


# Prinergy 3.x Backup Guide

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# Revision History

| Revision | Date | Author | Comments |
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| 1.0 | 28 July 00 | Philip Samaniego | First draft. |
| 1.1 | 20 Aug 00 | Philip Samaniego | Grammar, spelling and formatting corrected. Added Backup Block Diagram Figure 1-1. Changed D:\Prinergy and <AraxiHome> to %AraxiHome%. Added Troubleshooting section. |
| 1.2 | 26 Sept 00 | Jill Thompson, Philip Samaniego | Reorganized document. Removed repeated information. Removed information already in the Prinergy 2.0 System Administration Guide. |
| 1.3 | 27 Oct 00 | Jill Thompson, Philip Samaniego | Removed the following sections:<br>• 7.1.1.2, Ghosting By Partition – Data Corruption of System Partition<br>• 7.1.5, Recovering the Oracle Database<br>• Appendix A, Manually Installing Prinergy Backup<br>Other minor edits. |
| 2.0 | 19 Dec 00 | Philip Samaniego | Revised to reflect changes in backup scripts from Prinergy 2.0.4 patch 19. Prinergy 2.0.4 systems without patch 19 should use Ver. A.<br>Revised Figure 1.1 and the following sections:<br>• 3.5 Preparing and Allocating Tapes for Prinergy Backup<br>• 4.1 Testing Prinergy Backup<br>• 5.2.2 Manual Startup of Prinergy Backup<br>• 5.3 Media Rotation<br>• 5.4 What Happens During Prinergy Backup?<br>• 5.5 Prinergy Backup Check<br>Added the following sections<br>• 3.1 Quick Setup Procedure<br>• 6 Customizing Prinergy Backup<br>• 7.1 System Backup Status Window<br>• 7.4 AraxiBackup Command Parameters<br>Other minor edits. |
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# 1. INTRODUCTION

## 1.1 Scope of This Document

This document provides information for Kodak service personnel so that a Prinergy® software system can be reliably backed up and, if required, recovered from a system crash. This document applies to Prinergy 3.0 and 3.1. Customers using an earlier version of Prinergy should see the *Prinergy 2.1 Backup Guide* (03-4171).

**Note:** The *Prinergy 3.x Backup Guide* is an internal document. Customers should see *Backing up the Prinergy System* in the *Prinergy 3.0 or 3.1 System Administration Guide* for backup information, including which files they should back up themselves if they do not purchase the Prinergy 3.x Online Backup option.

## 1.2 Requirements

The following components are necessary to install and run Prinergy Backup:

- Operating system: Windows® 2000
- Prinergy system: Prinergy 3.0.3.y or 3.1.0.y.
- Tape device: Any tape device qualified by Kodak. A tape library is needed for larger systems requiring spanned tapes—for example, when backup data spans to additional tape(s).
- Type of tape: DLT, 8-mm AIT-3; 8-mm AIT-3 is recommended. (A lower type may be used but will increase the backup time.)

## 1.3 Related Documents

The following documents may be required during the recovery procedure (the latest versions can be downloaded from TechPlanet).

- *Win2K Install from Dell Ghost for Prinergy* (DG all, Dell®) (72-3476)
- *Dell 8G Server. Applying a Windows 2000 Ghost* (Dell PE800, PE830, PE2800, PE2850) (709-00384)
- *Win2K Install from Ghost on HP Servers* (ML110, ML370, DL380) (709-00300)
- *Dell Opti GX280 HW Setup and Ghost Install* (GX280) (709-00319)
- *Dell Opti GX620 HW Setup and Ghost Install* (GX620) (709-00584)
- *Prinergy Tape Device Connectivity Specification* (72-3289)
- *EPM and EPM+ Emergency Platemaking and Veritas Storage Replicator Installation and Operation* (717-00126)
- *Prinergy Emergency Platemaking Plus (EPM+) With Double-Take* (734-00446)

## 1.4 Overview of Prinergy Backup

Prinergy Backup is an optional software package that integrates a system backup process with Prinergy 3.x. Prinergy Backup saves essential files to tape to enable recovery of these files in case of a disaster such as a system crash. Prinergy Backup does a daily backup of each server in the Prinergy system.

The following steps give an overview of the backup process and reference other sections of this document that provide detailed information about each step:

1. By default, an Oracle database backup is set to run daily at 3:00 A.M., local time.

   See 3.2 *Configuring Oracle Backup* and 0

*Configuring Oracle Backup Manager* Scheduler.

2. Upon completion of the Oracle backup, one of two Prinergy Backup command files is started (**SuccessfulBackup.cmd** or **UnSuccessfulBackup.cmd**), which in turn starts the Prinergy system backup to tape or file (**%AraxiHome%\lib\python\com\creo\Araxi\NTBackup\StartAraxiBackup.cmd**).

   See 3.4 *Configuring the Backup Command Files*.

3. **StartAraxiBackup.cmd** stops and starts the AraxiBackupManager service and schedules the Prinergy backup check (**AraxiBackupCheck.cmd**) to run after a pre-configured amount of time.

   See 2.2 *Installation of System Backup* and 5.3 *Prinergy Backup Check*.

4. The AraxiBackupManager service is configured to run the **AraxiBackup.py** script, which in turn calls other scripts to carry out the following steps.

**AraxiBackupManager Script Functions**

1. The script gets the list of remote servers from the registry and checks if the remote servers are available.

   See 5.2 *What Happens During Prinergy Backup?* and 6.1 *Skipping Backup of Secondaries or Render Stations*.

2. The script starts the backup of the system state of the remote servers by stopping and restarting the AraxiSysStateBackup service in each of the remote servers. Each remote server backs up its own system state to a file on its temp drive (**E:\AraxiBackup\SysStateBackup.bkf**).

   See 5 *Starting Prinergy Backup.*

3. The script checks the tapes in the Backup\Prinergy pool and synchronizes this with the Prinergy Backup tape list in the registry. Adds any new tape in the media rotation. Any tape in the media rotation that is not in the Backup\Prinergy pool is taken out of the media rotation.

   See 3.5 *Preparing and Allocating Tapes for Prinergy Backup* and *5.1 Media Rotation*.

4. The script checks if the scheduled tape is online. If the scheduled tape is not found or is offline, the scripts will rotate the tape list until it finds an online tape. Failing to use any of the tapes included in the media rotation, the scripts will try to allocate one from the Free media pool. Allocation from the Free media pool may be disabled by changing the AllocateFreeTape reg key value to 0. If no tape is available, the backup will fail.

   See 5.1 *Media Rotation*.

5. The script checks the Oracle Backup_Destination from the Oracle configuration and adds it to the primary server backup target, which also includes the system drive (typically drive **D**), the system state, and the **PrinergyUpdates** folder.

   See 3.2 *Configuring Oracle Backup*.

6. The script backs up to tape the primary server system drive, system state, the Oracle database backup files, and the **PrinergyUpdates** folder.

   See step 4 of 5.2 *What Happens During Prinergy Backup?*

7. The script synchronizes the Backup\Prinergy pool with the Prinergy Backup tape lists in the registry.

   See 5.1 *Media Rotation*.

8. The script backs up to tape the remote server system drive, the **PrinergyUpdates** folder, and **SysStateBackup.bkf**.

9. The script synchronizes the Backup\Prinergy pool with the Prinergy Backup tape lists in the registry.

   See 5.1 *Media Rotation*.

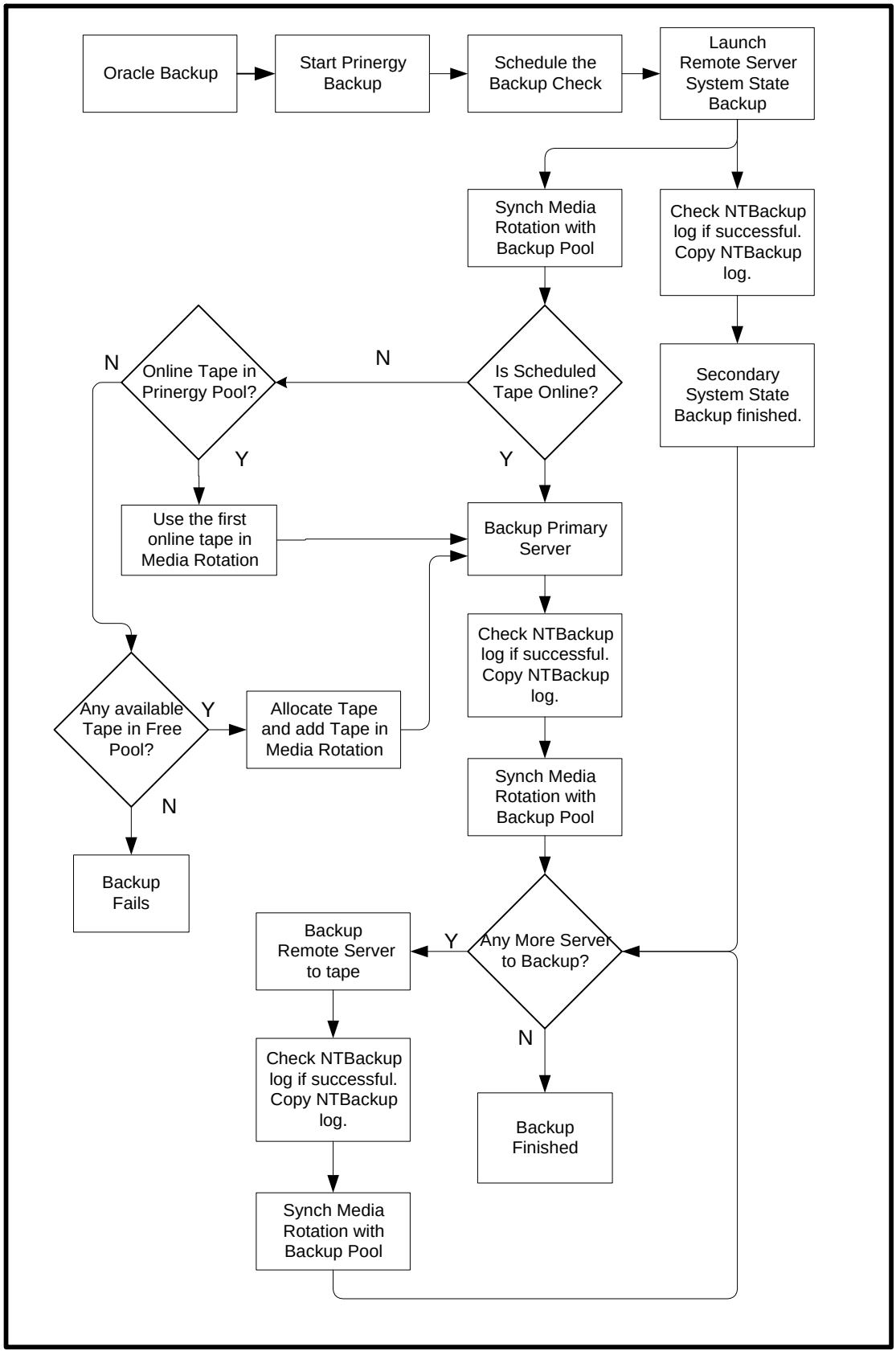
10. The script checks each backup, and updates the primary registry key **HKEY_LOCAL_MACHINE\SOFTWARE\Creo\Araxi\Settings\Default\System\Backup**.

    See step 3 of 5.2 *What Happens During Prinergy Backup?*

11. The script generates log files in the **%AraxiHome%\CreoAraxi\System\log\Backup** folder. The latest logs are also copied on the remote servers and the data drive.

    See steps 6 and 7 of 5.2 *What Happens During Prinergy Backup?*

The following diagram provides an overview of the backup process:




**Backup process block diagram**

# 2. INSTALLATION OF PRINERGY BACKUP

For Prinergy 3.x, the Prinergy major updater installs any upgrades made to Prinergy Backup since Prinergy 3.0.3.0. There are two parts to backup: Oracle backup and System backup.

## 2.1 Installation of Oracle Backup

Components installed for Oracle backup:

- Database backup script files, located in **%ARAXIHOME%\lib\python\com\creo\araxi\backup\database**
- A scheduled task that initiates the backup process each day

## 2.2 Installation of System Backup

Components installed for System backup:

- System backup script files, located in **%ARAXIHOME%\lib\python\com\creo\araxi\backup\ntbackup**.
- AraxiBackupManager service on the primary server
- AraxiSysStateBackup service on remote servers
- The service executable files **AraxiBackupManagerSvc.exe** and **AraxiSysStateBackupSvc.exe**, located in **%ARAXIHOME%\CreoAraxi\bin**

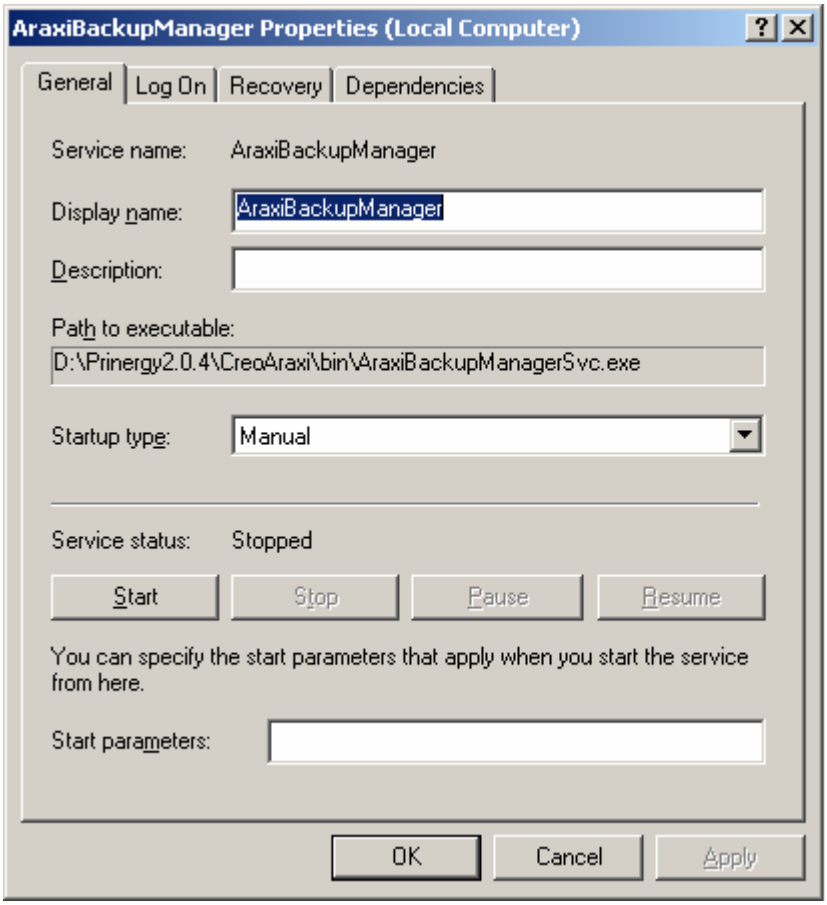
### The AraxiBackupManager Service

The AraxiBackupManager service is installed on the primary server.

*1) General Information:*

To view general information about the service, right-click the computer icon on the desktop and select **Manage**.

In the Computer Management dialog box, select **Services and Applications > Services > AraxiBackupManager**. Right-click **AraxiBackupManager**, and select **Properties** to view the AraxiBackupManager Properties dialog box.




**AraxiBackupManager Properties Tab**

### *2) Registry Settings for the Installation of AraxiBackupManager:*

Use the following registry settings for installing the AraxiBackupManager service:

- **HKLM\SYSTEM\CurrentControlSet\Services\AraxiBackupManager\ImagePath** = **D:\Prinergy2.0.4\CreoAraxi\bin\AraxiBackupManagerSvc.exe**

  This is the path to the service's executable file.

- **HKLM\SYSTEM\CurrentControlSet\Services\AraxiBackupManager\PythonClass** = **D:\Prinergy2.0.4\lib\python\com\creo\araxi\NTBackup\ AraxiBackupManager.AraxiBackupManagerService**

  This value refers to the Python® software class that initiates the service's execution.

## The AraxiSysStateBackup Service

The AraxiSysStateBackup service is installed on the remote server.

### *1) General Information:*

To view general information about the service, right-click the computer icon on the desktop and select **Manage.**

In the Computer Management dialog box, select **Services and Applications > Services > AraxiSysStateBackup.** Right-click **AraxiSysStateBackup** and select **Properties.**

A dialog box similar to the one on page 6 appears.

*2) Registry Settings for the installation of AraxiSysStateBackup:*

Use the following registry settings for installing the AraxiSysStateBackup service:

- **HKLM\SYSTEM\CurrentControlSet\Services\AraxiSysStateBackup\ImagePath** = **D:\Prinergy2.0.4\CreoAraxi\bin\AraxiSysStateBackupSvc.exe**

  This is the path to the service's executable file.

- **HKLM\CurrentControlSet\Services\ AraxiSysStateBackup\PythonClass** = **D:\Prinergy2.0.4\lib\python\com\creo\araxi\NTBackup\ AraxiSysStateBackupService.AraxiSysStateBackupService**

  This value refers to the Python class that initiates the service's execution.

# 3. CONFIGURATION OF PRINERGY BACKUP FOR OPERATION

This section describes the procedure that must be completed before Prinergy Backup can be used. Section 3.1 is a quick setup procedure. The other sub-sections describe the configuration procedure in more detail.

## 3.1 Quick Setup Procedure

Those who are familiar with Windows 2000, Removable Storage Manager (RSM), and Oracle Backup Manager may use this procedure. If additional information is required, see Sections 3.2 to 3.6.

### Configuring Oracle Backup

1. Using Oracle Backup Manager, change **BACKUP_DESTINATION** and **ZIP_FILES_DESTINATION** to **E:\OracleBackup**.

2. Discuss with the customer what time the backup should start (the least busy time at the site is recommended) and, if required, use Oracle Backup Manager to change the **Backup_Start_Hour**.

3. Verify that the Oracle Backup Manager Scheduler (**SubmitOracleBackupJob.cmd**) is in the AT scheduler. If not, use Oracle Backup Manager to run `Backup Start`.

4. Edit **D:\Ora816\Creo\Util\SuccessfulBackup.cmd** by uncommenting the line:

   ```
   %AraxiHome%\lib\python\com\creo\Araxi\NTBackup\StartAraxiBackup.cmd
   ```

5. Edit **D:\Ora816\Creo\Util\UnSuccessfulBackup.cmd** by un-commenting the line:

   ```
   %AraxiHome%\lib\python\com\creo\Araxi\NTBackup\StartAraxiBackup.cmd
   ```

### Preparing and Allocating Tapes

If System Backup will back up to a tape device, the media pool should be initialized and the tapes that will be used for backup added to the pool. If System Backup will be configured to back up to file, you may skip this step.

1. Run NTBackup. This creates the Backup media pool. Do not close NTBackup.
2. Open Computer Management and locate **Removable Storage\Media Pools\Backup**.
3. Under Backup, create a Prinergy subpool with the following configuration:

   **Name:** Prinergy

   **Contains media of type:** DLT or 8 mm AIT-1 (depending upon the media type used).

   **Allocation/Deallocation policy:** Select the **Draw media from Free media pool** and **Return media to Free media pool** check boxes.
4. Prepare tapes to be included in the backup media rotation.
5. Verify that NTBackup is still running. Drag the prepared tapes to the **Backup\Prinergy** pool.
6. If the tape device to be used does not have a bar code reader, physically label each tape. Rename the tapes in RSM to reflect the physical label. From each tape's Properties window, you can change the **Side Name** and **Media Name**. Do not change the **Media Name** if the tape device has a bar code reader.
7. Close and rerun NTBackup. Using RSM, verify that the tapes are shown as **Idle\Allocated**.
8. Close NTBackup.

### Configuring the Media Type

1. In the Prinergy Administrator (UADM), select **Tools** > **Configure System**. On the **Backup** tab, set **Backup Medium** type to the desired media and click **OK**.
2. Media type should match that configured in section 3.1.2.

After this procedure, System Backup should be tested. See 4.0 *Testing Prinergy Backup and Recovery*.

## 3.2 Configuring Oracle Backup

Sections 3.2 to 3.6 provide more detailed information about setting up System Backup.

The Oracle Backup configuration can be viewed using Oracle Backup Manager. To open the Oracle Backup Manager, at the command prompt on the primary server, type:

```
OracleBackupManager
```

At the Araxi_OracleMgr prompt, type `Show`

Typing the `Show` command displays the Oracle Backup settings, as in the following example.

```
Araxi_OracleMgr>show
BACKUPTIMES

  LAST_INCR_BACKUP_FINISH_TIME      None recorded              Time at which the last incremental backup completed
  LAST_FULL_BACKUP_START_TIME       Thu Jul 04 03:00:02 2002   Time at which the last full backup started
  LAST_INCR_BACKUP_START_TIME       None recorded              Time at which the last incremental backup started
  LAST_FULL_BACKUP_FINISH_TIME      Thu Jul 04 03:01:25 2002   Time at which the last full backup completed


BACKUPCONFIG

(*)BACKUP_START_HOUR                3                  Time at which backups should start.(0-22)
  BACKUP_CONFIG_VERSION             4                  Version of Backup Configuration File.
(*)BACKUP_SUCCESS_COMMAND_WARNING           3600       Second to wait for BACKUP_SUCCESS_COMMAND_FILE before generating a
                                                       warning.
  BACKUP_FAILURE_COMMAND_FILE       D:\Ora816\Creo\Util\UnSuccessfulBackup.cmd  Command file to execute when backups do not
complete
                                                                                 successfully.
  BACKUP_LOG_FILE           D:\Ora816\Creo\Logs\OracleBackupLogFile.log          Location of the backup log files.
(*)ZIP_FILES_DESTINATION    E:\OracleBackup                                      Location where zipped backups will be stored.
(*)SHUTDOWN_TO_BACKUP       NO                                                   Shutdown prinergy when doing backups? (YES or NO)
(*)BACKUP_DESTINATION       E:\OracleBackup                                      Location where backups will be stored.
  BACKUP_SUCCESS_COMMAND_FILE       D:\Ora816\Creo\Util\SuccessfulBackup.cmd    Command file to execute when backups complete
                                                                                 successfully.
(*)FULL_BACKUP_INTERVAL     0                  Number of days between full backups.
  ORACLE_ARCHIVEMODE        ARCHIVELOG         Database log mode. (ARCHIVELOG or NOARCHIVELOG)
(*)INCR_BACKUP_INTERVAL     0                  Number of days between incremental backups.
  ORACLE_SID                CREO               Oracle SID to backup.


   (*) indicates the parameter can be modified by the ALTER command Araxi_OracleMgr>
```

The parameters that are preceded by a "*" can be modified using the `ALTER` command.

To modify a parameter, at the `Araxi_OracleMgr` prompt, type

```
ALTER <BackupConfig Parameter> = <New Value>
```

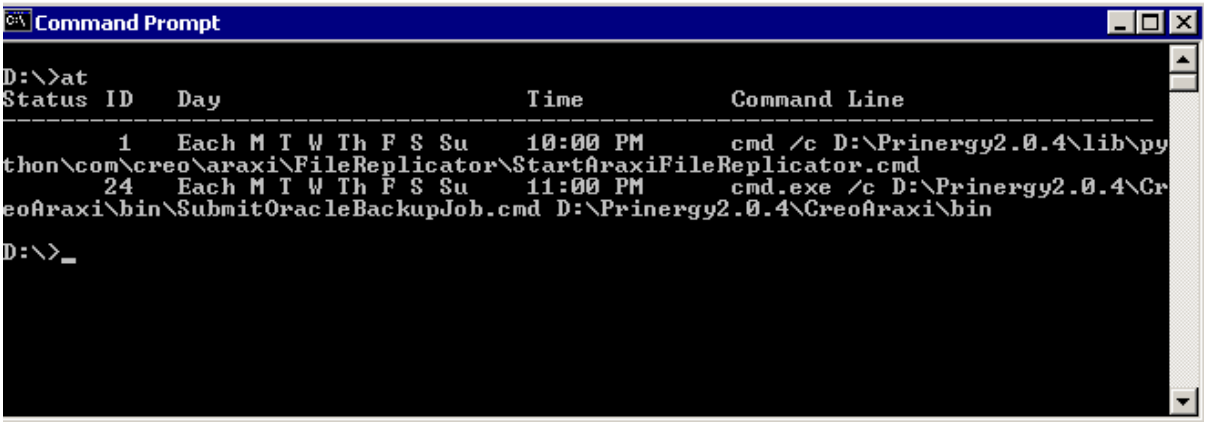
For example, `ALTER BACKUP_DESTINATION = E:\ORACLEBACKUP`

Oracle Backup must be configured according to the following table:

| Oracle Backup Parameter | Identifies | Recommended Setting |
|---|---|---|
| BACKUP_START_HOUR | Time that Oracle Backup should start. Allowable values are 0 to 22 (12:00 A.M. to 10:00 P.M.). | Select the start of the least busy period. Default is 3 (3:00 A.M.). |
| BACKUP_SUCCESS_ COMMAND_WARNING | Number of seconds to wait for BACKUP_SUCCESS_COMMAND FILE before generating a warning. | 3600 (1 hour) |
| BACKUP_FAILURE_ COMMAND_FILE | Command file executed when Oracle backups do not complete successfully. | D:\Ora816\Creo\Util\ UnSuccessfulBackup.cmd |
| BACKUP_LOG_FILE | Location of the Oracle backup log (tracks all backup activity). | D:\Ora816\Creo\Logs\ OracleBackupLogFile.log |
| ZIP_FILES_DESTINATION | It holds the Oracle location of the folder where the compressed backup files will be stored (*.zip files created from the Oracle backup files).<br>The initial default location for ZIP_FILES_DESTINATION will be set to the value of BACKUP_DESTINATION when **InitializeOracleBackupManager** is run. | E:\ORACLEBACKUP |
| SHUTDOWN_TO BACKUP | Whether Prinergy will be shut down before Oracle database backup. | NO |
| BACKUP_DESTINATION | Folder where the Oracle backup files will be stored.<br>Its role is to define the path to the folder where Oracle RMAN will write its backup files and from which it will restore the database. | E:\ORACLEBACKUP<br>***Note**: If you run out of disk space on drive E:, set this parameter to the RAID (example **J:\OracleBackup**)<br>There may be more disk space on the RAID for the backup. The files will then get zipped to ZIP_FILES_DESTINATION which will be the final resting spot for the backups.<br>The ZIP_FILES_DESTINATION parameter should be left as is. |
| BACKUP_SUCCESS_ COMMAND_FILE | Command file executed when Oracle backups complete successfully. | D:\Ora816\Creo\Util SuccessfulBackup.cmd |
| FULL_BACKUP_INTERVAL | Number of days between full backups of the Oracle database. | 0 – This means that the database is backed up daily. |
| INCR_BACKUP_INTERVAL | Number of days between incremental database backups. | 0 |
| ORACLE_SID | Oracle SID to backup. (Identifies the Oracle instance being backed up – there is only one instance in Prinergy.) | CREO |
| ORACLE_ARCHIVEMODE | Oracle database log mode (**Archivelog** or **NoArchivelog**). | ARCHIVELOG |

## 3.3 Configuring Oracle Backup Manager Scheduler

By default, the Oracle® Backup Manager Scheduler runs each night at 11:00 P.M. (23:00 hours) to determine the Oracle database backup parameters. The Oracle Backup Manager Scheduler is started by the Windows Task Scheduler. To verify whether the task is in the Windows Task Scheduler, at the command prompt, type `AT`.




**Oracle Backup Manager Scheduler task in Windows Task Scheduler**

If the task is not shown in the Windows Task Scheduler, start the Oracle Backup Manager Scheduler using the following procedure:

1. Open the Oracle Backup Manager by typing at the command prompt:

   `OracleBackupManager`

2. At the `Araxi_OracleMgr` prompt, type:

   `BACKUP START`

3. Verify that the Oracle Backup Manager Scheduler task is added to the Windows Task Scheduler by typing `AT` at the command prompt.

## 3.4 Configuring the Backup Command Files

When the Oracle database backup is complete, it will start one of the following two files:

- **D:\Ora816\Creo\Util\SuccessfulBackup.cmd** (if the backup succeeded)
- **D:\Ora816\Creo\Util\UnSuccessfulBackup.cmd** (if the backup failed)

The **SuccessfulBackup.cmd** command file should be configured to start Prinergy Backup. To enable this, open the **SuccessfulBackup.cmd** file with a text editor and ensure that the following line is uncommented:

```
%AraxiHome%\lib\python\com\creo\Araxi\NTBackup\StartAraxiBackup.cmd
```

The **UnSuccessfulBackup.cmd** command file should also be configured to start Prinergy Backup. In addition, the file should be configured so that a warning message appears on all Prinergy servers designated for backup, to alert operators that the Oracle backup failed.

To enable this, open the **UnSuccessfulBackup.cmd** file with a text editor. If the **UnSuccessfulBackup.cmd** file is empty, replace it with the one in **D:\Prinergy2.0.X\CreoAraxi\setup\Oracle\BackupConfigurationFiles**. Ensure that the following lines are uncommented:

```
%AraxiHome%\lib\python\com\creo\Araxi\NTBackup\StartAraxiBackup.cmd

msgbox "Prinergy database backup failed; Please contact your Creo Service
Representative!" "Backup Error!"
```

## 3.5 Preparing and Allocating Tapes for Prinergy Backup

A DLT or 8mm AIT tape device must be installed on the primary server if you are backing up to tape. It is recommended that there be at least two tapes in the media rotation (see 5.1 *Media Rotation*). If a stand-alone tape device is being used, the backup tapes must be switched daily before the backup is scheduled to run. If a tape library is being used, it is recommended that the backup tapes included in the media rotation be left in the tape library.

The following table estimates the number of servers that can be backed up on one DLT Type IV tape or AIT tape:

| Drive Type | Capacity | Number of Servers (Primary, Remote Servers) |
|---|---|---|
| 4000 | 20 GB | 2 |
| DLT 7000 | 35 GB | 5 |
| DLT 8000 | 40 GB | 5 |
| AIT-2 | 50 GB | 7 |
| AIT-3 | 100 GB | 14 |

**Note:** The figures in the preceding table are estimates only. Actual numbers may vary, depending on Oracle database size. The figures are based on backup data of 7 GB (primary server) and 7 GB (remote servers).

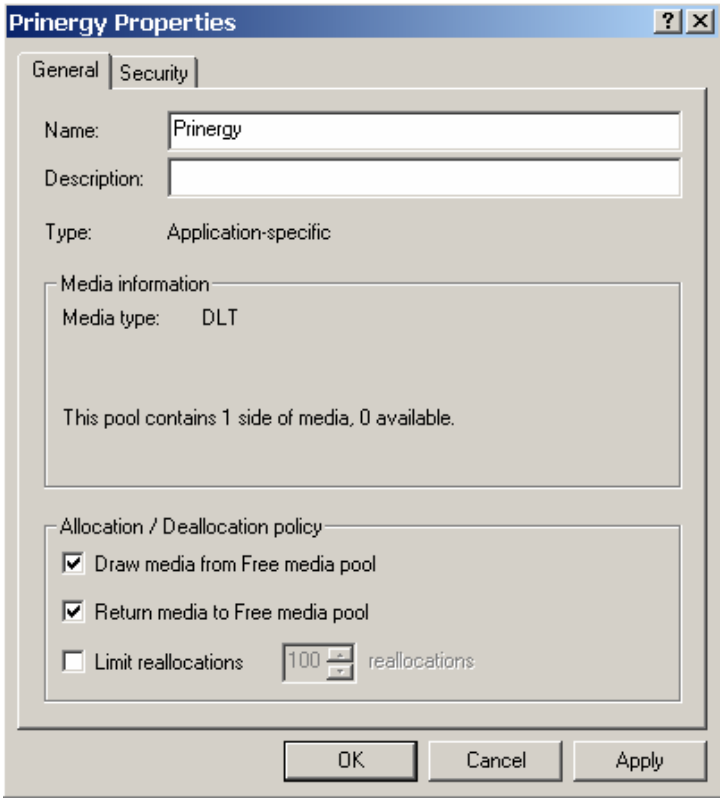
Using the table, estimate whether the backup data might span tapes. If the backup is expected to span more than one tape, a tape library should be used. Another option is to skip the backup of some of the render stations and secondary servers. (See 6 *Customizing Prinergy Backup*.) Enough tapes should be prepared to allow for tape spanning. Prinergy Backup will use a free tape from the Free media pool for the spanned data. When the spanned set is overwritten, spanned tapes 2 and higher are all returned to the Free media pool, ready for the next spanning.

Prinergy Backup uses tapes in the **Backup\Prinergy** pool. If the **Backup\Prinergy** pool is not present, it will be created automatically when the backup runs. However, it is recommended that the pool be manually created prior to using Prinergy Backup, so that tapes to be used in the media rotation are properly allocated.

Tapes included in the media rotation must be prepared and moved into the **Backup \Prinergy** pool. This can be done ahead of time using the RSM GUI. (For additional information about using the RSM GUI, see the Windows 2000 documentation). If the tape device does not have a bar code reader, each tape should be physically labeled.

To prepare and allocate tapes for Prinergy Backup using the RSM GUI, use the following procedure:

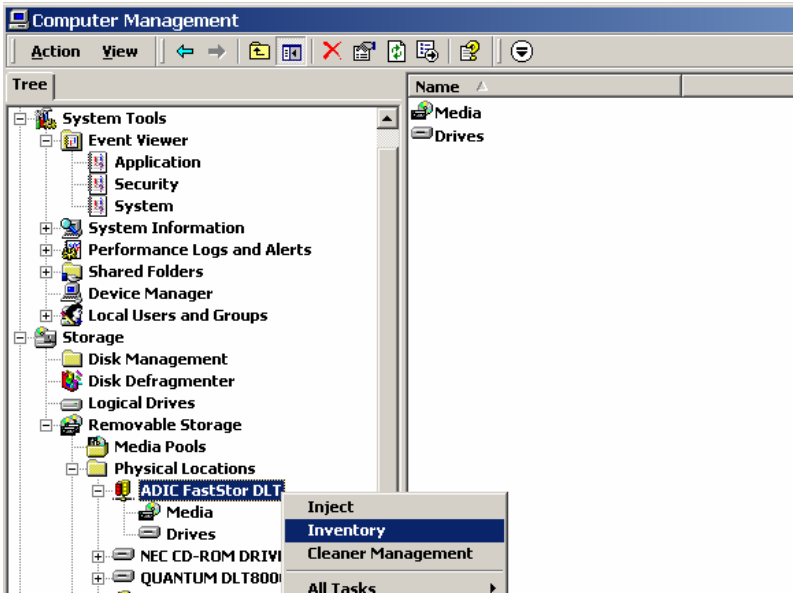
1. Use the System Backup window from the UADM toolbar (**Tools > System Backup**) to verify that Prinergy Backup is not running. Allocation should be done while Prinergy Backup is idle.
2. Run NTBackup (**Start > Run**, type NTBackup, and select **OK**). Verify that NTBackup starts.
3. In Computer Management, locate **Storage > Removable Storage > Media Pools** and verify that there is a Backup pool.
4. Verify whether there is a **Backup\Prinergy** pool already. If not, create a **Backup\Prinergy** sub-pool with the following settings. (If the tape device to be used is 8mm AIT, configure the **Backup\Prinergy** pool to use 8mm AIT-1 instead of DLT):




**Backup\Prinergy** pool properties

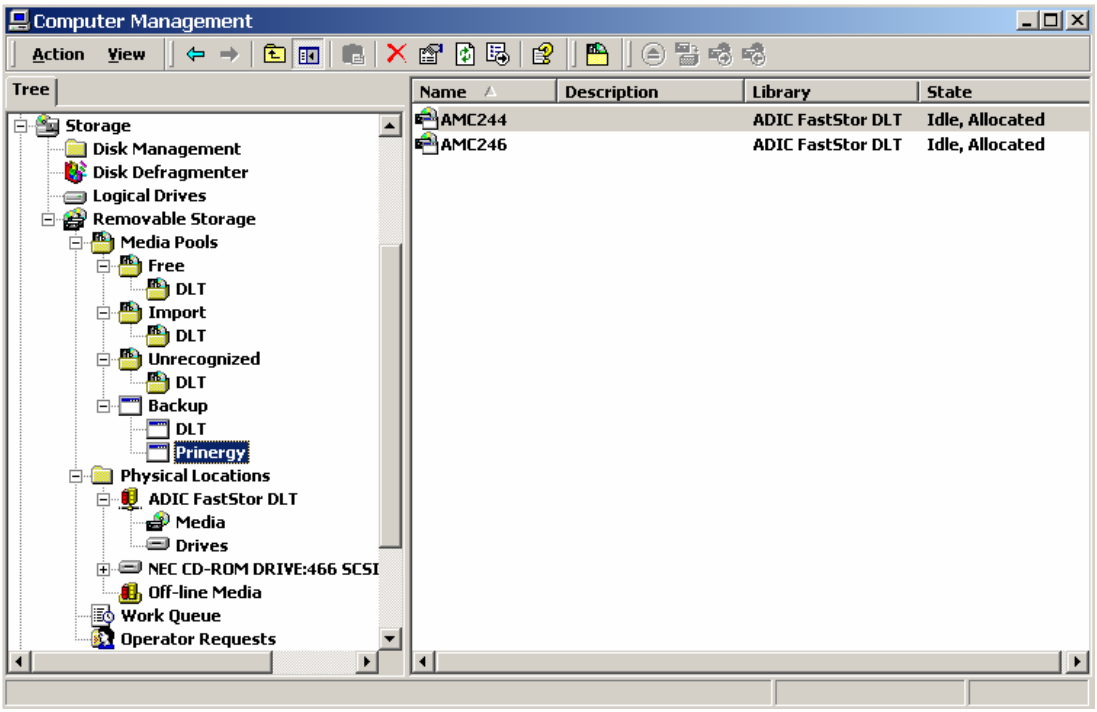
5. Inject the tapes to be included in the media rotation into the tape library. (If you are using a stand-alone tape device, the remaining procedure must be done for each tape separately.)

6. Let the RSM inventory the library. If the inventory is not done automatically, right-click the tape device under **Removable Storage > Physical Location** and select **Inventory** from the menu (see the Computer Management window). You can view the status of the inventory by selecting **Work Queue** under **Removable Storage**.




**Computer Management window**

7. In the RSM GUI, locate **Removable Storage\Physical Location\<*Tape Device*>\Media**.
8. Verify that the tapes are properly identified. (If you are using a stand-alone tape device, only one tape will be shown.)
9. If the tapes are not in the **Free** media pool, right-click each tape and select **Prepare** (you may need to deallocate the tape first before preparing). You can view the status by selecting **Work Queue** under **Removable Storage**.
10. When the task is completed, verify that the tapes are in **Removable Storage\Media Pools\Free\DLT** (or 8mm AIT-1).
11. Drag the prepared tapes into the **Backup\Prinergy** pool. Verify that the tapes are in **Backup\Prinergy** pool as shown in the following screen shot.




**Prepared tapes in the Backup\Prinergy media pool**

12. Verify that the tapes are shown as **Idle\Allocated**. If not, exit and rerun NTBackup.
13. Close the NTBackup GUI.
14. If a bar code reader is not used, change the **Media Name** of each Prinergy Backup tape in RSM using the **Properties** window of each tape.

Prinergy backup will use these prepared tapes in the media rotation. For more information about media rotation, see 5.1 *Media Rotation*.

## 3.6 Configuring the Media Type

The supported media types are DLT, 8mm AIT-1, LTO Accelis, LTO Ultrium, and File.

### Backing Up to Tape

1. In the Prinergy Administrator (UADM), select **Tools > Configure System**. On the **Backup** tab, set **Backup Medium** to the appropriate type and click **OK**.
2. The media type selected should match the media type in **Backup\Prinergy** pool.

System Backup will use these prepared tapes in the media rotation. For more information about media rotation, see 5.1 *Media Rotation*.

### Backing Up to File

The back-up-to-file option was added in Prinergy 3.0 to allow sites to use third-party backup software to back up the Prinergy system. The system backup file can be created either on a local drive or on a share on a remote server. In order to back up to a file on a remote server, read/write/delete permissions are required on the remote server's share.

1. In the Prinergy Administrator (UADM), select **Tools > Configure System**. On the **Backup** tab, set **Backup Medium** type to **File**.
2. Using **Browse**, set the **Backup File Location**. The file location can be set to a share on another server if desired.
3. Click **OK** to exit.

# 4. TESTING PRINERGY BACKUP AND RECOVERY

Before relying on backup data for disaster recovery, a backup and recovery test should be performed. This test should be performed regularly to verify tape device and media integrity.

## 4.1 Testing Prinergy Backup

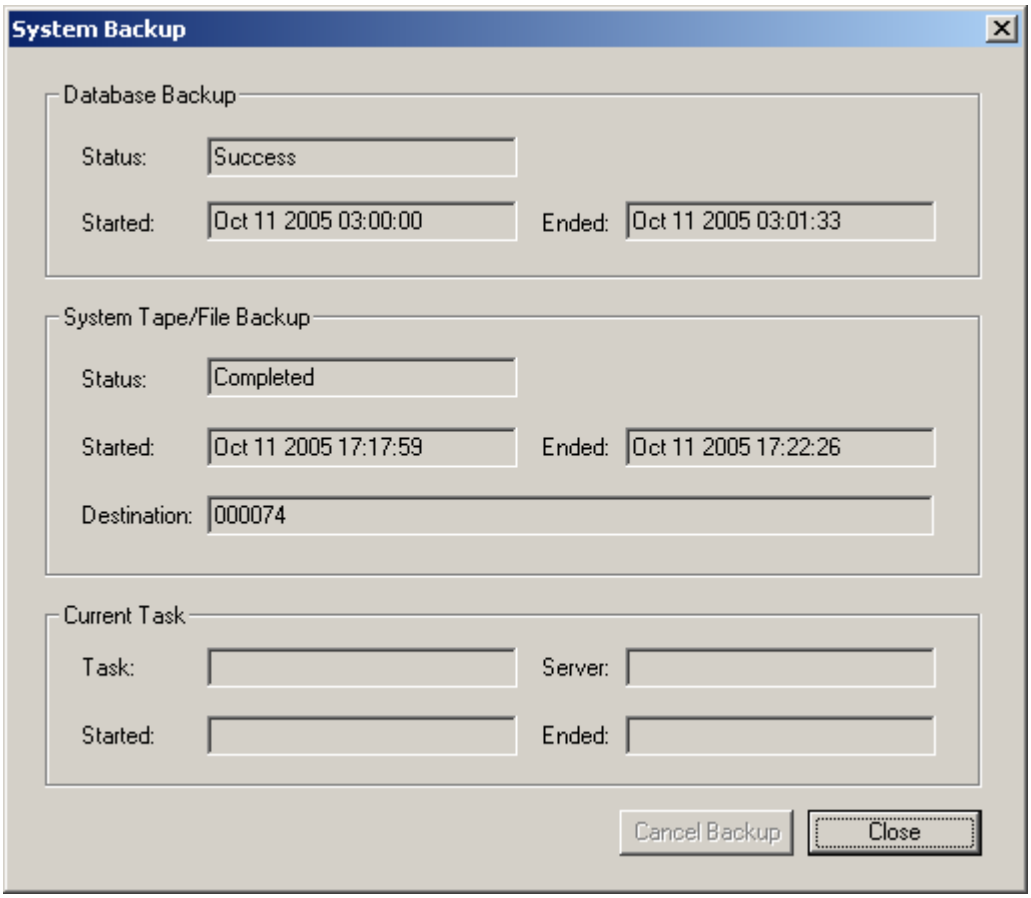
To perform a backup test, use the following procedure on the **Primary** server:

1. Verify that you are logged in using the same account that is used by the Araxi service. If not, log out and log in using the Araxi service account.
2. Create the following test folder if it does not exist:

   **%AraxiHome%\lib\python\com\creo\araxi\NTBackup\AraxiBackupTestFolder**
3. Copy some text files or bitmap files into the **AraxiBackupTestFolder**.
4. Start the Prinergy Backup test by typing at the command prompt:

   ```
   %AraxiHome%\lib\python\com\creo\araxi\NTBackup\AraxiBackup.cmd TEST
   ```

   This will back up the **AraxiBackupTestFolder** to tape or file, according to the type of media you configure in UADM. This will take approximately five minutes per server.
5. Check the status of the backup in the command prompt window used in the previous step or using the UADM toolbar (**Tools > System Backup**). Note that this window does not get refreshed.




**The System Backup window shows the status of the backup**

Note that if there had been a previous Oracle backup, this would be displayed in the **Database Backup** area.

6. After the backup is finished (including the remote servers), type at the command prompt:

   `%AraxiHome%\lib\python\com\creo\araxi\NTBackup\AraxiBackupCheck.cmd`

   This will run the Prinergy backup check.

7. Using the System Backup window, verify that the backup was successful. Otherwise, see 7 *Diagnostics and Troubleshooting*.

## 4.2 Testing Recovery

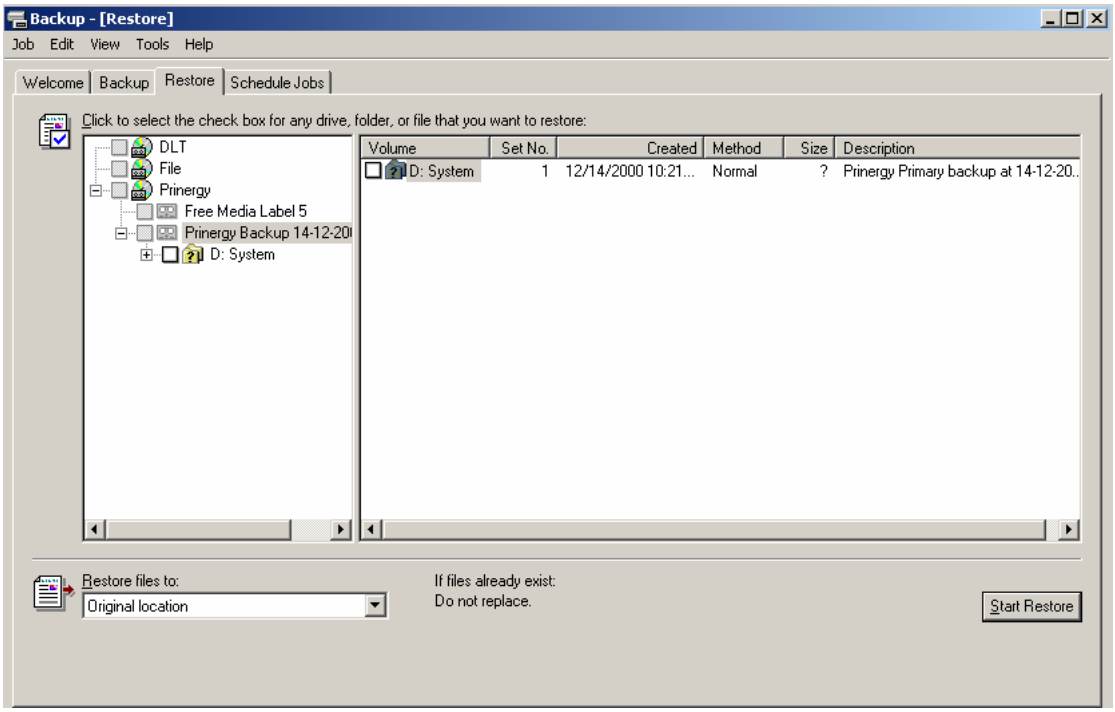
To test that a Prinergy backup can be successfully used to recover lost data, complete the appropriate steps, depending on whether the backup was to tape or file.

### Recovery Using a Tape Backup

1. Verify that you are logged in using the same account used by the Araxi service. If not, log out and log in using the Araxi service account.

2. Start NTBackup on the Prinergy server. Select **Start** > **Run**, type `ntbackup`, and click **OK**.

3. On the **Restore** tab, double-click **Prinergy** to expand the tree in the left window, and then double-click the System Backup tape used for the backup test. This will load the backup set list.




**NTBackup Restore backup set list**

4. Double-click **D: System**. This should load the on-media catalog to the disk. If this fails, as shown by not being able to browse the contents of the backup set and with the backup set still showing the **?** symbol, open the Options window by selecting **Tools > Options**. Locate the **General** tab and clear the **Use the catalogs on the media to speed up building restore catalogs on disk** check box. Re-catalog the backup set by double-clicking it and wait for the catalog to be loaded from the tape.

   **Note:** There are instances when the update of the on-disk catalog from the on-media catalog fails. Tests have been done on different systems with the same tape device, same operating system, and same backup sets. On one system, the update was successful, while on the other, the catalog couldn't be updated. A workaround is to select **NTBackup Tools > Options > General** and clear the **Use the catalogs on the media to speed up building restore catalogs on disk** check box.

5. On **D: System**, verify that the **AraxiBackupTestFolder** and its contents were backed up.

6. Delete the folder **AraxiBackupTestFolder** from the system drive.

7. Restore the **AraxiBackupTestFolder** including its contents using NTBackup. Select the **AraxiBackupTestFolder** in the Restore window by clicking the check box beside it. This will also select the files within the folder.

8. From the NTBackup menu, select **Tools** > **Options** to open the Options window. On the **Restore** tab, select **Do not replace the file on my computer**. Select **Apply**. Click **OK** to close the Options window.

9. Select **Start Restore**. In the Confirm Restore dialog box, select **OK** to start the restore process.

10. After the restore is finished, in the Restore Progress dialog box, select **Report** to review the restore log. Verify that there are no errors.

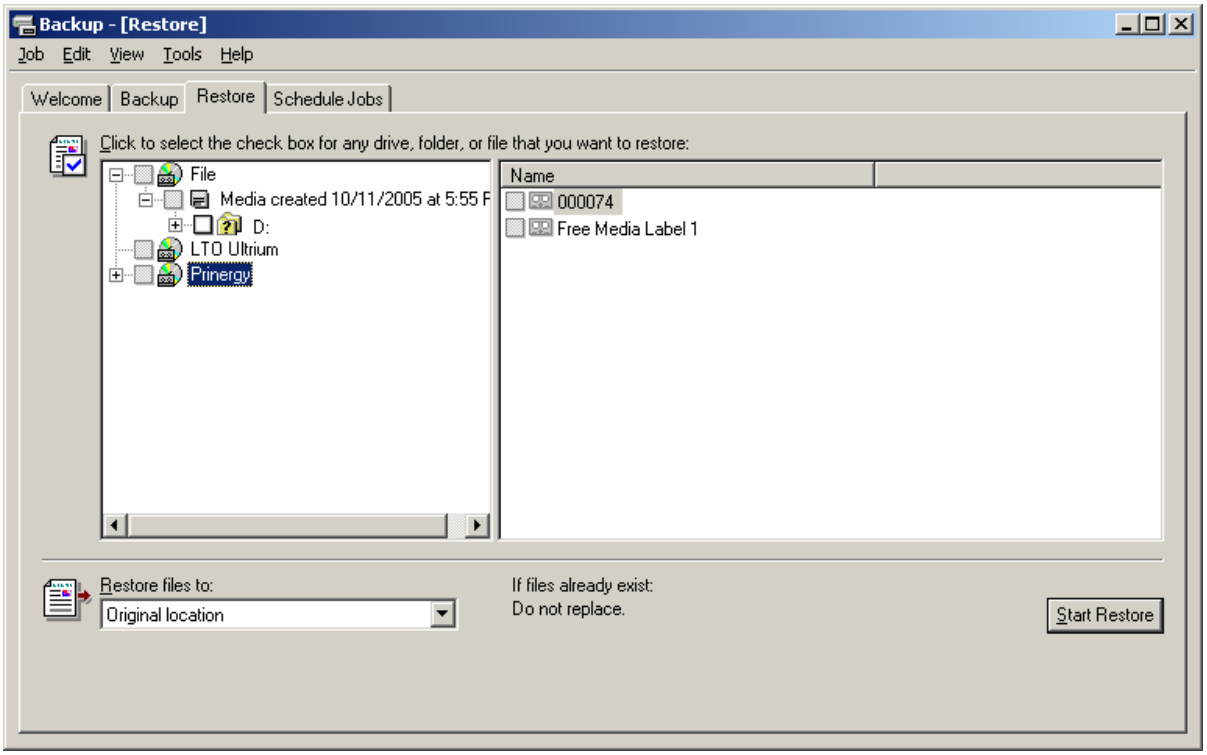
11. Using Windows Explorer, verify that the **AraxiBackupTestFolder** and its files were restored successfully. Open the files and verify that they are intact.

## Recovery Using a File Backup

1. Verify that you are logged in using the same account that is used by the Araxi service. If not, log out and log in using the Araxi service account.

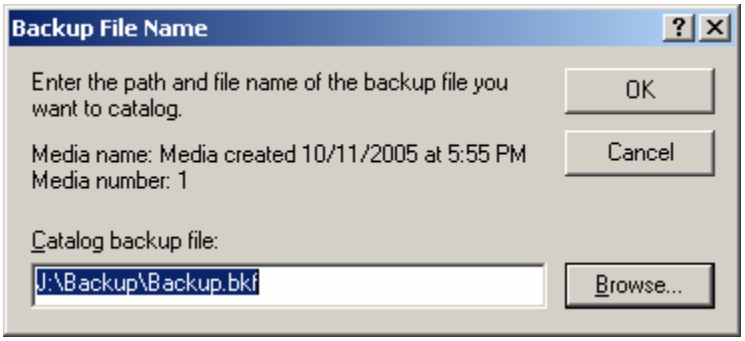
2. Start NTBackup on the Prinergy server. Select **Start** > **Run**, type `ntbackup`, and select **OK**.

3. On the **Restore** tab, double-click **File** to expand the tree in the left window, then double-click the System Backup file used for the backup test. This will load the backup set list.




**NTBackup Restore backup set list**

4. Double-click **D:**. Type the path and name of the backup file in the Backup File Name dialog box. This should load the on-media catalog to the disk.




**NTBackup Restore catalog backup file**

5. Locate **D: System** and verify that **AraxiBackupTestFolder** and its contents were backed up.
6. Delete **AraxiBackupTestFolder** from the system drive.
7. Using NTBackup, restore the **AraxiBackupTestFolder** and its contents. Select the **AraxiBackupTestFolder** in the Restore window by clicking the check box beside it. This will also select the files in the folder.
8. From the **NTBackup** menu, select **Tools > Options** to open the Options window. On the **Restore** tab, select **Do not replace the file on my computer**. Select **Apply**. Select **OK** to close the Options window.
9. Select **Start Restore**. In the Confirm Restore dialog box, select **OK** to start the restore process.
10. After the restore is finished, in the Restore Progress dialog box, select **Report** to review the restore log. Verify that there are no errors.
11. Using Windows Explorer, verify that **AraxiBackupTestFolder** and its files were restored successfully. Open the files and verify that they are intact.

# 5. STARTING PRINERGY BACKUP

Typically, Prinergy Backup is started automatically after the Oracle database backup. However, for testing purposes, there are several ways to start Prinergy Backup.

**WARNING:** *The AraxiBackupManager and AraxiSysStateBackup services should have the same logon as the Araxi service. In cases where the Araxi logon is changed, the AraxiBackupManager and AraxiSysStateBackup logons should also be changed. Service logon failure may result if this is not done.*

## Automatic Startup of Prinergy Backup

The Oracle database backup, using the Windows Task Scheduler, is set by default to run at 3:00 A.M. After the Oracle backup is finished, Prinergy Backup is automatically started. Prinergy Backup checks the availability of a backup tape from the **Backup\Prinergy** pool.

If a tape is not available and the AllocateFreeTape reg key is set to `1`, Prinergy Backup will try to allocate one from the Free media pool.

The primary server system disk, System state, **PrinergyUpdate** folder, and Oracle database backup files are backed up to tape. At the same time, the System state of each remote server is backed up to a local disk. When the primary server backup is complete, the system disk, **PrinergyUpdate** folder, and System state backup files of each remote server are backed up to tape.

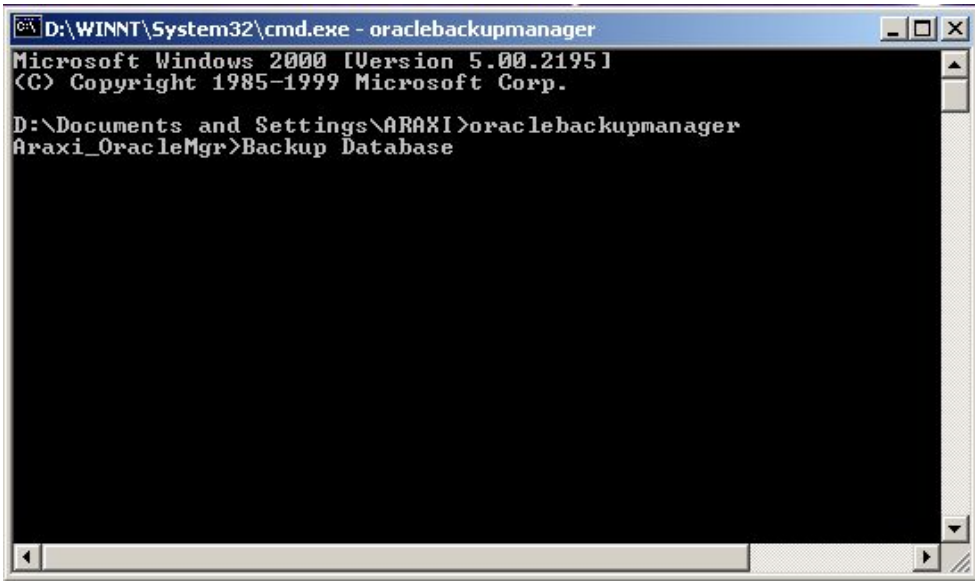
A backup check runs 8 hours (wait time is configurable) after the backup start. See 5.3 *Prinergy Backup Check* for details.

## Manual Startup of Prinergy Backup

You may want to start the Prinergy backup process manually, for example, when testing and verifying backup operation or after a system recovery. To manually run Prinergy Backup, use the following procedures:

### Run Oracle Backup Using Oracle Backup Manager

1. At the command prompt, type `OracleBackupManager`.
2. At the `Araxi_OracleMgr` prompt, type `Backup Database`. This will start Oracle Backup and subsequently start Prinergy Backup.




**Backup Database command in Oracle Backup Manager**

This method will back up the same data as a normal startup. See 0 *Automatic Startup of Prinergy Backup*.

### Other Ways to Manually Start Prinergy Backup

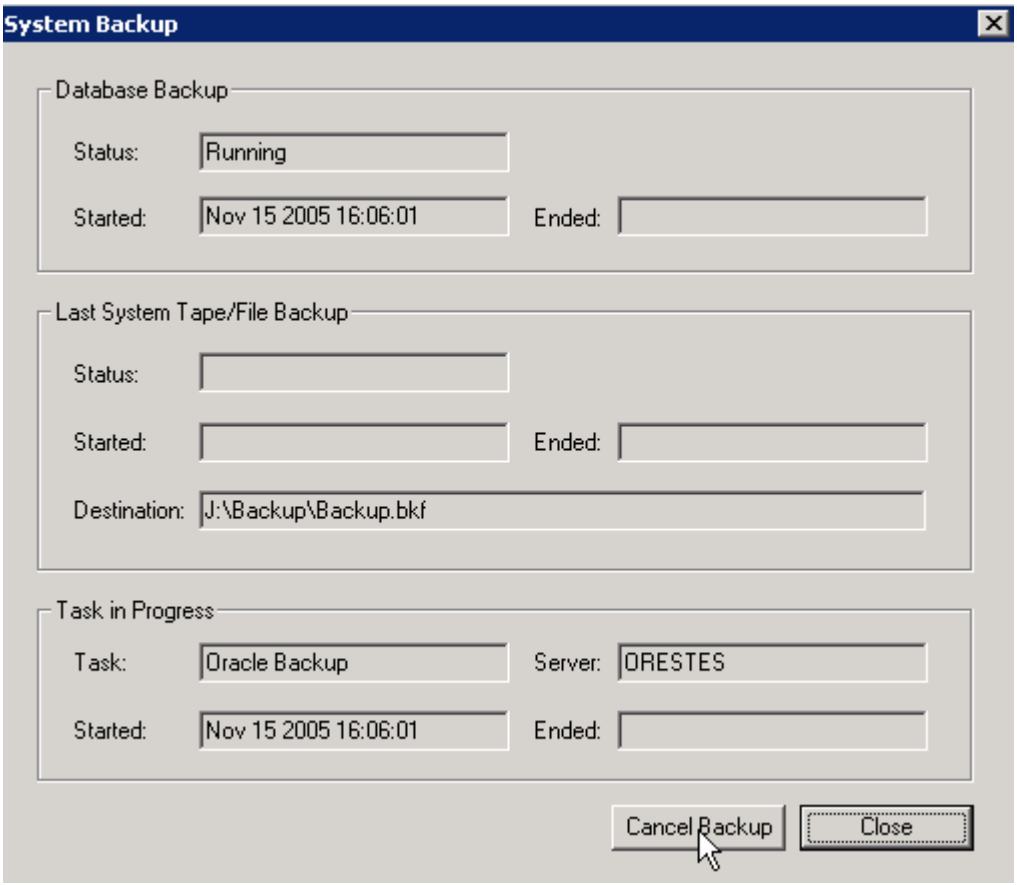
- **Manually start the AraxiBackupManager service in the Computer Management GUI**. This will run the Prinergy backup in the background. Task Manager should show **ntbackup.exe** or **cmd.exe** on the **Processes** tab, whose PID corresponds with the PID in the backup registry. The progress can also be checked using the UADM toolbar (**Tools > System Backup**), which is updated as the backup runs. Note that because the Oracle

backup is not carried out in this case, the Oracle data copied to tape will not be current. This startup method will not schedule the backup check.

- **Run %AraxiHome%\lib\python\com\creo\Araxi\NTBackup\AraxiBackup.cmd at the command prompt**. This can be used for troubleshooting because it runs Prinergy Backup interactively. As in the previous method, the Oracle backup is not run, so the Oracle data copied to tape will not be current, and the backup check will not be scheduled. See 7.4 *AraxiBackup Command Parameters*.
- **Run StartAraxiBackup.cmd at the command prompt.** This will schedule the backup check to run 8 hours later (wait time is configurable). Backups will run in the background. Task Manager should show **ntbackup.exe** or **cmd.exe** on the **Processes** tab. The progress can be checked using the UADM toolbar (**Tools > System Backup**).
- **Run or schedule the command** `%AraxiHome%\CreoAraxi\bin\BackupOracleDatabase FULL`. This will run Oracle Backup and Prinergy Backup. Prinergy Backup will run in the background.

## Canceling Prinergy Backup

You may want to cancel backup for some reason. In UADM, select **Tools > System Backup** (see screen shot below). The **Cancel Backup** button allows you to stop the database or System Backup.




**System Backup window**

## 5.1 Media Rotation

The Prinergy Backup scripts maintain a tape list in the primary registry **HKEY_LOCAL_MACHINE\SOFTWARE\Creo\Araxi\Settings\Default\System\Backup\TapeGUIDList**. Every time Prinergy Backup runs, it synchronizes the TapeGUIDList with the tapes in the RSM **Backup\Prinergy** pool. Whenever a tape is added into the pool, that tape is added into the TapeGUIDList in the registry. When a tape is taken out (deallocated) of the pool, it is also taken out of the TapeGUIDList.

When backup starts, the TapeGUIDList is rotated and the first tape in the list is used for that backup. Before running Prinergy Backup, make sure that the scheduled backup tape is online (this is normally the tape with the oldest backup data). If the expected tape is not found, Prinergy Backup will try to use the first online tape in the media rotation. Failing this, and if the AllocateFreeMedia reg key has a value of `1`, Backup will try to allocate a free tape. Prinergy Backup will fail if no tape is available. If using a stand-alone tape device, the scheduled tape should be injected and online before the backup runs.

Tapes with spanned data (media 2 and up of a spanned set) are not included in the TapeGUIDList, but are kept in the SpannedGUIDList. When the spanned media set is overwritten, media 2 and up are deallocated automatically and returned to the **Free\DLT** (or **Free\8mm AIT1**) pool. These tapes will be reused when the data for that backup spans.

Media Rotation examples follow.

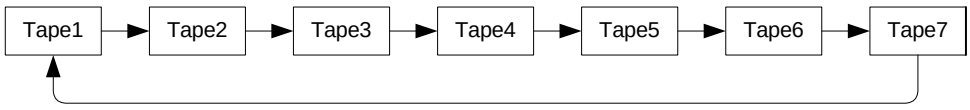
### Every Other Day Media Rotation

This scheme is the simplest to maintain, but provides the least protection. There are only two day's worth of backup in this scheme. Only two tapes are used, with the backup alternating between them. The two tapes to be used in the media rotation must be prepared and allocated prior to using Prinergy Backup. See 3.5 *Preparing and Allocating Tapes for Prinergy Backup*.

### Weekly Media Rotation

This scheme requires a different tape (or media set if data does not fit on one tape) for each day of the week the backup runs (seven tapes if backup runs everyday). There is a week's worth of backup in this scheme. The tapes to be used in the media rotation must be prepared and allocated prior to using Prinergy Backup. See 3.5 *Preparing and Allocating Tapes for Prinergy Backup*.

The weekly media rotation scheme is:

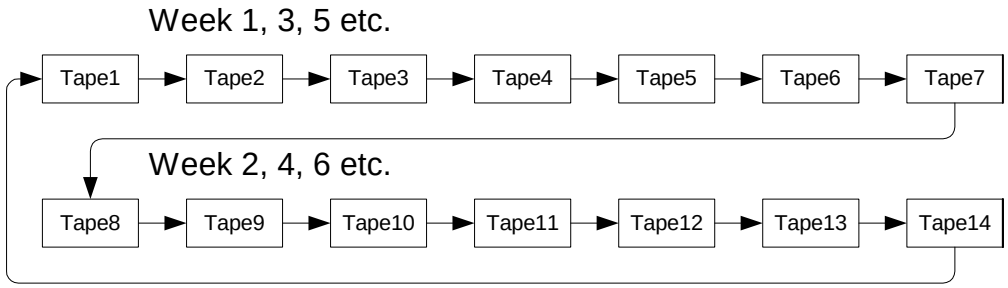



**Weekly media rotation**

### Bi-weekly Media Rotation

This scheme uses 14 tapes\media sets (or double the number of the weekly scheme if backup is not done daily). There are two weeks worth of backup in this scheme. The previous week's tapes can be taken offsite if desired. The tapes to be used in the media rotation must be prepared and allocated prior to using Prinergy Backup. See 3.5 *Preparing and Allocating Tapes for Prinergy Backup*.

The biweekly rotation scheme is:




**Biweekly media rotation**

**WARNING:** *Prinergy Backup will fail if there is no online Prinergy Backup tape and there is no available tape in the Free media pool. If using a stand-alone tape device, make sure the scheduled tape is inserted before the scheduled backup runs.*

## 5.2 What Happens During Prinergy Backup?

This section describes in detail what happens during Prinergy Backup.

1. Oracle Backup starts the Prinergy Backup scripts. **AraxiBackupCheck.cmd**, which runs the backup check, is added to the Windows Task Scheduler to run 8 hours (wait time can be changed, see *5.3 Prinergy Backup Check*) after the Prinergy backup.

2. The **Backup\Prinergy** media pool is synchronized with the TapeGUIDList in the registry. (If the media pool does not exist, it is created, and Prinergy Backup tries to allocate a free tape.) The TapeGUIDList is rotated and the scheduled tape is checked if online. If the tape is offline, the tape list is rotated until an online tape is found. If there is no online tape in the **Backup\Prinergy** pool, and the AllocateFreeMedia reg key value is 1, Prinergy Backup tries to allocate a free tape.

3. The Backup key in the registry, which contains information about the backup status and TapeGUIDList and so on, is created when the backup is first run. Prinergy Backup keeps track of the NTBackup PID to isolate other NTBackup processes. The following describes each key and value in the backup registry hive located in:

   **HKEY_LOCAL_MACHINE\SOFTWARE\Creo\Araxi\Settings\Default\System\Backup**

   - `AllocateFreeTape`: When set to 0, Prinergy Backup will not automatically allocate media from the Free pool when no tape in the media rotation is available. Backup will fail instead. Default value is 1.

- `ConfirmationDelay:` Wait time in hours before running the backup check. Default value is 8 hours.
- `DatabaseBackupEnded`: Date and time that the backup of the Oracle database finished.
- `DatabaseBackupStarted:` Date and time that the backup of the Oracle database started.
- `DatabaseBackupStatus:` The status of the backup of the Oracle database.
- `FatalError:` Flag used by Prinergy Backup. When a fatal error is detected during backup, an error message box is displayed and the FatalError reg key is set to `1`. The backup check that runs 8 hours after (by default) will only display the error message box if the FatalError reg key is `0`. This reg key is reset to `0` at the beginning of each backup.
- `Hardware Compression:` 0 or 1. This value will be present if the option to override the compression setting of the hardware device has been selected in the UADM Configuration Options dialog box. If the option to override has not been selected, this value will not be present. If this value is set to 0, then the data being backed up will not be compressed. If this value is set to 1, then the data being backed up will be compressed.
- `mediaType`: DLT (default), 8mm AIT-1, LTO Accelis, LTO Ultrium, or File.
- `NotifyNodeList`: List of servers that will receive a pop-up error message when backup fails. Format is server1; server2;…;serverX. Default value is a list of all servers.
- `PID`: Process identifier of the NTBackup process used by Prinergy Backup
- `RemoteServerList:` List of remote servers included in the backup[1].
- `SpannedTapes`: Logical GUIDs of tapes with spanned backup data. This registry key is created when backup spans to another tape.
- `SystemBackupEnded`: Date and time the system backup ended.
- `SystemBackupStarted`: Date and time the system backup started. This is after the Oracle backup finished.
- `SystemBackupStatus`: The status of the system backup
- `SystemBackupTapeName`: The name of the tape used in the backup. If more than one tape is used for the backup, it will be the name of the first tape used.
- `TapeGUIDList`: Logical GUIDs of the tapes in the Prinergy Backup media rotation. The first tape is the one used in the latest backup (or is the one being used if Backup is running). This list is rotated to the right every time Backup starts.

Following are the registry entries for the Oracle backup. They are located in:

**HKEY_LOCAL_MACHINE\SOFTWARE\Creo\Araxi\Settings\Default\System\Backup\Oracle**

[1] This may include Prinergy Insite 3.0.1 servers.

- `Confirmed`: Date confirmed or `Failed`. **StartAraxiBackup.cmd** schedules a backup check to run 8 hours (default) after the Prinergy Backup. This check verifies whether each of the backups (Oracle backup, primary server, and remote servers) was successful. If the Oracle backup is successful, the date and time will be displayed. Otherwise, it will show `Failed`.
- `PID`: Process identifier of the NTBackup process used by Prinergy Backup
- `Ended`: Date and time the Oracle backup finished.
- `Started`: Date and time the Oracle backup started.
- `Status`: Running, Success or Failed.

Below are the registry entries for the Prinergy primary server. The Primary registry key is deleted at the beginning of Oracle backup, and is recreated when system backup starts:

**HKEY_LOCAL_MACHINE\SOFTWARE\Creo\Araxi\Settings\Default\System\Backup\Primary**

- `Confirmed`: Date confirmed or `Failed`.. If the primary server backup is successful, the date and time will be displayed. Otherwise, it will show `Failed`. This reg key is refreshed at the beginning of backup.
- `Ended`: Date and time the primary server backup finished.
- `LogLabel`: Backup description in the log generated by NTBackup.
- `Media`: Media to which the backup is written. The logical GUID is recorded.
- `Started`: Date and time the primary server backup started.
- `Status`: Running, Success, or Failed.
- `TapeGUID`: Logical GUID of the tape to which the backup is written.
- `TapeName`: RSM physical media name of the tape to which the backup is written.
- `Target`: Lists the backup targets. For the primary server, the default targets are the system drive, System state, **Prinergy Updates** folder, and the Oracle Backup _Destination.

The registry entries described previously also appear in the registry for each remote server. The entries for the local backup of the remote server are located in:

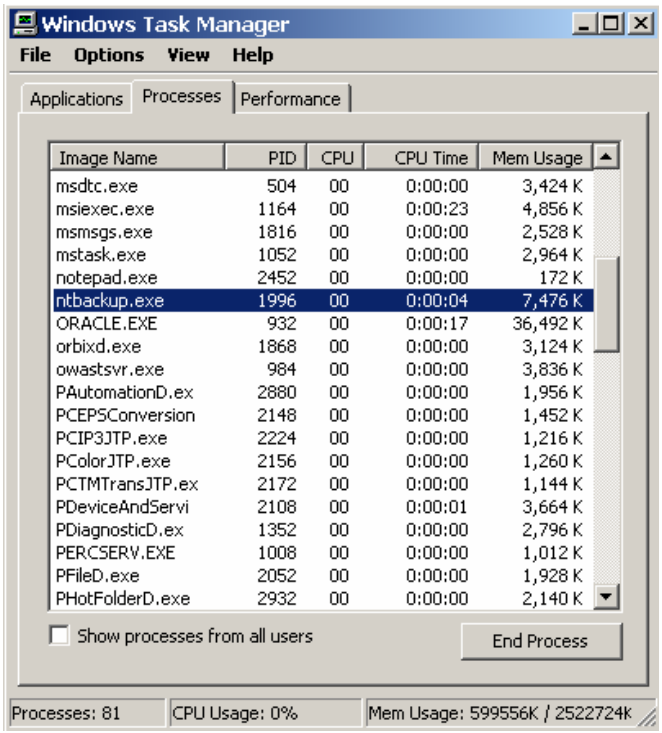
**HKEY_LOCAL_MACHINE\SOFTWARE\Creo\Araxi\Settings\Default\System\Backup\RemoteServers\<Remote_Server_Name>\Local**

The registry entries for the remote backup of the remote server are located in:

**HKEY_LOCAL_MACHINE\SOFTWARE\Creo\Araxi\Settings\Default\System\Backup\RemoteServers\<Remote_Server_Name>\Remote**

4. The primary server system files, the System state, the Oracle database backup files, and the **Prinergy Updates** folder, are backed up to tape. At the same time, the System state of each remote server is backed up to a file on that remote server (**E:\AraxiBackup\SysStateBackup.bkf**). After the primary server backup, the system files, the System state backup file, and the **Prinergy Updates** folder of each remote server included in the backup (see 6.1 *Skipping Backup of Secondaries or Render Stations*) are backed up to tape.

5. Windows Task Manager shows the NTBackup process (sometimes appears as **cmd.exe**) that is started by Prinergy Backup. This is identified by the PID, which matches the PID value in the registry.




**NTBackup PID in Windows Task Manager**

6. The Prinergy Backup log files are kept in the **%AraxiHome%\CreoAraxi\system\log\backup** folder. On the primary server, the following log files are generated:

   **AraxiSystemBackup.log**. This log file is generated by the Prinergy Backup scripts. It is copied into **<DataDrive>\AraxiBackup** folder and also on the secondary servers as **AraxiBackupPrimary.log**.

   The last 10 log files are kept in the backup folder and previous log files are suffixed with numbers `01` to `09` (for example, **AraxiSystemBackup01.log**). In the backup folder, there is also a counter file that helps the log files roll properly if one is accidentally deleted. The counter file will have a name like **AraxiSystemBackupCounter.1**. The counter file does not contain any information itself.

```
Wed May 09 03:01:29 2001
Wed May 09 03:01:29 2001 -------- REMOTE SECONDARY BACKUP --------
Wed May 09 03:01:29 2001 Secondary Nodes: ['COLT']
Wed May 09 03:01:29 2001 Start remote system state backup on: COLT
Wed May 09 03:01:52 2001 ----------------------------------------
Wed May 09 03:01:52 2001
Wed May 09 03:01:52 2001 ------------ PRIMARY BACKUP ------------
Wed May 09 03:01:52 2001 Primary Node: IDE6400
Wed May 09 03:01:53 2001 Starting backup of: IDE6400
Wed May 09 03:01:53 2001   NTBackup started
Wed May 09 03:01:53 2001     Media: B22992DA-C1B0-4C5E-B2B2-55F23A02FEAA
Wed May 09 03:01:53 2001     TapeName: Prinergy Backup Tape 1
Wed May 09 03:01:53 2001     Target: SystemState D: E:\ORACLEBACKUP
E:\PrinergyUpdates
Wed May 09 03:01:53 2001     Label in NTBackup log file: Backup of IDE6400 at
09-05-2001 03:01
Wed May 09 03:01:53 2001     Start time: 09-05-2001 03:01
Wed May 09 03:27:46 2001   NTBackup ended
Wed May 09 03:27:46 2001     End time: 09-05-2001 03:27
Wed May 09 03:27:52 2001   Confirming NTBackup
Wed May 09 03:27:54 2001     Backup status: Success
Wed May 09 03:27:54 2001 ----------------------------------------
Wed May 09 03:27:54 2001
Wed May 09 03:27:54 2001 ----------- SECONDARY BACKUP -----------
Wed May 09 03:27:54 2001 Secondary Nodes: ['COLT']
Wed May 09 03:27:54 2001
Wed May 09 03:27:58 2001 Start backup of: COLT
Wed May 09 03:27:58 2001   NTBackup started
Wed May 09 03:27:58 2001     Media: B22992DA-C1B0-4C5E-B2B2-55F23A02FEAA
Wed May 09 03:27:58 2001     TapeName: Prinergy Backup Tape 1
Wed May 09 03:27:58 2001     Target: \\COLT\PrinergyBackup$
\\COLT\AraxiTemp_COLT_E\PrinergyUpdates \\COLT\AraxiTemp_COLT_E\AraxiBackup
Wed May 09 03:27:58 2001     Label in NTBackup log file: Backup of COLT at 09-
05-2001 03:27
Wed May 09 03:27:58 2001     Start time: 09-05-2001 03:27
Wed May 09 04:30:32 2001   NTBackup ended
Wed May 09 04:30:32 2001     End time: 09-05-2001 04:30
Wed May 09 04:30:36 2001   Confirming NTBackup
Wed May 09 04:30:39 2001     Backup status: Success
Wed May 09 04:30:39 2001 ----------------------------------------
```

**AraxiBackup.log**

**< *ServerName*>_NTBackup.log**. These log files are kept in the …**backup\NTBackup** subfolder. These log files are copied from the NTBackup generated log file, when each server is backed up. The log file lists the files that are backed up and skipped. The last 10 log files are kept in the backup folder and previous log files are suffixed with numbers 01 to 09.

```
Backup Status
Operation: Backup
Active backup destination: Prinergy
Media name: "Prinergy Backup Tape 1"

Backup of "D: System"
Backup set #1 on media #1
Backup description: "Backup of IDE6400 at 09-05-2001 03:01"
Backup Type: Normal

Backup started on 5/9/2001 at 3:02 AM.
Folder D:\
error when no DLT.txt             1084  5/2/2001   2:21 PM
Generic.msc                 24576  5/5/2000   9:38 AM
```

**NTBackupPrimary.log**

**AraxiBackupManagerService.log**. This file is located in the **%AraxiHome%\CreoAraxi\system\log\backup\AraxiBackupManagerService** folder.

This file contains information associated with running the service. It is useful to software developers and helps track down errors when they occur.

7. On the remote server, the following log files are generated:

**AraxiSystemBackup.log**. This log file is generated by the Prinergy Backup scripts when the remote server System state is backed up to a file. The last 10 log files are kept in the backup folder and previous log files are suffixed with numbers `01` to `09`.

```
Wed May 09 03:01:44 2001 -------- REMOTE SECONDARY BACKUP --------
Wed May 09 03:01:44 2001 Start SystemState backup of: COLT
Wed May 09 03:01:44 2001   NTBackup started
Wed May 09 03:01:44 2001     Media: E:\AraxiBackup\SysStateBackup.bkf
Wed May 09 03:01:44 2001     Target: SystemState
Wed May 09 03:01:44 2001     Label in NTBackup log file: SystemState Backup at
09-05-2001 03:01
Wed May 09 03:01:44 2001     Start time: 09-05-2001 03:01
Wed May 09 03:02:40 2001   NTBackup ended
Wed May 09 03:02:40 2001     End time: 09-05-2001 03:02
Wed May 09 03:02:41 2001   Confirming NTBackup
Wed May 09 03:02:41 2001     Backup status: Success
Wed May 09 03:02:41 2001 ----------------------------------------
```

**AraxiSystemBackup.log on a remote server**

***<ServerName>*_NTBackup.log.** These log files are kept in the …**backup\NTBackup** subfolder. These log files are copied from the NTBackup generated log file, when the remote System state is backed up to file. The log file lists the files that are backed up and skipped. The last 10 log files are kept in the backup folder and previous log files are suffixed with numbers `01` to `09`.

```
Backup Status
Operation: Backup
Active backup destination: File
Media name: "Media created 5/9/2001 at 3:01 AM"

Backup of "System State"
Backup set #1 on media #1
Backup description: "SystemState Backup at 09-05-2001 03:01"
Backup Type: Copy

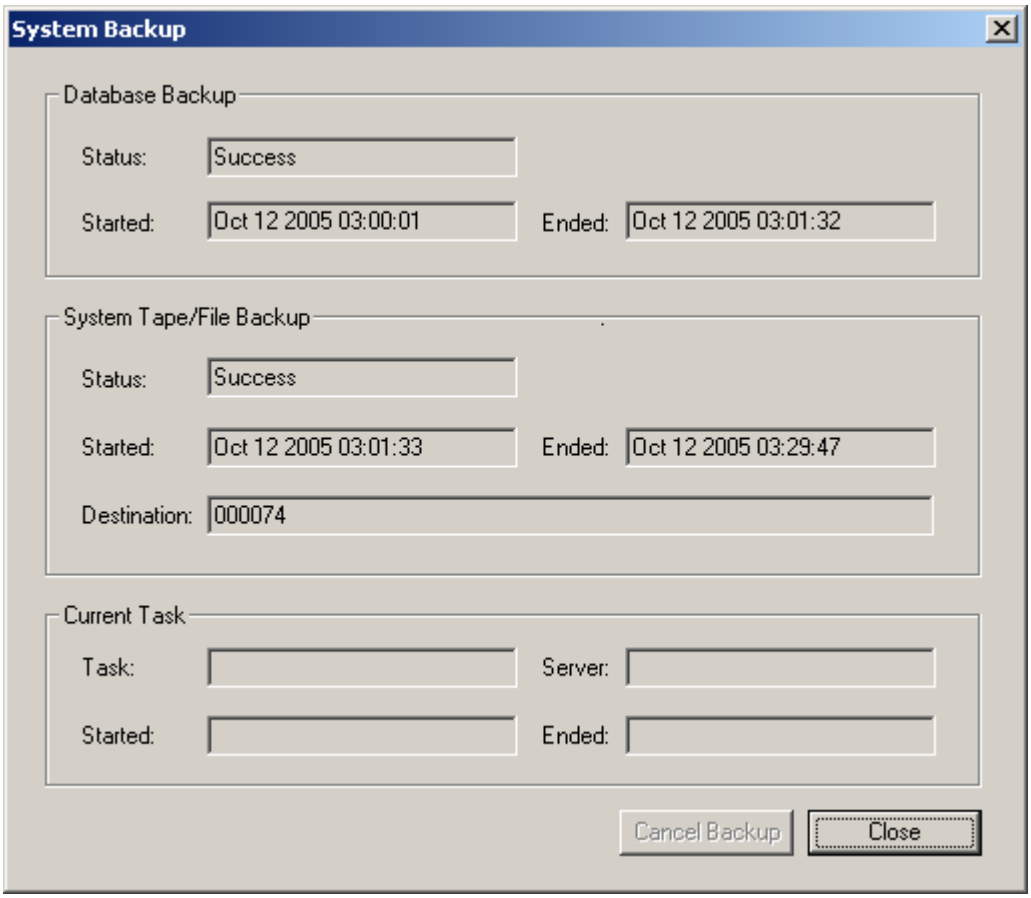
Backup started on 5/9/2001 at 3:01 AM.
Folder System State\Boot Files
ntldr          <RHSA>       214416  12/6/1999   9:00 PM
NTDETECT.COM       <RHSA>       34468  2/8/2001   3:25 PM
Folder System State\Boot Files\D:\WINNT\SYSTEM32\CATROOT\{F750E6C3-38EE-11D1-
85E5-00C04FC295EE}
CATMAST.cbd       <A>         17854  3/20/2001   5:37 PM
```

**NTBackup.log on a remote server**

**AraxiBackupPrimary.log.** This log file is a copy of the primary server **AraxiSystemBackup.log**.

**AraxiSysStateBackupService.log**. This log file is located in the **%AraxiHome%\CreoAraxi\system\log\backup\AraxiSysStateBackupService** folder. This log file contains information associated with running the service. It is useful to software developers and helps track down errors.

8. The status of the backups can be verified by checking the System Backup window in the UADM toolbar (**Tools > System Backup**).




**System Backup window indicating successful finish of Oracle and System backup**

9. Windows Task Scheduler runs the backup check (**AraxiBackupCheck.cmd**) after the pre-configured wait time (default setting is 8 hours). The check should run only once after Prinergy Backup.

10. If a backup fails, a pop-up message appears on all primary and remote servers. The servers where the failure notification message appears are configurable by changing the value of NotifyNodeList reg key (see 6.6 *Disabling Error Message Notification* ). The log files and backup registries should be reviewed.

## 5.3 Prinergy Backup Check

**AraxiBackupCheck.cmd** runs a check of the Prinergy backup 8 hours (default setting) after Prinergy Backup is started. The wait time can be changed (see 6.3 *Changing Wait Time for Prinergy Backup Check*). The check, scheduled by Windows Task Scheduler, verifies the success of the backup of each server in the Prinergy system by checking the registry keys for the status of each backup step. The results of the check are written to a log file and to the registry. If an error is detected, whether a backup step failed, is still running, or never started, the error is reported and a warning message appears on all servers (unless notification is disabled, see 6.6 *Disabling Error Message Notification* ).

When an error is detected, the system should be diagnosed as soon as possible.
See 7 *Diagnostics and Troubleshooting*.

**Note:** If Prinergy Backup is started using some manual methods, the backup check does not get scheduled. See 0 *Manual Startup of Prinergy Backup*.

# 6. CUSTOMIZING PRINERGY BACKUP

Prinergy Backup can be customized, depending on the customer's requirements.

## 6.1 Skipping Backup of Secondaries or Render Stations

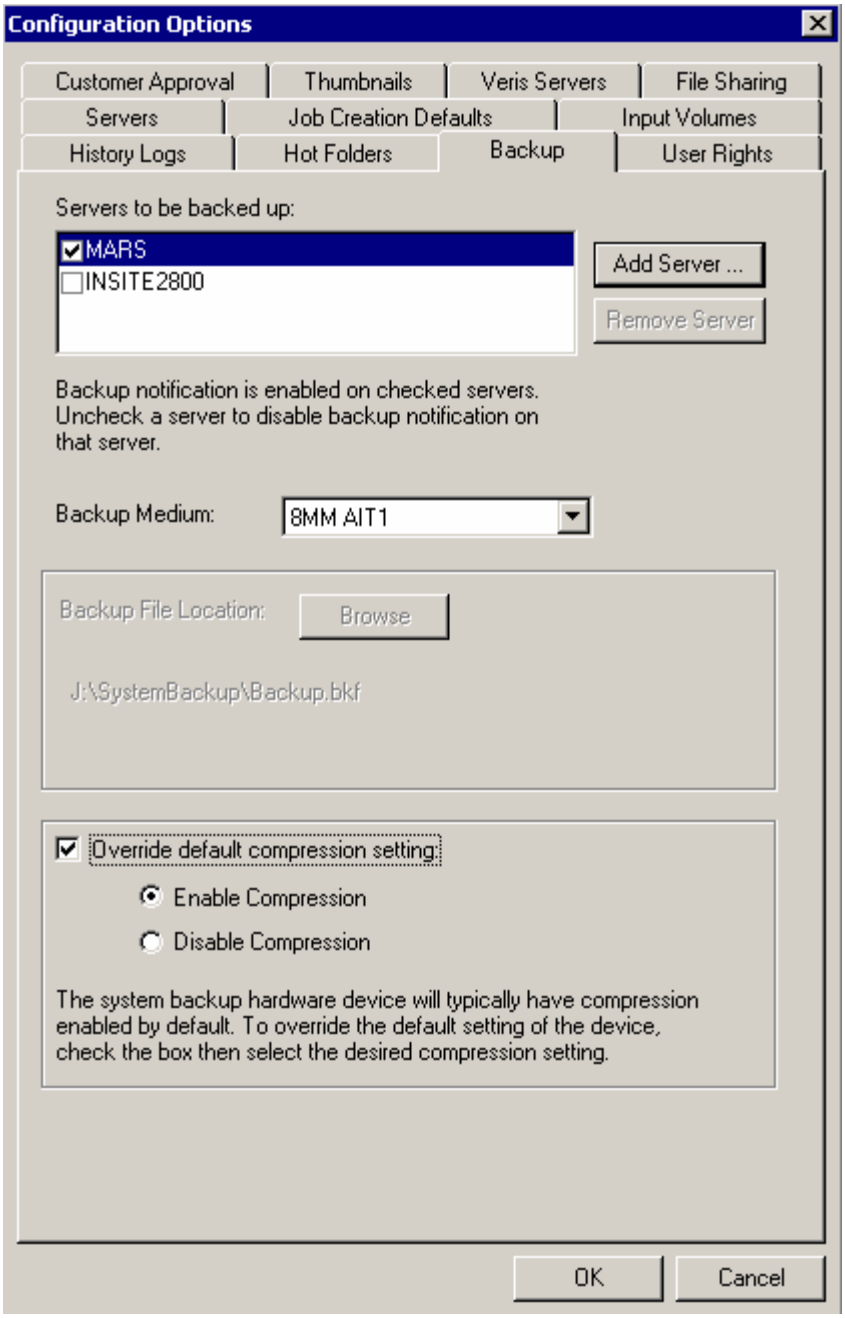
Prinergy Backup can be configured to skip certain secondary servers or render stations. This may be an option in the following scenarios:

- The secondary server/render station configuration is very seldom changed.
- There are too many servers in the Prinergy system and it takes too much time to back up. Backup may hold up archiving and vice versa.
- The backup data does not fit on one tape, and only a stand-alone tape device is being used. Prinergy Backup requires a tape library to support tape spanning.
- The render station is often powered down or is a dual-boot computer and is sometimes used as an Allegro™ workstation.

It is highly advised that the servers and render stations to be skipped have up-to-date ghost images installed. This will enable recovery of the server in case there is a problem.

Secondary servers that run the Archive JTP should not be skipped. Prinergy Backup will check if the Archive JTP is running on the secondary server, and if so, will ensure that that server is backed up.

Remote servers (secondaries, render stations, or InSite servers) can be added or removed from the backup using UADM toolbar (**Tools > ConfigureSystem > Backup**).




**Backup Configuration window**

## 6.2 Changing Backup Start Time

Prinergy Backup is started by the Oracle Backup. The default Oracle Backup_Start_Hour is 3 (for 3:00 A.M.). To change the Backup_Start_Hour, see 3.2 *Configuring Oracle Backup*.

## 6.3 Changing Wait Time for Prinergy Backup Check

The wait time for the backup check can be changed. The wait time should be longer than the time it takes to backup the Prinergy system. The default wait time is 8 hours. With the default settings, the backup check will run a few minutes after 11:00 A.M.

To change the backup check wait time, enter the wait time in hours in the registry key **HKEY_LOCAL_MACHINE\SOFTWARE\Creo\Araxi\Settings\Default\System\Backup\ConfirmatonDelay**.

## 6.4 Changing the Media Type Used by Prinergy Backup

Prinergy supports DLT, 8mm AIT-1, and LTO tapes as well as backup-to-file. To change the media type, start the Prinergy Administrator (UADM), and select **Tools** > **Configure System**. On the **Backup** tab, select the desired media type in **Backup Medium**. Supported media types are DLT, 8mm AIT-1, LTO Accelis, LTO Ultrium, and File. Verify that the **Backup\Prinergy** pool in RSM has the same media type (for tape only).

The default media type is DLT.

See *3.5, Preparing and Allocating Tapes for Prinergy Backup*.

## 6.5 Disabling Automatic Free Media Allocation

Prinergy backup allows disabling of automatic free media allocation. By default, if there are no available tapes in the media rotation, Prinergy Backup will try to allocate a free tape. To disable automatic free media allocation, change the value of the registry key AllocateFreeTape to `0`, see Section 5.3, step 3, registry key for backup.

## 6.6 Disabling Error Message Notification

When a backup error is detected, an error message appears on the screens of the servers in the Prinergy system. The user can specify which servers will receive this notification.

Disabling or re-enabling error message notification can be configured from the UADM toolbar (**Tools > ConfigureSystem**). In the example shown in 6.1, the error message notification has been disabled on Insite2800.

## 6.7 Hardware Compression

The tape device has a hardware compression setting that can be enabled or disabled. It is typically enabled by default.

In Prinergy 3.x, System Backup uses the default compression setting of the hardware device. If the user wants to override this default, they do it using the UADM toolbar (**Tools > Configure System > Backup**).

Note that the UADM does not detect the compression setting of the hardware device. So, if the compression setting of the hardware device was disabled, then overriding it in the UADM and setting it to disabled would have no effect.

# 7. DIAGNOSTICS AND TROUBLESHOOTING

This section describes where to locate information about a backup that can be used in diagnosing backup errors, and troubleshooting tips for backup problems being experienced. You can also refer to the Prinergy TechPlanet site Troubleshooting page, which contains up-to-date problem descriptions and workarounds.

## 7.1 System Backup Window

The System Backup window shows the backup start date/time, end date/time, and status (Running, Success, or Failed) of the Oracle backup and the tape/file backup. If the backup is running, the window also shows the current task (for example, System Disk Backup), the task start date/time, and the server being backed up. See an example of the System Backup window in section 5.1.3.

## 7.2 Backup Registry

Information about each backup step is contained in the backup registry on the primary server under **HKEY_LOCAL_MACHINE\Software\Creo\Araxi\Settings\Default\System\Backup**. There is a primary registry key, a remote key and a local key for each remote server, and an Oracle key. The remote key contains information about the System state backup that runs on the remote server, and the local key contains information about the system disk and system state file backup that runs on the primary server. Most of these keys hold general information about the backup step, such as start time, end time, and target, including the following:

- `Confirmed`: The purpose of this key is to prevent problems such as the backup working on day 1, but failing at the very start on day 2. If the backup didn't get far enough to change the registry, the Status registry key will still show `Success` from day 1. When the backup check runs 12 hours later, it will report that everything is okay. To prevent this, the Confirmed key is set at the end of the backup check and cleared when NTBackup starts. If this key isn't clear when the backup check starts, it means the particular backup step was never run and the current 'status' is from a previous backup.

- `Status`: `Running`, `Success`, or `Failed`.

For more information about the backup registry keys, see step 3 of 5.2 *What Happens During Prinergy Backup?*

## 7.3 Errors Appearing in the Backup Log

Immediately after each NTBackup step finishes, the NTBackup log file is parsed to confirm that the step was successful. This is done by searching for a start/end message pair for each target in the backup step. For example, the normal primary server backup has three targets (system state, system disk, and Oracle database backup folder). After a primary server backup, the NT log is parsed for three start and three end messages. If these are found, the backup is considered successful; otherwise it is considered to have failed. All errors are shown in the backup log and also written to the DIAG viewer if Prinergy is running.

## 7.4 AraxiBackup Command Parameters

For testing purposes, **AraxiBackup.cmd** can be run with the following parameters:

- Primary (AraxiBackup Primary): Skip backing up the secondary servers.
- Test (AraxiBackup Test): Back up the primary and secondary test folder **%AraxiHome%\lib\python\com\creo\araxi\NTBackup\AraxiBackupTestFolder** and the secondary system state to backup media. The test folder will be created if it does not exist.

## 7.5 Tape Identifiers

Tape identifiers in the RSM and NTBackup are different, so an explanation of how the backup scripts handle this is required. This information may be useful when querying the RSM database.

To back up to a specific tape, Prinergy Backup uses the tapes' Logical Media GUID. Prinergy Backup maintains a list in the registry of the Logical Media GUID of the tapes in the media rotation (TapeGUIDList). When a backup is started, the TapeGUIDList is rotated and the first tape in the list is used in the NTBackup command.

Tape Identifier Equivalents

| RSM GUI | RSM Cmdline | NTBackup Cmdline |
|---|---|---|
| media name | physical_media | - |
| side name | partition | - |
| | logical_media | tape GUID |
| info | - | tape name |
| description | - | - |

## 7.6 Problems and Solutions

The following table lists backup problems, possible causes, and solutions:

| Problem | Possible Cause | Solution |
|---|---|---|
| Oracle Backup did not run. | Oracle Backup is not in the Windows Task Scheduler. | Run Backup Start in the Oracle Backup Manager and verify that the Oracle Backup script is scheduled to occur daily. (See *0* *Configuring Oracle Backup Manager* Scheduler.) |
| | Oracle Backup Manager instance is still open and locking the configuration file. | Close any open Oracle Backup Manager window before the scheduled backup. |
| | Wrong Oracle Backup configuration | Check the configuration. (See *3.2 Configuring Oracle Backup*.) |
| Prinergy Backup did not run. | The **SuccessfulBackup.cmd** was not configured. | Check the configuration. (See *3.4 Configuring the Backup Command Files*.) |
| | There are no online Prinergy Backup tapes and there is no available tape in the Free pool. | Check the media pools or physical locations under Removable Storage in Computer Management. Verify that the scheduled Prinergy Backup tape is online. The scheduled tape is the tape with the oldest backup data. |

| Problem | Possible Cause | Solution |
|---|---|---|
| Prinergy Backup did not run. | The AraxiBackupManager service logon account is not correct. | In the Service Properties dialog box, verify that the service has the same logon (username and password) as the Araxi service. |
| Remote server system state was not backed up. | The AraxiSysStateBackup service logon account is not correct. | In the Service Properties dialog box, verify that that the backup service has the same logon (username and password) as the Araxi service. |
| | The secondary server was down, or not in the network when the backup was started. | Check network connectivity between the primary and secondary server. Check the logs in the primary server for the error message. |
| Remote server was not backed up to tape. | The remote server was down or not in the network during the backup. | Check network connectivity between the primary and remote server. Check the logs on the primary server for any error message. |
| | Not enough space in the media and there is no available tape in the Free media pool. | Verify whether a message appeared on the primary server, requesting a free media. If so, prepare a tape and make sure it is in the free media pool. Do this again for the other media sets. (See *3.5 Preparing and Allocating Tapes for Prinergy Backup*.) An alternative is to use a higher capacity tape. |
| Mount gets queued in Work Queue indefinitely. | An application failed to dismount the drive. | Verify whether there is a tape in the drive, and what the drive status is. If no application is using the tape, it should be shown as dismountable in the RSM snap-in. If the state is loaded, manually dismount the tape in the drive. |
| RSM cycles in mounting, cataloging, and dismounting a tape. | The on-media label does not match the RSM label in the RSM database. | Change the Inventory method of the library to Full and initiate a full inventory of the library. This will force RSM to update its database with the on-media label. If this fails, do the ff:<br>1. If this does not clear the problem, eject the tape.<br>2. Deallocate the tape and delete it from RSM.<br>3. Inject the tape and let the tape device do an inventory.<br>4. RSM will place the tape in the Import Media pool.<br>5. Drag the tape to the pool it originally belonged to.<br>6. Verify that the problem is fixed.<br>7. Change back to the original inventory method used. |

| Problem | Possible Cause | Solution |
|---|---|---|
| Cannot catalog the backup sets. | Sometimes the on-media catalog is damaged and cannot be loaded to the on-disk catalog. | In NTBackup Options (**Tools > Options > General**), clear the **Use the catalogs on the media to speed up building restore catalogs on disk** check box. Catalog will be created from the content of the media. |
| Cannot restore from a multi-tape media set. | A tape in the media set may be damaged. | Rebuild the on-disk catalog without using the on-media catalog. In NTBackup Options (**Tools > Options > General**), clear the **Use the catalogs on the media to speed up building restore catalogs on disk** check box. Catalog will be created from the content of the media. Only data from the good tape can be restored. |
| Remote server system backup takes a long time. | Backup of a remote server to tape should take less than an hour on a busy system. There may be a problem in the network. | Check the network connection. Run **netperf** between the primary server and the secondary server/render station. Results on an idle system should be about 90 Mbps for a 100 Base T network. |

# 8. RECOVERING A PRINERGY SYSTEM USING BACKUP TAPES

This section describes the procedures for recovering a Prinergy system by using the data backed up to tape during Prinergy Backup. All hardware problems should be fixed before performing the recovery procedure. Restoration from tape should be the last recourse in trying to get the servers back online.

The following documents may be required during the recovery procedure (the latest versions can be downloaded from TechPlanet.

- *Upgrading Dell Server Agent* (72-3650)
- *Win2K Install from Dell Ghost for Prinergy* (DG all, Dell)(72-3476B-U)
- *Dell 8G Server. Applying a Windows 2000 Ghost* (Dell PE800, PE830, PE2800, PE2850)(709-00384A-C)
- *Win2K Install from Ghost on HP Servers* (ML110, ML370, DL380)(709-00300A-B)
- *EPM and EPM+ Emergency Platemaking and Veritas Storage Replicator Installation and Operation* ( 717-00126)
- For secondary servers and render stations:
  - *Dell Opti GX280 HW Setup and Ghost Install* (GX280)(709-00319A-B)
  - *Dell Opti GX620 HW Setup and Ghost Install* (GX620)(709-00584A-A)

## 8.1 Recovering the Primary Server

When a primary server fails, data recovery from tape may be required. However, recovery using the mirrored drive should be tried first. Refer to the previous procedures for specific platforms.

**WARNING:** *Before reghosting the system drive, shut down and turn off the server and disconnect any internal/external RAID that is physically connected to the server to be ghosted. This will prevent erroneously selecting the RAID as the ghost target drive.*

If the setup includes a tape library, eject all tapes other than the Prinergy backup tapes. This will save time by eliminating the need for RSM to inventory all tapes during the system startup. It will also prevent accidental erasures of the tapes.

### Restoring the Operating System of the Primary Server

Use one of the appropriate ghost image procedures listed previously to ghost the whole system, run the Sys Prep Tool Mini-setup wizard, add new hardware and set up disks (if necessary), synchronize server name references, and install and configure DLT/AIT tape device or connect to the network to be able to run NTBackup to restore the backup set on the tape/file for the system.

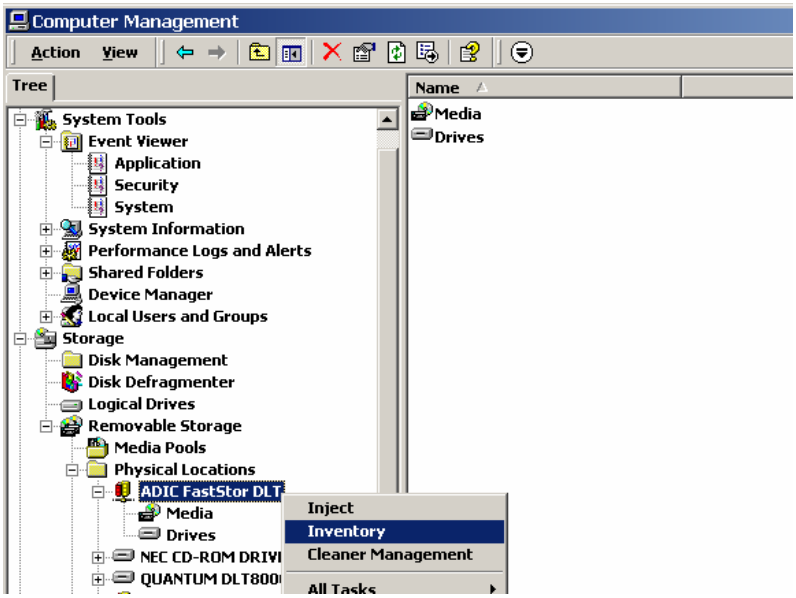
Verify that the **DataLog** (or **Temp**) drive is assigned drive letter **E**. If not, change the **DataLog** drive letter to **E**. Note that you may need to change the temp variable first in order to open Computer Management.

Replace all hard drives and RAID connections and restart the server. If any of the physical disks are marked as failed (as in the PERC controller), it must be forced online.

### Recovering the Backup Sets

**To copy the latest backup sets from backup media to the primary server:**

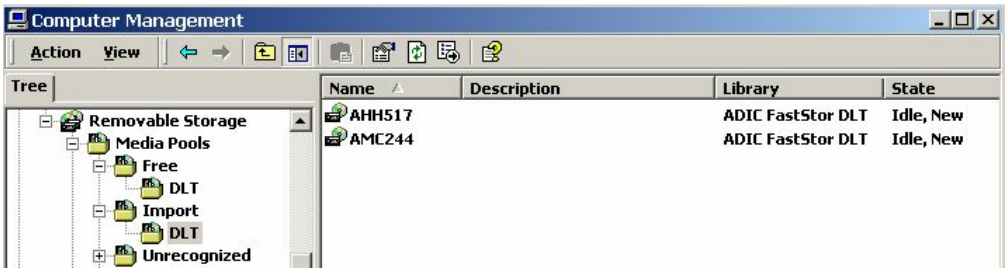
1. Verify that you are logged in as an administrator on the primary server.
2. On the primary server, open **%AraxiHome%\CreoAraxi\system\log\backup\AraxiSystemBackup.log**, copies of which are also kept in **<Data Drive>\AraxiBackup** and on the secondary servers as **%AraxiHome%\CreoAraxi\system\log\backup\AraxiBackupPrimary.log**. Verify which was the last tape used for the Prinergy backup and whether the primary server backup was successful. If the last backup was not successful, verify where the backup failed. If the backup is not useable, use the backup set from the next latest backup tape.
3. Make sure that the backup tapes are in the tape device. If inventory is not automatically carried out, manually inventory the tape device if using tape in the RSM GUI.




**Initiating an inventory of a tape drive**

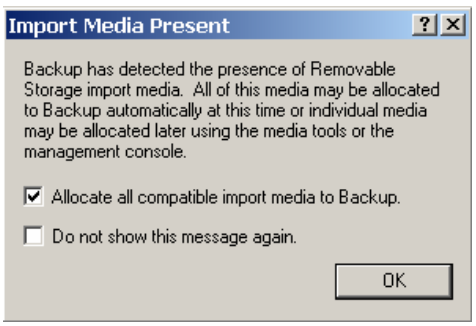
4. For tape backup media, verify that the backup tapes are in the media pool **Import\DLT**. If the inventory has completed (verify from the Work Queue), and the tapes do not appear in the **Import\DLT** pool, try refreshing the **Import** pool (right-click **Import** pool and select **Refresh**).

   **Note**: It may appear in the import\8mm AIT-1 pool if using AIT tape device. The following screen shots show a DLT tape device.



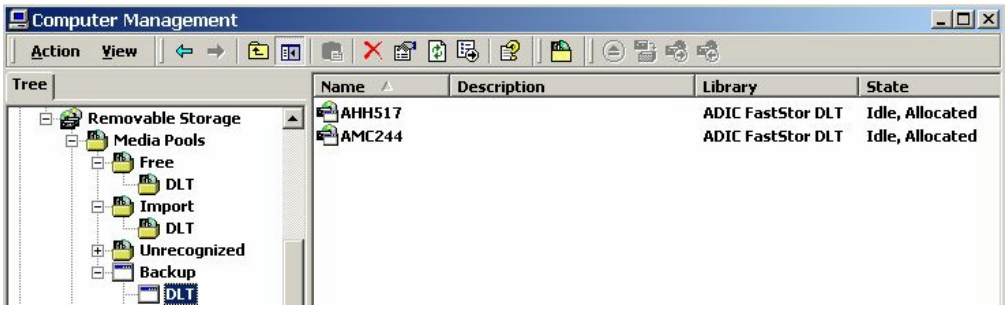

**Import\DLT media pool**

5. Start the NTBackup GUI. An Import Media Present dialog box appears if you are using tape backup media only. Select **Allocate all compatible import media to Backup**. Select **OK**. The NTBackup GUI opens.



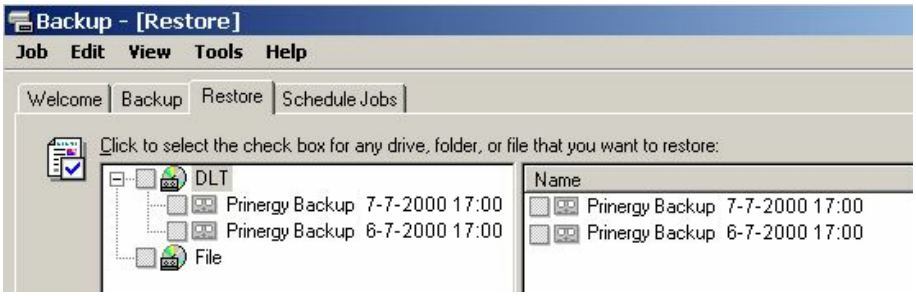

**Import Media Present dialog box**

6. If the media type is tape, locate the media pools in Computer Management. The **Backup \media type** pool is created the first time NTBackup starts and a tape device is used. Verify that the backup tapes are in the **Backup\DLT** pool. If the tapes are not in the **Backup\DLT** pool, they can be dragged manually from the **Import\DLT** pool.



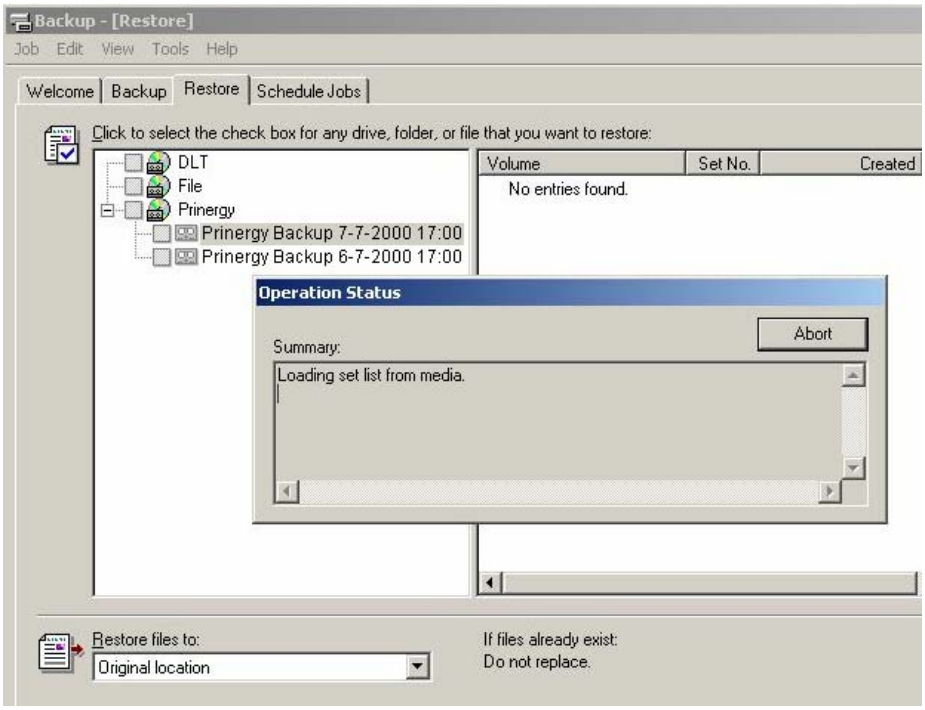

**Backup\DLT media pool**

7. In the NTBackup GUI, select **Restore** and double-click the media type (DLT, AIT-1, or File, and so on). Verify that the Prinergy tape or file backup set is listed under the media type tree.



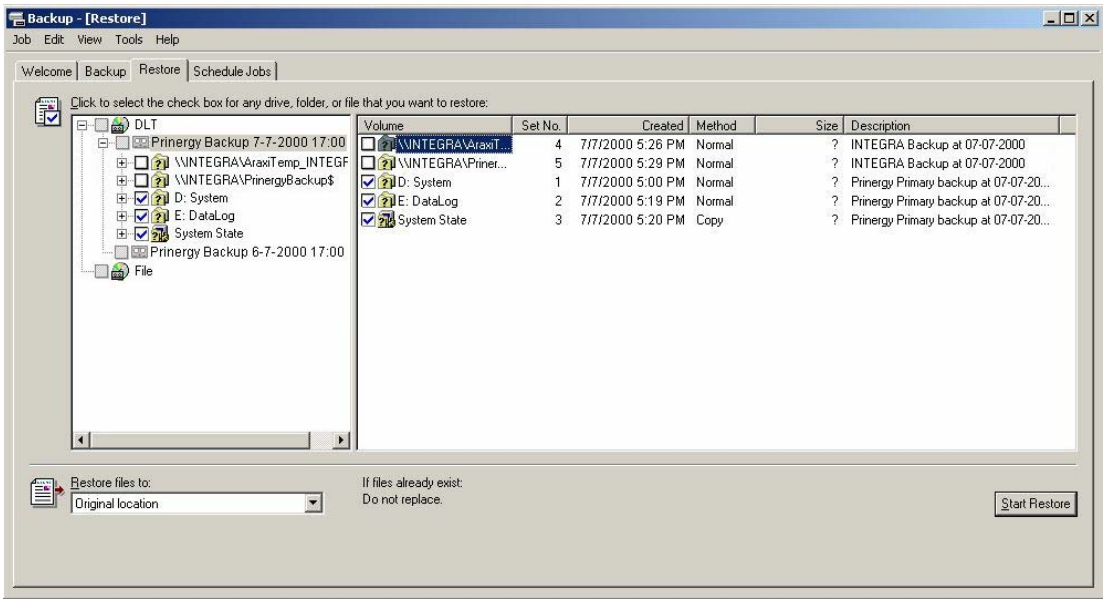

**Restore tab in NTBackup GUI**

8. In the left pane, double-click the backup tape or file with the latest successful backup, as verified in step 2, to retrieve the backup set list from the media. Wait until the load operation is finished.




**Loading the backup set list**

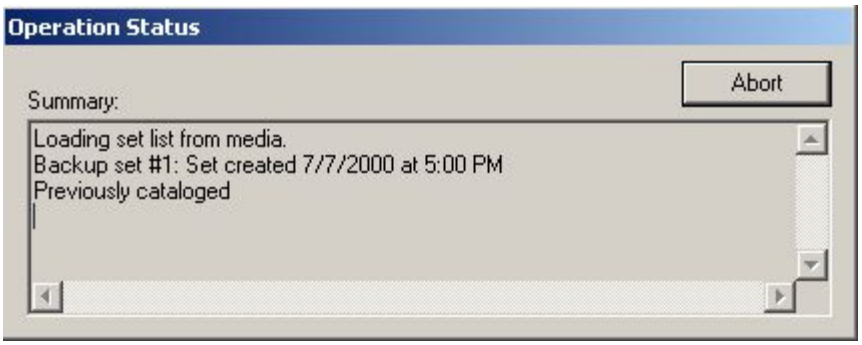
9. The backup set list in the tape is displayed. Verify that the dates shown in the Created area match the information in the Prinergy Backup logs.




**Backup set list**

10. The contents of the backup sets can be viewed (though this is not needed to restore the whole backup set) by double-clicking them. This should load the on-media catalog to the disk. If this fails, as shown by not being able to browse the contents of the backup set and with the backup set still showing the ? symbol, open the Options window by selecting, **Tools** > **Options**. On the **General** tab, clear the **Use the catalogs on the media to speed up building restore catalogs on disk** check box. Double-click the backup set to re-catalog it.

**Note:** There are instances when the update of the on-disk catalog from the on-media catalog fails. Tests were done on different systems with the same tape device, operating system, and backup sets. On one system, the update went fine while on the other, the catalog couldn't be updated. A workaround is to select **NTBackup > Tools** > **Options**, then **General** and clear the **Use the catalogs on the media to speed up building restore catalogs on disk** check box.



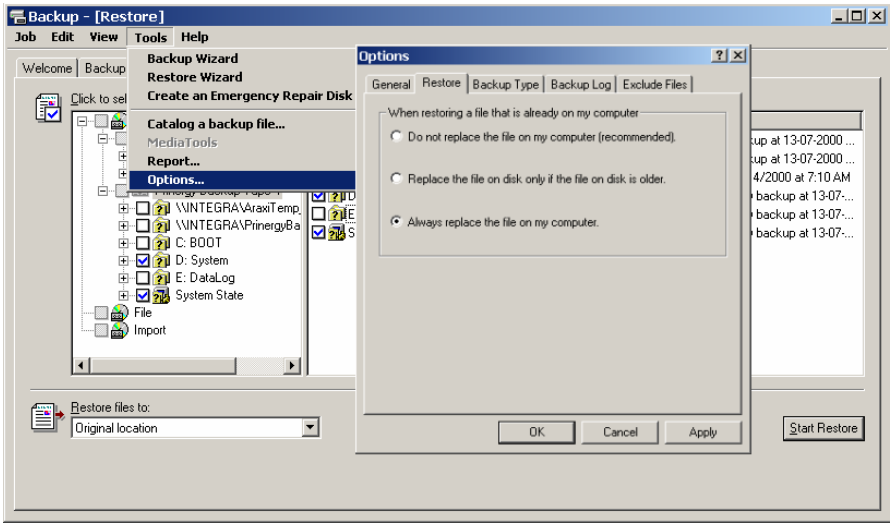

**Cataloging failure – Operation Status dialog box shows the backup set was previously cataloged**

## Recovering Data From the Media

Once the backup sets have been copied from tape to the primary server, the data in these backup sets can be used to restore the primary server.

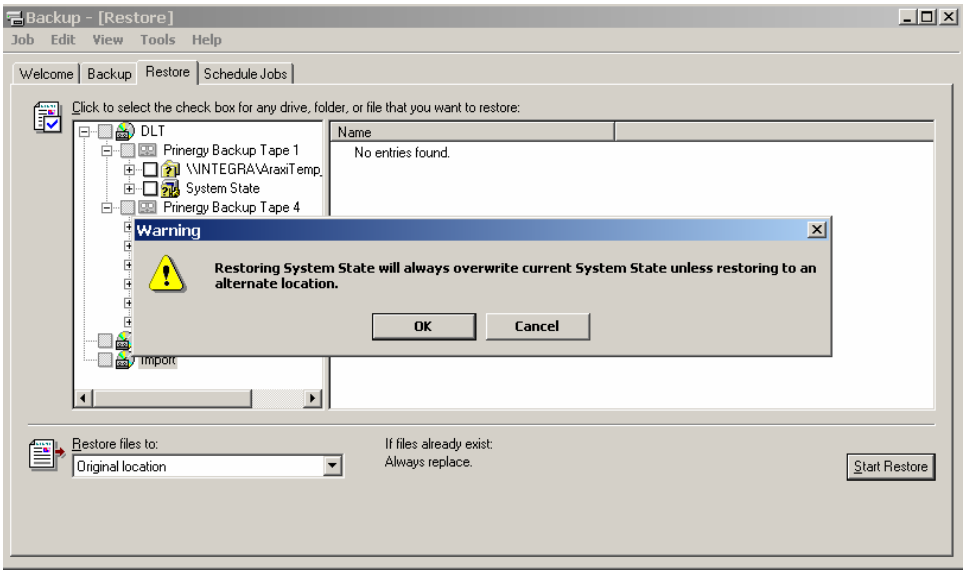
1. Select the check box in the **Backup** set list for the backup sets you want to restore. Normally, these are **D: System**, **system state**, and **E: DataLog**.

2. In the **NTBackup** menu, select **Tools** > **Options** to open the Options window. On the **Restore** tab, select **Always replace the file on my computer**. Select **Apply > Backup Log > Detailed**. Click **OK** to close the Options window.



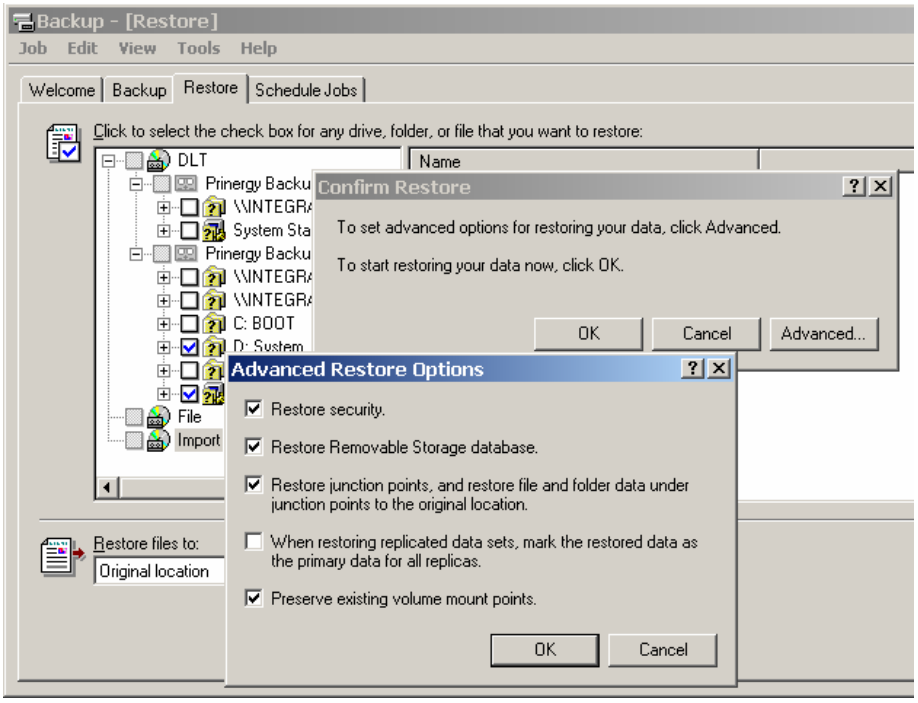

**Restore Options dialog box**

3. Select **Start Restore**. Select **OK** in the Restoring system state Warning dialog box.




**Warning dialog box when restoring system state**

4. In the Confirm Restore dialog box, select **Advanced**. In the Advanced Restore Options dialog box, select the check box for **Restore security**, **Restore Removable Storage database**, **Restore junction points**, and **Preserve existing volume mount points**. Click **OK**.




**Advanced Restore Options dialog box**

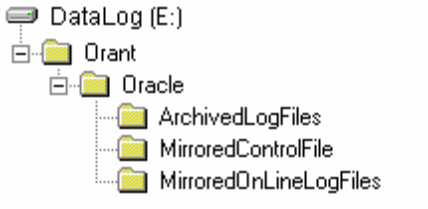
5. In the Confirm Restore dialog box, click **OK** to start the restore process. This may take from 10 to 30 minutes, depending on the restore set, tape, and tape drive used.

6. When the restore is finished, a dialog box appears announcing that the Removable Storage database files have been set up to be restored. Click **OK**.

7. If a File Replace Warning dialog box appears and asks for the Windows 2000 CD, click **Cancel**.

8. In the Restore Progress dialog box, select **Report** to review the restore log. Search for the words *error* and *failed*. Verify that there are no errors. Do not close the NTBackup Restore Progress dialog box.

9. Perform this step *only* if the **DataLog** drive (also known as **E** or **Temp** drive) was restored. This may only be needed for systems with the system drive (**D**) and the DataLog drive (**E**) in the same physical disk (for example, Dell PE6400). Create the following folder structure in the **DataLog** drive **E**.




10. Check the drive letter assignments under Disk Management. Open **D:\Ora816\database\initcreo.ora** using a text editor. Look for the line `control_files = (E:\Orant\…\ctl1creo.ora, J:\Orant\…\ctl2creo.ora`, to verify the RAID (Data Drive) letter (usually J or G). Change the RAID letter using Disk Management if required. Note that if the drive letter is wrong, share for the RAID will not get created on next restart and it must be created manually (for example, **AraxiVolume_<Server>_J**).

11. Perform this step *only* if the **DataLog** drive (also known as **E** or the **Temp** drive) was restored. This may only be needed for systems with the system drive (**D**) and the **DataLog** drive (**E**) in the same physical disk (for example, Dell PE6400). Open Windows Explorer. Copy the Oracle control file (rename to **CTL1CREO.ORA**) and online log files from the **Jobs** drive (usually **J**) to the **DataLog** drive (usually **E**).

    - Copy **J:\Orant\Oracle\ControlFile\CTL2CREO.ORA** to **E:\Orant\Oracle\MirroredControlFile\CTL1CREO.ORA**.
    - Copy **J:\Orant\Oracle\OnLineLogFiles*.*** to **E:\Orant\Oracle\MirroredOnLineLogFiles*.***

    Close Windows Explorer.

12. In the NTBackup Restore Progress dialog box, click **Close**.

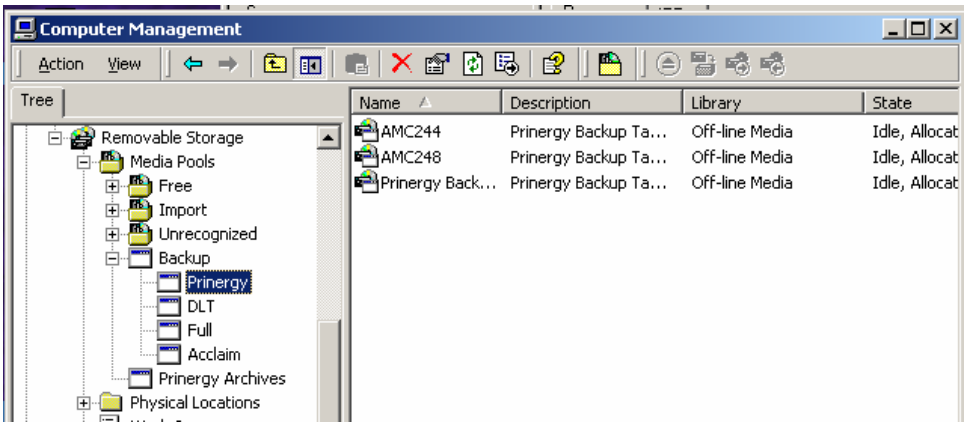
13. Restart the computer.

## Restoring the Removable Storage Database (only required if a tape device is used)

This section explains how to check the Removable Storage Database and how to restore the database if the restore in 0 *Recovering Data From* failed.

**Note:** The restore of the Removable Storage Database always fails when carried out at the same time as the system and system state restore. Perform the following procedure until you resolve this issue.

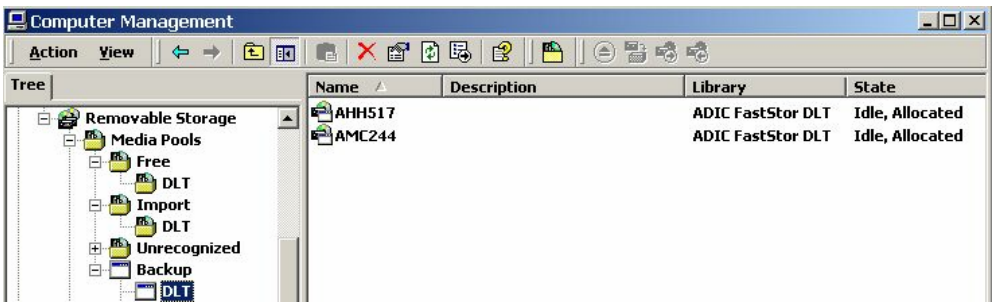
1. Verify that you are logged in as an administrator, or an account with administrator privileges.
2. Open Computer Management by right-clicking **My Computer > Manage**.
3. Verify whether the Removable Storage Database was restored properly when the data was restored as described in 0 *Recovering Data From* Verify that the **Prinergy** pool is listed under Media Pools (**Computer Management\Storage\Removable Storage \Media Pools\Backup\Prinergy**).




**Prinergy Backup media pool**

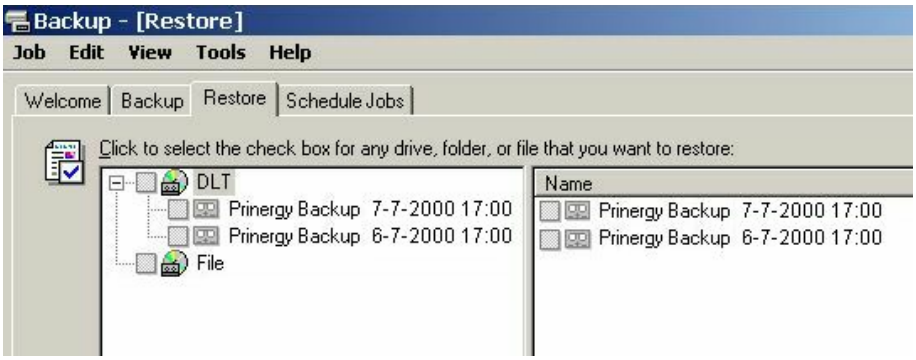
**Note**: If the previous procedure successfully restored the Removable Storage Database, skip the rest of this section.

4. If the Removable Storage Database was not restored, start the NTBackup GUI.
5. For tape backup media, locate the media pools in Computer Management. Verify that the backup tape with the last good backup (as verified in 0 *Recovering the Backup Sets*) is in the Backup\DLT or 8mm AIT-1 pool.



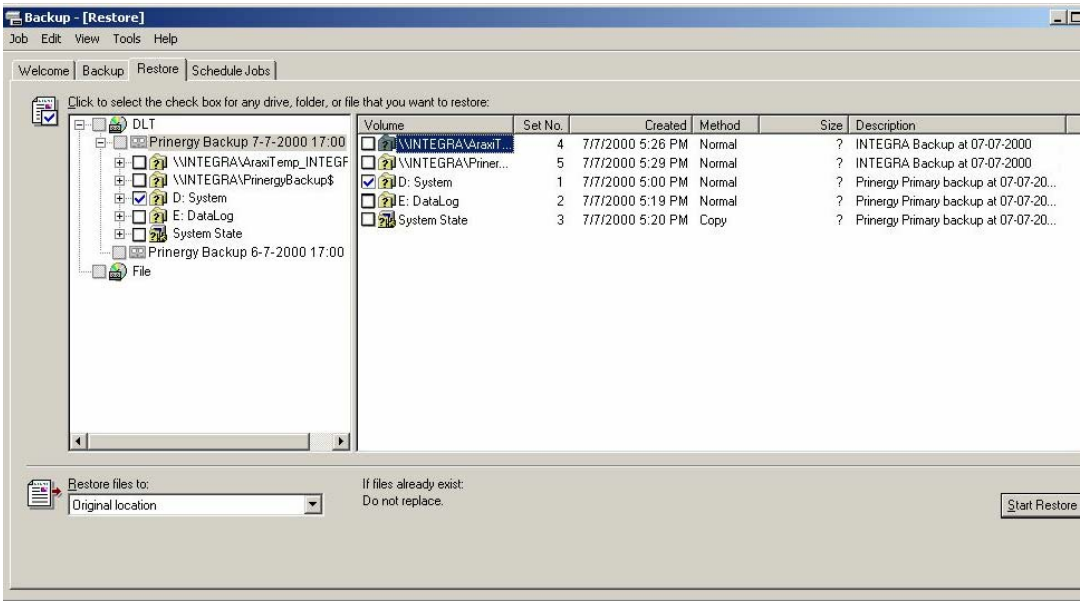

**Locating the media pool**

6. In the NTBackup GUI, select **Restore** and double-click the backup media type. Verify that the Prinergy tapes or file backup sets are listed under the media type.



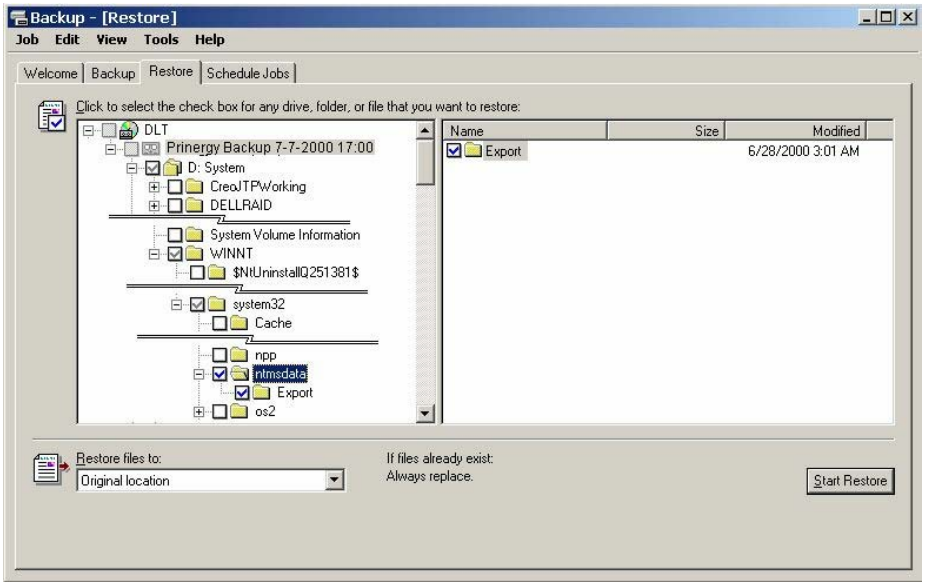

**Restore window in NTBackup**

7. Double-click the backup tape or file with the latest successful backup to retrieve the backup set list from the media. Wait until the load operation is finished. The backup set list on the tape is displayed.



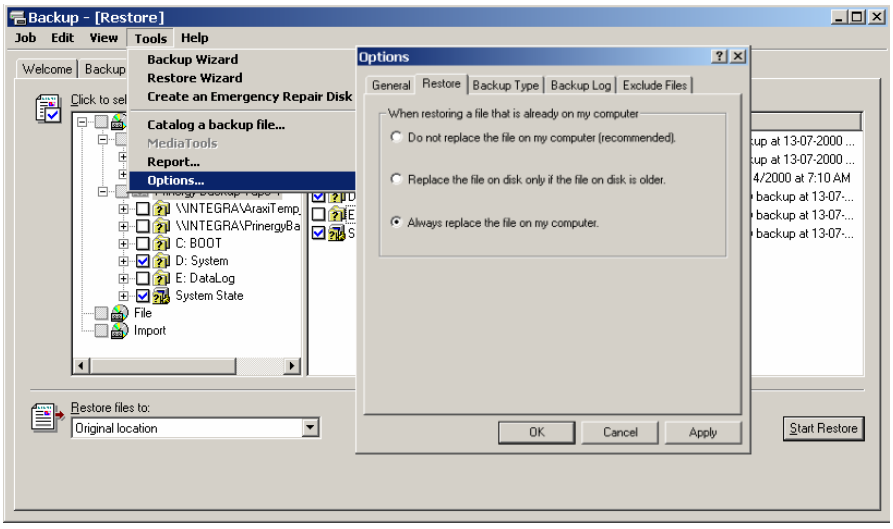

**Backup set list in the Restore window**

8. Double-click **D: System** to load the catalog of this backup set. If the Removable Storage Database to be restored is on a secondary server, the correct backup set is **<\\secondaryname\PrinergyBackup$>**. Locate **D:System\WINNT\system32\ntmsdata**. Select the **ntmsdata** folder.



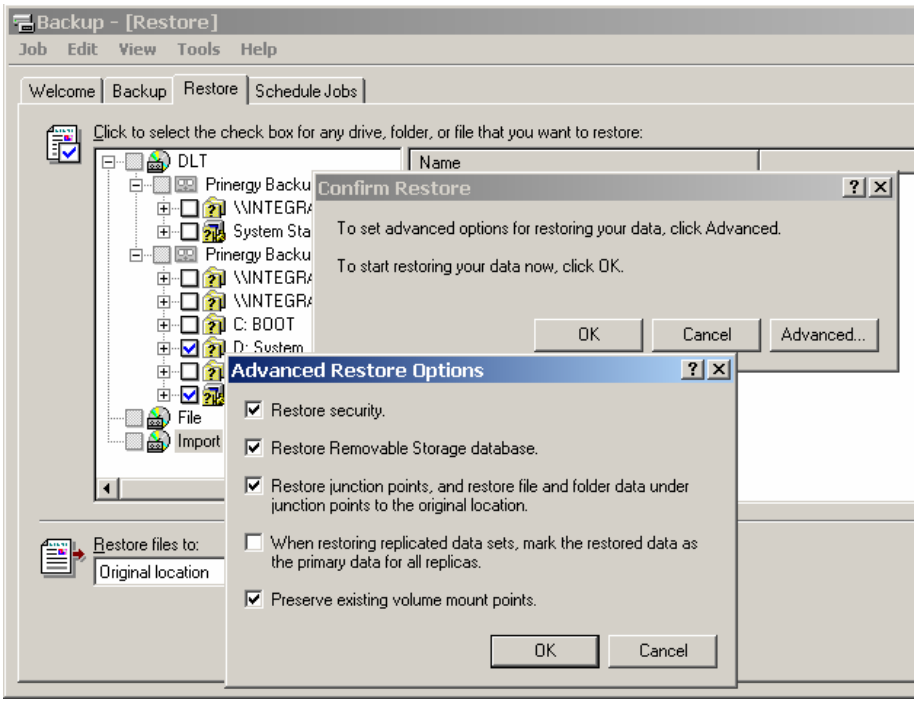

**Locating backup set folders**

9. From the NTBackup menu, select **Tools** > **Options** to open the Options window. On the **Restore** tab, select **Always replace the file on my computer**. Select **Apply** > **Backup Log** > **Detailed**. Click **OK**. Select **Start Restore**.




**Options dialog box**

10. In the Confirm Restore dialog box, select **Advanced**. In the Advanced Restore Options dialog box, select **Restore security**, **Restore Removable Storage database**, **Restore junction points**, and **Preserve existing volume mount points**. Click **OK**.




**Advanced Restore Options dialog box**

11. In the Confirm Restore dialog box, click **OK** to start the restore process.
12. After the restore is finished, a Removable Storage dialog box will appear. Click **OK**.
13. In the Restore Progress dialog box, select **Report** to review the restore log. Verify that there are no errors.
14. In the NTBackup Restore Progress dialog box, click **Close**.
15. Restart the computer.
16. When the computer starts up, log in as an administrator.

## Checking Dell Open Manage Server Agent

**Note:** This section only applies to Dell servers.

1. Check the Events Viewer system log.
2. If there is an error with the mr2kserv service with the message:
   `The mr2kserv service failed to start due to the following error: The service did not respond to the start or control request in a timely fashion`
   proceed with the procedure. If there is none, skip to the next section.
3. Uninstall the Dell Server Agent. See *Upgrading Dell Server Agent* (72-3650).
4. Install the latest Dell Server Agent. See *Upgrading Dell Server Agent* (72-3650).

5. Restart the server and log in as an administrator. Verify that there is no error starting the mr2kserv service in the Events Viewer system log.

### Placing the Primary Server Back Online

To place the primary server back online:

1. Verify that you are logged in as an administrator, or as a user with administrator privileges.
2. Verify whether Prinergy is running. If not, start Prinergy on the primary server by right-clicking the server icon in the Prinergy GUI, and selecting **Start Prinergy**.
3. Start Prinergy DiagView by selecting **Start > Programs > Prinergy > Diagnostics**. Note any errors in the DiagView.
4. Verify that Prinergy starts and that all the JTPs on the primary server are running. When the primary server is running, start Prinergy on the secondary servers.
5. Test the Prinergy system by processing some jobs.
6. Eject the backup tape used for the recovery (this is the tape containing the last good backup) to preserve it until the server is confirmed to be running properly. Note that this tape has been assigned a different identifier by RSM and it will not be identified properly by Prinergy Backup. The old instance of the tape should be deallocated from **Backup\Prinergy** pool and then deleted from the RSM.
7. Verify that the required number of tapes for the media rotation scheme used is allocated to **Backup\Prinergy** pool. Prepare and allocate tapes as needed (see 3.5 *Preparing and Allocating Tapes for Prinergy Backup*) and initiate a backup using the Oracle Backup Manager `Backup Database` command (see 0 *Manual Startup of Prinergy Backup*). After the backup, perform a manual check by running **AraxiBackupCheck.cmd** at the command prompt (see step 6 in 4.1 *Testing Prinergy Backup*). Delete the scheduled backup check from the Windows Task Scheduler.
8. Make sure that there is a scheduled **SubmitOracleBackupJob.cmd** in the Windows Task Scheduler. If not, run the command `Backup Start` in the Oracle Backup Manager (see *0*

9. *Configuring Oracle Backup Manager* Scheduler.)

The system is now ready for regular production work.

## 8.2 Recovering a Secondary Server

When a Prinergy secondary server fails, data recovery from tape may be required. However, restoration from tape should be the last recourse in trying to get the server back online. All hardware problems should be diagnosed and fixed before restoring data from the tape.

**WARNING:** *Before reghosting the systems drive, shut down and turn off the server and disconnect any internal/external RAID physically connected to the server to be ghosted. This will prevent erroneously selecting the RAID as the ghost target drive.*

### Verifying the Secondary Server Backup Status

1. On the primary server, open the System Backup window from the UADM toolbar or the Registry Editor and verify whether the last backup was successful. If the last backup was not successful, open the log files on the primary server **%AraxiHome%\ CreoAraxi\system\log\backup** folder to determine where the backup failed. If the backup is not useable, check the other log file to find out which is the latest successful backup.

2. From the registry **HKEY_LOCAL_MACHINE\Software\Creo\Settings\Default\System \Backup\Secondaries\ <secondary_server>\Remote**, check the destination folder of the system state backup of the secondary server to be restored (this is usually **<AraxiTemp>\ AraxiBackup**). Verify whether the system state backup was successful. If it was not successful, use the system state backup from the previous day's tape.

### Restoring the Operating System of the Secondary Server

Use one of the appropriate ghost image procedures and backup tapes to reghost the whole system, run Sys Prep Tool Mini-setup wizard, add new hardware and set up disks (if necessary), synchronize server name references, and run NTBackup to restore the backup set on the tape/file for the system.

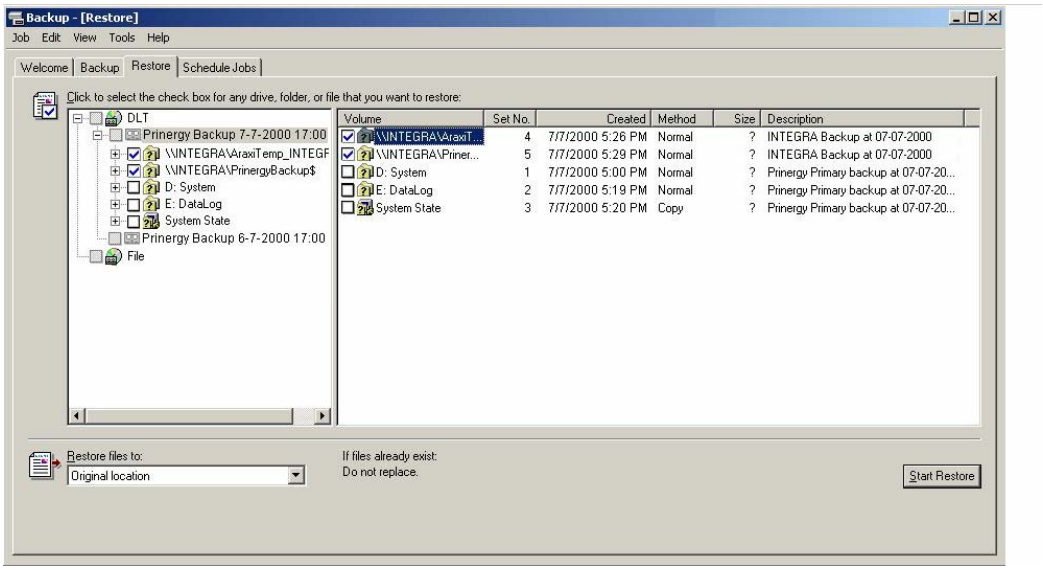
Reconnect all hard drives and RAID connections and restart the server. If any of the physical disks are marked as failed (as in the PERC controller), it must be forced online.

### Recovering the Secondary Backup Sets

**To copy the latest backup sets from backup media to the secondary server:**

1. On both the primary and secondary servers, log in as an administrator.

2. Open NTBackup on the primary server. Select **Restore**. In the left pane, double-click **Prinergy** or **File** for file backup media and then double-click the backup media that the last good backup is on (as verified in 0 *Verifying the Secondary Server Backup Status*). Wait for the backup set list to be loaded from the media.




**Backup sets in the Restore window**

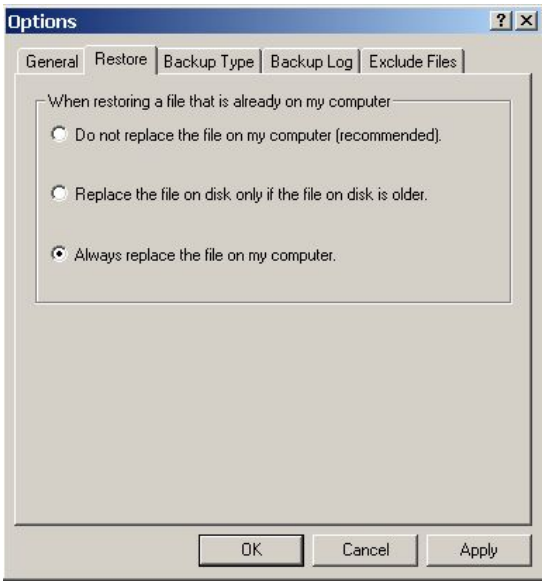
3. The dates in the **Created** column in the right pane of the window should match the date in the System Backup window or the registry as verified in 0 *Verifying the Secondary Server Backup Status*.

## Recovering the System State Backup File

1. Verify whether the system state backup file of the target secondary server is still intact in its local drive (usually **<AraxiTemp>\AraxiBackup\SysStateBackup.bkf**). If it is, do not restore the backup set of the system state (**\\<*ServerName*>\AraxiTemp_<*ServerName*>_E**) and skip to *0 Recovering the System Drive.* If the system state backup file is no longer available, select **\\<*ServerName*>\AraxiTemp_<*ServerName*>_E** to select the system state backup set of the target drive. See the screen shot in the previous section.

2. In the **Restore files to** list, select **Alternate location**. In the **Alternate location** box, type `\\<ServerName>\E$`, or use **Browse** to navigate to the target share.

3. Open the Options window by selecting **Tools > Options**. On the **Restore** tab, select **Always replace the file on my computer**. Click **OK**.




**Restore options**

4. Select **Start Restore**. In the Confirm Restore window, click **OK** to start the restore process. Wait for the restore to complete (a few minutes, depending on the type of tape and drive used).

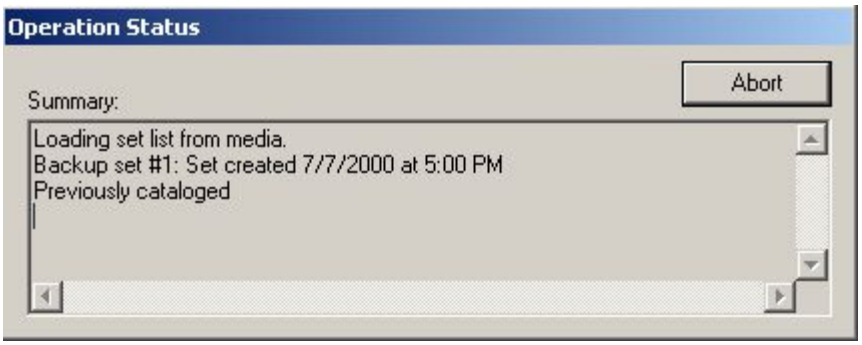
5. In the Restore Progress window, select **Report**. This will open the restore log file. Search for the words *error* and *failed*. Verify that there are no errors in the restore process. In the Restore Progress window, click **Close**.

## Recovering the System Drive

1. Select **\\<*ServerName*>\PrinergyBackup$** to select the system drive backup set of the target server. See the screen shot in section 8.2.3 *Recovering the Secondary Backup Sets*.

2. To view the contents of the backup sets of the target server, double-click (**\\<*ServerName*>\AraxiTemp_INTEGRA_E** and **\\<*ServerName*>\PrinergyBackup$**). This should load the on-media catalog to the disk. If this fails (you cannot browse the contents of the backup set and the backup set still shows the ? symbol), open the Options window by selecting **Tools** > **Options**. On the **General** tab, clear the **Use the catalogs on the media to speed up building restore catalogs on disk** check box. Re-catalog the backup set by double-clicking it.

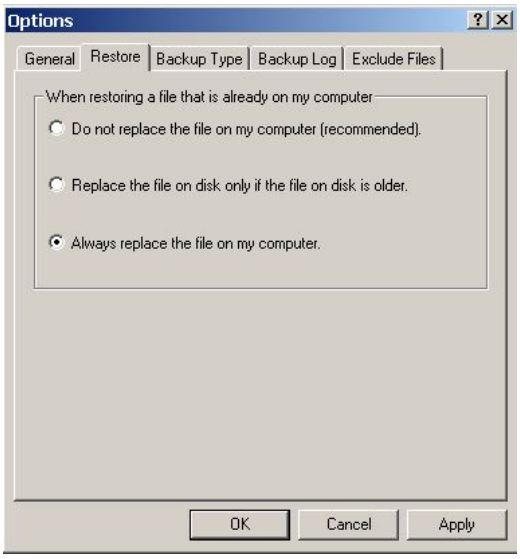
**Note:** There are instances when the update of the on-disk catalog from the on-media catalog fails. Tests have been done on different systems with the same tape device, operating system, and backup sets. On one system, the update went fine while on the other, the catalog couldn't be updated. A workaround is to select **NTBackup Tools** > **Options** > **General**, and clear the **Use the catalogs on the media to speed up building restore catalogs on disk** check box.




**Cataloging failure—Operation Status dialog box shows that the backup set was previously cataloged**

3. In the **Restore files to** list, select **Alternate location**. In the **Alternate location** box, type `\\<ServerName>\D$`, or use **Browse** to navigate to the target share.

4. Open the Options window by selecting **Tools** > **Options**. On the **Restore** tab, select **Always replace the file on my computer**. Click **OK**.




**Restore options**

5. Select **Start Restore**. In the Confirm Restore window, click **OK** to start the restore process. Wait for the restore to complete (about half an hour depending on the type of tape and drive used).

6. In the Restore Progress window, select **Report**. This will open the restore log file. Search for the words *error* and *failed*. Verify that there are no errors in the restore process. Ignore the warning `Unable to restore File Attributes Security for file`

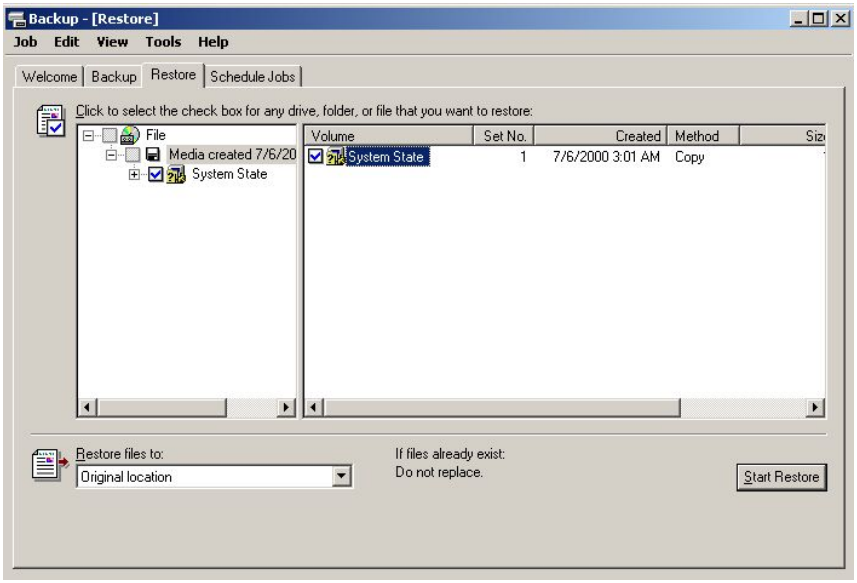
(Testing has confirmed that Prinergy was restored properly even though the File Attributes Security for some files were not restored.) In the Restore Progress window, click **Close**.

7. A window will appear warning that a restart is needed for the target computer. Click **No** to continue working without restarting.

8. In the target server, open NTBackup. Select **Restore**. Right-click **File** and from the menu, select **Catalog file**. This will open the Backup File Name window.

9. In the **Catalog backup file** box, enter the path to the system state backup file (usually **E:\AraxiBackup\SysStateBackup.bkf**), or use **Browse** to navigate to the backup file.

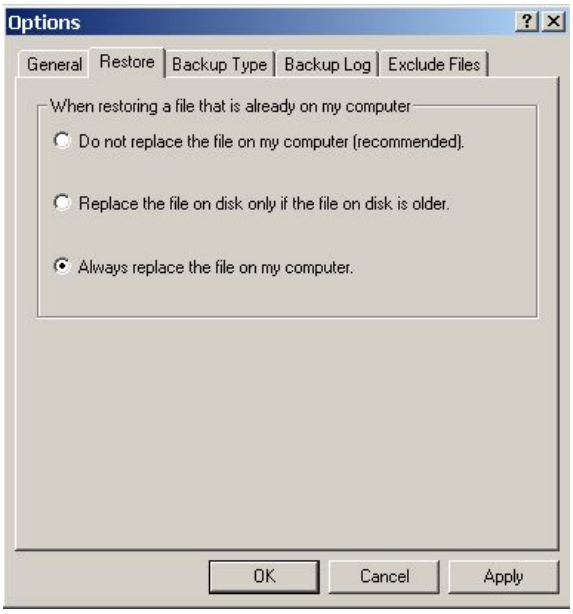
10. Double-click **File**. Select + beside **Media created**. Select **System State** to select the system state backup set.




**Cataloging a backup file**

11. In the **Restore files to** list, select **Original location**.

12. Open the Options window by selecting **Tools > Options**. On the **Restore** tab, select **Always replace the file on my computer**. Click **OK**.




**Restore options**

13. Select **Start Restore**. In the Warning window, click **OK** to confirm overwriting of the current system state. In the Confirm Restore window, select **Advanced**. Select **Restore Removable Storage database** and clear the check box for the other option(s). Click **OK**. In the Confirm Restore window, click **OK**. The Enter Backup File Name dialog box appears. Verify that the file shown in the **Restore from backup file** box is correct. Click **OK** to start the restore process.

14. Wait for the restore to complete (approximately three minutes).

15. In the Restore Progress window, select **Report**. This will open the restore log file. Search for the words *error* and *failed*. Verify that there are no errors in the restore process. In the Restore Progress window, click **Close**.

16. A dialog box appears, warning that a restart is needed for the target computer. If the secondary server is an EPM or Hot Standby (EPM+) failover server, do not restart at this point—proceed to 8.2.6. Otherwise, click **Yes** to restart.

## EPM and Hot Standby (EPM+) Failover Servers

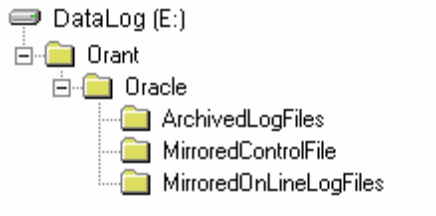
This section is only for secondary servers that are EPM or Hot Standby (EPM+) failover servers. See *EPM and EPM+ Emergency Platemaking and Veritas Storage Replicator Installation and Operation* (717-00126) and *Prinergy Emergency Platemaking Plus (EPM+) With Double-Take* (734-00446).

### *EPM Failover Servers*

EPM failover servers must have their Oracle database restored from the data drive. If this is not possible, such as if the data in the drive were lost, contact the Response Centre to create an empty database.

**To restore the database from the data drive:**

1. Create the following folder structure in the **DataLog** drive **E**:




2. Check the drive letter assignments under Disk Management. Open **D:\Ora816\database\ initcreo.ora** using a text editor. Look for the line **control_files = (E:\Orant\…\ ctl1creo.ora, J:\Orant\…\ctl2creo.ora)**, to verify the RAID drive letter (usually J or G). Change the RAID letter using Disk Management if required. Note that if the drive letter is wrong, share for the RAID will not be created on the next restart and it must be created manually (for example, **AraxiVolume_<Server>_J**).

3. Open Windows Explorer. Copy the Oracle Control File (rename to **CTL1CREO.ORA**) and Online Log Files from the Jobs drive (usually J) to the **DataLog** drive (usually **E**).

   - Copy **J:\Orant\Oracle\ControlFile\CTL2CREO.ORA** to **E:\Orant\Oracle\ MirroredControlFile\CTL1CREO.OR**A
   - Copy **J:\Orant\Oracle\OnLineLogFiles*.*** to **E:\Orant\Oracle\MirroredOnLineLogFiles*.***

4. Close Windows Explorer.

### *Hot Standby (EPM+) Failover Servers*

For Hot Standby failover servers, restart the failover server. After restart, verify that the replication software (Veritas Storage Replicator or Double-Take) was restored successfully. Check that the replication job Prinergy-Database is running without errors. Schedule a failover test to verify the Hot Standby functionality after the mirroring of the database and the AraxiFileReplicator is complete.

### Initiate the File Replication

1. Click **Start > Programs > Administrative Tools > Services**.
2. In **Services**, right-click the **AraxiFileReplicator** service and click **Start**.

### Placing the Secondary Server Back Online

**To place the secondary server back online:**

1. After the restart, log in as an administrator.
2. Verify that Prinergy starts and that all Prinergy processes and JTPs on the secondary server are running.
3. Start Prinergy DiagView and verify that there are no errors.
4. Run some jobs in the secondary JTPs and verify that they are successful.

The secondary server is now ready for regular production work.

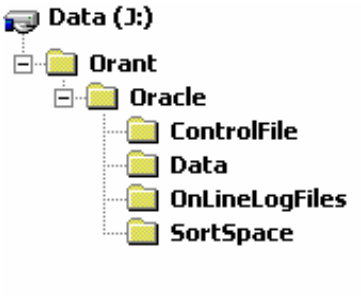
## 8.3 Recovering Database From a RAID (Data Drive) Failure

When the RAID or data drive with the Oracle database fails, recovery can be done using the OracleBackupManager utility. All hardware problems should be diagnosed and fixed before attempting to recover the Oracle database.

The Oracle backup files are in the AraxiTemp drive (usually **E:\OracleBackup**). To recover the database, use the following procedure:

1. Recreate the partitions in the RAID if required. See the appropriate procedures in section 8 of this document.
2. Open **D:\Ora816\database\initcreo.ora** using a text editor. Look for the line `control_files = (E:\Orant\…\ctl1creo.ora, J:\Orant\…\ctl2creo.ora`, to verify the RAID letter (usually J or G). Assign the correct drive letter to the RAID.
3. For Prinergy version 3.1.0.y and later, you can skip this step. For earlier versions, you must add the command `sort_area_size = 10000000` to the bottom of the **d:\Ora816\database\initcreo.ora** file and save the file.
4. Restore the RAID data using the customer backup, if the RAID backup exists.
5. Stop the following services: OracleServiceCreo and OracleStarter.

6. Verify that the following folder structure is in the RAID. If not, create it. Delete the contents of the subfolders if not empty.




7. Open Windows Explorer. Copy the Oracle Control File (rename to **CTL2CREO.ORA**) and Online Log Files from the **DataLog** drive (usually **E**) to the RAID (usually J).

   - Copy **E:\Orant\Oracle\MirroredControlFile\CTL1CREO.ORA** to **J:\Orant\Oracle\ControlFile\CTL2CREO.ORA**
   - Copy **E:\Orant\Oracle\MirroredOnLineLogFiles*.*** to **J:\Orant\Oracle\OnLineLogFiles*.***

   Close Windows Explorer.

8. Using Regedit, look in the reg key: **HKLM\System\CurrentControlSet\Services\lanmanserver\Shares** to find the share name for the RAID (usually **AraxiVolume_<ServerName>_J**).
9. Right-click the key with the share name of the data drive and select **Rename.**
10. Copy the name (press CTRL-C).
11. In **Computer Management > Shared Folders > Shares**, create a new NT share and select the **DataDrive** volume as the folder to be shared.
12. Paste **DataDrive** share name (press CTRL-V) into the **Share name** box.
13. Start the service OracleStarter. This will also start the OracleCREOTNSListener and OracleServiceCreo.
14. At a command prompt, start OracleBackupManager.
15. At the `OracleBackupManager` prompt, type `Restore`.

16. If the recovery is successful, the message `Recovery completed successfully` appears:

```
Araxi_OracleMgr>restore
Checking    for zipped backup files in E:\BACKUP
Restoring from E:\BACKUP
Shutting down oracle
Shut down complete
Attempting recovery of database.
Shutting down oracle
Oracle Not Running
Starting oracle
Shutting down oracle
Oracle Not Running
Startup complete
recovery command
run
{
          allocate channel recovery_channel type DISK;
          restore database; recover database;

          }
exit

Recovery completed Successfully.
Shutting down oracle
Shut down complete
Starting oracle
Shutting down oracle
Oracle Not Running
Startup complete
Shutting down oracle
Shut down complete
Starting database after recovery
Starting oracle
Shutting down oracle
Oracle Not Running
Startup complete
Araxi_OracleMgr>
```

**Restore command in OracleBackupManager**

17. Create a share for Jobs on <computer name> <drive letter> drive. The share name is not critical in Prinergy. Prinergy uses the format **Jobs on <computer name> <drive letter> drive** (for example, **Jobs on galant J drive**).

18. Verify that Prinergy starts and that all Prinergy processes and JTPs are running.

19. Start Prinergy DiagView and verify that there are no errors.

20. Test the Prinergy system by opening existing jobs and processing new ones.

21. For Prinergy versions earlier than 3.1.0.y, open the **D:\Ora816\database\initcreo.ora** file and remove the command `sort_area_size = 10000000` and save the file.

22. Stop and restart OracleStarter. This will also stop and restart OracleCREOTNSListener and OracleServiceCreo.

23. The Prinergy system is now ready for regular production work.