UNIX and Linux Data Mover User Guide

Arcserve® Backup

18.0

arcserve®

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Arcserve Product References

This document references the following Arcserve products:

- Arcserve® Backup
- Arcserve® Unified Data Protection
- Arcserve® Unified Data Protection Agent for Windows
- Arcserve® Unified Data Protection Agent for Linux
- Arcserve® Replication and High Availability

Contact Arcserve Support

The Arcserve Support team offers a rich set of resources for resolving your technical issues and provides easy access to important product information.

Contact Support

With Arcserve Support:

- You can get in direct touch with the same library of information that is shared internally by our Arcserve Support experts. This site provides you with access to our knowledge-base (KB) documents. From here you easily search for and find the product-related KB articles that contains the field-tested solutions for many top issues and common problems.

- You can use our Live Chat link to instantly launch a real-time conversation between you and the Arcserve Support team. With Live Chat, you can get immediate answers to your concerns and questions, while still maintaining access to the product.

- You can participate in the Arcserve Global User Community to ask and answer questions, share tips and tricks, discuss the best practces and participate in conversations with your peers.

- You can open a support ticket. By opening a support ticket online, you can expect a callback from one of our experts in the product area you are inquiring about.

- You can access other helpful resources appropriate for your Arcserve product.

Arcserve Backup Documentation

Arcserve Backup documentation contains specific guides and release notes for all major releases and service packs. Click links below to access documentation.

- Arcserve Backup 18.0 Release Notes
- Arcserve Backup 18.0 Bookshelf

Contents

Chapter 1: Introducing Arcserve Backup UNIX and Linux Data Mover

This section contains the following topics:

Introduction

Arcserve Backup is a comprehensive storage solution for applications, databases, distributed servers, and file systems. It provides backup and restore capabilities for databases, business-critical applications, and network clients.

Among the components Arcserve Backup offers is Arcserve Backup UNIX and Linux Data Mover.

Arcserve Backup UNIX and Linux Data Mover lets you protect UNIX and Linux file system data and Oracle data. You can store the data on [locally accessible disks](#) and [tape libraries that are shared](#) between the data mover servers and the Arcserve Backup primary. Using locally accessible disks and shared tape libraries let you reduce network traffic and minimize backup and restore windows.

With UNIX and Linux Data Mover you can manage backup and restore operations using the following Arcserve Backup for Windows Manager functionality:

- **Centralized Management**--Centralized management lets you manage Arcserve Backup licenses, storage devices, jobs, reports, and so on from a centralized backup server that is named the primary server.

- **Disk staging (B2D2T), tape staging (B2T2T), and data migration**--Disk staging and tape staging backups let you back up data to a temporary storage location, and then based on selected policies, migrate the backup data to final destination media, such as tape.

  Note: To back up data to disk staging devices using more than two streams of data, you must license the Arcserve Backup Enterprise Module. To back up data to multiple drive libraries, you must license the Arcserve Backup Tape Library Option.

- **Dashboard for Windows**--Dashboard for Windows is a single network-based console from which you can monitor and report real-time statistical and performance data for multiple Arcserve Backup servers across your backup environment.

UNIX and Linux Data Mover Architecture

Arcserve Backup UNIX and Linux Data Mover can be configured to store data on file system devices and shared tape libraries.

This section contains the following topics:

File System Device Backups

Shared Tape Library Backups

File System Device Backups

To back up data to file system devices (FSDs), your backup environment must be configured as follows:

- An Arcserve Backup primary server installation.

- Central Management Option must be installed on the primary server.

- UNIX and Linux Data Mover is configured on the UNIX or Linux server.

- The Arcserve Backup FSD is attached to the data mover server.
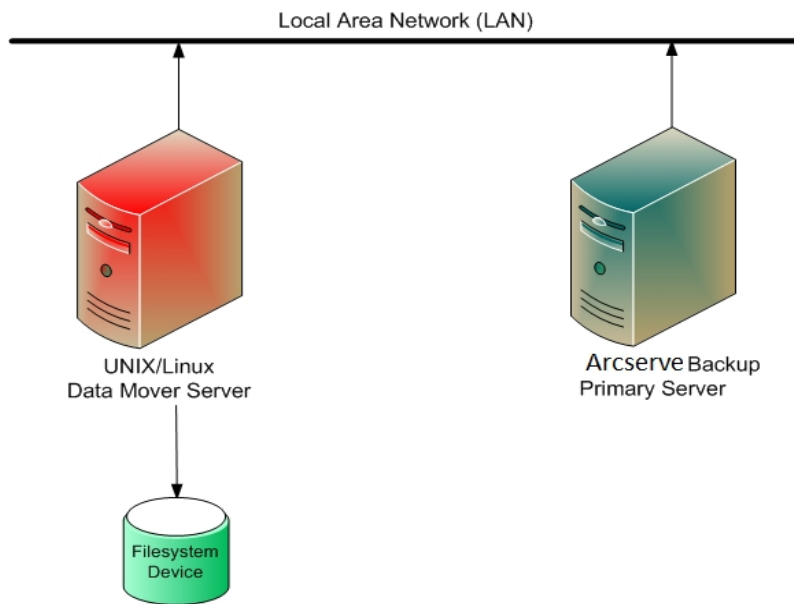
Shared Tape Library Backups

To back up data to shared tape libraries, your backup environment must be configured as follows:

- An Arcserve Backup primary server installation. The following products must be installed on the primary server:

    - Central Management Option

    - Storage Area Network (SAN) Option

    - Tape Library Option

- UNIX and Linux Data Mover is installed on the data mover (UNIX or Linux) server.

- The library must be shared between the primary server and the data mover server. The libraries can be shared with any combination of member servers, network attached storage (NAS) filers, or other data mover servers.
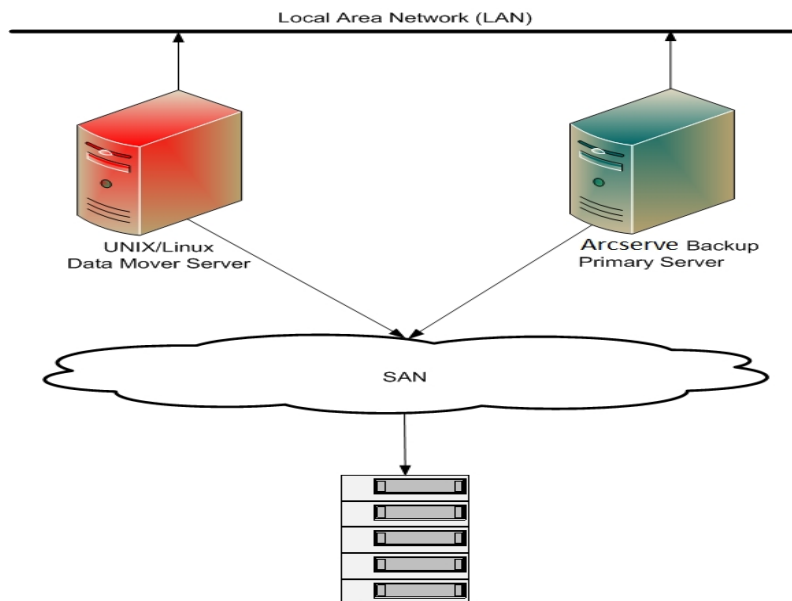
UNIX and Linux Data Mover Supported Functionality

UNIX and Linux Data Mover lets you perform the following tasks:

▪ Back up and restore UNIX and Linux file system data and Oracle data using local file system devices (FSDs) and shared tape libraries.

▪ Manage UNIX and Linux Data Mover licenses centrally from Arcserve Backup primary servers.

▪ Migrate data from staging locations to final destination media in the scenarios described in the following table:

Job Submitted from Type of Backup Server	Staging Location	Final Destination
Data mover server	Shared library on local data mover server	Shared library on local data mover server
Data mover server	Shared library on local data mover server	Shared library on primary server
Data mover server	Shared library on local data mover server	Locally attached FSD
Data mover server	Locally attached FSD	Shared library on local data mover server
Data mover server	Locally attached FSD	Locally attached FSD

UNIX and Linux Data Mover Limitations

UNIX and Linux Data Mover does not support backing up data to the following devices:

- Arcserve Backup tape RAID devices.

- Arcserve Backup data deduplication devices.

- Libraries that are connected directly to the data mover server.

Note: For more information about supported devices, see the *Arcserve Backup Certified Device List* on the *Arcserve Support website*.

UNIX and Linux Data Mover does not support the following functionality:

- Backing up data using multiplexing.

- Backing up data using Arcserve Backup server-side encryption, Arcserve Backup server-side compression, and LTO encryption.

- Installing UNIX and Linux Data Mover using remote communication. You must log into the data mover server and execute the installation script.

- Upgrading from a previous release of Arcserve Backup for UNIX r11.5 and Arcserve Backup for Linux r11.5.

  Note: Arcserve Backup lets you migrate database information from Arcserve Backup r11.5 to this release. For more information, see Migrate Database Information from Previous Releases to the Arcserve Backup Database.

- Running the Tapecopy utility on the data mover server.

- Submitting jobs using Arcserve Backup command line utilities from the data mover server. For example, ca_backup and ca_restore.

- Backing up and restoring data to remote systems.

  The following scenario describes how you can restore data to remote systems:

  - The Arcserve Backup primary server, data mover server A, and data mover server B share a device that resides on the SAN.

  - You back up data, which consists of sessions that reside on data mover server A, to the shared device that resides on the SAN.

  - You restore the sessions from the device that resides on the SAN to data mover server B.

  In this scenario, you can restore the data that was backed up to the shared devices on the SAN directly from the primary server or data mover server B, as

illustrated by the following dialog:
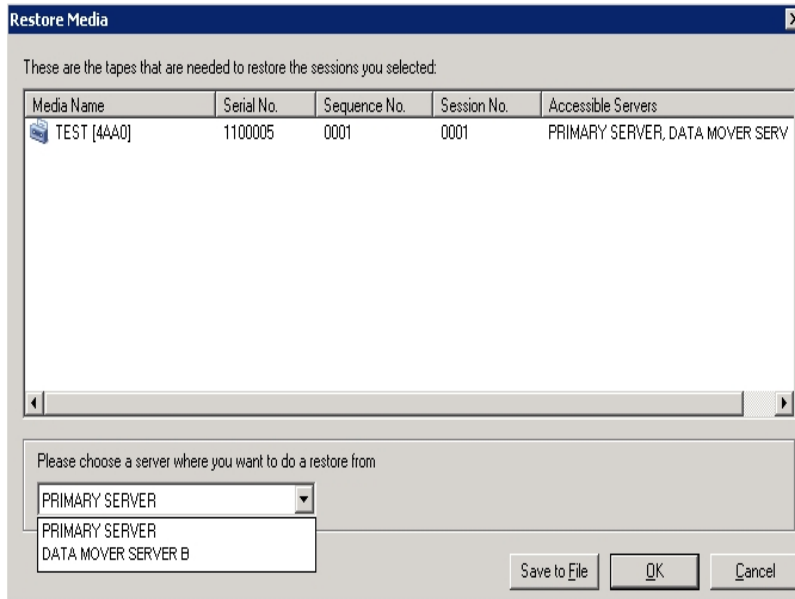
Chapter 2: Installing and Configuring Arcserve Backup UNIX and Linux Data Mover

This section contains the following topics:

Supported UNIX and Linux Platforms

Arcserve Backup supports installing UNIX and Linux Data Mover on the following UNIX and Linux platforms:

- Linux

- SUN SPARC

- AIX

- HP-UX

Note: For a complete list of supported UNIX and Linux operating systems, see the Arcserve Backup Release Notes.

How to Apply License for UNIX and Linux Data Mover

Arcserve Backup UNIX and Linux Data Mover requires the licenses and components described in the following table:

Server Type	Component Required	Licensing Requirements
Primary Server	You must install the following components on the primary server: ■ Arcserve Backup Base Product (Primary Server) ■ Arcserve Backup Central Management Option ■ (Optional) Arcserve Backup Storage Area Network (SAN) Option ■ (Optional) Arcserve Backup Tape Library Option ■ (Optional) Arcserve Backup Enterprise Module **Note:** All licenses are managed centrally from the primary server.	■ You install and license the Storage Area Network (SAN) Option and the Tape Library Option only if you are backing up data to libraries that are shared between the primary server and the data mover server. ■ You install and license the Enterprise Module license to perform Disk Staging backups with more than two streams of backup data. You must register one Enterprise Module license for each data mover server. For more information, see the *Administration Guide*.
Data Mover Server	You must install the following components on data mover servers: ■ Arcserve Backup> UNIX and Linux Data Mover ■ Client Agent for the file system (for example, AIX, Linux, and so on) ■ (Optional) Arc-	■ By default, setup installs the client agent for the file system when you install UNIX and Linux Data Mover. With this configuration, you do not require a separate license for the client agent for the file system. ■ You install and license the Agent for Oracle only to back up data at Oracle database granularity. ■ You install and license the Enterprise Option for SAP R3 for Oracle (UNIX and Linux) only to back up data at SAP R3 for Oracle database

	serve Backup Agent for Oracle. ■ (Optional) Arc-serve Backup for UNIX and Linux Enterprise Option for SAP R3 for Oracle. **Note:** All licenses are managed centrally from the primary server.	granularity.

Examples: How to License UNIX and Linux Data Mover

- You want to protect data that resides on a data mover server, and back up the data to an FSD that is attached to the data mover server.

  – **Primary server**--Requires you to install the Arcserve Backup base product and Arcserve Backup Central Management Option on the primary server. You register and manage these licenses from the primary server.

  – **Data mover server**--Requires you to install Arcserve Backup UNIX and Linux Data Mover on the data mover server. You register and manage the UNIX and Linux Data Mover license from the primary server.

  Note: This configuration does not require you to install Arcserve Backup Storage Area Network (SAN) Option, Arcserve Backup Tape Library Option, or both on either server.

- You want to protect data that resides on a data mover server, and back up the data to a library that is shared between the primary server and one or more data mover servers.

  – **Primary server**--Requires you to install Arcserve Backup base product, Arcserve Backup Central Management Option, Arcserve Backup Tape Library Option, and Arcserve Backup Storage Area Network (SAN) Option on the primary server. You register and manage these licenses from the primary server.

  – **Data mover server**--Requires you to install Arcserve Backup UNIX and Linux Data Mover on each data mover server. You register and manage the UNIX and Linux Data Mover licenses from the primary server. In addition, you must register one Tape Library Option license and one Storage Area Network (SAN) Option license with the primary server for each data mover server.

Limitations on Upgrading from a Previous Release

Consider the following limitations when upgrading Arcserve Backup r11.5 to this release.

- Arcserve Backup does not support upgrading from the Arcserve Backup r11.5 base product directly to this release. Setup will terminate if it detects the Arcserve Backup base product installed on the target data mover server. Therefore, you must uninstall the components from the previous release and then perform a new installation of UNIX and Linux Data Mover on the target data mover server.

  However, Arcserve Backup lets you upgrade only the following components on the target data mover server:

  – Client Agent for UNIX/Client Agent for Linux

  – Agent for Oracle for UNIX/Agent for Oracle for Linux

  Important! Either one or both of the above-described components and the Common Agent must be the only Arcserve Backup components installed on the target server.

- Arcserve Backup lets you upgrade the file system agent and the Agent for Oracle on the target data mover server. When running Setup on the target data mover server, Setup detects the versions of the upgradable components, if any, are installed on the server. If a supported upgrade is detected, Setup prompts you to install the latest version of the following components:

  – Client Agent for UNIX (r11.5, r12, r12.5, r15, r16.5, and r16.5 SP1)

  – Client Agent for Linux (r11.5, r12, r12.5, r15, r16.5, and r16.5 SP1)

  – Agent for Oracle on UNIX platforms (r11.5, r12, r12.5, r15, r16.5, and r16.5 SP1)

  – Agent for Oracle on Linux platforms (r11.5, r12, r12.5, r15, r16.5, and r16.5 SP1)

  – Data Mover for Linux (r15, r16.5, and r16.5 SP1)

  – Data Mover for UNIX (r15, r16.5, and r16.5 SP1)

- Arcserve Backup lets you migrate database information from the Arcserve Backup Ingres database and the Media Management Option (MMO) to this release. If you wish migrate the information from the Ingres database, the MMO, or both to theArcserve Backup database, do not delete the Ingres database from the data mover server when you uninstall Arcserve Backup. For

more information, see Migrate Database Information from Previous Releases to the Arcserve Backup Database.

▪ After you install UNIX and Linux Data Mover on the data mover server, you may need to recreate backup jobs to protect the data mover server.

▪ To use the data that is stored on Arcserve Backup r11.5 file systems devices, do the following:

1. Merge the session header data into the Arcserve Backup database using the Merge Utility.

2. Using UNIX and Linux Data Mover, create a new file system device using the path that was configured under ARCserve r11.5.

   Arcserve Backup upgrades the file system device to this release.

Install Arcserve Backup UNIX and Linux Data Mover

UNIX and Linux Data Mover lets you back up and restore data residing on UNIX and Linux servers to storage area network (SAN) attached libraries.

To deploy UNIX and Linux Data Mover, the Arcserve Backup primary server must reside in at least one of the following locations:

- On the same SAN as the UNIX or Linux server that you want to protect.

- On the same network as the UNIX or Linux server that you want to protect.

After you install the Arcserve Backup primary server, you can then install Arcserve Backup UNIX and Linux Data Mover on the UNIX or Linux server that you want to protect using the scripts that are provided on the Arcserve Backup installation media.

Note: For information about how to install the Arcserve Backup primary server, see the *Implementation Guide*.

Registering the Data Mover Server

After you install UNIX and Linux Data Mover on the server that you want to protect, you must register the server with the Arcserve Backup primary.

You can use any of the following methods to register the data mover server with the primary server:

- Register the data mover server while executing the installation script on the UNIX or Linux server.

- Register the data mover server from the primary server using Device Configuration after you executed the installation script on the UNIX or Linux server.

  Note: For more information, see Register the Data Mover Server with the Primary Server Using Device Configuration.

- Register the data mover server using a command line utility called regtool on the UNIX or Linux server.

  Note: For more information, see Register the Data Mover Server with the Primary Server Using regtool.

This section contains the following topics:

Prerequisite Tasks

Installation Scripts

Install Arcserve Backup UNIX and Linux Data Mover on UNIX Operating Systems

Install Arcserve Backup UNIX and Linux Data Mover on Linux Operating Systems

Open the Installation Notes File

Prerequisite Tasks

Verify that you complete the following prerequisite tasks before installing UNIX and Linux Data Mover.

- Verify that the following components are installed and licensed on the primary server.

    – Arcserve Backup Server component

    – Arcserve Backup Central Management Option

    – Arcserve Backup Storage Area Network (SAN) Option

    – Arcserve Backup Tape Library Option

- Secure the host name of the Arcserve Backup primary server.

- Secure the password for the caroot user name for the Arcserve Backup primary server.

- Verify that the Arcserve Backup primary server and the target data mover server can communicate with each other. You can verify that the servers can communicate using the ping host name command.

- You do not need to uninstall the following components from the target data mover server to upgrade to this release:

    – Client Agent for Linux (r11.5, r12.5, r15, r16.5, and r16.5 SP1)

    – Client Agent for UNIX (r11.5, r12.5, r15, r16.5, and r16.5 SP1)

    – Agent for Oracle for Linux (r11.5, r12.5, r15, r16.5, and r16.5 SP1)

    – Agent for Oracle for UNIX (r11.5, r12.5, r15, r16.5, and r16.5 SP1)

    – Data Mover for Linux (r15, r16.5, and r16.5 SP1)

    – Data Mover for UNIX (r15, r16.5, and r16.5 SP1)

When running on the target data mover server, the installation script detects the version of the above file system agents, if any, that exist on that server. If the installation script detects a supported platform, you will be prompted to install the latest versions of the above file system agents.

- Arcserve Backup lets you migrate database information from the Arcserve Backup Ingres database and the Media Management Option (MMO) to this release. If you want to migrate the information from the Ingres database, the MMO, or both to the Arcserve Backup database, perform the database migration before you uninstall the Arcserve Backup base product and install the UNIX and Linux Data Mover. For more information, see Migrate Database

Information from Previous Releases to the Arcserve Backup Database in the UNIX and Linux Data Mover Guide.

▪ If there is a firewall configured on the target data mover server, add Arcserve Backup to the firewall exceptions list on the target data mover server. This will allow the Arcserve Backup primary server and the member servers to communicate with the data mover server after you install UNIX and Linux Data Mover. By default, Arcserve Backup communicates using port 6051.

Note: For information about how to add Arcserve Backup to the firewall exceptions list, see the platform-specific documentation.

Installation Scripts

The Arcserve Backup for Windows installation media contains installation scripts that are stored in the following directories:

DVD_ROOT\DataMoverandAgent\<Linux>
DVD_ROOT\DataMoverandAgent\<UNIX>

Install Arcserve Backup UNIX and Linux Data Mover on UNIX Operating Systems

You can install Arcserve Backup UNIX and Linux Data Mover on various UNIX platforms, such as AIX and Solaris. For information about supported UNIX operating systems, see the Arcserve Backup Release Notes.

Install Arcserve Backup UNIX and Linux Data Mover on UNIX operating systems

1. Log into the UNIX computer as root.

   Insert the Arcserve Backup installation media into the computer's DVD drive.

   Mount the DVD to an available or newly created directory on the computer. For example,

   # mount -F cdfs /dev/dsk/c1t2d0 /mnt/dvdrom

2. Browse to the operating system directory on the mounted DVD. For example,

   # cd /mnt/dvdrom/DataMoverandAgent/UNIX/<aix|hp|solaris>

3. Execute the following script:

   # ./install

4. Follow the on-screen instructions to complete the installation.

5. When running on the target data mover server, the installation script detects the version of the above file system agents, if any, that exist on that server. If the installation script detects a supported platform, you will be prompted to install the latest versions of the above file system agents.

   Note: You must register the data mover server with the primary server to allow the respective servers to communicate. As a best practice, you should register the data mover server with the primary server when prompted by the installation script. Optionally, you can register the data mover server using the regtool utility or Device Configuration from the primary server after you run the installation script on the data mover server.

   More information:

   How to Register the Data Mover Server with the Primary Server

Install Arcserve Backup UNIX and Linux Data Mover on Linux Operating Systems

You can install Arcserve Backup UNIX and Linux Data Mover on various Linux platforms. For information about supported Linux operating systems, see the Arcserve Backup Release Notes.

Install Arcserve Backup UNIX and Linux Data Mover on Linux operating systems

1. Log into the Linux computer as root.

   Insert the Arcserve Backup installation media into the computer's DVD drive.

   Mount the DVD to an available or newly created directory on the computer. For example,

   # mount -t iso9660 /dev/dvdrom /mnt/dvdrom

2. Browse to the operating system directory on the mounted DVD. For example,

   # cd /mnt/dvdrom/DataMoverandAgent/Linux

3. Execute the following script:

   # ./install

4. Follow the on-screen instructions to complete the installation.

5. When running on the target data mover server, the installation script detects the version of the above file system agents, if any, that exist on that server. If the installation script detects a supported platform, you will be prompted to install the latest versions of the above file system agents.

   Note: You must register the data mover server with the primary server to allow the respective servers to communicate. As a best practice, you should register the data mover server with the primary server when prompted by the installation script. Optionally, you can register the data mover server using the regtool utility or Device Configuration from the primary server after you run the installation script on the data mover server.

   More information:

   How to Register the Data Mover Server with the Primary Server

Open the Installation Notes File

The Installation Notes file is a stand-alone, html file that contains UNIX and Linux Data Mover installation instructions.

To open the installation notes file

1. From the Arcserve Backup installation media, start Setup.exe.

   The Arcserve Backup installation browser opens.

2. Click Installation Instructions for Arcserve Backup UNIX and Linux Data Mover, as illustrated by the following screen:
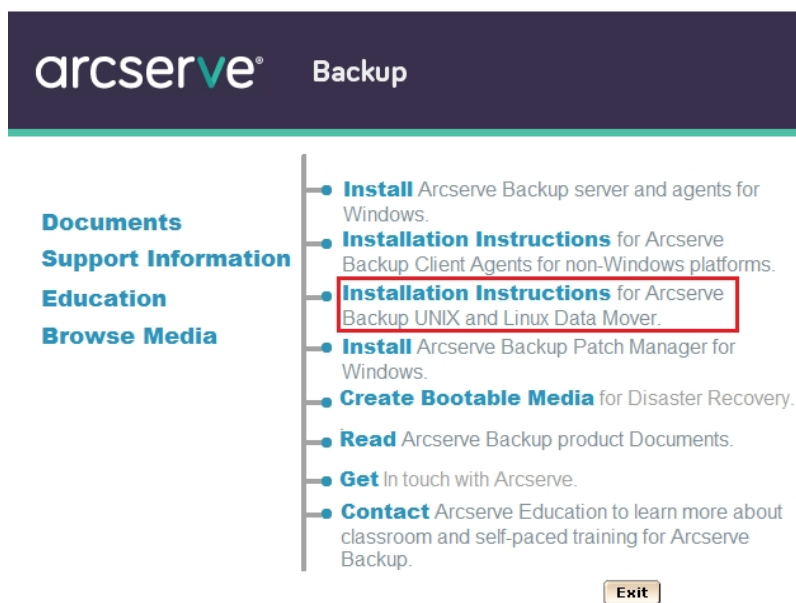
   The Installation Notes for Arcserve Backup UNIX and Linux File System Agents and Data Mover file opens.

3. Click Installing UNIX and Linux Data Mover to view the installation instructions for UNIX and Linux Data Mover.

How to Register the Data Mover Server with the Primary Server

The data mover server must be registered with the Arcserve Backup primary server to back up and restore data. You can register the data mover server with the primary server using the following methods:

- Register the data mover server while executing the installation script on the UNIX or Linux server.

```
Do you want to register this Data Mover to Primary Server now? (y/n): (default: y) y

Please input the Primary Server Name:9nlhq51
Please enter caroot password:
        **   Successfully Register this Data Mover to Primary Server.   **
```

- Register the data mover server manually from the primary server using Device Configuration after you executed the installation script on the UNIX or Linux data mover server.

- Register the data mover server manually using regtool on the UNIX or Linux data mover server.

Register Data Mover Servers with the Primary Server Using Device Configuration

Arcserve Backup lets you register data mover servers with the primary server manually using Device Configuration. You can use this procedure in any of the following scenarios:

- You did not register the data mover server with the primary server when you installed UNIX and Linux Data Mover on the data mover server.
- The registration process did not complete properly.

Prerequisite Tasks

- The Arcserve Backup base product must be installed on the primary server.
- Arcserve Backup UNIX and Linux Data Mover must be installed on the target UNIX or Linux server.
- You must know the host names of all data mover servers and the corresponding root passwords for each data mover server.

    Note: By default, you must log into the data mover server using the user name "root."

To register data mover servers with the primary server using Device Configuration

1. Open the Arcserve Backup Manager Console.

2. From the Navigation Bar, expand Administration and click Device Configuration.

    The Welcome to Device Configuration dialog opens.

3. Click UNIX/Linux Data Mover and click Next.

    The Login Server dialog opens.

4. Specify the password for the caroot account and click Next.

    The UNIX/Linux Data Mover Configuration dialog opens.

5. Click Add.

    Complete the following fields:

    - **UNIX/Linux Data Mover**--Specify the host name for the data mover server.
    - **User**--Specify the root user name for the UNIX or Linux data mover server.
    - **Password**--Specify the password for the root user account.

Note: Repeat this step to add more data mover servers.

Click Next.

6. Follow the on-screen procedures to complete the registration process.

   After you register the data mover server with the primary server, the data mover server appears in the Arcserve Backup Device Manager window as illustrated by the following screen:
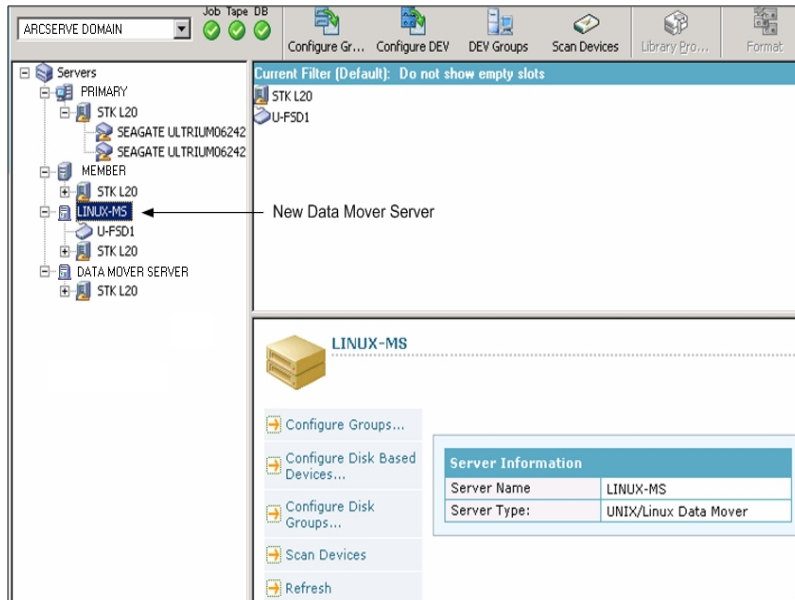
Register the Data Mover Server with the Primary Server Using regtool

Arcserve Backup lets you register the data mover server with the primary server manually using a command line utility named regtool. You can use this procedure in any of the following scenarios:

▪ You did not register the data mover server with the primary server when you installed UNIX and Linux Data Mover on the data mover server.

▪ The registration process did not complete properly.

▪ You want to register the data mover server with a different primary server.

▪ You want to unregister the data mover server from the primary server.

▪ (Optional) You want to unregister data mover servers from the primary server.

Note: The regtool command line utility cannot unregister data mover servers when the target data mover server is disabled. As an alternative solution, you can unregister disabled data mover servers using Device Configuration. For more information, see Unregister Data Mover Servers Using Device Configuration.

Prerequisite Tasks

▪ The Arcserve Backup base product must be installed on the primary server.

▪ Arcserve Backup UNIX and Linux Data Mover must be installed on the target UNIX or Linux server.

▪ You must know the host names of all data mover servers and the corresponding root passwords for each data mover server.

   Note: By default, you must log into the data mover server using the user name "root."

Syntax

The regtool command contains the following syntax:

regtool [register|unregister|getsvrinfo]

Arguments

The following table describes the regtool arguments:

Argument	Description
register	Lets you register the UNIX or Linux data mover server with a primary server only if it is not registered to a primary server.
unregister	Lets you unregister the UNIX or Linux data mover server from a primary server.

getsvrinfo	Lets you obtain details about the primary server to which the data mover server is registered.

To register the data mover server with the primary server using regtool

1. Log into the data mover server.

   Open a command prompt window

   By command, browse to the following directory:

   <DATAMOVER_HOME>/ABdatamover

   By default, UNIX and Linux Data Mover resides in the following directory:

   /opt/Arcserve

2. Execute regtool using the following syntax:

   #./regtool register

   The UNIX or Linux server is registered with the primary server.

Uninstall Arcserve Backup UNIX and Linux Data Mover

The uninstallation script lets you uninstall UNIX and Linux Data Mover from the data mover server.

To uninstall Arcserve Backup UNIX and Linux Data Mover

1. Log into the computer as root.

2. Browse to the following directory using the following command:

   #cd /opt/Arcserve/ABcmagt

3. Execute the following script:

   # ./uninstall

4. Follow the on-screen instructions to complete the uninstallation.

   Depending on your original configuration, the uninstallation script deletes the following directories from your computer:

   Note: The directories listed below describe the default installation paths.

   /opt/Arcserve/ABdatamover

   /opt/Arcserve/ABoraagt

   /opt/Arcserve/ABuagent

   /opt/Arcserve/ABcmagt

   If the uninstallation script deletes /opt/Arcserve/ABdatamover and /opt/Arcserve/ABoraagt, the following directories will also be deleted from your computer:

   /opt/Arcserve/SharedComponents/jre

   /opt/Arcserve/SharedComponents/Arrcserve Backup

Unregister Data Mover Servers Using the Manager Console

Arcserve Backup lets you unregister data mover servers from a primary server using Device Configuration.

As a best practice, you should unregister data mover servers using the regtool command line utility. However, the regtool command line utility cannot unregister data mover servers when the target data mover server is disabled. As an alternative solution, you can unregister disabled data mover servers using Device Configuration.

To unregister data mover servers using Device Configuration

1. Open the Arcserve Backup Manager Console.

2. From the Navigation Bar, expand Administration and click Device Configuration.

   The Welcome to Device Configuration dialog opens.

3. On the Welcome to Device Configuration dialog, click UNIX/Linux Data Mover and click Next.

   The Login Server dialog opens.

4. On the Login Server dialog, specify the password for the caroot account and click Next.

   The UNIX/Linux Data Mover Configuration dialog opens.

5. UNIX/Linux Data Mover Configuration dialog, select the data mover server that you want to remove, and then click Remove.

   If the data mover server is not available, a message box opens prompting you to confirm that you want to remove the data mover server.

6. Click Yes.

   The data mover server is unregistered.

Chapter 3: Using Arcserve Backup UNIX and Linux Data Mover

This section contains the following topics:

Create File System Devices

Arcserve Backup automatically detects the presence of data mover servers after the servers are registered with the primary server. At such time, you can create file system devices (FSDs).

To create file system devices

1. Open the Arcserve Backup Manager Console.

2. From the Navigation Bar, expand Administration and click Device Manager.

   The Device Manager window opens.

3. From the server directory tree, right-click the data mover server and click Configure Disk Based Devices on the pop-up menu.

   The Disk Device Configuration dialog opens.

4. On the Disk Device Configuration dialog, click UNIX/Linux Data Mover File System Device.

5. Click Add and complete the following fields:

   ▪ **Device Name--**Specify the name of the device.

   ▪ **Description--**(Optional) Specify a description of the device.

   ▪ **Data File Location--**Specify the full path to the FSD. For example:

   /tmp/FSD/1

   ▪ **Group Name--**(Optional) Specify the name of the group to be associated with this device.

   Note: Repeat this step to add more FSDs.

6. Click Next and follow the on-screen procedures to complete the configuration.

How Devices Appear in the Device Manager

Data mover servers and their connected devices appear in the Device Manager window shortly after you register the data mover servers with the primary server.

The screen that follows illustrates how shared libraries and file system devices appear in the Arcserve Backup Device Manager window:
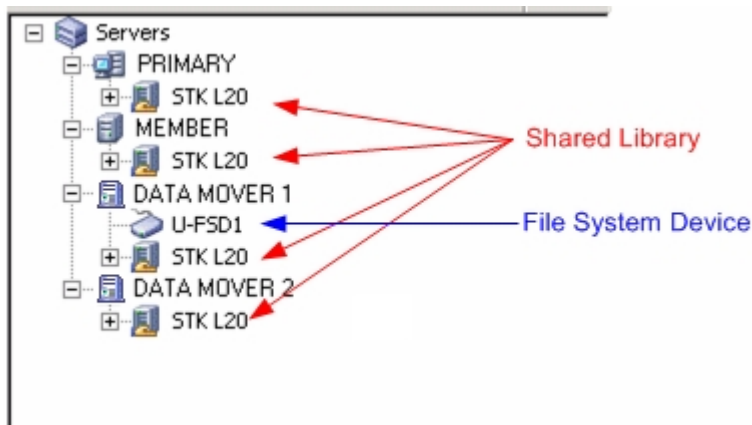
How to View Job History on Data Mover Servers

Data mover servers communicate with the primary server in a manner that is very similar to a member server. As a result, Arcserve Backup lets you view job history associated with data mover servers and the devices attached to the servers. For example, you can view:

- The jobs associated with the data mover server in the Job Queue.
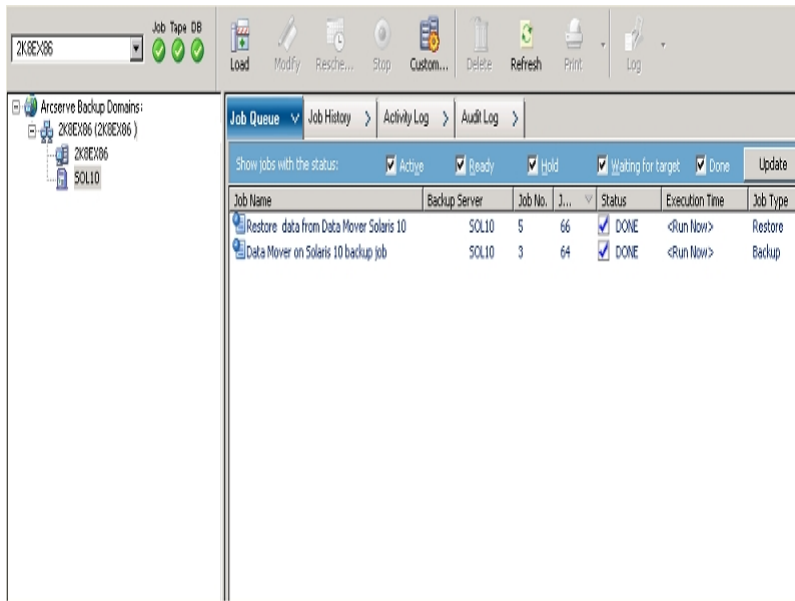
- The history of all jobs for the data mover server.
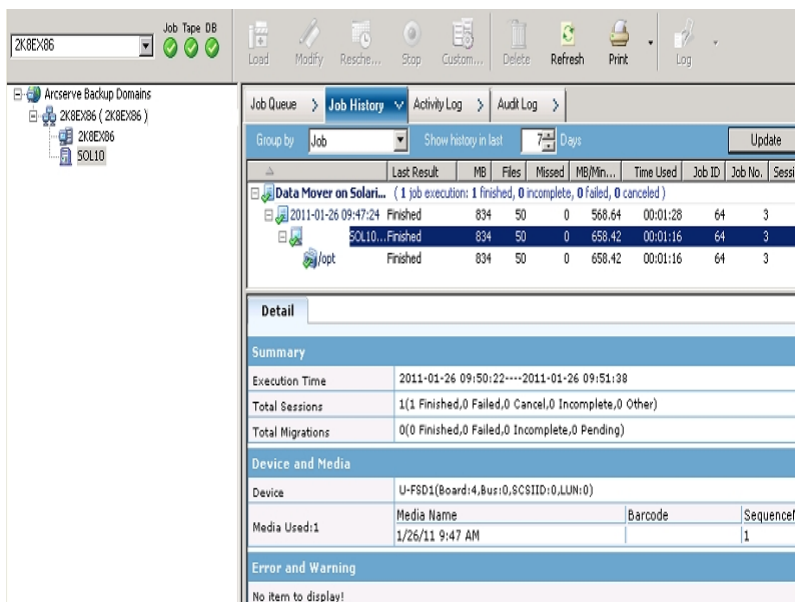
▪ The details about the master and child jobs for the data mover server.
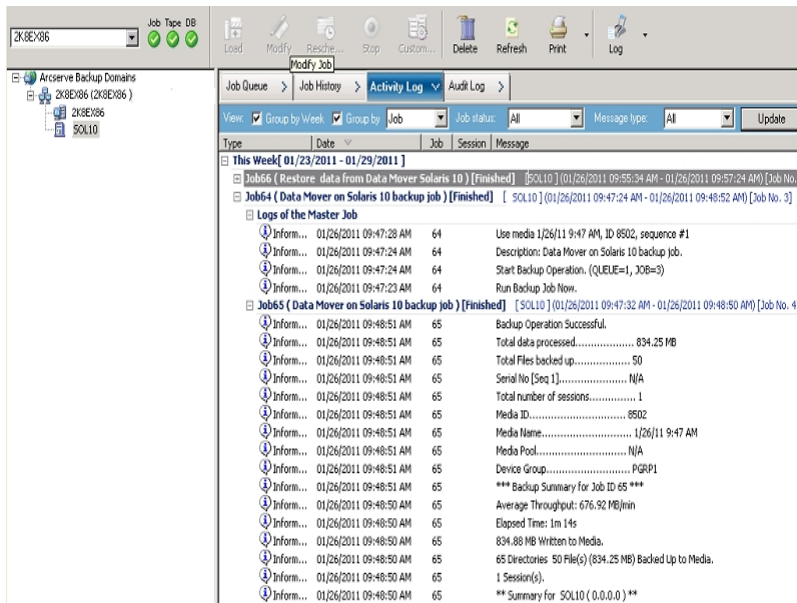
Note: For more information about monitoring jobs, see the *Administration Guide*.

How Data Migration Works Using UNIX and Linux Data Mover

Data migration is the process of moving data from a temporary storage location to final destination media in a staging-based backup job. In other words, Arcserve Backup migrates the data residing on staging devices, such as file system devices (FSDs), physical libraries, and virtual tape libraries (VTL), to final destination media after the Copy policy defined for the jobs are fulfilled. The final destination media can be tape media or an FSD.

Using UNIX and Linux Data Mover, Arcserve Backup lets you migrate data using the scenarios described in the following table:

Staging Location	Final Destination Media
Tape media	Tape media

The above migration jobs can be submitted via the primary server or the data mover server. Migration jobs execute from the primary server or the data mover server based on the method used to specify the final destination media.

Example: Server that Executes Migration Jobs

The examples that follow describe the server that executes migration jobs.

- **Primary server**--The following screen indicates that the user selected the final destination media from the media associated with the primary server. The migration job executes from the primary server and utilizes the primary server's system resources.
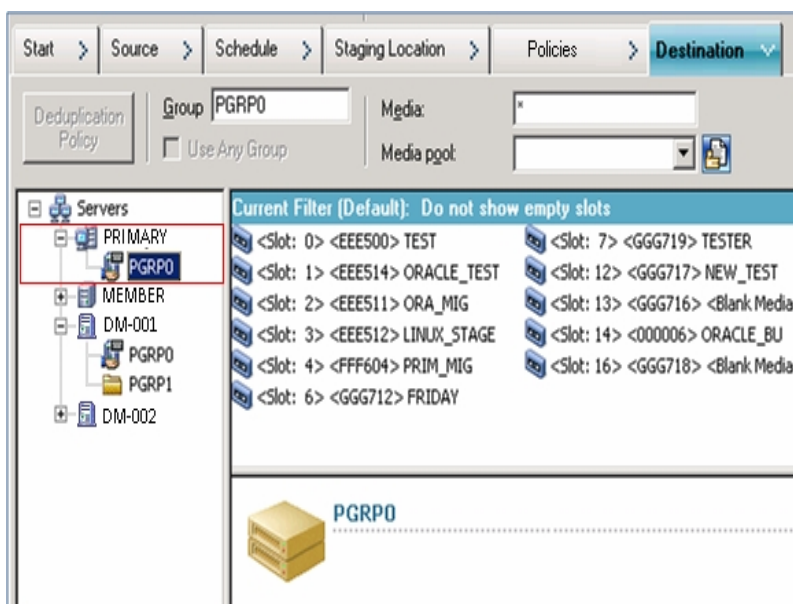
▪ **Data mover server**--The following screen indicates that the user selected the final destination media from the media associated with the data mover server. The migration job executes from the data mover server and utilizes the data mover server's system resources.
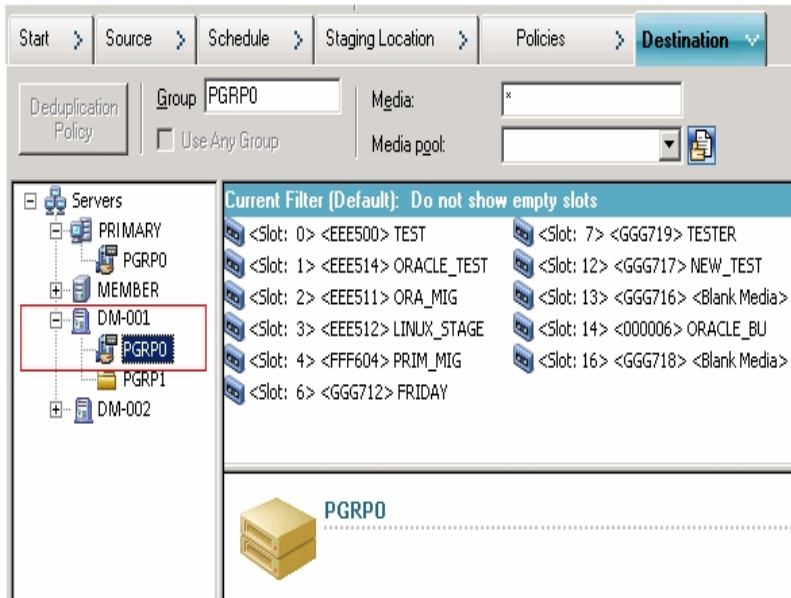
Back Up Data to UNIX and Linux Data Mover Servers

With UNIX and Linux Data Mover, Arcserve Backup lets you submit file system and Oracle database backups to locally attached file system devices and shared tape libraries.

Note: Arcserve Backup does not support backing up data that resides on data mover servers using various Arcserve Backup functionality such as multiplexing and server-side encryption. For more information, see UNIX and Linux Data Mover Limitations.

To back up data to UNIX and Linux data mover servers

1. Open the Backup Manager and click the Start tab.

2. Click Normal backup and then click the Source tab.

   The source directory tree appears.

3. Expand the UNIX/Linux Data Movers object.

   Locate the data mover server and select the source that you wish to back up.
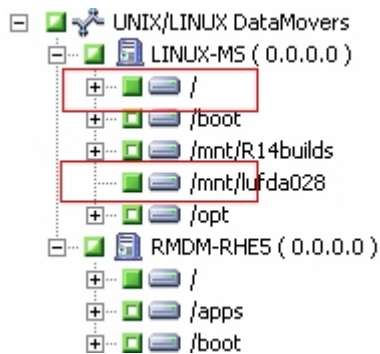
4. Click the Schedule tab and define the schedule that you require for the job.

   Note: For more information about scheduling jobs, see the *Administration Guide*.

5. Click the Destination tab.

Expand the current data mover server and specify location where you want to store the backup data.
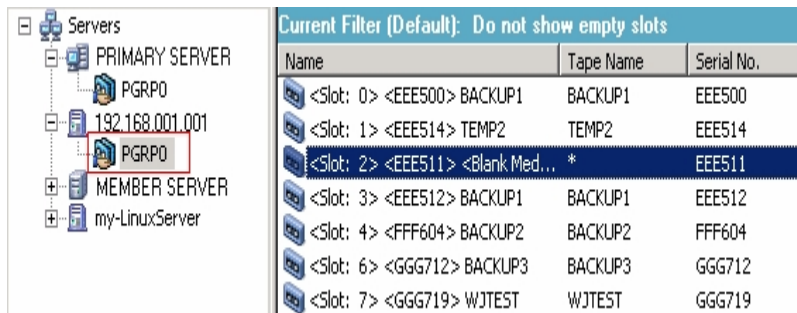
Important! Arcserve Backup prevents you from submitting backup jobs when the data mover server specified on the Source tab does not share the device group specified on the Destination tab.

6. Click Options on the toolbar and specify the options that you require for the job.

   Note: For more information about backup options, see the *Administration Guide*.

7. Click Submit on the toolbar to submit the job.

   The Submit Job dialog opens.

8. Complete the required fields on the Submit Job dialog and click OK.

   The job is submitted.

Back up Multiple Data Mover Servers in a Single Job

Arcserve Backup lets you submit backups that consist of multiple data mover servers to shared tape libraries in a single job.

Note: For more information, see the *Administration Guide.*

Restoring Data

Arcserve Backup lets you restore UNIX and Linux file system data and Oracle data from backup media to the UNIX or Linux data mover server. You can configure Arcserve Backup to do the following:

- Submit restore jobs using the following restore methods:

    – Restore by Tree

    – Restore by Session

    – Restore by Query

    – Restore by Backup Media

- Submit jobs to restore data to its original location or an alternative location.

    Note: To restore data to a different location, the library must be shared with the original (source) data mover server and the alternative data mover server.

- Submit restore jobs from the primary server such that it executes from the primary server or the data mover server.

This section contains the following topics:

[Restore Data Using Restore by Tree](#)

[Restore Data Using Restore by Session](#)

Restore Data Using Restore by Tree

Use the Restore by Tree method to restore the latest version of the backup data.

To restore data using Restore by Tree

1. Open the Restore Manager window and click the Source tab.

   The source options appear.

2. From the drop-down list, select Restore by Tree.

   The servers appear in the server directory tree.

3. Expand the UNIX/Linux Systems object.

   Locate the UNIX or Linux server and select the data that you want to restore.

4. Click the Destination tab.

   The destination options appear.

5. On the Destination tab, specify the location where you want to restore the data.

   To specify an alternate location, clear the check mark next to Restore files to their original locations and specify the alternate location.

6. Click the Schedule tab.

   The scheduling options appear.

7. From the Repeat Method drop-down list, specify once.

   Note: For more information about scheduling jobs, see *Administration Guide*.

8. Click Options on the toolbar to define the restore options required for the job.

   Note: For more information about restore options, see the *Administration Guide*.

9. Click Submit on the toolbar to submit the job.

   The Restore Media dialog opens.

10. From the drop down list on the Restore Media dialog, specify the server where you want the restore job to run. By default, the primary server is specified.

When specifying a location, consider the following:

- If you are restoring data mover data, you should specify the data mover server as the restore media location. If you select the primary server, the restore job runs as a remote network restore.

- If you specify to restore from a different data mover server, the restore destination should be to the same data mover server.

- As a best practice, you should specify a location where the job will have the least impact on your environment. Consider the following example: the data mover server contains database records that users update continuously. You submit a job to restore data to the data mover server as a local restore. To minimize the use of system resources on the data mover server, you should let the restore job execute from any other backup server that can access the backup data, such as the primary server.

11. Click OK.

    The Submit Job dialog opens.

12. Complete the required fields on the Submit Job dialog and click OK.

    The restore job is submitted.

Restore Data Using Restore by Session

Use the Restore by Session method to restore data from a specific version of backup data.

To restore data using Restore by Session

1. Open the Restore Manager window and click the Source tab.

   The source options appear.

2. From the drop-down list, select Restore by Session.

   The backup sessions appear in the session directory tree.

3. Expand Sessions and browse the session containing the data that you want to restore.
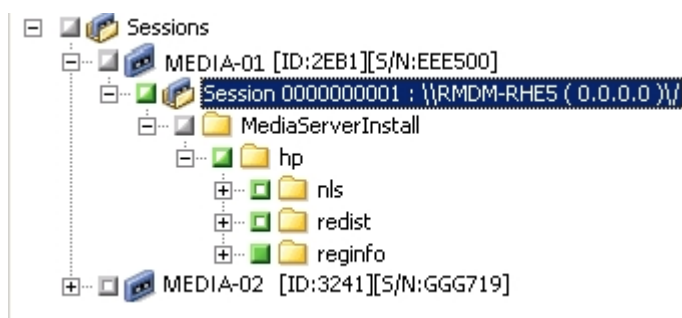
4. Click the Destination tab.

   The destination options appear.

5. On the Destination tab, specify the location where you want to restore the data.

   To specify an alternate location, clear the check mark from Restore files to their original locations and specify the alternate location.

6. Click the Schedule tab.

   The scheduling options appear.

7. Specify Once from Repeat Method.

   Note: For more information about scheduling jobs, see the *Administration Guide*.

8. Click Options on the toolbar to define the restore options required for the job.
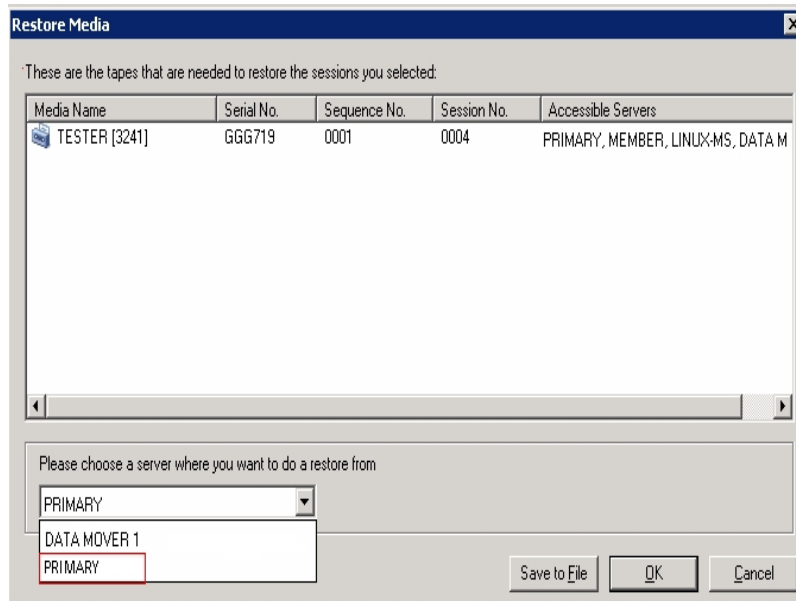
   Note: For more information about restore options, see the *Administration Guide*.

9. Click Submit on the toolbar to submit the job.

   The Restore Media dialog opens.

10. From the drop down list on the Restore Media dialog, specify the server where you want the restore job to run. By default, the primary server is specified.

When specifying a location, consider the following:

- If you are restoring data mover data, you should specify the data mover server as the restore media location. If you select the primary server, the restore job runs as a remote network restore.

- If you specify to restore from a different data mover server, the restore destination should be to the same data mover server.

- As a best practice, you should specify a location where the job will have the least impact on your environment. Consider the following example: the data mover server contains database records that users update continuously. You submit a job to restore data to the data mover server as a local restore. To minimize the use of system resources on the data mover server, you should let the restore job execute from any other backup server that can access the backup data, such as the primary server.

11. Click OK.

    The Submit Job dialog opens.

12. Complete the required fields on the Submit Job dialog and click OK.

    The restore job is submitted.

Chapter 4: Best Practices

Arcserve Backup UNIX and Linux Data Mover is a server component that lets you back up and restore data that resides on UNIX and Linux servers. UNIX and Linux Data mover lets you transfer the backup data to locally accessible disks and shared tape libraries.

This section describes best practices that you can use to manage Arcserve Backup environments that contain data mover servers.

This section contains the following topics:

Best Practices for Installing UNIX and Linux Data Mover

Use the following best practices to help ensure that you can successfully register data mover servers with the Arcserve Backup primary server:

▪ Install the Arcserve Backup primary server component and all prerequisite components before you install UNIX and Linux Data Mover on the target UNIX or Linux server.

To deploy UNIX and Linux Data Mover, you must install the following prerequisite components on the primary server:

    – Arcserve Backup Primary Server

    – Arcserve Backup Central Management Option

    – (Optional) Arcserve Backup Enterprise Module

    You must install and license the Enterprise Module license only to perform staging backup operations with more than two streams of backup data, multistreaming, or both. You must register one Enterprise Module license for each data mover server.

    – (Optional) Arcserve Backup Tape Library Option

    – (Optional) Arcserve Backup Storage Area Network (SAN) Option

    You must install and license the Storage Area Network (SAN) Option and the Tape Library Option only if you are backing up data to libraries that are shared between the primary server and the data mover server.

Note: Arcserve Backup manages the licenses for the Enterprise Module, Tape Library Option, and Storage Area Network Option centrally from the primary server.

▪ Ensure that all Arcserve Backup services are running on the primary server.

You can verify that the services are running from the Arcserve Backup Server Admin.

Note: For information about using the Server Admin Manager, see the *Administration Guide*.

▪ Ensure that the Arcserve Backup primary server and the data mover servers can communicate with each other. You can verify that the servers can communicate using the ping host name command.

Solutions

– If the primary server cannot ping the data mover server, ensure that the servers are properly connected to the network. Then, add the host name and IP address of the data mover servers to the hosts file on the primary server.

The hosts file is located in the following directory on the primary server:

%Windows%/system32/drivers/etc/hosts

– If the data mover servers cannot ping the primary server, ensure that the servers are properly connected to the network. Then, add the host name and IP address of the primary server to the hosts file located on the data mover servers.

The hosts file is located on in the following directory on data mover servers:

/etc/hosts

Note: If there is a firewall configured on the target data mover server, add Arcserve Backup to the firewall exceptions list on the target data mover server.

▪ Ensure that you apply all required operating system updates and patches to the primary server and the data mover servers.

Note: For more information, see the Release Notes.

▪ Ensure that you allow a sufficient amount of free disk space on the data mover servers to support the installation of UNIX and Linux Data Mover and the agents running on the servers.

▪ Ensure that the /tmp directory on the data mover servers contains permission 0777 and at least 2 MB of free disk space. We recommend this approach because the Arcserve Backup uses the /tmp directory (before and after installation) to store log files and other miscellaneous temporary files.

▪ To protect data that resides on data mover servers, you should install at least one of the following file system agents on the data mover server while you install UNIX and Linux Data Mover:

– Client Agent for Linux

– Client Agent for UNIX

– Agent for Oracle on UNIX

– Agent for Oracle on Linux

Note: Setup installs the Client Agent for UNIX or the Client Agent for Linux when you install UNIX and Linux Data Mover. You can install more agents after you install UNIX and Linux Data Mover.

Best Practices for Creating Files System Devices

Use the following best practices to help ensure that you can successfully back up data to file system devices (FSDs).

- You should avoid creating FSDs on critical system volumes. For example:

    - Linux

        "/", "/boot", "/tmp", "/usr"

    - AIX

        "/", "/usr", "/tmp"

    - HP

        "/", "/usr", "/stand", "/tmp"

    This practice helps ensure that operating system performance is not adversely affected if the backup data consumes all the available free disk space on the FSD.

- You should always create FSDs on stand-alone hard disks. This practice helps ensure that the backup data does not adversely affect system volumes, and helps to improve the overall performance of the hard disk.

- You should verify that there is sufficient amount of free disk space to store the backup data on the hard disk before you submit the jobs. This practice helps ensure that the backup does not consume all the free disk space in the volume. If the FSD was created in a critical system volume, such as "/", this practice also helps ensure that the operating system does not stop responding when the FSD is full.

Best Practices for Configuring Data Mover Switches

UNIX and Linux Data Mover contains switches that let you customize how Arcserve Backup behaves in various conditions.

To customize the values of the switches, open the following configuration file on the data mover server:

/opt/Arcserve/ABcmagt/agent.cfg

The following example describes the syntax for configuring switches for UNIX and Linux Data Mover in the agent.cfg configuration file.

Note: If necessary, you can add switches into this section.

```
[260]
#[Data Mover]
NAME ABdatmov
VERSION 17.0
HOME /opt/Arcserve/ABdatamover
ENV CA_ENV_DEBUG_LEVEL=5
#ENV CA_ENV_NDMP_LOG_DEBUG=1
ENV AB_OS_TYPE=RHEL_2.6.18_I686
ENV DATAMOVER_HOME=/opt/Arcserve/ABdatamover
ENV LD_LIBRARY_PATH-
H=/opt/Arcserve/ABdatamover/lib:/opt/Arcserve/ABcmagt:$LD_LIBRARY_PATH
ENV SHLIB_PATH=/opt/Arcserve/ABdatamover/lib:/opt/Arcserve/ABcmagt:$SHLIB_
PATH
ENV LIBPATH=/opt/Arcserve/ABdatamover/lib:/opt/Arcserve/ABcmagt:$LIBPATH
BROWSER NDMPServer
AGENT dagent
```

Arcserve Backup lets you configure the following switches:

- **CA_ENV_DEBUG_EARLY_WARNING**

  Lets Arcserve Backup trigger false early warnings in megabyte (MB) increments.

  Early warnings relate to tape media. While writing data to tape, devices can trigger early warnings when the tape is almost full. For example, a tape capacity is 1 GB and the amount of used space is 890 MB. Arcserve Backupcan trigger early warning message when there is 890 MB of data written to the tape. The warning lets Arcserve Backup close the tape and span the backup to the next tape.

  Note: This switch affects only backups to tape media.

– **Value**--1 to 99999

Arcserve Backup triggers false early warning messages after each <value> MB of data is written to tape.

– **Value**--0

Arcserve Backup does not trigger false early warning messages.

Example:

ENV CA_ENV_DEBUG_EARLY_WARNING=500

Lets Arcserve Backup trigger false early warning messages when the amount of data written to tape during the backup equals 500 MB, 1000 MB, 1500 MB, and so on.

▪ **CA_ENV_DEBUG_MB_CHECK_THRESHOLD**

Lets Arcserve Backup check the staging FSD threshold in MB increments.

– **Value**--1 to 99999

Arcserve Backup checks the staging FSD threshold in <value> MB increments.

– **Value**--0

Arcserve Backup checks the staging FSD threshold in 50 MB increments.

As a best practice, you should specify an intermediate value for this switch. With a low value, such a 5 MB, Arcserve Backup frequently checks the staging FSD threshold, which can require a significant amount of system resources. With a high value, such as 50000 MB, Arcserve Backup checks the staging FSD threshold only after 50000 MB of data is written to the FSD during the staging backup job.

Example:

ENV CA_ENV_DEBUG_MB_CHECK_THRESHOLD=100

Lets Arcserve Backup check the staging FSD threshold for each 100MB of data that is written to an FSD during a staging backup job.

▪ **CA_ENV_SNAPIN_FILE_LIMIT**

Lets you define an artificial file size limit for FSD sessions.

– **Value**--Integer

Arcserve Backup generates session files for each backup session to FSDs. If the size of the session files are within the file size limit for the operating system, Arcserve Backup generates extended session files. For example, the file size

limit for an operating system is 1 GB. The size of the backup session is 2.5 GB. As a result, Arcserve Backup generates three session files.

For a user-defined value of 100, Arcserve Backup divides the backup sessions into new session files after each 100 MB of backup data. This option can be used to test the file size limit on various platforms, such as Linux, which allows large file sizes for a single file.

Be aware of the following:

- The artificial file size cannot exceed the maximum file size allowed by the operating system.

- This switch does not require configuration on real environments.

Example:

ENV CA_ENV_SNAPIN_FILE_LIMIT=100

Lets Arcserve Backup split session files after each 100MB of backup data.

- **CA_ENV_DEBUG_LEVEL**

Lets you define the level of debugging information for the data mover device component. Arcserve Backup generates debugging log files and stores them in the following directory:

/opt/Arcserve/ABdatamover/logs/dagent.log

The best practice is to specify a log level between 1 and 3. If you require detailed debugging information, specify 5.

- **Value**--0

Lets Arcserve Backup display only error and warning messages.

- **Value**--1, 2, 3, 4

Lets Arcserve Backup display an increasing amount of debugging information.

- **Value**--5

Lets Arcserve Backup display the highest amount of debugging information.

- **Value**--6

Lets Arcserve Backup display detailed trace information.

Note: Debug level 6 generates a large number of log messages.

- **Default**--3

Example:

ENV CA_ENV_DEBUG_LEVEL=5

Lets Arcserve Backup generate log files that display the highest amount of debugging information.

▪ **CA_ENV_NDMP_LOG_DEBUG**

Lets you define the level of debugging information for data mover NDMPServer component. Arcserve Backup generates debugging log files and stores them in the following directory:

/opt/Arcserve/ABdatamover/logs/NDMPServer.log

The best practice is to specify a log level of 0.

  – **Value--**0

  Lets Arcserve Backup record only critical errors.

  – **Value--**1

  Lets Arcserve Backup record detailed debugging information.

  – **Default--**0

Example:

ENV CA_ENV_NDMP_LOG_DEBUG=1

Lets Arcserve Backup generate log files that contain detailed debugging information.

▪ **CA_ENV_AGENT_TIME_OUT**

Lets you define the period of time that device agent waits after attempting to start file system agents or the Agent for Oracle. If the device agent cannot start the file system agent or the Agent for Oracle, or, the device agent cannot communicate with the file system agent for the Agent for Oracle within the timeout period, the job will fail.

  – **Value--**1-99999 Integer (seconds)

  – **Default--**600 (seconds)

Be aware of the following best practices:

  ▪ **File system agents--**The default value is acceptable for most scenarios. However, if you specified a pre- backup script that contains a waiting period, you should specify a timeout value that compensates for the pre- backup script.

  Note: For more information about pre- backup scripts, see the *Administration Guide*.

  ▪ **Agent for Oracle--**The default value is acceptable for most scenarios. However, if you encounter difficulties starting the Agent for Oracle

within 10 minutes, you can specify a timeout value that is greater than 10 minutes.

Example:

ENV CA_ENV_AGENT_TIME_OUT=600

Lets Arcserve Backup wait 600 seconds (10 minutes) before failing the job.

- **CA_ENV_TAPE_SPAN_TIME_OUT**

  Lets you define a timeout value for tape spanning operations. During the process of spanning tapes, the Arcserve Backup primary server communicates with the data mover server. If the data mover server does not receive communication from the primary server within the timeout period, the job will fail.

  Note: This switch does not usually require reconfiguration.

  – **Value--**1-99999 Integer (seconds)

  – **Default--**600 (seconds)

  Example:

  ENV CA_ENV_TAPE_SPAN_TIME_OUT=600

  Lets Arcserve Backup wait 600 seconds (10 minutes) before failing the job.

- **CA_ENV_FSD_PURGE_TIME_OUT**

  Lets you define the timeout value for FSD Purge operations. During the process of purging data from FSDs, the Arcserve Backup primary server communicates with the data mover server. If the data mover server does not receive communication from the primary server within the timeout period, the job will fail.

  Note: This switch does not usually require reconfiguration.

  – **Value--**1-99999 Integer (seconds)

  – **Default--**600 (seconds)

  Example:

  ENV CA_ENV_FSD_PURGE_TIME_OUT=600

  Lets Arcserve Backup wait 600 seconds (10 minutes) before failing the job.

- **CA_ENV_CLEAN_DRIVE_TIME_OUT**

  Lets you define the timeout value for tape drive cleaning operations. During the process of cleaning tape drives, the Arcserve Backup primary server communicates with the data mover server. If the data mover server does not receive communication from the primary server within the timeout period, the job will fail.

Note: This switch does not usually require reconfiguration.

- **Value**--1-99999 Integer (seconds)
- **Default**--600 (seconds)

Example:

ENV CA_ENV_CLEAN_DRIVE_TIME_OUT=600

Lets Arcserve Backup wait 600 seconds (10 minutes) before failing the job.

How to Detect Devices Attached to Servers

This topic describes how to detect devices that are attached to data mover servers and how to detect SCSI devices attached to specific platforms.

Data Mover Servers

All devices appear as a link file in the /dev/Arcserve directory on data mover servers, as illustrated by the following screen:

Key

- Changer files: lib:x,x,x,x

- Device files: tape:x,x,x,x

The DeviceSerialMap file contains the information about changers and devices that are attached to the data mover server.

Linux Platforms (Example: Red Hat Enterprise Linux)

- Use the following syntax to detect all changers:

▪ Use the following syntax to detect all devices:

```
[root@COMP01-rh53ia dev]# cat /proc/scsi/scsi.
Attached devices:
Host: scsi1 Channel: 00 Id: 00 Lun: 00
  Vendor: MAXTOR   Model: ATLAS10K4_36SCA  Rev: DFM0
  Type:   Direct-Access               ANSI SCSI revision: 03
Host: scsi1 Channel: 00 Id: 01 Lun: 00
  Vendor: SEAGATE  Model: ST336753LC      Rev: DX10
  Type:   Direct-Access               ANSI SCSI revision: 03
Host: scsi1 Channel: 00 Id: 06 Lun: 00
  Vendor: ESG-SHV  Model: SCA HSBP M24    Rev: 1.0A
  Type:   Processor                   ANSI SCSI revision: 02
Host: scsi3 Channel: 00 Id: 00 Lun: 00
  Vendor: ADIC     Model: Scalar i2000    Rev: 100A
  Type:   Medium Changer              ANSI SCSI revision: 03
Host: scsi3 Channel: 00 Id: 00 Lun: 01
  Vendor: ATL      Model: P4000           Rev: 3.40
  Type:   Medium Changer              ANSI SCSI revision: 03
Host: scsi3 Channel: 00 Id: 00 Lun: 02
  Vendor: HP       Model: ESL9000 Series  Rev: 3.41
  Type:   Medium Changer              ANSI SCSI revision: 03
Host: scsi3 Channel: 00 Id: 00 Lun: 03
  Vendor: IBM      Model: ULTRIUM-TD2      Rev: 333K
  Type:   Sequential-Access           ANSI SCSI revision: 03
```

Note: You can access all types of SCSI devices using the sg driver. The sg device mapping configurations can be viewed in the /proc/scsi/sg/devices directory or the /proc/scsi/sg/device_strs directory.

UNIX Platforms (Example: SUN 10)

SUN 10 operating systems use two types of SCSI drivers: st and sgen. You can determine the types of drivers and changers from the /etc/driver_aliases file. The following screen illustrates that the driver type is st and the changer type is scsiclass,01.

```
bash-3.00# cat /etc/driver_aliases |grep scsi|grep st
st "scsiclass,01"
```

The following list describes the syntax for st drivers.

▪ To detect all st changers, use the following syntax:

```
bash-3.00# ls /dev/scsi/changer
c2t50014380018CC74Fd0   c2t50014380018CC75Fd0   c3t6d0
c2t50014380018CC757d0   c3t5d0                  c3t9d0
```

▪ To detect check the status of st device, use the following syntax:

```
bash-3.00# ls /dev/rmt/?
/dev/rmt/0  /dev/rmt/2  /dev/rmt/4  /dev/rmt/6  /dev/rmt/8
/dev/rmt/1  /dev/rmt/3  /dev/rmt/5  /dev/rmt/7  /dev/rmt/9
bash-3.00# ls /dev/rmt/?[0-9]
/dev/rmt/10  /dev/rmt/12  /dev/rmt/14
/dev/rmt/11  /dev/rmt/13  /dev/rmt/15
```

▪ To detect all available st devices, use the following syntax:

```
bash-3.00# mt -f /dev/rmt/8 status
Unconfigured Drive: Vendor 'HP      ' Product 'Ultrium VT     ' tape dri
ve:
   sense key(0x0)= No Additional Sense   residual= 0   retries= 0
   file no= 0   block no= 0
```

Note: If st devices are not available, the following results appear:

```
bash-3.00# mt -f /dev/rmt/1 status
/dev/rmt/1: No such file or directory
```

Note: Optionally, you can obtain a device list from the /kernel/drv/st.conf file.

The following list describes the syntax for sgen drivers:

▪ For sgen changers, use the same syntax as all st changers.

▪ For sgen devices, use the same syntax as st all devices and reference the /dev/scsi/sequential file.

▪ Optionally, you can obtain a device list from the /kernel/drv/sgen.conf file.

UNIX Platforms (Example: HP RISC 11.23)

▪ Use the following syntax on HP RISC 11.23 operating systems to detect changer information:

bash-4.0# ioscan -FnC autoch
scsi:wsio:T:T:F:29:231:262144:autoch:schgr:0/3/1/0.0.0.0.0.0:8 128 3 2 0 0 0 0 2
47 199 17 149 21 224 137 113 :3:root.sba.lba.lpfc.lpfd.tgt.schgr:schgr:CLAIMED:D
EVICE:HP D2DBS:4
/dev/rac/c4t0d0
scsi:wsio:T:T:F:29:231:589824:autoch:schgr:0/3/1/0.0.5.0.0.0:8 128 3 2 0 0 0 1
53 125 185 26 130 50 80 249 :1:root.sba.lba.lpfc.lpfd.tgt.schgr:schgr:CLAIMED:DE
VICE:HP MSL G3 Series:9
/dev/rac/c9t0d0
scsi:wsio:T:T:F:29:231:917504:autoch:schgr:0/3/1/0.0.10.0.0.0:8 128 3 2 0 0 0
153 125 185 26 242 88 164 118 :2:root.sba.lba.lpfc.lpfd.tgt.schgr:schgr:CLAIMED:
DEVICE:HP MSL G3 Series:14
/dev/rac/c14t0d0

- Use the following syntax on HP RISC 11.23 operating systems to detect available device information:

```
bash-4.0# ioscan -fnC tape
Class I H/W Path Driver S/W State H/W Type Description
=================================================================-
=======
tape 15 0/3/1/0.0.1.0.0.0 stape CLAIMED DEVICE HP Ultrium VT
/dev/rmt/15m /dev/rmt/c5t0d0BEST
/dev/rmt/15mb /dev/rmt/c5t0d0BESTb
/dev/rmt/15mn /dev/rmt/c5t0d0BESTn
/dev/rmt/15mnb /dev/rmt/c5t0d0BESTnb
tape 14 0/3/1/0.0.2.0.0.0 stape CLAIMED DEVICE HP Ultrium VT
/dev/rmt/14m /dev/rmt/c6t0d0BEST
/dev/rmt/14mb /dev/rmt/c6t0d0BESTb
/dev/rmt/14mn /dev/rmt/c6t0d0BESTn
/dev/rmt/14mnb /dev/rmt/c6t0d0BESTnb
tape 17 0/3/1/0.0.3.0.0.0 stape CLAIMED DEVICE HP Ultrium VT
/dev/rmt/17m /dev/rmt/c7t0d0BEST
/dev/rmt/17mb /dev/rmt/c7t0d0BESTb
/dev/rmt/17mn /dev/rmt/c7t0d0BESTn
/dev/rmt/17mnb /dev/rmt/c7t0d0BESTnb
tape 7 0/3/1/0.0.6.0.0.0 stape CLAIMED DEVICE HP Ultrium 3-SCSI
/dev/rmt/7m /dev/rmt/c10t0d0BEST
/dev/rmt/7mb /dev/rmt/c10t0d0BESTb
/dev/rmt/7mn /dev/rmt/c10t0d0BESTn
/dev/rmt/7mnb /dev/rmt/c10t0d0BESTnb
tape 8 0/3/1/0.0.7.0.0.0 stape CLAIMED DEVICE HP Ultrium 3-SCSI
/dev/rmt/8m /dev/rmt/c11t0d0BEST
/dev/rmt/8mb /dev/rmt/c11t0d0BESTb
/dev/rmt/8mn /dev/rmt/c11t0d0BESTn
/dev/rmt/8mnb /dev/rmt/c11t0d0BESTnb
```

- If the device files become unusable, you can create the device files using the following command:

```
#mkdir /tmp/tape
# mv /dev/rmt/* /tmp/tape
# insf -e
# ioscan -fnC tape
```

UNIX Platforms (Example: AIX 5.3)

- Execute the following command to capture detail information about tape media:

```
bash-3.00# lscfg -vp|grep -i -p rmt
fcnet0 U0.1-P1-I5/Q1 Fibre Channel Network Protocol Device
fscsi1 U0.1-P1-I5/Q1 FC SCSI I/O Controller Protocol Device
rmt30 U0.1-P1-I5/Q1-W50014380018CC723-L0 Other FC SCSI Tape Drive
```

rmt31 U0.1-P1-I5/Q1-W50014380018CC721-L0 Other FC SCSI Tape Drive
rmt32 U0.1-P1-I5/Q1-W50014380018CC6E7-L0 Other FC SCSI Tape Drive
rmt33 U0.1-P1-I5/Q1-W50014380018CC6E5-L0 Other FC SCSI Tape Drive
rmt34 U0.1-P1-I5/Q1-W50014380018CC6E3-L0 Other FC SCSI Tape Drive
rmt35 U0.1-P1-I5/Q1-W50014380018CC6E1-L0 Other FC SCSI Tape Drive
rmt38 U0.1-P1-I5/Q1-W50014380018CC703-L0 Other FC SCSI Tape Drive
rmt39 U0.1-P1-I5/Q1-W50014380018CC701-L0 Other FC SCSI Tape Drive

- Execute the following command to capture the status of tape media:

bash-3.00# lsdev -Cc tape
rmt30 Available 1H-08-02 Other FC SCSI Tape Drive
rmt31 Available 1H-08-02 Other FC SCSI Tape Drive
rmt32 Available 1H-08-02 Other FC SCSI Tape Drive
rmt33 Available 1H-08-02 Other FC SCSI Tape Drive
rmt34 Available 1H-08-02 Other FC SCSI Tape Drive
rmt35 Available 1H-08-02 Other FC SCSI Tape Drive
rmt36 Defined 1H-08-02 Other FC SCSI Tape Drive
rmt37 Defined 1H-08-02 Other FC SCSI Tape Drive
rmt38 Available 1H-08-02 Other FC SCSI Tape Drive
rmt39 Available 1H-08-02 Other FC SCSI Tape Drive

Ports Used by UNIX and Linux Data Mover

Arcserve Backup uses various ports that let data mover servers communicate with other Arcserve Backup servers in your backup environment. Setup defines the default ports when you install the Arcserve Backup base product and UNIX and Linux Data Mover. As your backup environment evolves, you may find it necessary to modify the ports that data mover servers use to communicate. For example:

- Other applications use the same ports that data mover servers use to communicate.

- You want to use alternative communication ports.

- The policies defined by your company dictate that you use specific communication ports.

This section contains the following topics:

Configure TCP/UDP Port 6051

Configure TCP Ports 7099, 2099, and 20000-20100

Configure TCP/UDP Port 6051

Arcserve Backup uses TCP/UDP port 6051 to facilitate communication between the primary server and Arcserve Backup services running on agent computers.

For example, port 6051 lets the Common Agent, file system agents, the Agent for Oracle, and so on, communicate with the backup server to perform operations such as the following:

- Back up data

- Restore data

- Browse data mover server nodes from the Arcserve Backup Manager Console

- Format media and erase data that resides on tape media and FSDs that are attached to data mover servers

Note: Port 6051 communication is required on the primary server, member servers, data mover servers, and Arcserve Backup agents.

To configure TCP/UDP port 6051

1. Configure TCP/UDP port 6051 on the Arcserve Backup server.

   Note: For information about how to configure TCP/UDP port 6051 on Windows computers, see the *Implementation Guide*.

2. Access the following directory on the data mover server:

   /opt/Arcserve/ABcmagt

3. Open the file named agent.cfg using a text editing application.

4. Locate the following syntax:

   #TCP_PORT 6051
   #UDP_PORT 6051

   Delete the character # that precedes the above syntax.

5. Close agent.cfg and save your changes.

6. Restart the Common Agent by executing the following commands:

   Caagent stop
   Caagent start

Configure TCP Ports 7099, 2099, and 20000-20100

Arcserve Backup uses TCP ports 7099, 2099, and 20000-20100 to facilitate the following tasks:

- Communication between the primary server and the Agent for Oracle for UNIX or the Agent for Oracle for Linux that is installed on the data mover servers.

- Registering data mover servers with the primary server using regtool.

Note: Ports 7099, 2099, and 20000-20100 do not require configuration if you do perform the above tasks.

To configure TCP Ports 7099, 2099, and 20000-20100

1. Configure TCP ports 7099, 2099, and 20000-20100 on the Arcserve Backup server.

   Note: For information about how to configure ports 7099, 2099, and 20000-20100 on Windows computers, see the *Implementation Guide*.

2. Access the following directory on the data mover server:

   /opt/Arcserve/SharedComponents/Arcserve Backup/jcli/conf

3. Open the file named mgmt.properties using a text editing application.

4. Locate the following syntax and specify the port number that you require:

   sslport
   nonsslport
   clntportrange

   Example:

   sslport 7099

   Note: You do not need to restart the Common Agent.

Alternative Backup Approaches

The following sections describe alternative approaches that you can use to back up data using UNIX and Linux Data Mover. These approaches let you back up data using data mover servers that cannot back up data to shared tape libraries.

How to Back up Data to an FSD in a Disk Array that is Shared Between a Primary Server and a Data Mover Server

This approach describes how to back up data to an FSD in a disk array that is shared between a primary server and a data mover server.

The following diagram illustrates this configuration:
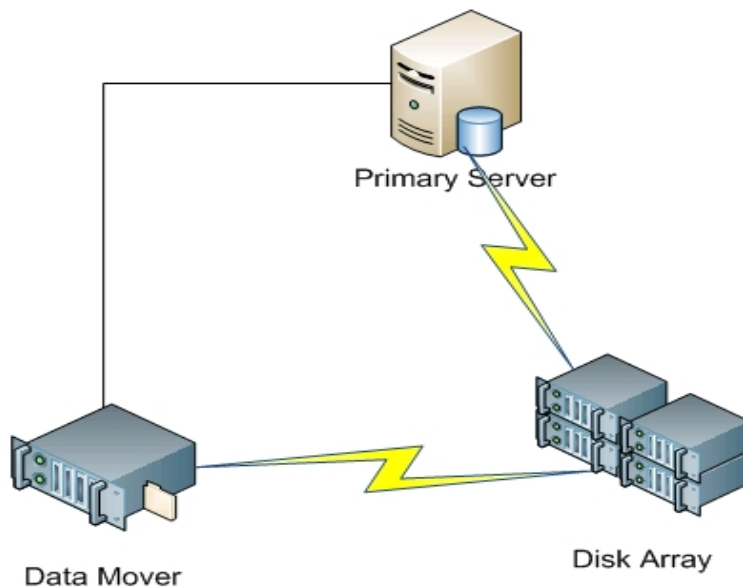
To back up data to shared disk arrays, do the following:

1. Mount the disk array to the data mover server. For example:

    /disks

2. Mount the disk array to the primary server. For example:

    X:\

3. Create a file system device (FSD) on the data mover server using the following directory:

    /disks/fsd

4. Create an FSD on the primary server using the following directory (case-sensitive):

    X:\fsd

    Note: Ensure that X:\fsd references the same directory as /disks/fsd on the disk array.

5. Submit your backup jobs to /disks/fsd on the data mover server.

   Be aware for the following:

   ▪ You should specify a rotation scheduled job to merge the FSD from the primary server.

   ▪ If you need to restore data, merge the FSD media from X:\fsd on the primary server. You do not need to merge the media if it was merged previously.

6. Run the restore job using the merged sessions.

   You can then restore the sessions from the primary server to any location in your environment.

Note: To restore data that was backed up using this approach, you must merge the media relating to the FSD backup sessions and then execute the restore using the merged sessions.

How to Back up Data to a Local FSD Using Staging and Network File System Device

This approach describes how to back up data using the following configuration:

- A high speed FSD is attached locally to the data mover server.
- A large volume disk is attached remotely to the data mover server.
- (Optional) The primary server is connected to the large volume disk.

The following diagram illustrates this configuration:
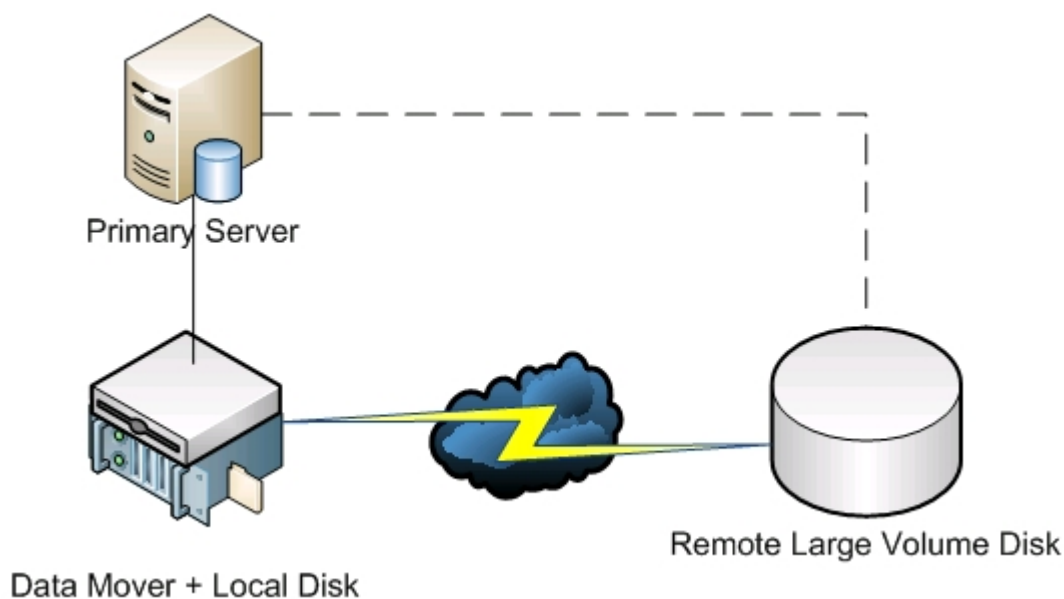
This approach lets you configure staging backup jobs that consist of two steps:

- The first step lets you back up data to locally attached staging FSDs.
- The second step lets you migrate the data from the locally attached staging FSDs to the large volume disk FSD when the network is idle.

To configure this approach, do the following:

1. Create an FSD on the device that is attached locally to the data mover server.

2. Configure this device as a staging FSD.

3. Create an FSD on the remote large volume disk.

4. Submit a staging backup job as follows:

    - The job backs up data to the locally attached FSD.

    - The job migrates the data to the remote large volume disk when the network is idle.

Best Practices for Protecting Oracle Data

UNIX and Linux Data Mover lets you back up Oracle data to locally attached file system devices and tape libraries that are shared with the primary server. This capability lets you transfer data via local communication, which helps to reduce the load on your network.

To back up data at Oracle database granularity, you must install the Agent for Oracle on the data mover servers.

The following sections describe best practices that you can use to protect Oracle data using UNIX and Linux Data Mover.

This section contains the following topics:

Back Up Oracle Database Data to Data Mover Servers

How to Back Up Oracle Database Data to Data Mover Servers Using the RMAN Console

How to Restore Oracle Database Data from Data Mover Servers

How to Back Up and Restore Oracle Database Data Using Local Data Mover Servers in a Multi-NIC Environment

Troubleshooting Oracle RMAN Backups with UNIX and Linux Data Mover

Log Files You Can Use to Analyze Failed Jobs

How to Configure UNIX and Linux Data Mover and the Agent for Oracle in an Oracle RAC Environment

Back Up Oracle Database Data to Data Mover Servers

You can back up Oracle database data to data mover servers only after doing the following:

- Install the Agent for Oracle on the UNIX or Linux nodes.

- Install UNIX and Linux Data Mover on the same UNIX or Linux nodes.

- Register the data mover server with the primary server in the Arcserve Backup domain.

To back up Oracle database data to data mover servers

1. Log into the data mover server.

2. Open a Command Line window and change to the Agent for Oracle home directory

3. Execute orasetup to configure the oracle agent.

4. When prompted to back up data to a local data mover server, enter Y.

```
bash-3.00# ./orasetup

Please enter Backup Agent Home directory (default:/opt/Arcserve/ABoraagt):

Are you planning to backup data to Data Mover devices (Recommended. This will
 enable backup/restore via rman command line always use devices on Data Mover
)? (y/n): y

Is ORACLE installed on this machine ? (y/n):
```

5. From the Source tab on the Backup Manager window, expand the Oracle objects and select the objects that you want to back up.

6. Click the Destination tab on the Backup Manager window.

   A list of data mover nodes displays.

7. Specify the device that you want to use for the backup.

8. Specify the options and schedule that you require for the job.

   Note: For more information, see Back Up Data to UNIX and Linux Data Mover Servers or the *Administration Guide*.

9. Submit the job.

How to Back Up Oracle Database Data to Data Mover Servers Using the RMAN Console

Arcserve Backup lets you back up Oracle database data using the Oracle RMAN console. Use the following best practices to set up RMAN scripts that let you back up Oracle database data to data mover servers.

1. Execute orasetup to configure the Agent for Oracle to back up data to a local data mover server.

2. Open the sbt.cfg configuration file.

   Note: By default, the configuration file is stored in the Agent for Oracle home directory on the data mover server.

3. Edit the configuration file to direct Arcserve Backup back up Oracle data to the tape that you want to use for the backup.

   Note: You can specify a tape group or a specific tape. If you do not specify a tape group or a specific tape, Arcserve Backup stores the backup data to any device that is available when the backup job executes.

4. From the primary server, execute ca_auth to add equivalence for <oracle user->/<node name>. The value of <oracle user> is the user name that you use to log into the RMAN Console. The value of <node name> is the host name of the data mover server.

   You can now execute the RMAN script from the RMAN Console to submit the backup.

How to Restore Oracle Database Data from Data Mover Servers

Arcserve Backup lets you restore Oracle database data directly from data mover servers. Use the following best practices to restore the data.

1. Open the Restore Manager and do the following:

   ▪ Click the Source tab and specify the objects that you want to restore.

   ▪ Click Options on the toolbar and specify the options that you require for the job.

   ▪ Click Submit on the toolbar to submit the job.

   After you complete the required fields on the Submit dialog, the Restore Media dialog opens.

2. From the Please choose a server where you want to do a restore from drop-down list, specify the server from which you want to restore the Oracle database data.
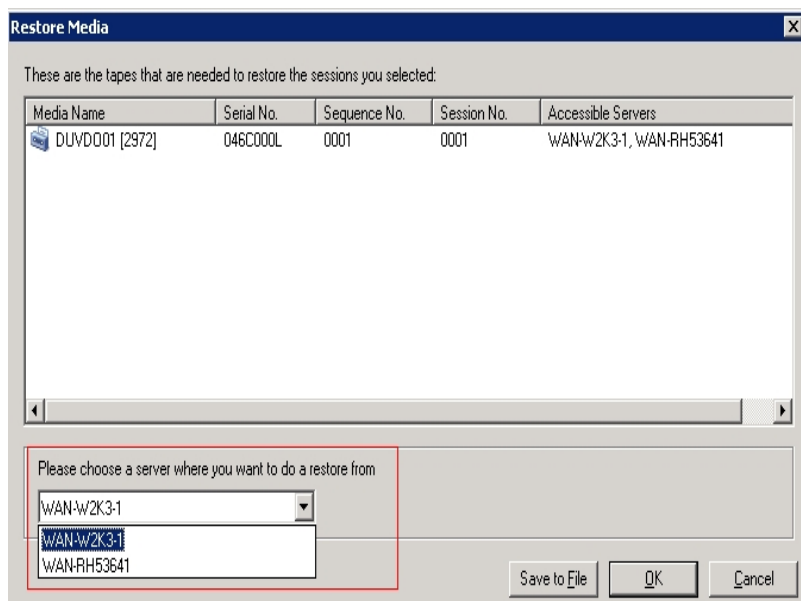
Consider the following best practices:

   ▪ With shared devices, you can restore data from the primary server or data mover. However, you should specify the data mover server on the Restore Media dialog to ensure that you restore the data from the local data mover server.

   ▪ Optionally, you can restore Oracle database data from the RMAN Console. With RMAN Console restores, it is not necessary to specify the device information in the sbt.cfg configuration file. The restore behaves in the manner

because RMAN obtains information about the tape media while processing the restore.

How to Back Up and Restore Oracle Database Data Using Local Data Mover Servers in a Multi-NIC Environment

In an enterprise-level environment, it is common practice to configure Oracle computers with more than one network interface card (NIC). To overcome possible performance issues and network security issues, the best practice is to designate specific IP addresses to perform backup and restore operations.

The following steps describe best practices that you can use to set up your backup environment to back up Oracle data to data mover servers that contain more than one NIC.

1. From the primary server, open the hosts file located in the following directory:

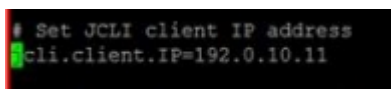   %SYSTEMRoot%\system32\drivers\etc\

   Add the host name and IP address of the NIC on the data mover server that you want to use for backup and restore operations. You must specify the precise IP address, however, you can specify a meaningful host name, given that there is a meaningful host name configured in the DNS associated with the specified IP address. For example, HostNameA.

2. From the primary server, ping the host name of the data mover server. For example, HostNameA. Ensure that the ping command returns the IP address that corresponds with the host name that you specified.

3. From the primary server, open Device Configuration. Configure a UNIX/Linux Data Mover named HostNameA. If HostNameA is registered with a different host name, unregister the data mover server and then register data mover using HostNameA. For more information, see How to Register the Data Mover Server with the Primary Server.

4. Log into the data mover server. Open the following file:

   /opt/Arcserve/SharedComponents/Arcserve Backup/jcli/conf/clishell.cfg

   Remove the comment syntax from "jcli.client.IP=" to set the specific IP address, as illustrated by the following screen:

5. From the Agent for Oracle home directory on the data mover server, open the sbt.cfg configuration file.

   Specify HostNameA for the following attributes:

   SBT_DATA_MOVER
   SBT_ORIGINAL_CLIENT_HOST

   The following screen illustrates the required modifications:

After you complete the above steps you can use Arcserve Backup or the RMAN Console to back up and restore Oracle database data using a specific IP address.

Be aware of the following considerations:

- If you registered the data mover server using a different host name, you should submit a full backup of the Oracle database after you complete the above configurations. This is a best practice that helps to ensure that you can restore Oracle database data that was backed up using either the current host name or the previous host name.

- Although you can register data mover servers with the primary server using the IP address or the host name, the best practice is to register the data mover server with the primary server using the host name of the data mover server. We recommend this approach because the host name is more meaningful to users, and IP addresses can change.

Troubleshooting Oracle RMAN Backups with UNIX and Linux Data Mover

The following topics describe best practices that you can use to troubleshoot Oracle RMAN backups with UNIX and Linux Data Mover.

This section contains the following topics:

Log in Errors Occur When You Attempt to Expand the Oracle Instance in the Backup Manager

Valid on UNIX and Linux platforms.

Symptom

When you expand the Oracle instance in the Backup Manager, log in errors occur.

Solution

To remedy the log in errors, consider the following solution:

1. Ensure the user name and password specified is correct.

2. Ensure the Oracle instance is available. The Oracle instance may either not be running or not be available in a suitable status.

3. If the user name and password are correct, and the instance is available, do the following:

   Ensure that the name of the Oracle instance and the relative Oracle home directory values that are specified in the instance.cfg configuration file are identical to the environment variable values specified when you started the Oracle instance.

   The Agent for Oracle uses the Oracle system shared memory handle to retrieve these values, and the values must be identical.

   Example:

   Instance name: orcl

   Home directory: AAAA/BBBB

   When you start the Oracle instance, you must specify orcl and AAAA/BBBB respectively. When running orasetup, you must also specify orcl and AAAA/BBBB for the instance name and the home directory.

4. If you continue to receive error messages, ensure that the directory /tmp resides on the target server, and has a permission value of 777. Permission 777 lets the Agent for Oracle write temporary files to the /tmp directory.

Backups Appear to Fail in the RMAN Console

Valid on UNIX and Linux platforms.

Symptom

Oracle RMAN backups complete successfully when submitted from the Backup Manager. However, when you submit the same jobs from the RMAN Console, the backup jobs fail.

Solution

This is expected behavior.

When you submit Oracle RMAN backups using the Backup Manager, Oracle equivalence is not required. However, when you submit Oracle RMAN backups from the RMAN Console, Oracle RMAN equivalence is required, and the child jobs associated with the backup cannot complete successfully.

RMAN Reports Missing Data Files When You Submit a Restore

Valid on UNIX and Linux platforms.

Symptom

When you restore data, Oracle RMAN reports missing data files, and jobs fail.

Solution

To remedy the missing data file errors, consider the following solution:

1. Ensure that the RMAN data that is stored on Arcserve Backup media was not destroyed. If the data was destroyed, expire the data using from the Oracle RMAN catalog using Oracle RMAN commands.

2. Ensure that the Oracle RMAN catalog information was not purged from the Arcserve Backup database. If the information was purged, merge the information from the Arcserve Backup media into the Arcserve Backup database, and then resubmit the jobs.

3. If you are attempting to restore Oracle RMAN data to an alternative node, verify that the value specified for SBT_ORIGINAL_CLIENT_HOST in sbt.cfg is the node name of the Oracle server that was backed up. With these parameters, SBT_ORIGINAL_CLIENT_HOST overrides the source node with the host name and SBT_SOURCE_NAME overrides the destination node with the host name when you submit the job.

    Note: The sbt.cfg configuration file is stored in the Agent for Oracle home directory on the UNIX or Linux server.

Log Files You Can Use to Analyze Failed Jobs

Arcserve Backup provides you with a variety of log files that you can use to analyze failed jobs.

As a best practice, you should review the log files in the following sequence:

1. From the Job Status Manager, analyze the results of the job in the Job Log and the Activity Log.

2. Analyze the following debug log files located on the Arcserve Backup server:

   <ARCSERVE_HOME>\log\tskjob<Job_No>_<Job_ID>.log
   <ARCSERVE_HOME>\log\tskjob<Master_Job_No>_<Master_Job_ID>_<Child_Job_ID>.log
   <ARCSERVE_HOME>\log\tskjob00_<Staging_Master_Job_ID>_<Migration_Job_ID>.log

3. (Optional) Analyze the Tape Engine log file located in the following directory on the Arcserve Backup server:

   <ARCSERVE_HOME>\log\tape.log

4. (Optional) Analyze the Database Engine log file located in the following directory on the Arcserve Backup server:

   <ARCSERVE_HOME>\log\cadblog.log

5. Analyze the Common Agent log file located on the data mover server. The Common Agent log file is located in the following directory on the data mover server:

   /opt/Arcserve/ABcmagt/logs/caagentd.log

6. (Optional) If you are backing up data that resides on a data mover server, analyze the Device Agent log file located in the following directory on the data mover server:

   /opt/Arcerve/ABdatamover/logs/dagent.log

7. (Optional) If you are backing up data that resides on a data mover server, and the Device Agent log indicates that a hardware error occurred, analyze the Device SnapIn module log located in the following directory on the data mover server:

   /opt/Arcserve/ABdatamover/logs/SnapIn.log

8. If the agent running on the data mover server is a file system agent, analyze the Agent log file located in the following directory on the data mover server:

   /opt/Arcserve/ABuagent/logs/uag.log

9. If the agent running on the data mover server is the Agent for Oracle, analyze the following log files located on the data mover server:

   /Arcserve/ABoraagt/logs/oraclebr.log

/opt/Arcserve/ABoraagt/logs/oragentd_JobNO1.log
/opt/Arcserve/ABoraagt/logs/oragentd_JobNO1_JobNO2.log
/opt/Arcserve/ABoraagt/logs/cmdwrapper.log:
/opt/Arcserve/ABoraagt/logs/ca_backup.log:
/opt/Arcserve/ABoraagt/logs/ca_restore.log
$ORACLE_HOME/admin/(name of database)/udump/sbtio.log

How to Configure UNIX and Linux Data Mover and the Agent for Oracle in an Oracle RAC Environment

To configure the agent for oracle in a Real Application Cluster (RAC) environment, you must install and configure the Agent for Oracle and UNIX and Linux Data Mover on at least one node that is integrated with an Oracle RAC environment. The node must be able to access all archive logs. You can install the Agent for Oracle and UNIX and Linux Data Mover on more than one node in the RAC, and each node in the RAC must also have access to all archive logs.

Arcserve Backup lets you configure the Agent for Oracle in an RAC environment to back up and restore data to data mover servers using the following configurations:

- Real host name.
- Virtual host name.

With the above configurations, Arcserve Backup can connect to any available node in your RAC environment to back up and restore Oracle RAC databases.

Configure the Agent for Oracle in an Oracle RAC Environment Using the Real Host Name

Arcserve Backup lets you configure the Agent for Oracle using the real host name for each node in your Oracle RAC environment.

Configure the Agent for Oracle in an Oracle RAC environment using the real host name

1. To back up Oracle databases to tape libraries connected to data mover servers, verify that the tape libraries are shared with the primary server and the nodes that you want to back up.

2. Install the Agent for Oracle and UNIX and Linux Data Mover on the nodes.

3. Register the data mover servers with the primary server. For more information, see How to Register the Data Mover Server with the Primary Server.

   Note: As a best practice, you should register all nodes that contain Oracle databases in an RAC environment exclusively with one primary server.

   After you install the Agent for Oracle and UNIX and Linux Data Mover on the nodes, Setup prompts you to register the node (data mover server) with the primary server. In this scenario, you can register the real host name of the nodes with the primary server. Optionally, you can register the data mover server with primary server later by executing the following command on the data mover server:

   # regtool register

4. To configure the Agent for Oracle, execute orasetup on the data mover server.

   # ./orasetup

   Note: The orasetup script is stored in the Agent for Oracle installation directory on the data mover server.

5. When orasetup prompts you to back up data to the local data mover server, specify y.


```
bash-3.00# ./orasetup

Please enter Backup Agent Home directory (default:/opt/Arcserve/ABoraagt):

Are you planning to backup data to Data Mover devices (Recommended. This will
 enable backup/restore via rman command line always use devices on Data Mover
)? (y/n): y

Is ORACLE installed on this machine ? (y/n):
```

6. When orasetup prompts you to specify the name of the Oracle RAC instance, specify the real instance ID.


```
Oracle instance id to be used by this agent [<Enter> to end]: racdb1

ORACLE_HOME environment value for this Oracle instance: (default:):
```

7. Follow the prompts and specify the required data to complete orasetup.

Configure the Agent for Oracle in an Oracle RAC Environment Using the Virtual Host Name

Arcserve Backup lets you configure the Agent for Oracle using the virtual host name for each node in your Oracle RAC environment.

Configure the Agent for Oracle in an Oracle RAC environment using the virtual host name

1. To back up Oracle databases to tape libraries connected to data mover servers, verify that the tape libraries are shared with the primary server and the nodes that you want to back up.

2. Install the Agent for Oracle and UNIX and Linux Data Mover on the nodes.

3. Log into the Arcserve Backup primary server.

    Open the Hosts file located in the following directory:

    %WINDOWS%\system32\drivers\etc\

4. Verify that the Hosts file contains the virtual host name/virtual IP address pair for each node where you installed the Agent for Oracle.

    Note: If the Hosts file does not contain the virtual host name/virtual IP address pair for each node, execute the following command to verify that the primary server can communicate with the Oracle RAC node through virtual host name.

    ping <virtual hostname>

5. Open Device Configuration.
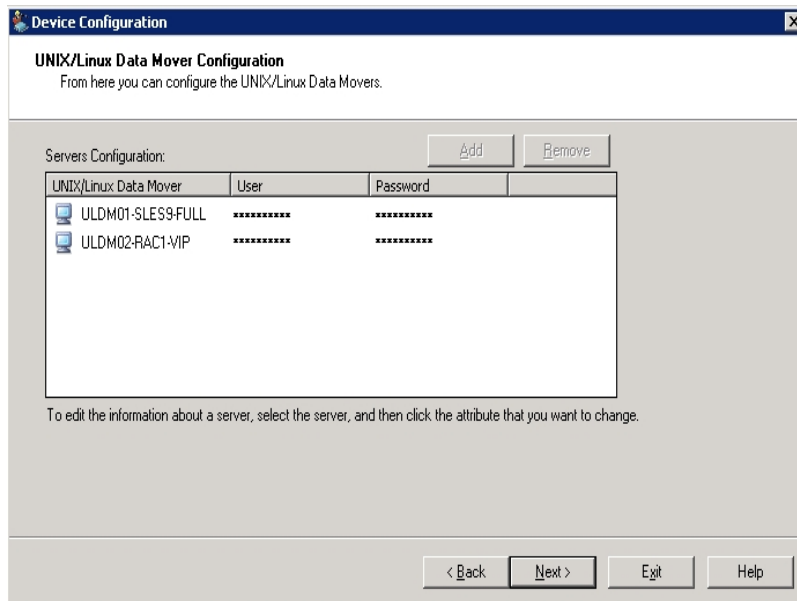
    Register each node in your Oracle RAC environment with the primary server using the virtual host name of the node. For more information, see Register the Data Mover Server with the Primary Server Using Device Configuration.

    Note: If the node was registered with the primary server using the physical host name, click Remove to unregister the node and then click Add to

register the node using the virtual host name.

6. To configure the Agent for Oracle, execute orasetup on each data mover server.

   # ./orasetup

   Note: The orasetup script is stored in the Agent for Oracle installation directory on the data mover server.

7. When orasetup prompts you to back up data to the local data mover server, specify y.

8. When orasetup prompts you to specify the name of the Oracle RAC instance, specify the real instance ID.

9. Follow the prompts and specify the required data to complete orasetup.

10. Browse to the Agent for Oracle installation directory on the data mover server.

    Open the configuration file named sbt.cfg and modify the following:

    ▪ Remove the comments from SBT_DATA_MOVER and set the value to the virtual host name using the following syntax:

    SBT_DATA_MOVER=<VIRTUAL_HOSTNAME>

    ▪ Remove the comments from SBT_ORIGINAL_CLIENT_HOST and set the value to the virtual host name using the following syntax:

    SBT_ORIGINAL_CLIENT_HOST=<VIRTUAL_HOSTNAME>

    ▪ Add SBT_SOURCE_NAME to the configuration file and set the value to the virtual host name using the following syntax:

    SBT_SOURCE_NAME=<VIRTUAL_HOSTNAME>

Chapter 5: Troubleshooting

This section contains the following topics:

Arcserve Backup Cannot Detect Data Mover Servers

Valid on UNIX and Linux platforms.

Symptom

Arcserve Backup cannot detect data mover servers and the data mover servers are registered with the primary server.

Solution

To troubleshoot this problem, complete the following steps:

1. Ensure that the data mover server is registered to the primary server.

2. Ensure that the Tape Engine on the primary server is running.

3. Ensure that the Tape Engine on the primary server is communicating with the data mover server. To check the communication, open the following log:

   <ARCSERVE_HOME>/log/tape.log

   The tape.log file should display information that is similar to the following:

   ```
   [09/24 13:07:34 11e0 2 ] -----------START LOGGING---------
   [09/24 13:07:34 11e0 2 ] Loading Server and Device List
   [09/24 13:07:34 11e0 2 ] Successfully Get UUID on [UNIX-DM-01-SLES11-V1]
   [09/24 13:07:34 11e0 2 ] Successfully Get UUID on [UNIX-DM-02-RHEL5-P2]
   [09/24 13:07:34 11e0 2 ] Successfully Get UUID on [172.24.199.299]
   [09/24 13:07:34 11e0 2 ] Initializing Servers and Devices : Start
   [09/24 13:07:34 11e0 2 ] Connecting to Node UNIX-DM-01-SLES11-V1 on Port 6051
   ```

   Verify the following:

   - The data mover server appears in the tape.log file. For example:

     Successfully Get UUID on [UNIX-DM-01-SLES11-V1]

   - The primary server is communicating with the data mover server. For example:

     Connecting to Node UNIX-DM-01-SLES11-V1 on Port 6051

4. Review the following log file:

   <ARCSERVE_HOME>/log/umsdev.log

   The log file should contain information that is similar to the following:

   ```
   25/11/2009 19:01:55.849 5340 DBG CNDMPConnection using Hostname=UNIX-DM-
   01-SLES11-V1, IPAddress=, PortNumber=6051
   25/11/2009 19:01:55.943 5340 DBG CXDRStream::CXDRStream
   25/11/2009 19:01:55.943 2384 DBG [0x00F35C20] Message receive thread started
   25/11/2009 19:01:55.943 3696 DBG Dispatch Thread started
   ```

5. Ensure that the IP address of the data mover server appears in the hosts file on the primary server. The hosts file is located in the following directory:

   <Windows>/system32/drivers/etc/hosts

   For example:

   172.24.199.199 UNIX-DM-01-SLES11-V1

6. From the primary server, execute the ping command or the nslookup command to ensure that the primary server can communicate with the data mover server.

7. From the data mover server, execute the ping command or the nslookup command to ensure that the data mover server can communicate with the primary server.

   Note: If the servers cannot communicate using ping or nslookup, ensure that you are specifying the correct host name, IP address, or both.

8. From the data mover server, execute the following command to ensure that the NDMP server service is running:

   # ps -ef | grep NDMPServer

   If the NDMP Server service is running, the following results appear in the command line:

   root 13260 1 0 05:28 ? 00:00:00 NDMPServer
   root 13484 1 0 05:28 ? 00:00:00 NDMPServer

9. From the data mover server, open the Common Agent log to ensure that the NDMP server service started. The Common Agent log file is stored in the following directory:

   /opt/Arcserve/ABcmagt/logs/caagentd.log

   If the NDMP Server service started, the following information appears in the log file:

   10/21 05:28:51(13259) - (_AGBRSpawnMediaEngine), major=14, minor=0
   10/21 05:28:51(13260) - (_AGBRSpawnMediaEngine) execv(/opt/Arcserve/ABdatamover/NDMPServer)
   10/21 05:28:51(13259) - (_AGBRSpawnMediaEngine): child pid=13260

10. From the data mover server, check the Agent.cfg configuration file to ensure that UNIX and Linux Data Mover is configured. The Agent.cfg configuration file is stored in the following directory:

    /opt/Arcserve/ABcmagt/agent.cfg

    If UNIX and Linux Data Mover is configured, the following information appears in the configuration file:

    [260]
    #[Data Mover]
    NAME ABdatmov

VERSION 17.0
HOME /opt/Arcserve/ABdatamover
#ENV CA_ENV_DEBUG_LEVEL=4
#ENV CA_ENV_NDMP_LOG_DEBUG=1
ENV AB_OS_TYPE=SUSE_2.6.27.19_I686
ENV MEDIASERVER_HOME=/opt/Arcserve/ABdatamover
ENV LD_LIBRARY_PATH-
H=/opt/Arcserve/ABdatamover/lib:/opt/Arcserve/ABcmagt:$LD_LIBRARY_PATH:/-
opt/Arcserve/SharedComponents/lib
ENV SHLIB_PATH=/opt/Arcserve/ABdatamover/lib:/opt/Arcserve/ABcmagt:$SHLIB_
PATH:/opt/Arcserve/SharedComponents/lib
ENV LIBPATH-
=/o-
pt/Arc-
serve/ABdatamover-
/lib:/opt/Arcserve/ABcmagt:$LIBPATH:/opt/Arcserve/SharedComponents/lib
BROWSER NDMPServer
AGENT dagent

Arcserve Backup Cannot Detect Devices Attached to Data Mover Servers

Valid on UNIX and Linux platforms.

Symptom

From the Backup Manager, Destination tab, and the Device Manager, Arcserve Backup cannot detect devices attached to data mover servers.

Solution

To troubleshoot this problem, complete the following steps:

1. Ensure that the shared devices can be accessed from the primary server and the data mover server.

2. Ensure that the UNIX or Linux operating system running on the data mover server can access and operate the device.

   Example: Linux platforms, check the devices from the following:

   /proc/scsi/scsi

3. From the primary server, ensure that the device detection process completed successfully. To do this, open the following log file on the primary server:

   <ARCSERVE_HOME>/log/tape.log

   If the device detection process completed successfully, information similar to the following appears in the Primary Server tape.log file:

   [09/24 13:07:48 11e0 2] Connecting to Node UNIX-DM-01-SLES11-V1 on Port 6051
   [09/24 13:07:49 11e0 2] Registering Node : UNIX-DM-01-SLES11-V1
   [09/24 13:07:49 11e0 2] Detecting Tape devices...
   [09/24 13:07:50 11e0 2] Detected 12 tape drives...
   [09/24 13:07:50 11e0 2] Tape Drive STK 9840 1.00
   [09/24 13:07:50 11e0 2] b7285ec31 - Prototype: Prototype
   [09/24 13:07:50 11e0 2] Find a tape drive, logical Device Name set to
   [SCSI:b7285ec31]

4. From the data mover server, execute the following command to ensure that the NDMP server service is running:

   # ps -ef | grep NDMPServer

   If the NDMP Server service is running, the following results appear in the command line:

   root 13260 1 0 05:28 ? 00:00:00 NDMPServer
   root 13484 1 0 05:28 ? 00:00:00 NDMPServer

5. From the data mover server, open the Common Agent log to ensure that the NDMP server service started. The Common Agent log file is stored in the following directory:

/opt/Arcserve/ABcmagt/logs/caagentd.log

If the NDMP Server service started, the following information appears in the log file:

10/21 05:28:51(13259) - (_AGBRSpawnMediaEngine), major=14, minor=0
10/21 05:28:51(13260) - (_AGBRSpawnMediaEngine) execv(/opt/CA/ABdatamover/NDMPServer)
10/21 05:28:51(13259) - (_AGBRSpawnMediaEngine): child pid=13260

6. From the data mover server, open the Agent.cfg configuration file to ensure that UNIX and Linux Data Mover is configured. The Agent.cfg configuration file is stored in the following directory:

/opt/Arcserve/ABcmagt/agent.cfg

If UNIX and Linux Data Mover is configured, the following information appears in the configuration file:

[260]
#[Data Mover]
NAME ABdatmov
VERSION 17.0
HOME /opt/Arcserve/ABdatamover
#ENV CA_ENV_DEBUG_LEVEL=4
#ENV CA_ENV_NDMP_LOG_DEBUG=1
ENV AB_OS_TYPE=SUSE_2.6.27.19_I686
ENV MEDIASERVER_HOME=/opt/Arcserve/ABdatamover
ENV LD_LIBRARY_PATH-
H=/opt/Arcserve/ABdatamover/lib:/opt/Arcserve/ABcmagt:$LD_LIBRARY_PATH:/-
opt/Arcserve/SharedComponents/lib
ENV SHLIB_PATH=/opt/Arcserve/ABdatamover/lib:/opt/Arcserve/ABcmagt:$SHLIB_
PATH:/opt/Arcserve/SharedComponents/lib
ENV LIBPATH-
=/o-
pt/Arc-
serve/ABdatamover-
/lib:/opt/Arcserve/ABcmagt:$LIBPATH:/opt/Arcserve/SharedComponents/lib
BROWSER NDMPServer
AGENT dagent

7. From the data mover server, ensure that Arcserve Backup can detect all of the devices that are accessible to the data mover server. Arcserve Backup creates links to the detected devices in the following directory:

/dev/Arcserve

If there are no links in /dev/ca and you are sure that the data mover server can detect the devices, execute the following script on the data mover server:

/opt/Arcserve/ABdatamover/ScanDevices.sh

Example:

The following example illustrates links to all of the detected devices on a Linux-based data mover server:

```
UNIX-DM-01-SLES11-V1 /]# ls -l /dev/Arcserve
total 4
drwxrwxrwx 2 root root 320 Sep 24 12:58 .
drwxr-xr-x 13 root root 6060 Sep 23 15:43 ..
-rw-rw-rw- 1 root root 515 Sep 24 12:58 DeviceSerialMap
lrwxrwxrwx 1 root root 8 Sep 24 12:58 lib:4,0,0,0 -> /dev/sg1
lrwxrwxrwx 1 root root 8 Sep 24 12:58 tape:4,0,0,1 -> /dev/sg2
lrwxrwxrwx 1 root root 9 Sep 24 12:58 tape:4,0,0,10 -> /dev/sg11
lrwxrwxrwx 1 root root 9 Sep 24 12:58 tape:4,0,0,11 -> /dev/sg12
lrwxrwxrwx 1 root root 9 Sep 24 12:58 tape:4,0,0,12 -> /dev/sg13
lrwxrwxrwx 1 root root 8 Sep 24 12:58 tape:4,0,0,2 -> /dev/sg3
lrwxrwxrwx 1 root root 8 Sep 24 12:58 tape:4,0,0,3 -> /dev/sg4
lrwxrwxrwx 1 root root 8 Sep 24 12:58 tape:4,0,0,4 -> /dev/sg5
lrwxrwxrwx 1 root root 8 Sep 24 12:58 tape:4,0,0,5 -> /dev/sg6
lrwxrwxrwx 1 root root 8 Sep 24 12:58 tape:4,0,0,6 -> /dev/sg7
lrwxrwxrwx 1 root root 8 Sep 24 12:58 tape:4,0,0,7 -> /dev/sg8
lrwxrwxrwx 1 root root 8 Sep 24 12:58 tape:4,0,0,8 -> /dev/sg9
lrwxrwxrwx 1 root root 9 Sep 24 12:58 tape:4,0,0,9 -> /dev/sg10
```

8. From the data mover server, open the NDMP Server Log file to ensure that the NDMP Server service is communicating with the devices. The log file is stored in the following directory:

/opt/Arcserve/ABdatamover/logs/NDMPServer.log

Messages similar to the following should appear in the log file:

```
20/11/2009 19:39:54.946 27897 INF [0x4004AAE0] Received Message NDMP_
CONFIG_GET_TAPE_INFO
20/11/2009 19:40:23.626 27897 INF
20/11/2009 19:40:23.626 27897 INF Found [3] devices...
20/11/2009 19:40:23.630 27897 INF
20/11/2009 19:40:23.630 27897 INF Found tape drive [9210803477]
20/11/2009 19:40:23.657 27897 INF
20/11/2009 19:40:23.657 27897 INF Found tape drive [9210801539]
20/11/2009 19:40:23.676 27897 INF [0x4004AAE0] Sending NDMP_CONFIG_GET_
TAPE_INFO
```

Backup Manager Cannot Browse File System Volumes

Valid on Linux platforms.

Symptom

This problem occurs under the following conditions:

▪ When you browse the date mover nodes in the Backup Manager Source tab, file system volumes do not display.

▪ One or more of the following messages appear in the Common Agent log file:

12/01 08:58:26(47410) - (_AGBRSpawnSubBrowser): child pid=47412

12/01 08:58:26(47410) - (stcpReceive)Failed in recv(5), torcv=8, length=8, Connection reset by peer

12/01 08:58:26(47410) - (_AGBRAppendSubBrowser) Failed in _AGBROpenDir(), ret=-1

12/01 08:58:26(47410) - (_AGBRSpawnSubBrowser): Failed in _AGBRAppendSubBrowser(), ret=-1

Note: The Common Agent log file is stored in the following directory:

/opt/Arcserve/ABcmagt/logs/caagentd.log

Solution

To remedy this problem, do the following:

1. Open the Common Agent log file located in the following directory on the data mover server:

/opt/Arcserve/ABcmagt/logs/caagentd.log

2. Browse to the section File System Agent.

Example:

```
[0]
#[LinuxAgent]
NAME LinuxAgent
VERSION 17.0
HOME /opt/Arcserve/ABuagent
#ENV CA_ENV_DEBUG_LEVEL=4
ENV AB_OS_TYPE=SUSE_IA64
ENV UAGENT_HOME=/opt/Arcserve/ABuagent
#ENV LD_ASSUME_KERNEL=2.4.18
ENV LD_LIBRARY_PATH=/opt/Arcserve/ABcmagt:$LD_LIBRARY_PATH:/lib:/-
opt/Arcserve/ABuagent/lib
ENV SHLIB_PATH=/opt/Arcserve/ABcmagt:$SHLIB_PATH:/lib:/-
opt/Arcserve/ABuagent/lib
```

ENV LIBPATH=/opt/Arcserve/ABcmagt:$LIBPATH:/lib:/opt/Arcserve/ABuagent/lib
BROWSER cabr
AGENT uagentd
MERGE umrgd
VERIFY umrgd

3. Locate the following switch:

   LD_ASSUME_KERNEL

   If this switch is enabled, delete or comment the switch from the file.

4. Do one of the following:

   ▪ Stop and restart the Common Agent using the following commands:

     caagent stop
     caagent start

   ▪ Update the Common Agent configuration using the following command:

     caagent update

Backup Manager Cannot Browse Data Mover Server Nodes

Valid on UNIX and Linux platforms.

Symptom

The Backup Manager cannot browse data mover server nodes. This problem presents itself under the following conditions:

1. The following message appears when you browse data mover nodes from the Backup Manager Source tab.

   Could not reach the agent on the Node. Please check if the agent is installed and running on the machine. Do you want to continue?

2. To ensure that the data mover server is communicating via the Common Agent, you execute the following command from the data mover server:

   caagent status

   The following message appears, which confirms that the Common Agent is running:

   Checking the Arcserve Backup Universal Agent process... It is RUNNING (pid=16272)

3. You execute the following command on the data mover server:

   tail -f /opt/Arcserve/ABcmagt/logs/caagentd.log

4. From the Backup Manager source tab, you try to browse the data mover node.

   You observe that the caagentd.log file is not updating. The Common Agent is not receiving communication requests from the primary server.

Solution

Verify that you added Arcserve Backup to the firewall exceptions list on the target data mover server. This will allow the Arcserve Backup primary server to communicate with the data mover server after you install UNIX and Linux Data Mover. By default, Arcserve Backup communicates using port 6051.

Note: For information about how to add Arcserve Backup to the firewall exceptions list, see the platform-specific documentation for the data mover server.

The Backup Server Cannot Detect Devices

Valid on Windows Server 2003 and Windows Server 2008 systems.

Symptom

Arcserve Backup does not detect libraries, files system devices, or both.

Solution

Ensure that you completed the following tasks.

- Install UNIX and Linux Data Mover on the UNIX or Linux computer.

- Register the data mover server with the Arcserve Backup primary server.

- Share the libraries.

- Register the required licenses on the Arcserve Backup server.

- Log in directly to the data mover server and use the various platform specific commands and tools to check the status of the attached devices.

Jobs Fail with Dagent Errors

Valid on UNIX and Linux platforms.

Symptom

Backup and restore jobs fail approximately five minutes after they start. One of the following messages appears in the Activity Log:

- Dagent hits error while writing data to media.

- Dagent hits error while starting session.

- Dagent hits error while reading session header.

- Dagent failed to read Session Header, possible error code = [-5]

Solution

In most cases, the hardware from which you are backing up or restoring data is causing the errors to occur. For example, you restarted or reconfigured a library. However, the operating system running on the server connected to the device did not refresh.

To remedy this problem, log in the data mover server and use the operating system commands to ensure that the device is functioning properly.

Example:

mt -t tapename

Optionally, you can reconfigure the device using operating system commands.

Example:

insf -e

Note: The above syntax applies to HP operating systems.

The Registration Process Fails When Executing regtool Using the Command Line

Valid on UNIX and Linux platforms.

Symptom 1:

UNIX and Linux Data Mover is installed on the data mover server. The following message appears in the Command Line window when you try to register the data mover server using the regtool utility:

regtool: error while loading shared libraries: libetpki2.so: cannot open shared object file: No such file or directory

Solution 1:

The above error occurs when you are logged into the data mover server using the same login session that was used to install UNIX and Linux Data Mover. Using the same login session prevents you from updating various environment variables (for example, LD_LIBRARY_PATH) that were changed when Setup installed UNIX and Linux Data Mover.

To remedy this problem, log out of the current session and then log into the data mover server. You should then be able to register the data mover server using the regtool utility.

Symptom 2:

When you execute regtool on a UNIX or Linux system using shell commands, regtool may fail and display error messages that indicate shared libraries cannot be found.

Solution 2:

To remedy this problem, do the following:

1. Execute the following command:

   . /etc/profile

2. Execute regtool.

The Registration Process Fails When Executing regtool Using X Window Terminal

Valid on UNIX and Linux platforms.

Symptom

UNIX and Linux Data Mover is installed on the data mover server. The following message appears in the Command Line window when you try to register the data mover server using the regtool utility:

regtool: error while loading shared libraries: libetpki2.so: cannot open shared object file: No such file or directory

Solution

The above error occurs when you are logged into the data mover server using the same login session that was used to install UNIX and Linux Data Mover. Using the same login session prevents you from updating various environment variables (for example, LD_LIBRARY_PATH) that were changed when Setup installed UNIX and Linux Data Mover.

To remedy this problem, log out of the current session and then log into the data mover server. You should then be able to register the data mover server using the regtool utility.

If you cannot register the data mover server after you log out and log in, X Window Terminal may not be configured to inherit the environment variables for the current login session. To remedy this problem, enable the Run command as login shell option as illustrated by the following screen:

Note: The following diagram illustrates the X Window Terminal on a Redhat AS 4 operating system.
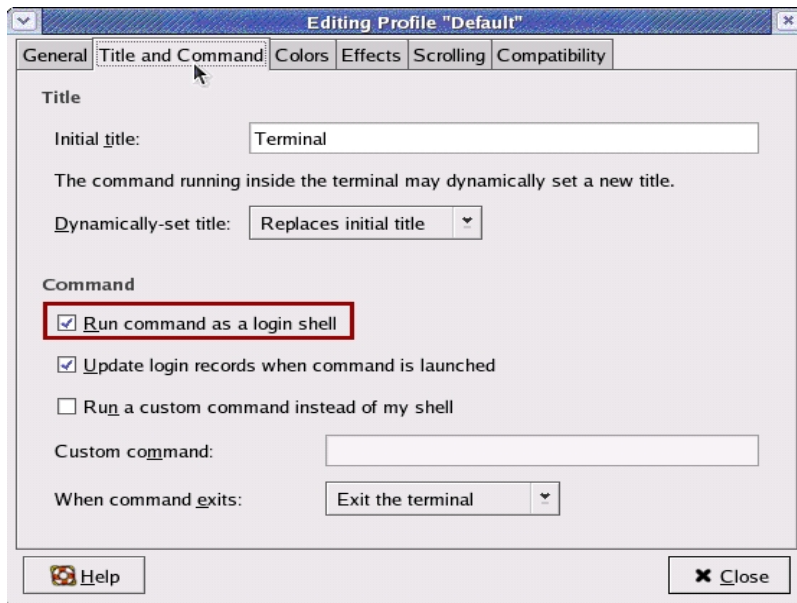
Optionally, you can set the environment variables buy executing the following command on the data mover server:

. /etc/profile.CA
regtool register

Chapter 6: Glossary

This section contains the following topics:

data mover server

Arcserve Backup data mover servers facilitate the transfer of data to local storage devices. The storage devices include shared libraries and file system devices. Data mover servers are supported on UNIX or Linux operating systems. Arcserve Backup manages data mover servers from a single, centralized, primary server. Arcserve Backup data mover servers function in a manner that is similar to member servers.

file system device

A file system device (FSD) is folder or directory on a hard disk that is used to store and retrieve backup data.

locally accessible disk

A locally accessible disk is an FSD that communicates locally with a data mover server.

member server

Member servers function as worker servers to a primary server. Member servers process jobs dispatched by the primary server. Using primary and member servers you can have a single point of management for multiple Arcserve Backup servers in your environment. You can then use the Manager Console on the primary server to manage its member servers.

primary server

Primary servers function as a master server that controls itself and one or more member servers and data mover servers. With primary servers you can manage and monitor backup, restore, and other jobs that run on primary servers, member servers, and data mover servers. Using primary, member, and data mover servers, you can have a single point of management for multiple Arcserve Backup servers in your environment. You can then use the Manager Console to manage the primary server.

shared tape library

A shared library is a library that is shared between two or more Arcserve Backup servers (for example, a primary server, a member server, a data mover server, and an NAS filer).

UNIX and Linux Data Mover

UNIX and Linux Data Mover is an Arcserve Backup component that you install on UNIX servers and Linux servers. UNIX and Linux Data Mover lets you use a Windows backup server to back up data that resides on UNIX and Linux servers to locally accessible disks (file system devices) and to shared tape libraries that reside on a storage area network (SAN).

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