



Quantum DX_i-Series: Symantec Backup Exec OST Configuration Guide

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Introduction

Note: This guide is for DXi 2.0.1 Software. For earlier versions of the DXi system software, refer to the *Symantec Backup Exec OST Configuration Guide* for software version 1.x (6-66910).

Caution: If you have previously used Active Directory (CIFS share) to perform authentication between an OST Plug-in and a DXi running 1.4.x or earlier, note that this has changed. The new method of OST Plug-in authentication between OST Plug-in 2.3 and later and DXi 2.x and later DOES NOT USE Active Directory authentication. Instead, you must add new OST user credentials on the DXi and the media server. For instructions, see [Configuring OST Authentication](#) on page 7.

Symantec Backup Exec OST (OpenStorage) allows Backup Exec to seamlessly integrate with a DXi™-Series disk backup system (DXi4500, DXi6500, and DXi6700). Once installed and configured, Backup Exec can manage the backups through the DXi™ and take advantage of the system's capabilities such as data deduplication and replication.

Installing and configuring the DXi and Backup Exec OST for operation consists of the following major steps. See the following sections for detailed instructions for completing each step:

- 1 [Installing the License Keys and OST Plug-in](#)
- 2 [Configuring the DXi](#)
- 3 [Configuring Symantec Backup Exec \(Media Server\)](#)
- 4 [Configuring Backup Exec and Logical Storage Units](#)
- 5 [Initiating an OST Backup](#)
- 6 [Initiating an OST Optimized Duplication](#)

Caution: You *must* upgrade to Backup Exec 2010 R2 or later before configuring Backup Exec. R2 is a maintenance release that provides OST fixes that are required by DXi software version 2.x.

Note: The figures in this guide show the DXi6500 remote management console for illustrative purposes. The remote management console is similar for other DXi systems.

Installing the License Keys and OST Plug-in

Before you can configure the DXi with OST, you must install the OST license key and the OST Plug-in. See the following subsections for detailed instructions for completing these tasks:

- [Installing the OST License Key](#)
- [Installing the OST Plug-in](#)

Installing the OST License Key

To install the OST license key, you must first obtain a License Certificate containing an authorization code.

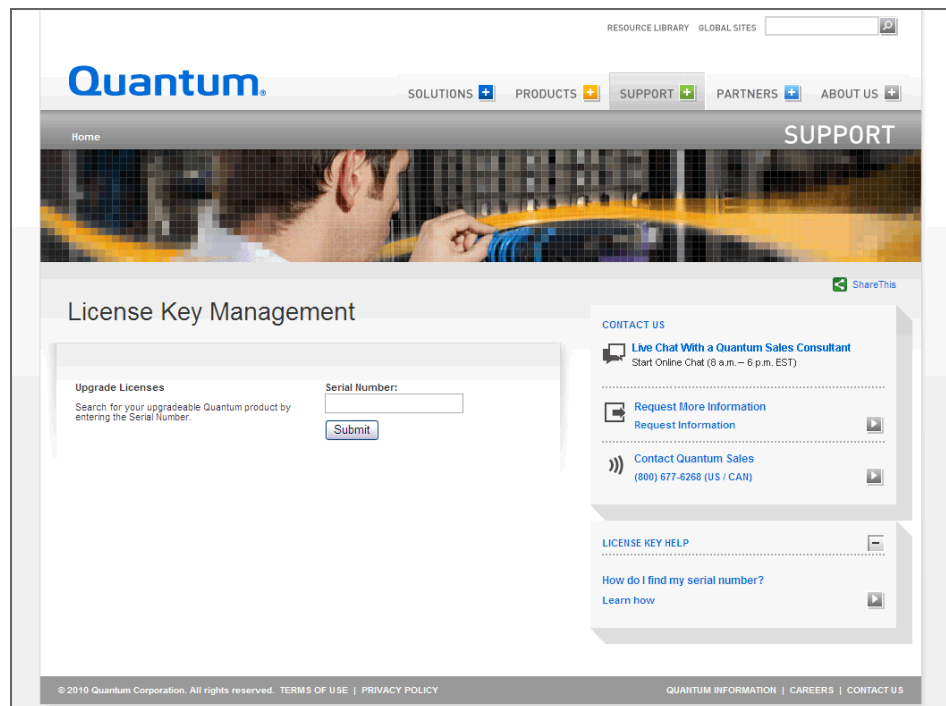
- **DXi6500 and DXi6700** - The **OST** license is included with all DXi6500 and DXi6700 systems. A License Certificate containing an authorization code is included in the accessory kit that shipped with your system.
- **DXi4500** - The **OST** license key is pre-installed on DXi4500 systems. You do not need to install the license key on these systems. Instead, proceed to [Installing the OST Plug-in](#) on page 5.

Locate the License Certificate, then perform the following steps:

- 1 Open a Web browser on a computer with Internet access.
- 2 Enter <http://www.quantum.com/licensekeys> in the browser address box.

The License Key Management page displays (see [Figure 1](#)).

Figure 1 License Key Management Page



- 3 Enter the DXi system serial number in the **Serial Number** box and click **Submit**.

The **Licensed Feature** page displays.

Note: The serial number displays on the **Home** page in the remote management console.

- 4 Enter the authorization code (printed on the License Certificate) and click **Get License Key**.

The **Licensed Feature** page returns a license key. Print out or write down the license key, or save it to a text file.

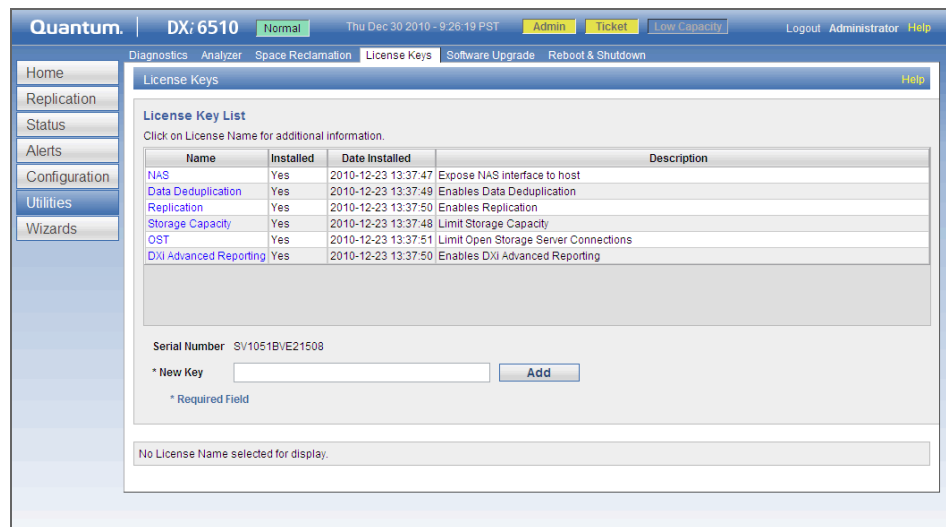
- 5 Access the DXi remote management console.

For information about accessing the remote management console, see the *User's Guide* for your DXi system.

- 6 Click the **Utilities** menu, and then click the **License Keys** tab.

The **License Keys** page displays (see [Figure 2](#)).

Figure 2 License Keys Page



- 7 Enter the license key in the **New Key** box.

- 8 Click **Add**.

The license key is added to the system, and the OST feature is enabled.

Installing the OST Plug-in

Before you can configure the DXi with OST, you must download and install the OST Plug-in and install it on a media server configured with Backup Exec 2010 R2 or later.

To download the correct version of the OST Plug-in for your DXi configuration and media server operating system:

- 1 On the DXi remote management console, navigate to the **Configuration > OST > OST Client Plug-In** page.

2 Click **Download**.

The Quantum OST Plug-in download page displays.

You can also access the OST Plug-in download page at:

<http://www.quantum.com/ServiceandSupport/SoftwareandDocumentationDownloads/OSTClientPlugin/Index.aspx>

On the page that displays, click the link for your DXi system to see the available OST Plug-in download options.

3 Click the links to download the latest Quantum OST Plug-in and *OST Plug-in Installation Instructions*.

Make sure to download the correct OST Plug-in for the operating system installed on the Backup Exec media server.

The *OST Plug-in Installation Instructions* contain the installation procedure for the OST Plug-in. This procedure is the same for each Backup Exec media server operating system platform. Follow the instructions to install the OST Plug-in on the Backup Exec media server. When you are finished, continue to the next section.

Note: When multiple hosts are using a single DXi system, you can distribute the load by dividing the hosts into groups. For more information, see the section "Performance Tuning" in the *OST Plug-in Installation Instructions*.

Note: By default, the OST Plug-in for Windows is installed in the **C:\Program Files\Symantec\Backup Exec** directory.

Note: RAWs is an agent used to backup Windows clients (which Backup Exec calls remote agents). In Backup Exec 2010, a remote agent (client) has the ability to perform a client side deduplication which is called Direct Access. This requires the OST plug-in to be installed on the remote agent and the plug-in .dll to exist in the **\Backup Exec\RAWs** directory.

Configuring the DXi

You must configure storage servers and logical storage units on the DXi remote management console before you configure Backup Exec. See the following sections to configure the DXi for OST.

Configuring the DXi consists of the following major steps. See the following subsections for detailed instructions for completing each step:

- [Configuring OST Authentication](#)
- [Configuring Storage Servers](#)
- [Configuring Logical Storage Units](#)

Note: You can also use the OST Wizard to configure the DXi for OST. To learn more about using the **Configuration Wizards**, refer to the *User's Guide* for your DXi model.

Configuring OST Authentication

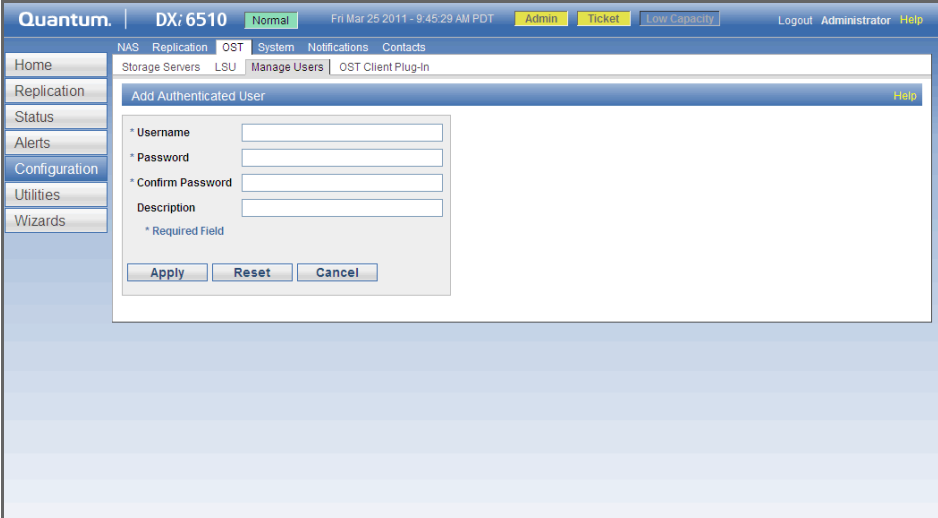
To authenticate the OST storage servers on a media server, you must create OST user credentials.

Caution: If you have upgraded to DXi 2.0.1 Software from a version released prior to 2.0, you *must* add new OST credentials to the DXi to continue using OST. Shut down the Backup Exec services. Then perform the procedure below, making sure to use the same username and password that were used to register the existing OST devices. Finally, start the Backup Exec services.

To create OST user credentials:

- 1 Log on to the DXi remote management console.
- 2 Navigate to the **Configuration > OST > Manage Users** page (see [Figure 3](#)).

Figure 3 Manage Users Page



The screenshot shows the Quantum DXi remote management console interface. The top navigation bar includes 'Quantum', 'DX: 6510', 'Normal', 'Fri Mar 25 2011 - 9:45:29 AM PDT', 'Admin', 'Ticket', 'Low Capacity', 'Logout', 'Administrator', and 'Help'. The main menu on the left includes 'Home', 'Replication', 'Status', 'Alerts', 'Configuration', 'Utilities', and 'Wizards'. The 'Configuration' menu is expanded to show 'Storage Servers', 'LSU', 'Manage Users', and 'OST Client Plug-In'. The 'Manage Users' page is active, displaying the 'Add Authenticated User' form. The form has the following fields: '* Username', '* Password', '* Confirm Password', and 'Description'. The asterisk indicates required fields. There are 'Apply', 'Reset', and 'Cancel' buttons at the bottom of the form.

- 3 Click **Add**.
- 4 Specify the **Username** and **Password** that will be used to authenticate the storage servers on the media server.

Note: For username, alphanumeric characters are allowed, as well as underscores (_) and hyphens (-). For password, alphanumeric characters are allowed, as well as the following special: ` ~ ! @ # \$ % ^ & * () - _ = + [{] } \ | ; : ' " , < . > / ?

Caution: In DXi 2.x software, you no longer should include a domain name as part of the username. If you have upgraded from DXi 1.4.x Software, create a simple username and password using the rules noted above, and then provide the same credentials on the media server (see [Configuring Backup Exec and Logical Storage Units](#) on page 14).

5 Click **Apply**.

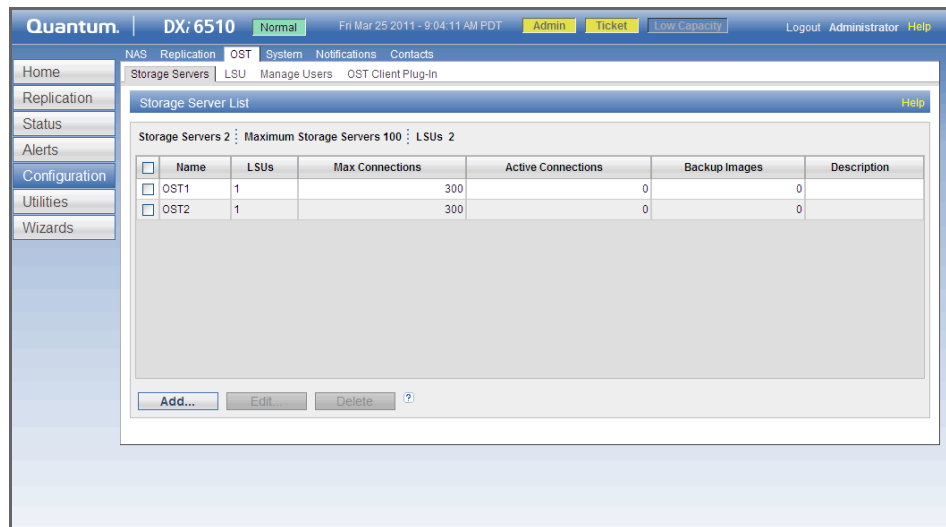
6 In Backup Exec, add credentials for the storage server, making sure to use the same OST username and password you entered on the DXi. For more information, see [Configuring Backup Exec and Logical Storage Units](#) on page 14.

Configuring Storage Servers

To configure storage servers:

- 1 Log on to the DXi remote management console.
- 2 Navigate to the **Configuration > OST > Storage Servers** page (see [Figure 4](#)).

Figure 4 Storage Servers Page



Use the **Storage Server** page to perform the following tasks. See the following subsections for detailed instructions for completing each task:

- [Adding a Storage Server](#)
- [Editing a Storage Server](#)
- [Deleting a Storage Server](#)

Note: When using OST with network segmentation, I/O must be performed on the data segment, *not* the management or replication segment.

Note: Quantum recommends creating a different storage server for each Backup Exec domain (master server plus associated media servers). This segregates data so a Backup Exec administrator cannot accidentally modify or remove backup images belonging to another domain.

Adding a Storage Server

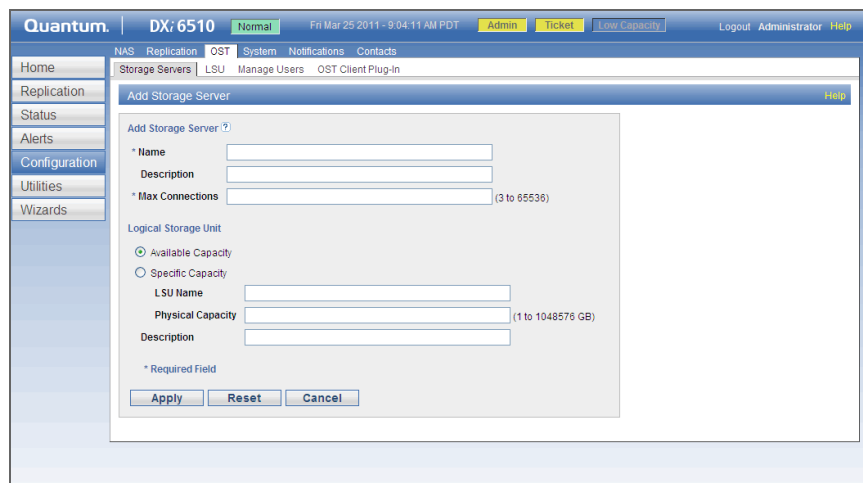
To add a storage server:

Note: You can create up to 100 storage servers.

- 1 On the **Storage Servers** page, click **Add**.

The **Add Storage Server** page displays (see [Figure 5](#)).

Figure 5 Add Storage Server Page



The screenshot shows the 'Add Storage Server' page in the Quantum DXi 6510 web interface. The page has a blue header with the Quantum logo and system information. A left sidebar contains navigation links: Home, Replication, Status, Alerts, Configuration, Utilities, and Wizards. The main content area is titled 'Add Storage Server' and contains the following fields and options:

- Name:** A required text input field.
- Description:** A text input field.
- Max Connections:** A required text input field with a range of (3 to 65536).
- Logical Storage Unit:** Two radio button options: Available Capacity and Specific Capacity.
- LSU Name:** A text input field.
- Physical Capacity:** A text input field with a range of (1 to 1048576 GB).
- Description:** A text input field.
- Buttons:** Apply, Reset, and Cancel buttons at the bottom.

- 2 Under **Add Storage Server**, enter information about the storage server:

- **Name** - Enter the name of the storage server.

Caution: Do not use an underscore (_) in the name of the storage server.

Note: Storage server names must be unique and not used again on other DXi systems.

- **Description** - (Optional) Enter a brief description of the storage server.
- **Max Connections** - Enter the maximum number of connections allowed to the storage server (3 to 65536). The maximum connections indicate the number of Backup Exec jobs that can connect to the storage server.

Note: Quantum recommends that this value is set to 300 so that media servers never run out of storage server connections.

3 Under **Logical Storage Unit**, enter information about the LSU to add to the new storage server:

- **Available Capacity** - (Recommended for best performance) Select this option to add an LSU that uses the available capacity on the system.

Note: After you add an LSU that uses the **Available Capacity** option, you cannot change the LSU to use the **Specific Capacity** option. Instead, you must delete the LSU, then add a new LSU and choose the **Specific Capacity** option (see [Deleting an LSU](#) on page 13).

- **Specific Capacity** - Select this option to specify the physical capacity of the LSU, and then enter the following information.
 - **LSU Name** - Enter the name of the LSU.
 - **Physical Capacity** - Enter the physical capacity of the LSU (1 to 1048576 GB).

Note: Quantum recommends setting LSUs to maximum size (1048576 GB) because spanning them on a backup is not possible.

4 (Optional) In the **Description** box, enter a brief description of the LSU.

5 Click **Apply**.

Editing a Storage Server

To edit a storage server:

- 1 On the **Storage Servers** page, select the storage server and click **Edit**.
- 2 (Optional) Select a different storage server to edit in the **Name** drop-down box.
- 3 Enter information about the storage server:

Note: If you are editing a storage server, only the **Description** and **Max Connections** options can be changed.

- **Description** - (Optional) Enter a brief description of the storage server.
- **Max Connections** - Enter the maximum number of connections allowed to the storage server (3 to 65536). The maximum connections indicate the number of Backup Exec jobs that can connect to the storage server.

The maximum number of connections cannot be changed if the storage server has more than zero currently active connections. The number of active connections is displayed on the **OST** page (see [Figure 4](#) on page 8).

Note: Quantum recommends that this value is set to 300 so that media servers never run out of storage server connections.

4 Click **Apply**.

Deleting a Storage Server

To delete a storage server:

- 1 On the **Storage Servers** page, select the storage server and click **Delete**.

You cannot delete a storage server if it has more than zero currently active connections. The number of active connections is displayed on the **OST** page (see [Figure 4](#) on page 8). Also, you cannot delete a storage server if it contains LSUs. Before deleting the storage server, you must first delete any LSUs it contains (see [Deleting an LSU](#) on page 13).

Note: You can select multiple storage servers to delete at once.

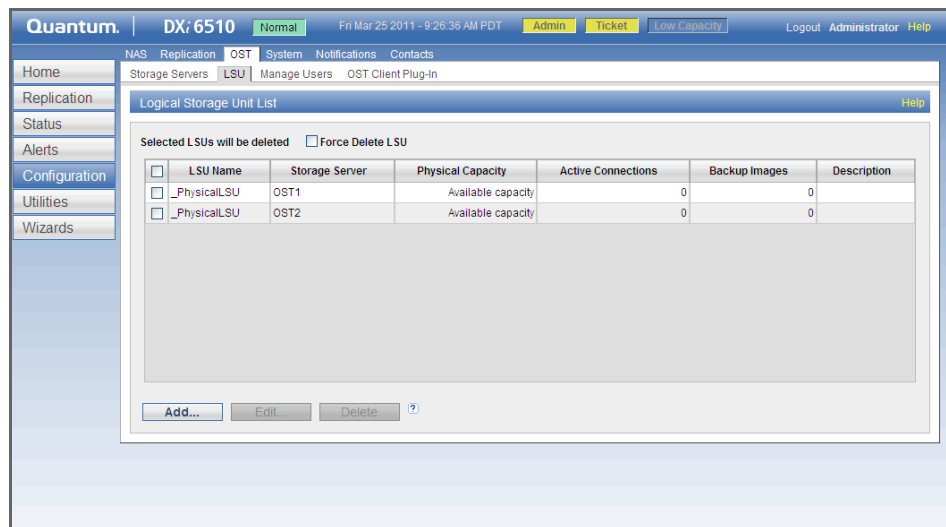
- 2 Click **Delete**.

Configuring Logical Storage Units

To configure logical storage units:

- 1 Log on to the DXi remote management console.
- 2 Navigate to the **Configuration > OST > LSU** page (see [Figure 6](#)).

Figure 6 LSU Page



Use the **LSU** page to perform the following tasks. See the following subsections for detailed instructions for completing each task:

- [Adding an LSU](#)
- [Editing an LSU](#)
- [Deleting an LSU](#)

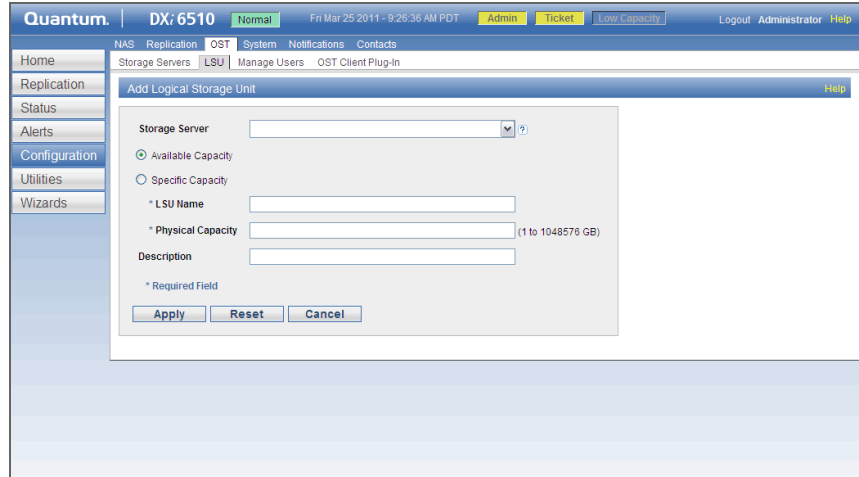
Adding an LSU

To add an LSU to a storage server:

- 1 On the **LSU** page, click **Add**.

The **Add Logical Storage Unit** page displays (see [Figure 7](#)).

Figure 7 Add Logical Storage Unit Page



2 Enter information about the LSU.

- **Storage Server** - Select the storage server that will contain the new LSU.
- **Available Capacity** - (Recommended for best performance) Select this option to add an LSU that uses the available capacity on the system.

You cannot add an available capacity LSU to a storage server that already contains an LSU.

Note: After you add an LSU that uses the **Available Capacity** option, you cannot change the LSU to use the **Specific Capacity** option. Instead, you must delete the LSU, then add a new LSU and choose the **Specific Capacity** option (see [Deleting an LSU](#) on page 13).

- **Specific Capacity** - Select this option to specify the physical capacity of the LSU, and then enter the following information.
 - **LSU Name** - Enter the name of the LSU.
 - **Physical Capacity** - Enter the physical capacity of the LSU (1 to 1048576 GB).

Note: Quantum recommends setting LSUs to maximum size (1048576 GB) because spanning them on a backup is not possible.

3 (Optional) In the **Description** box, enter a brief description of the LSU.

4 Click **Apply**.

Editing an LSU

To edit an LSU:

- 1 On the **LSU** page, select the LSU and click **Edit**.
- 2 (Optional) Select a different LSU to edit in the **Name** drop-down box.
- 3 Enter information about the LSU:

Note: If you are editing an available capacity LSU, only the **Description** option can be changed. If you are editing a specific capacity LSU, only the **Physical Capacity** and **Description** options can be changed.

- **Physical Capacity** - (Specific capacity LSUs only) Enter the physical capacity of the LSU (1 to 1048576 GB).

The physical capacity cannot be changed if the LSU has more than zero currently active connections. The number of active connections is displayed on the **LSU** page (see [Figure 6](#) on page 11).

- **Description** - (Optional) Enter a brief description of the LSU.

4 Click **Apply**.

Deleting an LSU

To delete an LSU:

- 1 On the **LSU** page, select the LSU.

You cannot delete an LSU if it has more than zero currently active connections. The number of active connections is displayed on the **LSU** page (see [Figure 6](#) on page 11).

Note: You can select multiple LSUs to delete at once.

- 2 (Optional) Select the **Force Delete LSU** check box to delete LSUs that are not empty.

Normally, you cannot delete an LSU if it contains existing backup images. If for some reason you cannot remove files from the LSU, selecting the **Force Delete LSU** check box allows you to delete the LSU even though it is not empty.

- 3 Click **Delete**.

Configuring Symantec Backup Exec (Media Server)

Please consult the *Symantec Backup Exec 2010 Administrator's Guide* for instructions on Backup Exec installation and basic configuration.

Note: Installation and licensing of the deduplication option in Backup Exec is required for OST support.

Caution: You *must* upgrade to Backup Exec 2010 R2 or later before configuring Backup Exec. R2 is a maintenance release that provides OST fixes that are required by DXi software version 2.x.

To ensure that you have the correct licenses installed on your system, see the Quantum Compatibility Guide located at:

<http://www.quantum.com/ServiceandSupport/CompatibilityGuides/Index.aspx>

Backup Exec Configuration

In addition to the basic configuration of Backup Exec media server, the following Backup Exec services have to be logged in with administrative credentials:

- Backup Exec Device & Media Service

To log in with administrative credentials:

- 1 Open the **Services** window.
- 2 Right-click on the service and click **Properties**.
- 3 In the **Properties** window of the service, click the **Log on** tab.
- 4 Select **This Account Option** and enter the administrative login name and password.
- 5 Click **OK** and restart the service to login with the new credentials.

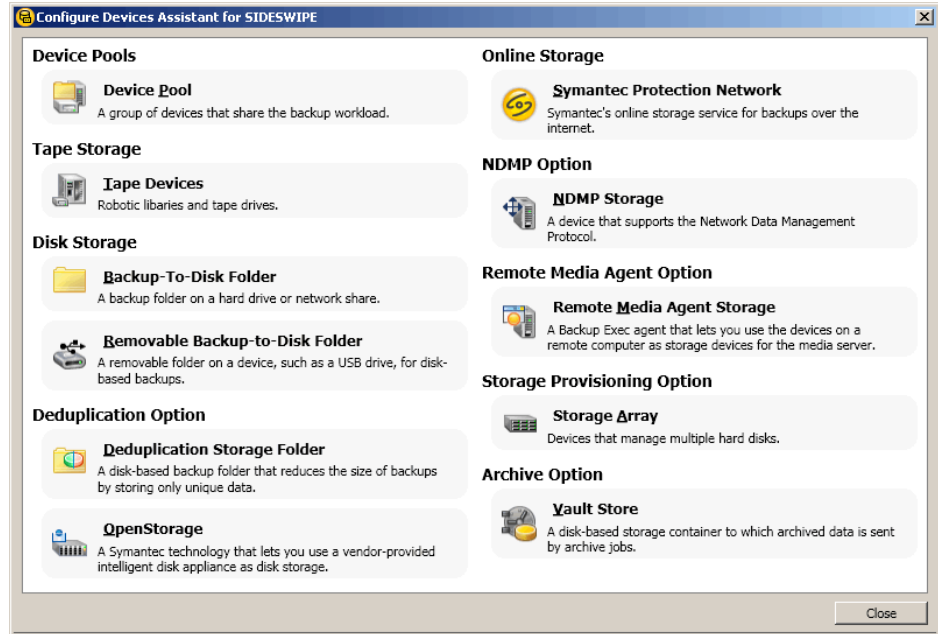
Configuring Backup Exec and Logical Storage Units

To configure Backup Exec and the logical storage units:

Note: Quantum recommends that you disable the Windows firewall on the Backup Exec server.

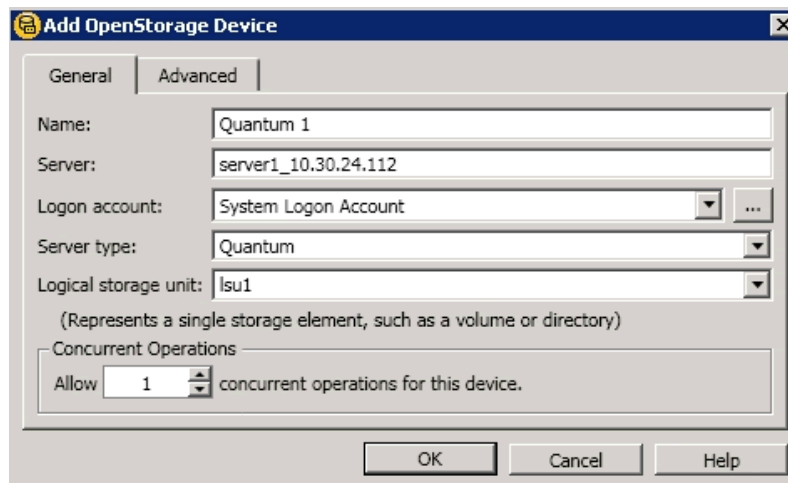
- 1 From the main Backup Exec menu, choose **Configure Devices**.
The **Configure Devices** window displays (see [Figure 8](#)).

Figure 8 Configure Devices Window



- 2 From the **Configure Devices** window, select **OpenStorage**.
The **Add OpenStorage Device** window displays (see [Figure 9](#)).

Figure 9 Add OpenStorage Window



- 3 Enter the following information in the **Add OpenStorage Device** window:
 - a Enter the **Server** name. The **Server** name must use the following format: **<OST storage server name>_<DXi data IP>**. The OST storage server name must match the OST storage server name configured earlier in the DXi remote management console (see [Configuring Storage Servers](#) on page 8). For example: **server1_10.30.24.112**.
 - b Specify the **Logon account**. The **Logon account** username and password *must* be the same as the OST user credentials created on the DXi remote management console (see [Configuring OST Authentication](#) on page 7).

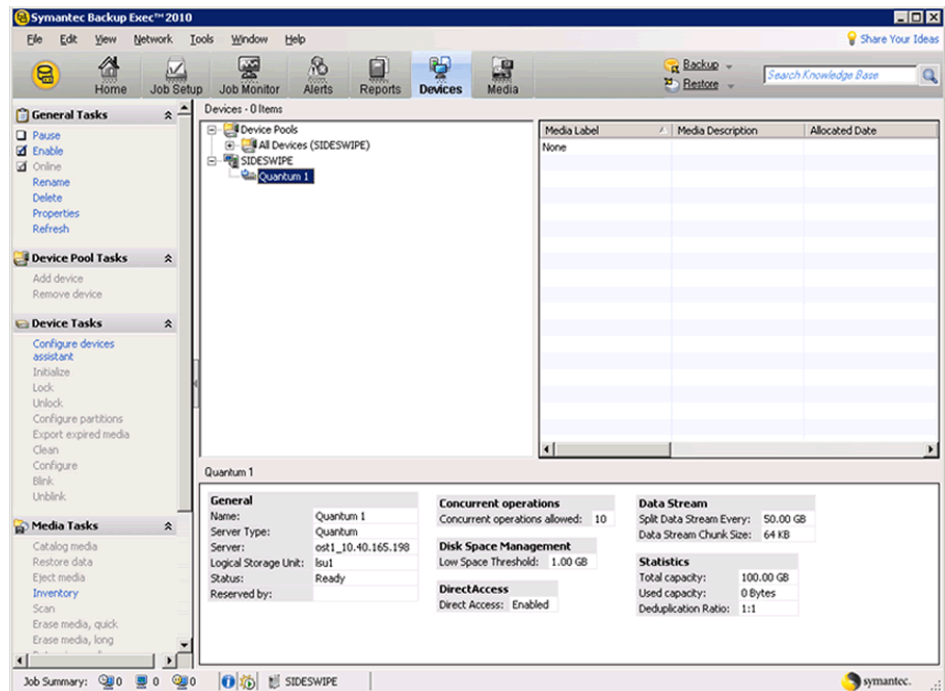
- c The **Server** type Indicates the type of OpenStorage device. Select **Quantum** for the **Server** type.

Note: Do *not* select **PureDisk** for the **Server** type.

- d Enter the **Logical storage unit** (LSU) name. The name should match the LSU name configured earlier on the DXi remote management console (see [Configuring Logical Storage Units](#) on page 11).
 - e Select the number of allowed **Concurrent Operations**.
- 4 Sharing can be enabled when you add an OpenStorage device. Direct Access for Remote Agents is enabled by default.
- 5 Click **Restart Now** when prompted to restart services. Backup Exec will *not* discover the device until the Backup Exec services are restarted.

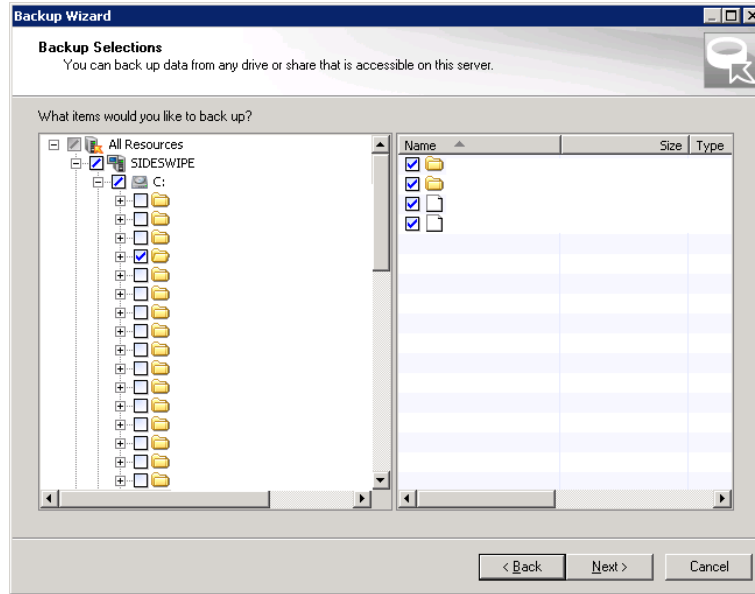
The storage unit and LSU should show as ready after it is discovered by Backup Exec (see [Figure 10](#)).

Figure 10 Backup Exec Window



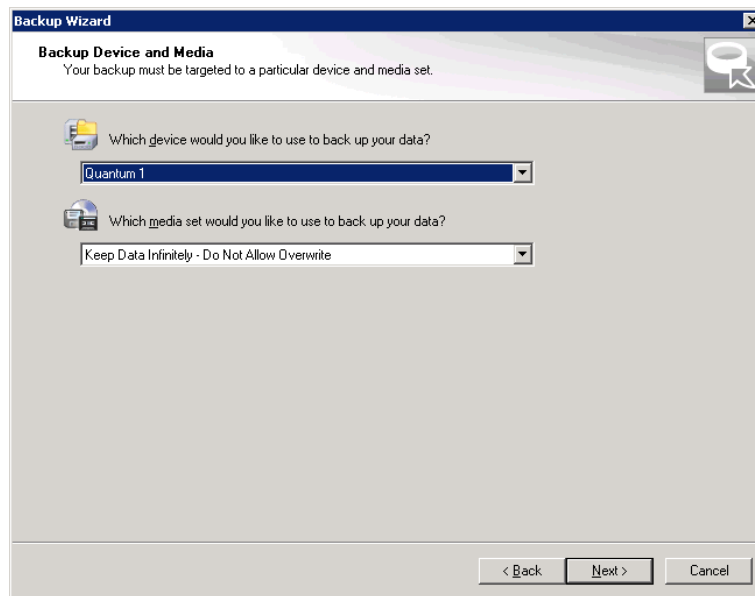
- 6 Create a small backup job using the **Backup Wizard** to verify connectivity (see [Figure 11](#)).

Figure 11 Backup Wizard - Backup Selections



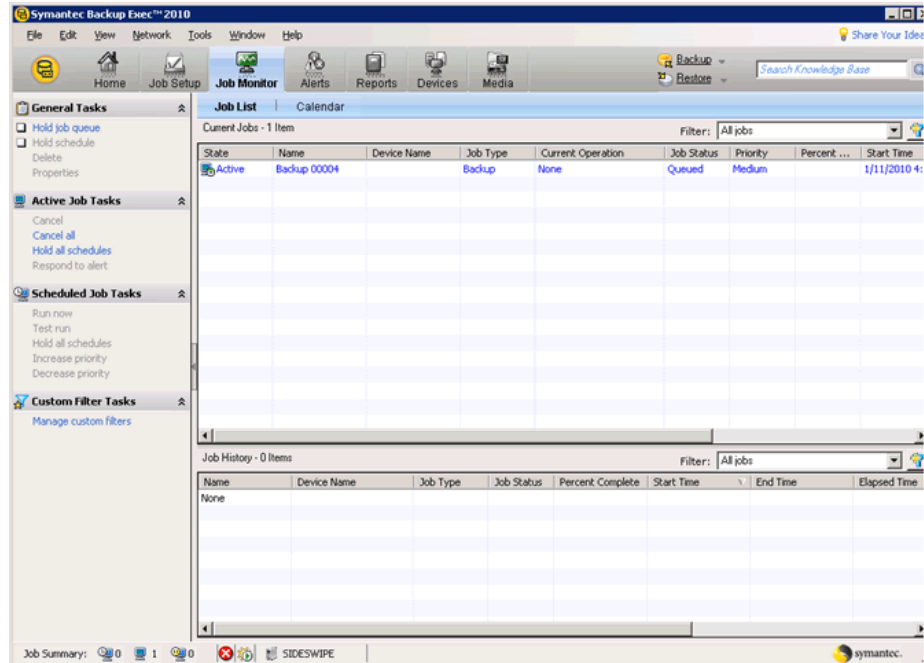
7 Select the new OpenStorage device as target (see [Figure 12](#)).

Figure 12 Backup Wizard - Backup Device and Media



8 Choose the **Job Monitor** to view the progress (see [Figure 13](#)).

Figure 13 Job Monitor



Sharing Deduplication Devices

To share a deduplication device between multiple media servers

- 1 On the navigation bar, click **Devices**.
- 2 In the **Devices** view, right-click the deduplication storage folder, the OpenStorage device, or the Remote Agent with Direct Access that you want media servers to access.
- 3 Select **Manage** sharing.
- 4 Select the deduplication device that you want to share.
- 5 Under **Media Servers**, select the media servers that you want to use with the deduplication device.
- 6 Click **OK**.
- 7 Restart the Backup Exec services on the media servers that you selected in step 5.

Creating a Backup Job with Direct Access

When you create a backup job with direct access, keep in mind the following items:

- The backup job can include resources from only one remote computer.
- The Remote Agent for Windows Systems must be installed and running on the remote computer.
- The remote computer must be configured as a Remote Agent with Direct Access.
- The remote computer must be pingable.
- The remote computer cannot be a Backup Exec media server.

- A OpenStorage device must be selected in the Device and Media view for the backup job.
- The option **Allow this job to have direct access to the device** must be selected in the **Device and Media** view for the backup job. This option is selected by default when you select a OpenStorage device as the destination for a backup job.

Configuring a Remote Agent with Direct Access

To configure a Remote Agent with Direct Access

- 1 On the navigation bar, click **Devices**.
- 2 In the task pane, under **Device Tasks**, click the **Configure devices** assistant.
- 3 Click **Remote Agent with Direct Access**.
- 4 If the **Remote Agent with Direct Access Configuration** dialog box appears, click **Add a remote agent with direct access**. This step does not apply if this is the first Remote Agent with Direct Access. The **Remote Agent with Direct Access Configuration** dialog box appears only if a Remote Agent with Direct Access already exists.
- 5 Complete the options to set up the remote agent.
- 6 On the **Sharing** tab, select each media server to which you want the remote agent to have direct access.
- 7 Click **OK**.
- 8 Restart the Backup Exec services on the media servers that you selected in step 6.

General Options for a Remote Agent with Direct Access

The following options are available for remote agents with direct access.

Description Item

Indicates the name of the computer that you want to add as a Remote Agent with Direct Access.

Note: The naming format that you use to enter the computer name must also be used to select the remote computer for backup. For example, if you use the IP address here, you must also use the IP address for the backup selection. Otherwise, source-side deduplication does not occur.

Server

Indicates the port to use for communications between the media server and the remote computer.

Port

Displays a description that you choose.

Enable ICMP ping operations for BackupExec to detect the server

Lets the media server use ICMP ping to locate the remote computer.

Logon account

Indicates the logon account that is required to access the remote computer.

Initiating an OST Backup

See the *Backup Exec User's Guide* for information on creating a backup policy to backup data to an OST disk pool.

Once the backup policies are configured, optimized duplication begins after the backup completes.

Initiating an OST Optimized Duplication

The DXi has the capability to copy data on one system to another system (that is, the capability to perform replication). Backup Exec uses this capability to initiate an optimized duplication of backup images between these appliances. The duplication operation of Backup Exec triggers the duplication function in the OST disk appliance if both the source and destination volumes for the copy are OST LSUs.

OST optimized duplication reduces the workload on the Backup Exec media server because the replication is performed by the DXi. Duplication is done in the background, and it is faster because it uses Quantum's data deduplication capabilities to reduce the copy bandwidth. Duplication is still initiated, managed, and controlled by the Backup Exec media server while the actual data movement process is off-loaded to gain the maximum benefits from the Quantum appliance's replication capabilities.

OST optimized duplication can be used for duplication from or to a DXi as a disk backup target.

Note: To increase the performance, Quantum recommends configuring the DXi to use the replication channel when performing optimized duplication (see [Replication Channel for OST](#) on page 21)

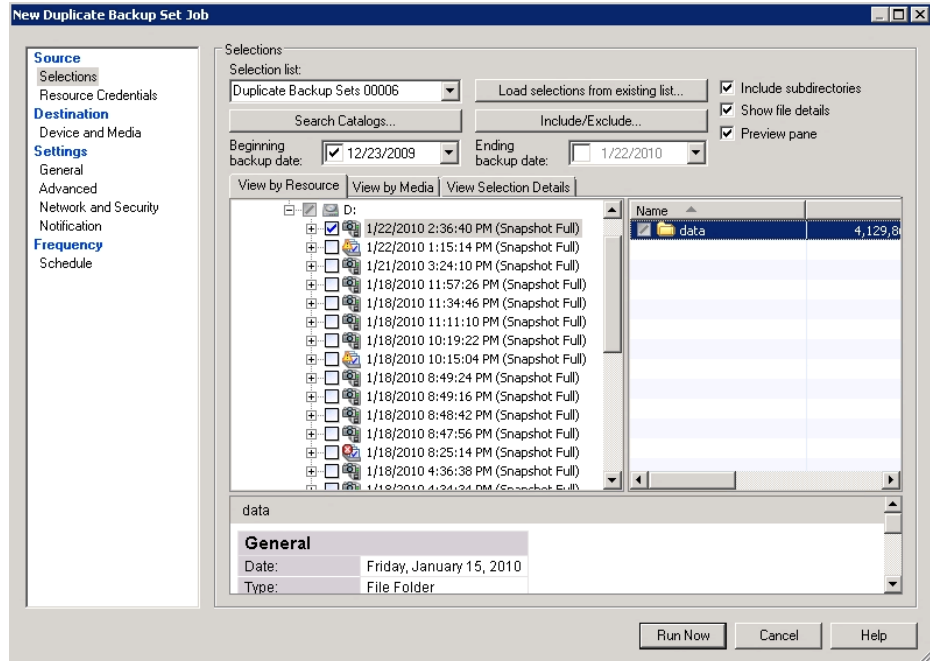
Note: No more than two concurrent optimized duplication streams per source DXi to a target DXi are supported. Additional concurrent streams are not optimized.

To initiate an optimized duplication with the **Administration Console**:

- 1 In the **Backup Exec** console, navigate to the **Job Setup** tab.
- 2 In the **Backup Tasks** section of the **Job Setup** tab, click **New job to duplicate backup sets**.

The **New Duplicate Set Job** window displays (see [Figure 14](#)).

Figure 14 New Duplicate Backup Set Job Window



3 There are two duplication options:

- Duplicate Existing Backup Sets
- Duplicate Backup Sets Following a Job

Select the default option **Duplicate Existing Backup Sets**.

4 In the **Selections** section, select a previously successful backup job.

5 In the **Device and Media** section, select a destination OST device in the **Device** drop down menu. This device must reside on the optimized duplication target.

6 In the **General** section, select a source OST device in the **Preferred Source Device** drop down menu. This device must reside on the optimized duplication source.

7 In the **Schedule** section, select a **Date and Time** to schedule the job.

8 When all options are selected, click **Run Now** to start the job.

For more information, see "Duplicating Backup Images" in the *Backup Exec Administrator's Guide*.

Replication Channel for OST

Replication Channel for OST allows the DXi to use the replication channel to perform optimized duplication. This significantly increases performance. In addition, more than two optimized duplication streams per source DXi are supported.

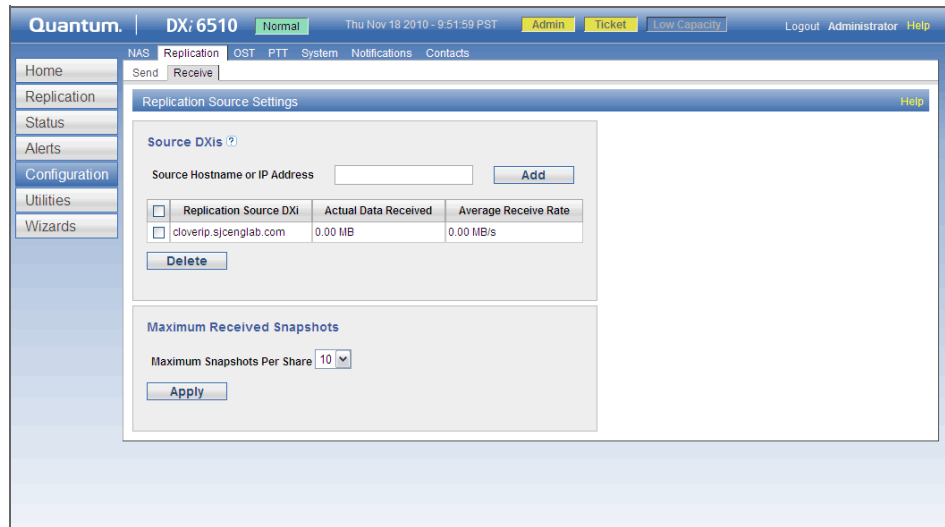
Note: When using Replication Channel for OST, only a single replication target can be configured on the DXi.

Caution: Replication Channel for OST requires the replication segments of the source and target DXis to be on the same subnet.

To use Replication Channel for OST when performing optimized duplication:

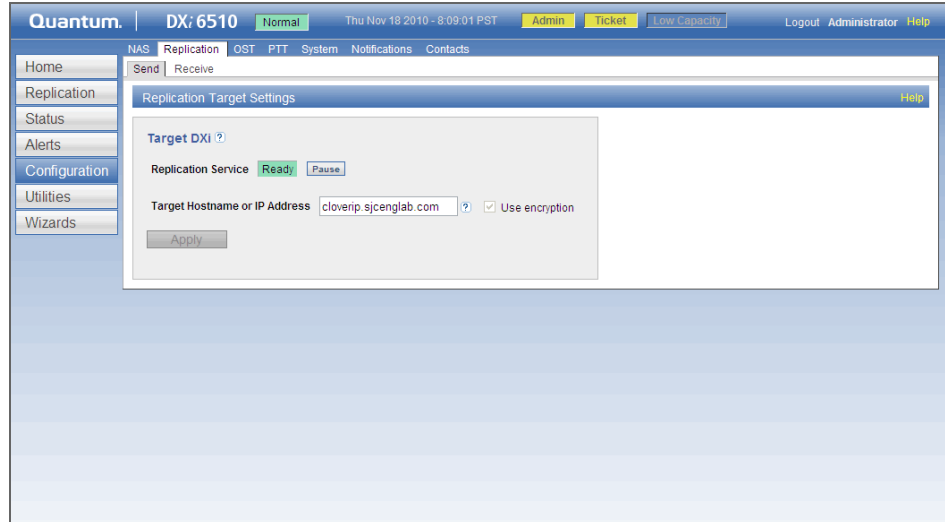
- 1 Log on to the DXi remote management console.
- 2 On the target DXi, perform the following steps:
 - a Navigate to the **Configuration > Replication > Receive** page (see [Figure 15](#)).

Figure 15 Replication Receive Page



- b In the **Source Hostname or IP Address** box, enter the host name or IP address of the system that will send the replicated data to the DXi6500.
 - c Click **Add**.
- 3 On the source DXi, perform the following steps:
 - a Navigate to the **Configuration > Replication > Send** page (see [Figure 16](#)).

Figure 16 Replication Send Page



- b In the **Target Hostname or IP Address** box, enter the host name or IP address of the system that will receive the replicated data.
- c (Optional) Select the **Use Encryption** check box to use encryption when sending replicated data to the target.

Note: For best performance, if your data network is already secured, do not select the **Use Encryption** check box.

- d Click **Apply**.

4 Perform optimized duplication as normal.

Enabling Verbose Logging

OST Plug-in Log

The OST Plug-in logs various messages to %WINDIR%\libstspiQuantum*.log on Windows.

Example

```
# tail -f /var/log/ostlog/client/ost_client.log
```

```
DEBUG - 20080725 16:12:43 15982 pgnapi.c:57 Plugin Prefix  
Quantum claimed.
```

```
DEBUG - 20080725 16:12:43 15982 pgnapi.c:58 stspi_claim  
exited
```

```
DEBUG - 20080725 16:12:43 15982 pgnapi.c:754  
stspi_get_server_prop_byname_v9 entered
```

```
DEBUG - 20080725 16:12:43 15982 comm.c:939 ostSendRequest:  
message:0x20000005
```

```
DEBUG    - 20080725 16:12:43 15982 pgnapi.c:798
stspi_get_server_prop_byname_v9 exited

DEBUG    - 20080725 16:12:43 15982 pgnapi.c:44 stspi_claim_v9
entered

DEBUG    - 20080725 16:12:43 15982 pgnapi.c:57 Plugin Prefix
Quantum claimed.

DEBUG    - 20080725 16:12:43 15982 pgnapi.c:58 stspi_claim
exited

DEBUG    - 20080725 16:12:43 15982 pgnapi.c:207
stspi_open_server_v9 entered

DEBUG    - 20080725 16:12:43 15982 comm.c:939 ostSendRequest:
message:0x20000002
```

OST Plug-in Configurable Options

The following OST Plug-in configurable options are supported:

1 LOG_LEVEL:

This defines the level of logging to enable. The value of this option defines the level of log messages to output.

- NONE - Disables logging for the logger.
- TRACE - Enables tracing to error messages.
- DEBUG - Enables debug to error messages.
- INFO - Enables information to error messages.
- WARN - Enables warning and error messages.
- ERROR - Enables only error messages.

2 LOG_LIMIT:

This defines the maximum file size (in byte) for the logger. Default size of the log file is 10MB. Increase this value if more logging has to be captured.

Edit %WINDIR%\libstspiQuantum*.ini to change the default values.