

# Addendum

**NovaNET® 9.00 SP5A**

**NovaStor Corporation**

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# Chapter 1 — Introduction

This addendum provides information on new features in NovaNET 9.00 and features revised in SP5A. These features include:

- Using NovaNET with Microsoft Exchange 2000 Server (see [Chapter 2 — Microsoft Exchange 2000 Server](#))
- Installing a Universal Serial Bus (USB) tape drive (see [Chapter 3 — Universal Serial Bus \(USB\)](#))
- Changing NovaNET configuration in the NNCfg.ini (see [Chapter 4 — Changing NovaNET Configuration](#))
- Installing and using the NovaNET web gateway (see [Chapter 5 — NovaNET Web Gateway](#))
- Functions for supported autoloaders (see [Chapter 6 — New Autoloader Features](#))
- Using NovaNET on a Linux or DOS machine (see [Chapter 7 — Text User Interface](#))
- Backing up and restoring Oracle server databases (see [Chapter 8 — Working with Oracle databases](#))





# Chapter 2 — Microsoft Exchange 2000 Server

This chapter addresses several issues that affect backup and recovery of Microsoft Exchange 2000 Server databases.

## In This Chapter

- Exchange 2000 Service Pack Issues
- Disaster Recovery with Exchange Server 2000

## Exchange 2000 Service Pack Issues

### Exchange 2000 Memory Leak

Microsoft has identified a problem with Exchange 2000. During a backup job, Exchange 2000 may experience a memory leak. You can correct this problem by installing Exchange 2000 Service Pack 3 (SP3). Whether or not you experience this problem, we recommend that you upgrade to SP3.

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**Note** Be sure to create full backups both before and after you install any service pack.

**Note** Microsoft requires that you upgrade your system to Exchange 2000 Service Pack 2 (SP2) before installing SP3.

**Note** Before you install any Exchange 2000 service pack, refer to *Incompatibility Between Exchange 2000 Service Packs* below.

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Access the following link for more information on this service pack:

<http://support.microsoft.com/default.aspx?scid=kb;EN-US;Q314952>

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**Note** This link may change without notice.

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### Incompatibility Between Exchange 2000 Service Packs

Microsoft changed the internal backup format for Exchange 2000 databases in Exchange 2000 Service Pack 2 (SP2). Consequently, you cannot restore backups created under Service Pack 1 (SP1) or earlier to an SP2 machine. Likewise, you cannot restore SP2 and later backups to an SP1 or earlier machine.

Access the following link for more information on this incompatibility:

<http://support.microsoft.com/default.aspx?scid=KB;EN-US;Q316794>

Access the following link for information on available Microsoft Exchange service packs:

<http://support.microsoft.com/default.aspx?scid=KB;EN-US;Q301378>

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**Note** These links may change without notice.

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## Disaster Recovery with Exchange Server 2000

The Microsoft Exchange Server connector for NovaNET lets you work with storage groups instead of individual information stores. Each storage group is identified as a single object, which you can back up and restore.

### To recover from a disaster

When you must recover from a disaster, perform the following steps:

1. Perform a general system-level disaster recovery to restore the basic system data (see *Appendix A — Disaster Recovery* in the *NovaNET User's Guide and Technical Reference*).
2. Restore the Windows Active Directory:
  - a. When Windows restarts the first time after the recover, the **Starting Windows** screen appears during startup. Press **F8**.
  - b. Select **Directory Services Restore Mode** and press **Enter**.
  - c. Log in to the system.
  - d. Access NovaNET.
  - e. Create a restore job.
  - f. Select **Windows Active Directory** for the restore job from the list on the **Selection** tab.
  - g. Run the restore job.
  - h. Exit NovaNET.
  - i. Restart the computer, letting Windows 2000 load normally.
3. Verify that the various Microsoft Exchange services are loaded and running.
4. Access **Microsoft Exchange | System Manager** from the **Start** menu.
5. For each storage group to be restored, dismount and change the properties for each database:
  - a. Right-click the database within the storage group. A popup menu appears.
  - b. Select **Properties**. The **Properties** screen appears.
  - c. Select the **Database** tab.
  - d. Select **This database can be overwritten by a restore**.
  - e. Click **OK**.
  - f. Right-click the database again. A popup menu appears.

- g. Select **Dismount Store**, if the option is available.
  - h. Click **Yes** to confirm. The database is dismounted, which means it can be restored.
6. Exit the System Manager.
7. Access the **Exchsrvr** subdirectory on the computer, e.g., **c:\Program Files\Exchsrvr\mdbdata**.
8. Delete all database and log files associated with each storage group to be restored.

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**Warning** Do **NOT** delete the actual subdirectories.

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If you do not have a default installation, use the Exchange system manager to locate and delete the following files:

- Log file (.LOG) for each storage group.
  - Exchange database (.EDB) for each database in the storage group.
  - Exchange streaming database (.STM) for each database in the storage group.
9. Restore the Microsoft Exchange MTA database:
    - a. Access NovaNET.
    - b. Create a restore job.
    - c. Select **Microsoft Exchange 2000 Server** for the restore job from the list on the **Selection** tab.
    - d. Select **Queued Messages (MTA)** from the list on the **Selection** tab.
    - e. Run the restore job.
    - f. Exit NovaNET.
  10. Start the MTA service:
    - a. Right-click **My Computer** on the desktop. A popup menu appears.
    - b. Select **Manage**. The **Computer Management** screen appears.
    - c. Expand the **Services and Applications** folder.
    - d. Scroll down and right-click on **Microsoft Exchange MTA Stacks**. A popup menu appears.
    - e. Select **Start**.
    - f. Close the **Computer Management** screen.
  11. Restore the appropriate Exchange databases:
    - a. Access NovaNET.
    - b. Create a restore job.
    - c. Select **Microsoft Exchange 2000 Server** for the restore job from the list on the **Selection** tab.
    - d. Run the restore job.
    - e. Exit NovaNET.

12. Mount the Exchange databases for each storage group that you restored:
  - a. Access **Microsoft Exchange | System Manager** from the **Start** menu.
  - b. Right-click the database within the storage group. A popup menu appears.
  - c. Select **Mount**. The system mounts the database.
  - d. Click **OK**.
  - e. Exit the System Manager.

Your Exchange databases should now be restored.

# Chapter 3 — Universal Serial Bus (USB)

NovaNET supports a growing number of Universal Serial Bus (USB) tape drives. This chapter addresses several USB issues and lists supported USB tape drives.

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**Note** NovaNET supports USB tape drives on systems running Windows 2000 and later.

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## In This Chapter

- USB 2.0 vs. USB 1.x
- Using Multiple USB Tape Drives
- Supported USB Tape Drives

## USB 2.0 vs. USB 1.x

The tape drives listed below are designed for USB 2.0, which operates at an increased device-to-PC speed to 480Mbps (about 40 times faster than USB 1.1). Unfortunately, most computers currently ship with onboard USB 1.x ports. If you connect your new tape drive to a USB 1.x port, the device-to-PC speed decreases to the USB 1.1 speed of 12Mbps.

Therefore, we recommend that you install a USB 2.0 adapter card with its drivers. Then your system can take full advantage of USB 2.0 performance.

We have confirmed USB 2.0 functionality on USB 2.0 adapters with the NEC chip. These adapter drivers include **nusbd.sys** and **nehcd.sys**.

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**Note** Even though some newer computers implement USB 2.0 on their motherboards, we still recommend that you use a USB 2.0 adapter card for proper operation.

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## Using Multiple USB Tape Drives

NovaNET can support up to 15 USB tape devices. However, your actual performance depends on your system resources, including number of CPUs and amount of memory. Therefore, we recommend that you only attach one or two USB tape drives to a server.

## Supported USB Tape Drives

At this time, NovaNET supports the following USB tape drives:

- OnStream ADR2.60usb
- Seagate Travan 40
- Seagate Travan 20

All NovaNET features are available for these drives, including Disaster Recovery. These features are only limited by the NovaNET edition and installed options.

For a Seagate Travan 40 or 20 drive, install the QIC-157 Tape Drive driver for the Seagate tape drive in the device manager. If you do not install this driver, NovaNET will not recognize the drive.

For an OnStream ADR2.60usb drive, install the drive hardware according to the manufacturer's documentation. Then refer to *Installing the Correct OnStream ADR2.60usb Device Driver* later in this chapter to install the correct hardware device driver.

Once installed, the USB tape drive should appear under **port0** on the NovaNET **Device** tab.

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**Note** NovaNET is not “Plug and Play” aware. If you attach or detach a USB tape drive, you must exit NovaNET and stop and restart the NovaNET service. Otherwise, NovaNET will not recognize the device configuration change. Refer to *Appendix E — NovaNET Service* in the *NovaNET Installation Guide* for more information about restarting the service.

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# Chapter 4 — Changing NovaNET Configuration

You can customize many NovaNET features through the user interface (see the *NovaNET Installation Guide* and *NovaNET User's Guide and Technical Reference* for more information).

You can also customize the following NovaNET features to your specific needs by modifying the NNCfg.ini configuration file:

- Increase maximum size of emailed job logs
- Enable the Encrypting File System (EFS)
- Enable *Files not to back up*
- Removable Storage Manager (RSM) and NovaNET

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**Note** Make a backup copy of NNCfg.ini before you make any changes.

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## Increase Maximum Size of Emailed Job Logs

By default, NovaNET's SMTP connector only emails the first 64KB of a job log. If your job logs exceed 64KB often, you can increase the maximum size of your emailed job logs. Simply add the following lines to the NNCfg.ini file:

```
[smt]
sizeLimit=n
```

Enter the maximum size in bytes in place of **n**. For example, to set the size limit to **1MB**, replace **n** with **1048576** (the equivalent of 1MB). The default is **65536** (the equivalent of 64KB).

## Enable the Encrypting File System (EFS)

The Encrypting File System (EFS) is a feature of Windows 2000 and later. It provides security for computers that are accessed by different users. System administrators can encrypt and decrypt files to keep them safe from intruders.

To enable or disable this feature, change the following line in the [configuration] section of the NNCfg.ini file:

```
efsEnable=Yes      (enabled)
efsEnable=No       (disabled)
```

## Enable *Files not to back up*

NovaNET now automatically enables the *files not to back up* feature under Windows NT and later. This feature lets you select files to exclude from the backup. If you identify a file to not back up, NovaNET will exclude it even if you specifically select it on the Selection tab of the backup job.

To disable this feature, add the following section and line to the NNCfg.ini file:

```
[Ods-File System Connector]
filterRegExclude=No
```

To enable this feature, change the lines in the following section of the NNCfg.ini file:

```
[Ods-File System Connector]
filterRegExclude=Yes
```

To specify the files not to back up, you must add them to the list in the following Windows registry key:

```
HKEY_LOCAL_MACHINE\SYSTEM\ControlSet\Control\
BackupRestore\FilesNotToBackup
```

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**Warning** Do NOT modify the Windows Registry unless you are a system administrator or system technician. Otherwise, you may affect the operation of your computer.

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**Note** To use this feature, you must enable it in NNCfg.ini and list files not to back up in the Windows Registry.

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## Removable Storage Manager (RSM) and NovaNET

The removable storage manager (RSM) is a feature of Windows 2000 and later. It helps you manage removable media in a single-server system. If it is enabled during NovaNET operation, RSM generates various misleading messages in the Windows Event Log. Specifically, these messages may state that the NovaNET and RSM services have not started even though they have.



If your system requires RSM, but it is disabled, you can enable it by changing the following line in the [configuration] section of the NNCfg.ini file:

```
disableRSM=No
```

Then you must re-enable RSM on the **Component Services** screen. Access the screen as follows:

- *Windows 2000:* **Start | Settings | Control Panel | Administrative Tools | Component Services**
- *Windows XP:* **Start | Settings | Control Panel | Performance and Maintenance | Administrative Tools | Component Services**

To disable RSM, change the following line in the [configuration] section of the NNCfg.ini file:

```
disableRSM=Yes
```

NovaNET automatically disables RSM in Windows.



# Chapter 5 — NovaNET Web Gateway

NovaNET now includes a web gateway that lets you manage your NovaNET storage management zone for any internet connection. You can perform most of the same tasks offered by the existing NovaNET user interface.

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**Note** In this chapter, IIS refers to Microsoft Internet Information Services.

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## In This Chapter

- Installing the NovaNET Web Gateway option
- Using the NovaNET Web Gateway
- Frequently Asked Questions

## Installing the NovaNET Web Gateway Option

### IIS Server Requirements

Your IIS server must meet the following system requirements before you can install the NovaNET Web Gateway option:

- **Hardware:** 128MB RAM (256MB recommended), 400MHz processor and 500MB of free hard disk space.
- **Operating System:** Any version of Windows that supports IIS Server 5.0 or higher, for example, Windows NT 4 Server, Windows 2000 Server, Windows XP Professional or Windows 2003 Server

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**Note** Be sure to install the latest Windows service pack before continuing.

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### IIS Server Components and Configuration

In most cases, the following components will be already installed:

- **Microsoft .NET Framework (v1.0.3705 or higher)**
- **Microsoft Internet Explorer WebControls (v1.0 or higher)**

If any of these components are not yet installed, NovaNET will automatically prompt you to install them.

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**Note** The NovaNET installation program will offer to install the English version of any of these components if they are missing.

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You must also configure the IIS server so that at least one of its websites responds to requests from port 80. For more information, contact your system administrator.

To install and configure the NovaNET Web Gateway option:

1. Install NovaNET on the IIS server computer (see the *NovaNET Installation Guide* for instructions more information). Be sure to start the IIS service.
2. Install the Web Gateway option on the IIS server computer:
  - a. Launch the NovaNET installation program.
  - b. Select **Install option**.
  - c. Follow the screen prompts until the **Available Options** screen appears.
  - d. Select **NovaNET Web Gateway**.
  - e. Follow the screen prompts to start the install process. The installer verifies that each IIS server component is installed and correctly configured.
  - f. If a component is missing or incorrectly configured, NovaNET asks to install it. You can have NovaNET install the missing component. You can also exit the installer and either install or configure the component manually.

---

**Note** When NovaNET is installing a component, you may be told to reboot the server. Do NOT reboot the server until after NovaNET installation completes.

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- g. If all components are installed and configured correctly, NovaNET finishes installing the web gateway option and displays the web address for the NovaNET web gateway: <http://localhost/NovaNET>.

## Using the NovaNET Web Gateway

### Settings

**Web browser:** You can use any of the following web browsers to access the NovaNET Web Gateway:

- Microsoft Internet Explorer 6.0 and above
- Netscape 6.2 and above
- Mozilla 6.0 and above

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**Note** Due to compatibility issues between Internet Explorer and Netscape, you may see some differences.

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**Screen resolution:** The NovaNET Web Gateway pages are designed for a screen resolution of 800x600. Therefore, please set your screen resolution to 800x600 or higher.

### Starting and Ending a NovaNET Web Gateway Session

To use the NovaNET Web Gateway, simply open your browser and access the gateway at <http://localhost/NovaNET>. Your session starts as soon as you log on.

When you are finished using the web gateway, please close your session:

- **Log out:** Click **Log out** or select **Log out** from the NovaNET **File** menu. NovaNET closes your session and displays the NovaNET login page.
- **Exit:** Select **Exit** from the NovaNET **File** menu. NovaNET closes your session and then closes your browser.

---

**Note** After a period of inactivity, NovaNET logs you out and closes your NovaNET session. You can configure this in your IIS settings. (The IIS default is 20 minutes.)

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For security reasons, we recommend that you always log out or exit the NovaNET web gateway before accessing other websites. If you do not close your session, anyone can access your NovaNET installation from your computer.

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**Note** We recommend that you install firewall software on your network to prevent unauthorized access to your NovaNET database.

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## NovaNET Web Gateway Features

This section describes some features and issues that affect the web gateway.

**Object name:** When you select an object in the right pane, both the selected object and its container in the left pane are highlighted. Therefore, the name of the currently selected object appears to the left of the NovaNET toolbar. Before you perform any command on any object, check the object name.

**Tree view icons:** When you open or close a container in the tree view, NovaNET queries the server for updated information. For best performance on dial-up internet connections, we recommend that you avoid opening objects in the tree view unnecessarily.

**Differences:** Please note the following differences between the standard NovaNET interface and the NovaNET Web Gateway:

- You cannot create disaster recovery media.
- You cannot restore objects to a new location.
- You must access shortcut menu options from the NovaNET menu bar. The browser shortcut menu will not offer any NovaNET options.

## Frequently Asked Questions

### My storage management server is not listed on the login screen.

This usually occurs when the network has not been configured properly for NovaNET operation or when there is a network problem.

Check the following:

- Check the firewall software on the network. You must open four UDP ports (58084, 58085, 50594 and 50595) for bidirectional communication.

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**Note** These are not TCP/IP ports.

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- Log in to NovaNET from an onsite workstation. If the NovaNET server appears, there may be a problem with the IIS server. If the NovaNET server does not appear, there may be a general network or storage management zone problem.
- Log in to NovaNET from the IIS server. If the NovaNET server appears, there may be a problem between the IIS server and the internet port. If the NovaNET server does not appear, there may be a general network or storage management zone problem.

## Why does the browser display *.aspx* pages as plain text? Why does it ask if I want to download the page?

The IIS server does not map correctly to the .NET file extensions. This can be caused by:

- Installing IIS after installing the .NET Framework.
- Removing IIS and then re-installing it after you install the .NET Framework.

To repair the IIS server mappings:

1. Open a command window.
2. At the command prompt, navigate to one of the following directories:  
`c:\windows\microsoft.net\framework\v1.0.3705\` (.NET Framework v1.0.3)  
`c:\windows\microsoft.net\framework\v1.1.4322\` (.NET Framework v1.1)
3. Type `aspnet_regiis.exe -i` and press **Enter**. The utility repairs the IIS mappings.

## When I access the website, *Error 100 - Unable to initialize support layer* appears.

This error occurs anytime there is a problem loading the NovaNET Web Gateway. Potential causes include:

- **NovaNET Web Gateway software is still loading**

The Microsoft .NET Framework uses *Just In Time (JIT)* compilation to increase website performance. It only compiles a web page when it is accessed for the first time. Your web browser may time out before the web page is compiled. In this case, simply close and re-open your browser. Then try to access the web page again. Once compiled, the web page loads faster and probably will not time out.

- **Multiple copies of NNwinsup.dll in memory**

Multiple copies of the NovaNET Web Gateway may have been loaded in memory. Reboot the IIS server (see *Rebooting the IIS Server* below). Then access the web page again.

- **Different versions of NNwinsup.dll**

NNwinsup.dll is located in both the **C:\Program Files\NovaNET\** and the **C:\Program Files\NovaNET\winweb\bin\** directories. Both files should have the same time and date stamp. If they are different, copy the file from the **C:\Program Files\NovaNET\** directory to the **C:\Program Files\NovaNET\winweb\bin\** directory. Reboot the IIS server (see *Rebooting the IIS Server* below). Then access the web page again.

### Rebooting the IIS Server

Perform one of the following to reboot the IIS server:

- Use the Windows Task Manager to stop the **aspnet\_wp.exe** process.
- Open a command window. Then type **iisreset.exe** at the command prompt.
- Open the IIS manager program. Right-click the icon for the IIS server computer. Select **All Tasks** from the popup menu and then **Restart IIS**. Finally, close the IIS manager program.

### The *Server Application Not Available* message keeps appearing on my Windows 2000 server.

Microsoft has confirmed this issue on machines configured as domain controllers or backup domain controllers. Refer to the following Microsoft knowledgebase article at <http://support.microsoft.com/?kbid=315158> for more information.

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**Note** This link may change without notice.

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### When I try to access the gateway (IIS 6), my browser displays *The page cannot be found*.

By default, IIS 6.x prohibits (or disables) the ASP.NET web service extension. This extension is required for NovaNET Web Gateway.

To allow (or enable) this extension:

1. Open the IIS manager program.
2. Expand the IIS server computer.
3. Click **Web Service Extensions**. Several extensions appear in the right pane.
4. Click **ASP.NET c1.1.4322** in the right pane. Several buttons appear, including **Allow**, which should be enabled.
5. Click **Allow**.
6. Close the IIS manager program.
7. Restart your browser and access the web page.

## After I log in to NovaNET, I cannot select Backup or the other tabs on the main page.

Microsoft Internet Explorer WebControls are not installed. Either they were not previously installed or they were uninstalled after you installed the NovaNET Web Gateway option.

To manually install WebControls (English):

1. Navigate to the **/win/winweb/bin** directory on the NovaNET CD-ROM.
2. Double-click **iewebcontrols.msi**.

## I cannot access the NovaNET help through the Web Gateway.

You have to install the html help files from the NovaNET CD-ROM.

1. Copy **htmlhelp.zip** from the **/doc/<lng>/htmlhelp/** directory on the NovaNET CD-ROM to the **C:\Program Files\NovaNET\winweb\htmlhelp** directory on the IIS server.
2. Use WinZip or some other file extraction software to unpack it.

## Why does it take so long to load the web pages the first time?

The Microsoft .NET Framework uses *Just In Time (JIT)* compilation to increase website performance. It only compiles a web page when it is accessed for the first time. Once compiled, the web page loads faster.

## Netscape does not display the job selection list properly.

At this time, Netscape does not fully support .aspx web pages, which are based on Microsoft's ASP.NET technology. As a result, the job selection list may not display properly.

## When I select an object for restore and access the Instances... screen, the OK button does not appear.

The web gateway process for selecting an instance of an object to restore differs slightly from the standard process in NovaNET. Refer to the following to view the details of a specific instance or to restore a specific instance of an object.

To view the details for a specific instance:

1. Access the **Selection** tab for the restore job.
2. Highlight the object.
3. Click the **Instances** button. The **Instances...** screen appears with a list of available instances.
4. Select the instance to review.
5. Click **Details**. The instance details appear in the lower pane.
6. When finished, click **Cancel** to close the **Instances...** screen.



To select a specific instance of the object to restore:

1. Access the **Selection** tab for the restore job.
2. Check the box for the object. This selects the object for restore.
3. Click the **Instances** button. The **Instances...** screen appears with a list of available instances.
4. Select the instance to restore.
5. To review the details of the instance, click **Details**. The instance details appear in the lower pane.
6. Click **OK**. The **Instances...** screen closes.



# Chapter 6 — New Autoloader Features

NovaNET 9.00 SP2A includes several new features for autoloaders. This chapter contains the revised sections of the *NovaNET Users Guide and Technical Reference* that are affected by these changes.

## In This Chapter

- Device Tab (*Chapter 9 — Media, Device and Database tabs*)
- Status Tab (*Chapter 12 — Objects and Properties Reference*)

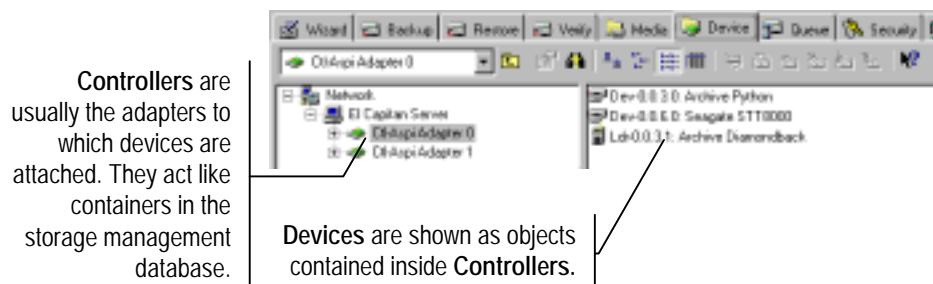
## Device Tab

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**Note** The *Device Tab* section of *Chapter 9 — Media, Device and Database tabs* now includes information on the new autoloader interface in NovaNET. This information supersedes the printed manual. There are some new commands; also some commands have changed. For example, on the **Format Media** window, you now click **Start** to begin formatting media.

---

You can use the **Device** tab to perform physical operations on any backup device in the current storage management zone.



Any backup device in the current storage management zone can be displayed in the object detail area. Note that this tab displays two separate types of objects: **Controllers** and **Devices**. Controllers are usually the physical adapters in your machine that connect NovaNET to your physical devices; devices are the actual physical devices. In the NovaNET storage management database, controllers work like containers in which multiple devices of the same model and manufacturer are stored.

When you work with devices on the **Device** tab, you can select the *device* in either the object detail area or the tree view area.

Note that autoloaders have two or more drivers associated with them: the **Loader** driver and one or more **Device** drivers. In general, many commands on the **Device** tab can be performed with any one of the drivers selected. (Models and manufacturers vary.) However, if your autoloader supports multiple devices (for example, it has more than one tape read/write device) and you want to use a specific device, you must select that **Device** driver to use it. If you select the **Loader** driver, NovaNET will use the first available device in the autoloader it finds.

## Restarting Failed Devices

Sometimes you will need to restart a device that has, for some reason, failed to initialize properly. A device may have stopped for any number of reasons, such as a power failure or a connecting cable malfunction.

When a device is not initialized, it appears with a yellow warning icon. Some devices may take some time to initialize, during which the warning icon will continue to appear. If a device shows the warning icon after it is initialized, press **F5** to refresh the device display.



If there is some other problem with the device or the controller, the warning icon will not disappear. You must identify and correct the problem yourself. Then you must restart *both* NovaNET and the NovaNET service. When NovaNET restarts, it will initialize the device driver again. Check the **Device** tab to see that the devices are now properly working and that they no longer display the warning icon. Any duplicate or old devices that are offline can be deleted from the **Database** tab.

## Device Tab Commands

After you have selected a device in the object detail area, you can perform physical operations with this device. Some of these operations affect the device itself, while others affect the current media in the device.

The following commands can be found on the **Device** menu. Many of them also have buttons on the toolbar or are available from the shortcut menu.

---

**Note** Check your hardware documentation to determine which of the following commands are supported by your device. If the command is not available, it will not appear on the shortcut menu.

---

### Eject Media

You can use this command to eject media from the selected device. If this command is missing, either your device does not support this command or no device is selected.

### Eject Magazine

You can use this command to eject media magazines from the selected autoloader. If this command is missing, your device does not support this command.

## Rewind Media



Rewind button

You can use this command to manually rewind tapes in the selected device. If this command is missing, your device does not support this command.

## Retension Media



Retension button

The **Retension Media** command retensions the current tape in the device by fast-forwarding the tape to the end of the tape and then rewinding it to the beginning. This command can be useful in some circumstances. Occasionally when a tape is repeatedly fast-forwarded and rewound for only short distances, tension differences develop in the tape that cause the tape drive to falsely believe it has reached the end or beginning of the tape. By retensioning the tape, you can sometimes make an otherwise unusable tape operational again.

If you need to retension tapes regularly to use them, you may need to service your tape drive or replace your tapes.

## Quick Erase and Secure Erase

These commands erase the media currently loaded in the selected device.



Quick Erase button

The **Quick Erase** command erases the first block and then writes an END OF DATA marker to that first block. The other blocks of the tape are not erased, but when that tape is read, NovaNET treats it as if it were blank because it encounters the END OF DATA marker in the first block.



Secure Erase button

The **Secure Erase** command erases every block on the tape. This operation can be very time consuming, lasting several hours. However, it will physically erase every block on the tape. If you want to destroy sensitive data, use this command.

Some devices support both commands; some support only one of the two erase commands. If a command is not available, the selected device does not support that command.

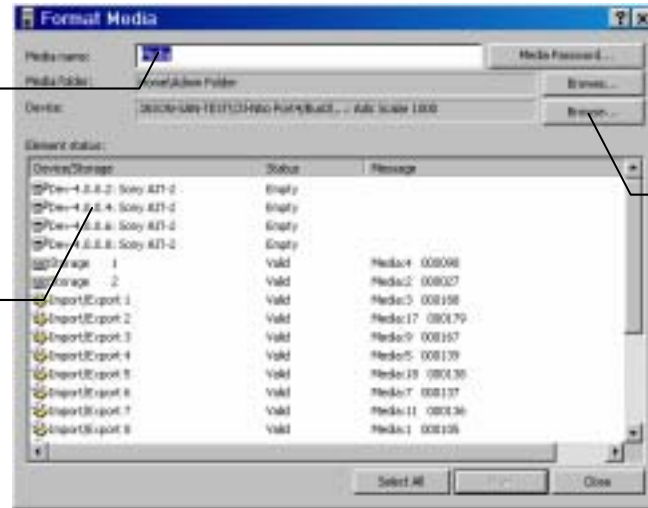
## Format Media

You can use this command to format media currently loaded in the selected device.

When you format new media, NovaNET opens the **Format Media** window. Use this window to name the media and select a media folder in which to store the media. NovaNET will format the media currently loaded in the device you select. If you select an autoloader, select the storage slot that holds the media you want to use.

When you format new media, type the name of the new media in the **Media name** field.

If you are using an autoloader, select the storage slot that stores the media to be formatted.



Use the **Browse** button to select the device you want to use to format the new media.

When you format media, you can also assign the media a password. See *Media Passwords* in *Chapter 9 – Media, Device and Database tabs* of the *NovaNET User's Guide and Technical Reference* for more information.

### To Format Media

1. Select the device with the media to format. To format all media simultaneously, click **Select All**, then click **Start**.
2. Format the new media by either
  - Clicking the right mouse button on the device and selecting **Format** from the shortcut menu, or
  - Selecting **Format Media** from the **Device** menu, or
  - Clicking the **Format Media** button on the toolbar.
3. Type in the name of the new media in the **Media name** field.
4. If the media folder in which you want to store the media is not displayed in the **Media folder** field, click the **Browse...** button and select the proper media folder from the **Browse** window.
5. If the device you want to use is not displayed in the **Device** field, click the **Browse...** button and select the proper device from the **Browse** window.
6. If you are using an autoloader, select the autoloader and the storage slot that holds the media you want to format.
7. If you want to assign a password to the media, click the **Media Password** button and then enter and confirm the password in the **Media Password** window.
8. Click **Start**. NovaNET formats the specified media.



Format Media button

### Import Media

This command allows you to use data on media that was created in another storage management zone or by another software program. To use media that was not created in the current storage management database, you must import that media into the current database.

You might import media in one of four situations:

- When you want to use media created by an earlier version of NovaNET.
- When you want to use media created in a different NovaNET storage management zone.
- When you want to use media created by another backup program.
- When you want to use media accidentally deleted from the storage management database.

When you import media, you must supply the media password. No password is required if the media has no password.

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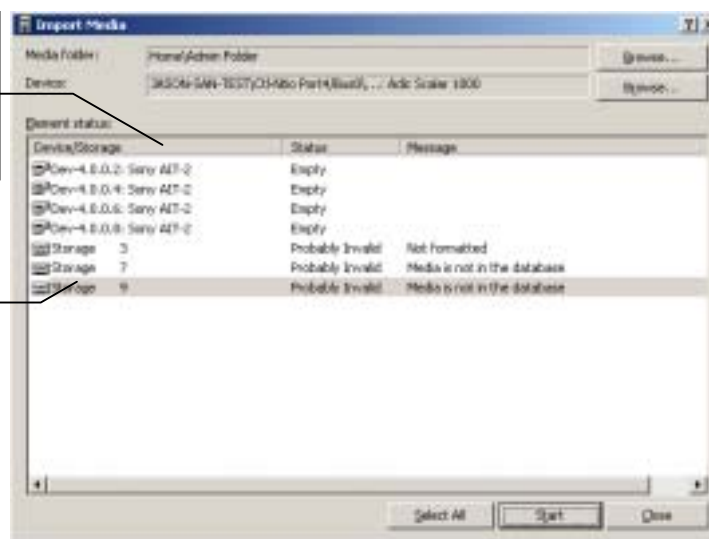
**Note** Previous versions of NovaNET automatically assigned **PASSWORD** as the default media password. If you are having trouble importing media created with an earlier version of NovaNET, try using **PASSWORD** when prompted for the media password.

---

NovaNET will not perform any other operations while it is importing media. Additionally, the process may last several hours. Before you import media, be certain that there is sufficient time to complete this lengthy process. Additionally, you will want to be available to log out of NovaNET when the import is complete, in order that the security of the network is not compromised.

When you import media, select the device you want to use to read the imported media.

If you are using an autoloader, select the storage slot that holds the media you want to import.



### To Import Media

1. Select **Import Media** from the **Device** menu or the shortcut menu.
2. The **Media Folder** field displays the folder in which NovaNET will store the imported media. If this is not the folder in which you want to store the media, click the **Browse...** button and select the proper media folder from the **Browse** window.
3. The **Device** field displays the device from which NovaNET will import the media. If the device you want to use is not displayed, click the **Browse...** button and select the proper device from the **Browse** window.
4. If you are using an autoloader, select both the autoloader and the storage slot that holds the media you want to import.

5. Click the **Import** button.
6. When the confirmation window appears, click **Yes**.
7. In the **Import Password** window, enter the password for the media you are importing. If the media has no password, leave the field blank.
8. Click **Start**.

## Restore Database



Restore  
Database  
button

The **Restore Database...** command provides a quick method of restoring your current storage management database, e.g., in case it has been corrupted. Use this command only when your current set of media is intact. For example, you might use this command if the storage management server has crashed.

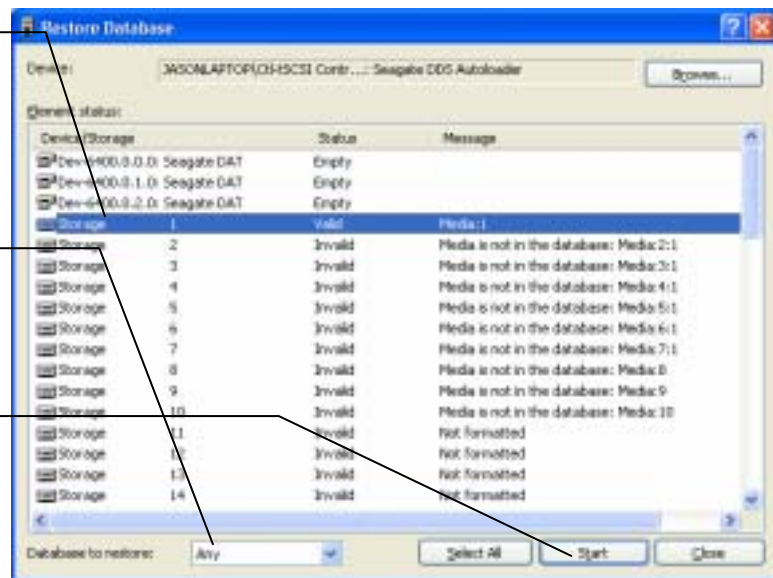
The **Restore Database...** command differs significantly from the **Import Media...** command. The **Restore Database...** command *replaces* the current storage management database with the last known good database on that media. The **Import Media...** command, on the other hand, *does not replace* the current storage management database; it only adds additional data to it.

The advantage of the **Restore Database...** command is that it provides a quick and easy way to replace a lost or corrupted NovaNET storage management database. (You could use the **Import Media...** command to restore a corrupted database, but this process is very time consuming and, if you have multiple tapes, might require many hours or even days.)

To restore a corrupted or lost database from an autoloader, select the proper storage element ...

Select the **Restore Database** mode ...

...and then click **Start**. After the command completes, exit NovaNET and then restart



**Note** All current information in the current NovaNET storage management database will be lost when you use the **Restore Database...** command. This command *does not append* data to the current storage management database; it replaces the current storage management database with the last known good database on that media.



## To Restore a Storage Management Database

1. Locate the media on which you have backed up the storage management database you wish to restore. Normally, this is the last backup job run.
- 
- Note** If you printed the log from the last backup job, you can identify the media which contains the database. To make certain the database is regularly backed up, check the **Selection** tab of the backup job to verify that the database for your zone is checked.
- 
2. Insert the media into the appropriate backup device and then select it in the object detail area of the **Device** tab.
  3. Select **Restore Database...** from the **Device** menu or the shortcut menu.
  4. The **Device** field displays the device from which NovaNET will restore the database. If the device you want to use is not displayed, click the **Browse...** button and select the proper device from the **Browse** window.
  5. If you are using an autoloader, select the correct storage slot from the **Device/Storage** field.
  6. In the **Database to Restore** field, select from the following restore modes.
    - Select **Any** to restore any database instance stored on the selected media.
    - Select **Latest** to restore only the most recent database stored on the selected media.
  7. Click **Start**.
  8. Exit NovaNET to finish the database restore process. When you restart NovaNET, the database will be restored.

---

**Note** If NovaNET is running as a service, you must stop and restart the service. Use the NovaNET Service Control Manager to start and stop the NovaNET service.

---

## Clean Device

For more information on setting up a cleaning cartridge on an autoloader, see *Status Tab* on the next page.

The **Clean Device...** command will run the backup device through a cleaning cycle.

This command is supported only by autoloaders. If a device in an autoloader provides notification that it needs cleaning and the autoloader has a cleaning cartridge available, a cleaning cycle will be performed automatically at the start of a backup job. If you are using a device that is not an autoloader, you must manually clean the device at the manufacturer's suggested intervals.

To clean a device in an autoloader, highlight the device and select **Clean Device...** from the **Device** menu. NovaNET will check to see if one of the slots holds a cleaning cartridge. If it does, the cleaning cycle will be performed in the background; if not, an error message is shown.

If the **Clean Device...** command is missing, it is not available for your backup device. In this case, a cleaning cycle can often be performed by manually inserting a cleaning cartridge into the backup device.

## Identify Media



Identify Media  
button

Use this command to get the name of the media currently loaded in the device. NovaNET tries to identify the tape or other media that is currently loaded in the device. If NovaNET cannot identify the media, it reads the media header, a process that may take up to several minutes. When NovaNET has learned the name of the media currently loaded, it displays that name in the **Properties of...** window.

## Status Tab

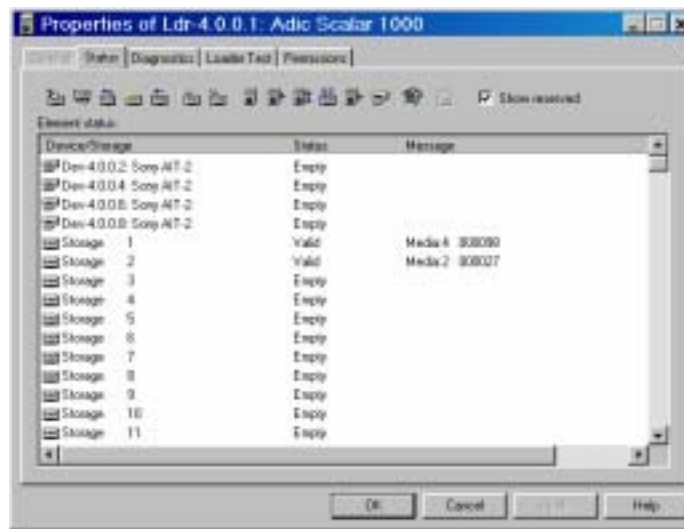
**Note** The *Status Tab* section of *Chapter 12 — Objects and Properties Reference* in the *NovaNET Users Guide and Technical Reference* includes new information on the new autoloader interface in NovaNET. This information supersedes the printed manual.

The **Status** tab now includes a toolbar that contains several new commands. Only commands supported by your autoloader will appear on the toolbar.

### Applicable Objects *Autoloader*

The **Status** tab shows the device and storage status that is associated with each slot in an autoloader. Use it to select storage slots and media or to perform various functions on the media in the autoloader.

Status  
tab



## Element status

Shows information about the current magazine in the autoloader.

**Device/Storage** Specifies the device or the storage slot.

- **Dev ...** A tape drive used to read any media contained in a storage slot. The number of available tape devices depends on your autoloader configuration.
- **Storage #** A slot that holds media that may be used by the storage management zone or that is reserved for other purposes.
- **Import/Export #** A slot that is used to transfer media between storage slots, import/export slots and tape drives.

**Status** Shows the current or likely status of the device or storage slot.

- **Valid** The slot is known to hold media that is in the current database.
- **Probably Valid** The slot held valid media previously. NovaNET verifies that the media is valid before using it. When you exit and restart NovaNET, media marked **Valid** is reset to **Probably Valid**.

- **Invalid** The slot holds media that is definitely not in the current database.
- **Probably Invalid** The slot holds media that may not be in the current database. When you exit and restart NovaNET, media marked **Invalid** is reset to **Probably Invalid**.
- **Empty** The slot is either known to be empty or a user changed its status to **Empty**.
- **Probably Empty** The slot was empty previously. When you exit and restart NovaNET, slots marked **Empty** are reset to **Probably Empty**.
- **Unknown** The status of the slot is not known, usually because it has not been used yet.
- **Cleaning Tape** A user marked the slot as holding a cleaning cartridge. The number of remaining cleaning cycles also appears. NovaNET does not verify that a cleaning cartridge was, in fact, inserted into this slot.
- **Probably Cleaning Tape** The slot previously contained a cleaning tape. When you exit and restart NovaNET, slots marked **Cleaning Tape** are reset to **Probably Cleaning Tape**.
- **Reserved** The slot was disabled by a user. NovaNET will ignore it during any job. You can only change the status of a reserved slot. NovaNET changes the status of all other slots during normal operations.

**Message** Displays the name of a **Valid** or **Probably Valid** media. It also displays the slot status.

## Identify Media...

Opens the **Identify Media** window for the selected media or autoloader. Click **Select All** to identify all media in the autoloader. NovaNET reads the media header information for the selected media and checks to see if it is in your storage management zone database. For a list of possible status settings, refer to *Loader Statistics*, above.

## Retension...

Opens the **Retension Media** window. Select a device or media from the list and click **Start**. After confirming that you want to retension the media, NovaNET adjusts the tension on the tape by fast-forwarding it to the end of the tape and then rewinding it back to the beginning. NovaNET displays the progress on the **Retension Media Status** window.

## Rewind...

Opens the **Rewind Media** window. Select one or more media and click **Start**. After confirming that you want to rewind the selected media, NovaNET rewinds the media. A **Task Complete** message appears in the status bar when NovaNET is finished rewinding the media.

## Format...

Opens the **Format Media** window. To format the media, select one or more storage slots and click **Start**. To format all media in the **Device/Storage** list, click **Select All**, then **Start**.

## Import Media...

Opens the **Import Media** window for the selected storage slots. You can import media that was created in another storage management zone or by another software program, (see *Import Media* on page 24 for more information).

## Quick Erase and Secure Erase

The **Quick Erase** command deletes the first block of data on the selected tape, then it writes an END OF DATA marker to that block. No other data is erased from the tape. When NovaNET reads the tape again, it recognizes that the tape is no longer associated with a particular backup.

The **Secure Erase** command erases every block on the tape. This operation can be very time consuming, lasting several hours. However, it will physically erase every block on the tape. If you want to destroy sensitive data, use this command.

Some devices support both commands; some support only one of the two erase commands. If a command is not available, the device does not support the command.

## Identify All...

Opens the **Identify All** window. Reads the media header information and checks to see if the media is in the storage management zone database. Click **Start** to identify the media.

## Insert Media...

Opens the **Insert Media** window with a list of media stored in the Import/Export slots of the autoloader. Select a media and click **Start**. After confirming that you want to move the media, NovaNET moves the media from an Import/Export slot to a slot with the status **Empty**. You can then perform other operations on the media (e.g., **Identify**, **Import**, **Move** and so on).

## Move...

Opens the **Move Media** window. Select a media slot and click **Start**. NovaNET prompts you to select the destination slot for the media. You can move the media to either an empty slot or an Import/Export slot.

## Sort Media...

Opens the **Sort Media** window. You can sort all or just a few media. Available sorting options are **Ascending**, **Descending** and **Random**.

## Remove Media...

Opens the **Remove Media** window with a list of media stored in the autoloader. Select a media and click **Start**. After confirming that you want to remove the media from the autoloader, NovaNET moves the selected media to an available Import/Export slot. The status of the slots from which the tapes were removed changes to **Empty**.

## Clean

Performs a cleaning cycle on the selected device. Select the device and click **Clean**. Once complete, NovaNET decreases the **Number of remaining cleaning cycles** by one. This option requires a cleaning cartridge in a storage slot whose status is **Clean**.

## Restore Database...

Identifies the selected media. If the autoloader supports optical scanning of media bar codes, NovaNET uses bar codes to identify the media, comparing it to the current database. If the autoloader does not support optical scanning of media, NovaNET reads the media header information and checks to see if the media is registered in the storage management zone database.

## Change Status...

Opens the **Change Status** window. Lets the user assign one of the following to the media or slot:

- **Unknown** NovaNET will identify the media in the slot before using it.
- **Empty** NovaNET marks the slot as empty.
- **Clean** NovaNET will use the media in this slot to perform a cleaning cycle.
- **Reserved** NovaNET ignores the storage slot until a user changes its status again.

## Show Reserved

Check this box to display information on any storage slots with a **Reserved** status. A storage slot is reserved if it is in use by another storage management zone or if its status was changed to **Reserved**. NovaNET ignores slots marked **Reserved** when it performs backups and when you move or sort media.

---

**Note** Changing the status of a **Reserved** storage slot can adversely affect backups performed on other storage management zones.

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# Chapter 7 —Text User Interface

Within the framework of an operating system, NovaNET provides the same options and features in both the graphical user interface (GUI) in Windows and X Window and the text-based user interface (TUI) in NetWare and Linux. The primary differences between these interfaces are: (1) how you select an option or command, and (2) how much information appears on a given screen. This chapter compares the two interfaces and describes how to select an option or command in the TUI when it differs from the GUI. This chapter also includes a list of navigation keystrokes and their functions.

## In this chapter

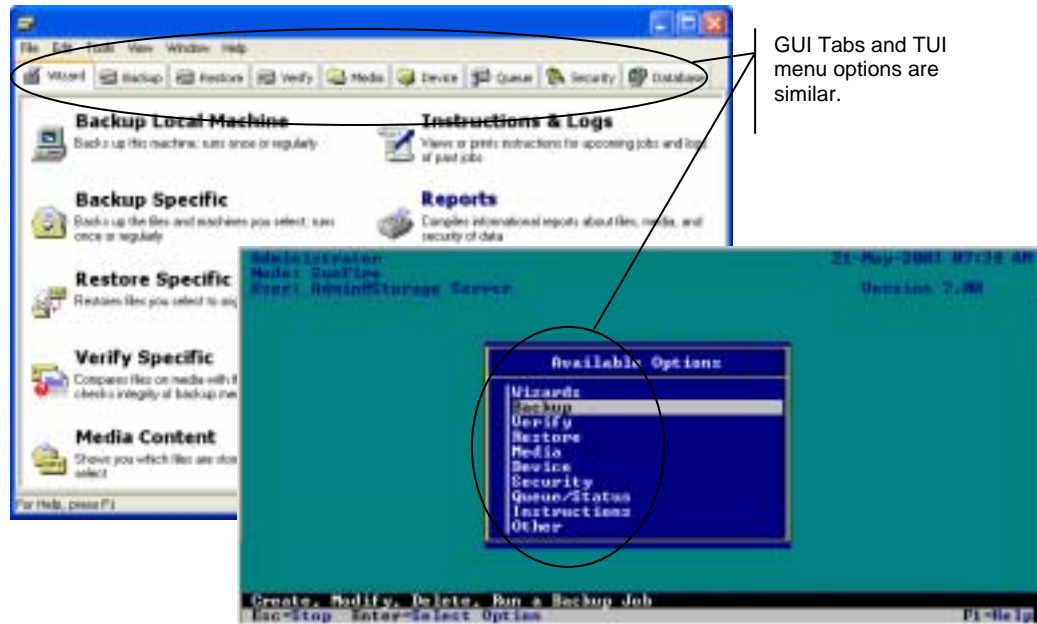
- Examples of similarities
- How to use the text user interface
- Navigation keys

## Examples of similarities

Screens and menus in the text user interface share many similarities with the graphical user interface, as the following examples illustrate.

### Available Options menu

The **Available Options** menu is used most frequently in the NovaNET TUI. It contains a list of options that, when selected, display additional screens from which a user manages backups and restores data. In the GUI, the corresponding screen displays a list of tabs the same names as the **Available Options** menu in the TUI.



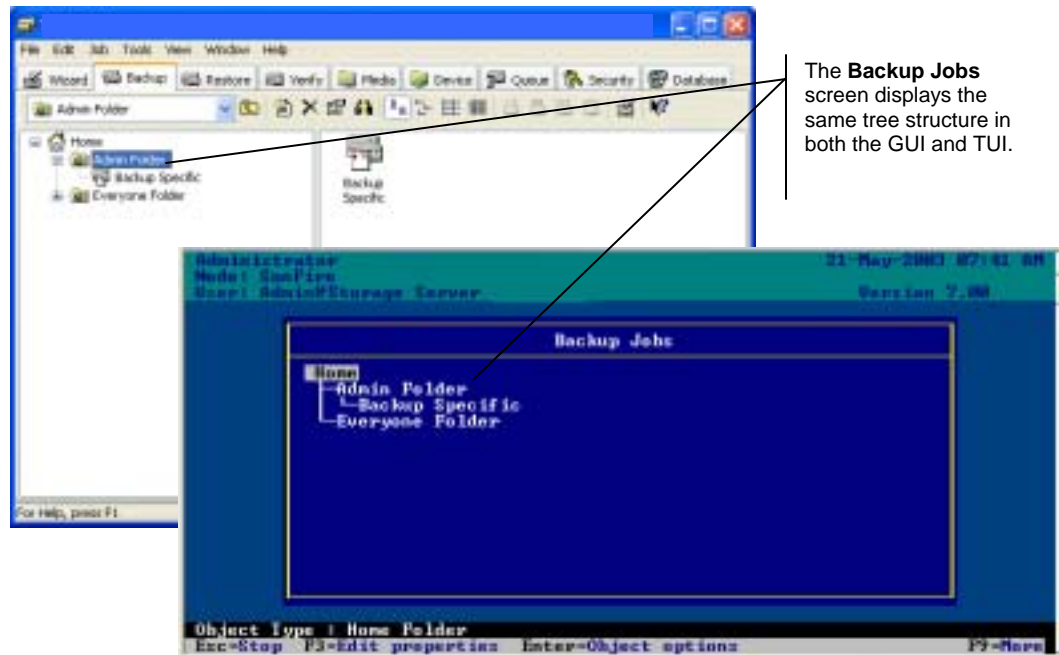
## Backup, verify and restore job tabs

Job tabs and screens display a list of all available folders contained in your NovaNET database. All folders appear on the **Backup**, **Restore**, **Verify** and **Database** tabs. However, jobs only appear on the tab that displays their specific type of job. For example, only backup jobs appear on the **Backup** tab.

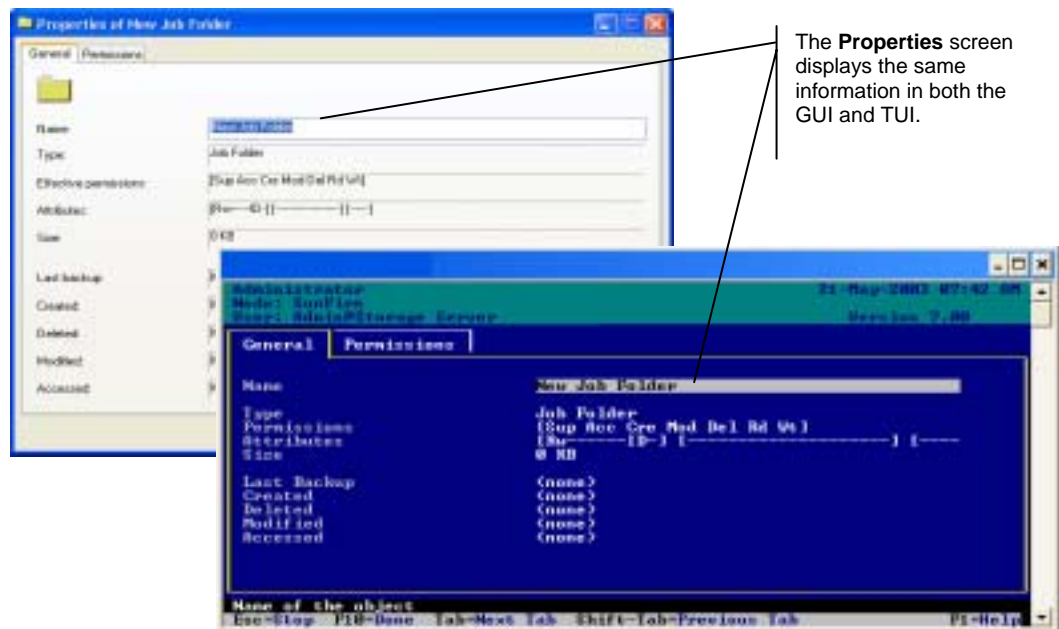
To view a list of backup jobs, click on the **Backup** tab in the GUI or select **Backup** from the **Available Job Options** menu in the TUI. Both the GUI and TUI display a list of job folders as an expandable tree.

To view a list of jobs in the TUI, select a folder and press the spacebar to expand the tree view.



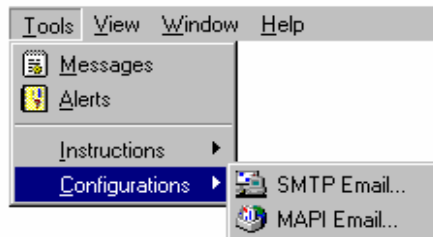


To view the **Properties** for any object, select it and press **Enter** in the TUI. In the GUI, right-click the object with the mouse and select **Properties** from the shortcut menu.

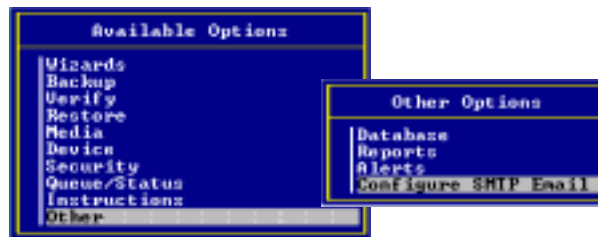


## Configure Email screen

Configuring email in the TUI differs slightly from the GUI. In the GUI, you access the email configuration screen by clicking **Tools | Configurations** and then selecting the type of email to configure (SMTP or MAPI).

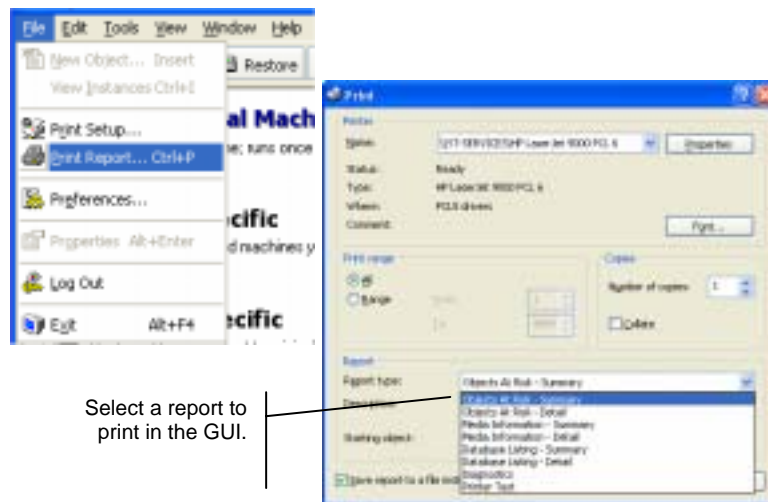


Since the TUI has no **Tools** menu, you access the email configuration screen by selecting **Other | Configure SMTP Email** (only installed email types appear on the menu) from the **Available Options** menu.

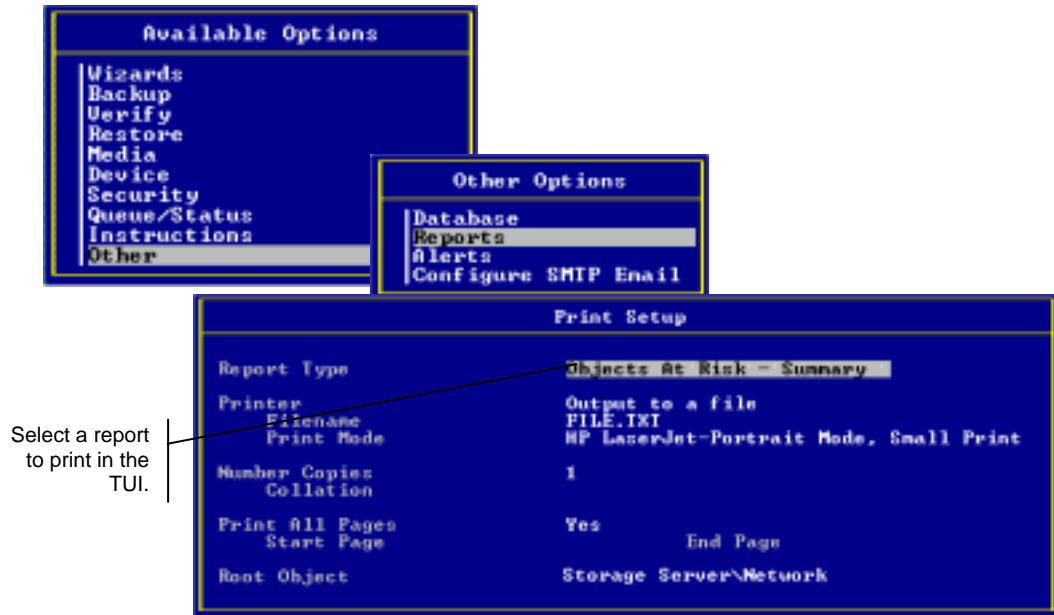


## Print report screens

To print a report in the GUI, select **Print Report** from the **File** menu. The Print screen appears. Select a report from the **Print Report** list. Then set your report print settings and print the report.

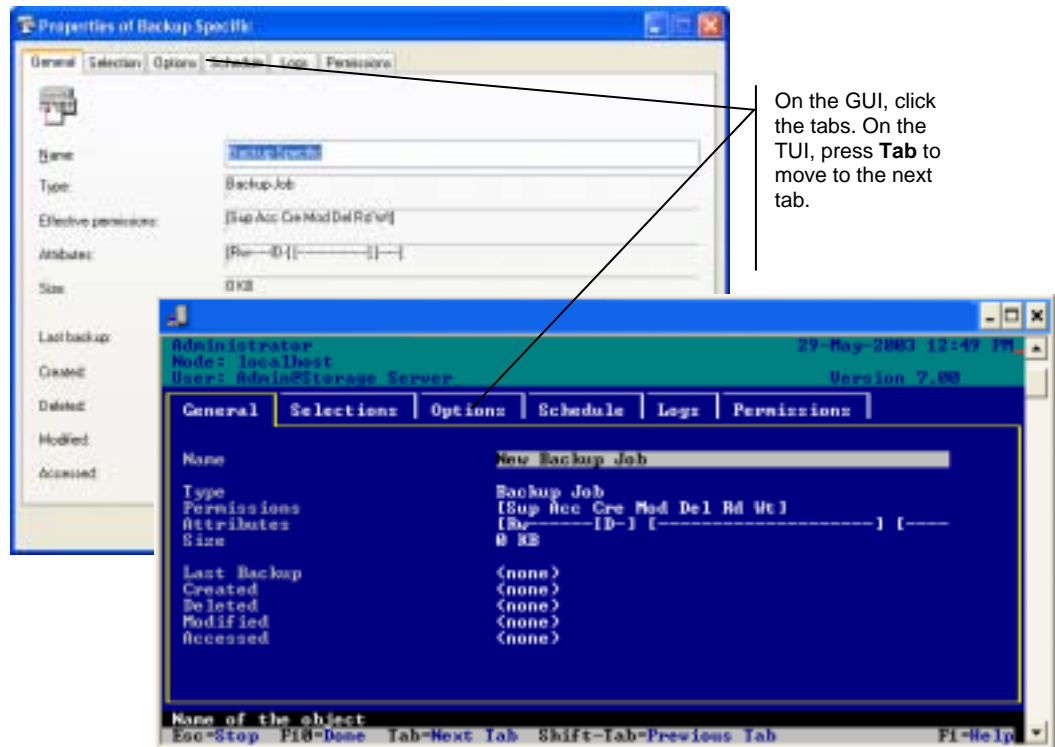


To print a report in the TUI, select **Available Options | Other | Reports**. The **Print Setup** screen appears. Select a report type from the **Report Type** list. Then you can set up your report.



## Property sheets

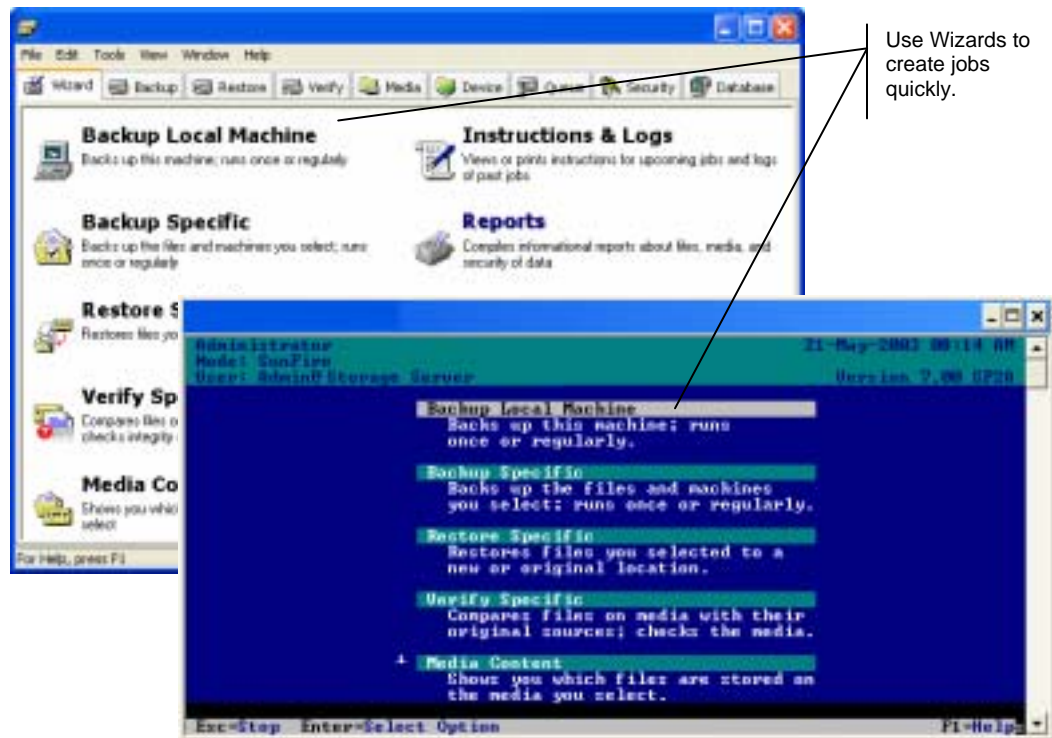
Information about each object in the NovaNET database appears on the object's property sheet. Both the GUI and the TUI present this information on a series of tabs on the property sheet.



## Wizards

NovaNET Wizards give you a fast and easy way to perform many tasks. You can create and schedule backup, restore and verify jobs. You can also create and edit reports. The NovaNET Wizard guides you through each step to create and run a job or create a report. Both the GUI and the TUI wizards are listed with a brief description.

To launch a wizard in the TUI, select a wizard and press **Enter**. To view other wizards in the TUI, use the up and down arrows.



## Using the text user interface

Some procedures differ between the graphical user interface and the text user interface. This section describes how to use several NovaNET features in the TUI. Note that this section does not describe each NovaNET command that differs from the TUI. It only provides a few samples to familiarize you with the text user interface.

### Create a backup job

1. Select **Backup** from the **Available Options** menu and press **Enter**.
2. Select a folder and press **Enter**. NovaNET displays a list of available options.

For example, to create a new backup job in the **Admin** folder, use the down arrow to highlight it and press **Enter**.

3. Highlight **New Backup Job** and press **Enter**. You can also press **Insert** to create a new backup job or folder.

NovaNET displays the **New Backup Job** setup screen.

4. Use the **Tab** key to navigate to each tab. Enter the job information on each screen. To view a list of available entries for a specific field, highlight the field and press **Enter**.
5. Press **F10** to save the job.

## Launch a wizard

1. From the **Available Options** menu, select **Wizards** and press **Enter**.
2. Select a wizard (e.g., **Backup Local Machine**) and press **Enter**.
3. Modify the settings for the selected wizard.
4. Press **F10** when you have finished. If you created an automatic job, it will automatically run at the specified time.

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**Note** You must be running NovaNET as a service to run jobs automatically after the GUI or TUI is closed. In NetWare you must be running twagent to run jobs automatically.

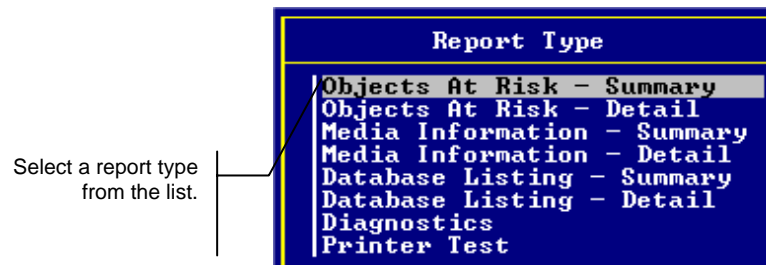
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## Print a report

To print a report in the TUI:

1. From the **Available Options** menu, scroll down to **Other** and press **Enter**. The **Other Options** screen appears.
2. Scroll down to **Reports** and press **Enter**.
3. The **Print Setup** screen appears.
4. To modify a field, use the up and down arrows to select the field, then press **Enter**.

A dialog box displays the choices for each field. For example, to print a specific report, select the **Report Type** field and press **Enter**. A list of report options appears.



5. Select a report and press **Enter**.
6. Press **F10** when you have selected the report printing settings.

## View an alert

To view an alert in the TUI:

1. From the **Available Options** menu, scroll down to **Other** and press **Enter**. The **Other Options** screen appears.
2. Scroll down to **Alerts** and press **Enter**.
3. The **Alerts** screen displays a list of any pending alerts.
4. Highlight an alert and press **Enter** to view its details.
5. Press **Esc** to close the screen.

## Navigation keys

TUI screen navigation uses standard keys on a keyboard, including **Enter**, **Space**, **Tab** and function keys (**F1** through **F10**). On some screens, you can select an item by typing its first letter.

Use the following keys to navigate the TUI:

---

**Note** Not all keys are available on all screens. The status bar at the bottom of each screen lists the available navigation keys as well as a brief description of their functions. Since some telnet systems do not support function keys, alternative shortcut keys appear in parentheses.

---

<b>Esc</b>	Stop the current action. Press <b>Escape</b> to cancel the current command.
<b>Enter</b>	Select the current object or action. Press <b>Enter</b> to select an object on a screen or to invoke a selected command.
<b>Space</b>	Toggle between the current command and an alternate command. For example, if you expand a tree branch view on a menu, press the <b>Space</b> key to collapse the view.
<b>Ins</b>	Create a new object, for example, a new backup or restore job.
<b>Del</b>	Delete an existing object, for example, a backup or restore job.
<b>PgUp/PgDn</b>	View the next or previous page of a log or instruction file.
<b>Up/Down arrows</b>	Use the up and down arrow keys to scroll through the fields on a screen or to scroll through a text box that is longer than a single screen.
<b>Tab/Shift-Tab</b>	Switch to the next or previous tab.
<b>+ / -</b>	Expand or collapse a tree branch view.
<b>*</b>	Expand all tree branches.
<b>F1 (?)</b>	Display the help for this screen.

- F2** Print instructions or log files.
- F3** Edit properties. Press **F3** to edit object information on the **Properties** tab.
- Shift-F3** Display the driver message log at any time while NovaNET is running.
- F4** Find an object.
- Shift-F4** Find an object again.
- F5 ( [ )** Select an object.
- Shift-F5** Select all objects.
- F6 ( ] )** Deselect an object.
- Shift-F6** Deselect all objects.
- F7** Filter a list.
- F8 (=)** Switch between panes.
- Shift-F8** Refresh a tree branch view.
- F9** View more options. This command is available on menus that contain more options than fit on the screen.
- Shift-F9** Refresh all tree branch views.
- F10 ( \ )** Press this key when you complete an action on a screen. NovaNET returns to the previous menu.





# Chapter 8 — Working with Oracle databases

This chapter contains important information about backing up and restoring Oracle databases. If you are using NovaNET to back up and restore Oracle server databases read these instructions carefully.

---

**Note** The instructions in this chapter describe how to use the Oracle Connector on a machine running Microsoft Windows. While the Oracle Connector performs the same functions on other platforms, the NovaNET screens might appear different, or you might need to use slightly different keystrokes to perform the same functions.

---

## Defining Terms

NovaNET and Oracle both use the term *instance* to describe different things. In Oracle a database instance is a collection of tablespaces that can be accessed by users who have permission to do so. There can be several database instances on an Oracle server.

In NovaNET a backup instance is a copy of an object that has been backed up and stored in the NovaNET database. There can be several backup instances of any object on your computer or network in the NovaNET database. Media can store several backup instances of any object on your computer or network.

Each time you back up an Oracle database instance or an Oracle tablespace, NovaNET creates a backup instance of that object. In NovaNET objects can be selected for restoration based on several criteria including the dates on which a backup instance was created.

For additional information about selecting instances of an object in the NovaNET database, see *Chapter 5 – Selecting Files and Instances* in the *NovaNET User's Guide and Technical Reference*.

## In this chapter

- Overview
- Installing the Oracle Connector
- Configuring the Oracle Connector
- Backing up Oracle database instances and tablespaces
- Restoring Oracle database instances and tablespaces
- Disaster recovery for Oracle databases and servers
- Troubleshooting
- Error messages

## Overview

Many Oracle database server environments are mission-critical and must be maintained 24 hours a day, seven days a week. Procedures and plans must be in place to ensure the quick recovery of data in the event of data loss.

Using the tablespace database files, archive log files and the associated database control files, you can quickly recover your databases. You can selectively choose any individual tablespace to back up or restore. You can also choose to back up only the archive log files to save backup space in the NovaNET database. Control files should be used or restored cautiously; they are normally restored only if the database configuration has been changed since the full backup.

When a tablespace is selected to be backed up, the tablespace is put into *backup mode* so that the associated database files are unlocked from the Oracle database server and backed up as normal files. After the backup, the tablespace is restored to *normal mode* and the database files are locked again by the Oracle database server.

---

**Note** NovaStor Corporation recommends that the person using the NovaNET Oracle Connector closely follow Oracle administrator guidelines regarding backup and restore operations.

**Tip** You may want to perform at least one *cold backup* of the entire Oracle database for future disaster recovery operations. You can create a cold backup by shutting down the Oracle server and backing up the entire data directory of the Oracle database as ordinary files.

---

## Supported platforms

For a complete list of supported platforms for NovaNET, see the section *Supported Platforms* in *Chapter 1 – Installation Overview* in the *NovaNET Installation Guide*. The Oracle Connector is designed to back up and restore Oracle database server versions 8.x and 9.x running on the following platforms:

- Windows 2000 Server, and Windows Server 2003
- Red Hat Linux Advanced Server 2.1
- SuSE Linux Enterprise Server 8

## Oracle configuration settings

Before you install the Oracle Connector in NovaNET, verify that your Oracle server and databases are configured with the proper settings. Refer to your Oracle user documentation for instructions on modifying these settings.

- Set the **Database Log Mode** for the Oracle server to ARCHIVELOG.
- Enable the **Automatic Archival** for the Oracle server in either the INIT.ORA or the INIT<SID>.ORA file where <SID> is the database instance name, depending on your system configuration.
- Assign a separate directory in which Oracle can generate **Archive Log** files for each database. *Each database must have its own archive log file directory or directories.*
- Verify that the user account to be used when NovaNET logs on to the Oracle server has the necessary privileges to access the Oracle database. The required rights are:

```
connect                alter database
alter system           select any table
alter tablespace       alter rollback segment
select any dictionary  (Oracle 9i only)
```

## Locating and setting environment variables on Linux systems

Several environment variables referenced by NovaNET are already set on Linux systems for the default Oracle user. However, these variables must also be set for the root user since NovaNET logs on to the system as root. Follow the procedures for your Linux installation to locate these settings and set them for the root user. The following example will work on many installations.

### Root user settings

While logged on as the Oracle user, type the following command:

```
set | grep <environment_variable>
```

where <environment\_variable> equals any of the following:

```
ORACLE_HOME
ORACLE_BASE
ORACLE_SID
LD_LIBRARY_PATH
```

Once located, log on to the system as root and set the variables to these values.

### Setting the path

If you intend to run the NovaNET service on Linux systems, you must specify the `LD_LIBRARY_PATH` for the operating system.

1. While logged on as the Oracle user, locate the setting for the variable `LD_LIBRARY_PATH`.
2. Append this path information to the path that is listed in the file `/etc/ld.so.conf`.
3. Run the command `ldconfig`.

## Installing the Oracle Connector

The Oracle Connector is an optional feature of NovaNET. You can install an evaluation version for 30 days. To use the Oracle Connector beyond the evaluation period, you must purchase a license key.

1. Launch the NovaNET Installation Manager. If necessary, follow the instructions in *Chapter 2 — Windows Operating Systems* in the *NovaNET Installation Guide*.
2. Select **Install Option** and choose the Oracle Connector.
3. When prompted, enter your Oracle Connector license key and continue with the installation.
4. You are now ready to configure the Oracle Connector.

---

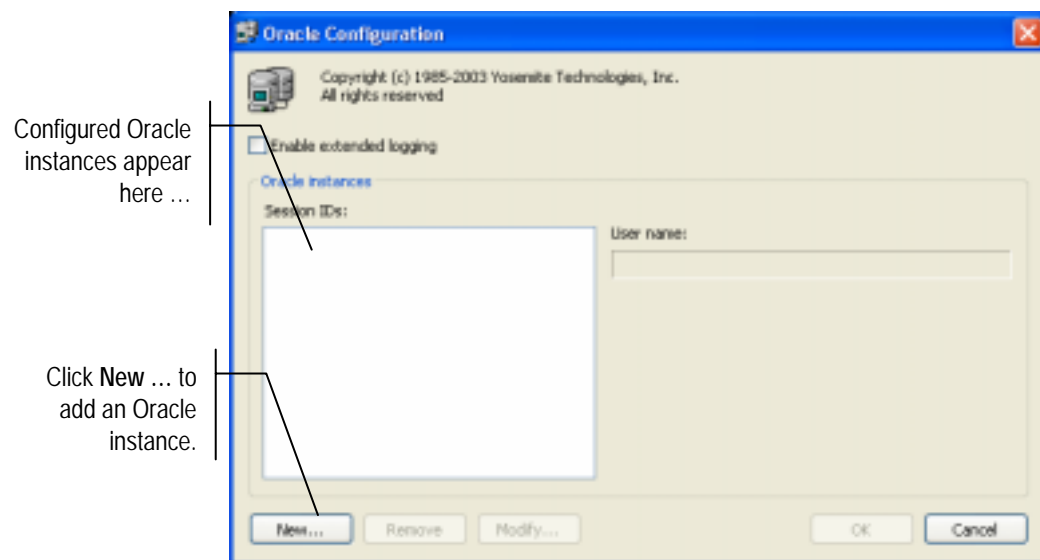
**Note** Install the Oracle Connector only on the Oracle server. You do not need to install it on any other workstation that will access the Oracle server.

---

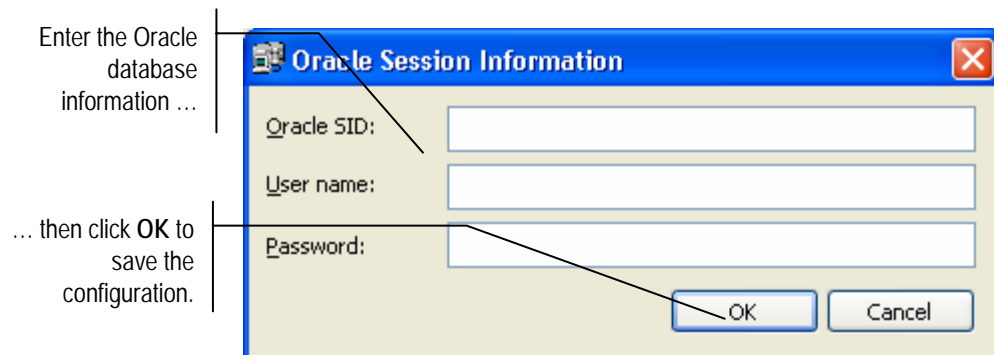
## Configuring the Oracle Connector

Before you can back up and restore an Oracle database or tablespace, you must configure each Oracle database instance in NovaNET.

1. Launch NovaNET.
2. Select **Tools | Configurations | Oracle**. The **Oracle Configuration** screen appears.



3. Select **New**. The **Oracle Session Information** screen appears.



4. Enter the parameters that control how NovaNET logs on to the Oracle server.
  - **Oracle SID:** The name of the Oracle database. You must provide the name of the Oracle database exactly as it was entered when it was created.

- **User name:** Type the user name in this field. Do not use the `sys` user name. NovaNET logs on to the Oracle database with this name whenever the database is accessed.
- **Password:** Type the user's password. NovaNET logs on to the Oracle database with this password whenever required. There is no default value.

---

**Note** An additional field, **Operating System User** appears on this screen on Linux systems. Enter the user account designated to use Oracle on a Linux system. NovaNET logs on to the Oracle server with this user name from a Linux machine.

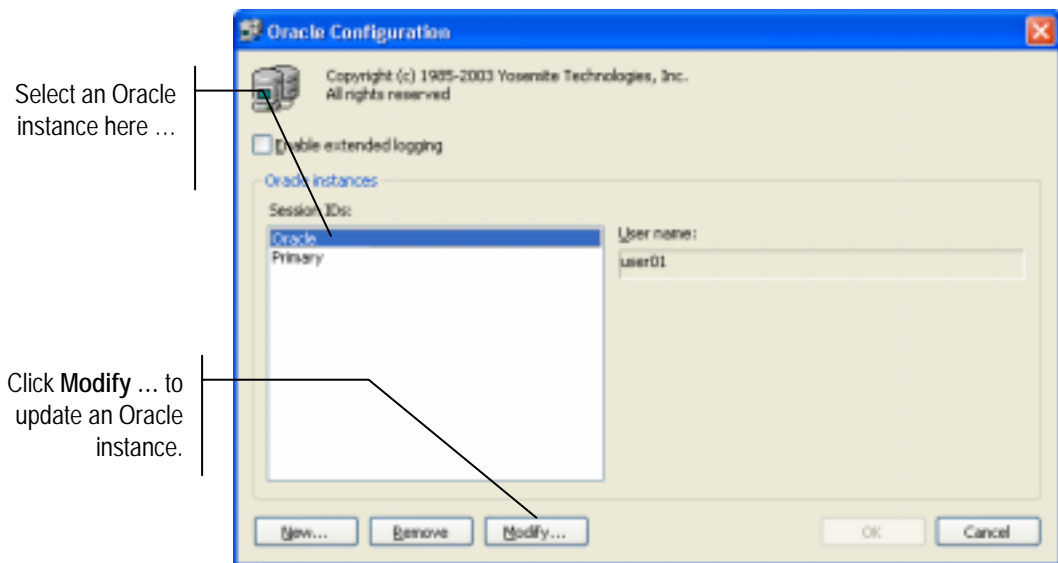
---

5. Click **OK** to save the Oracle session information.
6. Repeat these steps for each database on the Oracle server.
7. Stop and restart the NovaNET service.

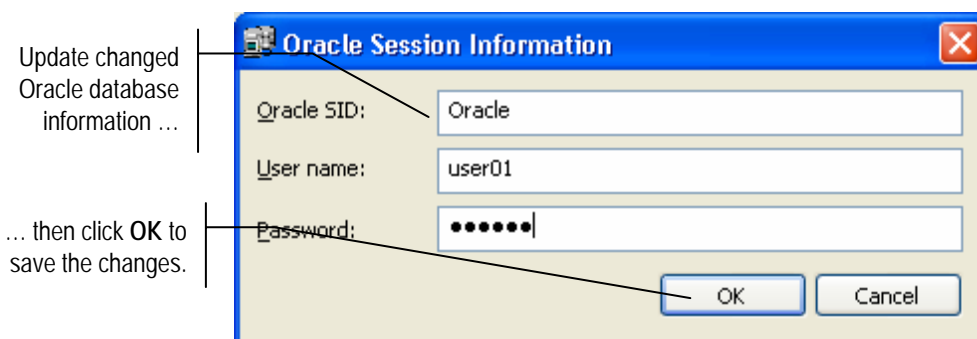
## Modifying or removing Oracle session information

Once created, you can modify or remove Oracle session information. You modify Oracle session information in NovaNET to reflect any changes made in the Oracle database server information. You remove Oracle session information if you no longer want to back up or restore data stored in a particular Oracle database. Removing Oracle session information in NovaNET *does not* remove it from the Oracle database server.

1. Launch NovaNET.
2. Select **Tools | Configurations | Oracle**. The **Oracle Configuration** screen appears.



3. To remove an Oracle instance, select it in the **Session IDs** list and click **Remove**. To modify an Oracle instance, select it and then click **Modify**. The **Oracle session information** screen appears.



4. Update the changed Oracle session information and click **OK**.
5. Click **OK** on the **Oracle Configuration** screen to save the changes.

## Setting the Oracle server in archive mode

By default the Oracle server is not set to automatic archive mode. In order for NovaNET to back up and restore the Oracle server, Oracle must be set to automatic archive mode. This setting remains in effect until it is changed manually. Follow these steps to reset the Oracle server to automatic archive mode.

---

**Note** These steps suggest only one method for setting the Oracle server in archive mode.

---

1. Use `sqlplus` to log on to the server as `sysdba` with the following commands:
 

```
sqlplus /nolog
connect <user>/<password> as sysdba;
```

 where `<user>` and `<password>` are the Oracle system DBA user name and password.
2. Type the command `archive log list` and press **Enter**.  
 You should see the following settings:
 

Database log mode	Archive Mode
Automatic archival	Enabled
Archive destination	<Archive destination path>
3. If these settings do not appear shut down the database and reset the server to automatic archive mode as follows.

---

**Tip** Consider performing a cold backup of the Oracle server after you shut down the server but before modifying it. This will provide you with media from which to restore the system in case your changes create unexpected results. *If you are running NovaNET as a service, stop the service before shutting down the Oracle server.*

---

## Oracle 8.x servers

---

**Note** If you are running NovaNET as a service, stop the service before shutting down the Oracle server.

---

- a. Open the `init.ora` file under your Oracle location  
`\oracle\admin\<database instance name>\pfile\`.
- 

**Note** This is an example of a path on a server running a Microsoft Windows operating system. If you are running a different OS, your path and filename might be different.

---

- b. Uncomment the following lines by removing the pound sign (#) from the beginning of each line:
 

```
# log_archive_start = true
# log_archive_dest = <unique archive log location>
# log_archive_format = ORACLE_SID%T%S.ARC
```
- c. Save the file.
- d. Shut down then restart your Oracle 8 database with the following command:
 

```
startup mount exclusive;
```
- e. Type `alter database archivelog;` and press **Enter**.
- f. Type `archive log list;` and press **Enter**.  
 The settings should be reset to the following:
 

Database log mode	Archive Mode
Automatic archival	Enabled
Archive destination	<Archive destination path>
- g. Repeat these steps for each database and enter a unique archive log location for each one.
- h. Shut down and restart the server so that it is no longer mounted exclusively.

## Oracle 9.x servers

---

**Note** If you are running NovaNET as a service, stop the service before shutting down the Oracle server.

---

- a. Use `sqlplus` to connect to the Oracle server as `sysdba` with the following commands:
 

```
sqlplus /nolog
connect <user>/<password> as sysdba;
```

 where `<user>` and `<password>` are the Oracle system DBA user name and password.
- b. Type `startup nomount;` and press **Enter**.



- c. Type `alter system set log_archive_start=true scope=spfile;` and press **Enter**.
- d. Type `alter system set log_archive_dest='<unique archive destination path>';` and press **Enter**.
- e. Type `alter system set log_archive_format='ARC%S.%T' scope=spfile;` and press **Enter**.
- f. Type `shutdown;` and press **Enter**.
- g. Type `startup mount exclusive;` and press **Enter**.
- h. Type `alter database archivelog;` and press **Enter**.

---

**Note** Using this command means that the system does not need to be restarted.

---

- i. Type `archive log list;` and press **Enter**.

The following settings are displayed.

Database log mode	Archive Mode
Automatic archival	Enabled
Archive destination	<Archive destination path>

- j. Repeat these steps for each database and enter a unique archive destination path for each database.
- k. Shut down and restart the server so that it is no longer mounted exclusively.

## Oracle database server backup job types

You can back up an individual tablespace, individual databases on an Oracle server, or the entire Oracle server.

Oracle architecture uses three sets of files: database files, archive log files, and control files. When an Oracle database is opened, these files must be in sync.

---

**Caution** We strongly recommend that you include the archive log files and control files as part of a regular backup job. In the event of a disaster, if the archive log files were not backed up you might not be able to recover the Oracle database to its most recent state.

---



---

**Note** You can create a backup job directly from the **Backup** tab in the NovaNET Administrator, which allows you to specify more options. See the *NovaNET User's Guide and Technical Reference* for additional information on creating and scheduling backup jobs.

---

### Backing up an Oracle tablespace

1. On the NovaNET **Wizard** tab select **Backup Specific**.
2. Name the backup job.

3. Select the Oracle server and locate the Oracle database instance. You might have to expand the tree before the database instance appears in the list.
4. Select the tablespace you want to back up.
5. Select a backup device.
6. Select a backup schedule for the job.
7. Click **Finish** to save the job. If you choose **Now** to run the job, a status screen appears and displays the progress of the backup job.

---

**TIP** When creating a backup job for Oracle tablespaces, include the archive log object as well. Restoring the tablespaces later on will be simpler.

---

## Backing up an Oracle database

1. On the NovaNET **Wizard** tab select **Backup Specific**.
2. Name the backup job.
3. Select the Oracle server and locate the Oracle database instance.
4. Select the database you want to back up.
5. Select a backup schedule for the job.
6. Click **Finish** to save the job. If you choose **Now** to run the job, a status screen appears and displays the progress of the backup job.

---

**Note** There can be more than one database on an Oracle database server. Multiple databases can be included in the same backup job.

---

## Backing up an entire Oracle database server

1. On the NovaNET **Wizard** tab select **Backup Specific**.
2. Name the backup job.
3. Select the Oracle server from the list. Check the box next to the server machine to select everything for backup.
4. Select a backup device.
5. Select a backup schedule for the job.
6. Click **Finish** to save the job. If you choose **Now** to run the job, a status screen appears and displays the progress of the backup job.

## Oracle server restore job types

You can restore non-system tablespaces, system tablespaces, Oracle databases or the Oracle server. The first tablespace in an Oracle database is the system tablespace. It contains the data dictionary information about the entire database and is always available. User data is stored in other non-system tablespaces. In general few users have access to the system tablespace.

---

**Note** You can also create a restore job directly from the **Restore** tab in the NovaNET Administrator, which allows you to specify more options. See the *NovaNET Users Guide and Technical Reference* for additional information on creating and scheduling restore jobs. Although the NovaNET **Move** function remains available during restore jobs, we recommend that you not use this function to move an Oracle database or tablespace from one Oracle server to another. For this type of operation we recommend that you follow procedures in your Oracle documentation.

---

## Restoring a non-system tablespace

A non-system tablespace must be offline before it can be restored. Follow these steps to take a tablespace offline.

1. Use `sqlplus` to log on to the server as `sysdba` with the following commands:  

```
sqlplus /nolog  
connect <user>/<password> as sysdba;
```

where `<user>` and `<password>` are the Oracle system DBA user name and password.
2. Type the following command and press **Enter**.  

```
alter tablespace <tablespace name> offline;
```

Where `<tablespace name>` is the name of the Oracle tablespace you are restoring.
3. Open the NovaNET Administrator and select **Restore Specific** from the **Wizard** tab.
4. Name the restore job.
5. Select the Oracle server and scroll through the list to select the Oracle tablespace that you want to restore.
6. Select the device from which to restore the tablespace.
7. Run the job now or select a time to run the job later.
8. Click **Finish** to save the job. If you chose **Now** to run the job, a Status screen appears and displays the progress of the restore job.
9. After the restore job is completed, start `sqlplus` again and connect to the Oracle server as `sysdba`.
10. Type the following command and press **Enter**.  

```
recover tablespace <tablespace name>;
```

Where `<tablespace name>` is the name of the Oracle tablespace you are restoring.  
A message appears indicating that the media recovery is complete.
11. Type the following command and press **Enter**.  

```
alter tablespace <tablespace name> online;
```

## Restoring a system tablespace

---

**Note** If you are running NovaNET as a service, stop the service before shutting down the Oracle server.

---

A database instance must be offline before its system tablespace can be restored. Follow these steps to take the system tablespace offline.

1. Use `sqlplus` to log on to the server as `sysdba` with the following commands:

```
sqlplus /nolog
```

```
connect <user>/<password> as sysdba;
```

where <user> and <password> are the Oracle system DBA user name and password.

2. Type the command `shutdown` and press **Enter**.
3. Open the NovaNET Administrator and restore the tablespace according to the procedures above in “Restoring a non-system tablespace.”
4. After the restore job is completed, log on to the server as `sysdba` with `sqlplus` again.

5. Type the following commands and press **Enter** after each command.

```
startup mount exclusive;
```

```
recover tablespace SYSTEM;
```

A message appears indicating that the media recovery is complete.

6. Type the following commands and press **Enter**.

```
alter database open;
```

```
alter tablespace SYSTEM online;
```

## Disaster recovery for an Oracle database server

*The steps below assume that you have already created disaster recovery media.* For information on creating disaster recovery media, see *Appendix A – Disaster Recovery* in the *NovaNET User's Guide and Technical Reference*.

Recovering an Oracle database server in the event of a disaster is a multi-step process. You use the disaster recovery feature of NovaNET to prepare disaster recovery media and then you recover the Oracle server hard disk using that media. Once the hard disk is recovered, you restore the most recent Oracle database instances, archive log files and control files from the most recent backup media. Depending on the severity of the data loss, you might also need to issue additional Oracle commands to complete the recovery process as described below.

## Step 1. Run Disaster Recovery

Assuming that the machine on which the Oracle server is installed has suffered a significant or complete data loss, you must restore the hard disk before you can recover the Oracle database. Follow the procedures in the *NovaNET Quick Start Guide* or in *Appendix A – Disaster Recovery* in the *NovaNET User's Guide and Technical Reference* to restore the Oracle server machine.

## Step 2. Restore most recent full backup

1. Start NovaNET.
2. From the **Wizards** tab, click on **Restore Specific**.
3. Create a restore job.
4. Follow the screen prompts to locate and select the Oracle database instance that you want to restore. Select the same version of all files associated with the database, that is, the database instance, archive log files and control file.
5. When asked when to run the job, run it now.

## Step 3. Completing the restore job

Recovering an Oracle database requires that some additional commands be run from the Oracle server machine.

1. Use `sqlplus` to log on to the server as `sysdba` with the following commands:  

```
sqlplus /nolog  
connect <user>/<password> as sysdba;
```

where `<user>` and `<password>` are the Oracle system DBA user name and password.
2. A message appears stating that you are connected to an idle Oracle database instance.
3. Continue entering the following commands.  

```
startup mount exclusive;  
recover database using backup controlfile;
```

A prompt appears.
4. Continue with the following commands.  

```
auto  
recover database using backup controlfile until cancel;
```
5. When prompted to apply the archive log file that does not exist, type the command `cancel` and press **Enter**.  
The message `media recovery cancel` appears.
6. To reset the log files type the following command and press **Enter**.  

```
alter database open resetlogs;
```

---

**Note** This command can take several minutes. The logs are reset once the message `Database altered` appears.

---

7. Restart the Oracle server with the following commands.

```
shutdown;  
  
startup mount;  
  
alter database open;
```

### Managing archive log files

During a disaster recovery operation NovaNET restores all archive log files associated with an Oracle database that are contained on the media being used for the restore process. After the disaster recovery, you may decide that you no longer need older archive log files. It is your responsibility to determine when older archive log files can be deleted from the system. Follow Oracle guidelines for managing and purging these files.

# Troubleshooting

## Connections failures

In some instances NovaNET might not be able to communicate with the Oracle server or recognize that it is available for backup and restore jobs. Follow these instructions to resolve connection failures.

### Oracle does not appear on screens like the **What to Backup** screen

If the Oracle server does not appear in the left column on the **What to Backup** while you are creating a backup job through the Wizard, or on similar screens, check the following possible causes:

- The Oracle Connector is not installed or has been uninstalled. Launch the NovaNET setup and install the Oracle Connector from the **Install Options** screen.
- The Oracle Connector was installed but not configured. Launch the NovaNET Administrator, go to **Tools | Configurations | Oracle** and configure the Oracle Connector.
- The Oracle server has been configured incorrectly and cannot be initialized. Check the error messages in the NNTrace.txt file for details about the error.
- On Linux systems, verify that the variables are set properly for the root user. Refer to *Locating and setting environment variables on systems* on page 45 for instructions on locating and setting these variables.

### NovaNET cannot access the Oracle server during a backup

If you select the Oracle server on the **What to Backup** screen while you are creating a backup job through the Wizard, but NovaNET cannot access Oracle while running the backup job, check the following possible causes:

- The Oracle database is mounted exclusively by a database administrator. Verify that another user with access to the Oracle server has not opened an exclusive mount session.
- The user name or password entered on the **Oracle Session Information** screen was incorrect. Open the **Oracle Session Information** screen and re-enter the correct user name or password.
- The Oracle database is not mounted. Log on to the Oracle server and verify that the database you want to back up has been mounted.

## Login failures

There are several reasons why NovaNET might fail to log on to the Oracle server. Follow these instructions to resolve login failures.

### Incorrect Oracle user name or password

You must provide the correct Oracle user name and password when you configure an Oracle database instance in NovaNET. The user name must be that of an Oracle user account with proper privileges to the database described at the beginning of this chapter. Without this information, NovaNET will not be able to log on to the Oracle database to perform backup and restore jobs.

1. Start NovaNET and click on Tools | Configurations | Oracle.
2. Select an Oracle database instance and click Modify.

The **Oracle Session Information** screen opens.

3. Verify that the Oracle database instance has a user name associated with it and that the password is correct.
4. To add Oracle user information, follow the instructions at Configuring the Oracle Connector on page 47 in this chapter.
5. Click **OK** to save the information.

---

**Note** Password information is encrypted and is therefore difficult to verify. Re-enter the password and click **OK** to update the Oracle instance information.

The Oracle user name `sys` may not be used to log on to the server from NovaNET.

---

### Oracle server has been disconnected or is offline

If the Oracle server is offline, NovaNET login attempts will fail. An Oracle server might be offline for the following reasons:

- The database has not completed its startup process
- The database has been shut down

Use the Oracle console or `sqlplus` commands to verify whether or not the database is online. If it is offline, ask your Oracle database administrator to restart the Oracle server and retry your NovaNET job.

### Oracle server is exclusively mounted by Oracle DBA

If the Oracle server is exclusively mounted by the Oracle database administrator, login attempts by any other user will fail. Notify the Oracle DBA about the failure.



## Backup job failures

There are several reasons why NovaNET backup jobs might not complete successfully. Follow these instructions to resolve backup job errors.

### Oracle server is not in archive mode

The Oracle server must be in archive mode in order for NovaNET to be able to access it during backup and restore operations. Follow these steps to reset the Oracle server to archive mode.

1. Use `sqlplus` to connect to your target Oracle database instance as `sysdba`.
2. Type the command `archive log list;` and press **Enter**.

You should see the following settings:

Database log mode	Archive Mode
Automatic archival	Enabled
Archive destination	<Archive destination path>

3. If these settings do not appear, follow the instructions in [Setting the Oracle server in archive mode on page 49](#) to reconfigure the Oracle server.

### Oracle tablespace may be offline

Oracle tablespaces must be online in order for NovaNET to back them up. Bring the tablespace online with the following command:

```
alter tablespace <tablespace> online;
```

where <tablespace> is the name of tablespace.

### Oracle Connect SQL command failed

If a predefined SQL command failed to execute during a NovaNET operation, open the NNTrace.txt file to view error details. This file is located in the NovaNET installation directory and can be opened in any text editor.

## Restore job failures

There are several reasons why NovaNET restore jobs might not complete successfully. Follow these instructions to resolve restore job errors.

### Tablespace is not offline

For NovaNET to restore a tablespace, the target tablespace must be offline. If a tablespace is online, all of the database files associated with it are locked by the Oracle server. Take the tablespace offline with the following command:

```
alter tablespace <tablespace> offline;
```

where <tablespace> is the name of tablespace.

### Oracle database is not shut down

NovaNET requires that the entire database be shut down in order to restore an Oracle database instance. If you are running NovaNET as a service, stop the service before shutting down the Oracle server. Log on to the Oracle server as `sysdba` and shut down the database.

### Oracle database archive destination path is not unique

NovaStor Corporation recommends that each database on an Oracle server have a unique archive destination path. Follow the instructions in *Setting the Oracle server in archive mode* on page 49 to ensure that each database has a unique archive destination path.

## Error messages

### Error Number 964 — Tablespace not found

**Description:** The input tablespace name was not found in the Oracle instance.

### Error Number 965 — Backup finished prematurely

**Description:** The backup job was terminated prematurely.

### Error Number 966 — Restore finished prematurely

**Description:** The restore job was terminated prematurely.

### Error Number 967 — The SQL command failed

**Description:** The SQL command failed. Please refer to the NNtrace.txt for more details about the Oracle error messages.

### Error Number 968 — Failed to open the database file

**Description:** The database file cannot be opened. Please check if the file is in use by the Oracle server.

### Error Number 969 — Cannot login to the Oracle instance

**Description:** The Oracle connector cannot login to the Oracle instance. Refer to Login failures on page 58.

### Error Number 970 — Failed to parse the SQL command

**Description:** Parsing the submitted SQL command failed. Please check NNtrace.txt for more details about the Oracle error messages.

### Error Number 971 — Failed to describe and define the SQL command

**Description:** The submitted SQL command cannot be described and defined. Please check NNtrace.txt for more details about the Oracle error messages.

### Error Number 972 — The database file handle is invalid

**Description:** The database file handle is invalid. Please check the NNtrace.txt for more details about the Oracle error messages.

**Error Number 973 — The input file header is invalid**

**Description:** The input file header is invalid. The media may be corrupted.

**Error Number 974 — The file header size is incorrect**

**Description:** The input file header size is incorrect. The media may be corrupted.

**Error Number 975 — Cannot get the database file size**

**Description:** Cannot determine the database file size. Please check the NNTrace.txt for more details about the Oracle error messages.

**Error Number 976 — Control file format was incorrect**

**Description:** Control file format was incorrect. Please check the NNtrace.txt for more details about the Oracle error messages.

**Error Number 977 — Cannot find the archive file destination**

**Description:** Cannot find the archive file destination. Please check the NNtrace.txt for more details about the Oracle error messages.

**Error Number 978 — Cannot find the Oracle instance**

**Description:** Cannot find the Oracle instance. Please check your Oracle Connector configuration.

**Error Number 979 — Oracle User ID was not found or incorrect**

**Description:** Oracle User ID was not found or is incorrect. Please note that the User ID `sys` is not allowed.

**Error Number 980 — Oracle Password was not found or incorrect**

**Description:** Oracle Password was not found or incorrect. Please check the configuration of Oracle Connector.

**Error Number 981 — Cannot find the archive log file directory**

**Description:** Cannot find the archive log file directory. Please check the configuration of Oracle Connector.

**Error Number 982 — Failed to initialize the Oracle connector**

**Description:** Failed to initialize the Oracle connector. Please check the NNtrace.txt for more details about the Oracle error messages.

### Error Number 983 — Failed to allocate Oracle handles

**Description:** Failed to allocate Oracle handles. Please check the NNTrace.txt for more details about the Oracle error messages.

### Error Number 984 — No archive log files found

**Description:** No archive log files were found in the directories specified during configuration of the Oracle Connector. See the NNtrace.txt file for details.