client from certain computers by adding their names to the `deny_hosts` file.

When using a CMMDB, device access for the client cell managers can be controlled from the MOM server by using the `allow_hosts` and/or `deny_hosts` files.

These files are located in the following directory:

- *HP-UX, Solaris, and Linux systems:* `/etc/opt/omni/client`
- *Other UNIX systems:* `/usr/omni/config/client`
- *Windows Vista, Windows Server 2008:*  
`Data_Protector_program_data\Config\client`
- *Other Windows:* `Data_Protector_home\Config\client`

Specify each client name in a separate line.

Client security is done as follows through `allow_hosts` file. After you have installed the Data Protector clients and imported them to a cell, it is highly recommended to secure them. The Data Protector agent installed on the clients in the cell, provide numerous powerful capabilities, like access to all the data on the system. It is important that these capabilities are available only to the processes running on cell authorities (Cell Manager and Installation Servers), and that all other requests are rejected.

Data Protector allows you to specify from which cell authorities a client will accept requests on the Data Protector port (default 5555). For activities such as backing up and restoring, starting pre- and post-exec commands, or importing and exporting clients, the client checks if the computer which triggers one of these tasks via the Data Protector port, is allowed to do so. Other computers are not able to access such a client.

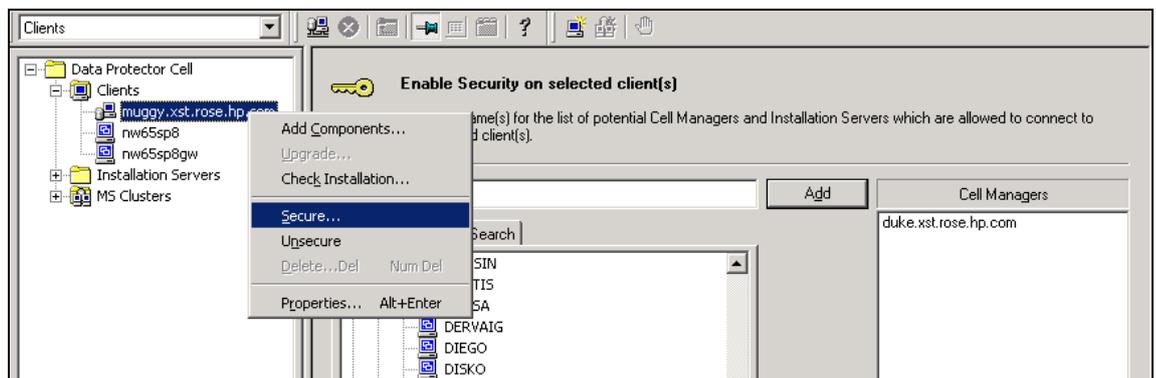
Only the hosts that are mentioned in the `allow_hosts` file will have access to shared media on the MOM server.

An entire cell manager can be secured with all clients in it via the GUI.

To secure a client via the GUI, right click on the client properties, and select **Secure...**

To secure a cell manager via the GUI, right click on the cell manager properties, and select **Secure...**

Figure 28 Securing a cell manager



**Note:**

If you accidentally lock out a client, you can manually edit (or delete) the `allow_hosts` file on this client.

**Note:**

When you secure an entire cell, all clients residing in this cell at the time are secured. When you add new clients to the cell, you should also secure them.

## Reporting

MOM offers Enterprise reporting for shared media devices.

### Examples

```
C:\Program Files\OmniBack\bin>omnirpt -report media_statistics
Media Statistics
Cell Manager: muggy.xst.rose.hp.com
Creation Date: 1/19/2010 2:10:45 PM
# Media: 551
# Scratch: 454
# Protected: 97
# Good : 551
# Fair: 0
# Poor: 0
Total [GB]: 52054.34
Used [GB]: 2828.09
Free [GB]: 49226.25
# Appendable: 23
```

```
H:\Program Files\OmniBack\bin>omnirpt -report media_list -multicell
List of Media
Cell Manager: caspase.xst.rose.hp.com (Multicell)
Creation Date: 1/19/2010 2:15:59 PM
```

Label	Location	Cell Manager	Status	Protecti on	Used [MB]	Total [MB]	Last Used	Pool	Type
FileLib NW65SP8G W_MediaP oo	[FileLib_NW65 SP8GW: FILELIB:\6d03 320a54b55eae4 50a2850004.f d ]	muggy.xst.ro se.hp.com	Good	2/18/201 0 6:00:50	153419.00	153419.00	1/19/2010 9:26:37 AM	FileLi b_NW65 SP8	File
FileLib NW65SP8G W_MediaP oo	[FileLib_NW65 SP8GW: FILELIB:\6d03 320a54b26e4ce 509ac50001.f d ]	muggy.xst.ro se.hp.com	Good	1/17/201 0 4:09:00	8327.00	95367.00	12/13/200 9 9:16:39 P	FileLi b_NW65 SP8	File
FileLib_ NW65SP8_ MediaPoo l_	[FileLib_NW65 SP8: FILELIB:\6d03 320a54afc522f 51c8050001.f d ]	haptic.xst.r ose.hp.com	Good	1/15/201 0 10:00:1	153656.00	153656.00	12/13/200 9 9:17:05 P	FileLi b_NW65 SP8	File

**Note:**

Run the report `omnirpt -report media_list -multicell` in the MOM/cMMDB environment:

- If cMMDB is configured, then DBSM in other CMs will ignore the messages from MMDB server.
- If cMMDB is not configured, the DBSM in other CMs will send the report from the local MMDB.

**Note:**

If your cell manager is not the MOM server, you will receive the following error message:

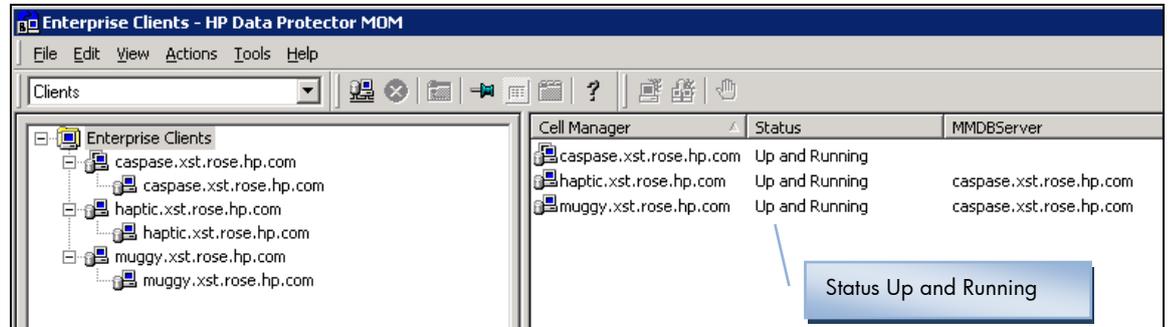
```
C:\Program Files\OmniBack\bin>omnirpt -report media_list -multicell
Error creating the report "Interactive":
CRS is not running in Manager-of-Managers Server mode.
The empty file cell/MOM_info must be created
and Data Protector server processes must be restarted on the Manager-of-
Managers server host.
System error: [2] The system cannot find the file specified.
```

# Troubleshooting hints & tips

## Verifying correct MOM configuration

When merging to a CMMDB, make sure the clients show the MMDB is used on the MOM server. Verify the status by going to the Enterprise Clients view:

Figure 28 Configuring CMMDB



**Note:**

The status (Up and running) is correctly shown only after reconnecting to the cell manager. There is no status polling for status.

## Viewing media on the cell managers

Is it normal for the media of a shared device to show up on one host as formatted and on the other as a question mark or is something incorrectly configured?

Host 1 Host 2 1 [ANNOY0001AA]

*Yes, this is normal, since although device is shared the IDB is different (unless cMMDB is used) and therefore one host does not necessarily have the same information about the slots/medium as the other.*

## Using multipath devices

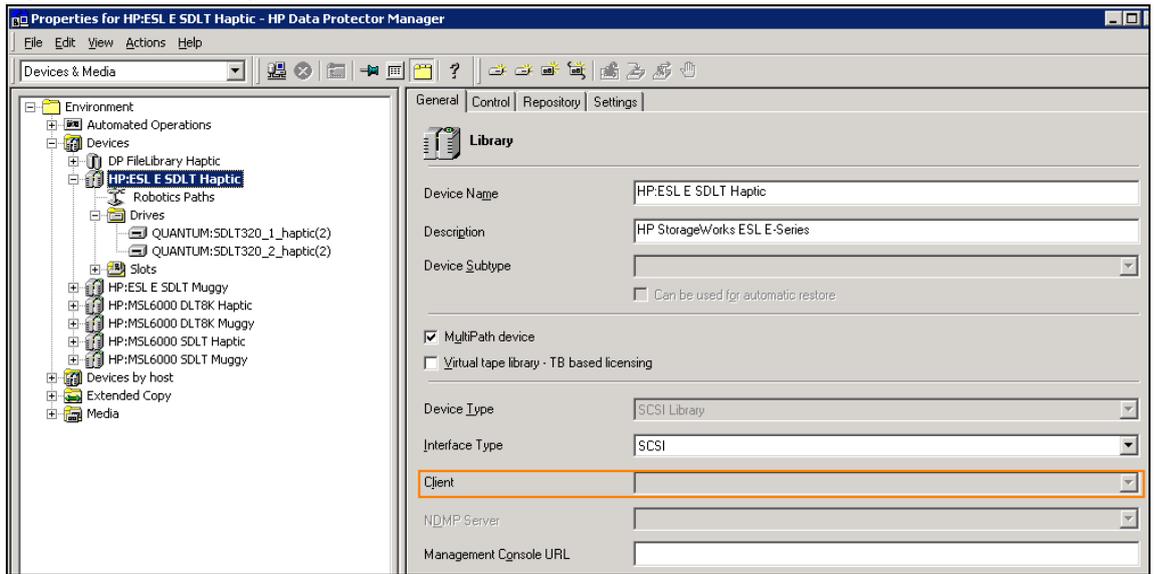
The media shows up fine when scanning the slot, but an error is seen with one of the devices when a backup is executed:

```
[Major] From: BSM@muggy.xst.rose.hp.com "muggy_ESL" Time: 4/15/2009 10:05:08 AM Host for device QUANTUM: SDLT320_1_muggy(2) not found.
```

*This is not an issue, but rather a desired functionality. From picture it is shown that MultiPath device is used. Multipath devices/libraries can have several paths on multiple hosts. Therefore, Client info on General tab is irrelevant/insufficient and thus disabled and moved to Control/Drives tab, where host(s) is/are defined together with path(s).*

Under the general properties, the client will not be defined:

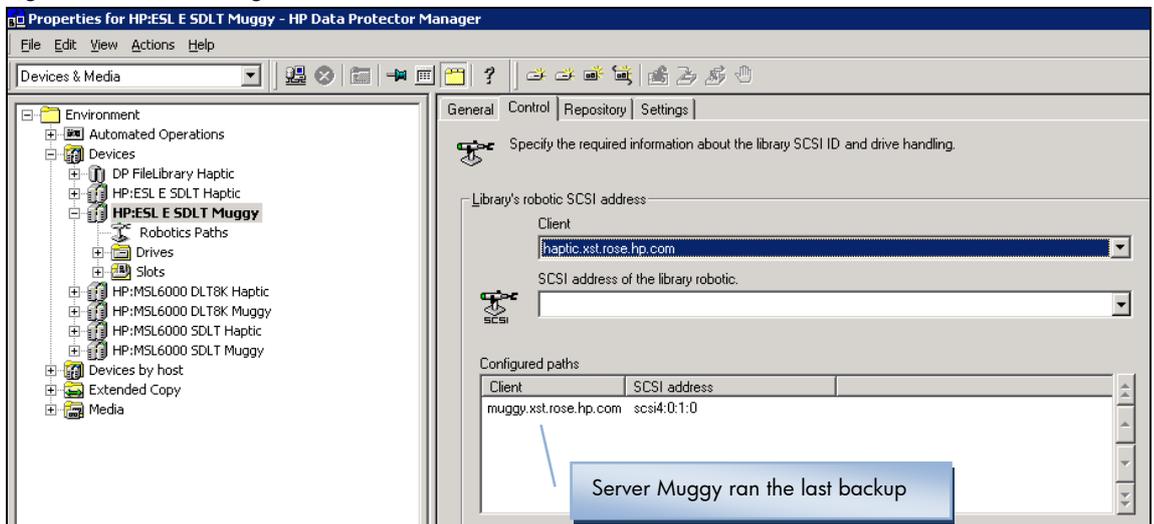
Figure 29 Device configuration wizard



When sharing a multi-path device in a MOM environment, the backup media server who last accessed the tape devices will be showing as the current client in DP.

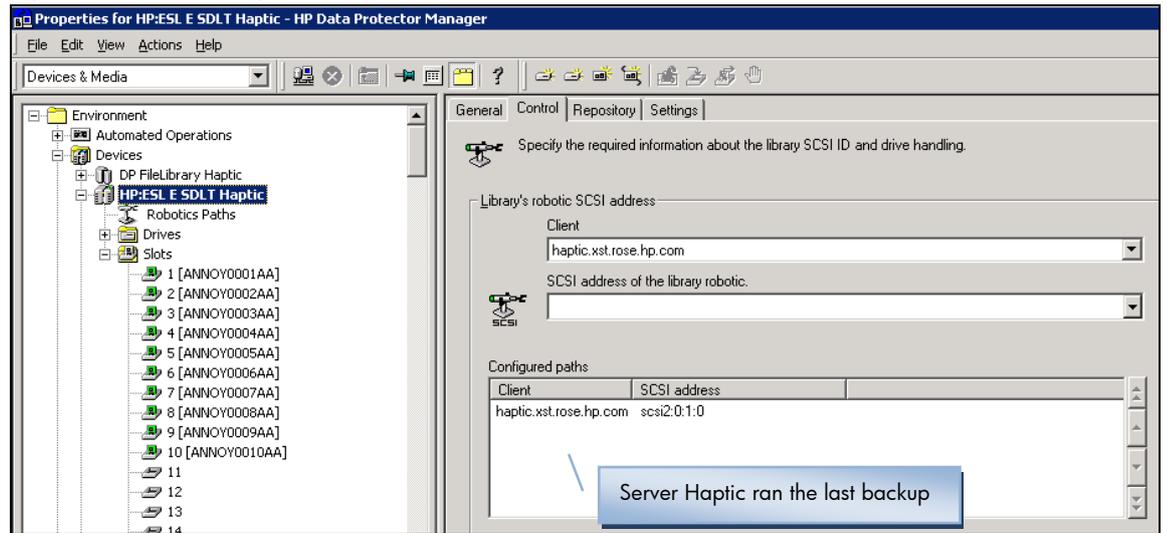
Server Muggy last accesses the following ESL library:

Figure 30 Device Configuration Wizards



Server Haptic last accesses the following ESL library:

Figure 31 Device Configuration Wizards



## Shared tape drive lock name

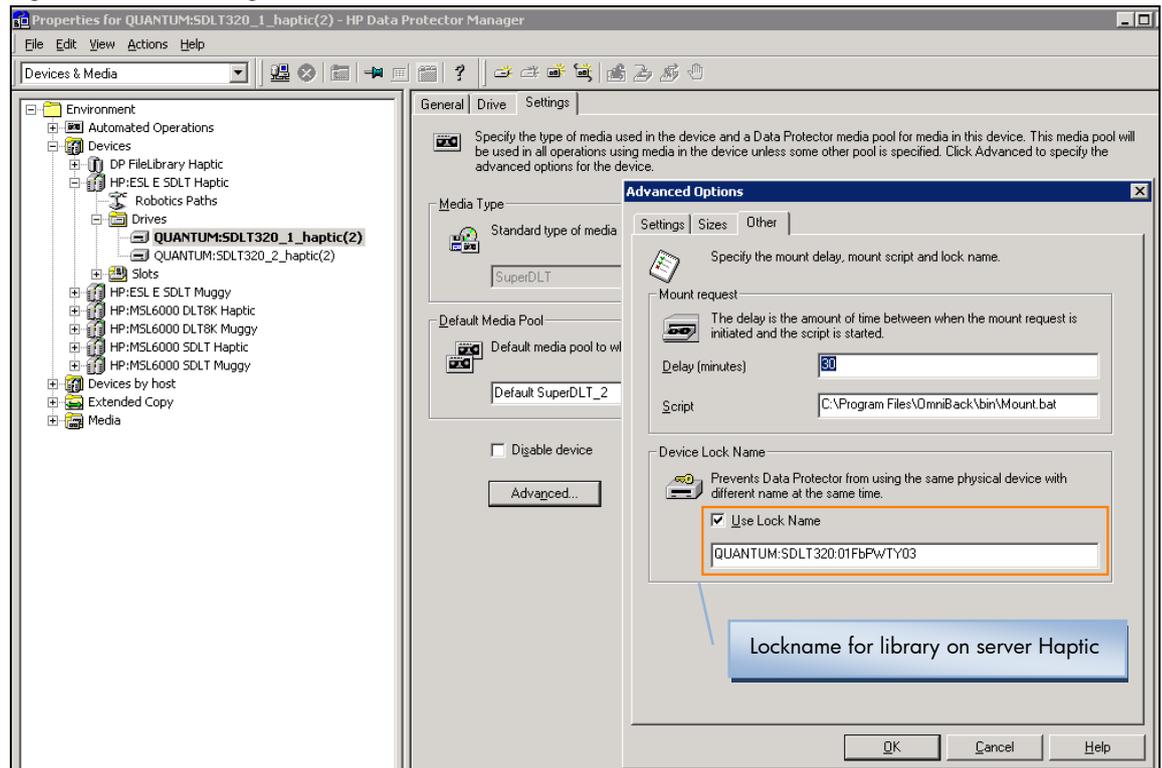
Under the tape drive advanced properties, make sure the lockname is the same for the library for all cell managers sharing access.

**Note:**

Lockname is not required for multipath configurations.

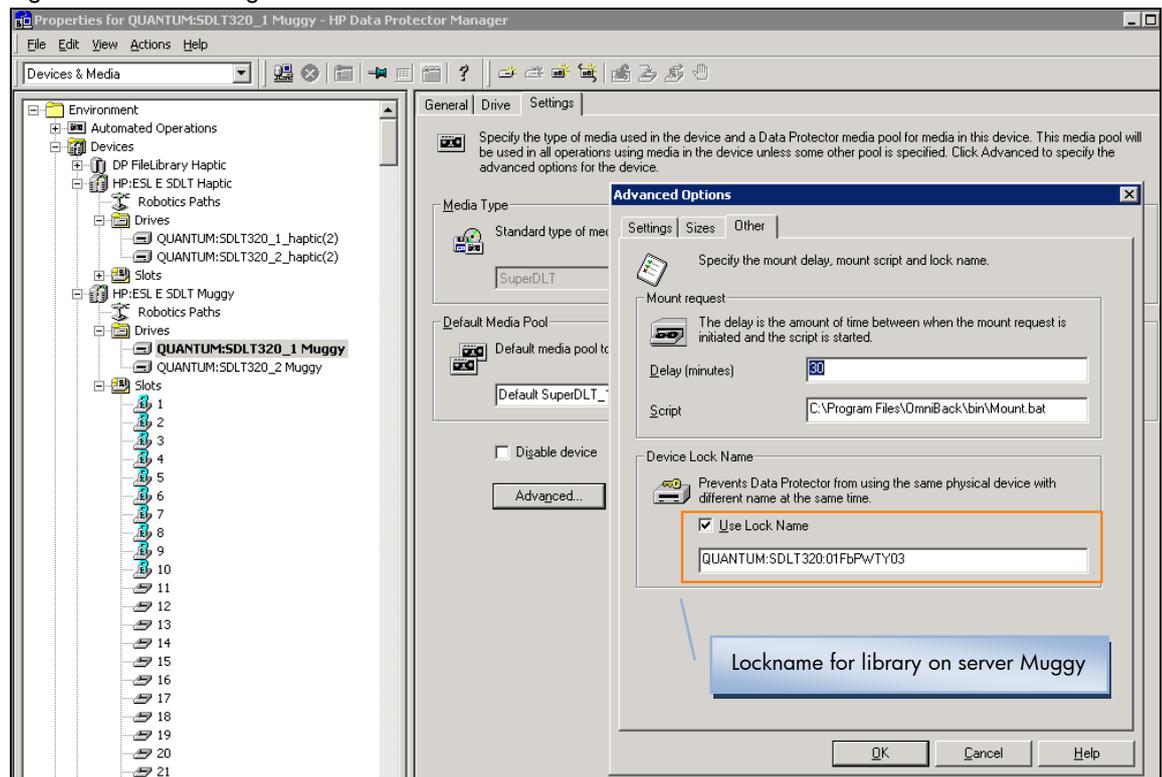
The lockname can be found under the tape drive **Settings, Advanced Options, Other:**

Figure 32 Media configuration



Make sure the lockname is the same for both hosts that access the library:

Figure 33 Media configuration

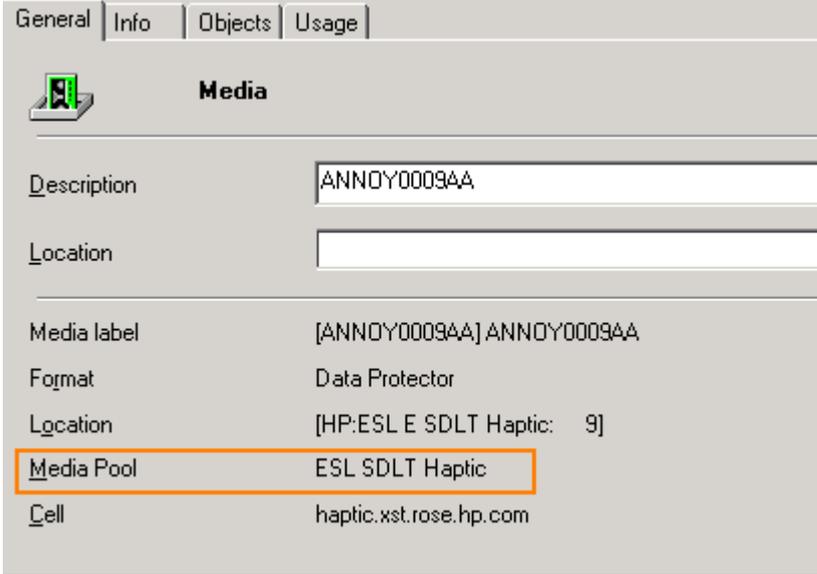


## Using cell managers dedicated pools

Move the media from the default pool into the Cell Manager dedicated pool.

The media pool information is shown under the **General** media properties:

Figure 34 Media configuration



The screenshot shows a software interface for configuring media. At the top, there are four tabs: 'General', 'Info', 'Objects', and 'Usage'. The 'General' tab is selected. Below the tabs is a header area with a small icon of a media tray and the word 'Media'. The main area contains several fields and labels:

Description	ANNOY0009AA
Location	
Media label	[ANNOY0009AA].ANNOY0009AA
Format	Data Protector
Location	[HP:ESL E SDLT Haptic: 9]
Media Pool	ESL SDLT Haptic
Cell	haptic.xst.rose.hp.com

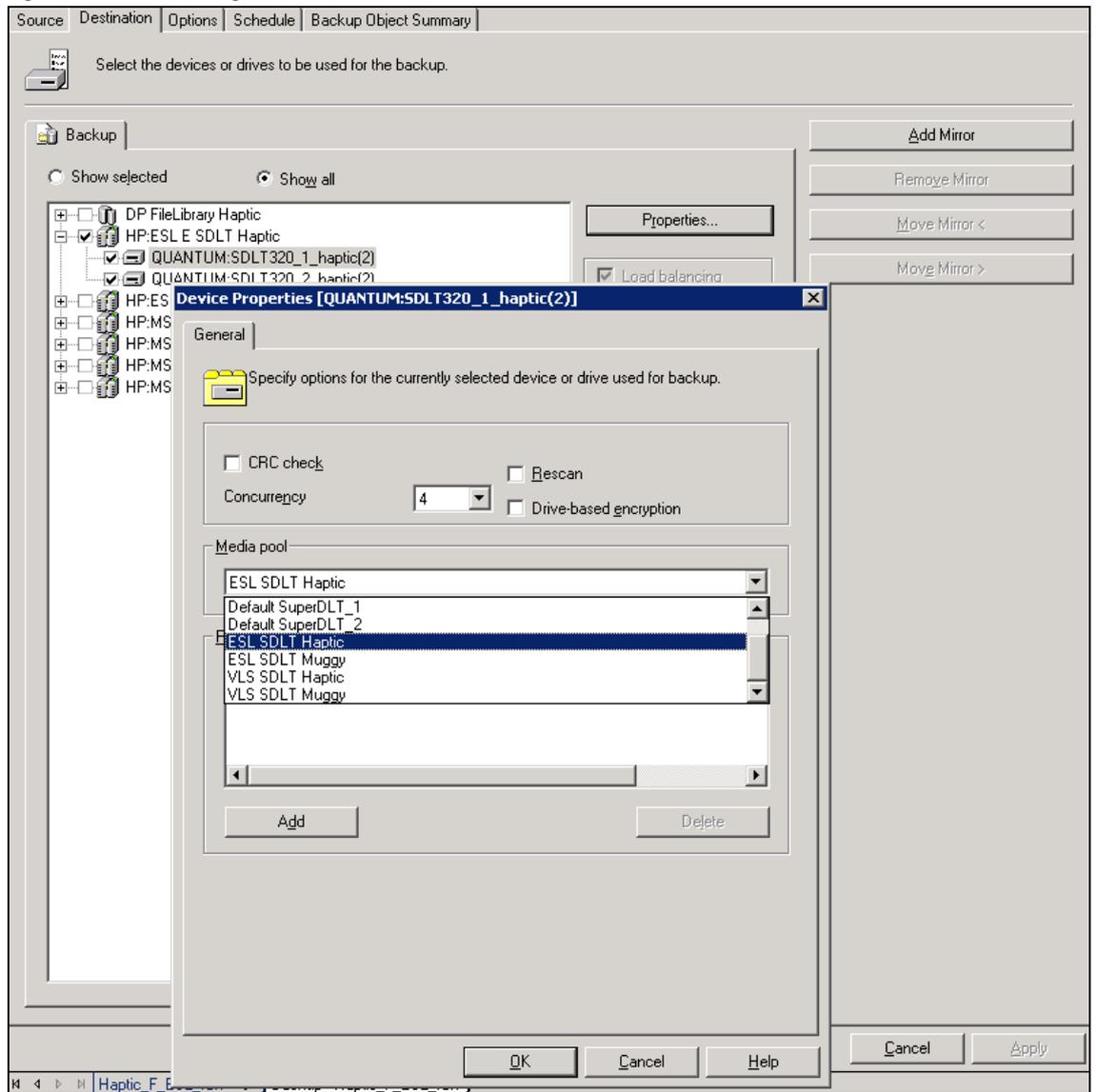
The 'Media Pool' field is highlighted with an orange border.

**Note:**

The name of the cell manager showing above is the name of the cell manager that formatted the media.

In the backup specification, change the pool from the default pool to the cell managers dedicated pools:

Figure 35 Media configuration



The backup session will now be using the media in the new pool:

Figure 36 Media configuration

The screenshot shows the Backup software interface. At the top, there is a 'Backup' icon and a table with columns: Status, Type, Client System, Source, Device, Size, Done, Errors, Warnings, and Description. Below this is another table with columns: Status, Device, Client System, Drive, Total Data, and Medium Label. The logs section shows the following text:

```
[Normal] From: BSM@haptic.xst.rose.hp.com "Haptic_F_ESL_raw" Time: 4/21/2009 3:20:15 PM
Backup session 2009/04/21-5 started.

[Normal] From: BMA@haptic.xst.rose.hp.com "QUANTUM:SDLT320_1_haptic(2)" Time: 4/21/2009 3:20:20 PM
STARTING Media Agent "QUANTUM:SDLT320_1_haptic(2)"

[Normal] From: BMA@haptic.xst.rose.hp.com "QUANTUM:SDLT320_1_haptic(2)" Time: 4/21/2009 3:20:23 PM
By: UMA@haptic.xst.rose.hp.com@scsi2:0:3:0
Loading medium from slot 9 to device scsi2:0:1:2C

[Normal] From: RBD@haptic.xst.rose.hp.com "[Disk Image]: haptic.xst.rose.hp.com" Time: 4/21/2009 3:20:42 PM
STARTING Disk Agent for haptic.xst.rose.hp.com "[Disk Image]: haptic.xst.rose.hp.com".
```

**Note:**

Once media is written by a specific cell manager, only that cell manager will have access to append backup data. Other cell managers will not be able to write to this media.

The cell that owns the media is shown under the **General** media properties:

Figure 37 Media configuration

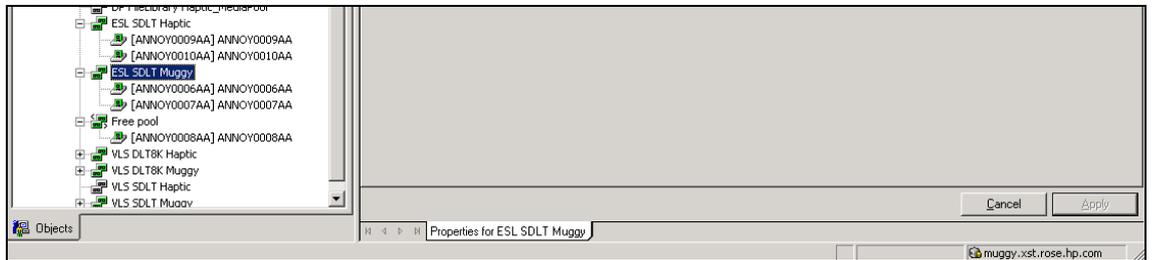
The screenshot shows the Media configuration window with the 'General' tab selected. The 'Media' icon is visible. The 'Description' field contains 'ANNOY0009AA'. The 'Location' field is empty. The 'Media label' field contains '[ANNOY0009AA] ANNOY0009AA'. The 'Format' field contains 'Data Protector'. The 'Location' field contains '[HP:ESL E SDLT Haptic: 9]'. The 'Media Pool' field contains 'ESL SDLT Haptic'. The 'Cell' field contains 'haptic.xst.rose.hp.com' and is highlighted with an orange box.

## Sharing a free pool

For each of the media pools on the cell managers, configure a loose allocation policy to a shared free pool between all cell managers.

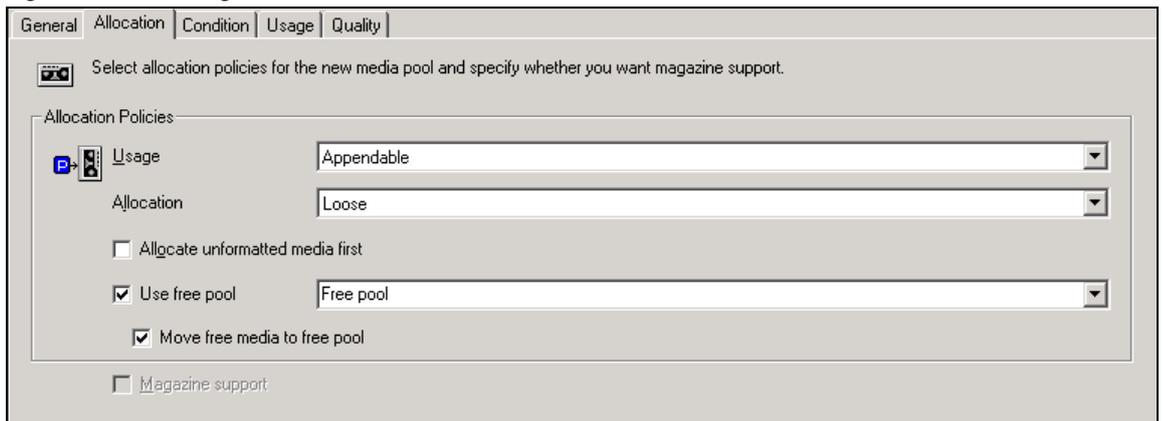
The cell manager name is visible on the bottom right corner of the Data Protector client GUI:

Figure 38 Media configuration



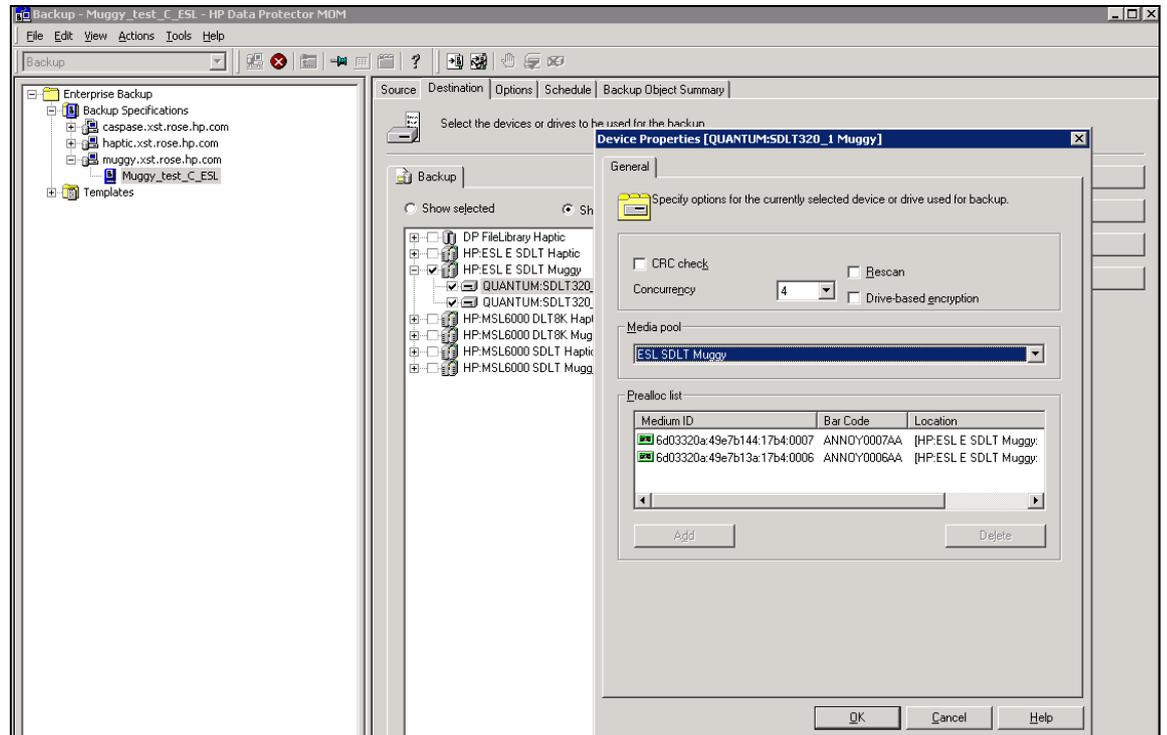
Assign a free pool to the media pools:

Figure 39 Pool configuration



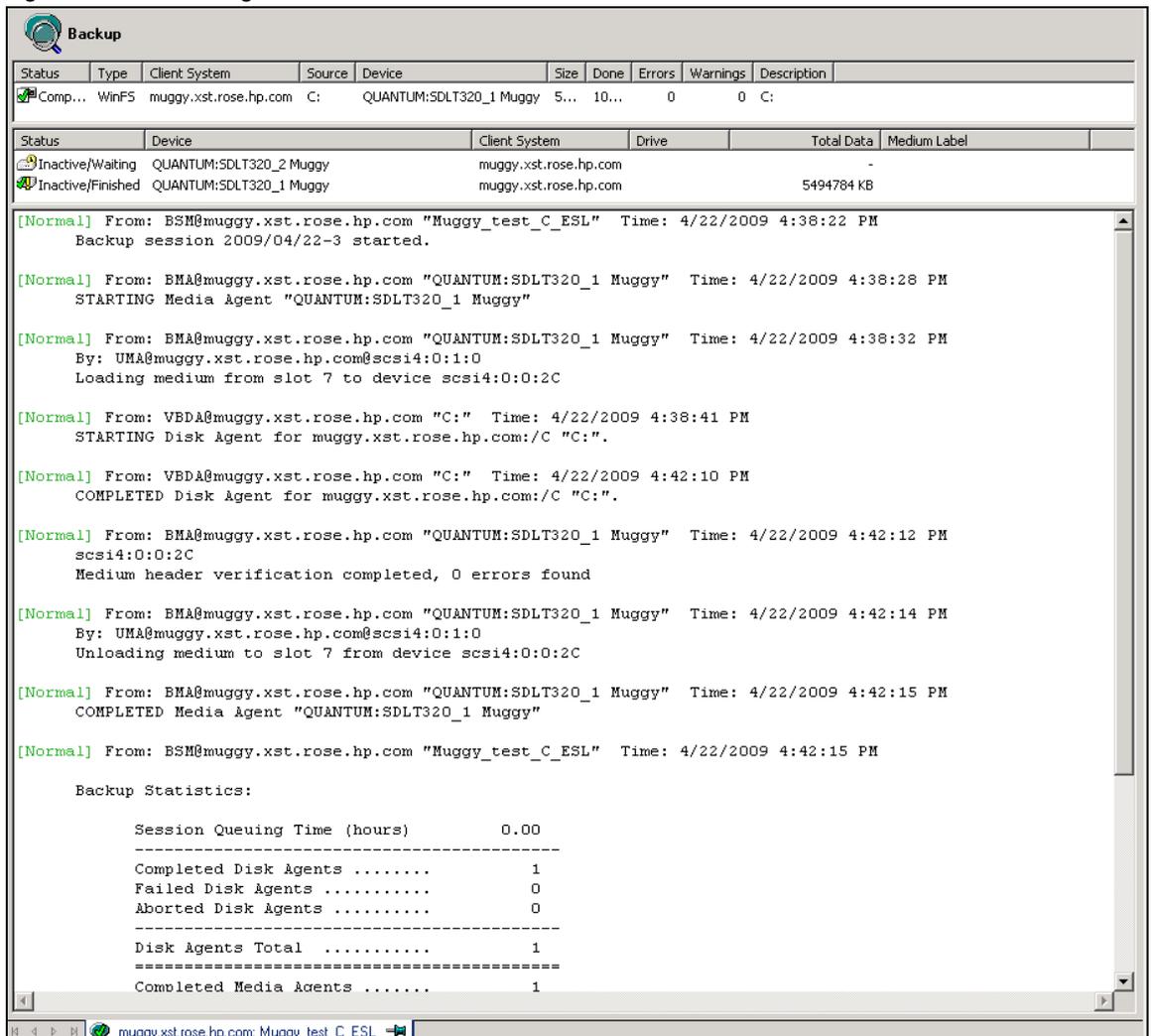
Under the backup specification tape drive properties, define the dedicated pools instead of no pool preference or default pool, and add media to the pre-allocation list. When no media is available from the dedicated pool, the media from the free pool will be used during the backup session:

Figure 40 Media configuration



The medium configured via the pre-allocation list will be used during the backup session:

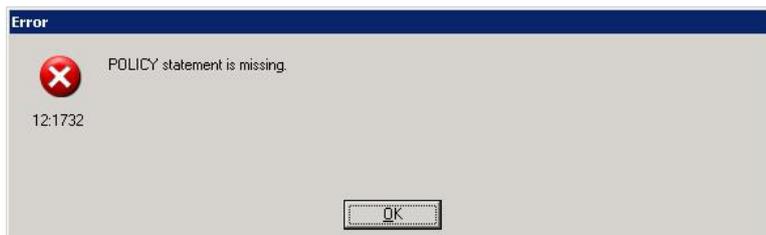
Figure 41 Media configuration



## Installing the media agent on the MOM server

The Disk Agent and Media Agent are required to be installed on the MOM server if a local backup needs to be performed.

If the MOM server does not have Media Agent installed, then DP GUI which does not allow you to change pool settings for instance. When you press apply to save the changed pool name, a dialog box is shown which does not let you change the properties:



Use the following workaround if you do not want to install MA on MOM.

- Get the configuration for the drives by:  
`omnidownload -list_devices -detail > devices.txt`
- Modify the file to contain only the changes to the target drive(s)
- Make sure to add the "new pool names" for the drives
- Make sure that all GUIs are closed
- Apply the configuration using the following command:  
`omniupload -modify_device <drive_name> -file devices.txt`

This process can be scripted for environments where many drives are present. Also libraries can be re-configured by `-modify_library` option of `omniupload`.

But the easiest solution is to install Media Agent on MOM server.

## Restarting the DP services in MOM

After you have configured the MOM environment, you are notified to restart the Data Protector services.

If you use the Windows Service Control Manager to stop and start services on the Cell Manager, only the current and previous copies of the database log are kept.

Using the `omnisv` command will save all previous database logs. The command is located in:

- *UNIX:* `/opt/omni/sbin/`
- *Windows:* `<Data_Protector_home>\bin`

### Stopping the Data Protector services

#### *Cell Manager in a non-cluster environment*

Run the following command: `omnisv -stop`.

#### *Cell Manager on MC/ServiceGuard*

Run the following command: `cmhaltpkg pkg_name`, where `pkg_name` is the name of the Data Protector cluster package.

This command stops the Data Protector package and dismounts the Data Protector shared volume group.

#### *Cell Manager on Microsoft Cluster Server*

Take the OBVS\_VELOCIS cluster group offline (using the Cluster Administrator utility on the active node).

RS cluster service need to be stopped as well, and DP `inet` service needs to be stopped via local services.

### Starting the Data Protector services

#### *Cell Manager in a non-cluster environment*

Run the following command: `omnisv -start`

#### *Cell Manager on MC/ServiceGuard*

Restart the Data Protector package using the `cmrunpkg -n node_name pkg_name command`.

#### *Cell Manager on Microsoft Cluster Server*

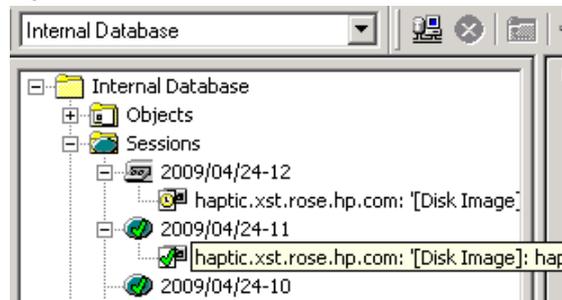
Bring the OBVS\_VELOCIS and OBVS\_MCRCs cluster groups online using the Cluster Administrator utility.

## Object Copy

Object Copy sessions are configured (scheduled/interactive) and initiated from the individual cell managers. Session details can be found in the local cell manager IDB, not in the session information for the MOM IDB.

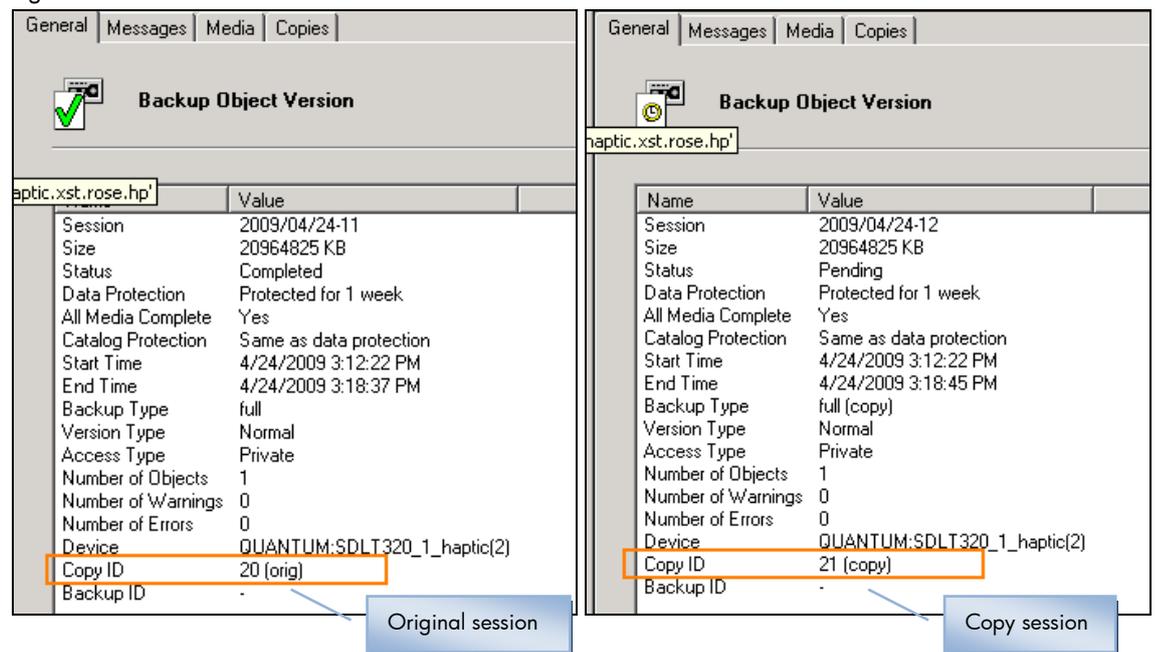
Click on the session name in the Internal Database view to see the session details:

Figure 42 Session information



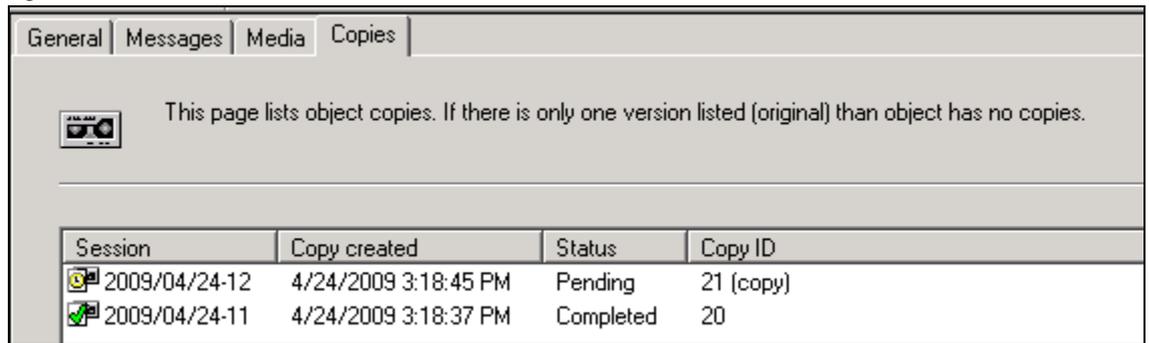
Click on the **General** properties to see the session Copy ID and details:

Figure 43 Session information



Click on **Copies** to see the session information details for the backup and copy session:

Figure 44 Session information



The screenshot shows a software interface with a tabbed menu at the top containing 'General', 'Messages', 'Media', and 'Copies'. The 'Copies' tab is active. Below the menu is a message: 'This page lists object copies. If there is only one version listed (original) than object has no copies.' Below the message is a table with the following data:

Session	Copy created	Status	Copy ID
 2009/04/24-12	4/24/2009 3:18:45 PM	Pending	21 (copy)
 2009/04/24-11	4/24/2009 3:18:37 PM	Completed	20

## Acronyms

- CM: Data Protector Cell Manager
- CMMDB: Central Media Management Database
- MMDB: Media Management Database
- IDB: Internal Database

## References

MOM setup and configuration information can also be found in the following documents:

- Data Protector Concepts Guide
- Data Protector Installation Guide
- Data Protector MOM firewall WP

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