Autodesk®
Lustre® 2010
A Discreet® systems product

Installation and Configuration Guide for Windows® Workstations

Autodesk®

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Introduction 1

Topics in this chapter:

About This Guide

This guide provides information about installing the current version of Autodesk® Lustre® software on the hardware components in your Lustre Windows® system. Use this guide in conjunction with the *Hardware Setup Guide* for your platform to install and configure the hardware and software components of your Lustre system.

NOTE In most cases, both hardware setup and application installation is done on delivery by an authorized technician, so you may not need to perform all of the procedures in these guides.

Related Documentation

The complete documentation set is available in PDF (Portable Document Format). You can access the PDF files from the *Documentation* folder of the Lustre software disc, or from *http://www.autodesk.com/lustre-documentation*.

NOTE For the best results viewing and printing PDF files, use Adobe® Acrobat® Reader™ 6 or later. You can download a free copy of Acrobat Reader from the Adobe Web site (*http://www.adobe.com*).

Notation Conventions

A number of style conventions are used throughout your documentation. These conventions and examples of their use are shown as follows.

Convention	Example
Text that you enter in a command line or shell appears in Courier bold. Press the Enter key after each command.	**`install rpm -qa`**
Variable names appear in Courier, enclosed in angle brackets.	`<filename>`
Feedback from the command line or shell appears in Courier.	`limit coredumpsize`
Directory names, filenames, URLs, and command line utilities appear in italics.	*/usr/discreet*

Contacting Customer Support

For Autodesk Media and Entertainment Customer Support, visit *http://www.autodesk.com/support*.

Customer support is also available through your Autodesk reseller. To find a reseller near you, consult the reseller look-up database at *http://www.autodesk.com/resellers*.

Safety Guidelines

Consider the following environmental and safety guidelines when working with hardware components:

- When you receive your shipment, check all the boxes for dents or other markings that may indicate damage during transport. If you suspect a component is damaged, carefully inspect it before setting up the system. If you receive a damaged component, call Customer Support.

  NOTE Use the enclosed packing checklist to ensure that you received all of the parts.

- Place all components in an air-conditioned environment. All hardware components generate heat and must be kept cool.
- Make sure the rack on which hardware components are mounted is open or well ventilated. Follow the ventilation specifications that apply to your system.
- Keep all hardware components in a clean, dust-free location.
- Minimize vibration and humidity.
- Do not block the vents on the component housing.
- Do not drape anything, such as a jacket or a blanket, over hardware components.
- Make sure power is turned off on the components you are working on. It is a good idea to unplug components until all other connections are configured.
- Read and observe warning labels on hardware components, enclosures and drives.

- Always wear a grounded static wrist strap. Attach the strap's alligator clip to any grounded metal surface on the component's chassis that you are working on. Place the wristband around your wrist. Is is also recommended to wear a heel strap or boot strap.
- Do not handle any components unnecessarily, particularly cards that slide in and out of PCI slots on their parent hardware components.
- Properly ground your audio components. Otherwise, you may have ground loops, or humming in the system. To ensure audio components are properly grounded, use the XLR-3 cables shipped with your system. Using any other cables may cause humming in the system.
- Minimize electromagnetic noise by separating digital data and power cables from analog audio cables and running them in different cable ducts.

Lustre Hardware and Software Components

A Lustre system consists of a number of different hardware and software components. This section describes each of the hardware components in a Lustre installation, and the software associated with each component. You may or may not have all of the components listed here in your Lustre installation. The type of workgroup, as well as the feature set you purchase for each of the workstations in that workgroup, determine the components in your installation.

Lustre Workstations

There are three kinds of Lustre workstations: the Master Station, the HD Station, and the Lustre Station. Every Lustre installation is built around either a Master Station or an HD Station. The optional Lustre Station offers a way to improve the efficiency and cost-effectiveness of a pipeline by offloading tasks that do not require the full feature set of the Master Station or HD Station.

Master Station

The Master Station is designed for GPU-accelerated sessions where the colorist works together with the cinematographer. It includes an extensive creative toolset for elaborate visual design and grading, using up to 4K resolution and 16-bit files and for completing tasks like dust busting, conforming, rotoscoping, and capture/playout. It also includes SD and HD I/O, dual link and HSDL video formats, and the film workflow features, which consist of infrared channel dust removal and support for all standard input and output resolutions and bit-depths.

The Master Station can support up to three panels of the Autodesk Control Surface and, with an additional license, a Slave Renderer.

HD Station

The HD Station is a cost-effective GPU workstation for conforming, preparing, grading, and mastering short-form and long-form HDTV projects, as well as HD film projects, and mastering to different formats. It does not include the film workflow features. File input is limited to 10-bit 2K resolution, and file output is limited to SD and 10-bit HD resolution.

The HD Station can support up to three panels of the Autodesk Control Surface and, with an additional license, a Slave Renderer. Dual link and HSDL video formats are available with the purchase of a separate video I/O license.

Lustre Station

Tasks that do not require the direct intervention or supervision of the colorist can be efficiently handled by a Lustre Station. Multiple Lustre Stations can work in parallel to increase throughput and can be used for tasks such as dust-busting, preparatory work, fine-tuning creative sessions, conforming data from EDLs,

updating editorial changes, and mastering to different formats using the real-time deliverables function. The Lustre Station includes the film workflow features, and the ability to create geometries and masks.

Primary colour grading on the Lustre Station requires a separate license. The following features also require an additional license: SD and HD I/O, dual link and HSDL video formats.

The Lustre Station does not support the Slave Renderer.

Other Components

You can expand the features of your Lustre system and improve the efficiency of your workflow by adding any of the following components.

Control Surface The Autodesk Control Surface provides improved interactivity when colour grading film and video footage. You can perform many of the same tasks you do in the Lustre user interface using the Control Surface.

You connect the Autodesk Control Surface to a Master Station or HD Station, and configure the Control Surface on the workstation to which it is connected.

Video I/O Card and Breakout Box On the HP® xw8600 workstation, video I/O is provided by the AJA card, while other workstations use the DVS Centaurus card. Both video boards consist of an HD/SD card and a breakout box. This configuration provides real-time SDI input and output of uncompressed 8- or 10-bit HD or SD video in both YUV (4:2:2) and RGB formats (4:4:4 or 4:2:2). For a list of supported video formats, see the *Autodesk Lustre User Guide*.

Slave Renderer The Slave Renderer is a rack-mounted server that frees system resources by automatically off-loading render tasks, thus ensuring real-time interaction on the Lustre system.

You can connect the slave renderer directly to an on-board GigE port of your Lustre workstation, or you can connect the slave renderer to a switch on your house network.

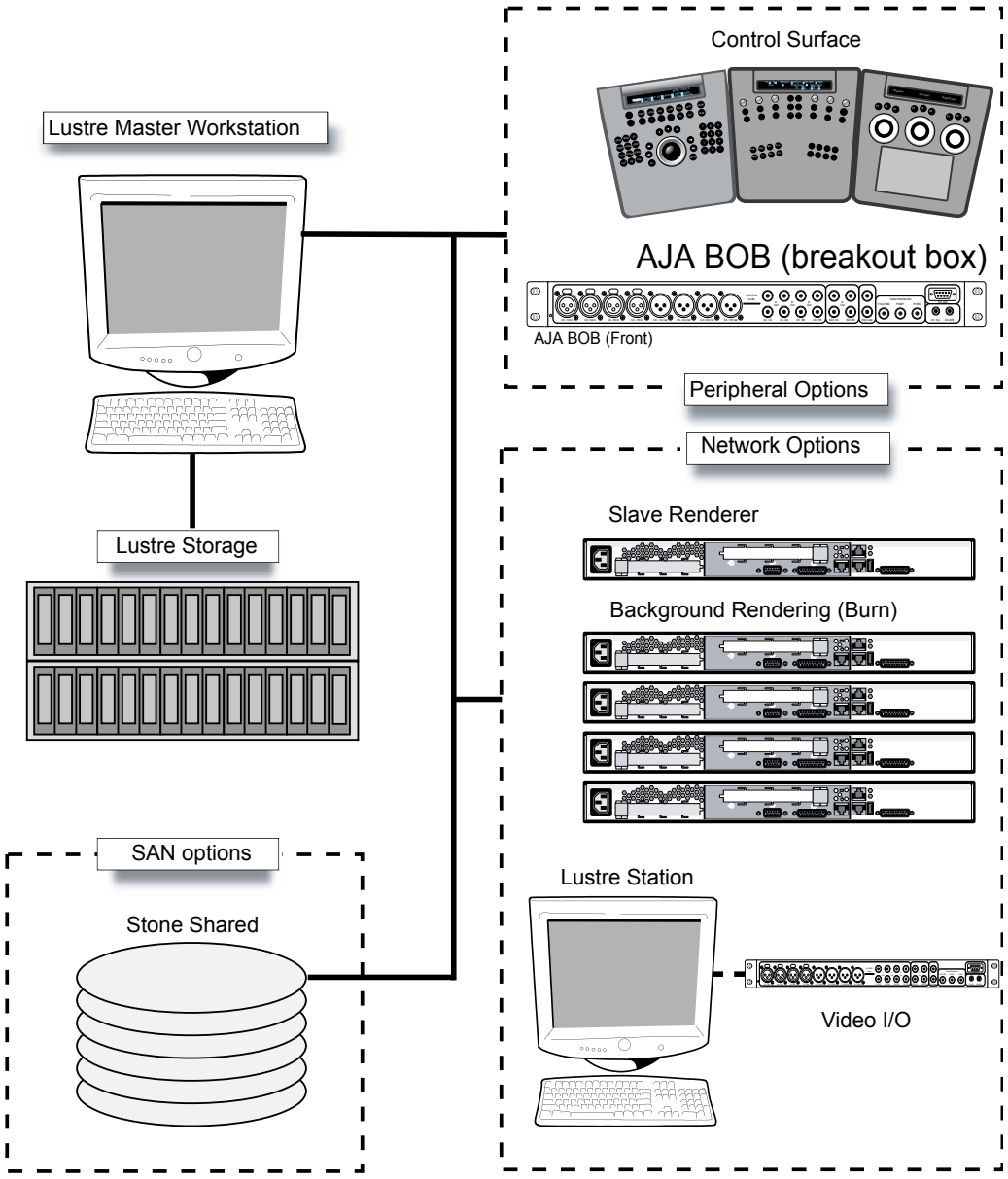
NOTE When connecting the slave renderer to the house network, make sure only one Lustre station uses it.

You install the Slave Renderer software package on the Slave Renderer.

Background Renderer Background rendering frees up Lustre workstations for colour grading. You can use up to eight background rendering machines to process your final frames.

You install background rendering software on each background render node.

The following illustration shows a typical Lustre workgroup configuration built around a Master Station. It includes a Lustre Station, and other optional components.


Control Surface
Lustre Master Workstation
AJA BOB (breakout box)
AJA BOB (Front)
Peripheral Options
Network Options
Slave Renderer
Lustre Storage
Background Rendering (Burn)
SAN options
Lustre Station
Stone Shared
Video I/O

Preparing Your System

2

Topics in this chapter:

Overview

Lustre Windows workstations were shipped with the operating system already installed and configured by Autodesk, so, under normal circumstances, you do not need to install the operating system yourself.

This chapter describes how to reinstall and reconfigure Windows XP, if necessary (for example, following a system drive failure, or an unrecoverable operating system failure). It also explains how to install hardware drivers and firmware, create Windows users, configure your display, and set up your storage.

Reinstalling Windows XP

Lustre requires Windows XP Professional SP2.

Install Windows XP, as described in the Microsoft® documentation, using a standard install.

For specific information concerning the operating system install, refer to the installation documentation provided with your copy of Windows XP Professional.

Installing Drivers and Firmware

When your workstation was shipped from Autodesk, the installation kits for all of the required drivers and firmware were originally copied to the *c:\drivers* folder.

From time to time, you might be required to upgrade the drivers or firmware for certain hardware components, as new versions become available. Consult the *Autodesk Lustre Release Notes* for information on the drivers required for this version of Autodesk Lustre.

WARNING Do not upgrade the drivers or firmware on your system with the latest provided by the manufacturer unless you are specifically advised to do so in the *Autodesk Lustre Release Notes* for your version, or by Autodesk Customer Support.

The latest drivers are available in the *Windows\Drivers* folder of the Autodesk Lustre DVD, and are also bundled with the downloadable Lustre software installation package. The download path for the Lustre installation package is provided in the Release Announcement you received from Autodesk. Note that only major releases are shipped on a DVD.

If you cannot locate the drivers you need, contact Autodesk Media and Entertainment Customer Support.

Upgrading the NVIDIA Graphics Card Driver

If you are upgrading from a previous version of Lustre, upgrade your NVIDIA graphics card driver before you upgrade Lustre. You must upgrade the NVIDIA driver on all Lustre workstations that run the Lustre user interface.

To identify the version of the NVIDIA driver running on your system:

1. Open the Device Manager. Right-click My Computer, select Manage, and then click Device Manager.
2. In the Display Adapters folder, right-click the NVIDIA device and select Properties.
   The Properties dialog box opens.
3. Click the Driver tab and verify that the driver version is the same as the one recommended in the latest Release Notes.
4. If you are using another version of the driver, you must upgrade it to the one supported for this release.

To upgrade your NVIDIA graphics card driver:

1. Access the driver upgrade package from the Lustre DVD (in the *Windows\Drivers\NVIDIA* folder), or from the downloaded Lustre installation *.zip* package (in the *Drivers\NVIDIA* folder).
2. In the *NVIDIA* folder, double-click the *.exe* file to start the driver update.
   The NVIDIA Install Shield Wizard opens.
3. Click Next to continue the upgrade procedure.
   A Hardware Installation warning message appears.
4. Click Continue Anyway.
   The driver installs.
5. Select Yes, I want to restart my computer now, and click Finish.
   After you reboot, the NVIDIA graphics card driver is installed.

Installing the AJA Card Driver

If you reinstalled Windows on a HP workstation equipped with an AJA card, perform the following procedure to install the AJA card drivers.

To install the AJA driver:

1. Access the driver upgrade package from the Lustre DVD (in the *Windows\Drivers\AJA* folder), or from the downloaded Lustre installation *.zip* package (in the *Drivers\AJA* folder).
2. Open the Device Manager. Right-click My Computer, select Manage, and then click Device Manager.
3. Right-click the Multimedia Video Controller with a yellow exclamation mark, and select Update Driver.
4. Follow the on-screen instructions.
5. When asked: "Can windows connect to windows update to search for software?", select No.
6. When asked: "What do you want to do?", select "Install from a list or a specific location (advanced)."
7. Select "Search for the best driver in these locations."
8. Browse to the location where the AJA driver upgrade package is, and then click Next.
9. Once the update finishes, restart the workstation.

Upgrading the DVS Card Firmware and Drivers

If your HP workstation uses a DVS video card (only available on HP xw8400 workstations), use the following sections to upgrade its firmware and drivers, if necessary.

If your workstation uses an AJA card, you do not need to follow the instructions below.

Upgrading the DVS Firmware

If your workstation is equipped with a DVS Centaurus 1 or Centaurus 2 card, you may need to upgrade the DVS firmware. The latest firmware version for DVS Centaurus 1 is *2.1.50b36*, and the latest firmware version for DVS Centaurus 2 is *3.2.68.3_7_1*. If you did not upgrade your card to these firmware versions in the past, perform the following procedures to upgrade the firmware.

To upgrade your Centaurus 1 DVS firmware:

1. Obtain the DVS Centaurus 1 firmware (*irisup_2.1.50b_36.exe*) from Autodesk Customer Support.
2. Double-click the *irisup_2.1.50b36.exe* file.
   A DOS shell appears and the DVS firmware procedure is launched.
3. When the 'Are you sure that you want to continue?' message is displayed, type 'y' and then hit the **Enter** key in the DOS shell.
4. Once the upgrading operation is complete, reboot the computer.

To upgrade your Centaurus 2 DVS firmware:

1. Obtain the DVS Centaurus 2 firmware (*lucyup_3.2.68.3_7_1.exe*) from Autodesk Customer Support.
2. Double-click the *lucyup_3.2.68.3_7_1.exe* file.
   A DOS shell appears and the DVS firmware procedure is launched.

3 When the 'Are you sure that you want to continue?' message is displayed, type 'y' and then hit the **Enter** key in the DOS shell.

4 Once the upgrading operation is complete, reboot the computer.

Upgrading the DVS Driver

You might be required to upgrade the DVS driver on all Lustre workstations that have a DVS board for video input/output. Refer to the latest Release Notes to see if you have the supported DVS driver version. If your driver is an older version, please upgrade your DVS driver.

To verify the version of the DVS driver running on your system:

1 Open the Device Manager. Right-click My Computer and select Manage, and then click Device Manager.

2 In the Sound, video, and game controllers folder, right-click your DVS device and select Properties. Your DVS device may appear as Centaurus or HD Station.

The Properties dialog box opens.

3 Click the Driver tab and verify that you have the correct driver version.

4 If you are using another version of the driver, you must upgrade it to the one supported for this release.

To upgrade the DVS driver:

1 Access the old DVS driver package at *C:\Program Files\Autodesk\DVS\sdk2.7p28\win32\bin*

2 Double-click *dvsconf.exe*.

3 Click Unload in the DVSconf properties window.

4 Close the *dvsconf.exe* application.

5 Access the driver upgrade package from the Lustre DVD (in the *Windows\Drivers\DVS\sdk2.7p57\win32\bin* folder), or from the downloaded Lustre installation *.zip* package (in the *Drivers\DVS\sdk2.7p57\win32\bin* folder).

6 Double-click *dvsconf.exe*.

7 Click Browse.

8 In the browser window, go to the DVS *sdk2.7p57* driver folder.

9 Select the *dvswin2k.sys* file and click Open.

10 Click Load.

11 Close the *dvsconf.exe* application.

The *sdk2.7p57* DVS driver is now installed on the Lustre workstation.

Installing the Autodesk Control Surface Tablet Driver

If you require the use of the pen and tablet functions of the Autodesk Control Surface, you must install the tablet driver on your Lustre workstations.

To install the Autodesk Control Surface tablet driver:

1. Download the driver upgrade package to a temporary location on your system. Contact Autodesk Media and Entertainment Customer Support for the download path. See Contacting Customer Support on page 2.
2. Double-click *cons4.94-3a_int.exe*.
3. In the Self-Extractor window, click Setup.
4. In the Pen Tablet – License Agreement window, click Accept.
5. In the Install Pen Tablet window, click OK.

   The *cons4.94-3a* driver is now installed on the Lustre workstation.

SDP over Infiniband Support

To be able to have a high-speed IB connection, you need to install the latest Windows IB driver on the Lustre workstation and the latest Linux® IB driver on the Visual Effects and Finishing workstations on your network.

Lustre supports a socket direct protocol (SDP) over IB connection in addition to the continued support of the IP over IB connection. The performance advantage of the SDP over IB solution is the ability to transfer up to 2K 10-bit source footage in real-time over Wiretap®.

NOTE If using an SDP over IB connection and you choose to manually configure specific Wiretap servers in the *init.config* file, make sure you input the Gigabit Ethernet IP addresses of the Wiretap host machines and not the Infiniband IP addresses.

Driver and Firmware Requirements for the IB Switch and Visual Effects and Finishing Workstation

The following lists the required drivers and firmware for the Infiniband Switch and Linux driver on your Visual Effects and Finishing application.

Device	Device Requirements
IB switch	Silverstorm 9024 DDR and SDR switch firmware 4.1.1.1.11
Lustre system IB HCA	Silverstorm PCI-X SDR 7000 series firmware 3.5.000
Smoke®/Flame® system IB HCA	Silverstorm PCI-E DDR 9000 series firmware 5.3.0
Visual Effects and Finishing workstation	Silverstorm PCI-E DDR 9000 series Linux driver 4.1.1.3.1
Lustre workstation (Windows)	Silverstorm HCA Windows driver 3.2.0055.14

SDP over Infiniband Driver and Firmware Installation

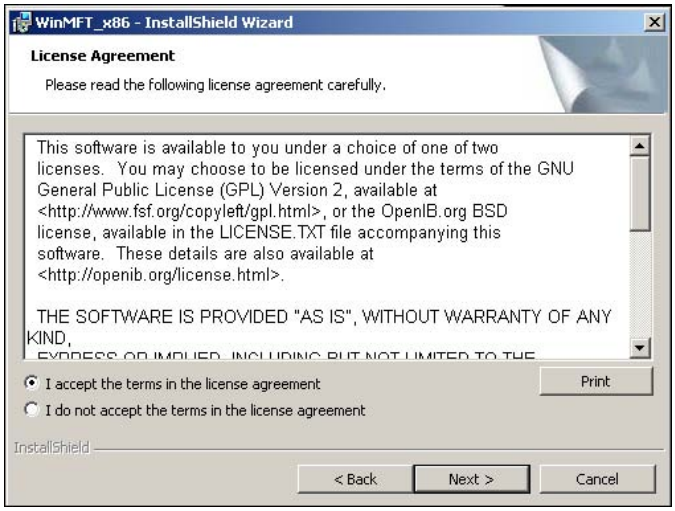
Perform the following workflow to acquire and install the appropriate firmware and drivers for SDP over IB support on your Lustre workstation.

Step	Action
1.	Contact your local Autodesk Customer Support office for details on how to: ■ Acquire the correct drivers, firmware, and utilities.

Step	Action
	■ Upgrade your switch firmware. See Contacting Customer Support on page 2.
2.	Perform an update of your Windows HCA firmware. **WARNING** This update must be done with the previous IPoIB-only driver currently installed on your Lustre workstation.
3.	Uninstall all previous IB drivers.
4.	Install the HCA driver.
5.	Install the IP over IB device.
6.	Configure SDP.
7.	Verify SDP services and provider are installed and running.

To update your Windows HCA firmware:

1. Double-click the file called *WinMFT_x86-1_0_1.msi*.
   The WinMFT_x86 - InstallShield wizard is launched.
2. Read and accept the license agreement and input the required installation information into the wizard.



NOTE Accept the default installation path.

3. Unzip the firmware and copy *fw-23108-3_5_000-MHXL-CF128-T.bin* to *C:\Program Files\Mellanox\MFT\bin*.
4. In a Windows command shell, type:
   `cd C:\Program Files\Mellanox\MFT\bin`
   `flint -d mt23108_pciconf0 -skip_is -i fw-23108-3_5_000-MHXL-CF128-T.bin burn`
   The following confirmation message appears:

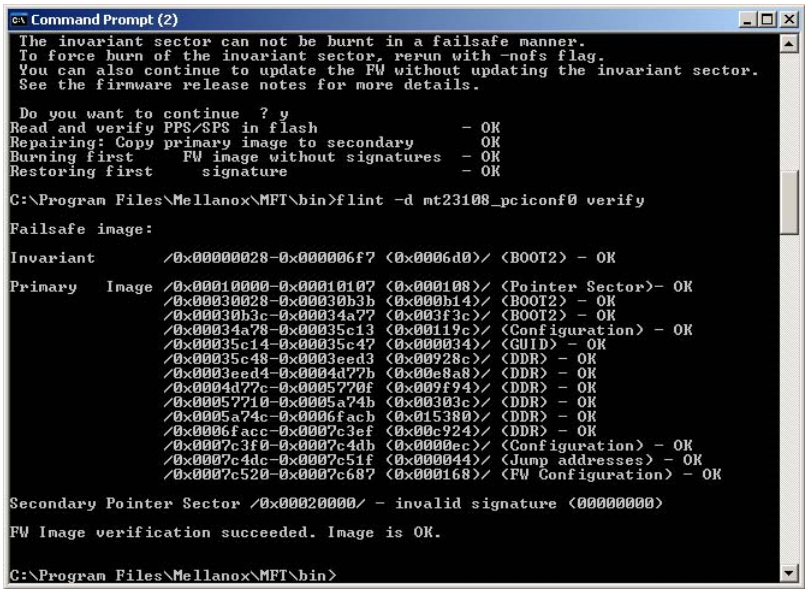
You are about to replace current PSID in flash - " with a different PSID - "MT_0030000001". Is it OK? <y/n> [n]:

Type **y** to confirm the action, then hit **Enter**.

5 To confirm the card has been flashed, in the command shell, type:

flint -d mt23108_pciconf0 verify

A successful flash results in the following system response.



To remove an older IB driver:

1 Stop all I/O traffic.

2 Exit the Lustre application.

3 From the Device Manager, uninstall the following:

- All IPoIB adapter instances
- InfiniBand Fabric device (under the System Device category)
- All InfiniBand Host Channel adapters

4 In the Control Panel, select Add/Remove Programs.

5 Remove *SilverStorm HCA*.

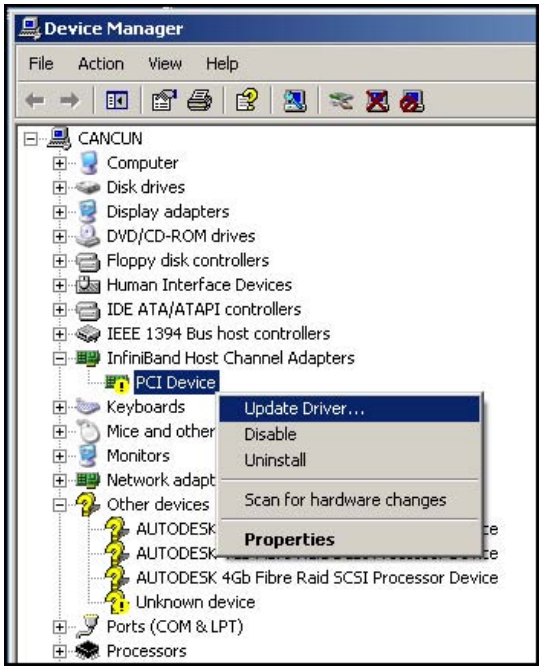
6 Reboot.

To install the HCA driver:

1 Double-click the *SilverStorm 3.2.0055.14* driver package on your target system to install the HCA driver.

NOTE Accept the default settings.

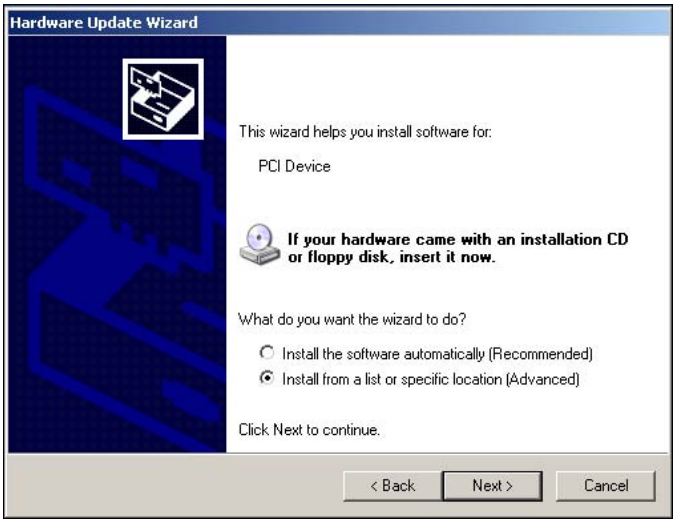
2 In the Device Manager, under Infiniband Host Channel Adapters, right-click PCI Device and select Update Driver.



The Hardware Update Wizard appears.

3 Select No, not this time for Windows Update and click Next.

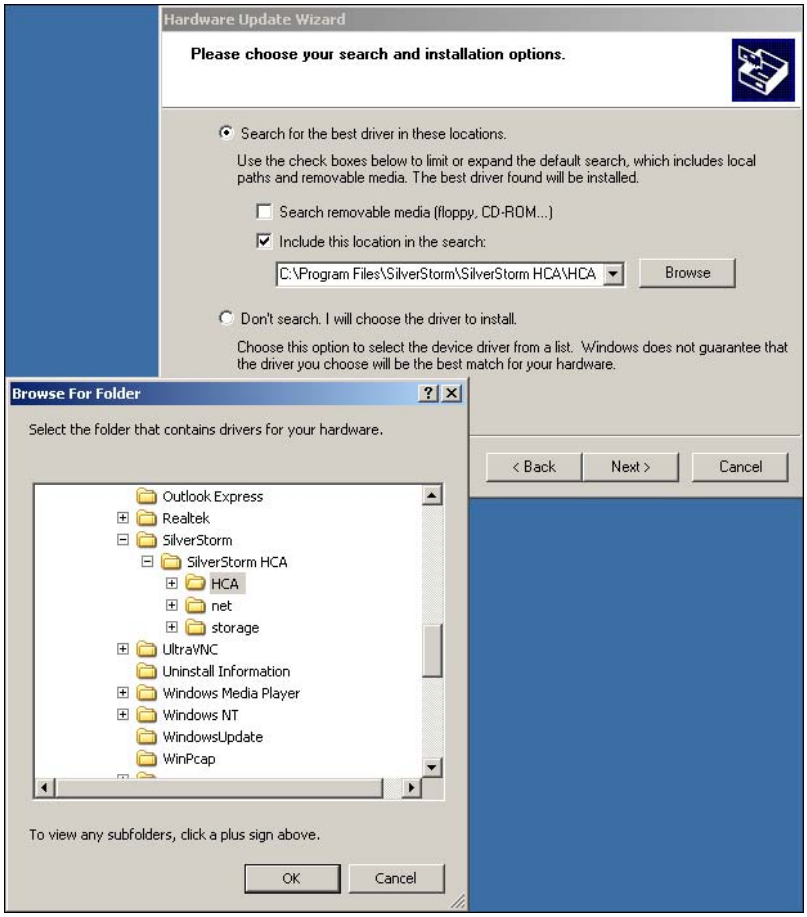
4 Select Install from a list or specific location (Advanced) and click Next.



5 Uncheck Search removable media.

6 Check Include this location in the search.

7 Browse to *C:\Program Files\SilverStorm\SilverStorm HCA\HCA* and click Next.



Your Infinihost MT23108 HCA installation is now complete.

Two new IPoIB adapters will now be automatically detected.

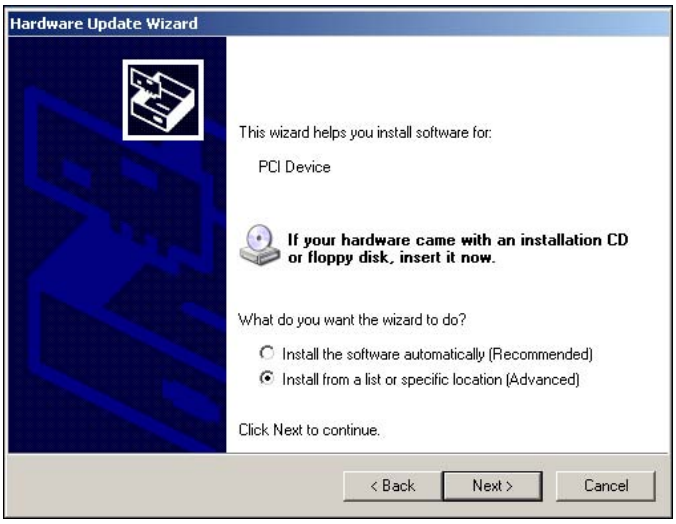
8 Reboot your workstation.

To install the IP over IB device:

1 Upon reboot, the New Hardware wizard discovers two IPoIB devices, one per HCA port, and begins installation.

2 Select No for Windows Update and click Next.

3 Select Install from a list or specific location (Advanced).



4 Browse to *C:\Program Files\SilverStorm\SilverStorm HCA\net* and click Next.

5 Complete the New Hardware wizard to complete the IPoIB device installation.

6 Open Windows Explorer and browse to *C:\Program Files\SilverStorm\SilverStorm HCA\net*.

7 Locate and right-click *netipoib.inf*.

8 Select Install.

To configure SDP:

1 Open Windows Explorer and browse to *C:\Program Files\SilverStorm\SilverStorm HCA\net*.

2 Locate and right-click *instsdp.inf*.

3 Select Install.

4 Browse to *C:\Program Files\SilverStorm\SilverStorm HCA*.

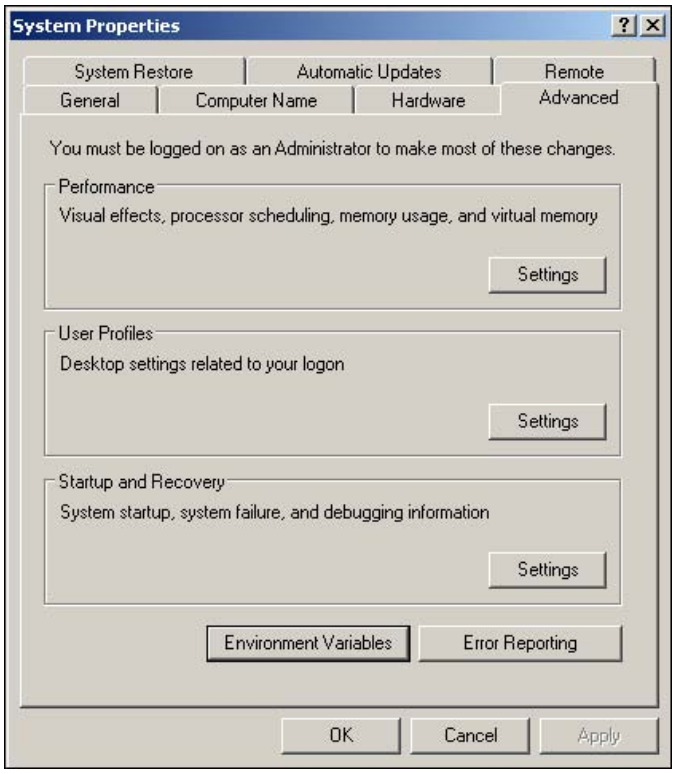
5 Double-click *Autodesk-SDP-Config.bat*.
A confirmation dialog box is displayed.

6 Confirm the action by clicking Yes.
An event dialog box is displayed confirming *Autodesk-SDP-Reg.reg* has been entered into the registry.

7 Click OK.

8 On the desktop, right-click My Computer and select Properties.

9 Select the Advanced tab and click Environment Variables.



10 Click New under User Variables and add:

- *SdpApplications=lustre.exe;browsed.exe*
- *SdpAddresses*=<`wiretap-server IB address` > (for example, SdpAddresses=10.10.11.203)

NOTE Any additional Lustre-related processes over IB SDP should also be added, separated by a semi-colon.

Socket applications will now use the SDP Provider.

11 Install the SDP provider in a Windows command shell. Type:

```
cd C:\Program Files\Silverstorm\SilverStorm HCA\net\x86
InstallSdpProvider -i
```

12 Reboot your system.

To verify SDP services and SDP provider are installed and running:

1 In a Windows command shell, type:

```
net start sdp
```

If SDP services are running, the system response will be:

The requested service has already been started.

2 In the command shell, type:

`cd C:\Program Files\SilverStorm\SilverStorm HCA\net\x86`

`InstallSdpProvider -i`

If the SDP Provider is properly installed, the system response will be:

Provider already installed, <doing nothing>

Related Infiniband Procedures

In addition to the workflow procedures, listed above, there are several procedures that are relevant to SDP over IB or IP over IB. They are as follows:

- Performing a clean driver uninstall of the IP over IB driver (outside the context of the above workflow)
- Stopping the SDP service manually
- Removing SDP

To perform a clean IP over IB driver uninstall:

1 Stop all I/O traffic.

2 Exit the Lustre application.

3 In a Windows command shell, type:

`net stop sdp`

4 From the Device Manager, uninstall the following:
   - All IPoIB adapter instances
   - InfiniBand Fabric device (under the System Device category)
   - All InfiniBand Host Channel adapters

5 In the command shell, type:

`cd C:\Program Files\SilverStorm\SilverStorm HCA\`

`CleanUninstall-Batch.bat x86`

A confirmation dialog box is displayed.

NOTE This batch file uninstall removes the SDP Provider, IB-related keys in the registry, device drivers, and dynamic link libraries.

---

6 Click Yes to confirm the action.

An event dialog box is displayed confirming that information in *Delete-IB-Reg.reg* has been deleted.

7 Click OK.

8 In the Control Panel, select Add/Remove Programs.

9 Remove *SilverStorm HCA*.

10 Reboot.

To stop the SDP service manually:

➤ In a Windows command shell, type:

```
net stop sdp
```

The system returns the following message:

The QLogic SDP Driver service was stopped successfully.

To remove the SDP Provider:

➤ In a Windows command shell, type:

```
cd C:\Program Files\SilverStorm\SilverStorm HCA\net\x86
InstallSdpProvider -r
```

The system returns the following message:

Removing Installed Layered Providers.

Removing layered provider protocol chains.

Installing the XR-Series Storage Drivers

After you connect your XR-Series storage and reboot Windows, you must install the XR-Series drivers. The Found New Hardware Wizard launches as soon as you re-start Windows. Use this wizard to install the drivers.

To install XR-Series storage drivers:

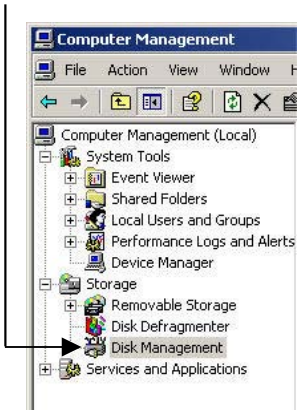
1. In the Welcome to the Found New Hardware Wizard window, select Install from a list or a specific location and click Next.
2. Insert the Storage CD-ROM into your CD-ROM drive.
3. Browse to your CD-ROM drive, open the *windows_XR_driver* folder, select the *autodesk_storage.inf* file, and click open.
4. Follow the on-screen wizard to complete the installation of your storage driver.

Converting and Initializing New Storage Disks

You must initialize your new storage before you can create the storage volume.

To convert and initialize new storage disks:

1. Right-click My Computer on your Desktop and choose Manage.
2. In the Computer Management window, select Disk Management in the Storage folder.

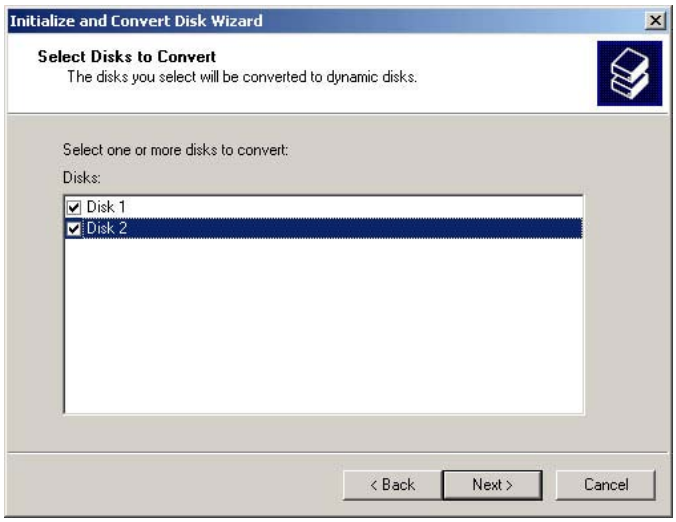


As soon as you choose Disk Management, Windows should recognize the un-initialized disks and prompt you to initialize them.

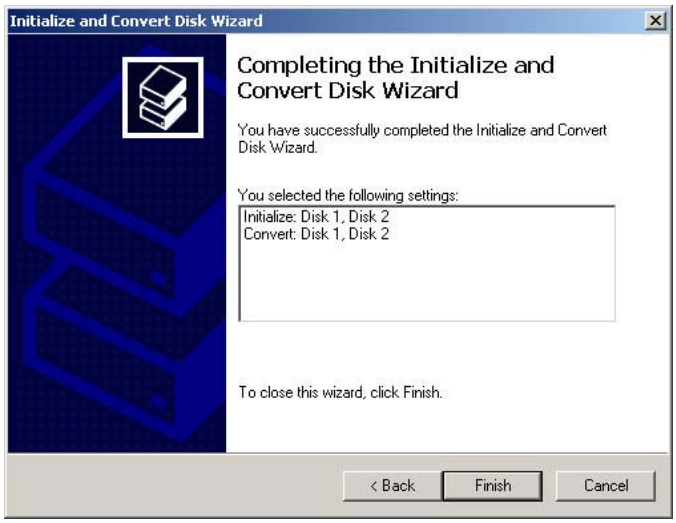
3 In the Welcome to the Initialize and Convert Disk Wizard window, click Next to continue.

4 By default, Windows selects all un-initialized disks. Click Next to initialize all selected disks.

5 In the Select Disks to Convert window, select all storage disks to convert them to dynamic disks and click Next.



6 In the Completing the Initialize and Convert Disk Wizard window, verify that all disks you want to include in your storage volume are listed and click Finish.



Formatting the Storage Volume

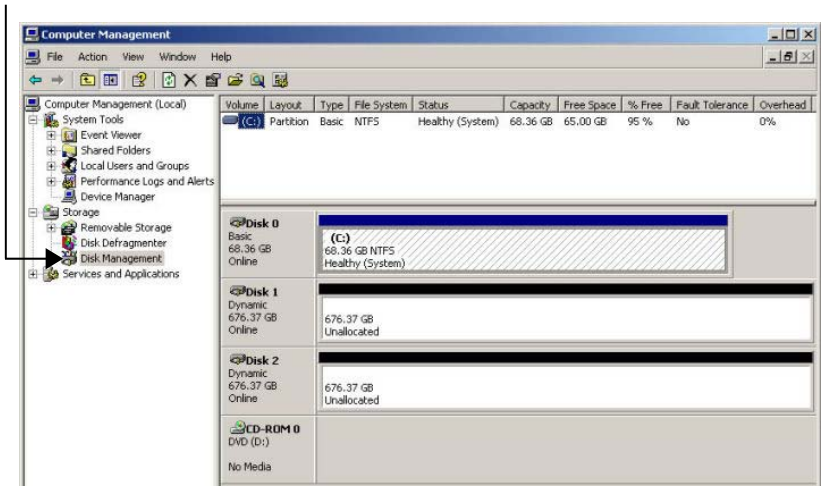
Once your storage is converted and initialized you are ready to create a single storage volume by striping the disks together.

NOTE For hardware RAID, your Logical Disks must be configured before you format the storage. Logical Disks are configured by Autodesk before they are shipped to you. To view the Logical Disks on your system, you can use the DSM for IR-Series storage or the Autodesk® Stone® Storage Manager (SSM) for XR-Series storage. For information on using DSM, see the *Discreet Storage Manager Installation and User Guide*. For information on using SSM, see the *Autodesk Stone Direct Storage Manager User Guide*. These documents can be obtained from Autodesk Customer Support.

To format the storage volume:

1 Right-click My Computer on your Desktop and choose Manage.

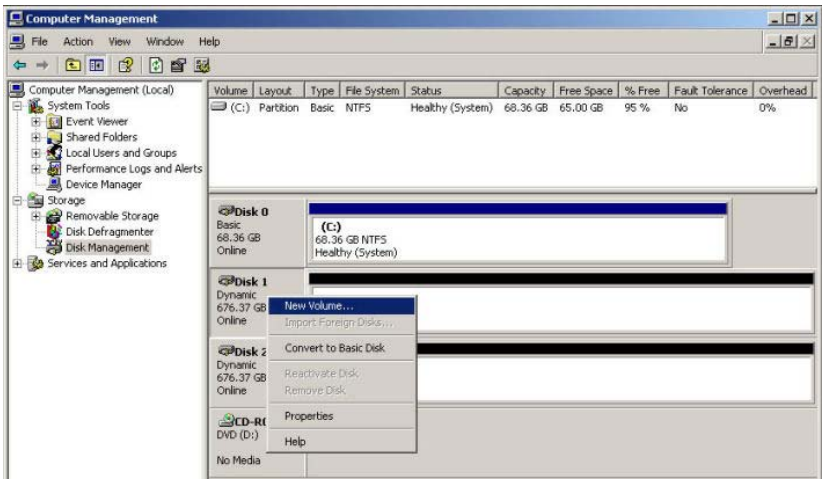
2 In the Computer Management window, select Disk Management in the Storage folder.



3 Verify that all storage disks are labelled as:

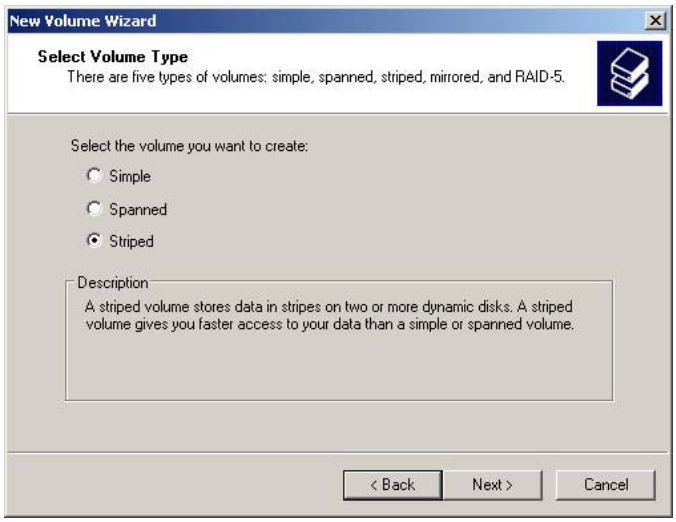
- Dynamic
- Online
- Unallocated

4 Right-click one of the storage disks and choose New Volume to launch the New Volume Wizard.



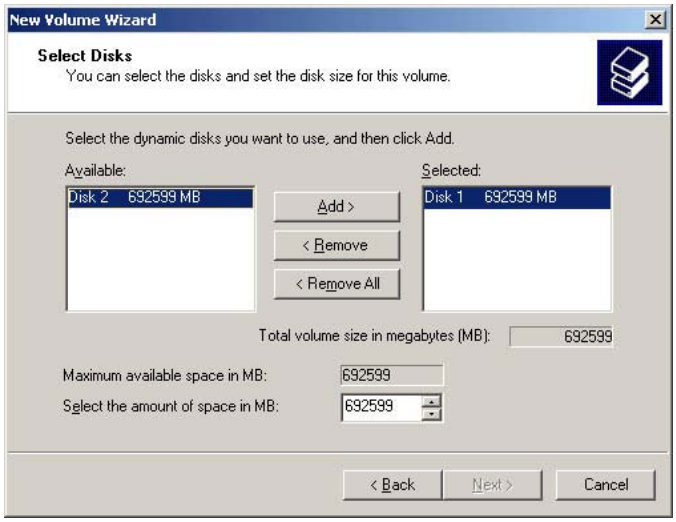
5 In the Welcome dialog box, click Next to start the Wizard.

6 In the Select Volume Type dialog box, select Striped and click Next.



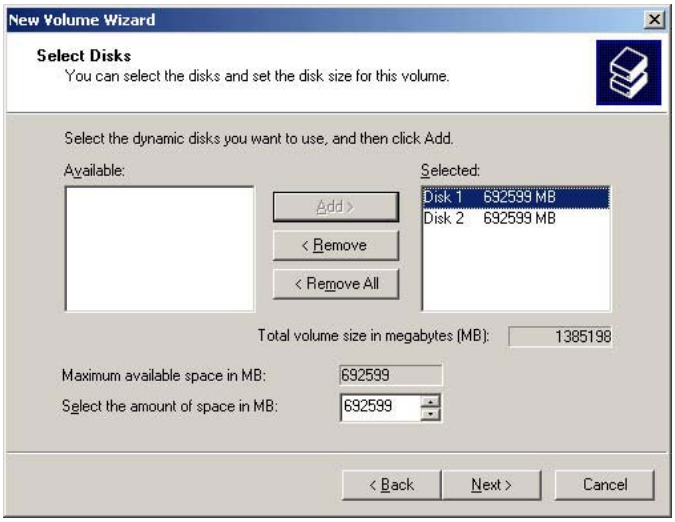
NOTE The Striped option creates a RAID 0 stripe set from multiple disks.

7 Select every storage disk you want to include in the storage volume from the Available column and click Add to move them to the Selected column.



NOTE By default, Windows selects only the disk you right-clicked to launch the Wizard.

8 When you have selected all the disks you want to include, click Next.

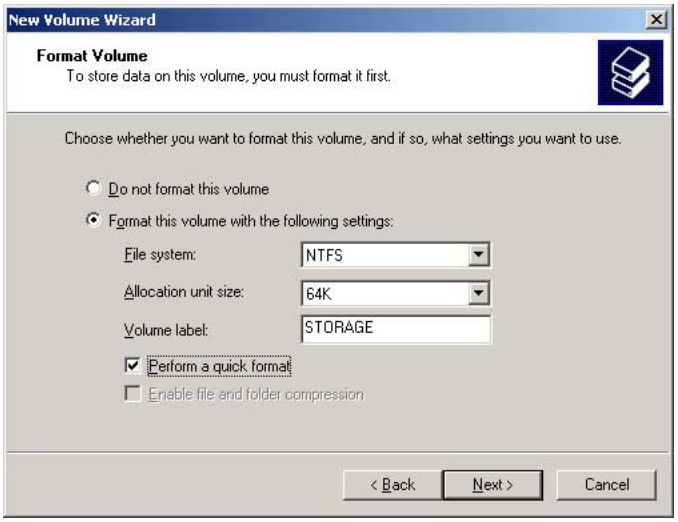


9 In the Assign Driver Letter or Path window, select Assign the following drive letter option, select a drive letter, and click Next.

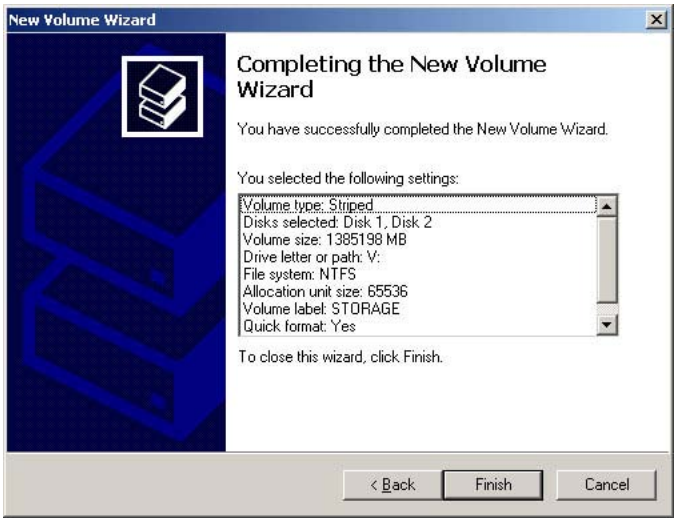
Autodesk recommends that you assign the letter V to the storage volume.

10 In the Format Volume window, select Format this volume with the following settings and choose the following settings:

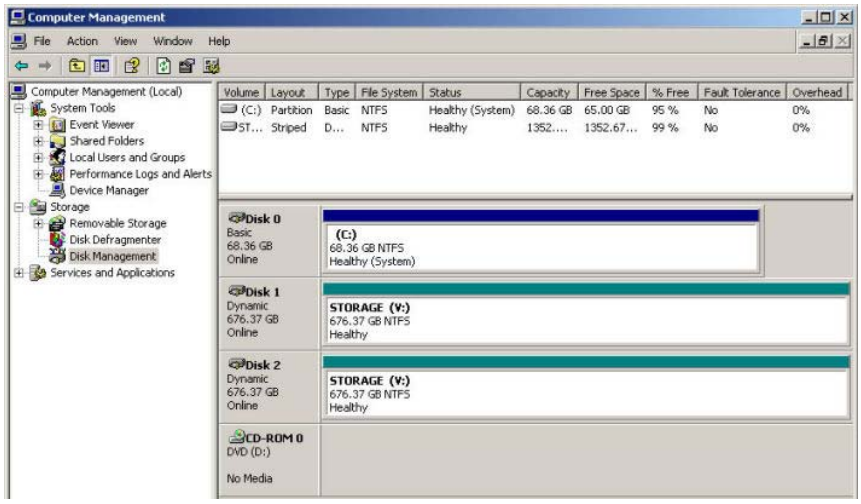
- Choose NTFS from the File system list.
- Choose 64K from the Allocation unit size list.
- Enter a volume label. Autodesk recommends you use “Storage” for your label.
- Choose Perform a quick format.
- Click Next.



11 In the Completing the New Volume Wizard window, click Finish to close the Wizard.



After the volume is created and formatted, the storage disks should now be part of a shared volume and should be labelled “Healthy”.



Setting the Display

You must set the display properties of your graphics card to suit your monitor.

To set the display:

1. Right-click anywhere on the desktop and choose NVIDIA® Control Panel from the menu.
2. From the Display section, select Change resolution.
3. Set the display to 1920x1200, 32-bit. Set the refresh rate to a value supported by your monitor.

Monitor	Refresh Rate
LCD	60 Hz or 48 Hz
CRT	72 Hz

4 Apply the changes.

Creating and Setting User Permissions

To operate a Lustre workstation, all users must log in as Administrator, or as a Power User with additional privileges—Modify, Read, and Write. It is recommended that you create individual users and then add them to the Power User group rather than allow all operators to work in Administrator mode.

You must also set security for Power Users on all drives that are accessed by Lustre (video drives for all workstations, the Lustre Station drive, the Master Station drive, and the HD Station drive).

To perform the following procedures, log in as a local administrator on the workstation.

NOTE You must set up user accounts with the same level of privileges on all workstations that Lustre connects to, such as the Slave Renderer and the Burn® for Lustre render nodes.

To create users in the Power Users group:

1 Right-click My Computer and choose Manage.

2 In Local Users and Groups, right-click Users and choose New User.

3 Enter a user name and password, and then disable the "User Must Change Password at Next Logon" check box.

NOTE For DSM and the Background Renderer to operate properly, you must set a password for each user.

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4 Enable the "User Cannot Change Password" and "Password Never Expires" check boxes.

5 Click Create.

6 Click Close when you are finished creating new users.

To add users to the Power Users group:

1 Right-click My Computer and choose Manage.

2 Expand Local Users and Groups, and select Groups.

3 Right-click Power Users and choose Add to Group.

4 In the Power Users Properties window, click Add.

5 In the Select Users, Computers, or Groups menu, click Advanced, set the correct location and click OK. You are returned to the Select Users, Computers, or Groups window.

6 Add user(s) to the "Enter the object name to select" text box, and click Check Names. Then click OK.

7 Click OK again to close the Power Users Properties window.

To set security for the Power Users group on a drive accessed by Lustre:

1 In a Windows Explorer window, right-click a Lustre drive (for example, the local system drive) and choose Properties.

2 Click the Security tab, and then click Add.

NOTE If you do not see the Security tab, click Tools and choose Folder Options. In the Folder Options window, show the View panel, and then disable the Use Simple File Sharing (Recommended) check box.

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3 In the Select Users, Computers, or Groups menu, click Location, set the current location and click OK. Click Find now to locate and select Power Users Group, click OK, and then click OK again.

4 In the Security panel, select Power Users and then enable Modify, Read, and Write to add these permissions to the Power Users group.

5 Click OK.

Configuring Windows XP for Optimal Performance

Autodesk applies a number of configurations to Windows XP to ensure optimal performance in your system. If you must re-install the operating system, you must apply these changes manually.

Location	Setting
Control Panel	System	Advanced tab	Performance Settings	Select Adjust for best performance.
Control Panel	System	Automatic Updates tab	Select Turn off automatic updates.
Control Panel	Taskbar and Start Menu	Start Menu	Select Classic Start Menu.
Control Panel	Taskbar and Start Menu	Select Show Quick Launch. Unselect Hide inactive icons.
Control Panel	Network Connections	Select each network interface one at a time, right-click and choose Properties. Click the Advanced tab, click the Settings button, and then select turn off Windows Firewall.
Control Panel	Network Connections	Rename each network adapter to reflect its use. For example, if you have a slave rendering machine, rename the port connected to the machine as “slave”.
Control Panel	Display	Desktop	Color	Others	■ Hue: 193 ■ Sat: 21 ■ Lum: 60 ■ Red: 67 ■ Green:58 ■ Blue: 59
Control Panel	Display	Desktop	Browse	Select the Lustre.bmp image in the application folder for the background image.
Explorer	Tools	Folder Options	View	Unselect Use simple file sharing.

The following settings can be enabled using Power Toys Tweak UI, available from the following Web site: *http://windowsxp.mvps.org/tweakui.htm*.

Location	Setting
Explorer	Settings	Select Clear document history on exit. Unselect Prefix “ShortCut” on new shortcuts.
Explorer	Shortcut	Shortcut overlay	Select None.
Desktop	Desktop Icons	Unselect Internet Explorer. Unselect My Documents.

Location	Setting
Desktop	Desktop Icons	First Icon	Select My Computer.
Internet Explorer	Select Include path search in address bar.

Installing Lustre on Windows

3

Topics in this chapter:

Overview

This chapter provides information on installing and licensing Lustre software.

You must install Lustre software on the Lustre Master Station, the Lustre HD Station, the Lustre Station, the Slave Renderer, and the BrowseD server.

This chapter also provides instructions on uninstalling Lustre.

Installing Lustre Software

Use the Lustre wizard to install Lustre on the following components:

- Lustre Master Station.
- Lustre HD Station.
- Lustre Station.
- Slave Renderer. After you install and license the Slave Renderer, you must configure it. See Configuring Slave Rendering on page 33.

- BrowseD Server. After you install and license the Slave Renderer, you must configure it. See Configuring BrowseD on page 53.

On the Lustre Master Station, Lustre HD Station, or the Lustre Station, the wizard also installs *WinPcap*. Lustre uses *WinPcap* to capture and send raw data from a network card to the Control Surface. It allows rapid communication between the Lustre workstation and the Control Surface.

NOTE If this is the first time you are installing Lustre, you are now prompted to install Lustre Color Management. Refer to the latest *Lustre Color Management User Guide*.

To install Lustre:

1. Place the Lustre disc in your DVD-ROM drive.
2. Open an Explorer window to display the contents of the DVD.
3. Open the *Windows* folder and double-click *Lustre2010Setup.exe* to launch the installation wizard.
4. Follow the on-screen instructions.
5. When prompted to select a Lustre component, use the following table.

Select:	To install:
Lustre	The software required for the Lustre Master Station, Lustre HD Station, or Lustre Station. The type of station is determined by the license.
Render (slave)	The software necessary to perform rendering on the Slave Renderer. **NOTE** Do not install the Slave Renderer on the Master Station, HD Station, or Lustre Station.
Plugins	Lustre plugins.
Online Help	The browser-based online help files only. You can also use this option to install the online help independently of the software. This option is enabled by default when installing the Master or Lustre Station options.
Browsed Server	The Lustre network file server that provides fast file transfers between workstations and centralized storage. For more information on the BrowseD server, see Configuring BrowseD on page 53.

6. Click Install.
   The selected software is installed.
7. Once the wizard finishes, restart the workstation.

Acquiring and Installing a License

Before you can run Lustre software, you must get and install the required license codes. To get the required license codes, you must provide the Flexlm® Host ID of all the workstations to the Autodesk Media and Entertainment Licensing Department.

For information on licensing background rendering, see Installing and Configuring Burn for Lustre on Render Nodes on page 47.

To acquire and install a license:

1. After you have installed Lustre, navigate to the *C:\Program Files\Autodesk\Lustre<new_version>* directory.
2. Double-click the *lmhostid.bat* program.

   A DOS shell appears and contains your machine's custom Flexlm Host ID.
3. Take note of the ID number.

   TIP You can copy the number by selecting it and pressing **Enter**.
4. Close the DOS shell window.
5. Send the host ID, and the type of license you require (Master Station, Lustre Station, Slave Renderer, *BrowseD* server, or Background Renderer) to the Autodesk Media and Entertainment Licensing Department using one of the following methods:
   - **By E-mail** To acquire a license code by e-mail, submit a request with the host ID of the workstation to *me.licensing@autodesk.com*.
   - **By Telephone** You can speak to a licensing representative by calling the Licensing Department toll-free in North America at 1-800-925-6442 between 8 AM and 8 PM EST. Outside of North America, call 1-514-954-7199.

     NOTE For emergencies, you can acquire an immediate temporary emergency license using the emergency license generator at *http://melicensing.autodesk.com/templicensing/*. A 4-day license code is e-mailed to the address you provide.

   If you want background rendering licenses, you must provide the host ID for each rendering machine.
6. Copy the license codes you receive into the following file:

   C:\Program Files\Autodesk\Lustre<new_version>\license\license.dat

Removing Lustre

To reinstall the same version of Lustre, you must first remove the existing version from your system. When you remove Lustre, only the executable files are removed, and configuration files remain unmodified. This means that you do not have to retrieve or reconfigure these files when you upgrade Lustre.

To remove Lustre:

➤ Use Start > Control Panel > Add or Remove Programs.

Follow the on-screen instructions to complete the procedure.

Configuring Slave Rendering

4

Topics in this chapter:

Workflow for Configuring Slave Rendering

The slave rendering machine runs a service that renders modified frames when the artist moves to the next shot on the timeline from the Master Station or HD Station. With slave rendering, playback is enabled without compromising the interactivity of the Master Station or HD Station during creative sessions.

You can connect the Slave Renderer directly to the Lustre Master Station or HD Station using a crossover ethernet Cat-6 cable, or you can connect the Slave Renderer to a switch on your GigE or 10-GigE house network, and configure it to use BrowseD to access media. Using BrowseD is the recommended approach.

NOTE Even when the Slave Renderer is connected to the house network, it can only be used by one Lustre station.

See the following table for a summary of the steps necessary to configure slave rendering.

Step:	Refer to:
1. Connect the slave rendering machine directly to the Master Station or HD Station, or to a switch on your home network.	The *Hardware Setup Guide* for your workstation.

Step:	Refer to:
2. Install the slave rendering software and license.	Installing Lustre on Windows on page 29.
3. On the Lustre Master Station or HD Station, configure the network port that is connected to the slave rendering machine. **NOTE** Skip this step if you are connecting the Slave Rederer to the house network, and using the BrowseD service.	Configuring the Slave Rendering Network Port on the Master/HD Station on page 34.
4. Share the storage on the Master Station or HD Station so that it can be accessed by the slave rendering machine. **NOTE** Skip this step if you are connecting the Slave Rederer to the house network, and using the BrowseD service.	Sharing Lustre Master or HD Station Storage on page 35.
5. On the slave rendering machine, configure the network port that is connected to the Master Station or HD Station.	Configuring the Network Port on the Slave Rendering Machine on page 37.
7. Set up the slave rendering machine to log in to the Master Station or HD Station.	Setting Up the Slave Renderer to Connect to the Master or HD Station on page 38.
8. Set up the configuration file so that Lustre projects can use slave rendering.	Setting Up Lustre Projects to Use Slave Rendering on page 39.
10. Render shots as you work.	The *Autodesk Lustre User Guide*.

Configuring the Slave Rendering Network Port on the Master/HD Station

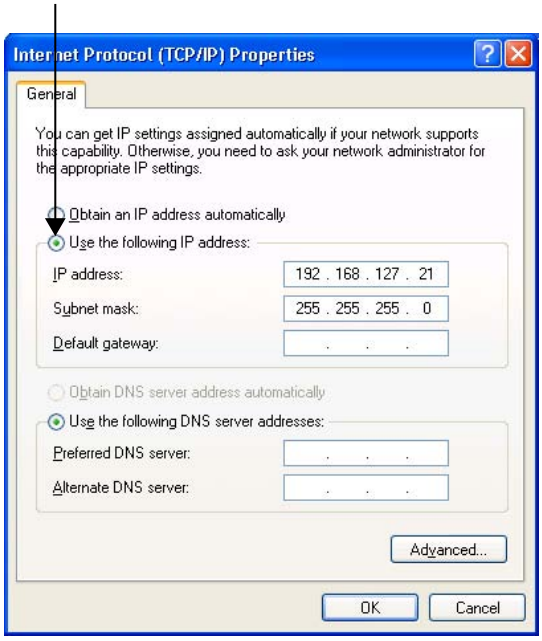
If you connect the Slave Renderer directly to the Master or HD Station, you must assign an IP address to each of the two ports of the physical connection (one port on the Slave Renderer, and one on the Master or HD Station).

If you connect the Slave Renderer to the house network, skip to Configuring the Network Port on the Slave Rendering Machine on page 37.

The IP addresses of the network ports that connect the two machines must be on the same network. For example, you can use 192.168.127.21 for the Master or HD Station and 192.168.127.22 for the slave rendering machine.

To configure the IP address for the slave rendering network port on the Master or HD Station:

1. On the Master/HD Station, open the Control Panel.
2. Double-click Network Connections.
3. Right-click the local area network connection to the slave renderer and choose Properties.
4. Select Internet Protocol (TCP/IP) in the Local Area Connection Properties dialog box and click Properties.
5. Choose the Use the following IP address option.



6 In the IP address field, type the IP address for the network port. For example, consider using the following for the Master or HD Station:

192.168.127.21

7 Click OK to close the dialog box and activate your changes.

Sharing Lustre Master or HD Station Storage

If you are not using BrowseD with the Slave Renderer, you must share the storage attached to the Lustre Master or HD Station for the slave rendering machine to be able to process footage stored on either the Lustre Master or HD Station.

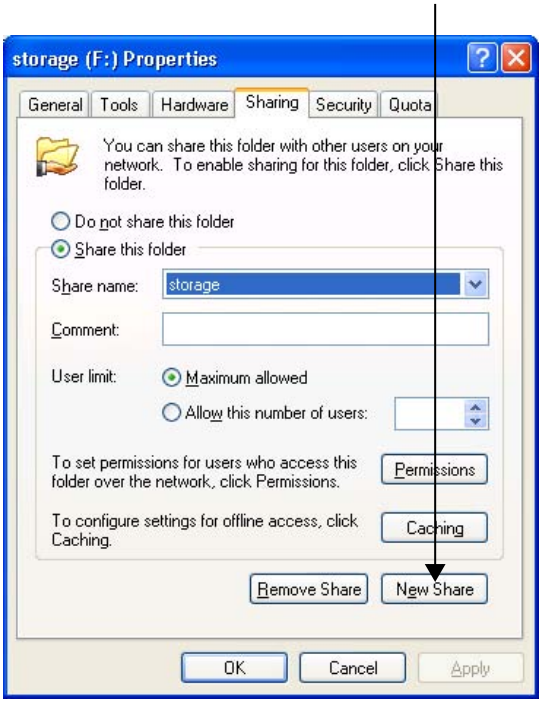
If you are using BrowseD with the Slave Renderer, you do not need to perform the tasks described in this section. Refer to Configuring BrowseD on page 53.

To share Lustre Master or HD Station storage:

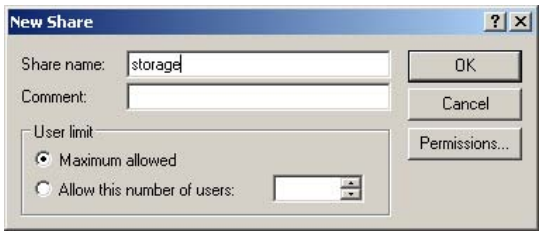
1 Open Windows Explorer.

2 Right-click your storage disk and choose Properties.

3 Open the Sharing tab and click New Share.

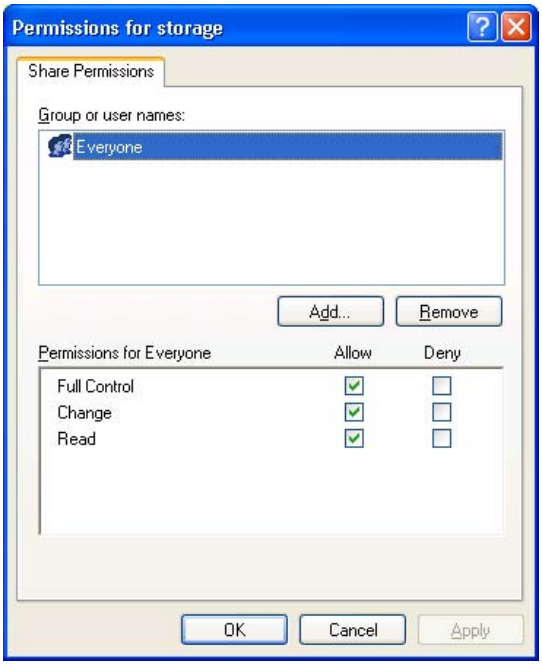


4 In the New Share dialog box, enter a Share name and set the User limit to at least one. You can set the User limit to Maximum allowed.



5 Click the Permissions button to open the Permissions dialog box.

6 Enable full read and write access to all users. Select the Allow option for Full Control, Change, and Read permissions.



7 Click OK to activate your changes and close all dialog boxes.

Configuring the Network Port on the Slave Rendering Machine

The IP address of the Slave Renderer must be on the same network as the Lustre station it works with. For example, you can use 192.168.127.21 for the Master or HD Station and 192.168.127.22 for the Slave Renderer machine.

To configure the IP address for the network port on the slave rendering machine:

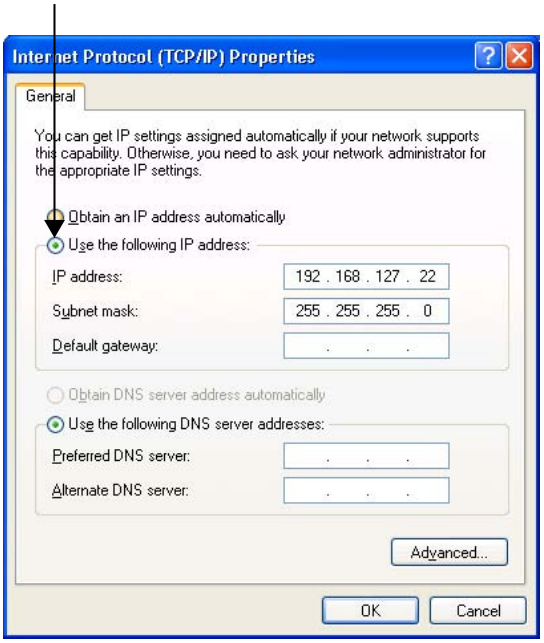
1 On the slave rendering machine, open the Control Panel.

2 Double-click Network Connections.

3 Right-click the local area network connection to the Slave Renderer and choose Properties.

4 Select Internet Protocol (TCP/IP) in the Local Area Connection Properties dialog box and click Properties.

5 Choose the Use the following IP address option.



6 In the IP address field, type the IP address for the network port. For example, consider using the following for the slave rendering machine:

192.168.127.22

7 Click OK to close the dialog box and activate your changes.

TIP To verify that the slave rendering machine can access the storage from the Master or HD Station, you can mount the storage on the slave rendering machine.

Setting Up the Slave Renderer to Connect to the Master or HD Station

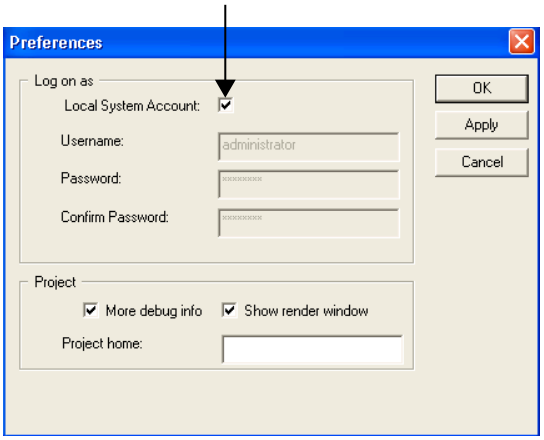
For the slave rendering machine to connect to the Master or HD Station, you must set up the Master or HD Station user name and password in the Slave Renderer preferences.

To set up the slave rendering machine to connect to the Master or HD Station:

1 In the Notifications area of the Windows Taskbar on the slave rendering machine, right-click the slave render icon and choose Preferences.

2 In the Preferences dialog box, disable the Local System Account option.

NOTE This option is enabled by default.



3 In the Username and Password fields, type the username and password for the Administrator user on the Master or HD Station.

4 Click OK to accept the changes and close the dialog box.

Setting Up Lustre Projects to Use Slave Rendering

After you have configured the Master or HD Station and the slave rendering machine to communicate, you must:

- Configure the SlaveRenderer keyword with the slave rendering machine IP address in the *init.config* file. See Software, Project, and User Configuration Files on page 59.
- Enable slave rendering for the project. See the "Project Management" chapter in the *Autodesk Lustre User Guide*.

Starting and Stopping the Slave Render Service Manually

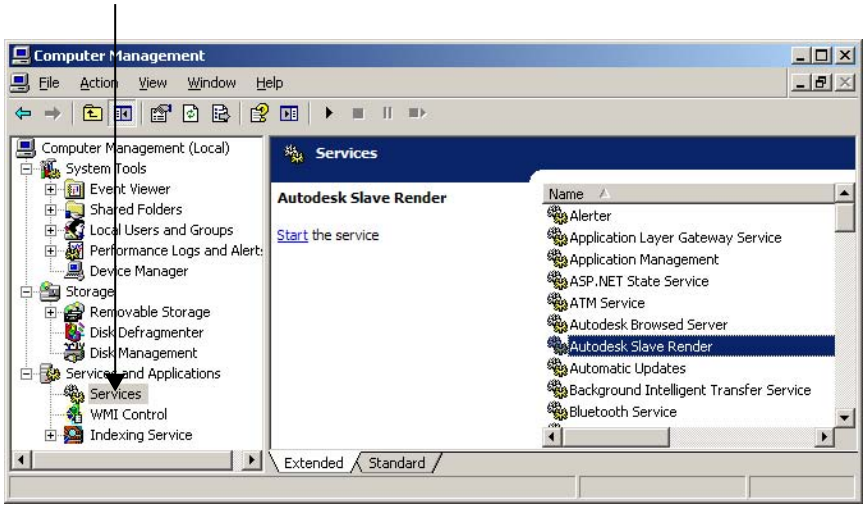
By default, the slave render service starts automatically whenever you restart the slave rendering machine.

You can manually start the service using the Microsoft Windows Computer Management tools.

To start and stop the slave render service manually:

1 On the slave rendering machine, right-click My Computer and choose Manage.

2 In the Computer Management application, expand Services and Applications and then click Services.



3 From the list of Services, right-click Autodesk Slave Render.

4 In the context menu, select the action you want to perform.

Click:	To:
Start	Start the slave render service.
Restart	Stop and start the slave render service.
Stop	Stop the slave render service.

When the service has started, the slave render icon appears in the Notification area of the Taskbar.

Configuring Background Rendering

5

Topics in this chapter:

About Background Rendering

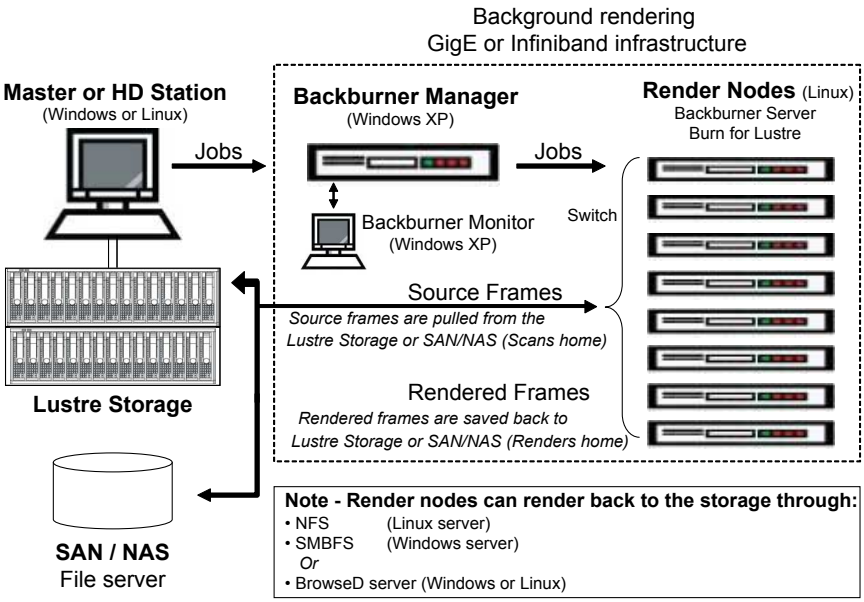
During background rendering, a shot on the timeline is rendered by a background rendering network. This is different from the Slave Renderer, which renders shots on a shot-by-shot basis as they are colour graded to enable improved playback performance.

Background rendering in Lustre is performed using Burn™ for Lustre, also known as the Lustre Background Renderer. This application is specific to Lustre and provides asynchronous background processing of Lustre render jobs. By off-loading rendering activities to remote Linux® servers, Lustre stations are freed up for interactive colour grading, while background rendering is sped up by splitting the task amongst multiple hosts.

Background Rendering Components

The components of the basic background rendering package include Lustre, a background management and monitoring application (such as Backburner™ Web Monitor, or the Backburner Monitor in Autodesk WiretapCentral™), and several render nodes running on Linux servers. The Windows and Red Hat® Linux® operating systems may be connected through an CIFS mount point over a TCP/IP network. The TCP/IP network connections coordinate the operation of the Lustre background rendering system components. For faster access to remote locations for footage and metadata, the *BrowseD* service can be used instead of CIFS mount points. *BrowseD* is covered in detail in Configuring BrowseD on page 53.

The background rendering components are illustrated as follows.



NOTE You can have up to eight render nodes on the background rendering network.

The other background rendering components are described as follows.

Lustre application This is the client application. Running on a Windows workstation, Lustre rendering jobs are submitted for background rendering through the Render | Backburner menu.

Backburner Manager This is the hub of the background rendering workgroup. Backburner Manager can reside on a Master Station or Lustre station, or can be installed on a dedicated machine in your network. When jobs are submitted from Lustre to Backburner Manager, Backburner Manager breaks each submitted job into tasks and distributes the tasks to the rendering servers on the network. To view the progress of the tasks, use Backburner Monitor.

You can either run Backburner Manager manually or run it as a Windows service. Running the Manager as a Windows service starts it automatically when the system is booted. Backburner Manager then runs continuously until either the workstation is shut down or the service is stopped.

Backburner Web Monitor This is the user interface for the Backburner rendering network. It is automatically installed with Backburner Manager, and can be accessed through a Web browser from any workstation on the network. It allows you to view and control jobs currently being processed. You can stop, restart, reorder or remove jobs completely using the Monitor. You also use Backburner Web Monitor to identify any render nodes that are not working and check the overall status of the rendering network.

Backburner Server This is a server that runs on render nodes, and is automatically installed with Burn for Lustre. Backburner Server accepts commands from Backburner Manager to start and stop rendering tasks. Backburner Server communicates through a plug-in to execute rendering tasks.

NOTE Consult the latest *Autodesk Backburner Installation Guide* and *Autodesk Backburner User Guide* for detailed information on Backburner. Use the guides to obtain Backburner information that does not relate directly to Lustre background rendering, such as details on setting up Web monitoring and troubleshooting tips.

Burn for Lustre This is the Linux rendering engine that renders one or more frames from Lustre render jobs.

Shared storage mount point This is the mount point on each Linux server that allows Burn for Lustre to transfer rendered frames/files to the Lustre storage system.

NOTE The storage does not have to be mounted on the render nodes if you are using *BrowseD* for background rendering.See Using BrowseD for Rendering with Burn for Lustre on page 56 .

Workflow for Setting Up Background Rendering

The following table outlines the general workflow for installing and configuring background rendering.

Step:	Refer to:
1. If you are not using *BrowseD*, enable sharing on the system storing the Lustre project and render files.	Setting Up Read/Write Access to the Storage on Windows on page 43.
2. Install and configure Backburner Manager and Backburner Web Monitor.	Installing Backburner Manager and Backburner Web Monitor on page 44.
3. Configure the Lustre workstation to connect to Backburner Manager.	Configuring Lustre to Detect Backburner Manager on page 51.
4. Set up the background render nodes.	Setting Up Render Nodes on page 44.
5. Specify the mount point of the background render nodes in the Lustre application.	Specifying the Background Rendering Path in Lustre on page 51.

Setting Up Read/Write Access to the Storage on Windows

For background rendering nodes to read and write files to the Lustre storage, you must set up the Lustre storage drive for shared access.

NOTE Skip this section if you are using the *BrowseD* service.

To share the storage:

1. In a Windows Explorer window, right-click the Lustre storage drive and choose Properties.
2. In the Properties window, click the Sharing tab.

   NOTE If you do not see the Sharing tab, click Tools and choose Folder Options from the Windows Explorer menu. In the Folder Options window, show the View panel, and then disable the "Use Simple File Sharing (Recommended)" check box.

3. Enable Share This Folder.
4. Click New Share.
5. Enter a share name in the New Share dialog box.
   This name is used when defining a mount point.

6 Set the User limit to at least one. You can set the User limit to Maximum allowed.

7 Click the Permissions button.

8 In the Permissions for Everyone section, select the Full Control, Change, and Read options.

9 Click OK to close all windows.

Installing Backburner Manager and Backburner Web Monitor

You can install Backburner Manager on any Windows XP system attached to the same network as Lustre. Render jobs handled by Backburner can be viewed using Backburner Monitor from any Windows XP system or through a Web browser from any workstation on the network.

During installation, the Backburner Server application is also installed on the same Windows system. This Backburner Server is not used for Lustre background rendering and can be ignored.

NOTE If Backburner is installed on a station where Lustre is also installed, performance degradation will occur due to Backburner conducting background processing at the same time that Lustre is running.

To install Backburner Manager and Backburner Monitor:

1 On the Windows system, navigate to the Lustre package directory and access the *Backburner_2010.1* folder.

2 Double-click the *backburner.exe* file. The Backburner for Windows installation program is launched.

3 Follow the on-screen prompts by clicking Next.

4 Click Finish to complete the installation.

5 Refer to the latest *Autodesk Backburner Installation Guide* for information on configuring Backburner. It explains how to:

- Start and configure Backburner Manager.
- Set up Backburner Manager as a Windows service.
- Configure the Backburner Monitor to detect Backburner Manager.

Setting Up Render Nodes

You can set up as many as eight render nodes for background rendering with Lustre. On each system intended for background rendering, you must do the following.

Step:	Refer to:
1. Verify that the render nodes meet the minimum system requirements.	Render Node Hardware and Software Requirements on page 45.
2. Install the appropriate Red Hat operating system.	Installing Linux on Render Nodes on page 45.
3. If you are not using *BrowseD*, configure each node to mount the storage that contains the project render files.	Mounting the Storage on the Render Nodes on page 46.

Step:	Refer to:
4. Install Burn for Lustre.	Installing Burn for Lustre on Render Nodes on page 48.
5. Connect the render nodes to Backburner Manager.	Configuring Backburner Server to Detect Backburner Manager on page 50.
6. Start the Backburner Server on each render node.	Starting Backburner Server on page 50.

Render Node Hardware and Software Requirements

Render nodes purchased from Autodesk come with all the necessary hardware and software components preinstalled.

To use Burn for Lustre on nodes that were not purchased from Autodesk, the nodes must meet the minimum hardware and OS requirements listed in the following table.

Processor:	1 or 2 Xeon® Intel® Processor DP
Memory:	2 GB
Hard drive:	20 GB
Ethernet:	100/1000 Mbps
OS:	Red Hat Enterprise Linux 5.3 with Workstation option, customized with the Autodesk kickstart file

Installing Linux on Render Nodes

Autodesk Burn for Lustre runs under the custom 64-bit Autodesk distribution of Red Hat Enterprise Linux.

Render nodes purchased from Autodesk ship with the correct Autodesk distribution of Red Hat Enterprise Linux on DVD.

If you did not purchase your render node from Autodesk, you must get your own 64-bit distribution of Red Hat Enterprise Linux Desktop 5.3 with Workstation option, and customize it using the Autodesk kickstart file.

The kickstart is used to automatically install the packages required for Burn, some of which are not installed as part of a general installation.

This file is availabe in the Lustre installation directory. You must copy it to the DVD of your Linux distribution.

TIP The kickstart file can be used to automate the Linux installation process for multiple render nodes.

To copy the Autodesk kickstart file to the DVD of your Linux distribution:

1. On a computer running Linux and with a DVD burner, log in as root.
2. Insert the DVD of your Linux distribution into the drive. You do not need to mount it at this time.
3. In a terminal, extract an ISO image of the disc by typing:

   dd if=/dev/<optical_disc_device> **of=/**<destination path for the extracted ISO image>

   For example:

dd if=/dev/cdrom of=/tmp/RHEL5.3.iso

Depending on the speed of your disc drive, this command may take several minutes to complete.

4 Eject the disc.

5 Access the *dist* subdirectory of the Lustre installation package.

The directory contains a kickstart file, *ks_centos5_rh5.cfg*, as well as a script that adds the kickstart file to an ISO image.

6 Run the *build_kickstart_cd* script to add the kickstart file to the ISO image of your Linux distribution DVD:

./build_kickstart_cd ks_centos5_rh5.cfg <original ISO image name> <new ISO image name>

For example, if the ISO image you created is called */tmp/RHEL5.3.iso* and you want the new ISO image to be called */tmp/RHEL5.3_KS.iso*, type:

./build_kickstart_cd ks_centos5_rh5.cfg /tmp/RHEL5.3.iso /tmp/RHEL5.3_KS.iso

7 Once the new ISO image of the Linux distribution DVD is created, burn it to a blank disc using a tool such as **cdrecord**.

NOTE Type **man cdrecord** for information about this utility.

The new disc that you burn contains the Autodesk kickstart file and replaces the DVD in the Linux distribution.

You are now ready to install Linux on the render node. See the "Linux Installation Workflow" section in the latest *Autodesk Lustre Installation and Configuration Guide for Linux Workstations*.

Mounting the Storage on the Render Nodes

After Red Hat Linux is installed, you must mount the media storage on each render node using a Samba mount point.

NOTE The *BrowseD* service can also be used to allow background render nodes to access the workstation's storage. *BrowseD* allows for fast access and requires a separate license. If you are using *BrowseD* for background rendering, skip this section. See Configuring BrowseD on page 53.

Mounting the storage involves identifying the IP address of the system that manages the storage and setting a mount point on each render node that points to the correct path on the storage. Also, for this mount point to be available when you restart the system, you must add an entry in the *fstab* file.

If the system that stores the render files is different from the system that stores the Project Home directories, you need two (or more) mount points. For example, if, in the Project Setup menu, the Project Home path is E:\SCENES/**mnt/md0/SCENES** and the Renders Full Home path is H:\RENDERS, located on a central storage system, you must define a mount point for each path.

To mount the storage on a render node:

1 Determine the IP address of the computer that manages the storage.

If you are using direct attached storage only, this is the IP address of the Lustre Master Station or Lustre HD Station. You must also determine the IP address of your centralized file server if you are also using a server area network (SAN) or network attached storage (NAS).

2 On the render node, log in as *root*.

3 Go to the root directory. In a terminal, type:

cd /

4 Create a directory for the mount point. For example, type:

mkdir /mnt/md0

NOTE The directory name must be the same for the mount point on each node. Also, the directory should not be created in the */root* directory, but in the */mnt* directory.

5 Change the permissions on this directory to allow read/write access. For example, type:

chmod 666 /mnt/md0

6 Mount the storage to the mount point. Type:

mount -t cifs -o username=<admin username>**,password=**<admin password>**,rw //**<IP address>/<share name> /<mount point>

where:

- <IP address> is the IP address of the storage system.
- <share name> is the share name entered in the Sharing panel of the Properties window on the storage system. See Setting Up Read/Write Access to the Storage on Windows on page 43.
- <mount point> is the path of the local mount point you created in step 4 of this procedure.

For example, type:

mount -t cifs -o username=Administrator,password=danny,rw //172.16.60.226/storage /mnt/md0

TIP If the command fails, make sure that the *cifs* package was installed with Linux.

To add an entry in the *fstab* file:

1 Open the file */etc/fstab* in a text editor and then add a line for your new mount point:

//<IP address>/<share name> /<mount point><filesystem><mount options><dump options>

For example, type:

//172.16.60.226/storage /mnt/md0 cifs username=Administrator,password=danny,rw 0 0

NOTE The example is a single line.

2 Save and close the file.

The file is saved and you are returned to the command prompt.

3 Restart the render node.

When you restart your system, this remote location will mount automatically.

Installing and Configuring Burn for Lustre on Render Nodes

Install and configure Burn for Lustre on each render node. To install and configure Burn for Lustre, you must:

- Install Burn for Lustre.

- Add the IP address of the machine where Backburner Manager is installed to the *manager.host* file on each render node.
- Start the Backburner Server on each render node.
- License Burn for Lustre.

Installing Burn for Lustre on Render Nodes

Perform the following procedure to install the Burn for Lustre software on each node.

NOTE When you install Burn for Lustre, the necessary Backburner components are also installed on the render node.

To install Burn for Lustre on a render node:

1. Open a terminal to the render node, and log in as *root*.
2. If you are installing from a Lustre DVD, insert the DVD, and type the following commands to mount the disc, and to navigate to the Lustre installer directory:

   `mount /mnt/cdrom`

   `cd /mnt/cdrom/Linux/Applications/`
3. If you are installing from a downloaded *tar* file, unpack the tar file by typing:

   `tar zxvf` `<file_name>`**`.tar.gz`**

   The installation package is unpacked into a new directory. Navigate to the new directory.
4. Start the Burn installation script by typing:

   `./INSTALL_LUSTRE_BURN`

   The Burn for Lustre package is installed. For instructions on obtaining and installing a Burn license, see Licensing Burn for Lustre on page 48.
5. Repeat this procedure on all render nodes.

Licensing Burn for Lustre

You need a license for your render nodes. Burn uses a floating license scheme, which means that licenses are centralized on a license server.

The license server automatically provides a license to all registered machines.

The license server can be any of the render nodes on the rendering network.

Perform the following tasks to obtain a license code for background rendering, install the license server, and configure the license server to distribute licenses to burn nodes.

To license a Burn for Lustre network:

1. Open a terminal on the license server machine and log in as root.
2. Run the *dlhostid* utility to obtain the unique host ID of the machine. Type:

   `dlhostid`

   A message appears that includes a line indicating the *dlhostid* of the machine. For example:

   ```
   The Discreet host ID of this machine is
   "DLHOST01=25231AEF83AD9D5E9B2FA270DF4F20B1"
   ```
3. Write down the *dlhostid* (including the "DLHOST01=" part).

4 Request license codes for background rendering from the Autodesk Media and Entertainment Licensing Department. See Acquiring and Installing a License on page 30.

5 If you are installing from a Lustre DVD, insert the DVD, mount it, and navigate to the Lustre installer directory. Type:

```
mount /mnt/cdrom
cd /mnt/cdrom/Linux/Applications/
```

6 If you are installing from a downloaded *tar* file, unpack the tar file by typing:

```
tar zxvf <file_name>.tar.gz
```

The installation package is unpacked into a new directory. Navigate to the new directory.

7 Run the license server installation script by typing:

```
./INSTALL_LICSERV
```

The license server is installed.

8 Once you have received the license codes, go to the */usr/discreet/licserv/licenses/* directory, and open the *DL_license.dat* file in a text editor.

NOTE If the file does not exist, create it by typing:

```
touch /usr/discreet/licserv/licenses/DL_license.dat
```

---

9 In this file, enter all the information submitted to you by the Licensing Department upon your registration.

10 Save and close the file.

11 Start the license server by running the following command:

```
/etc/init.d/license_server start
```

NOTE The license server starts/stops automatically when the machine is booted/shut down. You can stop and restart the server manually by running one of the following commands:

```
/etc/init.d/license_server stop
/etc/init.d/license_server start
```

Now that the license server is set up, configure each node to contact the server and retrieve its license. Perform the following procedure on each node.

To enable render nodes to contact the license server:

1 Log in to each render node as root.

2 Navigate to the license directory. Type:

```
cd /usr/local/flexlm/licenses/
```

3 Open the *DL_license.dat* file in a text editor.

4 In this file, copy the first three lines of the information submitted to you by the Autodesk Licensing Department upon your registration. For example:

```
SERVER burn-01 DLHOST01=25231AEF83AD9D5E9B2FA270DF4F20B1
VENDOR lustre
USE_SERVER
```

5 Save and close the file.

NOTE Each render node must be able to contact the license server. Use *ping* from each node to the license server to confirm that the machines can communicate.

Configuring Backburner Server to Detect Backburner Manager

Backburner Server needs to be able to detect the location of Backburner Manager in order to provide status information concerning the render jobs. Set the IP address of the Backburner Manager machine in the */usr/discreet/backburner/cfg/manager.host* configuration file on each render node.

NOTE You can also use the hostname of the Backburner Manager machine, if it has been properly defined in the */etc/hosts* file.

To configure Backburner Server to detect Backburner Manager:

1 On the Backburner Manager system, open a terminal and log in as root.

2 Determine which IP address the Backburner Manager workstation uses to connect to the network. Type:

`ifconfig`

Information about all the network adapters is displayed. The second line of the output for each adapter contains the IP address (listed as "inet addr"). For example:

```
inet addr:172.16.129.152 Bcast:172.16.135.255 Mask:255.255.248.0
```

Write down the IP address of the network adapter. If the machine has several network adapters, make sure you write down the address of the one connected to your render network.

3 On each render node, open a terminal and log in as *root*.

4 Type:

`cd /usr/discreet/backburner/cfg`

5 Use a text editor to edit the *manager.host* file.

6 Enter the IP address of the Backburner Manager machine. For example:

`10.10.10.1`

7 Save and close the file.

The file is saved and you are returned to the command prompt.

Starting Backburner Server

You must start the Backburner Server daemon on each Linux system for the first time. Once it is started the first time, the daemon will start automatically.

To start Backburner Server:

1 Log in to your Linux system as *root*.

2 In a terminal, type:

`service backburner_server start`

3 You can verify that Backburner Server is properly configured by checking the log file *usr/discreet/backburner/Network/backburnerServer.log*. Type:

`tail -f /usr/discreet/backburner/Network/backburnerServer.log`

The file should contain lines similar to the following:

```
<INF>: Loading plugin: Lustre renderer plugin
```

4 To stop viewing the file, press **Ctrl+C**.

5 Repeat these steps to start Backburner Server on each node in the background rendering network.
If you cannot start the Backburner Server, contact Autodesk Customer Support.

NOTE If you need to stop or restart Backburner Server, use one of these commands:

`/etc/init.d/backburner_server stop`

`/etc/init.d/backburner_server restart`

Configuring Lustre to Detect Backburner Manager

For Backburner Manager to receive render jobs, you must set up the Lustre application to connect to the system on which Backburner Manager is running.

To configure new projects to use background rendering, you must set the IP address of the Backburner Manager workstation in the *init.config* file.

To configure the Lustre application to detect Backburner Manager:

1 In a text editor on the Master Station, open the *init.config* configuration file.

2 Locate the `Backburner` keyword.

3 In the `HostName` line, set the `string` parameter to the hostname or IP address of the system where Backburner Manager is installed. For example:

```
<HostName string="172.19.23.161" />
```

NOTE Do not forget the quotes.

---

4 Save and close the configuration file.

For more information on the configuration file keywords, see Software, Project, and User Configuration Files on page 59.

Specifying the Background Rendering Path in Lustre

The last step in setting up background rendering is to specify the correct mount points in the settings of each project that uses background rendering.

To add the storage path in Lustre:

1 Start Lustre.

2 In the Setup menu, click Settings.

3 Select your project in the Project drop-down list, and click Edit.
The Project Settings menu appears.

4 Click Network Rendering, then click Backburner in the Configuration section.

5 Type the location of the Project Home, Scans Full Home, Scans Half Home, Renders Full Home and Renders Half Home, as seen from the Linux render nodes. You only need to enter those locations that are defined for the project in the local project setup, located in the Setup | Project menu.

The path required in these fields is comprised of the directory defined for the mount point and the actual storage folder. For example, if the Project Home on the Lustre workstation is *E:\SCENES* in the Project Setup menu, and the mount point for the Lustre workstation storage on the Linux render nodes is */mnt/Lustre_storage*, the Project Home path to enter in this menu is:

/mnt/Lustre_storage/SCENES

6 Press **Enter**.

7 To verify that you have entered the proper path for each project, look at the project configuration file in *C:\Program Files\discreet\lustre3.0\Project*`<project name>`*\home.config*. The value in the `burn_project_home` line is sent to the render node. This value must match a mount point on the background render nodes.

For help setting up and managing projects, refer to the Lustre Help.

Configuring BrowseD

6

Topics in this chapter:

About BrowseD

BrowseD is a Lustre file server with its own high level protocols that optimize network transfers. BrowseD provides Lustre workstations, Slave Renderers, and background render nodes with high-speed access to centralized storage.

Consider using BrowseD if your facility uses a storage area network (SAN), network attached storage (NAS), or a network file server. In these configurations, you install and configure BrowseD on the computer that is connected to the centralized storage and configure all workstations to use the BrowseD server to access Lustre project files.

The recommended Lustre configuration in a digital film or high-resolution workflow is to store the full-resolution images on a SAN, NAS, or file server, and the proxies locally. For information on configuring your projects, see the *Autodesk Lustre User Guide*.

NOTE You can run BrowseD on the Lustre Master Station or Lustre HD Station to provide render nodes or Slave Renderers high-speed access to local storage for background rendering. However, this is not recommended. The BrowseD process requires extra bandwidth from the storage and adds extra load on the host system's CPU. Real-time functionality cannot be guaranteed with this setup—2K playback speed and video input and output will not function correctly when BrowseD is running on the Lustre workstation, and is serving client requests.

Workflow for Configuring BrowseD

See the following table for a summary of the steps necessary to configure BrowseD.

Step:	Refer to:
1. Install and license BrowseD on the computer that is connected to the storage.	Installing Lustre on Windows on page 29.
2. Start the BrowseD server.	Starting and Stopping the BrowseD Service on page 54.
3. On all machines (like the Lustre Master Station, the Lustre HD Station, the Slave Renderer, and background render nodes), configure the *init.config* file to connect to the BrowseD server.	Configuring Workstations to Use the BrowseD Server on page 55.
4. Make the remote storage accessible from the file browser on the Lustre workstations.	Making BrowseD Directories Accessible from the Lustre Browser on page 55.
5. Configure background rendering to use the BrowseD server.	Using BrowseD for Rendering with Burn for Lustre on page 56.
6. Configure the Slave Renderer to use the BrowseD server.	Using BrowseD with the Slave Renderer on page 57.

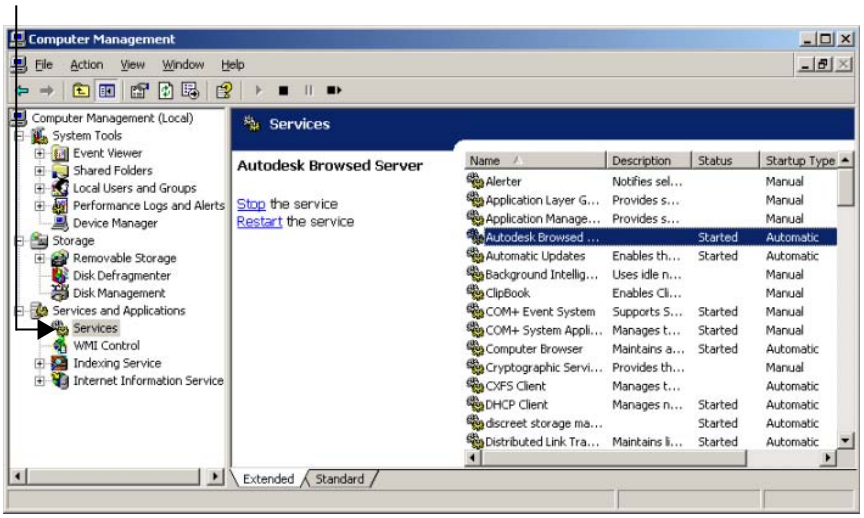
Starting and Stopping the BrowseD Service

The BrowseD service starts automatically after you install it. You can manually start the service using the Microsoft® Windows Computer Management tools. The service starts automatically whenever the computer running BrowseD restarts.

For instructions on installing and licensing BrowseD, see Installing Lustre on Windows on page 29.

To start or stop BrowseD through My Computer:

1. Right-click My Computer and choose Manage.
2. In the Computer Management application, expand Services and Applications and then click Services.



3. From the list of Services, select Autodesk Browsed Server.

4 Click the action you want to perform.

Click:	To:
Start	Start the BrowseD service.
Restart	Stop and start the BrowseD service.
Stop	Stop the BrowseD service.

To start or stop BrowseD using the Command window:

1 Choose Start | Run.

2 In the Run dialog box, enter **cmd** and then click OK.

3 In the Command window, enter **C:\Program Files\Autodesk**<version> and then press **Enter**.

4 Do one of the following:

- To start BrowseD, type the following and then press **Enter**:
  browsed.exe /start
- To stop BrowseD, type the following and then press **Enter:**
  browsed.exe /stop

Configuring Workstations to Use the BrowseD Server

You must configure the *init.config* file for all machines that will use the BrowseD server to access centralized storage, such as Lustre workstations, slave renderers, or Burn render nodes.

Use a text editor to edit the *init.config* file, located at *C:\Program Files\Autodesk\Lustre <version>*.

Use the following table as a reference when configuring the *init.config* file.

Keyword	Required values
Username	Enter the administrative user on the BrowseD server, for example, *root* on Linux and *Administrator* on Windows.
Password	Enter the password for the administrative user as defined above.
Port	All computers on the BrowseD network must use the same port to communicate. Set to 1055, the default.
BrowsedServer	Defines the IP address or DNS host name for a specific BrowseD Server.
UseInfi	Select if the networking procotol to use with Browsed is InfiniBand.

Making BrowseD Directories Accessible from the Lustre Browser

When using centralized storage, you must make the directories on the BrowseD server accessible to all Lustre workstations through the browser. You do this by configuring the BrowsedServerGroup keyword in the *init.config* file.

The mapped directory will appear in the Lustre browser.

Using BrowseD for Rendering with Burn for Lustre

You must configure the Lustre Render Backburner paths with the IP address of the BrowseD server to use BrowseD to render with Burn for Lustre.

For information on configuring background rendering for Lustre, see Configuring Background Rendering on page 41.

To use BrowseD for rendering with Burn for Lustre:

1. In Lustre, open the Setup menu, and select Settings.
2. Select your project from the Project list, and click Edit.
3. Click Project, and set the local project paths. For information on configuring your projects, see the *Autodesk Lustre User Guide*.
4. Click Network Rendering, and then click the Backburner tab.
5. Enter the IP address of the BrowseD server to each path, or click the ellipsis button to browse to the BrowseD path you want to use.

   For example, if your Project_Home is set to the *bernice* folder on drive *f:* of a station that has an IP address of *172.17.20.146*, the Project_Home path in the Render > Backburner menu should read *172.17.20.146:/f:/project/bernice*.

Using BrowseD with the Slave Renderer

You must configure the Lustre Slave Render paths with the IP address of the BrowseD server in order to use BrowseD with the Slave Renderer.

To use BrowseD with the Slave Renderer:

1. In Lustre, open the Setup menu, and select Settings.
2. Select your project from the Project list, and click Edit.
3. Click Project, and set the local project paths. For information on configuring your projects, see the *Autodesk Lustre User Guide*.
4. Click Network Rendering, and then click the Slave Render tab.
5. Enter the IP address of the BrowseD server to each path, or click the ellipsis button to browse to the BrowseD path you want to use.

   For example, if your Project_Home is set to the *bernice* folder on drive *f:* of a station that has an IP address of *172.17.20.146*, the Project_Home path in the Render > Backburner menu should read *172.17.20.146:/f:/project/bernice*.

Software, Project, and User Configuration Files

A

Topics in this chapter:

Configuration File Overview

The configuration files define all the necessary settings Lustre needs to recognize various hardware and software settings on the Master Station or Lustre HD Station, and on the dedicated render station.

Before doing any colour correction in Lustre, you must first log into a project with a valid user profile. See the “Project Management” chapter in the *Autodesk Lustre User Guide*. When you create a user profile and project in Lustre, you are indirectly creating the *user.config*, *project.config*, and *<user>Context.config* files. However, aside from the initial system configuration in the *init.config* file that you must set before you begin working, there is no need for you to manually create or modify any of the other configuration files. All of the configuration settings are set within Lustre's user interface (refer to “System Settings” in the “Project Management” chapter of the *Autodesk Lustre User Guide*).

When you log into a particular project in Lustre for the first time, Lustre creates the *<user>Context.config* file, where *<user>* represents the user name associated with the user profile. The context file is found in the *...\projects\<project>* folder. The context keywords include some attributes not defined in the Project or User configuration settings. They are saved and reloaded each time the context (same user and project) applies. The context settings include:

- Last scene
- Last shot
- Resolution

- Crop value
- Assemble frame rate/drop frame mode
- State of the surface control
- Audio file

The following is a list of the Lustre configuration files.

Configuration file	Default Location	Description
init.config	Windows: *C:\Program files\Autodesk\Lustre2010*	This file stores system settings as well as Wiretap servers, Slave Renderer settings, and film stock information.
login.config	Windows: *C:\Program Files\Autodesk\Lustre2010*	This file records the last user and last project used so at the next session, the user and project login defaults will reflect these values.
project.config	Windows: *C:\Autodesk\projects\<project>\ project.config*	This file stores project-level information including project settings, calibration, rendering, engineering, and Backburner and Wiretap settings specific to the project.
user.config	Windows: *C:\Autodesk\users\<user>\user.config*	This file stores user settings specific to a particular user, such as Autosave, printer light, GUI background/gain/gamma.
<user>Context.config	Windows: *C:\Autodesk\projects\<project>\ <user>Context.config*	This file stores several settings relevant to the context of a particular user working on a particular project. The purpose of storing context-specific information is that there are some parameter settings that, by their nature, are more likely to be needed in the next session, but that are not configurable in the Project Management pages.

System Settings

Before you first log into Lustre, you must configure the system settings in the *init.config* file (refer to "Configuring System Settings" in the "Project Management" chapter of the *Autodesk Lustre User Guide*). If these system settings are not configured, Lustre uses the default system settings. The following table describes the relevant system settings that should be configured before the first login.

NOTE All keyword values are case-sensitive.

Parameter	Data type	Default	Function
<Locations>			
<MainProjectHome>	String		Location of the Project configuration settings folder.
<MainUserHome>	String		Location of the User configuration settings folder.

Parameter	Data type	Default	Function
<Wiretap>			
<ServerAuto>	State	On	Specifies whether Lustre automatically scans for Wiretap servers.
<WiretapServer> (within <WiretapServer Group>)	String	0.0.0.0	The IP address or DNS host name for a specific Wiretap server. If one or more <WiretapServer> keywords are set to valid Wiretap server addresses, Lustre lists the content of these servers in the browser before the results of the auto scan. If <ServerAuto> is set to OFF, only the specified Wiretap servers are listed in the browser.
<MonitoringAndCalibration>			
<DisplayType>	Enumerated (abstract data)	LCD	Specifies the monitor display type (e.g., LCD or CRT).
<Calibration_Steps>	Integer	10	Specifies the number of monitor calibration steps performed.
<ControlSurface>			
<AutodeskPanels>	State	On	When ON, this keyword enables the Autodesk Control Surface (ACS). When OFF, Lustre enables the Tangent CP100 control surface (if applicable). You must also set the path for the control surface rules file in the Panel Setup File field (refer to "System & Menu Settings" in the "Project Management" chapter of the *Autodesk Lustre User Guide*).
<PanelIDs>		function="0" grading="0" navigation="0"	The ID numbers for the Function, Navigation, and Grading panels of the ACS. You must manually configure these keywords. If your control surface is a Tangent CP100, Lustre does not use these keywords.
<PanelIPTags>		function="101" grading="100" navigation="102"	
<Browsed>			
<Port>	Integer	1055	All computers on the *BrowseD* network must use the same port to communicate. **NOTE** For Linux over IP, set the port value to 1044.
<Username>	String	Administrator	Administrative user on the *BrowseD* server.

Parameter	Data type	Default	Function
<Password>	String	xxx	Password for the administrative user. **NOTE** To encrypt the password, set the attribute `toEncrypt` to *yes*. The next time the application starts, the password string is encrypted in the configuration file.
<UseInfi>	State	Off	Switch to ON if the networking protocol to use with *BrowseD* is the InfiniBand.
<ReadCacheBuffer Num>	Integer	0	
<ReadCacheThread Num>	Integer	0	
<BrowsedServer> (within <BrowsedServer Group>)	String	0.0.0.0	Defines the IP address or DNS host name for a specific *BrowseD* server.
<SlaveRenderer>			
<HostName>	String		The IP address or DNS host name for a specific Slave Renderer machine.
<Timeout>	Integer	5000	Sets the timeout duration (in milli-seconds) of the automatic Slave Renderer detection.
<Backburner>			
<Hostname>	String		The IP address or DNS host name for a specific Backburner Manager machine.
<MatchCustomGroup>			
<MatchCustom>	Name	"AliasName" type="s"	Specifies the XML metadata field to be used by the Custom match option selected from the Browse menu. "s" represents string.
<MatchCustom>	Name	"DPXTimeCode" type="tc"	"tc" represents timecode.
<MatchCustom>	Name	"DPXkeycode" type="kk"	"kk" represents keycode.
<MatchCustom>	Name	"DPXTapeNAME" type="s"	"s" represents string.
<MatchCustom>	Name	"EDLReelName" type="s"	"s" represents string.
<MatchCustom>	Name	"DL_EDLClip_ name" type="s"	"s" represents string.
<MatchCustom>	Name	"DL_edlFrameID" type="i"	"i" represents integer.
<MatchCustom>	Name	"DLEDL_startTC" type="tc"	"tc" represents timecode.

Parameter	Data type	Default	Function
<AVIO>			
<PlayoutHighSpeed>	State	Off	When OFF, it refreshes the Player as you are performing a playout. When ON, the Player is no longer refreshed and therefore the performance of the playout improves.
<WTTFirstSDLeadIn Correction>	Integer	1	Sets the delay for the SD first lead-in.
<WTTSubsequentSD LeadInCorrection>	Integer	2	Delays all the lead-ins following the SD first shot.
<WTTSDLeadIn Increment>	Integer	0	Corrects the delay after the SD third shot.
<WTTFirstHDLeadIn Correction>	Integer	0	Sets the delay for the HD first lead-in.
<WTTSubsequentHD LeadInCorrection>	Integer	0	Delays all the lead-ins following the HD first shot.
<WTTHDLeadIn Increment>	Integer	0	Corrects the delay after the HD third shot.
<VtrTCTD>	Integer	10	The TimeCode Transition Delay specifies the number of milliseconds the application waits before asking for timecode from the VTR. The default value of 10ms works for most decks. For HDCAM-SR decks use the following values: ■ 14, for 1080/59i/60 or 720/50/59/60 ■ 21 for other timings
<Miscellaneous>			
<DisablePanScan Frame>	State	On	
<NVidiaSDISync>	State	Off	
<NVidiaPlayoutDelay>	Integer	0	
<BlockSize>	Integer	2048	
<AudioResyncTime>	Float	-1	
<LoadingSetup>	Integer	0	
<EnableKeykode Sending>	Enumerated (abstract data)	Off	
<LoginGUIGain>	Float	1.0	
<LoginGUIGamma>	Float	1.0	
<ClusterPlayDelay>	Integer	0	Available for Incinerator only.
<ClusterSmooth Playback>	State	Off	Available for Incinerator only.

Parameter	Data type	Default	Function
<ChangeCutOffset>	State	On	Allows the change cut or match grade feature to preserve the keyframe animations based on therecord timecode whenever a shothas been replaced or moved withina timeline. **NOTE** Be sure to enable only the Record button within the Match Option when performing a change cut or match grade.
<AnimCopy_UsingTrimOffset_Off>	State	On	
<PreallocEnable>	State	Off	Allows Burn rendering from a Lustre Windows workstation to use CXFS SAN preallocation.
<FirstFrameNumber>	Integer	On	
<StartShotFrameNumber>	Integer	On	
<DefaultDelivrablePanScanFilter>	Enumerated (abstract data)	Fast	Possible values are: ■ **Fast** (Lanczos2 filter) ■ **Quality** (Lanczos2 filter) ■ **Custom** (BSpline filter)
<Debug>			
<DumpDLEDLPath>	String		Path to place the contents of a DLEDL when it is loaded in the timeline or Shot bin.
<DumpWiretapCreate Clip>	State	Off	When ON, the attributes of a Wiretap clip are placed into a log file each time a clip is created on a Wiretap server. The file *WiretapClipDump.log* is located in the Lustre home folder. Use this keyword for debugging only.
<FilmTypeGroup>			
<FilmType>	Name		Various film types for AGFA, Kodak™, Eastman, and Fuji emulsions. It defines the relationship between the DPX film emulsion code and the DPX film code number.

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