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Fourth Edition: October 1997

This edition applies to version 5.0 of the Novell NetWare client of CAM/EBF, to be used in conjunction with CAM/EBF central server version 5.1. Information in this publication is subject to change. Comments concerning the contents of this manual should be directed to:
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About this Guide

This CAM Client and User Guide describes how to use the CAM backup component of the CAM Enterprise Backup Facility on NetWare CAM clients. This guide describes how to log into the CAM backup system, how to restore and retrieve files, and how to monitor CAM jobs.

Audience

This guide is for CAM users who occasionally need to restore and retrieve files that have been backed up or archived via CAM from NetWare client hosts. It is also intended for users assigned CAM client host administrator and/or CAM project administrator responsibility.

Reader's Comments

We’d like to know what you think about this book. If you have any comments you want to send to us, please send them by email to the following Internet email address:

sid@stortek.com

Be sure to include the document title and number with your comments.
Prerequisites

The CAM system is based on a graphical user interface and requires a graphical workstation. To use CAM, you should know the basics of working in the environment applicable to your workstation: Windows (including Windows 3.x, Windows NT, or Windows 95), Motif, Macintosh, or Presentation Manager. Otherwise, consult the documentation that came with your software before you proceed.

This guide assumes that ‘Client’ CAM is installed and running on your client host, as described in the CAM Memo to Users for your client host type.

Contents of this Guide

1. CAM Basics
   Describes how to log into and out of the CAM system, select preferences, and get online help.

2. Restoring Files
   Provides procedures for restoring files backed up by CAM.

3. Retrieving Files
   Provides procedures for retrieving files archived by CAM.

4. Monitoring Jobs
   Describes how to monitor the status of CAM jobs.

5. Project Administration
   Contains information applicable only to CAM project administrators.

6. Client Host Administration
   Contains information applicable only to CAM client host administrators.
Appendix A. CAM Setup Forms

Provides forms for gathering information for setting up users, backup schedules, hosts, and host volumes.

Appendix B. CAM Defaults

Provides information about CAM defaults.

Conventions Used in this Guide

This guide employs several notational conventions to make it easier for you to identify different types of information and follow instructions. These conventions are described below.

<table>
<thead>
<tr>
<th>This instruction</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click</td>
<td>Click the (left) mouse button.</td>
</tr>
<tr>
<td>Double-click</td>
<td>Click the (left) mouse button twice rapidly without moving the mouse.</td>
</tr>
<tr>
<td>Select</td>
<td>Move the cursor over the item you want to select, and click the (left) mouse button to highlight the item.</td>
</tr>
</tbody>
</table>

The screen illustrations in this guide represent a Microsoft Windows 95 environment. Depending on your system environment, and on the fonts set up on your system, you may notice slight differences in dialog box appearance from the illustrations in this guide. These differences do not affect CAM performance.

Technical Support

Refer to How to Request Help (included in your media package) for information about contacting StorageTek for technical support and for requesting changes to software products.

Note: Software Support is a StorageTek subscription service and is not automatically provided with the CAM/EBF product. If you would like to subscribe, or if you are not sure if you are presently
covered by Software Support, contact your local StorageTek sales representative.

Related Publications

The following books provide more information about this software product and are included in the CAM Enterprise Backup Facility (for Solaris), Version 1.1 media package:

- **CAM Enterprise Backup Facility (for Solaris), Version 1.1 Overview** - describes the features, functions, and benefits of CAM/EBF 1.1 for Solaris. It also provides system configuration examples.

- **CAM Enterprise Backup Facility (for Solaris), Release 1.1.X Release Notes** - provides release-specific information for supported devices, required software, configuration requirements, and existing operational issues.

- **CAM Enterprise Backup Facility (for Solaris), Version 1.1 Installation and Administration Guide** - provides perquisites, preparation, and installation instructions for CAM/EBF 1.1 (for Solaris). It also describes how to get started, basic administration procedures, and how to troubleshoot a failed installation.

- **Stager Administrator Guide** - provides task-oriented instructions for using the Stager component to manipulate half-inch cartridge tape within the ACS, and for basic management of the CAM/EBF component databases.

- **DataWheelRM Operator Guide** - provides task-oriented instructions for using the DataWheel Resource Manager with the 9704 4mm tape library.

- **REELlibrarian Master Guide** - describes how to use the REELlibrarian commands to manipulate tape volumes and generate volume reports.

- **REELaccess Guide Administrator and Operator Guide** - describes how to use the REELaccess commands.
• **CAM Memo to Users** (client and server specific) - provides specific CAM installation procedures.

• **CAM Setup and Administration Guide** (server specific) - provides step-by-step instructions for setting up CAM on the central server and client hosts. It also describes CAM administrative tasks.

• **CAM Messages** - lists all CAM error messages and provides suggestions for resolving them.
# Contents

**About this Guide**  
1

**Chapter 1 - CAM Basics**  
1

What is CAM?  
2

What's New in CAM 5.0  
3

Automatic Volume Configuration  
3

Volume Grouping  
3

True Image Restore  
3

Informix Database Support  
3

CAM Backups and Archives  
4

CAM Backups: Disaster Insurance  
4

CAM Archives: Safe Storage for Archival Data  
4

Restores and Retrieves  
5

Logging Into CAM on the Central Server  
6

Using the CAM Main Dialog Box  
8

Changing Your Password  
9

Setting Preferences  
10

Selecting a Printer  
12

Getting Online Help  
13

Logging Out of CAM  
15

Connecting To and Disconnecting From the Central Server  
15

Specifying Additional Connect Parameters  
16

Viewing Client Host, Schedule, Class, and Project Definitions  
17
Chapter 5 - Project Administration 105
  Project Administration Overview 106
  Setting up a New Archive 107
  Copying an Existing Archive Definition 111
  Manually Specifying Files to Archive 116
  Selecting From a List of Files to Archive 118
  Granting Users Access to Archives 120
  Managing Archives 124

Chapter 6 - Novell NetWare Client Host Administration 129
  CAM for NetWare Overview 130
    Security 130
    NetWare Volumes 131
    CAM Volumes 131
      Trustee Backups 137
    File Exceptions 138
  NetWare Client Host Setup 139
    Part A - Setting up a client host 139
    Part B - Setting up volumes on a NetWare client host 143
    Part C - Granting access to each user 143
  Modifying a Client Host Definition 146
  Setting Up Volumes Automatically 150
  Setting Up Volumes Manually 152
    Utility Option: uabackup 161
    Utility Option: trusteeonly 163
  Modifying and Deleting Volume Definitions 165
  Setting up a Volume Group 169
  Attaching and Detaching Group Volumes 175
  Modifying and Deleting Group Definitions 177
  Granting Users Access to a CAM Client Host 179
  Managing Backups 180
  Receiving Daily CAM Reports by E-mail 186
Chapter 1  CAM Basics

This chapter introduces CAM, and covers the basics of using it.

The procedures in this chapter assume that you have started CAM and logged on to the CAM central server, as described in “Logging Into CAM on the Central Server” on page 6.

Chapter contents:

• What is CAM? - page 2
• What’s New in CAM 5.0 - page 3
• CAM Backups and Archives - page 4
• Logging Into CAM on the Central Server - page 6
• Using the CAM Main Dialog Box - page 8
• Using the CAM Main Dialog Box - page 8
• Changing Your Password - page 9
• Setting Preferences - page 10
• Getting Online Help - page 13
• Logging Out of CAM - page 15
• Specifying Additional Connect Parameters - page 16
• Viewing Client Host, Schedule, Class, and Project Definitions - page 17
What is CAM?

CAM is a backup software product that enables a central server in a multi-vendor network to function as a central backup and archive manager. This central manager automatically saves data from client systems to storage devices located at the server. As a user on one of these client systems, you must identify yourself to CAM on the central server, as discussed in this section.

The main components of a CAM system are a central server, the network, and client hosts. Following is an example of a typical CAM environment:
What’s New in CAM 5.0

CAM 5.0 has been enhanced with the following new features.

**Automatic Volume Configuration**
On large networks, it is difficult for the client host administrator to know every configuration of every computer on the network. CAM’s new automatic configuration feature enables an administrator to set up volumes automatically, by querying the host being defined to determine volumes and their characteristics. New disks and file systems added to existing clients are also automatically detected.

**Volume Grouping**
A volume group is a group of individual volumes on a particular client host. Because each volume in a group shares the same backup schedule, start and end times, group pre-backup and post-backup commands, and other backup options, grouping can help optimize system resources for certain types of enterprises.

**True Image Restore**
CAM 5.0 tracks deleted files, enabling users to restore a volume to the same condition it was in on a specified date. Files deleted before the specified date are not included in the restore unless requested.

**Informix Database Support**
Informix database users can now use CAM to back up their databases without shutting them down.
CAM Backups and Archives

CAM is designed to fully meet the backup and storage demands of its users, by offering powerful backup capabilities and an easy-to-use interface.

**CAM Backups:** Disaster Insurance

A *backup* is the result of automatic, routine data storage, intended to be used as insurance for potential disaster recovery. Backups are organized and maintained according to the system configuration shown previously. In this system, each *client host* consists of one or more *volumes*, which are defined within the CAM system as entities of data to be backed up.

Backups are maintained by the *CAM administrator*, who oversees the entire CAM system for an organization, and *client host administrators*, who are responsible for specific client hosts within a CAM system.

**CAM Archives:** Safe Storage for Archival Data

A CAM *archive* is a user-initiated backup of a set of directories and files stored for a prescribed or indefinite period of time (or until specifically deleted by a CAM user). Archives are organized and maintained in CAM using the concept of a *project*, which can consist of any combination of archives, such as the following:

- One project set up to contain all archives within a company
- One project set up to contain the archives of each department within a company
- One project set up to contain the personal archives of each CAM user

For example, an accounting firm may wish to archive all financial information on a quarterly basis and save these archives for a legally required amount of time. A CAM administrator would create a project for this purpose, and all financial records created during a particular quarter would be stored as archives within that project.
By using the concept of a project to organize and maintain archives, CAM can allow multiple users to share access to archives within a project.

The CAM administrator defines each project and designates a CAM user to be the project administrator for the project. Project administrators are responsible for maintaining the archives within their assigned projects.

Restores and Retrieves

A restore is the recovery of a backup, and a retrieve is the recovery of an archive. Both are initiated on demand by CAM users.

CAM users can restore and retrieve files from backups and archives to which they have been granted access, and view the outcomes of these restore and retrieve jobs.
Logging Into CAM on the Central Server

To connect to a CAM central server and log into CAM, follow this procedure:

1. Do one of the following, as applicable to your workstation interface:
   - Windows, Windows NT, or Presentation Manager: Open the program group that contains the CAM Client icon and double-click the CAM Client icon.
   - Windows 95: Double-click the CAM Client icon, or on the taskbar, click **START | Programs | CAM | CAM Client**
   - Motif (UNIX and OpenVMS): Type **cam** on the command line.
   - Macintosh: Open the folder that contains the CAM Client icon and double-click the CAM Client icon.

CAM displays the Connect dialog box:
2. Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Server</td>
<td>The TCP/IP host name or address of the CAM central server to which you are connecting. If you do not know the name or address, see your system administrator. The default is set in the Preferences dialog box. See “Setting Preferences” on page 10 for information about setting a default for this field.</td>
</tr>
<tr>
<td>CAM User ID</td>
<td>Your assigned CAM user ID. If you do not know your CAM user ID, see your client host administrator.</td>
</tr>
<tr>
<td>CAM Password</td>
<td>Your CAM password.</td>
</tr>
<tr>
<td>Other parameters</td>
<td>Additional parameters that control the connect process. You do not need to enter any additional parameters unless advised to do so by your client host administrator. See “Setting Preferences” on page 10 for information about setting a default for this field.</td>
</tr>
</tbody>
</table>

3. Press Enter or click Connect. If you have provided valid logon information, you are connected to CAM at the central server. CAM displays the main dialog box:
Using the CAM Main Dialog Box

The CAM main dialog box provides buttons for quick access to commonly performed operations:

Table 1-2 Field Descriptions: Main Dialog Buttons

<table>
<thead>
<tr>
<th>Group</th>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup group</td>
<td>Restore</td>
<td>Enables CAM administrators, client host administrators, and users to search for and restore files from backups to which they have access.</td>
</tr>
<tr>
<td>Archive group</td>
<td>Retrieve</td>
<td>Enables CAM administrators, project administrators, and users to search for and retrieve files from archives to which they have access.</td>
</tr>
<tr>
<td></td>
<td>Exit</td>
<td>Exits the CAM system.</td>
</tr>
</tbody>
</table>

In addition to the buttons on the CAM main dialog box, CAM also offers the following pull-down menus on the menu bar.

<table>
<thead>
<tr>
<th>Menu</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File</td>
<td>Allows you to connect, disconnect, change your password, set preferences, select a printer (Windows environment only), and exit CAM.</td>
</tr>
<tr>
<td>Options</td>
<td>Allows you to set trace flags for diagnostic purposes.</td>
</tr>
<tr>
<td>Functions</td>
<td>Allows you to access the restore and retrieve functions. These functions are also available via buttons on the CAM main dialog box.</td>
</tr>
<tr>
<td>Setup</td>
<td>Allows you to view definitions of client hosts, backup schedules, classes, and projects.</td>
</tr>
<tr>
<td>Job</td>
<td>Allows you to view and modify jobs initiated by your CAM user ID.</td>
</tr>
<tr>
<td>Help</td>
<td>Allows you to access CAM help on line and determine the CAM version number that you are running.</td>
</tr>
</tbody>
</table>
Changing Your Password

When you are assigned a CAM user ID, you are also assigned an initial password. To protect your password, change the initial password to a password known only to you.

For security reasons, you should periodically change your password. CAM does not display passwords in readable form; it displays a series of asterisk (*) characters whenever you type a password.

To change your password:

1. Start CAM and log on to the CAM central server.
2. Choose Change Password from the File menu. CAM displays the Change Password dialog box.

3. Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Password</td>
<td>Your CAM password.</td>
</tr>
<tr>
<td>New Password</td>
<td>Enter a string of alphanumeric characters that begins with a letter to replace your current password. The default allowable length is 6 to 16 alphanumeric characters; this can be changed in the CAM master configuration file.</td>
</tr>
<tr>
<td>Verify New Password</td>
<td>Enter your new password again to ensure that you have entered the new password correctly.</td>
</tr>
</tbody>
</table>
Setting Preferences

To set connect, print, and other defaults:

1. Choose **Preferences** from the File menu. CAM displays the CAM Preferences dialog box.
2. Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Server</td>
<td>The TCP/IP host name or address of the CAM central server to which you are connecting. If you do not know the name or address, see your system administrator. The default is set in the Preferences dialog box.</td>
</tr>
<tr>
<td>CAM User ID</td>
<td>Your assigned CAM user ID. If you do not know your CAM user ID, see your client host administrator.</td>
</tr>
<tr>
<td>Other parameters</td>
<td>Additional parameters that control the connect process. You do not need to enter any additional parameters unless advised to do so by your client host administrator.</td>
</tr>
<tr>
<td>Default Printer</td>
<td>Name of a local client printer to receive output.</td>
</tr>
<tr>
<td>Lines Per Page</td>
<td>Number of lines to print per page.</td>
</tr>
<tr>
<td>Print Setup</td>
<td>(Windows environment only) To select a printer, click Print Setup. CAM displays a standard printer selection window. Fill in the fields as described in your client documentation. You can also select a printer by choosing Printer Setup from the File menu.</td>
</tr>
</tbody>
</table>
Selecting a Printer

(Windows and OS/2 only) To select a printer:

1. Choose **Printer Setup** from the File menu. CAM displays a standard Windows printer selection dialog box.

2. Fill in the fields as described in your Windows documentation.

   **Note:** You can also select a printer by clicking **Print Setup** in the Preferences dialog box.

---

**Table 1-4  Field Descriptions: CAM Preferences Dialog Box**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default CAM Host ID</td>
<td>Client host that is to be initially selected by default whenever a list of client hosts is presented in CAM. Each time you select another client host during a CAM session, that client host becomes the default client host for the session.</td>
</tr>
</tbody>
</table>
| Maximum Line Count   | Maximum number of lines displayed in a list box on a CAM window. For example, when searching a large directory, the number in this field limits the number of files displayed at one time, thereby enabling CAM to display the entire directory in segments. Minimum number of lines = 10, maximum = 99999. The default is 500 lines per list box. When a list exceeds the maximum line count, you can access its segments as follows:

   - Scroll to the end of the list and double-click **Next Segment** or **Last Segment**.
   - Scroll to the beginning of the list and double-click **Previous Segment** or **First Segment**.

   **Note:** In Windows and Macintosh environments, CAM displays the message LIST TOO LONG as the last listbox record when a listbox overflow occurs. All subsequent records are discarded. If you encounter this message, reduce the maximum line count in this field. |

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12  
CAM NetWare Client and User Guide — 4th Edition
Getting Online Help

To access online help:

1. Select Contents from the Help menu, or press the key designated as the help key on your keyboard (normally F1 or Help) from any field in CAM.

CAM displays the CAM Help dialog box.

Topics preceded by a plus sign (+) contain subtopics. To display subtopics for a topic, double-click the topic name. To hide the subtopics, double-click the topic name again.
2. Select a topic or subtopic and click **View** to display help.

To view the next topic, click **Next**. To view the previous topic, click **Previous**. To return to the contents list from a help dialog box, click **Close**.
Logging Out of CAM

To log out of CAM, do one of the following:

- Click **Exit** on the CAM main dialog box.
- Select **Exit** from the File menu on the CAM main dialog box.

Connecting To and Disconnecting From the Central Server

To disconnect from or reconnect to the central server, do the following:

- To disconnect from the CAM central server, choose **Disconnect** from the File menu.
- To connect to the CAM central server, choose **Connect** from the File menu. CAM displays the Connect to Central Server dialog box. Fill in the fields as described in “Logging Into CAM on the Central Server” on page 6.
Specifying Additional Connect Parameters

To connect to a CAM server host, you need only enter the central server name and your CAM user ID and password. You can, however, specify additional connect parameters to control the connect operation.

To enter other connect parameters, use the following format:

\[-\text{name} \text{ value} \ldots\]

Replace \text{name} with the name of a connect parameter shown in the following table; replace \text{value} with a value for the parameter. When you enter a connect parameter name:

- Precede each name with a hyphen (-).
- Enter either the full parameter name or only the characters that appear in upper case. For example, to specify the -timeout parameter, you need only enter -time.
- Separate each \[-\text{name} \text{ value}\] pair with one or more spaces.

The following table lists and describes the parameters you can specify when connecting to a CAM central server.

<table>
<thead>
<tr>
<th>Connect parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERvice</td>
<td>Name of the service offered on the central server. By default, the service offered is named CAM, and the service is usually offered at TCP port number 6950.</td>
</tr>
<tr>
<td>TIMEout</td>
<td>Number of seconds at which CAM should abandon a connect attempt. The default is 30 seconds.</td>
</tr>
<tr>
<td>INTerminal</td>
<td>A time interval in seconds by which CAM should retry connect attempts. The default is 2, which means that CAM retries a connection every 2 seconds for the duration of the timeout period.</td>
</tr>
<tr>
<td>BLOCKsize</td>
<td>Maximum network blocksize in bytes for transmitting data. Enter a number between 2K and 32K. The default is system-dependent.</td>
</tr>
</tbody>
</table>

CAM NetWare Client and User Guide — 4th Edition
Viewing Client Host, Schedule, Class, and Project Definitions

To view definitions of client hosts, backup schedules, storage classes, or projects to which you have access:

1. From the Setup menu, choose **Hosts, Schedules, Classes, or Projects**. CAM displays a selection dialog box.

2. Select the client host, schedule, class, or project to view and click **View**. CAM displays the requested Host, Schedule, Class, or Project dialog box.
Chapter 2  Restoring Files from Backups

This chapter provides instructions for restoring files that have been backed up by CAM.

Chapter contents:

•  Restore Overview - page 20
•  Specifying the Volume to Restore - page 21
•  Selecting Files from a Directory Tree - page 24
•  Selecting Files from a Pathname List - page 27
•  Initiating the Restore - page 29
•  Utility Option: uabackup - page 32
•  Restoring a NetWare Client Host - page 38
Restore Overview

A **restore** recovers the most recent backup version, or any existing previous backup version, of backed up files to a specified destination.

To restore files backed up by CAM, follow the procedures provided in this chapter. First, you specify the volume on which the files originated when they were backed up. Then, you select the files to restore.

To restore files, you must be a valid CAM user, with CAM access to the client host that performed the backup. If you are a CAM client host administrator, you can search and restore any CAM backup on any client for which you have CAM client host administrator access. If you are a CAM user without administrator privileges, you can search and restore only your own files, on clients to which you have been granted CAM access.

If at any time you wish to discontinue a restore process, click **Cancel** or **Close** on the currently displayed dialog box until you return to the CAM main dialog box. CAM cancels the restore with no effect on your current or backed up files.
Specifying the Volume to Restore

Before you select files to restore, use the following procedure to select the volume to which you want to restore files:

1. In the CAM main dialog box, in the **Backup** group, click **Restore**.

CAM displays one of the following:

- If you have CAM access to more than one client host, CAM displays the Host Selection dialog box, which lists the client hosts that you can access. Select the name of the client host on which the backed up files originated (normally the current client host, the default), and click **Search**. CAM displays the Search Selection dialog box.

- If you have CAM access to one client host only, CAM displays the Search Selection dialog box.
2. Fill in the fields as described in the next table.

**Note:** The following fields determine which Available Backups are listed; they do not affect Selected Backups.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup utility</td>
<td>Limits the display of backups. Select <code>uabackup</code> or <code>trusteeonly</code> to display only the volumes backed up by one of these utilities.</td>
</tr>
<tr>
<td>Backup range</td>
<td>Backup type or range of backup types to search. By default, the most current backup set is searched. Unless your client host administrator requests otherwise, use the default.</td>
</tr>
<tr>
<td>Display Duplicates</td>
<td>Specifies whether to display all backup versions of a file during the search, if more than one are available. By default, only the most recent backup version of a file is displayed.</td>
</tr>
<tr>
<td>Display Deleted Files</td>
<td>Specifies whether to display previously backed up files that have been deleted since the last backup. By default, deleted files are not displayed.</td>
</tr>
<tr>
<td>Date/time range</td>
<td>Range of dates during which the files were backed up. The default From is the year 1901; the default To is the current date and time. Normally, you can use the default date/time range.</td>
</tr>
</tbody>
</table>
3. Select the volumes that contain files that you want to restore. Use the following guidelines:

- A plus sign (+) preceding a volume name indicates that the volume has backup files available to restore.

- To see the date, time, and type of backups for a volume, double-click the volume name. The information is displayed below the volume name. To search a specific backup, select that backup. To search all backups for the volume, select the volume name.

- To move selected volumes to the Selected Backups list box, click Add. To remove volumes from this box, select the volume name and then click Remove. To clear all volume names from this box, click Remove All.

Note: To maximize system efficiency, limit your search to as few volumes as possible.

4. To designate files to restore, do one of the following:

- If you know from which volumes and directories your backups originated, follow the procedure in “Selecting Files from a Directory Tree” on page 24.

- If you do not know the name of the volume on which the backup originated, follow the procedure in “Selecting Files from a Pathname List” on page 27. The path view search displays a full path list of files available to restore, enabling you to easily search all directories and files and to limit your search according to path names.
Selecting Files from a Directory Tree

The following procedure enables you to search a directory tree for files to restore. Use this procedure after selecting the volume that contains files to restore, as described in “Specifying the Volume to Restore” on page 21.

1. In the Search Selection dialog box, click **Search-Tree View**. CAM displays the Search-Tree View dialog box.

2. Fill in the fields as described in the following table.
In the Root list box, select the directory name in which the files you are restoring originated.

A plus sign (+) preceding a directory name indicates that the directory contains subdirectories; a minus sign (-) indicates that the subdirectories are listed. To view or hide subdirectories, double-click the directory name.

### Table 2-2  Field Descriptions: Search-Tree View Dialog Box (Backup/Restore)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Detail</td>
<td>Specifies whether file details (such as file size, date, time, and so on) are displayed for each file. Files older than six months are displayed with date and year; newer files are displayed with date and time. By default, file details are not displayed.</td>
</tr>
<tr>
<td>Show Backup Date</td>
<td>Specifies whether the backup date and time are displayed for each file.</td>
</tr>
<tr>
<td>Set Root</td>
<td>Sets the selected directory or subdirectory as the root directory. This makes large directories easier to search.</td>
</tr>
<tr>
<td>Reset Root</td>
<td>Resets the root directory to the highest level directory.</td>
</tr>
<tr>
<td>Display matching</td>
<td>Limits the files viewed. Enter a pathname using the wildcard asterisk character (<em>) to include only files that match that pathname. To enter more than one string, separate each string with a space. The default (</em>) searches all files. The full path, including the volume name, must be represented. Note that the asterisk character matches the directory delimiter. For example, C:\DEMODISK* includes the files in the DEMODISK directory and all of its subdirectories. The backslash () is the standard directory delimiter. By default, matching specifications are not case-sensitive.</td>
</tr>
<tr>
<td>Matching</td>
<td>Selects only files that match the character string you type in this field. The wildcard character is an asterisk (<em>). To enter more than one string, separate each string with a space. The default (</em>) searches all files within the selected directory.</td>
</tr>
<tr>
<td>Include Subdirectories</td>
<td>Specifies whether subdirectories are traversed when selecting files based on the pattern specified in the Matching field. By default, subdirectories are traversed.</td>
</tr>
</tbody>
</table>
4. In the Directory list box, select one or more file names to restore. To select all files in a directory or subdirectory, click Select. To deselect all selected files, click Clear. Selected files remain selected unless you deselect them or return to the previous dialog box.

The order in which CAM restores files may not necessarily be the same as the order in which they appear on the Search Tree View dialog box.

5. Click Restore. CAM displays the Initiate Restore dialog box.

6. Follow the procedures in “Initiating the Restore” on page 29.
Selecting Files from a Pathname List

The following procedure performs a search of files listed by pathname. Use this procedure after selecting the volume that contains files to restore, as described in “Specifying the Volume to Restore” on page 21.

1. In the Search Selection dialog box, click Search-Path View. CAM displays the Search-Path View dialog box:

   - Detail includes originating user/group, file size, and date of last modification.
   - Click Select or Clear to select or clear all files that match the entry in the Matching field.
   - Path name of every file in the selected volumes available to restore.
   - After selecting files, click here to see a list of the files you have selected to restore.
   - Number of files, directories, and bytes selected to restore.
2. Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Detail</td>
<td>Specifies whether file details (such as file size, date, time, and so on) are displayed for each file. Files older than six months are displayed with date and year; newer files are displayed with date and time. By default, file details are not displayed.</td>
</tr>
<tr>
<td>Show Backup Date</td>
<td>Specifies whether the backup date and time are displayed for each file.</td>
</tr>
<tr>
<td>Display matching</td>
<td>Limits the files viewed. Enter a pathname using the wildcard asterisk character (<em>) to include only files that match that pathname. To enter more than one string, separate each string with a space. The default (</em>) searches all files. The full path, including the volume name, must be represented. Note that the asterisk character matches the directory delimiter. For example, C:DEMOSK includes the files in the DEMOSK directory and all of its subdirectories. The backslash () is the standard directory delimiter. By default, matching specifications are not case-sensitive.</td>
</tr>
<tr>
<td>Matching</td>
<td>Selects only files that match the character string you type in this field. The wildcard character is an asterisk (<em>). To enter more than one string, separate each string with a space. The default (</em>) selects all files.</td>
</tr>
</tbody>
</table>

3. In the Full Path Name field, select files that you want to restore. When you select a file, it remains selected unless you clear it or return to the previous dialog box.

The order in which CAM restores files may not necessarily be the same as the order in which they appear on the Search-Path View dialog box.

4. Click **Restore**. CAM displays the Initiate Restore dialog box.

5. Follow the procedures in “**Initiating the Restore**” on page 29.
Initiating the Restore

1. After you have selected files to restore, CAM displays the Initiate Restore dialog box.

![Initiate Restore - Host: support2 dialog box]

2. Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM Host ID</td>
<td>The host ID assigned by the CAM administrator that CAM uses to identify your host. The default is the host ID of the host just searched. To restore the files to another client host of the same type (in which you have restore access), click Alternative Host ID and select another client host.</td>
</tr>
<tr>
<td>Host username and Host password</td>
<td>Username and password with which CAM can log on to the client host. This username/password pair must have privilege to write all files to disk at the client host.</td>
</tr>
</tbody>
</table>
Alternative directory - Full pathname of an alternative directory to which to restore files. By default, CAM restores files to the directory from which they originated. If you do not include the volume name in the alternative directory pathname, CAM restores the files to the working directory of the user currently logged in.

The pathname you specify should include a volume name and directory. For example, sys:\utah. If the specified directory does not exist, CAM attempts to create it during the restore process. The alternative directory acts as a new root to which the files selected (and their parent directories, unless Remove Original Pathname is selected) are restored.

Note that the bindery and NDS cannot be restored to alternative directories.

Notify - Specifies whether to provide job status information to the user submitting this job. In order for CAM to send these reports, the CAM administrator must provide the electronic mail address of each report recipient. For more information, see Chapter 6.

Checksum - Specifies whether checksum verification is to be used for the backup operations.

Utility Options - Click Utility Options to display utility-specific details.

For files backed up via the uabackup utility: See “Utility Option: uabackup” on page 32.

For files backed up via the trusteeonly utility: See “Utility Option: trusteeonly” on page 33.

Start time/End time - Time window within which the restore must begin. The default start time is the current time and the default end time is one minute before midnight tomorrow. Unless the restore is likely to affect network performance, use the defaults. All restore requests are queued on the central server and are executed as system resources permit.

To specify a time window, use a 48-hour clock: specify time on the first day as for a 24-hour clock, and specify time on the second day as a continuation of the 24-hour clock. For example:

- Day 1, 8:00 a.m. = 8:00
- Day 1, 9:00 p.m. = 21:00
- Day 2, 1:30 a.m. = 25:30
- Day 2, 5:00 p.m. = 41:00
- Day 2, midnight = 48:00
3. Click **Initiate Restore**. CAM submits the request and displays the job number.

4. Click **View** to monitor the job you have submitted, or click **Close** to return to the Search Selection dialog box.
Utility Option: uabackup  When you select the uabackup utility in the Utility field and click the Utility Options button, CAM displays the following dialog box:

Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Remove Original Pathname   | This field is available when you specify a pathname in the Alternative Directory field. When this box is checked, CAM removes the original pathname and restores files to the pathname (relative to the original volume name) specified in the Alternative Directory field. For example, if the original directory path name and file name is \test\file1 and the alternative directory is specified as \final, CAM restores the file as follows:  
  - When this box is enabled, CAM removes the original pathname. In the example above, CAM would restore the file as: \final\file1.  
  - When this box is enabled, CAM removes the original pathname. In the example above, CAM would restore the file as: \final\test\file1.  
  Selecting this feature may cause files with identical names in different directories to be overwritten. |
Utility Option: 

trusteeonly

When you select the `trusteeonly` utility in the Utility field and click the Utility Options button, CAM displays the following dialog box:

```
Utility Restore Options - TRUSTEEONLY

☐ Remove Original Pathname
☒ Replace Existing Files

Utility options:

OK       Cancel
```

Fill in the fields as described in the following table.
### Table 2-6  Field Descriptions: Utility Restore Options: trusteeonly

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Remove Original Pathname   | This field is available when you specify a pathname in the Alternative Directory field. When this box is checked, CAM removes the original pathname and restores files to the pathname (relative to the original volume name) specified in the Alternative Directory field. For example, if the original directory path name and file name is \test\file1 and the alternative directory is specified as \final, CAM restores the file as follows:  
  • When this box is enabled, CAM removes the original pathname. In the example above, CAM would restore the file as: \final\file1.  
  • When this box is enabled, CAM removes the original pathname. In the example above, CAM would restore the file as: \final\test\file1.  
  Selecting this feature may cause files with identical names in different directories to be overwritten. |
| Replace Existing Files     | Specifies that existing files at the client host are to be overwritten by the backup versions being restored. By default, CAM overwrites existing files with the selected backed up files. If this field and the Remove Original Pathname field are both enabled, files with identical names from different directories may be overwritten. |
| Utility Options            | This field is for technical support purposes only.                                                                                                                                                                                                                                                                                                           |
Restoring Volumes

Restoring a full volume provides restoration of all volume attributes (such as volume restrictions), as well as all files and directories. When restoring a full volume, restore to an empty volume to ensure ample space for all files.

Use the following guidelines when restoring a bindery or NDS volume:

• Bindery volume (3.1x NetWare clients only)

  When restoring the bindery volume, restore it before restoring any other volumes or files to a NetWare client host. When CAM has finished restoring the bindery (which normally is done quickly), you may queue other files or volumes for simultaneous restoration. The primary reason for restoring the bindery would be in a disaster recovery situation. You may restore the bindery to an alternative host but not to an alternative directory. Restore to alternative hosts only if the intent is to completely restore the original host to an alternative host. There is no partial or selective restoration of the bindery volume.

• NDS volume (4.x NetWare clients only)

  The NDS (NetWare Directory Services, starting with release NetWare 4.01) can be partially restored. You will probably never need to restore an entire NDS, since it represents a redundant, distributed database. You cannot restore the NDS to an alternative directory.

  Doing a full restore of NDS causes bindery emulation user IDs to change. Directory Services keeps user information using the NDS name (for example, .CN=user.OU=Marketing.O=Company). Under bindery emulation, user IDs are generated from the NDS names. When the NDS is restored, the bindery IDs are regenerated. This causes a problem for mail directories. Mail directories are named using the bindery emulation user ID. When the user ID changes, the directory name must also change. A utility called RENMDIRS.NLM is included with this release.
tape to rename mail directories to correspond with the new bindery ID. Copy the RENMDIRS.NLM file to the SYS:System directory of the file server. Then, from the console or RCONSOLE, load RENMDIRS with the following syntax:

```plaintext
LOAD RENMDIRS fileserver username password
```

Fileserver is the name of the file server that contains the mail directories. Username and password correspond to a user that has modification permissions on all of the mail directories (for example, ADMIN or Supervisor). For each mail directory, RENMDIRS will locate the first trustee of the directory and look up its bindery ID in Directory Services. If the bindery ID does not match the directory name, the directory is renamed.

For more information about special volumes, see “NetWare Special Volumes” on page 132.

To restore an entire volume:

1. Display and fill in the fields on the Search Selection dialog box, as described in “Specifying the Volume to Restore” on page 21.

2. Select the volume that you want to restore.

3. Click **Full Restore**.

   CAM displays the Initiate Restore dialog box.

4. Fill in the fields as described in “Initiating the Restore” on page 29.

5. Click **View Job** to monitor the job you have submitted, or click **OK** to return to the Search Selection dialog box. For more information, see Chapter 4.
Restoring a NetWare Client Host

An administrator can restore all backups on a client host by restoring all volumes.

To restore all backups on a client host, follow the procedure for restoring a volume, fully restoring the bindery for NetWare (3.X) or NDS for NetWare (4.X) volume first. Then, select Add All on the Backup Selection dialog box to select all volumes on the client host, and click Full Restore. This restores all volumes in a single job, in a sequential manner.

Restore each volume in a separate job so that you can run multiple restores simultaneously. To do this, perform the full volume restore process for each volume.
Chapter 3  Retrieving Files from Archives

This chapter provides instructions for retrieving files that have been archived by CAM.

Chapter contents:

• Retrieve Overview - page 40
• Specifying an Archive - page 41
• Selecting Files from a Directory Tree - page 44
• Selecting Files from a Pathname List - page 46
• Initiating the Retrieve - page 49
Retrieve Overview

A retrieve recovers files from an archive to a destination that you specify.

To retrieve files, follow the procedures provided in this chapter, first to specify the project from which the files originated when they were archived; then to select the files to retrieve.

To retrieve files archived by CAM, you must be a valid CAM user. You can access archives as follows:

- **Project administrators** can retrieve any CAM archive from any project for which they have project administrator responsibility.

- **Project users** can retrieve only their own files, from projects to which they have been granted access. Access is granted by the project administrator (see Chapter 5).

**Note:** A project user may search any archive in the project, but in order to retrieve files, the user must have restore access to the client host to which the files are being retrieved. Restore access is granted by the client host administrator (see Chapter 6).

**Note:** When restoring a directory, ensure that all permissions are restored as intended. Many LAN administrators place access control permissions at the directory level, to affect the files within that directory. For example, a directory called private that contains 100 files will have access permission information on the directory \PRIVATE instead of on each individual file.

**Note:** On the CAM Search - Tree View dialog box, when you highlight a directory in the Root list box its contents are displayed in the Directory list box on the left. By then clicking Select, you select all files within the directory, but not the directory element itself. To select the directory and its contents, highlight the directory when it displays in the
Directory list box. To verify that the directory has been selected, click **Display Selected Files**.

If at any time you wish to discontinue a retrieve process, click **Cancel** or **Close** on the currently displayed dialog box until you return to the CAM main dialog box. CAM cancels the retrieve with no effect on your current or backed up files.

**Specifying an Archive**

Before you select files to retrieve, use the following procedure to select the project to which the archives belong:

1. In the CAM main dialog box, in the **Archive** group, click **Retrieve**.

   CAM displays one of the following:

   - If you have CAM access to more than one project, CAM displays the Project Selection dialog box, which lists the projects that you can access. Select the name of the project in which the archived files originated,
and click **Search**. CAM displays the Archive Selection dialog box.

- If you have CAM access to one project only, CAM displays the Archive Selection dialog box.

2. Fill in the fields as described in the following table.

**Table 3-1  Field Descriptions: Archive Selection Dialog Box**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sort order</td>
<td>Use the pulldown list to select the order in which to list the archives. You can select to sort the archives by date, client host ID, client host type, days until expiration, size, or description. By default, the archives are sorted by date (most recent date first).</td>
</tr>
<tr>
<td>Display duplicates</td>
<td>Specifies whether to display all archive versions of a file, if more than one appear within the archive range requested. By default, only the most recent archive version of a file is displayed.</td>
</tr>
<tr>
<td>Selection match</td>
<td>Enter one or more character strings to restrict the number of archives listed, and press Enter. Separate each entry with a space. The only archives listed are those that contain a match for every entry in this field.</td>
</tr>
</tbody>
</table>
3. In the list box on the Archive Selection dialog box, click on one or more archives from the same client host type to select the archives you wish to search.

4. To designate files to retrieve, do one of the following:
   - To select from a directory tree, follow the procedure in “Selecting Files from a Directory Tree” on page 44.
   - To select from a list of pathnames, follow the procedure in “Selecting Files from a Pathname List” on page 46.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date / time range</td>
<td>Range of dates during which the files were archived. The default From is the year 1901; the default To is the current date and time. Normally, you can use the default date/time range.</td>
</tr>
<tr>
<td>Display Duplicates</td>
<td>Specifies whether to display all archive versions of a file, if more than one appear within the archive range requested. By default, only the most recent archive version of a file is displayed.</td>
</tr>
</tbody>
</table>
Selecting Files from a Directory Tree

The following procedure enables you to search a directory tree for files to retrieve. Use this procedure after selecting an archive, as described in “Specifying an Archive” on page 41.

1. In the Archive Selection dialog box, click Search-Tree View.

CAM displays the Search-Tree View dialog box.
2. Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Detail</td>
<td>Specifies whether file details (such as file size, date, time, and so on) are displayed for each file. Files older than six months are displayed with date and year; newer files are displayed with date and time. By default, file details are not displayed.</td>
</tr>
<tr>
<td>Show Backup Date</td>
<td>Specifies whether the backup date and time are displayed for each file.</td>
</tr>
<tr>
<td>Set Root</td>
<td>Sets the selected directory or subdirectory as the root directory. This makes large directories easier to search.</td>
</tr>
<tr>
<td>Reset Root</td>
<td>Resets the root directory to the highest level directory.</td>
</tr>
<tr>
<td>Display matching</td>
<td>Limits the files searched. Enter a character string to include only files that match that string. The wildcard character is an asterisk (<em>). To enter more than one string, separate each string with a space. The default (</em>) searches all files within the selected directory. By default, matching specifications are not case-sensitive. Directory delimiters are not valid in this field. For example, to display only files with the extension .M1 in a certain directory or subdirectory, select the directory or subdirectory in the Root list box and enter *.M1 in this field.</td>
</tr>
<tr>
<td>Matching</td>
<td>Selects only files that match the character string you type in this field. The wildcard character is an asterisk (<em>). To enter more than one string, separate each string with a space. The default (</em>) searches all files within the selected directory.</td>
</tr>
<tr>
<td>Include Subdirectories</td>
<td>Specifies whether subdirectories are traversed when selecting files based on the pattern specified in the Matching field. By default, subdirectories are traversed.</td>
</tr>
</tbody>
</table>

a. In the Root list box, select the directory name in which the files you are retrieving originated.

A plus sign (+) preceding a directory name indicates that the directory contains subdirectories; a minus sign (-) indicates that the subdirectories are listed. To view or hide subdirectories, double-click the directory name.
b. In the Directory list box, select one or more file names to retrieve.

Selected files remain selected unless you clear them or return to the previous dialog box.

The order in which CAM retrieves files may not necessarily be the same as the order in which they appear on the Search Tree View dialog box.

3. Click Retrieve. CAM displays the Initiate Retrieve dialog box.

4. Follow the procedures in “Initiating the Retrieve” on page 49.

Selecting Files from a Pathname List

The following procedure performs a search of files listed by pathname. Use this procedure after selecting an archive, as described in “Specifying an Archive” on page 41.

1. In the Archive Selection dialog box, click Search-Path View.

CAM displays the Search-Path View dialog box.
2. Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Detail</td>
<td>Specifies whether file details (such as size, date, time, and so on) are displayed for each file. Files older than six months are displayed with date and year; newer files are displayed with date and time. By default, file details are not displayed.</td>
</tr>
<tr>
<td>Show Backup Date</td>
<td>Specifies whether the backup date and time are displayed for each file.</td>
</tr>
</tbody>
</table>
3. In the **Full path name** list box, click on path names to select files that you want to retrieve.

When you select a file, it remains selected unless you clear it or return to the previous dialog box.

The order in which CAM retrieves files may not necessarily be the same as the order in which they appear on the Search Path View dialog box.

4. Click **Retrieve**. CAM displays the Initiate Retrieve dialog box.

5. Follow the procedures in “**Initiating the Retrieve**” on page 49.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Display matching      | Limits the files viewed. Enter a pathname using the wildcard asterisk character (*) to include only files that match that pathname. To enter more than one string, separate each string with a space. The default (*) searches all files.  
The full path, including the volume name, must be represented.  
Note that the asterisk character matches the directory delimiter.  
For example PUBS/TM/* displays the files in the PUBS:/TM/ directory and all of its subdirectories. The slash (/) is the standard directory delimiter.  
By default, matching specifications are not case-sensitive.                                                                                                                                                                                                                                                                                                                                                                           |
| Matching              | Selects only files that match the character string you type in this field. The wildcard character is an asterisk (*). To enter more than one string, separate each string with a space. The default (*) selects all files within the selected directory.                                                                                                                                                                                                                                                                                                                               |
Initiating the Retrieve

1. After you have selected files to retrieve, CAM displays the Initiate Retrieve dialog box.
2. Fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAM Host ID</td>
<td>The host ID assigned by the CAM administrator that CAM uses to identify your host. The default is the host ID of the host just searched. If you are a project user and do not have restore access to the client host, this field is blank; click <strong>Alternative Host ID</strong> to select a compatible alternative client host. If there are no compatible alternative client hosts, you cannot complete the retrieve. See your project administrator. To retrieve the files to another client host of the same type (to which you have access), click <strong>Alternative Host ID</strong> and select another client host. You may select an alternative host ID to restore NetWare files between different versions of NetWare. For example, you may restore NetWare 3.11 files to a NetWare 4.01 fileserver. Use the following guidelines: • You may not restore NetWare Directory services from a 4.X fileserver to a 3.1X fileserver. • You may not restore the Bindery from NetWare 3.1X to NetWare 4.X file servers. • You may not restore files compressed by NetWare 4.X to an uncompressed drive. You may not restore files to an alternative volume that does not include the proper name space. For example, you may not restore an OS/2 file to a volume with no OS/2 name space support.</td>
</tr>
<tr>
<td>Host username and Host password</td>
<td>Username and password with which CAM can log on to the client host. This username/password pair must have privilege to write all files to disk at the client host.</td>
</tr>
</tbody>
</table>
### Table 3-4  Field Descriptions: Initiate Retrieve Dialog Box  (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Alternative directory  | Full pathname of an alternative directory to which to retrieve files. By default, CAM retrieves files to the directory from which they originated.  
The pathname you specify should include a volume name and directory.  
For example, SYS:/UTAH. If the specified directory does not exist,  
CAM attempts to create it during the restore process.  
This directory acts as a new root to which the files selected (and their  
parent directories, unless the Remove Original Pathname field is  
selected) are retrieved.  
If you do not include the volume name in the alternative directory  
pathname, CAM retrieves the files to the working directory of the user  
currently logged in.  
Note that the bindery and NDS cannot be restored to alternative  
directories. |
| Remove Original Pathname | This field is available when you specify a pathname in the Alternative Directory field. When this box is checked, CAM removes the original  
pathname and restores files to the pathname (relative to the original  
volume name) specified in the Alternative Directory field.  
For example, if the original directory path name and file name is  
SYS:/TEST/FILE1 and the alternative directory is specified as  
SYS:/FINAL, CAM restores the file as follows:  
• When this box is enabled, CAM removes the original pathname. In  
the example above, CAM would restore the file as:  
SYS:/FINAL/FILE1.  
• When this box is blank, CAM retains the original pathname. In the  
example above, CAM would restore the file as:  
SYS:/FINAL/TEST/FILE1.  
Selecting this feature may cause files with identical names in different  
directories to be overwritten. |
| Notify                  | Specifies whether to provide job status information to the user submitting this job. In order for CAM to send these reports, the CAM  
administrator must provide the electronic mail address of each report  
recipient. For more information, see the CAM Setup and Administration  
Guide. |
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replace Existing Files</td>
<td>Specifies that existing files at the client host are to be overwritten by the archive versions being restored. By default, CAM overwrites existing files with the selected backed up files. If this field and the Remove Original Pathname field are both enabled, files with identical names from different directories may be overwritten.</td>
</tr>
<tr>
<td>Checksum</td>
<td>Specifies whether checksum verification is to be used for the archive operations.</td>
</tr>
<tr>
<td>Utility options</td>
<td>This field is not applicable to archives.</td>
</tr>
<tr>
<td>Start time/End time</td>
<td>Time window within which this archive job can begin. The default start time is the current time and the default end time is one minute before midnight tomorrow. Unless the job is likely to affect network performance, use the defaults. All job requests are queued on the central server and are executed as system resources permit. To specify a time window, use a 48-hour clock: specify time on the first day as for a 24-hour clock, and specify time on the second day as a continuation of the 24-hour clock. For example: Day 1, 8:00 a.m. = 8:00 Day 1, 9:00 p.m. = 21:00 Day 2, 1:30 a.m. = 25:30 Day 2, 5:00 p.m. = 41:00 Day 2, midnight = 48:00</td>
</tr>
<tr>
<td>Trace flags</td>
<td>Use this field only if requested to do so for diagnostic purposes.</td>
</tr>
<tr>
<td>Job priority</td>
<td>An integer from 1 to 99 that indicates the priority level of the job. The highest priority is 99; the lowest priority is 1. The default is 60. Only the CAM administrator can increase the priority level of a job.</td>
</tr>
</tbody>
</table>
3. Click **Initiate Retrieve**. CAM submits the request and displays the job number.

![Job Submitted](image)

4. Click **View** to monitor the job you have submitted, or click **Close** to return to the Search Selection dialog box. For more information, see Chapter 4.
Chapter 4  CAM Operations

CAM backup and restore jobs produce data that you can consult to check the status and outcome of each job. This chapter provides instructions for accessing and interpreting this job data.

Note: The examples in this chapter are based on a variety of client types. Pathname formats for other client hosts will vary.

Chapter contents:

• Selecting Jobs to View - page 56
• Viewing Job Details - page 66
• Viewing a CAM Job Log - page 81
• Using the CAM Command Line Interface (CLI) - page 84
• Modifying CAM Jobs - page 101
Selecting Jobs to View

To view job data, use one of the procedures in this section to select one or more jobs. To interpret the data, see “Viewing Job Details” on page 66.

To select a job by job number

1. Select By Job # from the Job menu.

2. Enter the job ID, and click View. CAM displays the Job Detail dialog box, described in “Viewing Job Details” on page 66.
To select a job from all jobs submitted by your current CAM user ID

1. Select By User from the Job menu.

CAM displays the Job Type Selection dialog box.

2. Fill in the fields as described in the following table, and click View.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Status</strong></td>
<td>Status of the job: Active (Executing, Ready, Pending, Held) or Completed (Success, Warnings, Failure).</td>
</tr>
<tr>
<td><strong>Active</strong></td>
<td>Jobs currently executing or not yet executing. To limit the selection, click one of the following:</td>
</tr>
<tr>
<td></td>
<td>• Executing - Currently being run.</td>
</tr>
<tr>
<td></td>
<td>• Ready - Jobs ready to start within their time range, but encountering a resource restriction, such as a limited number of jobs being allowed to run.</td>
</tr>
<tr>
<td></td>
<td>• Pending - Jobs for which the start window time has not yet arrived, or jobs in a retry state.</td>
</tr>
<tr>
<td></td>
<td>• Held - Jobs on which a hold has been placed.</td>
</tr>
<tr>
<td><strong>Completed</strong></td>
<td>Jobs that have completed. To limit the selection, click one of the following:</td>
</tr>
<tr>
<td></td>
<td>• Success - Jobs finished successfully.</td>
</tr>
<tr>
<td></td>
<td>• Warnings - Jobs finished successfully, with warnings. See the job log to view warnings.</td>
</tr>
<tr>
<td></td>
<td>• Failure - Jobs for which one or more backups or restores failed.</td>
</tr>
<tr>
<td><strong>Completed job range group</strong></td>
<td>(Completed jobs only) Enter a time range to see information for jobs completed during the specified time range. The default is start of day today until start of day tomorrow. The default start of day is specified in the CAM configuration file.</td>
</tr>
<tr>
<td></td>
<td>To see jobs completed during the previous day or next day (start of day to start of next day), click Previous Day or Next Day.</td>
</tr>
</tbody>
</table>

3. CAM displays the Job Selection dialog box. Select one or more jobs to view, and click **Job Detail**.
Note: Job logs are retained for the number of days set in the RM_MAX_DAYS parameter in the CAM configuration file.

Note: If a job ID is preceded by a plus (+) or minus (-) sign, it represents a group job or database job. Click to hide or view the job data of volumes attached to the group, or of the database child jobs. Click on a job to select it.

4. CAM displays the Job Detail dialog box, described in “Viewing Job Details” on page 66.
To select a job from a list of jobs submitted for a specific client host

1. Select By Host from the Job menu.

CAM displays one of the following:

- If you have access to more than one client host, CAM displays the Host Selection dialog box, shown next. This is a list of client hosts to which you have access. In the Host Type field, you can specify the client host types to display by selecting from the pulldown list (the default is ALL). Select the name of one or more
client hosts on which to view jobs, and click **OK**.

CAM displays the Job Type Selection dialog box, shown next.

- If you have access to one client host only, CAM displays the Job Type Selection dialog box.
2. Fill in the fields as described in Table 4-1, on page 58, and click View.

CAM displays the Job Selection dialog box, shown next.

3. Select one or more jobs to view and click Job Detail.

CAM displays the Job Detail dialog box, described in “Viewing Job Details” on page 66.
To select a job from a list of projects

**Note:** This selection is available only to project administrators.

1. Select By Project from the Job menu.

CAM displays one of the following:

- If you have access to more than one project, CAM displays the Project Selection dialog box, shown next. This is a list of projects to which you have access. Select one or more projects in which you want to view
jobs, and click **Job...**.

CAM displays the Job Type Selection dialog box, shown next.

- If you have access to one project only, CAM displays the Job Type Selection dialog box, shown next.

2. Fill in the fields as described in Table 4-1, on page 58, and click **View**.
3. CAM displays the Job Selection dialog box, shown next.

4. Select one or more jobs to view, and click **Job Detail**.

CAM displays the Job Detail dialog box, described in “Viewing Job Details” on page 66.
Viewing Job Details

When you follow one of the procedures in “Selecting Jobs to View” on page 56, CAM displays the Job Detail dialog box, shown next. This dialog box provides information about one of the jobs you selected, identified by its job ID in the upper left corner.

- **Job ID and status of job**: Enables you to resubmit the job; click to resubmit. For pending jobs, this button becomes the Modify button (see page 101).

- **Aborts active job**: Displays previous or next selected job

- **Updates this dialog box to show current job status**: Toggles between job log and this dialog box

---

![Job Detail Dialog Box](image)

### Job Detail Dialog Box

- **Host ID**: support1
- **Hostname**: support1.greatco.com
- **Username**: christensen
- **Volume ID**: macintosh
- **Job ID**: backup
- **User ID**: admin
- **Completion Code**: SUCCESS
- **Submit Time**: 1997-05-19 13:29
- **Start Time**: 1997-05-19 13:29
- **End Time**: 1997-05-19 14:52
- **Current Steps**: 1 / 1
- **Killed By**: Log: /dev_root/pub/cam/cm/logs/1900001

### Interval Cumulative

- **0 bytes** 455824 bytes
- **0 seconds** 3737 seconds
- **Mbps** 101 Mbps

### Step #1

<table>
<thead>
<tr>
<th>Volume ID</th>
<th>Volume Name</th>
<th>Volume Size</th>
<th>Compression</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>macintosh</td>
<td>Macintosh HD</td>
<td>231</td>
<td>yes</td>
<td>滿</td>
</tr>
</tbody>
</table>

---

66  CAM NetWare Client and User Guide — 4th Edition
Note: If the status in the upper left corner of the dialog box is READY, one of the following Resource wait condition messages appears at the top of the Job Detail dialog box. In all of the following cases, CAM runs the job as resources become available:

- Maximum sessions already in use
- Maximum sessions to client already in use
- Volume already in use
- Failed to start backup engine

If this message appears, check the job log or the RM log file to correct the problem and avoid recurrence.

- Bindery backup/restore must run alone

This is a NetWare-specific message. If this message appears, the job cannot run because a volume backup is waiting for the bindery backup to complete, or the bindery backup cannot begin because another backup is in progress.

For a full description of fields on a Job Detail dialog box for backup/restore jobs, see “Job Detail Dialog Box Fields for Backup and Restore Jobs” on page 68.

For a full description of fields on a Job Detail dialog box for archive/retrieve jobs, see “Job Detail Dialog Box Fields for Archive and Retrieve Jobs” on page 74.
Job Detail Dialog Box Fields for Backup and Restore Jobs

An example of a Job Detail dialog box for a backup job is shown next. For descriptions of job status fields, see “Job status fields” on page 68. For descriptions of step status fields, see “Step status fields” page 71.

Job status fields

The fields in the job status (upper) portion of the Job Detail dialog box are described in the following table.

Table 4-2 Field Descriptions: Job Status Fields (Backup/Restore)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host ID</td>
<td>Host ID of the client host on which the job originated</td>
</tr>
<tr>
<td>Volume ID</td>
<td>Volume ID of the client host volume on which the job originated</td>
</tr>
<tr>
<td>Job Type</td>
<td>Type of job: backup or restore</td>
</tr>
<tr>
<td>User ID</td>
<td>CAM user ID from which the job originated</td>
</tr>
</tbody>
</table>
Completion Code

Final status of the job:

BADJOB - The CAM server passed bad parameters to the resource manager. Contact your CAM administrator.

CON_FAIL - The job was active at least once, but every attempt to connect to the client host failed. Check the service initiator on the client for a problem with the username or password. Resubmit the job.

DELETED - A CAM user or administrator aborted the job before it became active. Resubmit the job.

DIED - The resource manager stopped while the job was active. Resubmit the job.

EXPIRED - The job execution window elapsed before the job started. Resubmit the job.

FAILED - One or more of the backups or restores in the job failed. Resubmit the job.

KILLED - A CAM user or administrator aborted the job while it was active, without waiting for CAM to shut down gracefully. Resubmit the job.

PRE_FAIL - A volume group job failed because the group pre-backup command failed.

RES_UNAV - A client host-initiated database CAM job could not run because resources (such as available space in the job queue) were not available. Rerun the job at a later time.

RETRIED - The job was successful when CAM retried it. CAM retries backup jobs twice, but does not retry restore jobs.

SES_ABRT - A volume of the group job was killed or aborted.

SES_CLASS - The job failed because the minimum number of sessions needed for the job exceeded the class limit.

SES_FAIL - A volume group job failed because one of the volume backup jobs failed.

SES_HOST - The job failed because the minimum number of sessions needed for the job exceeded the host session limit.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion Code</td>
<td>Final status of the job:</td>
</tr>
<tr>
<td></td>
<td>BADJOB - The CAM server passed bad parameters to the resource manager.</td>
</tr>
<tr>
<td></td>
<td>CON_FAIL - The job was active at least once, but every attempt to connect</td>
</tr>
<tr>
<td></td>
<td>to the client host failed. Check the service initiator on the client for</td>
</tr>
<tr>
<td></td>
<td>a problem with the username or password.</td>
</tr>
<tr>
<td></td>
<td>DELETED - A CAM user or administrator aborted the job before it became</td>
</tr>
<tr>
<td></td>
<td>active. Resubmit the job.</td>
</tr>
<tr>
<td></td>
<td>DIED - The resource manager stopped while the job was active. Resubmit the</td>
</tr>
<tr>
<td></td>
<td>job.</td>
</tr>
<tr>
<td></td>
<td>EXPIRED - The job execution window elapsed before the job started. Resubmit</td>
</tr>
<tr>
<td></td>
<td>the job.</td>
</tr>
<tr>
<td></td>
<td>FAILED - One or more of the backups or restores in the job failed. Resubmit</td>
</tr>
<tr>
<td></td>
<td>the job.</td>
</tr>
<tr>
<td></td>
<td>KILLED - A CAM user or administrator aborted the job while it was active,</td>
</tr>
<tr>
<td></td>
<td>without waiting for CAM to shut down gracefully. Resubmit the job.</td>
</tr>
<tr>
<td></td>
<td>PRE_FAIL - A volume group job failed because the group pre-backup command</td>
</tr>
<tr>
<td></td>
<td>failed.</td>
</tr>
<tr>
<td></td>
<td>RES_UNAV - A client host-initiated database CAM job could not run because</td>
</tr>
<tr>
<td></td>
<td>resources (such as available space in the job queue) were not available.</td>
</tr>
<tr>
<td></td>
<td>Rerun the job at a later time.</td>
</tr>
<tr>
<td></td>
<td>RETRIED - The job was successful when CAM retried it. CAM retries backup</td>
</tr>
<tr>
<td></td>
<td>jobs twice, but does not retry restore jobs.</td>
</tr>
<tr>
<td></td>
<td>SES_ABRT - A volume of the group job was killed or aborted.</td>
</tr>
<tr>
<td></td>
<td>SES_CLASS - The job failed because the minimum number of sessions needed for</td>
</tr>
<tr>
<td></td>
<td>the job exceeded the class limit.</td>
</tr>
<tr>
<td></td>
<td>SES_FAIL - A volume group job failed because one of the volume backup jobs</td>
</tr>
<tr>
<td></td>
<td>failed.</td>
</tr>
<tr>
<td></td>
<td>SES_HOST - The job failed because the minimum number of sessions needed for</td>
</tr>
<tr>
<td></td>
<td>the job exceeded the host session limit.</td>
</tr>
</tbody>
</table>
### Table 4-2  Field Descriptions: Job Status Fields (Backup/Restore) (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| Completion Code    | **SES_MAX** - The job failed because the minimum number of sessions needed for the job exceeded the maximum number of concurrent jobs allowed for the site.  
**SES_TAPE** - The job failed because the minimum number of sessions needed for the job exceeded the number of tape sessions allowed.  
**SES_WARN** - A volume of the group job returned a warning status.  
**STOPPED** - A CAM user or administrator aborted the job while it was active. Resubmit the job.  
**SUB_LIM** - A CAM user or administrator resubmitted the job, but the resubmit limit had been reached. (MVS only)  
**SUCCESS** - The job finished as expected. All backups or restores worked.  
**TIMEOUT** - Job was terminated because it timed out. No data was transmitted for a time period longer than the timeout condition.  
**WARNINGS** - The job finished successfully, but with warnings that should be reviewed in the job log (look for Typing Exceptions). | (continued) |
| Start Window       | The earliest time the job can begin                                                                                                          |
| End Window         | The latest time the job can begin                                                                                                           |
| Current Step       | Current step / total steps. A step is either a volume backup (one volume per job) or a single restore job. Each container file accessed is a new step. |
| Log                | Name of the log file with backup/restore output and exceptions. This file contains a log of all CAM commands issued to initiate a backup or restore, and their results. |
| Hostname           | Client host network name                                                                                                                  |
| Username           | Username on client host                                                                                                                   |
| Hosttype           | Client host operating system type                                                                                                          |
| Connect Errors     | Number of times the job failed to connect to client                                                                                         |
| Job Errors         | Maximum number of job failures before the job was considered complete                                                                     |
| Submit Time        | Date and time the job was submitted, in the format YYYY-MM-DD HH:mm. Y = year, M = month, D = day, H = hour, m = minute.                   |
| Start Time         | Date and time the job actually started                                                                                                      |
Step status fields

The fields shown in the step status (lower) portion of the Job Detail dialog box are dependent upon whether the job is a backup or a restore.

Following is an example of the step status fields for a backup job.

```
-------- Step #1 --------
Volume Id:   usr   Volume Name:   /usr
Size (Bytes): 150  Compression:   yes
Status:      SUCCESS  Type:   diff
Schedule:    manfull1  Class:   disk1d
Retention:   1  Utility:   backup
Containers:  /dev_root/pub/containers/db/sales2/usr_diff_E6IDsB.#
Index:       /dev_root/pub/cnx/db/sales2/usr_diff_E6IDsB.ind
```

Following is an example of the step status fields for a restore job.

```
-------- Step #1 --------
Volume Id:   usr   Destination:
Status:      SUCCESS  Selection:
Utility:   backup  Options:
First Segment:  1  Original Host:   sales2
Last Segment:  1  Original Volume:   /usr
Replace:   on  Restore Type:   Selective
Class:       disk1d  Class Type:   disk
Mode:        106  Type:   full
Containers:  /dev_root/pub/containers/db/sales2/usr_null_E6Y2U6.#
File List:    /dev_root/pub/cnx/db/sales2/usr_E64ClClE.11
```

### Table 4-2  Field Descriptions: Job Status Fields (Backup/Restore)  (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>End Time</td>
<td>Date and time the job actually ended</td>
</tr>
<tr>
<td>Killed by</td>
<td>Username of user who canceled the job</td>
</tr>
<tr>
<td>Interval</td>
<td>Number of bytes transferred, number of seconds the transfer took, and kilobits per second transfer rate for the interval set in the configuration file. Default = 60 seconds</td>
</tr>
<tr>
<td>Cumulative</td>
<td>Number of bytes transferred, number of seconds the transfer took, and kilobits per second transfer rate from job start to job finish</td>
</tr>
</tbody>
</table>
Step status fields for backup/restore jobs are described in the following table, in alphabetic order:

**Table 4-3  Field Descriptions: Backup and Restore Status**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bytes</td>
<td>Cumulative bytes transferred in the current step</td>
</tr>
<tr>
<td>Class</td>
<td>Class ID specified</td>
</tr>
<tr>
<td>Class Type</td>
<td>Type of storage media upon which container files for this class are stored</td>
</tr>
<tr>
<td>Compression</td>
<td>(Backup only) File compression has been set to on or off</td>
</tr>
<tr>
<td>Container</td>
<td>Container file name accessed on the central server</td>
</tr>
<tr>
<td>Destination</td>
<td>(Restore only) Destination that files were restored to</td>
</tr>
<tr>
<td>End Time</td>
<td>Date and time that the job completed</td>
</tr>
<tr>
<td>File List</td>
<td>(Restore only) File name of selections</td>
</tr>
<tr>
<td>First Segment</td>
<td>(Restore only) Number of first container file segment restored</td>
</tr>
<tr>
<td>Index</td>
<td>(Backup only) Index file name on the central server</td>
</tr>
<tr>
<td>Kbps</td>
<td>(Restore only) Data rate for current transfer</td>
</tr>
<tr>
<td>Last Segment</td>
<td>(Restore only) Number of last container file segment restored</td>
</tr>
<tr>
<td>Options</td>
<td>(Restore only) Restore command options used</td>
</tr>
<tr>
<td>Original Host</td>
<td>(Restore only) Name of the original client host that was backed up</td>
</tr>
<tr>
<td>Original Volume</td>
<td>(Restore only) Name of the original volume that was backed up</td>
</tr>
<tr>
<td>Replace</td>
<td>(Restore only) Files were replaced by selected backup versions</td>
</tr>
<tr>
<td>Restore Type</td>
<td>(Restore only) Selective restore or full volume restore</td>
</tr>
<tr>
<td>Retention</td>
<td>(Backup only) Retention period of the container file, in days</td>
</tr>
<tr>
<td>Schedule</td>
<td>(Backup only) Schedule ID of the schedule used for this job step</td>
</tr>
<tr>
<td>Seconds</td>
<td>Number of seconds taken to transfer bytes in the current step</td>
</tr>
<tr>
<td>Segments</td>
<td>(Backup only) Number of container file segments created for the backup</td>
</tr>
<tr>
<td>Selection</td>
<td>(Restore only) Select string used for restore</td>
</tr>
<tr>
<td>Size</td>
<td>(Backup only) Volume size</td>
</tr>
<tr>
<td>Start Time</td>
<td>Date and time that the job started, in the format YYYY-MM-DD HH:mm. Y = year, M = month, D = day, H = hour, m = minute.</td>
</tr>
</tbody>
</table>
Table 4-3  Field Descriptions: Backup and Restore Status  (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Status of this job step:&lt;br&gt;SUCCESS - The job step completed successfully.&lt;br&gt;FAILURE - The job step did not complete successfully.&lt;br&gt;WARNINGS - The job step finished successfully, but with warnings that should be reviewed in the job log.</td>
</tr>
<tr>
<td>Type</td>
<td>Backup type for the current step (full, incremental, differential, or special), or type of container file accessed during the restore.</td>
</tr>
<tr>
<td>Utility</td>
<td>Name of the backup/restore utility used</td>
</tr>
<tr>
<td>Volume ID</td>
<td>Volume ID processed in this step</td>
</tr>
<tr>
<td>Volume Name</td>
<td>(Backup only) Client volume name processed in this step</td>
</tr>
</tbody>
</table>
Job Detail Dialog

Box Fields for Archive and Retrieve Jobs

An example of a Job Detail dialog box for an archive job is shown next. For descriptions of job status fields, see “Job status fields” on page 75. For descriptions of step status fields, see “Step status fields” on page 78.
Job status fields  The fields in the job status (upper) portion of the Job Detail dialog box are described in the following table.

Table 4-4  Field Descriptions: Job Status Fields (Archive/Retrieve)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host ID</td>
<td>Host ID of the client host on which the job originated</td>
</tr>
<tr>
<td>Project ID</td>
<td>Project ID of the project from which the archive originated</td>
</tr>
<tr>
<td>Job Type</td>
<td>Type of job: backup or restore</td>
</tr>
<tr>
<td>User ID</td>
<td>CAM user ID from which the job originated</td>
</tr>
</tbody>
</table>
Completion Code

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final status of the job:</td>
<td></td>
</tr>
<tr>
<td>BADJOB - The CAM server passed bad parameters to the resource manager. Contact your CAM administrator.</td>
<td></td>
</tr>
<tr>
<td>CON_FAIL - The job was active at least once, but every attempt to connect to the client host failed. Check the service initiator on the client for a problem with the username or password. Resubmit the job.</td>
<td></td>
</tr>
<tr>
<td>DELETED - A CAM user or administrator aborted the job before it became active. Resubmit the job.</td>
<td></td>
</tr>
<tr>
<td>DIED - The resource manager stopped while the job was active. Resubmit the job.</td>
<td></td>
</tr>
<tr>
<td>EXPIRED - The job execution window elapsed before the job started. Resubmit the job.</td>
<td></td>
</tr>
<tr>
<td>FAILED - One or more of the backups or restores in the job failed. Resubmit the job.</td>
<td></td>
</tr>
<tr>
<td>KILLED - A CAM user or administrator aborted the job while it was active, without waiting for CAM to shut down gracefully. Resubmit the job.</td>
<td></td>
</tr>
<tr>
<td>PRE_FAIL - A volume group job failed because the group pre-backup command failed.</td>
<td></td>
</tr>
<tr>
<td>RES_UNAV - A client host-initiated database CAM job could not run because resources (such as available space in the job queue) were not available. Rerun the job at a later time.</td>
<td></td>
</tr>
<tr>
<td>RETRIED - The job was successful when CAM retried it. CAM retries backup jobs twice, but does not retry restore jobs.</td>
<td></td>
</tr>
<tr>
<td>SES_ABRT - A volume of the group job was killed or aborted.</td>
<td></td>
</tr>
<tr>
<td>SES_CLASS - The job failed because the minimum number of sessions needed for the job exceeded the class limit.</td>
<td></td>
</tr>
<tr>
<td>SES_FAIL - A volume group job failed because one of the volume backup jobs failed.</td>
<td></td>
</tr>
<tr>
<td>SES_HOST - The job failed because the minimum number of sessions needed for the job exceeded the host session limit.</td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Completion Code (continued)</td>
<td>SES_MAX - The job failed because the minimum number of sessions needed for the job exceeded the maximum number of concurrent jobs allowed for the site. SES_TAPE - The job failed because the minimum number of sessions needed for the job exceeded the number of tape sessions allowed. SES_WARN - A volume of the group job returned a warning status. STOPPED - A CAM user or administrator aborted the job while it was active. Resubmit the job. SUB_LIM - A CAM user or administrator resubmitted the job, but the resubmit limit had been reached. (MVS only) SUCCESS - The job finished as expected. All backups or restores worked. TIMEOUT - Job was terminated because it timed out. No data was transmitted for a time period longer than the timeout condition. WARNINGS - The job finished successfully, but with warnings that should be reviewed in the job log (look for Typing Exceptions).</td>
</tr>
<tr>
<td>Start Window</td>
<td>The earliest time the job can begin</td>
</tr>
<tr>
<td>End Window</td>
<td>The latest time the job can begin</td>
</tr>
<tr>
<td>Current Step</td>
<td>Current step / total steps. A step is either a volume backup (one volume per job) or a single restore job. Each container file accessed is a new step.</td>
</tr>
<tr>
<td>Log</td>
<td>Name of the log file with backup/restore output and exceptions. This file contains a log of all CAM commands issued to initiate a backup or restore, and their results.</td>
</tr>
<tr>
<td>Hostname</td>
<td>Client host network name</td>
</tr>
<tr>
<td>Username</td>
<td>Username on client host</td>
</tr>
<tr>
<td>Hosttype</td>
<td>Client host operating system type</td>
</tr>
<tr>
<td>Connect Errors</td>
<td>Number of times the job failed to connect to client</td>
</tr>
<tr>
<td>Job Errors</td>
<td>Maximum number of job failures before the job was considered complete</td>
</tr>
<tr>
<td>Submit Time</td>
<td>Date and time the job was submitted, in the format YYYY-MM-DD HH:mm. Y = year, M = month, D = day, H = hour, m = minute.</td>
</tr>
<tr>
<td>Start Time</td>
<td>Date and time the job actually started</td>
</tr>
</tbody>
</table>
Step status fields

The fields shown in the step status (lower) portion of the Job Detail dialog box are dependent upon whether the job is an archive or a retrieve.

Following is an example of the step status fields for an archive job.

```
============= Step #1 ============
Project Id: quar1  Compression: no
Status: SUCCESS  Type: arch
Class: disk
Retention: keep  Class Type: disk
Segment: 1  Utility: unbackup
Index: /dev/root/pub/arch/quar1/20H1K4.idx
Archive Def: /dev/root/pub/arch/quar1/20H1K4. def
```

Following is an example of the step status fields for a retrieve job.

```
============= Step #1 ============
Project Id: quar1  Destination:
Status: SUCCESS  Selection:
Utility: unbackup  Options:
First Segment: 1  Original Host: dool
Last Segment: 1
Replace: on  Restore Type: Selective
Class: disk
Kbps: 703  Type: arch
File List: /dev/root/pub/arch/quar1/804830.txt
```
Step status fields for archive/retrieve jobs are described in the following table, in alphabetic order:

**Table 4-5 Field Descriptions: Backup and Restore Status**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archive Def</td>
<td>(Archive only) File that contains the archive definition</td>
</tr>
<tr>
<td>Bytes</td>
<td>Cumulative bytes transferred in the current step</td>
</tr>
<tr>
<td>Class</td>
<td>Class ID specified</td>
</tr>
<tr>
<td>Class Type</td>
<td>Type of storage media upon which container files for this class are stored</td>
</tr>
<tr>
<td>Compression</td>
<td>(Archive only) File compression has been set to on or off</td>
</tr>
<tr>
<td>Container</td>
<td>Container file name accessed on the central server</td>
</tr>
<tr>
<td>Destination</td>
<td>(Retrieve only) Destination that files were retrieved to</td>
</tr>
<tr>
<td>End Time</td>
<td>Date and time that the job completed</td>
</tr>
<tr>
<td>File List</td>
<td>(Retrieve only) File name of selections</td>
</tr>
<tr>
<td>First Segment</td>
<td>(Retrieve only) Number of first container file segment retrieved</td>
</tr>
<tr>
<td>Index</td>
<td>(Archive only) Index file name on the central server</td>
</tr>
<tr>
<td>Kbps</td>
<td>(Retrieve only) Data rate for current transfer</td>
</tr>
<tr>
<td>Last Segment</td>
<td>(Retrieve only) Number of last container file segment retrieved</td>
</tr>
<tr>
<td>Options</td>
<td>(Retrieve only) Retrieve command options used</td>
</tr>
<tr>
<td>Original Host</td>
<td>(Retrieve only) Name of the original client host of archive</td>
</tr>
<tr>
<td>Project ID</td>
<td>Project ID of the project in which this archive or retrieve resides.</td>
</tr>
<tr>
<td>Replace</td>
<td>(Retrieve only) Files were replaced by selected archive versions</td>
</tr>
<tr>
<td>Restore Type</td>
<td>(Retrieve only) Selective retrieve or full retrieve</td>
</tr>
<tr>
<td>Retention</td>
<td>(Archive only) Retention period of the container file, in days</td>
</tr>
<tr>
<td>Seconds</td>
<td>Number of seconds taken to transfer bytes in the current step</td>
</tr>
<tr>
<td>Segments</td>
<td>(Archive only) Number of container file segments created for the archive</td>
</tr>
<tr>
<td>Selection</td>
<td>(Retrieve only) Select string used for retrieve</td>
</tr>
<tr>
<td>Start Time</td>
<td>Date and time that the job started, in the format YYYY-MM-DD HH:mm. Y = year, M = month, D = day, H = hour, m = minute.</td>
</tr>
</tbody>
</table>
Table 4-5  Field Descriptions: Backup and Restore Status  (Continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| Status | Status of this job step:  
SUCCESS - The job step completed successfully.  
FAILURE - The job step did not complete successfully.  
WARNINGS - The job step finished successfully, but with warnings that should be reviewed in the job log. |
| Type  | Specifies that the job is an archive/retrieve job. |
| Utility | Name of the backup utility used |
Viewing a CAM Job Log

To view a CAM job log, display the Job Detail dialog box for the job or jobs you wish to view, as described in “Selecting Jobs to View” on page 56. Click View Log in the Job Detail dialog box. To return to the Job Detail dialog box, click View Status.

Note: The IBM MVS central server does not allow you to view the logs of jobs currently executing.

The example below is a CAM backup job log. The numbers along the left side correspond to the table of descriptions that follows this example. Note that the information included in each job log varies, depending on the status of the job, the job outcome, and the trace flags specified.

Example job log

1 22:02:59: >>> ***********************************************
3 22:03:00: >>> Starting Job 2500138 for Host tmdfs
4 22:03:00: >>> Local USER-Access version: UA693 5.0.0 M16
5 22:03:00: >>>
6 22:03:00: >>>    Host ID: tmdfs
7 22:03:00: >>>    Volume ID: sys
8 22:03:00: >>>    Job Type: BACKUP
9 22:03:00: >>>    User ID: admin
10 22:03:00: >>>    Job Priority: 60
11 22:03:00: >>>    Start Window: 1997-06-25 22:00
12 22:03:00: >>>    End Window: 1997-06-26 06:00
13 22:03:00: >>>    Log: /cam/rm/logs/2500138
14 22:03:00: >>>    Hostname: xxx.xxx.xx.xxx
15 22:03:00: >>>    Username: xxxxx
16 22:03:00: >>>    Hosttype: netware
17 22:03:00: >>>    Submit Time: 1997-06-25 21:01
18 22:03:00: >>>
19 22:03:00: >>> Connecting to host with network name xxx.xxx.xx.xxx
20 22:03:00: Connected to Service Initiator on host 'xxx.xxx.xx.xxx'.
21 22:03:03: Logged in as user 'xxxxx'.
22 22:03:03: Connected to service '1398' on host 'xxx.xxx.xx.xxx'.
23 22:03:05: >>> Remote USER-Access version: UA643 5.0.0 M20
24 22:03:06: >>>
25 22:03:06: >>> Starting backup for volid: sys
26 22:03:06: >>>    volume: sys:
27 22:03:06: >>>    type: incr
28 22:03:11: send -rnt on -checksum on -quiet off /cam/db/tmdfs/sysincr_ECB6XS.s
```
29 22:03:11: tf "sys:/tmp/classic/sys.sin" -expand
30 22:03:11: Finished: 0.123 seconds 34239 bytes ***** Kbps
31 22:03:12: Source Destination Size
32 22:03:12: --------------------------------- --------------------------------- ------
33 22:03:12: /cam/db/tmdfs/sys_incr_ECB6X TMDFS/SYS:/TMP/CLASSIC/SYS.S 34239
34 22:03:12: S.stf IN
35 22:03:12: >>> Satellite input state file: sys:/tmp/classic/sys.sin
36 22:03:14: receive -mode backup -checksum on -dir_create on -rnt on -quiet off
37 22:03:14: -seg_size 100M -CREATE replace "!uabackup ""sys:"" -log ""sys:/tmp
38 22:03:14: /classic/sys.ind"" -error ""sys:/tmp/classic/sys.exc"" -compress yes
39 22:03:14: -exclude ""<sys:/exclude.stb"" -ostate ""sys:/tmp/classic/sys.sou"
40 22:03:14: -istate ""sys:/tmp/classic/sys.sin"" -since 19970624221540 /wheel/
41 22:03:14: contain/14/iECD1M9M.#
42 22:03:54: Interval: 38.466 seconds 81880 bytes 17 Kbps
43 22:03:54: Accumulated: 38.466 seconds 81880 bytes 17 Kbps
44 22:03:57: Finished: 42.309 seconds 390716 bytes 73 Kbps
45 22:03:58: Source Destination Size
46 22:03:58: ---------------------------- --------------------------------- ------
47 22:03:58: !uabackup "sys:" -log "sys:/wheel/contain/14/iECD1M9M.1 390716
48 22:03:58: /wheel/contain/14/iECD1M9M.#
49 22:03:58: >>> Container: /wheel/contain/14/iECD1M9M.#
50 22:03:58: receive -checksum on -quiet off -dir_create on -rnt on -compress on
51 22:03:58: -CREATE replace "sys:/tmp/classic/sys.sou" /cam/db/tmdfs/sys_incr_EC
52 22:03:58: D1M9.stf
53 22:03:59: Finished: 0.231 seconds 34247 bytes ***** Kbps
54 22:03:59: Source Destination Size
55 22:03:59: --------------------------------- --------------------------------- ------
56 22:03:59: /cam/db/tmdfs/sys_incr_ECD1M 34247
57 22:03:59: 9.stf
59 22:04:01: receive -checksum on -quiet off -dir_create on -rnt on -compress on
60 22:04:01: -CREATE replace "sys:/tmp/classic/sys.ind" /cam/db/tmdfs/sys_incr_EC
61 22:04:01: D1M9.ind
62 22:04:01: Finished: 0.132 seconds 465 bytes ***** Kbps
63 22:04:02: Source Destination Size
64 22:04:02: --------------------------------- --------------------------------- ------
65 22:04:02: /cam/db/tmdfs/sys_incr_ECD1M 465
66 22:04:02: 9.ind
67 22:04:02: >>> Index: /cam/db/tmdfs/sys_incr_ECD1M9.ind
68 22:04:03: >>> Typing exceptions---
69 22:04:04: >>> BACKUP succeeded
70 22:04:05: >>> Disconnecting from host
71 22:04:05: Disconnected from host tmdfs.
72 22:04:05: >>> Job successful
```

---

82  CAM NetWare Client and User Guide — 4th Edition
### Log Description

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>CAM job number and CAM Client hostid</td>
</tr>
<tr>
<td>4</td>
<td>CAM Central Server product number and version</td>
</tr>
<tr>
<td>5-18</td>
<td>Detailed information about the host and volume</td>
</tr>
<tr>
<td>19-22</td>
<td>Connect information including the output from a USER-Access CONNECT command</td>
</tr>
<tr>
<td>23</td>
<td>CAM Client product number and version</td>
</tr>
<tr>
<td>24-27</td>
<td>Procedure and volume information</td>
</tr>
<tr>
<td>28-29</td>
<td>USER-Access SEND command used to transfer the Satellite state input file</td>
</tr>
<tr>
<td></td>
<td>(state files are required for deleted file support)</td>
</tr>
<tr>
<td>30-34</td>
<td>Statistical information about the state file transfer</td>
</tr>
<tr>
<td>35</td>
<td>Input state filename</td>
</tr>
<tr>
<td>36-41</td>
<td>USER-Access RECEIVE command including the UABACKUP command and the CAM</td>
</tr>
<tr>
<td></td>
<td>Central Server container filename</td>
</tr>
<tr>
<td>42-54</td>
<td>Statistical information about the backup transfer</td>
</tr>
<tr>
<td>55</td>
<td>Container filename</td>
</tr>
<tr>
<td>56-58</td>
<td>USER-Access RECEIVE command used to transfer the new state file to the</td>
</tr>
<tr>
<td></td>
<td>Central Server (state files are required for deleted file support)</td>
</tr>
<tr>
<td>59-63</td>
<td>Statistical information about the state file transfer</td>
</tr>
<tr>
<td>64</td>
<td>Output state filename</td>
</tr>
<tr>
<td>65-67</td>
<td>USER-Access RECEIVE command including the CAM Client index filename and the</td>
</tr>
<tr>
<td></td>
<td>CAM Central Server index filename</td>
</tr>
<tr>
<td>68-72</td>
<td>Statistical information about the index file transfer</td>
</tr>
<tr>
<td>73</td>
<td>Index filename</td>
</tr>
<tr>
<td>74</td>
<td>Exceptions (errors and warnings) generated by the UABACKUP utility</td>
</tr>
<tr>
<td>75</td>
<td>Final status of backup</td>
</tr>
<tr>
<td>76-77</td>
<td>CAM Central Server disconnects from the CAM Client</td>
</tr>
<tr>
<td>78</td>
<td>Final status of job</td>
</tr>
</tbody>
</table>
Using the CAM Command Line Interface (CLI)

The CAM Command Line Interface (CLI) provides a line mode interface from any CAM client host to the CAM central server to queue CAM backups and perform basic CAM operator functions. CLI is a subset of USER-Access, the command set that runs CAM.

**Note:** CAM CLI is not available on Windows and Macintosh client hosts.

**Note:** CAM CLI requires CAM version 4.0 or higher.

CLI commands can be run interactively, scheduled as batch jobs, or invoked by a client script (command language) in response to external events.

For example, a client host administrator may want to schedule CAM backups to run after normal production batch processing, to avoid interference with the batch processing. In this case, the last batch job of the production schedule would be used to initiate the CAM backups.

**Before You Begin**

Before submitting CLI commands, you must start USER-Access (UA). To do this, enter `user` at the command line, as follows:

```
$ user
User>
```

The resulting `User>` prompt is the default UA prompt; you may see a different prompt if your client host administrator has changed it.

The `user` command has the following format. Items enclosed in brackets ([ ]) are optional.

```
user [script [argument1, argument2, ...]]
```

The following table describes each field.
Connecting to the Central Server

After starting UA, connect to the central server using the `CONNECT` command, as follows:

```
CONnect host user [password] -SERvice 6990
```

The following table describes each field.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>host</td>
<td>IP address or TCP hostname of the central server.</td>
</tr>
<tr>
<td>user</td>
<td>CAM administrator user ID.</td>
</tr>
<tr>
<td>password</td>
<td>CAM administrator’s password. To use an encrypted version of your password, see “Encrypting passwords” on page 97.</td>
</tr>
<tr>
<td>-SERvice</td>
<td>TCP port 6990.</td>
</tr>
</tbody>
</table>
CLI Commands: A Quick Lesson

After you have started UA and established connection with the central server, you can submit CLI commands. All CAM CLI commands begin with the REMOTE command, and have the following format.

**REMote COMmand [[-QUAlifier value] -QUAlifier value ...] parameter**

Qualifiers enclosed in brackets ([ ]) are optional. The minimum characters required are capitalized. A vertical bar ( | ) separates items to select (such as on|off).

Most qualifiers have default values. Normally, you do not need to change these values. Defaults are shown in **bold** type (such as off in the above example).

You can use full command names or abbreviations. The minimum spelling of any command or qualifier is shown with capital letters. For example, for the REMOTE command the abbreviation is REM.

Command descriptions or qualifiers may differ slightly between hosts.

In the “CLI Command Reference” starting on page 87, each command is shown with its qualifiers and parameters.

For example, the DETAIL command is shown as follows:

<table>
<thead>
<tr>
<th>Command</th>
<th>Qualifiers</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMote DETail</td>
<td>[-JOBid id] [-LOG on</td>
<td>off]</td>
</tr>
</tbody>
</table>

Qualifiers can appear in any position in a CLI command. In the following examples, the qualifier -log on is in different positions, but the commands are synonymous:

DET -log on 600068
DET 600068 -log on

Parameters, however, must always appear in the same order as shown in the command format. Qualifiers can be placed before,
between, or after the parameters as long as the parameters remain in the proper order.

**CLI Command Reference**

The CAM CLI commands are as follows:

- **SUBMIT** Submits a CAM backup job or jobs
- **LIST** Displays a list of active or completed CAM jobs
- **DETAIL** Displays the job detail of job log for a select CAM job
- **MODIFY** Modifies a CAM job or jobs
- **ABORT** Aborts a CAM job or jobs

These commands are discussed in detail in the following subsections.

**SUBMIT command** The SUBMIT command submits jobs for a selected volume

<table>
<thead>
<tr>
<th>Command</th>
<th>Qualifiers</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMote SUBmit</td>
<td>[-HOSTid id]</td>
<td>host [volume] [type]</td>
</tr>
<tr>
<td></td>
<td>[-VOLid id]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-STArttime time]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-ENDtime time]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-TYPE none</td>
<td>full</td>
</tr>
<tr>
<td></td>
<td>[-CLAss classid]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-HOLd on</td>
<td>off]</td>
</tr>
<tr>
<td></td>
<td>[-PRIority level]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-NOTify on</td>
<td>off]</td>
</tr>
<tr>
<td></td>
<td>[-COMpress on</td>
<td>off]</td>
</tr>
<tr>
<td></td>
<td>[-CHEcksum on</td>
<td>off]</td>
</tr>
<tr>
<td></td>
<td>[-TRAce on</td>
<td>off]</td>
</tr>
<tr>
<td></td>
<td>[-SCHEDule day]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-STARTOFDAY time]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-FORce on</td>
<td>off]</td>
</tr>
</tbody>
</table>
Qualifiers are described in the following table.

**Table 4-11 Qualifier Description for Submit Command**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-HOSTid</td>
<td>Client host ID of the CAM client host to which the central server will connect. The status of the client host must be active or external. If external, all volumes on that client host with a status of active or external will be scheduled (unless a specific volume is specified with -VOLid).</td>
</tr>
<tr>
<td>-VOLid</td>
<td>Volume ID of the volume to be backed up. The status of the volume must be active or external. If no volume ID is specified, all volumes with a status of external are submitted.</td>
</tr>
<tr>
<td>-STARTtime</td>
<td>Job start time. Default = current time. A value of 00:00 starts immediately. To specify a time window, use a 48-hour clock: specify time on the first day as for a 24-hour clock, and specify time on the second day as a continuation of the 24-hour clock.</td>
</tr>
<tr>
<td>-ENDtime</td>
<td>Job end time. Default = 47:59 (one minute before midnight tomorrow night). To specify a time window, use a 48-hour clock: specify time on the first day as for a 24-hour clock, and specify time on the second day as a continuation of the 24-hour clock.</td>
</tr>
<tr>
<td>-TYPE</td>
<td>Backup type. Default = the backup type specified in the schedule definition for this volume. When you specify -TYPE, CAM ignores any existing schedule overrides.</td>
</tr>
<tr>
<td>-CLASS</td>
<td>Class ID to override the backup class specified in the volume’s backup schedule. Default = the class ID specified in the schedule definition for this volume. Specify only if you specify -TYPE.</td>
</tr>
<tr>
<td>-HOLD</td>
<td>ON forces the job to be held. OFF uses the Autohold value from the volume definition. Specify only if you do not specify -TYPE.</td>
</tr>
<tr>
<td>-PRIority</td>
<td>Job priority (0-99). Only the CAM administrator or CAM operator can change the priority from that specified in the volume definition.</td>
</tr>
<tr>
<td>-NOTify</td>
<td>ON specifies that CAM is to notify the sender by e-mail when the job completes.</td>
</tr>
<tr>
<td>-COMpress</td>
<td>ON enables compression. OFF uses the Compression value from the volume definition.</td>
</tr>
</tbody>
</table>
Comments

By default, scheduled jobs are submitted for the current day, but several qualifiers are available for overriding the defaults.

The output of the SUBmit command is a list of submitted jobs, as shown in the following example.

User> remote submit -host sparc -notify
Cam: Job 2200015 submitted for host SPARC volume ROOT.
Cam: Job 2200016 submitted for host SPARC volume ROOT.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-CHECKsum</td>
<td>ON enables checksum verification. OFF uses the Checksum value from the volume definition.</td>
</tr>
<tr>
<td>-TRACE</td>
<td>ON sets job log trace flags. OFF uses the trace flags set in the volume definition.</td>
</tr>
<tr>
<td>-SCHEDULE</td>
<td>Schedules the backups for the relative day (0). -1 = yesterday, 0 = today, +1 = tomorrow. Default = 0. CAM will not submit duplicate jobs (for example, jobs with the same client host/volume, type, class, starttime, and endtime) unless you set the -FORCe qualifier to ON. CAM ignores -SCHEDULE if you specify -TYPE.</td>
</tr>
<tr>
<td>-STARTOFDAY</td>
<td>Start of day, to override the default start of day value set in CAM configuration file.</td>
</tr>
<tr>
<td>-FORCe</td>
<td>ON forces a job submit to occur, even if the job was previously submitted. This flag could be used to resubmit a completed job that previously failed. A backup job is considered a duplicate if it has the same STARTTIME, CAM host ID, CAM volume ID, backup type (procedure), and if it is submitted by the same CAM user.</td>
</tr>
<tr>
<td>host</td>
<td>Client host ID of the CAM client host to which the central server will connect.</td>
</tr>
<tr>
<td>volume</td>
<td>Volume ID of the volume to be backed up.</td>
</tr>
<tr>
<td>type</td>
<td>Backup type. Default = the backup type specified in the schedule definition for this volume. When you specify -TYPE, CAM ignores any existing schedule overrides.</td>
</tr>
</tbody>
</table>

Table 4-11 Qualifier Description for Submit Command
USR.
Cam: Job 2200017 submitted for host SPARC volume TMD.
Cam: Job 2200018 submitted for host SPARC volume TMD2.
User>

The REMOTE qualifier COUNT will contain a value indicating the number of jobs submitted (use the text \texttt{count:remote} command to display the value).

**LIST command**

The LIST command generates list of active/completed jobs

<table>
<thead>
<tr>
<th>Command</th>
<th>Qualifiers</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMote LIST</td>
<td>[-STAtus status] [-HOSTid id] [-PROjid id] [-USErid id] [-DAY all</td>
<td>today</td>
</tr>
</tbody>
</table>

Qualifiers are described in the following table:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-STAtus</td>
<td>Job status: ACTive (EXEcuting, REAdy, PENding, HELd) or COMpleted (SUCcess, WARning, FAIlure). Default = all active jobs are listed.</td>
</tr>
<tr>
<td>-HOSTid</td>
<td>CAM client host ID or IDs for which to list jobs. * = all client hosts. If you list more than one ID, separate each entry using commas or spaces; if you use spaces, enclose each entry in quotation marks (&quot;&quot;). If you do not have access to a specified client host, its jobs are not included in the list. If you combine the host ID and project ID qualifiers in a single LIST command, all jobs matching either the host ID or the project ID will be listed.</td>
</tr>
</tbody>
</table>
The list format should match what is generated by the CAM GUI.

The output of the LIST command is a list of job records, one per line, with corresponding column headings, as shown in the following example

```
User> remote list -status completed -hostid sparc
   (column headings)
   .
   (job list data)
   .
   .
User>
```
The REMOTE qualifier COUNT will contain a value indicating the number of jobs in the list (use the text {count:remote} command to display the value).

**DETAIL command**

The DETAIL command displays the job detail and job log.

*Table 4-14  Command Description: Detail Command*

<table>
<thead>
<tr>
<th>Command</th>
<th>Qualifiers</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMote DETail</td>
<td>[-JOBid id]</td>
<td>jobid</td>
</tr>
<tr>
<td></td>
<td>[-LOG on</td>
<td>off]</td>
</tr>
</tbody>
</table>

Qualifiers are described in the following table:

*Table 4-15  Qualifier Description for Detail Command*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-JOBid</td>
<td>The job ID (number) of the job for which you want to see details.</td>
</tr>
<tr>
<td>-LOG</td>
<td>ON displays the job log; OFF disables job log display.</td>
</tr>
<tr>
<td>jobid</td>
<td>Job ID (number) of the job for which you want to see details.</td>
</tr>
</tbody>
</table>

**Comments**

The output of the DETail command is the job detail and, if applicable the job log, as shown in the example below:

```
User> remote detail 900015 -log
(job detail)
.
(job log)
.
User>
```

The REMOTE qualifier COUNT will contain a value indicating the number of lines of output returned (use the text {count:remote} command to display the value).
MODIFY command

The MODIFY command changes selected job qualifiers for active CAM jobs

Table 4-16 Command Description: Modify Command

<table>
<thead>
<tr>
<th>Command</th>
<th>Qualifiers</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMote MODify</td>
<td>[-JOBid id]</td>
<td>jobid</td>
</tr>
<tr>
<td></td>
<td>[-HOSTid id]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-PROjid id]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-USERid id]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-HOLd on</td>
<td>off]</td>
</tr>
<tr>
<td></td>
<td>[-PRIority level]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-STArttime time]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-ENDtime time]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-TRAce on</td>
<td>off]</td>
</tr>
</tbody>
</table>

Qualifiers are described in the following table:

Table 4-17 Qualifier Description for Modify Command

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-JOBid</td>
<td>CAM job ID (to modify a single job). For today’s jobs, you can omit the day portion of the job number. For example, the first job run on the third day of a month will always have the number 300001. You can omit all numbers except the 1 when specifying -JOBid if today is the third day of the month. If you combine this qualifier with the qualifiers that operate on a group of jobs (host ID, project ID, and user ID), then the specified job ID will be modified first, followed by all of the jobs in the group.</td>
</tr>
<tr>
<td>-HOSTid</td>
<td>CAM host ID for which to modify all active jobs. Enter an asterisk (*) to modify active jobs on all client hosts. If you list more than one ID, separate each entry using commas or spaces; if you use spaces, enclose each entry in quotation marks (&quot;&quot;&quot;). If you do not have access to a specified client host, its jobs are not modified. If you combine the host ID and project ID qualifier in a single MODIFY command, then all jobs matching either the host ID or the project ID will be modified.</td>
</tr>
</tbody>
</table>
### Table 4-17 Qualifier Description for Modify Command

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-PROjid</td>
<td>CAM project ID for which to modify all active jobs. Enter an asterisk (*) to modify active jobs for all projects. If you list more than one ID, separate each entry using commas or spaces; if you use spaces, enclose each entry in quotation marks (&quot;&quot;&quot;&quot;). If you do not have access to a specified project, its jobs are not modified. If you combine the host ID and project ID qualifier in a single MODIFY command, then all jobs matching either the host ID or the project ID will be modified.</td>
</tr>
<tr>
<td>-USErid</td>
<td>CAM user ID for which to modify all active jobs submitted by that user. If you combine this qualifier with either the host ID or project ID, only the jobs matching the CAM user ID and either the host ID or the project ID will be modified.</td>
</tr>
<tr>
<td>-HOLd</td>
<td>ON forces the job to be held. OFF uses the Autohold value from the volume definition.</td>
</tr>
<tr>
<td>-PRIority</td>
<td>Job priority (0-99). Only the CAM administrator or CAM operator can change the priority from that specified in the volume definition.</td>
</tr>
<tr>
<td>-STArttime</td>
<td>Job start time. Default = current time. A value of 00:00 starts immediately. To specify a time window, use a 48-hour clock: specify time on the first day as for a 24-hour clock, and specify time on the second day as a continuation of the 24-hour clock.</td>
</tr>
<tr>
<td>-ENDtime</td>
<td>Job end time. Default = 47:59 (one minute before midnight tomorrow night). To specify a time window, use a 48-hour clock: specify time on the first day as for a 24-hour clock, and specify time on the second day as a continuation of the 24-hour clock.</td>
</tr>
<tr>
<td>-TRAce</td>
<td>Job log trace flags. Default = Trace flags set in the volume definition.</td>
</tr>
<tr>
<td>jobid</td>
<td>Job ID (number) of the job for which you want to see details.</td>
</tr>
</tbody>
</table>

### Comments

You can apply the changes to a single job (by job ID) or to a group of jobs (by host ID, project ID, or user ID).
The output of the MODIFY command is a list of modified jobs, one per line.

```
User> remote modify -host sparc -hold off
(list of modified jobs)
```

The REMOTE qualifier COUNT will contain a value indicating the number of jobs modified (use the `text {count:remote}` command to display the value).

**ABORT command**

The ABORT command aborts active CAM jobs

**Table 4-18 Command Description: Abort Command**

<table>
<thead>
<tr>
<th>Command</th>
<th>Qualifiers</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMote ABOrt</td>
<td>[-JOBid id]</td>
<td>jobid</td>
</tr>
<tr>
<td></td>
<td>[-HOSTid id]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-PROjid id]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-USERid id]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-KILL on</td>
<td>off]</td>
</tr>
</tbody>
</table>
Qualifiers are described in the following table:

**Table 4-19 Qualifier Description for Abort Command**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-JOBid</td>
<td>CAM job ID (to abort a single job). For today’s jobs, you can omit the day portion of the job number. For example, the first job run on the third day of a month will always have the number 300001. You can omit all numbers except the 1 when specifying -JOBid if today is the third day of the month. If you combine this qualifier with the qualifiers that operate on a group of jobs (host ID, project ID, and user ID), then the specified job ID will be aborted first, followed by all of the jobs in the group.</td>
</tr>
<tr>
<td>-HOSTid</td>
<td>CAM host ID for which to abort all active jobs. Enter an asterisk (*) to abort active jobs on all client hosts. If you list more than one ID, separate each entry using commas or spaces; if you use spaces, enclose each entry in quotation marks (&quot;&quot;). If you do not have access to a specified client host, its jobs are not aborted. If you combine the host ID and project ID qualifier in a single ABORT command, then all jobs matching either the host ID or the project ID will be aborted.</td>
</tr>
<tr>
<td>-PROjid</td>
<td>CAM project ID for which to abort all active jobs. Enter an asterisk (*) to abort active jobs for all projects. If you list more than one ID, separate each entry using commas or spaces; if you use spaces, enclose each entry in quotation marks (&quot;&quot;). If you do not have access to a specified project, its jobs are not aborted. If you combine the host ID and the project ID qualifier in a single ABORT command, then all jobs matching either the host ID or the project ID will be aborted.</td>
</tr>
<tr>
<td>-USErid</td>
<td>CAM user ID for which to abort all active jobs submitted by that user. If you combine this qualifier with either the host ID or the project ID, only the jobs matching the CAM user ID and either the host ID or the project ID will be aborted.</td>
</tr>
<tr>
<td>-KILL</td>
<td>ON = force immediate abort. Only CAM administrators and CAM operators can use this qualifier.</td>
</tr>
<tr>
<td>jobid</td>
<td>Job ID (number) of the job for which you want to see details.</td>
</tr>
</tbody>
</table>

Comments
You can abort a single job (by job ID) or a group of jobs (by host ID, project ID, or user ID). The KILL qualifier forces an immediate abort.

The output of the ABORT command is a list of aborted jobs.

```
User> remote abort 25
Cam: Job 900025 aborted.
User>
```

The REMOTE qualifier COUNT will contain a value indicating the number of jobs aborted (use the `text {count:remote}` command to display the value).

**Encrypting passwords**

When using the CONNECT command to connect to the central server (see “Connecting to the Central Server” on page 85), you may wish to enter an encrypted password in place of a readable text password. To encrypt a password, enter the following at the User> prompt:

```
User> encrypt
```

You will be prompted for a password to encrypt and an optional username to be associated with the password, as shown in the following example:

```
User> encrypt
Enter password? cobra
Enter optional username (or '*')? CARLSON
User: The encrypted password is
 *249eece8e4203b189
```

To avoid prompting, you can enter all parameters, each separated by a space, on the command line. However, the password will display if you use this method. Normally, the password does not display.

The optional username is used as a secondary encryption key for the specified password. Enter an asterisk (*) to use the current username as the secondary key. The username is forced to uppercase.
After encrypting a password, you can use the encrypted password to replace the text password in the CONNECT command.

**Note:** The effective username is used on UNIX. You must be running as the same user which will later run USER-Access (UA) to issue the CONNECT command.

**CLI examples**

Some of the advantages of the CAM CLI are shown in the examples below.

**Example 1**

A client host administrator (CAM user ID **franklin**) does not want the scheduled CAM backups to interfere with normal production batch processing, so he uses the last batch job of the production schedule to initiate the CAM backups. He connects to the CAM central server (**hqhouston**) and submits all of the scheduled backups for a client host with CAM host ID **vax012**. The batch job invokes UA on the client host with a canned script as input. To run the script, the administrator creates a batch file containing the following commands:

```
connect hqhouston -ser 6990 franklin *28b19e6c95634ae21
remote submit vax012 -notify
exit
```

The output is a display of all submitted CAM jobs:

```
Connect to Service Initiator on host ‘hqhouston’.
Connected to service ‘2427’ on host ‘hqhouston’
Cam: Job 2200015 submitted for host VAX012 volume DKA100:
Cam: Job 2200016 submitted for host VAX012 volume DKB300:
Cam: Job 2200017 submitted for host VAX012 volume DKB301:
Cam: Job 2200018 submitted for host VAX012 volume DKB302:
```

Note that the administrator connected to the CAM service 6990, and used an encrypted password for added security (for more information, see “**Encrypting passwords**” on page 97). The **SUBMIT** command submitted jobs for all volumes with a status of external that exist on client host **vax012**.
The -NOTIFY option sends a job completion e-mail to the administrator when each job completes.

Example 2

At 10:30 p.m., UNIX client host administrator (CAM user ID admin02) is notified at home that the UNIX system is down for unscheduled maintenance until 4:00 a.m. He dials into another UNIX client host and uses the CAM CLI to query the status of the backups jobs. Since the jobs are already queued, he modifies the start time to postpone the start of the CAM jobs. He connects to
the CAM central server (hqduluth) to query and modify jobs for the UNIX client host (CAM host ID juniper). The interactive session would appear as follows:

```
User> connect hqduluth -ser 6990 admin02 *275d8904bac297532
Connected to Service Initiator on host ‘hqduluth’.
Connected to service ‘5421’ on host ‘hqduluth’.

User> remote list -status active -hostid juniper
Cam: Job          Host    Vol ID/ User      Start    Active
Cam: Number  Type ID      Proj ID ID    Pri Time ... Status
Cam: ======= ==== ======= ======= ===== === =====    ======
Cam: 2200034 full juniper root    admin 50  22:00... READY
Cam: 2200035 diff juniper usr     admin 50  22:00... READY
Cam: 2200036 incr juniper data1   admin 50  22:00... READY
Cam: 2200037 incr juniper data2   admin 50  22:00... READY

User> remote modify -hostid juniper -starttime 28:00
Cam: Job 2200034 modified.
Cam: Job 2200035 modified.
Cam: Job 2200036 modified.
Cam: Job 2200037 modified.

User> remote list -status active -hostid juniper
Cam: Job          Host    Vol ID/ User      Start    Active
Cam: Number  Type ID      Proj ID ID    Pri Time ... Status
Cam: ======= ==== ======= ======= ===== === =====    ======
Cam: 2200034 full juniper root    admin 50  28:00... PENDING
Cam: 2200035 diff juniper usr     admin 50  28:00... PENDING
Cam: 2200036 incr juniper data1   admin 50  28:00... PENDING
Cam: 2200037 incr juniper data2   admin 50  28:00... PENDING
```

Note that changing the job start time removes the jobs from the READY queue and marks them as PENDING until the new start time (28:00) is reached. This keeps the jobs from failing while the client host is unable to respond.
Modifying CAM Jobs

This section provides procedures for putting a job on hold, releasing a held job, and aborting a job.

**Putting a Job on Hold**

You can suspend the backup of a job that is ready or pending, and release it to execute at your discretion.

To hold a ready or pending job:

1. Display the Job Selection dialog box or the Job Detail dialog box as described in “Selecting Jobs to View” on page 56.
2. Do one of the following:
   - On the Job Selection dialog box, click on the job name to select it, then click **Modify Job**.
   - On the Job Detail dialog box for the job, click **Modify Job**.

CAM displays the Modify Job dialog box:

![Modify Job dialog box](image)

Fill in the fields as described in the following table.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put job on HOLD</td>
<td>Puts the job or jobs on hold. CAM holds jobs until you release them.</td>
</tr>
<tr>
<td>Release HELD job</td>
<td>Releases held jobs.</td>
</tr>
<tr>
<td>Start time/End time</td>
<td>Time window within which the job must begin. This field applies to active</td>
</tr>
<tr>
<td></td>
<td>jobs that are PENDING or READY.</td>
</tr>
<tr>
<td>Job priority</td>
<td>An integer from 1 to 99 that indicates the priority level of the job. The</td>
</tr>
<tr>
<td></td>
<td>highest priority is 99; the lowest priority is 1. The default is 60. Only the</td>
</tr>
<tr>
<td></td>
<td>CAM administrator can increase the priority level of a job.</td>
</tr>
<tr>
<td>Job trace flags</td>
<td>Enables you to specify one or more trace flags, which control the format of</td>
</tr>
<tr>
<td></td>
<td>the job logs generated during CAM jobs. Trace flags are intended for</td>
</tr>
<tr>
<td></td>
<td>diagnostic purposes, and should not be specified unless instructed to do so</td>
</tr>
<tr>
<td></td>
<td>by support personnel. By default, commands are not expanded or echoed.</td>
</tr>
<tr>
<td></td>
<td>Trace flags must be set in this field before the volume is scheduled for</td>
</tr>
<tr>
<td></td>
<td>backup. After a volume has been scheduled for backup (but is not yet</td>
</tr>
<tr>
<td></td>
<td>executing), you can specify trace flags only from the Modify Job dialog</td>
</tr>
<tr>
<td></td>
<td>box.</td>
</tr>
<tr>
<td></td>
<td>Available trace flags are as follows:</td>
</tr>
<tr>
<td></td>
<td>C  Does not echo commands for receives and sends</td>
</tr>
<tr>
<td></td>
<td>D  Turns on additional database backup debugging messages.</td>
</tr>
<tr>
<td></td>
<td>E  Causes commands to be echoed</td>
</tr>
<tr>
<td></td>
<td>G  Prints global variables at start of job</td>
</tr>
<tr>
<td></td>
<td>I  Turns off interval displays in the job log</td>
</tr>
<tr>
<td></td>
<td>L  Turns on responder log on client</td>
</tr>
<tr>
<td></td>
<td>M  Turns on internal message display</td>
</tr>
<tr>
<td></td>
<td>P  Turns on protocol display</td>
</tr>
<tr>
<td></td>
<td>Q  Turns on the following: send quiet, receive quiet, connect quiet</td>
</tr>
<tr>
<td></td>
<td>S  Prints additional setup information</td>
</tr>
<tr>
<td></td>
<td>V  Causes commands to be expanded</td>
</tr>
<tr>
<td></td>
<td>W  Turns on wide protocol display (32K) - use only if P is set</td>
</tr>
</tbody>
</table>
Releasing a Held Job

To release a held job:

1. Display the Job Selection dialog box or the Job Detail dialog box as described in “Selecting Jobs to View” on page 56.

2. Do one of the following:
   – On the Job Selection dialog box, click on the job name to select it, then click Modify Job.
   – On the Job Detail dialog box for the job, click Modify Job.

CAM displays the Modify Job dialog box.

3. Click Release HELD job.

Aborting a Job

To abort a pending or executing job:

1. Display the Job Selection dialog box or the Job Detail dialog box (see “Selecting Jobs to View” on page 56).

2. Do one of the following:
   – On the Job Selection dialog box, click on the job name to select it, then click Abort Job.
   – On the Job Detail dialog box for the job, click Abort Job.

CAM displays the message Abort in Progress, and logs the cancellation in the job log. CAM terminates the job when the internal Resource Manager notifies the Backup or Restore Engine of the abort request; this can take several minutes.
Chapter 5  Project Administration

This chapter describes the project administrator tasks of setting up archives, granting users access to archives, and managing archives.

This chapter is intended for CAM users who have been assigned project administrator responsibility by the CAM administrator.

Chapter contents:

•  Project Administration Overview - page 106
•  Setting up a New Archive - page 107
•  Copying an Existing Archive Definition - page 111
•  Manually Specifying Files to Archive - page 116
•  Selecting From a List of Files to Archive - page 118
•  Granting Users Access to Archives - page 120
•  Managing Archives - page 124
Project Administration Overview

In CAM, an archive is a related set of files stored for a specified amount of time. A project is a related set of archives.

An example of the type of information that might be archived in CAM is an accounting department’s financial records for certain tax periods. In this example, the CAM Administrator would set up a project for the accounting department, and designate one CAM user in the accounting department as the project administrator. The project administrator would be responsible for managing the archives within the project, by setting up the archives and enabling certain users to retrieve archived data.

Before you set up an archive, the CAM administrator must set up a project and designate you as the project administrator. After the CAM administrator informs you of the name of the project or projects for which you are responsible, use one of the following procedures, provided in this chapter, to set up archives within a project:

- “Copying an Existing Archive Definition” on page 111
- “Manually Specifying Files to Archive” on page 116
Setting up a New Archive

To set up a new archive

1. On the CAM main dialog box, in the Archive group, click Archive.

CAM displays one of the following:

- If you have administrative responsibility for more than one project, CAM displays the Project Selection dialog box, shown next. This is a list of projects for which you are responsible. Select the project in which you are
creating an archive, and click Archive.

CAM displays the New Archive dialog box, shown next.

- If you have responsibility for one project only, CAM displays the New Archive dialog box, shown next.
2. In the New Archive dialog box, click **New Archive**. CAM displays the Archive dialog box.

![Archive Dialog Box](image)

3. Fill in the fields as described in the following table.

**Table 5-1  Field Descriptions: Archive Dialog Box**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>A string of alphanumeric characters, 1 to 255 characters in length, that describes the information being archived. For example, First Quarter 1997 Financials describes the information archived in project quar1.</td>
</tr>
<tr>
<td>CAM Host ID</td>
<td>The client host ID assigned by the CAM administrator that CAM uses to identify your client host. Click Host ID and select from the list. Click <strong>Host ID</strong> and select from the list.</td>
</tr>
<tr>
<td>Username and Password</td>
<td>Username and password with which CAM can log on to the client host. This username/password pair must have privilege to read all files from which you are archiving.</td>
</tr>
</tbody>
</table>
To manually enter directory and file names to archive, click Edit File List. Then, follow the procedure in “Manually Specifying Files to Archive” on page 116.

To select from a list of directories and file names to archive, click Select File List. Then, follow the procedure in “Selecting From a List of Files to Archive” on page 118.

Note that once you select one of the above methods, you can no longer access the other method to specify files for this archive.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define archive</td>
<td>Define the directories and files to be included in the archive, as follows: To manually enter directory and file names to archive, click Edit File List. Then, follow the procedure in “Manually Specifying Files to Archive” on page 116. To select from a list of directories and file names to archive, click Select File List. Then, follow the procedure in “Selecting From a List of Files to Archive” on page 118. Note that once you select one of the above methods, you can no longer access the other method to specify files for this archive.</td>
</tr>
<tr>
<td>Notify</td>
<td>Specifies whether to provide job status information to the user submitting this job. In order for CAM to send these reports, the CAM administrator must provide the electronic mail address of each report recipient. For more information, see the CAM Setup and Administration Guide.</td>
</tr>
<tr>
<td>Checksum</td>
<td>Specifies whether checksum verification is to be used for the archive operations.</td>
</tr>
<tr>
<td>Compress</td>
<td>Specifies whether data for this archive is to be compressed. Compression results in less data on the network, but because compression is cpu-intensive, compression generally causes individual archive jobs to require more time to run.</td>
</tr>
<tr>
<td>Class ID</td>
<td>Storage class for this archive. To change the default class ID, click the Class ID button and select from the list.</td>
</tr>
<tr>
<td>Start time/End time</td>
<td>Time window within which this archive job can begin. The default start time is the current time and the default end time is one minute before midnight tomorrow. Unless the job is likely to affect network performance, use the defaults.</td>
</tr>
<tr>
<td>Trace flags</td>
<td>Use this field only if requested to do so for diagnostic purposes.</td>
</tr>
<tr>
<td>Job priority</td>
<td>An integer from 1 to 99 that indicates the priority level of the job. The highest priority is 99; the lowest priority is 1. The default is 60. Only the CAM administrator can increase the priority level of a job.</td>
</tr>
</tbody>
</table>
4. Submit the archive by clicking **Submit Archive** in the Archive dialog box. CAM processes the request and displays the job number.

![Job Submitted dialog box](image)

5. Click **View** to monitor the job (see Chapter 4) or click **Close**.

### Copying an Existing Archive Definition

Rather than manually defining each archive within a project, you can save time by copying the definition of an archive that exists within the current project. Archive definitions can be copied only from archives that were defined using an Edit File List. Archive definitions that were set up using a Select File List may not be copied.

**To set up an archive by copying an existing archive definition:**

1. Display the New Archive dialog box as described in “**To set up a new archive**” on page 107.
2. In the New Archive dialog box, click **Copy Archive Definition**. CAM displays the Archive Selection dialog box, listing existing archives in this project.

![Archive Selection Dialog Box]

3. Fill in the fields as described in the following table.

**Figure 5-1 Field Descriptions: Archive Selection Dialog Box**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sort order</td>
<td>Use the pulldown list to select the order in which to list the archives. You can select to sort the archives by date, client host ID, client host type, days until expiration, size, or description. By default, the archives are sorted by date (most recent date first).</td>
</tr>
</tbody>
</table>
4. Select the archive to copy from; then click **OK**.

CAM displays the Archive dialog box for the archive you selected.
5. Fill in the fields as described in the following table.

### Figure 5-2  Field Descriptions: Archive Dialog Box (Copy Archive Definition)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>A string of alphanumeric characters, 1 to 255 characters in length, that describes the information being archived. For example, First Quarter 1997 Financials describes the information archived in project quar1. For example, “Acme financials” describes an archive that contains financial records for a particular company. This field defaults to the description of the archive being copied.</td>
</tr>
<tr>
<td><strong>CAM Host ID</strong></td>
<td>The client host ID assigned by the CAM administrator that CAM uses to identify your client host. Click Host ID and select from the list. Click <strong>Host ID</strong> and select from the list. This field defaults to the host ID of the archive being copied.</td>
</tr>
<tr>
<td><strong>Username and Password</strong></td>
<td>Username and password with which CAM can log on to the client host. This username/password pair must have privilege to read all files from which you are archiving.</td>
</tr>
<tr>
<td><strong>Define archive</strong></td>
<td>To select from a list of directories and file names to archive, click Select File List. Then, follow the procedure in “Manually Specifying Files to Archive” on page 116.</td>
</tr>
<tr>
<td><strong>Notify</strong></td>
<td>Specifies whether to provide job status information to the user submitting this job. In order for CAM to send these reports, the CAM administrator must provide the electronic mail address of each report recipient. For more information, see the <strong>CAM Setup and Administration Guide</strong>.</td>
</tr>
<tr>
<td><strong>Checksum</strong></td>
<td>Specifies whether checksum verification is to be used for the archive operations.</td>
</tr>
<tr>
<td><strong>Compress</strong></td>
<td>Specifies whether data for this archive is to be compressed. Compression results in less data on the network, but because compression is CPU-intensive, compression generally causes individual archive jobs to require more time to run.</td>
</tr>
<tr>
<td><strong>Class ID</strong></td>
<td>Storage class for this archive. To change the default class ID, click the <strong>Class ID</strong> button and select from the list.</td>
</tr>
<tr>
<td><strong>Start time/End time</strong></td>
<td>Time window within which this archive job can begin. The default start time is the current time and the default end time is one minute before midnight tomorrow. Unless the job is likely to affect network performance, use the defaults.</td>
</tr>
</tbody>
</table>
6. Submit the archive by clicking **Submit Archive** in the Archive dialog box. CAM processes the request and displays the job number.

7. Click **View** to monitor the job (see Chapter 4) or click **Close**.
Manually Specifying Files to Archive

When you click **Edit File List** in the Archive dialog box, CAM displays the Edit Archive dialog box:

1. In the group titled **Directory and file specifications to archive**, do the following:
   a. Enter the name of a directory or a file name (including a directory delimiter) to include in this archive.

   All entries in this field should be fully rooted (for example, SYS:/ACME/INVEN/*, not INVEN/*) to ensure that CAM will find the files specified.

   You may use wildcard characters (* or ?) in any part of any name.
Click **Include Subdirectories** to include all files and subdirectories for the current entry, including the entry itself. Leave the **Include Subdirectories** check box to exclude from the archive any files and subdirectories of the current entry.

b. Click **Add** to add the directory or file name to the archive specification list box.

To delete an entry in the archive specification list box, click on the name you wish to delete, then click Delete. To modify an entry, click on the name you wish to modify, then click Edit. After making changes to the entry in the entry field, you can either click Add to add the new entry to the list box in addition to the selected entry, or click Change to change the selected entry.

c. Repeat steps a and b until you have specified all subdirectories and files for this archive.

2. In the group titled **Directory and file specifications to exclude**, do the following:

a. Enter the name of a directory or a file name to exclude from this archive.

All entries in this field should be fully rooted (for example, SYS:/ACME/INVEN/*, not ACME/INVEN/*) to ensure that CAM will find the files specified.

You may use wildcard characters (* or ?) in any part of any name.

b. Click **Add** to add the directory or file name to the archive specification list box.

To delete an entry in the exclude specification list box, click on the name you wish to delete, then click Delete. To modify an entry, click on the name you wish to modify, then click Edit. After making changes to the entry in the entry field, you can either click Add to add
the new entry to the list box in addition to the selected entry, or click Change to change the selected entry.

c. Repeat steps a and b until you have specified all subdirectories and files to be excluded from this archive.

3. After you have specified all files and directories for this archive, click OK. CAM returns you to the Archive dialog box.

Selecting From a List of Files to Archive

When you click Select File List on the Archive Project dialog box, CAM displays the Search Tree View dialog box:
Do the following:

1. Fill in the fields as described in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Detail</td>
<td>Specifies whether file details (such as file size, date, time, and so on) are displayed for each file. Files older than six months are displayed with date and year; newer files are displayed with date and time. By default, file details are not displayed.</td>
</tr>
<tr>
<td>Set Root</td>
<td>Sets the selected directory or subdirectory as the root directory. This makes large directories easier to search.</td>
</tr>
<tr>
<td>Reset Root</td>
<td>Resets the root directory to the highest level directory.</td>
</tr>
<tr>
<td>Display matching</td>
<td>Limits the files searched. Enter a character string to include only files that match that string. The wildcard character is an asterisk (<em>). To enter more than one string, separate each string with a space. The default (</em>) searches all files within the selected directory. Directory delimiters are not valid in this field. For example, to include only files that begin with the letter s in a certain directory or subdirectory, select the directory or subdirectory in the Root list box and enter s* in this field. By default, matching specifications are case-sensitive.</td>
</tr>
<tr>
<td>Matching</td>
<td>Selects only files that match the character string you type in this field. The wildcard character is an asterisk (<em>). To enter more than one string, separate each string with a space. The default (</em>) searches all files within the selected directory.</td>
</tr>
<tr>
<td>Include Subdirectories</td>
<td>Specifies whether subdirectories are traversed when selecting files based on the pattern specified in the Matching field. By default, subdirectories are traversed.</td>
</tr>
</tbody>
</table>

2. In the Root list box, CAM displays the directories available to archive. Select the name of the directory that contains files you wish to archive.

A plus sign (+) preceding a directory name indicates that the directory contains subdirectories; a minus sign (-) indicates that the subdirectories are listed; a question mark (?) indicates that subdirectories are unknown. To view or hide subdirectories, double-click the directory name.
3. In the Directory list box, CAM displays the directories you selected in the previous substep. Select the names of one or more files that you wish to archive. When you select a directory or subdirectory, all files in that directory or subdirectory are included in the archive.

4. Repeat steps b and c until you have selected all of the files you wish to archive.

After you have designated files to archive, click OK. CAM returns you to the Archive dialog box.

**Granting Users Access to Archives**

To grant CAM users access to archives in a project for which you are the project administrator, use the following procedure.

1. In the CAM main dialog box, select Projects from the Setup menu.

CAM displays one of the following:

- If you have administrative responsibility for more than one project, CAM displays the Project Selection dialog box, shown next. This is a list of projects for which you
are responsible. Select the project to which you want to assign users, and click **Archive**.

CAM displays the Project dialog box, shown next.

- If you have responsibility for one project only, CAM displays the Project dialog box, shown next.

2. In the Project dialog box, click **Users**. CAM displays the Project User Selection dialog box, a list of users granted
access to archives in this project.

3. In the Project User Selection dialog box, do the following for each user to whom you want to grant access to the project:
a. Click **Add**. CAM displays the New Project User dialog box.

![New Project User dialog box](image)

b. Fill in the fields as described in the following table.

*Figure 5-4 Field Descriptions: New Project User Dialog Box*

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User ID</td>
<td>Your assigned CAM user ID, provided by the CAM administrator.</td>
</tr>
<tr>
<td>Project access</td>
<td>Access level of this user for this project: administrator or user. Click <strong>User</strong>.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> In order for a project user to archive or retrieve files, the user must have restore access to the client host to which archives are being retrieved. Restore access is granted by the client host administrator (see Chapter 6).</td>
</tr>
<tr>
<td>Selection match</td>
<td>For each user, you can optionally allow access only to specific archives. To do this, enter one or more character strings in this field. Separate each entry with a space. This field is case-sensitive. If you use this field, the only archives that the user can access are those that contain all character strings entered in this field. You can match strings that occur in any of the following archive attributes: archive date, client host ID, client host type, number of days until expiration, archive size, or archive description.</td>
</tr>
</tbody>
</table>

3. When you have finished assigning users to the project, click **OK**.
Managing Archives

The Manage option permits you to modify the retention periods of an archive, mark an archive for deletion, and move an archive to another storage location, as described in this section.

To select a project from which to modify, delete, or move archives

1. In the CAM main dialog box, in the Archive group, click Manage.

   CAM displays one of the following:

   – If you have administrative responsibility for more than one project, CAM displays the Project Selection dialog box, shown next. This is a list of projects for which you are responsible. Select the project for which you are modifying, deleting or moving archives, and click
Manage.

CAM displays the Archive Selection dialog box, which lists archives in the selected project. You can now modify, delete, or move archives as described on the following pages.

– If you have responsibility for one project only, CAM displays the Archive Selection dialog box. You can now modify, delete, or move archives as described on the following pages.

To modify an archive

1. Select the project in which you are modifying archives, as described in “To select a project from which to modify, delete, or move archives” on page 124. CAM displays the Archive Selection dialog box.

2. Fill in the fields as necessary, as described in Figure 5-1, on page 112.

3. Select one or more archives to modify, and click Modify. CAM displays the Archive-Modify dialog box.
4. Modify the fields as needed, as described in the following table.

**Figure 5-5  Field Descriptions: Archive-Modify Dialog Box**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>A string of alphanumeric characters, 1 to 255 characters in length, that describes the information being archived. For example, First Quarter 1997 Financials describes the information archived in project quar1.</td>
</tr>
<tr>
<td>Retention Type</td>
<td>Days from today - Adds to today’s date the number of days specified in the Retention field. Days from archive date - Adds to the archive date the number of days specified in the Retention field.</td>
</tr>
<tr>
<td>Retention</td>
<td>Number of days to retain. The meaning of the number in this field depends on what you selected in the Retention Type group. Enter keep if you do not want the archive to expire. <strong>Caution:</strong> If multiple archives were grouped on similar sequential media (such as the same tape) due to their similar retentions, modifying the retention of only one of the archives will leave unusable logical holes in the tape media when the earlier archives expire. Any such logical holes will be eliminated when the last archive eventually expires.</td>
</tr>
</tbody>
</table>

5. Click **OK**. CAM shows your modifications in the Archive Selection dialog box.

6. Click **Close**.
To cancel your modifications, click **Cancel** in the Archive Selection dialog box. CAM will ignore any modifications you have made during this session.

**To delete an archive**

1. Select the project in which you are deleting archives, as described in “To select a project from which to modify, delete, or move archives” on page 124. CAM displays the Archive Selection dialog box.
2. Fill in the fields as necessary, as described in Figure 5-1, on page 112.
3. Select one or more archives to delete, and click **Delete**.
   CAM verifies your selection, then marks each selected archive with the characters **del** in the Expire field.
4. Click **Close** in the Archive Selection dialog box. The next time the CAM DBM (Database Maintenance utility) runs, it will delete the selected archive(s) as requested. (The DBM schedule, which generally runs once a day following scheduled backups, is specified in the CAM configuration file.)

   If you decide not to delete the selected archive(s), you can modify the retention field (see “To modify an archive” on page 125).

**To move the selected archive or archives**

1. Select the project from which you are moving archives, as described in “To select a project from which to modify, delete, or move archives” on page 124. CAM displays the Archive Selection dialog box.
2. Fill in the fields as necessary, as described in Figure 5-1, on page 112.
3. Select one or more archives to move, and click **Move**. CAM displays the Project Selection dialog box.
4. Click on the project name to which you want to move the selected archives; then click **OK**.

CAM verifies your selection, then removes the archive name(s) from the list box on the Archive Selection dialog box.

5. Click **Close**.

If you decide not to delete the selected archive(s), you can modify the retention field (see “To modify an archive” on page 125).
Chapter 6  Novell NetWare Client Host Administration

This chapter provides procedures for CAM maintenance tasks for NetWare client host administrators.

To perform the procedures in this chapter, your CAM system setup must be complete, as described in the CAM Setup and Administration Guide. You must be logged into CAM as the CAM administrator or as the client host administrator of the client host being maintained.

Chapter contents:

• CAM for NetWare Overview - page 130
• NetWare Client Host Setup - page 139
• Modifying a Client Host Definition - page 147
• Setting Up Volumes Automatically - page 151
• Setting Up Volumes Manually - page 153
• Modifying and Deleting Volume Definitions - page 166
• Setting up a Volume Group - page 170
• Attaching and Detaching Group Volumes - page 176
• Modifying and Deleting Group Definitions - page 178
• Granting Users Access to a CAM Client Host - page 180
• Managing Backups - page 181
• Receiving Daily CAM Reports by E-mail - page 188
CAM for NetWare Overview

This overview discusses security and setup issues for Novell NetWare client hosts.

CAM for NetWare includes a family of two products:

- CAM for NetWare 3.1x
- CAM for NetWare 4.x

Both products are addressed together unless otherwise noted.

Security

In order for the central server to back up or restore files to a NetWare client host, the user ID/password must be specified in the host setup window. CAM requires a user ID and password that is validated against the NetWare file server for login. NetWare validates all attempts by CAM to access files and resources against the logged-in user ID and password. The NetWare administrator for CAM backup should provide the following user ID and password permissions to CAM for full backup and restore capabilities:

- NetWare 3.1x file servers require a Supervisor user ID/password for file systems and the bindery.
- NetWare 4.x file servers require a user ID with Supervisor privileges. Do not use the name Supervisor.
- NetWare 4.x file servers require an ADMIN equivalent user ID/password to back up NetWare Directory Services. This user ID/password pair must have Supervisor object rights at the root of Directory Services.
- The ID/password used to back up and restore requires two concurrent connections for each CAM backup/restore session.

Note that most NetWare 4.X networks use NetWare Directory Services, (NDS), instead of the bindery for user login and authentication. For NetWare 4.X file servers, CAM attempts to log
in to NDS and authenticate the user object against the current file server. The following rules apply to NDS login and authentication.

- The user id must be a complete NDS object name unless the file server has a current context set. For example, .CN=username.OU=department.O=company.

- If the current context is set, then a partial name may be passed. A partial name does not have a leading period and must be relative to the current context. For example, if the current context is .O=company, then the partial name can be referred to as CN=username.OU=department.

- Typeless naming (NDS names that do not include attribute types) is supported. For example a non-context relative name can be referred to as .username.department.company. Typeless names assume that the leftmost name is the common name (CN), the rightmost name is the organization (O), and the intervening names are organizational units (OU).

**NetWare Volumes**

NetWare volumes define a physical amount of disk storage, which can be spread across multiple physical hard disks. NetWare volumes are denoted by a volume specifier followed by a colon (:). For example, all NetWare file servers have a volume 'SYS:'. By default, NetWare volumes can store DOS files and keep additional NetWare information about each file.

NetWare volumes can store files from non-DOS machines by adding name spaces to a volume. CAM backs up all NetWare files, including namespace information.

**CAM Volumes**

A CAM volume, defined in the Volumes window of the CAM client host setup, refers to an area of the NetWare file server that CAM backs up in a single job. CAM volumes include file system volumes to back up the NetWare files and special volumes required to backup additional NetWare system information, as follows:
A CAM volume can be no larger than a NetWare volume, such as SYS:, but can include only a portion of a NetWare volume, such as a subdirectory. Examples of CAM volumes for NetWare hosts include the following:

<table>
<thead>
<tr>
<th>Volume Definition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS:</td>
<td>The entire SYS: volume</td>
</tr>
<tr>
<td>SYS:/MYFILES</td>
<td>Only the MYFILES directory of the NetWare SYS: volume</td>
</tr>
<tr>
<td>SYS:/MYFILES/STUFF</td>
<td>The STUFF subdirectory under MYFILES</td>
</tr>
</tbody>
</table>

The path in any volume definition passed to CAM must be in DOS 8.3 format. For example, to create a CAM volume to back up a directory with a long file name of SYS:\AVERYLONGFILE.NAME, you must use the path SYS:\AVERYLON.NAM.

The CAM client host displays all files from a NetWare file server with common punctuation, regardless of what name space originated the file. For example, a file created by a Macintosh would be viewed from the Macintosh as:

SYS::My_File_Directory:Status_Report_15.DOC

The CAM client uses the slash (/) as the default separator for all files. Thus, the above file would be displayed as follows:

SYS:My_File_Directory/Status_Report_15.DOC

CAM builds the file path elements using the creator name space version of each segment. For example, a DOS user with the SYS: volume mapped to drive Z: would see only 'Z:/My_File_/Status_R.DOC' from the DOS machine. CAM always displays the maximum amount of information available about a file’s path.

There are four types of NetWare special CAM volumes: Bindery, Server Specific Information, NetWare Directory Services, (NDS), and Schema. The special volumes back up data that is not backed up via the file system volumes.
For example, a NetWare 3.1X server has a bindery that holds user and security information. A NetWare 4.11 file server has Server Specific Information that aids in the disaster recovery process. The following table illustrates when to use the various NetWare special CAM volumes:

<table>
<thead>
<tr>
<th></th>
<th>3.1X file server</th>
<th>4.X file server</th>
<th>4.X network</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bindery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NetWare 3.1 Bindery</td>
<td>1 per server</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Server</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Server Specific Info</td>
<td>N/A</td>
<td>1 Per Server</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>NDS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directory Services</td>
<td>N/A</td>
<td>N/A</td>
<td>1 Per Network</td>
</tr>
<tr>
<td><strong>Schema</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDS Schema</td>
<td>N/A</td>
<td>N/A</td>
<td>1 Per Network</td>
</tr>
</tbody>
</table>

CAM always performs a full backup on each NetWare special volume, even if incremental or differential backups are selected in the CAM schedule. Incremental/differential backup dates are ignored and all elements are returned as though each had been modified.

Following are descriptions of the types of NetWare special CAM volumes:

- **Bindery**

  Each NetWare 3.1x file server should define an additional volume for the NetWare bindery. The bindery is a network database that contains definitions for entities such as users, groups, and workgroups. To create a bindery volume, create a volume in the CAM client host setup with the volume name Bindery. Note that there is no colon for the bindery volume.

  The bindery volume backup returns a single element called bindery, which is represented in CAM as a volume specification, like a directory.
When a bindery volume is backed up, it is temporarily closed by CAM. While the bindery is closed, applications (including CAM) are unable to get user name information about files. For this reason, CAM will not schedule the bindery volume to run concurrently with any other volume backup or restore.

- **Server**

Each NetWare 4.1X file server that supports backup and restore of the Server Specific Info should define a volume with the volume name SERVER. Note that there is no punctuation in the name. The Server volume backs up a single object called Server Specific Info.

The Server Specific Information volume includes information that aids in the disaster recovery process including:

- The file SERVDATA.NDS, which includes the server keys, supervisor password, attributes, and server specific object ids
- The AUTOEXEC.NCF file
- The STARTUP.NCF file
- Replica Information (Replicas that the server contained)
- Volume Information, including name, name space, compression and migration settings

To restore the Server Specific Info, do a full restore of the latest Server volume backup. Alternative directories are ignored. The server data is restored to the directory:

```
SYS:\SYSTEM\FSNAME
```
where FSNAME is the source server name where the Server volume originated. The restore will restore the following files:

- `SYS:\SYSTEM\FSNAME\SERV\DATA.NDS` - The server specific NDS information. This file is used by install to recover from a SYS: volume failure.
- `SYS:\SYSTEM\FSNAME\DSMISC.LOG` - A text file that lists the replica types stored on the file server as well as other file servers in the replica ring.
- `SYS:\SYSTEM\FSNAME\AUTOEXEC.NCF` - The failed servers AUTOEXEC.NCF file.
- `SYS:\SYSTEM\FSNAME\STARTUP.NCF` - The failed servers STARTUP.NCF file.
- `SYS:\SYSTEM\FSNAME\VOLSINFO.TXT` - A text file that lists the failed servers volumes including the supported name spaces as well as the compression and migration states.

NetWare 4.11+ file servers support the backup and restore of the Server Specific Information. NetWare 4.1 file servers require an enhancement pack that must be obtained from Novell.

- **NetWare Directory Services**

Each NetWare 4.x network has a distributed database called NetWare Directory Services (NDS). NDS is a global, distributed, replicated database containing definitions for entities such as users, groups, file servers, and printers.

NDS requires backup from only one of the NetWare file servers on the network. If all of the file servers are in a single geographic location, directory services can be backed up with CAM by creating a volume named NDS. Notice that there is no punctuation.

The caveat is that if the network is globally distributed, you may not want to back up NDS from a single location, thus
causing multiple WAN connections for each backup. Novell recommends that directory services be partitioned, replicated, and backed up geographically, thus requiring only local access in order to back up that portion of NDS.

CAM allows backing up of subtrees of directory services. CAM views NDS as a hierarchical tree structure (like a file system volume with root as the volume specification). To back up a subtree of NDS, set up a volume describing the branch from the NDS root. For example:

- `[Root].O=NSC.OU=SALES.OU=WEST` backs up the organizational unit `.OU=WEST.OU=SALES.O=NSC.`
- `.O=NSC` backs up the entire NSC organization.
- `NDS` backs up the entire tree.

The `[Root]` is optional. If omitted, it is implied by CAM and added for you.

Note that NDS leaf nodes do not contain dates. Therefore, incremental and differential backups return all leaf node information. CAM represents NDS as a hierarchical directory structure. To restore all or a portion of NDS, use the CAM client utility and select NDS nodes as you would select files in a file system restore. Note that NDS cannot be restored to an alternative destination.

- **Schema**

Each NetWare 4.X Network has an extensible Schema associated with the NetWare Directory Services. The NDS-extended Schema includes all attribute and class definitions stored in NDS. Many packages installed on NetWare file servers extend the Schema to provide additional attributes or class definitions in the Directory. Restoring Directory Services objects that require an extended Schema will fail until the extended Schema is restored. Backup and restore of the Schema is supported by TSANDS.NLM version 4.12+. 
The Schema is stored on every file server in an NDS network, and thus only needs to be backed up once for the entire network. (However, you may back up the Schema from multiple file servers.) The Schema only needs to be restored if no other NDS machine is available on the network. The most common case requiring a Schema restore would be the loss of the SYS: volume on the only NetWare 4.X server on the network.

To back up the Schema, select a NetWare host using the host modify function in the CAM Client. The NetWare host should have TSANDS version 4.12+ loaded to support Schema backup. Add a volume with a volume name of SCHEMA. The Schema volume backs up a single object, the file schema. All backup types (full, differential, incremental, and special) do a full Schema backup.

To restore the Schema, do a full restore of the latest Schema backup to a file server that has TSANDS loaded. Alternative directories are ignored.

Trustee Backups
CAM supports a Trustee Only backup, which backs up a file’s trustees without backing up the data stream. Trustee Only backups are implemented by selecting the TRUSTEEONLY backup utility in the CAM volume configuration screen. (See “Part B - Setting up volumes on a NetWare client host” on page 144.)

To restore a Trustee Only backup, select the TRUSTEEONLY backup utility in the CAM selection screen.

Note that in a NetWare 3.X file server environment, Trustees do not apply across different file servers. The Trustee backed up from a 3.X file server is the eight-digit identifier associated with the bindery on that file server. A user with the same name in the bindery of another file server will not have the same eight-digit identifier on another 3.X file server. When a Trustee is restored, it is checked against the bindery to verify that the user exists. If the user does not exist, the Trustee is deleted.

In the NetWare 4.X environment with Directory Services, CAM backs up the NDS object name associated with the Trustee. File Trustees may be restored to alternative destinations that have
access to the directory. When the file is restored, the existence of the object in the Directory is verified. If the object does not exist, the Trustee is deleted.

File Exceptions

Under NetWare, files may be opened by the operating system or by an application, and locked, denying other applications (including CAM), from reading, writing, or both. This is a common practice for database and LAN applications. When CAM encounters a locked file, it sends a message to the exception log detailing the cause of the exception and the name of the file that was not backed up. Even with exceptions, the backup continues and the backup container(s) are created. CAM reports a status of Warnings or Errors when this occurs.

CAM does not generate an error for files that are not locked or opened with deny write.

Whenever a backup results in a status other than Success, you should check the backup job log for locked files. Files that are denied access will require some action to ensure that a complete backup is achieved, such as one of the following:

• An application that locks a file should provide a method for backing up the file to an unlocked copy.

• Determine that the file was not required and exclude it from the volumes backup. Some applications that lock files automatically provide an unlocked version of the file for backup.
NetWare Client Host Setup

The following procedure consists of three parts (A, B, and C), and can be completed by either the CAM administrator or by the administrator of each NetWare client host. This procedure is the NetWare-specific version of “Step 6. Set Up Client Hosts, Volumes, and Client Host Users” from the CAM setup chapter of the CAM Setup and Administration guide.

Part A - Setting up a client host

1. If you have not already done so, display the Host dialog box for the client host to be set up, as follows:
   a. Choose Hosts from the Setup menu:

   CAM displays one of the following:
   - If you have administrative responsibility for more than one client host, CAM displays the Host Selection dialog box, shown next. This is a list of client hosts for which you are responsible. In the Host Type field, you can specify the client host types to display by selecting from the pulldown list (the default is ALL). Select the
name of the client host that you are modifying, and click **Modify**.

CAM displays the Host dialog box, shown next.

- If you have responsibility for one client host only, CAM displays the Host dialog box, shown next.
2. Fill in the fields as described in the following table, and remain at this dialog box to set up host volumes and host users (do not click OK until you have completed parts B and C of this step).

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host ID</td>
<td>This field defaults to the Host ID selected in the Host Selection dialog box.</td>
</tr>
<tr>
<td>Host Type</td>
<td>This field defaults to the Host Type set up by the CAM administrator.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Network protocol used to transfer files across the network. Select from the list.</td>
</tr>
<tr>
<td>Status</td>
<td>Status of the client host. Select from the list.</td>
</tr>
<tr>
<td></td>
<td>Active - CAM performs backups and expires backed up files as scheduled.</td>
</tr>
<tr>
<td></td>
<td>External - CAM performs backups as scheduled by a CAM user via the CAM Command Line Interface (CLI). For more information, see Chapter 4.</td>
</tr>
<tr>
<td></td>
<td>Inactive - CAM does not perform backups, but expires backed up files as scheduled. After all files have expired for all client host volumes, CAM retains this client host definition, and the most recent backup set, in case of future reactivation.</td>
</tr>
<tr>
<td></td>
<td>Expire - CAM does not perform backups, but expires backed up files as scheduled. After all files have expired, CAM deletes this client host definition.</td>
</tr>
<tr>
<td></td>
<td>Delete - A CAM administrator or client host administrator has selected this client host definition for deletion. CAM will delete the definition the next time it runs the DBM (Database Maintenance utility). If the client host has not been selected for deletion, this selection is not available. The meaning of the selection in this field depends on the status selected for each volume set up for this client host.</td>
</tr>
<tr>
<td></td>
<td>• If this field = active, then the volume status takes precedence.</td>
</tr>
<tr>
<td></td>
<td>• If this field = external, inactive, expire, or delete, then the status selected in this field takes precedence over the volume status.</td>
</tr>
<tr>
<td>Network Name</td>
<td>TCP/IP name or address of this CAM client host being backed up.</td>
</tr>
<tr>
<td>Checksum</td>
<td>Specifies whether checksum verification is to be used for the backup operations.</td>
</tr>
</tbody>
</table>
### Table 6-1  Field Descriptions: Host Dialog Box (Setup) (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway</td>
<td>This field is not supported at this time. Leave this field blank.</td>
</tr>
</tbody>
</table>
| Username and Password | An existing username and password, assigned at the client host, that CAM can use to log on to this client host when performing a backup.  
NetWare 3.1x: To back up an entire volume, you must use a username and password with SUPERVISOR privileges.  
NetWare 4.x: To back up an entire volume, you must use a username and password with SUPERVISOR or ADMIN privileges. To back up NDS, you must use a username and password with ADMIN privileges at the root.  
**Note:** In NetWare 4.x, the username SUPERVISOR is not a valid backup ID. For more information, see “Security” on page 130. |
| Root Directory      | This field is for future use; it is not currently applicable to NetWare client hosts.                                                      |
| Data Directory      | A directory on the client host that CAM uses to temporarily store copies of index and exception files during backup operations. CAM assigns unique names, derived from job IDs or volume IDs, to the temporary files. The temporary files are deleted when CAM successfully completes the operation that created the files.  
If this directory does not exist, it will be created by CAM.  
The default is sys:/sicom/cam/db. |
| Maximum concurrent host sessions | Maximum number of simultaneous backups for this client host. The default is 2.  
Before specifying simultaneous backups, ensure that sufficient memory is available. Each additional uabackup session requires from 400 kilobytes of RAM (without compression) to 500 kilobytes of RAM (with compression).  
Running concurrent backups slows the performance of each individual backup from this client. |
| Volume Configuration | See “Setting Up Volumes Manually” on page 153 for instructions.                                                                                |
Part B - Setting up volumes on a NetWare client host

To set up volumes on the current client host, follow the procedures in “Setting Up Volumes Automatically” on page 151, or “Setting Up Volumes Manually” on page 153.

Part C - Granting access to each user

From the Host dialog box of the client host you set up in Part A, set up host users for that host as described in the following procedure. These users must already exist in CAM, as described in the CAM Setup and Administration Guide.

1. In the Host dialog box, click Users. CAM displays the Host User Selection dialog box.

![Host User Selection dialog box](image)
2. In the User Selection dialog box, for each user to whom you want to grant access, do the following:
   a. Click **Add**. CAM displays the New Host User dialog box.
   b. Fill in the fields as described in the following table and click **OK**.

### Table 6-2  Field Descriptions: New Host User Dialog Box

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User ID</td>
<td>CAM user ID for this user (assigned in the <em>CAM Setup and Administration Guide</em>).</td>
</tr>
</tbody>
</table>
When you have finished setting up users on the client host, click Close to return to the Host dialog box.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host Access</td>
<td>Access level of this user on this client host: administrator or user. The default is user. The client host administrator can access all CAM backups of this client host, so assign host administrator access to only one user (or two, if necessary). For each user, also fill in the Search UIDs field to grant the user restore access to backup files owned by his or her UID on this client host (if applicable).</td>
</tr>
<tr>
<td>Search UIDs</td>
<td>Username or user ID, defined by the client host system, that establishes ownership of files originating with this user. If you enter more than one, separate with spaces. You may enter an asterisk character (*) to imply ownership of all files on the host, but be aware that this compromises privacy and system security. Use the following format: <strong>NAME</strong> where NAME is a character string corresponding to the bindery object name. CAM forces all characters to uppercase. CAM uses this field for file restoration only. When this user (defined by the User ID entered above) requests a search of backed up files from this client host, the user can only search files owned by the Search UID(s) entered in this field. In other words, this user can only search files he or she owns, which are defined by the NetWare UID stored by CAM during the backup. Note that the UID for a NetWare file system is the eight-digit ID of the file’s owner located in the Directory Entry Table (DET) of the file server. During backup an attempt is made to convert the eight-digit owner ID to a bindery representation of the owner name. If successful, it is substituted for the owner ID. NetWare 4.X file servers that do not support bindery emulation will not generate a bindery name for this field. Because of internal space limitations, the entire NDS object name is not used. The eight-digit DET owner ID is specific to each file server. Thus, a single NDS object will have a different owner ID for each file server.</td>
</tr>
</tbody>
</table>

When you have finished setting up users on the client host, click Close to return to the Host dialog box.
Modifying a Client Host Definition

To modify the definition of a client host, follow the procedure in this section.

**To set up a client host or modify a definition**

1. Choose **Hosts** from the Setup menu:

CAM displays one of the following:

- If you have administrative responsibility for more than one client host, CAM displays the Host Selection dialog box, shown next. This is a list of client hosts for which you are responsible. In the Host Type field, you can specify the client host types to display by selecting...
from the pulldown list (the default is ALL). Select the name of the client host that you are modifying, and click Modify.

CAM displays the Host dialog box, shown next.

- If you have responsibility for one client host only, CAM displays the Host dialog box.

![Host Selection - Setup dialog box]

![Host dialog box for support2]

---

Chapter 6  Novell NetWare Client Host Administration  147
2. In the Host dialog box, modify fields as needed, as described in the following table.

### Table 6-3 Field Descriptions: Host Dialog Box (Modify)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host ID</td>
<td>Host ID of the client host selected in the previous step.</td>
</tr>
<tr>
<td>Host Type</td>
<td>This field defaults to the Host Type set up by the CAM administrator.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Network protocol used to transfer files across the network. Select from the list.</td>
</tr>
<tr>
<td>Status</td>
<td>Status of the client host. Select from the list.</td>
</tr>
<tr>
<td></td>
<td>Active - CAM performs backups and expires backed up files as scheduled.</td>
</tr>
<tr>
<td></td>
<td>External - CAM performs backups as scheduled by a CAM user via the CAM Command Line Interface (CLI). For more information, see Chapter 4.</td>
</tr>
<tr>
<td></td>
<td>Inactive - CAM does not perform backups, but expires backed up files as scheduled. After all files have expired for all client host volumes, CAM retains this client host definition, and the most recent backup set, in case of future reactivation.</td>
</tr>
<tr>
<td></td>
<td>Expire - CAM does not perform backups, but expires backed up files as scheduled. After all files have expired, CAM deletes this client host definition.</td>
</tr>
<tr>
<td></td>
<td>Delete - A CAM administrator or client host administrator has selected this client host definition for deletion. CAM will delete the definition the next time it runs the DBM (Database Maintenance utility). If no client host definitions have been selected for deletion, this selection is not available.</td>
</tr>
<tr>
<td></td>
<td>The meaning of the selection in this field depends on the status selected for each volume configured for this client host.</td>
</tr>
<tr>
<td></td>
<td>• If this field = active, then the volume status takes precedence.</td>
</tr>
<tr>
<td></td>
<td>• If this field = external, inactive, expire, or delete, then the status selected in this field takes precedence over the volume status.</td>
</tr>
<tr>
<td>Network Name</td>
<td>TCP/IP name or address of this CAM client host being backed up.</td>
</tr>
<tr>
<td>Checksum</td>
<td>Specifies whether checksum verification is to be used for the backup operations.</td>
</tr>
<tr>
<td>Gateway</td>
<td>This field is not supported at this time. Leave this field blank.</td>
</tr>
</tbody>
</table>
### Table 6-3  Field Descriptions: Host Dialog Box (Modify) (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Username and Password  | An existing username and password, assigned at the client host, that CAM can use to log on to this client host when performing a backup. This username/password pair must be privileged to access all files on this client host.  
NetWare 3.1x: To back up an entire volume, you must use a username and password with SUPERVISOR privileges.  
NetWare 4.x: To back up an entire volume, you must use a username and password with SUPERVISOR or ADMIN privileges. To back up NDS, you must use a username and password with ADMIN privileges at the root.  
**Note:** In NetWare 4.x, the username SUPERVISOR is not a valid backup ID. For more information, see “Security” on page 130. |
| Root Directory         | This field is for future use; it is not currently applicable to NetWare client hosts.                                                                                                                                 |
| Data Directory         | A directory on the client host that CAM uses to temporarily store copies of index and exception files during backup operations. CAM assigns unique names, derived from job IDs or volume IDs, to the temporary files. The temporary files are deleted when CAM successfully completes the operation that created the files.  
If this directory does not exist, it will be created by CAM.  
The default is sys:/sicom/cam/db.                                                                                                                                 |
| Maximum concurrent host sessions | Maximum number of simultaneous backups for this client host. The default is 2.  
Before specifying simultaneous backups, ensure that sufficient memory is available. Each additional uabackup session requires from 400 kilobytes of RAM (without compression) to 500 kilobytes of RAM (with compression).  
Running concurrent backups slows the performance of each individual backup from this client. |
| Volume Configuration   | See “Setting Up Volumes Manually” on page 153 for instructions.                                                                                                                                             |
Setting Up Volumes Automatically

To automatically detect and configure volumes for a particular existing client host, use the volume configuration feature as described in this section.

Note: This feature is not currently available for the following client host types: OpenVMS, Stratus VOS, Tandem GUARDIAN, and HP3000 MPE/iX.

Note: To set up new volumes with the parameters you prefer, define the volume named DEFAULT before adding volumes automatically. See “Setting Up Volumes Manually” on page 153 for instructions. The fields you specify in the default volume become the defaults for the following fields: Status, Compress, Group ID, Schedule ID, Utility, Backup Window, Auto-Hold, and Trace Flags.

To automatically configure volumes for a client host

1. Display the Host dialog box as described in step 1 of “To set up a client host or modify a definition” on page 147.
2. If this is a new client host, enter the Network Name, Username, and Password. If it is an existing client host, continue to the next step.

3. In the **Automatic Operations** group, click **Add Volumes Now**.

   CAM queries the client host and adds volumes that are not already defined.

   To modify the volumes, follow the procedure in “**Setting Up Volumes Manually**” on page 153.

4. In the **Automatic Operations** group, enable the checkboxes as follows:

   - To receive, via e-mail, a report of subsequent volume additions and deletions on this client host, enable the **Report Volume Changes** checkbox. Reports are sent when a volume is added or deleted. If no changes occur, CAM does not send a report. Note that volumes are not automatically added to the CAM configuration unless the **Add New Volume** checkbox is enabled.

   - To automatically detect and add subsequent volumes to this host, enable the **Add New Volumes** checkbox.

The CAM Host Volume Configurator queries each CAM client host that has one or both boxes checked. The CAM Resource Manager periodically runs the Host Volume Configurator (HVC). The keywords HVC_TIME and HVC_DAY_OF_WEEK in the CAM configuration file determine when HVC runs.
Setting Up Volumes Manually

This section provides procedures for configuring volumes for a CAM client host. Before you begin, you should have for each client host a completed Client Host Setup form (see Appendix A).

To set up a volume on the CAM system

1. Display the Host dialog box as described in step 1 of “To set up a client host or modify a definition” on page 147.

2. In the Volume Configuration group, click Volumes. CAM displays the Volume Selection dialog box.
To simplify volume setup, define the volume named DEFAULT. The fields you specify in the default volume become the defaults for the following fields: Status, Compress, Group ID, Schedule ID, Utility, Backup Window, Auto-Hold, and Trace Flags. Click Add Volume, and modify fields as needed.

The defaults of the DEFAULT volume are determined by the CAM configuration file.

Note that the default volume is never backed up.

3. Click Add Volume. CAM displays the New Volume dialog box:
4. Using the completed Host Volume Information form, fill in the fields as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume ID</td>
<td>A volume ID for CAM use only, which CAM will use to identify this volume. Enter a string, unique to this client host, of lowercase alphanumeric characters, 1 to 8 characters in length, that begins with a letter. <strong>Note: Once defined, this field cannot be modified.</strong></td>
</tr>
<tr>
<td>Size</td>
<td>The approximate size of the volume, in megabytes.</td>
</tr>
</tbody>
</table>
Table 6-4  Field Descriptions: Volume Dialog Box (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Status | Status of the volume. Select from the list.  
Active - CAM performs backups and expires files as scheduled.  
External - The volume is active, but is scheduled externally, via the CAM Command Line Interface (CLI). For more information, see Chapter 4.  
Inactive - CAM does not perform backups, but expires files as scheduled. After all files have expired, CAM keeps this volume definition, and the most recent backup set, in case of future reactivation.  
Expire - CAM does not perform backups, but expires files as scheduled. After all files have expired, CAM deletes this client host volume definition.  
Delete - A CAM administrator or client host administrator has selected this volume for deletion. CAM will delete the definition the next time it runs the DBM (Database Maintenance utility). This selection is available only if the volume is selected to be deleted (via the Volume Selection dialog box).  
The meaning of the selection in this field depends on the status selected for the client host.  
• If the status of the client host = active, then the volume status selected in this field takes precedence.  
• If the status of the client host = external, then the volume status selected in this field takes precedence. Note that if a volume status is active and the client host is external, the volume status will be considered external.  
• If the status of the client host = inactive, expire, or delete, then the client host status takes precedence over the volume status.  
The default for this field is taken from default volume definition for this client host. |
A CAM backup volume can represent a bindery or a logical NetWare volume or, for large NetWare volumes, a subset of the NetWare volume. See “Utility Option: uabackup” in Chapter 2 for more information about restoring volumes.

After a backup has been performed for this volume, this field cannot be changed.

**NetWare 3.1x:** You can specify the NetWare volumes as shown in the following examples:

```
binding
sys: (or sys:/)
sys:/mktg
```

Define one bindery volume for each NetWare 3.1x host being backed up, to back up the NetWare bindery. (Note that the bindery volume has no colon.)

**NetWare 4.x:** You can specify the NetWare file system names (except bindery) as shown for the 3.1x examples, above.

In addition, there are three special volumes that may be defined.

- **Server Specific Information:** One Server volume may be defined for each NetWare file server that supports the backup and restore of the Server Specific Information. You can specify the Server Specific Information volume as follows:

  ```
  SERVER
  ```

- **NetWare Directory Services:** Each NetWare 4.X network contains NetWare Directory Service (NDS). Volumes to back up NDS may be defined at any NetWare 4.X file server that supports the TSANDS NLM. The recommended approach to backing up NDS is by subtree divided by geographical location, thus eliminating excessive WAN access, although the entire NDS tree can be backed up from any 4.X file server on the network.

---

**Table 6-4  Field Descriptions: Volume Dialog Box  (Continued)**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Volume    | Client host-specific volume name, to be passed to the backup utility. A CAM backup volume can represent a bindery or a logical NetWare volume or, for large NetWare volumes, a subset of the NetWare volume. See “Utility Option: uabackup” in Chapter 2 for more information about restoring volumes. After a backup has been performed for this volume, this field cannot be changed. **NetWare 3.1x:** You can specify the NetWare volumes as shown in the following examples: `binding
sys: (or sys:/)
sys:/mktg` Define one bindery volume for each NetWare 3.1x host being backed up, to back up the NetWare bindery. (Note that the bindery volume has no colon.) **NetWare 4.x:** You can specify the NetWare file system names (except bindery) as shown for the 3.1x examples, above. In addition, there are three special volumes that may be defined. • **Server Specific Information:** One Server volume may be defined for each NetWare file server that supports the backup and restore of the Server Specific Information. You can specify the Server Specific Information volume as follows: `SERVER` • **NetWare Directory Services:** Each NetWare 4.X network contains NetWare Directory Service (NDS). Volumes to back up NDS may be defined at any NetWare 4.X file server that supports the TSANDS NLM. The recommended approach to backing up NDS is by subtree divided by geographical location, thus eliminating excessive WAN access, although the entire NDS tree can be backed up from any 4.X file server on the network.
Volume (continued) | Following are three examples of NDS volumes:
| | NDS
| | .[Root].O=Goodcorp.OU=Marketing
| | .O=Goodcorp.OU=Marketing
| | Note that the volume NDS has no punctuation and is used to denote the entire NDS tree.

- Schema - Each NetWare 4.X network contains a Directory Schema that contains all attribute and class definitions stored in NDS. The entire Schema can be backed up from any location on the network that supports schema backup and restore. You can specify the Schema as follows:

  **SCHEMA**

**Table 6-4** Field Descriptions: Volume Dialog Box (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>The name of the backup utility to back up this volume. The default utility to back up file system volumes as well as the special NetWare volumes is <strong>uabackup</strong>. Click Utility Options to display utility-specific details. For more information, see “Utility Option: uabackup” on page 162. To back up the trustees of a file system volume, select the <strong>trusteonly</strong> utility. All Trusteeonly backups are full backups. Click Utility Options to display utility-specific details. For more information, see “Utility Option: trusteeonly” on page 164.</td>
</tr>
<tr>
<td>Compress</td>
<td>Specifies whether you want to compress data during backups for this volume. Compression results in less data on the network, but because compression is cpu-intensive, compression generally causes individual volume backups to require more time to run. Therefore, use extreme caution when setting this option. The default for this field is taken from default volume definition for this client host.</td>
</tr>
<tr>
<td>Pre-Backup Command</td>
<td>The name of a non-interactive NLM to run on the remote client before backing up the volume. For example, STOPDB (not LOAD STOPDB).</td>
</tr>
</tbody>
</table>
Table 6-4  Field Descriptions: Volume Dialog Box  (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Post-Backup Command | (Optional) The name of a non-interactive executable program to be run on the client host after backing up the volume. Include the following string as a parameter to backup command: **backup_exit_status** When the job runs, CAM will change this string to one of the following outcome prior to executing the post-backup command:  
  • success  
  • warning  
  • failure |
| Group ID            | The group ID of the group to which this volume belongs. Click Alternative Group ID and select a group ID from the list. By default, the volume is not a member of the group.  
If you specify a Group ID, the remaining fields in this dialog box will take the group definition settings. |
| Full Only           | Specifies that every backup for this volume is a full backup. Check this box for volumes that do not allow incremental or differential backups, such as the SQLServer Master database or a NetWare bindery. Check this box for Trusteeonly backups.  
When this box is checked, CAM will perform a full backup even if the backup schedule specifies an incremental or differential backup. In this case, the retention type specified in the class setting for the volume’s normally scheduled backup will still apply. This allows the administrator to select one schedule for the entire database even though some volumes allow only full backups.  
For example, when backing up SQLServer, the Master database can only be backed up as a full backup. Other databases may be backed up as full, and differential or incremental (transaction), backups. In this case, the administrator can use the same backup schedule for all SQLServer volumes. When the Master database is scheduled for a backup, CAM forces a full backup, even though the schedule specifies an incremental or differential backup. However, the data from the full backup is stored in the same location and retained for the same amount of time as the corresponding differential or incremental backups, according to the class definitions in the backup schedule. |
Table 6-4  Field Descriptions: Volume Dialog Box  (Continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Schedule ID | The schedule ID of the backup schedule that you want to automatically back up this volume. Click Alternative Schedule ID and select a schedule ID from the list.  
(If you are a client host administrator and do not know which schedule ID to assign, contact the CAM administrator. Schedule IDs are assigned in the CAM Setup and Administration Guide).  
The default for this field is taken from the default volume definition for this client host. |
| Start/End   | The time window within which the backup can be performed. To specify a time window, use a 48-hour clock: specify time on the first day as for a 24-hour clock, and specify time on the second day as a continuation of the 24-hour clock. For example:  
Day 1, 8:00 a.m. = 8:00  
Day 1, 9:00 p.m. = 21:00  
Day 2, 1:30 a.m. = 25:30  
Day 2, 5:00 p.m. = 41:00  
Day 2, midnight = 48:00  
The default for this field is taken from default volume definition for this client host. |
| Priority    | An integer from 1 to 99 that indicates the priority level of jobs originating with this volume. The highest priority is 99; the lowest is 1. The default is 50.  
Only the CAM administrator can increase the priority level of jobs originating with this volume. |
Auto-hold

Specifies that at the time the backup is scheduled to start, CAM is to put the job on hold. The default is determined by the CAM master configuration file.

The job can then be monitored via the Jobs menu and approved for backup at the discretion of the CAM operator or client host administrator.

The default for this field is taken from default volume definition for this client host.

---

Trace flags

Enables you to specify one or more trace flags, which control the format of the job logs generated during CAM jobs. Trace flags are intended for diagnostic purposes, and should not be specified unless instructed to do so by support personnel. By default, commands are not expanded or echoed.

Trace flags must be set in this field before the volume is scheduled for backup. After a volume has been scheduled for backup (but is not yet executing), you can specify trace flags only from the Modify Job dialog box. For more information, see Chapter 10.

The default for this field is taken from the default volume definition for this client host.

Available trace flags are as follows:

- **C**: Does not echo commands for receives and sends
- **D**: Turns on additional database backup debugging messages.
- **E**: Causes commands to be echoed
- **G**: Prints global variables at start of job
- **I**: Turns off interval displays in the job log
- **L**: Turns on responder log on client
- **M**: Turns on internal message display
- **P**: Turns on protocol display
- **Q**: Turns on the following: send quiet, receive quiet, connect quiet
- **S**: Prints additional setup information
- **V**: Causes commands to be expanded
- **W**: Turns on wide protocol display (32K) - use only if P is set
c. When you have finished adding volumes for the host, click **Close** to return to the Host dialog box.

**Utility Option:** uabackup

In the Volume dialog box, when you select the **uabackup** utility in the Utility field and click the Utility Options button, CAM displays the following dialog box:

![Utility Options - UABACKUP](image)

- **Track Deleted Files**
- **Exclude**

[OK] [Cancel]
Fill in the fields as described in the following table.

### Table 6-5  Field Descriptions: Utility Options: uabackup

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track Deleted Files</td>
<td>Specifies that you want CAM to keep a record of backed up files that are deleted, in case of future volume restoration.</td>
</tr>
<tr>
<td>Exclude</td>
<td>Use one of the following two methods to exclude files from the volume backup: &lt;br&gt;   &lt;br&gt;• Enter a list of file names, using spaces to separate entries. &lt;br&gt;• Enter a left angle bracket (&lt;) followed by the full pathname of a file &lt;br&gt;that contains a list of files to exclude. This file must exist on the client &lt;br&gt;system. It can contain any number of exclude strings, but they must be &lt;br&gt;entered as one exclude string per line. Embedded blanks in an exclude &lt;br&gt;string are assumed to be part of the filename to exclude. &lt;br&gt;Entries in this field can be rooted (fully qualified) or non-rooted (relative to the current volume definition). The wildcard character is an asterisk (<em>) &lt;br&gt;This field is not case-sensitive. &lt;br&gt;CAM will exclude the listed files from the volume backup. By default, CAM backs up all files on the volume.  &lt;br&gt;Following are examples of typical exclusions: &lt;br&gt;• &lt;/SICOM/EXCLUDE.LST excludes all files listed in the file named EXCLUDE.LST. &lt;br&gt;• SICOM/</em> excludes all files in the directory SICOM and its subdirectories, but does not exclude the directory SICOM itself. &lt;br&gt;• SICOM/*.UA excludes all files with extension .UA that are located in the directory SICOM and in all of its subdirectories. &lt;br&gt;• *.UA excludes all files with extension .UA anywhere on the volume.</td>
</tr>
</tbody>
</table>
In the Volume dialog box, when you select the **trusteeonly** utility in the Utility field and click the Utility Options button, CAM displays the following dialog box:
Fill in the fields as described in the following table.

### Table 6-6  Field Descriptions: Utility Options: trusteeonly

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Exclude | Use one of the following two methods to exclude files from the volume backup:  
  • Enter a list of file names, using spaces to separate entries.  
  • Enter a left angle bracket (<) followed by the full pathname of a file that contains a list of files to exclude. This file must exist on the client system. It can contain any number of exclude strings, but they must be entered as one exclude string per line. Embedded blanks in an exclude string are assumed to be part of the filename to exclude.  
Entries in this field can be rooted (fully qualified) or non-rooted (relative to the current volume definition). The wildcard character is an asterisk (*).  
This field is not case-sensitive.  
CAM will exclude the listed files from the volume backup. By default, CAM backs up all files on the volume.  
Following are examples of typical exclusions:  
  • </SICOM/EXCLUDE.LST excludes all files listed in the file named EXCLUDE.LST.  
  • SICOM/* excludes all files in the directory SICOM and its subdirectories, but does not exclude the directory SICOM itself.  
  • SICOM/*.UA excludes all files with extension .UA that are located in the directory SICOM and in all of its subdirectories.  
  • *.UA excludes all files with extension .UA anywhere on the volume. |

---

164  CAM NetWare Client and User Guide — 4th Edition
Modifying and Deleting Volume Definitions

This section provides procedures for modifying volume definitions and for deleting volumes.

To modify a volume definition

1. Display the Volume Selection dialog box as described in steps 1 and 2 of “To set up a volume on the CAM system” on page 153.

2. Select the volume that you are modifying, and click **Modify Volume**.

   CAM displays the Volume dialog box for the selected volume.
3. In the Volume dialog box, change the fields as needed, as described in Table 6-4, on page 155.
To delete a volume definition

If a volume becomes obsolete, or if you no longer want CAM to automatically back up a specific volume, you can delete the volume definition from the CAM system. The following procedure deletes from the CAM system the specified volume definition and all retained CAM backups that originated with that volume.

**Note:** See also the Status field in Table 6-4, on page 155, for information on how to gradually expire an active volume from the system.

1. Display the Volume Selection dialog box as described in steps 1 and 2 of "To set up a volume on the CAM system" on page 153.
2. Select the volume that you are deleting, and click **Delete Volume**.

CAM prompts for verification.

3. Click **Yes**. CAM deletes the volume definition and all backups for the volume. It also adds a Delete entry to the Status field of the Host dialog box, indicating that the client host has been selected for deletion.

The next time the CAM DBM (Database Maintenance utility) runs, it will delete the volume definition as requested.

**Note:** The DBM schedule, which generally runs once a day following scheduled backups, is specified in the CAM configuration file (DBM_TIME, default 8:00 a.m.). The DBM utility also runs each time the CAM Resource Manager is restarted.
Setting up a Volume Group

A volume group is a group of individual volumes on a particular client host. Each volume in a group shares the following backup parameters: schedule, start and end times, group pre-backup and post-backup commands, minimum and maximum number of concurrent backup sessions, priority, auto-hold, and trace flags.

To determine whether to use volume groups on your system, consider the following:

- Does your backup procedure require that you log off all users before performing backups, and log on all users when backups are finished? If so, use volume grouping with pre- and post-backup commands for logging users off and on.

- Is your available window for performing backups a short span of time? If so, use volume grouping to force concurrent backup sessions and optimize backup time.

If neither scenario applies to your system, do not use volume grouping. CAM will optimize your system resources and perform backups in the most efficient manner.
To set up a volume group

1. Display the Volume Selection dialog box as described in steps 1 and 2 of “To set up a volume on the CAM system” on page 153.

2. Click Add Group. CAM displays the New Group dialog box:
## Chapter 6  Novell NetWare Client Host Administration

![New Group - Host: support2](image)

**Group ID:**

**Client group commands:**
- Pre-backup:
- Post-backup:

**Volume execution method:**
- Sequential
- Concurrent

**Schedule ID:** SunSat 1201

**Backup window:**
- Sun: Start 06:00, End 30:00
- Mon: Start 22:00, End 30:00
- Tue: Start 22:00, End 30:00
- Wed: Start 22:00, End 30:00
- Thu: Start 22:00, End 30:00
- Fri: Start 22:00, End 30:00
- Sat: Start 08:00, End 30:00

**Backup job:**
- Finely 50
- Auto-hold
- Trace flags:

**Buttons:**
- OK
- Cancel
3. Fill in the fields as described in the following table.

### Table 6-1  Field Descriptions: Group (or New Group) Dialog Box

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group ID</td>
<td>The group ID for this group. Enter a string, unique to this group, of lowercase alphanumeric characters, 1 to 8 characters in length, that begins with a letter. Once defined, this field cannot be modified.</td>
</tr>
<tr>
<td>Status</td>
<td>Status of the group. Select from the list.</td>
</tr>
<tr>
<td></td>
<td>Active - CAM performs backups and expires files as scheduled.</td>
</tr>
<tr>
<td></td>
<td>External - The group is active, but is scheduled externally, via the CAM Command Line Interface (CLI). For more information, see Chapter 10.</td>
</tr>
<tr>
<td></td>
<td>Inactive - CAM does not perform backups, but expires files as scheduled. After all files have expired, CAM keeps this group definition in case of future reactivation. The meaning of the selection in this field depends on the status selected for the client host.</td>
</tr>
<tr>
<td></td>
<td>• If the status of the client host = active, then the group status selected in this field takes precedence.</td>
</tr>
<tr>
<td></td>
<td>• If the status of the client host = external, then the group status selected in this field takes precedence. Note that if a group status is active and the client host is external, the group status will be considered external.</td>
</tr>
<tr>
<td></td>
<td>• If the status of the client host = inactive, then the client host status takes precedence over the group status. The default for this field is Active.</td>
</tr>
<tr>
<td>Pre-Backup Command</td>
<td>The name of a non-interactive NLM to run on the remote client before backing up the volume. For example, STOPDB (not LOAD STOPDB).</td>
</tr>
<tr>
<td>Post-Backup Command</td>
<td>(Optional) The name of a non-interactive executable program to be run on the client host after backing up the volume.</td>
</tr>
<tr>
<td></td>
<td>Include the following string in the post-backup command: backup_exit_status</td>
</tr>
<tr>
<td></td>
<td>When the job runs, CAM will change this string to one of the following outcomes:  success  warning  failure</td>
</tr>
<tr>
<td>Sequential</td>
<td>Click here to back up volumes in this group sequentially.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Concurrent</td>
<td>Click here to allow volumes in this group to be backed up concurrently. This is the default selection.</td>
</tr>
<tr>
<td>Minimum</td>
<td>CAM will not back up any volumes until it can run the minimum number of sessions entered in this field. The default is 1.</td>
</tr>
<tr>
<td>Maximum</td>
<td>Maximum number of volumes within this group that can be backed up concurrently. The default is the maximum concurrent host sessions defined for this client host.</td>
</tr>
<tr>
<td>Schedule ID</td>
<td>The schedule ID of the backup schedule that you want to automatically back up this group. If using a customized schedule, you must set up the schedule before entering its name in this field. See Chapter 5 for more information. The default is determined by the CAM configuration file.</td>
</tr>
</tbody>
</table>
| Start/End     | The time window within which the backup can be performed. To specify a time window, use a 48-hour clock: specify time on the first day as for a 24-hour clock, and specify time on the second day as a continuation of the 24-hour clock. For example:  
Day 1, 8:00 a.m. = 8:00  
Day 1, 9:00 p.m. = 21:00  
Day 2, 1:30 a.m. = 25:30  
Day 2, 5:00 p.m. = 41:00  
Day 2, midnight = 48:00  
The default is determined by the CAM configuration file.                                                                                                                                                     |
| Priority      | An integer from 1 to 99 that indicates the priority level of jobs originating with this group. The highest priority is 99; the lowest is 1. The default is determined by the CAM configuration file.  
Only the CAM administrator can increase the priority level of jobs originating with this group.                                                                                                               |
Auto-hold

Specifies that at the time the backup is scheduled to start, CAM is to put the job on hold. The default is determined by the CAM master configuration file.

The default for this field is Off.

Trace flags

Enables you to specify one or more trace flags, which control the format of the job logs generated during CAM jobs. Trace flags are intended for diagnostic purposes, and should not be specified unless instructed to do so by support personnel. By default, commands are not expanded or echoed.

Trace flags must be set in this field before the volume is scheduled for backup. After a volume has been scheduled for backup (but is not yet executing), you can specify trace flags only from the Modify Job dialog box. For more information, see Chapter 10.

The default for this field is determined by the CAM configuration file.

Available trace flags are as follows:

- C  Does not echo commands for receives and sends
- D  Turns on additional database backup debugging messages.
- E  Causes commands to be echoed
- G  Prints global variables at start of job
- I  Turns off interval displays in the job log
- L  Turns on responder log on client
- M  Turns on internal message display
- P  Turns on protocol display
- Q  Turns on the following: send quiet, receive quiet, connect quiet
- S  Prints additional setup information
- V  Causes commands to be expanded
- W  Turns on wide protocol display (32K) - use only if P is set

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-hold</td>
<td>Specifies that at the time the backup is scheduled to start, CAM is to put the job on hold. The default is determined by the CAM master configuration file. The default for this field is Off.</td>
</tr>
<tr>
<td>Trace flags</td>
<td>Enables you to specify one or more trace flags, which control the format of the job logs generated during CAM jobs. Trace flags are intended for diagnostic purposes, and should not be specified unless instructed to do so by support personnel. By default, commands are not expanded or echoed. Trace flags must be set in this field before the volume is scheduled for backup. After a volume has been scheduled for backup (but is not yet executing), you can specify trace flags only from the Modify Job dialog box. For more information, see Chapter 10. The default for this field is determined by the CAM configuration file. Available trace flags are as follows: C  Does not echo commands for receives and sends D  Turns on additional database backup debugging messages. E  Causes commands to be echoed G  Prints global variables at start of job I  Turns off interval displays in the job log L  Turns on responder log on client M  Turns on internal message display P  Turns on protocol display Q  Turns on the following: send quiet, receive quiet, connect quiet S  Prints additional setup information V  Causes commands to be expanded W  Turns on wide protocol display (32K) - use only if P is set</td>
</tr>
</tbody>
</table>
Attaching and Detaching Group Volumes

This section provides procedures for attaching volumes to, and detaching volumes from, an existing volume group.

To attach volumes to a group

1. Display the Volume Selection dialog box as described in steps 1 and 2 of “To set up a volume on the CAM system” on page 153.

2. In the Volume group list, click on the group to which you are attaching volumes.

3. In the Volume list, click on a volume to add to the group.

4. Click Attach to group.
5. Continue steps 2 to 4 until all required volumes are attached to the specified group.

To detach volumes from a group

1. Display the Volume Selection dialog box as described in steps 1 and 2 of “To set up a volume on the CAM system” on page 153.

2. In the Volume group list, double-click on the group from which you are detaching volumes. This expands the display to show the volumes attached to the group.

3. In the expanded display in the Volume group list, click on the volume you want to detach from the group.

4. Click Detach from group.
5. Continue steps 2 to 4 until all required volumes are detached from the specified group.

**Modifying and Deleting Group Definitions**

This section provides procedures for modifying definitions of a group, and for deleting groups.

**To modify a group definition**

1. Display the Volume Selection dialog box as described in steps 1 and 2 of “To set up a volume on the CAM system” on page 153.

2. Select the group that you are modifying, and click **Modify Group**.

---

*Chapter 6*  *Novell NetWare Client Host Administration*  177
CAM displays the Group dialog box for the selected group.

3. Modify the fields as needed, as described in Table 6-1, on page 173.
To delete a group definition

The following procedure deletes from the specified client host group definition, and detaches all volumes associated with the group.

**Note:** See also the Status field in Table 6-1, on page 173, to for information on how to automatically delete a group definition after its backups expire.

1. Display the Volume Selection dialog box as described in steps 1 and 2 of “To set up a volume on the CAM system” on page 153.

2. Select the group that you are deleting, and click **Delete Group**.

   CAM prompts for verification.

3. Click **Yes**. CAM deletes the group definition and detaches all volumes associated with it.

Granting Users Access to a CAM Client Host

When you define a CAM user on a client host, you grant the user access to files backed up by CAM. Before being defined on a client host, a user must have a valid CAM user ID.

To define a CAM user on a client host, follow the procedure in “Part C - Granting access to each user” on page 144.
Managing Backups

CAM provides automatic scheduling of backups and subsequent deletion of backups based on retention periods specified at the time the backups are performed. Occasionally, you may need to extend the period that a backup is retained, or delete a backup before it would normally expire. The Manage feature permits you to change the retention periods of backups, and to mark backups for deletion.

To modify attributes of backups or delete backups, follow the procedures in this section.

To select a client host from which to modify or delete backups

1. In the CAM main dialog box, in the Backup group, click **Manage**.

CAM displays one of the following:

- If you have administrative responsibility for more than one client host, CAM displays the Host Selection dialog box, shown next. This is a list of client hosts for which you are responsible. In the Host Type field, you can specify the client host types to display by selecting from the pulldown list (the default is ALL). Select one or more client hosts for which you are modifying or deleting backups, and click **Manage**.
CAM displays the Backup Management Selection dialog box, shown next.

- If you have responsibility for one client host only, CAM displays the Backup Management Selection dialog box, shown next. You can now modify or delete backups, as described on the following pages.
### Backup Management Selection List

<table>
<thead>
<tr>
<th>Date</th>
<th>Host ID</th>
<th>Volume</th>
<th>Host Type</th>
<th>Type</th>
<th>Type (Save)</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun 10</td>
<td>sales1</td>
<td>c</td>
<td>os2</td>
<td>full</td>
<td></td>
<td>23M</td>
</tr>
<tr>
<td>Jun 10</td>
<td>sales1</td>
<td>d</td>
<td>os2</td>
<td>diff</td>
<td></td>
<td>7GB</td>
</tr>
<tr>
<td>Jun 03</td>
<td>sales2</td>
<td>user</td>
<td>unix</td>
<td>full</td>
<td></td>
<td>16GB</td>
</tr>
<tr>
<td>Jun 03</td>
<td>sales1</td>
<td>d</td>
<td>os2</td>
<td>diff</td>
<td></td>
<td>0GB</td>
</tr>
<tr>
<td>Jun 03</td>
<td>sales1</td>
<td>d</td>
<td>os2</td>
<td>full</td>
<td></td>
<td>16GB</td>
</tr>
<tr>
<td>May 19</td>
<td>support</td>
<td>accinto</td>
<td>acc</td>
<td>full</td>
<td></td>
<td>0GB</td>
</tr>
<tr>
<td>May 08</td>
<td>dell</td>
<td>c</td>
<td>win95</td>
<td>full</td>
<td></td>
<td>0GB</td>
</tr>
<tr>
<td>May 08</td>
<td>dell</td>
<td>c</td>
<td>win95</td>
<td>full</td>
<td></td>
<td>0GB</td>
</tr>
</tbody>
</table>

0 backups
To modify an existing backup

1. Display the Backup Management Selection List dialog box as described in step 1 of “To select a client host from which to modify or delete backups” on page 181.

2. Fill in the fields as necessary, as described in the following table.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sort Order</td>
<td>Use the pulldown list to select the order in which to list the backups. By default, the backups are sorted by date (most recent date first).</td>
</tr>
<tr>
<td>Selection Match</td>
<td>Enter one or more character strings to restrict the number of backups listed, and press Enter. Separate each entry with a space. The only backups listed are those that contain a match for every entry in this field. For example, if you enter <strong>usr full</strong> in this field, the only backups that will be listed will be those that contain <strong>usr and full</strong> in any combination of fields. If a user definition contains a selection match, this field further restricts the listed backups.</td>
</tr>
<tr>
<td>Date/Time Range</td>
<td>Range of dates during which the backups were submitted. The default From is the year 1901; the default To is the current date and time. Normally, you can use the default date/time range.</td>
</tr>
</tbody>
</table>

3. In the list box on the Backup Management Selection List dialog box, select one or more backups to modify, and click **Modify**. CAM displays the Backup-Modify dialog box.
4. In the Backup-Modify dialog box, modify the fields as needed, as described in the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Retention Type | Days from backup date - Adds to the backup date the number of days specified in the Retention field.  
                  Days from today - Adds to today’s date the number of days specified in the Retention field. |
| Retention     | Number of days to retain. The meaning of the number in this field depends on what you selected in the Retention Type group. Enter keep if you do not want the backup to expire.  
                  **Caution:** If multiple backups were grouped on similar sequential media (such as the same tape) due to their similar retentions, changing the retention of only one of the backups will leave unusable logical holes in the tape media when the other, unmodified, backups expire. Any such logical holes will be eliminated when the modified backup eventually expires. |
To delete a backup

1. Display the Backup Management Selection List dialog box as described in step 1 of “To select a client host from which to modify or delete backups” on page 181.

2. In the list box on the Backup Management Selection List dialog box, select one or more backups to modify, and click **Delete**.

   CAM prompts for verification.

3. Click **Yes**. CAM marks each selected backup with **del** in the Expire field.

   The next time the CAM DBM (Database Maintenance utility) runs, it will delete the volume definition as requested.

   **Note:** The DBM schedule, which generally runs once a day following scheduled backups, is specified in the CAM configuration file (DBM_TIME, default 8:00 a.m.). The DBM utility also runs each time the CAM Resource Manager is restarted.

   If you decide not to delete the backup, you can modify the retention field in the Backup dialog box (see “To modify an existing backup” on page 185).
Receiving Daily CAM Reports by E-mail

CAM can automatically send, via electronic mail, Daily Administrator’s Reports to client host administrators. In order for CAM to send these reports, each client host administrator must provide an electronic mail (e-mail) address to the CAM administrator, who will then add the address to that user’s definition.

Daily Administrator’s Reports provide the status of all CAM jobs (backups, restores, archives, and retrieves) run on your assigned client host or hosts during the 24 hours preceding the start of the current day, which is defined in the configuration file. Backups and archives are listed in the **Backup** portion of the report; restores and retrieves are listed in the **Restore** portion of the report.
Appendix A. Setup Forms

This appendix provides setup forms to be used to set up CAM and to add client hosts and users to the CAM system.

The CAM administrator and the host administrator of each client host should complete the following forms prior to CAM setup and whenever a new client host, host volume, or user is added to the CAM system:

- CAM User ID Request
- CAM Client Host Setup form
# CAM User ID Request

To be completed by the user requesting CAM access, or by the administrator of the user’s client host

<table>
<thead>
<tr>
<th>Name of user</th>
<th>Telephone/extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________________</td>
<td>____________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Department</th>
<th>E-mail address</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________________</td>
<td>____________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Position</th>
<th>Mail stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________________</td>
<td>____________________</td>
</tr>
</tbody>
</table>

Reason for requesting CAM access:

To be completed by the CAM administrator

<table>
<thead>
<tr>
<th>CAM access granted</th>
<th>CAM access denied</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________________</td>
<td>____________________</td>
<td>_________________</td>
</tr>
</tbody>
</table>

Assign a CAM user ID to this user: ____________________

Assign an initial password to this user: ____________________

Origin (a list of one or more client host and username pairs by which to limit access to CAM): ______________________________________________________________________________________
# CAM Client Host Setup Form

For CAM Administrator use only:

Assign a CAM Host ID to this host: __ __ __ __ __ __ __

---

To be completed by the client host administrator and sent to the CAM administrator for setup.

(In some cases, the CAM administrator will assign a CAM host ID, above, and return this form, requesting that the host administrator complete the client host setup on the CAM system.)

Your name: _______________________________

Telephone/e-mail: __________________________

<table>
<thead>
<tr>
<th>Host type: ____________________</th>
<th>Operating system type for this client host.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Network name: ____________________</th>
<th>TCP/IP name or address of this CAM client host being backed up.</th>
</tr>
</thead>
</table>

Checksum: Yes   No

Specifies whether checksum verification is to be used for the backup operations. (Circle one)

Username/password: _______________________________

An existing username and password, assigned at the client host, that CAM can use to log on to this client host when performing a backup. This username/password pair must be privileged to access all files on this client host and log in multiple times.
<table>
<thead>
<tr>
<th>Root directory: ____________________</th>
<th>CAM root directory on the client host in which backup/restore scripts may be stored. This is not applicable to PC/LAN client hosts or UNIX client hosts using the uabackup utility.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data directory: ____________________</td>
<td>A directory on the client host that CAM uses to temporarily store copies of index and exception files during backup operations. CAM assigns unique names, derived from job IDs or volume IDs, to the temporary files. The temporary files are deleted when CAM successfully completes the operation that created the files.</td>
</tr>
<tr>
<td>Number of concurrent backup sessions:</td>
<td>Maximum number of simultaneous backup sessions for this client host.</td>
</tr>
<tr>
<td>___________</td>
<td></td>
</tr>
</tbody>
</table>
Complete a copy of this form for each host volume to be backed up by CAM.

Assign to this volume a CAM Volume ID, for CAM use only.
Assign a unique string of lowercase alphanumeric characters, 1 to 8 characters in length, that begins with a letter):  __ __ __ __ __ __ __

Volume name: ______________________________
Volume name, assigned to this volume at the client host, to be passed to the backup utility. This name can be the device name, the file system name, and so on. Syntax varies by host type.

Size: _____________MB
The approximate size of the volume, in megabytes.

Compress?    Yes     No
Specifies whether you want to compress data during backups for this volume.

Backup utility: ______________________
Backup utility used to back up this volume: uabackup (most commonly used); uaraw; cpio. For database backups: onbar (Informix); dtobackup (Oracle); dtsbackup (Sybase)

Exclude: _________________________
File names to exclude from the volume backup.

Pre-backup command: _______________
(Optional) The name of a non-interactive executable program to be run on the client host before backing up the volume.

Post-backup command: _______________
(Optional) The name of a non-interactive executable program to be run on the client host after backing up the volume.

Priority: _______
Specify a number from 1 to 99 that indicates the priority level of the job. The highest priority is 99; the lowest priority is 1.

Auto-hold? Yes No
Specifies that at the time the backup is scheduled to start, CAM is to put the job on hold. The default is determined by the CAM master configuration file.
Assign a CAM Schedule ID to this host volume (circle one, below). Each schedule is named according to the day that CAM is to perform a full backup of this volume. For example, FRIFULL1 performs a full backup of the volume every Friday. Following CAM setup, the CAM administrator can customize backup schedules, if necessary.

Weekly schedule IDs:
MONFULL1  TUEFULL1  WEDFULL1  THRFULL1  FRIFULL1  SATFULL1  SUNFULL1

Monthly schedule IDs:
MONFULL5  TUEFULL5  WEDFULL5  THRFULL5  FRIFULL5  SATFULL5  SUNFULL5

Specify a time window each day, during which backups can be performed (or leave blank and use CAM defaults):
Monday: _________ to _________  Friday: _________ to _________
Tuesday: _________ to _________  Saturday: _________ to _________
Wednesday: _________ to _________  Sunday: _________ to _________
Thursday: _________ to _________
Complete the following for all users who will have restore access to files backed up by CAM on this client host

<table>
<thead>
<tr>
<th>CAM User ID assigned to this user by the CAM administrator. (Each user should have previously completed a User ID Request for a CAM user ID.)</th>
<th>Access level: User or Administrator¹</th>
<th>User’s search UID(s)²</th>
<th>Name of user</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

¹ Administrators can access all CAM backups of this client host, so assign administrator access to only one user (two, if necessary).

² Applies only to users on multi-user clients. Fill in the username or user ID, defined by the client host system, that establishes ownership of files. Syntax varies by host type.
Appendix B  Setting Defaults

Your system provides a file that contains definitions for each field in the CAM Preferences dialog box. This file also contains default settings that you can modify by editing the file with a text editor. The location of this file depends on the type of graphical user interface (GUI) on your workstation, as shown in the following table:

<table>
<thead>
<tr>
<th>For this GUI:</th>
<th>The following default definitions file:</th>
<th>. . . is located here:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows, Windows 95</td>
<td>DEFAULTS.CAM</td>
<td>In the Windows directory (typically C:\WINDOWS)</td>
</tr>
<tr>
<td>Presentation Manager</td>
<td>DEFAULTS.CAM</td>
<td>In the OS/2 directory (typically C:\OS2)</td>
</tr>
<tr>
<td>Unix/Motif</td>
<td>defaults.cam</td>
<td>In your HOME directory, determined by your client host login</td>
</tr>
<tr>
<td>VMS/Motif</td>
<td>DEFAULTS.CAM</td>
<td>In your HOME directory, determined by your client host login</td>
</tr>
<tr>
<td>Macintosh</td>
<td>defaults.cam</td>
<td>In the Preferences folder</td>
</tr>
</tbody>
</table>
Sample default files are shown next.

Unix:

WINDOW_POS 3 13 312 250 312 250
CLIENT UNIX
VERSION 1
LINECOUNT 500
PRINT_LINES 60
PRINT_NAME lp
HOST sparc
USERNAME admin
SAT_HOST sparc

Windows:

CLIENT WINDOWS
VERSION 1
FONT_PRINT Courier 12
LINECOUNT 500
PRINT_LINES 60
PRINT_NAME
FONT_DEFAULT "MS Sans Serif" 8 B
FONT_DIALOG "MS Sans Serif" 8
FONT_DIAG "Courier New" 9
FONT_LISTBOX Terminal 9 O
PRINT_AUTO_FF on
WINDOW_POS 67 47 400 277 395 249
HOST sparc
USERNAME admin
SAT_HOST sparc
<BREAK>

Macintosh:

CLIENT MAC
VERSION 1
LINECOUNT 500
PRINT_LINES 60
PRINT_NAME
FONT_DEFAULT Geneva 10 B
FONT_DIALOG Geneva 10
FONT_DIAG Courier 10
FONT_LISTBOX Courier 10
FONT_PRINT Courier 12
WINDOW_POS 0 0 240 222 240 222
HOST sparc
USERNAME admin
SAT_HOST sparc
<BREAK>

The following table provides field descriptions for each field in the default definitions file:
### Table B-1  Field Descriptions: Default Definitions File

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FONT_DEFAULT</td>
<td>Windows, Presentation Manager, and Macintosh only: This field is managed by CAM and is not to be modified by the user. This is a proportional font that currently applies to the buttons on the main CAM dialog box. CAM uses the following definitions: Windows = MS Sans Serif 8 B Presentation Manager = Helv Outline 12 B Macintosh = Geneva 10 B This field does not apply to Motif.</td>
</tr>
<tr>
<td>FONT_DIAG</td>
<td>Windows, Presentation Manager, and Macintosh only: This field is managed by CAM and is not to be modified by the user. This is a fixed-space font used for the diagnostic display dialog box and the Job Log list box. CAM uses the following definitions: Windows = Courier New 9 Presentation Manager = System Monospaced Outline 14 Macintosh = Courier 10 This field does not apply to Motif.</td>
</tr>
<tr>
<td>FONT_DIALOG</td>
<td>Windows, Presentation Manager, and Macintosh only: This field is managed by CAM and is not to be modified by the user. This is a proportional font used for all dialog controls except list boxes. CAM uses the following definitions: Windows = MS Sans Serif 8 Presentation Manager = Helv Outline 8 Macintosh = Geneva 10 This field does not apply to Motif.</td>
</tr>
<tr>
<td>FONT_LISTBOX</td>
<td>Windows, Presentation Manager, and Macintosh only: This field is managed by CAM and is not to be modified by the user. This is a fixed-spaced font used for all list boxes. CAM uses the following definitions: Windows = Terminal 9 O Presentation Manager = System Monospaced Outline 14 Macintosh = Courier 10 This field does not apply to Motif.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| FONT_PRINT       | Windows, Presentation Manager, and Macintosh only: This field is managed by CAM and is not to be modified by the user. This is a fixed-spaced font used for printing. CAM uses the following definitions:  
Windows = printer default  
Presentation Manager = System Monospaced Outline 14  
Macintosh = Courier 12  
This field does not apply to Motif.                                                                 |
| HOST             | Central Server field on the CAM Preferences dialog box. No default.                                                                           |
| LINECOUNT        | Maximum Line Count field on the CAM Preferences dialog box. Default = 500.                                                                    |
| PARSELINE        | Other parameters field on the CAM Preferences dialog box. No default.                                                                     |
| PRINT_AUTO_FF    | Appends a form feed to the end of a report. Specify on or off. Default = on.                                                                |
| PRINT_CMD        | UNIX and VMS only: The command that queues the report to the named printer. Two parameters can be substituted in this command (using %s) - the name of the printer (PRINT_NAME) and the printer title (PRINT_TITLE). Defaults are as follows:  
UNIX = exec lpr -P%s -J"%s"  
VMS=PRINT/DELETE/QUEUE="%s" %s  
This field does not apply to Windows, Presentation Manager, or Macintosh. |
<p>| PRINT_INIT       | An initialization string of characters sent to the printer to perform initial printer setup. You can add control characters to this string by including an exclamation mark (!) followed by a decimal, octal, or hex numeric value. For example, an ESCAPE character is represented as !27 or !033 or !0x1b. No default. |
| PRINT_LINES      | Lines per page field on the CAM Preferences dialog box. Default = 60.                                                                         |</p>
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| PRINT_NAME   | Default Printer field on the CAM Preferences dialog box.  
Windows = printer default  
Presentation Manager = lpt1  
UNIX = lp  
VMS = SYS$PRINT  
This field does not apply to the Macintosh. |
| PRINT_TERM   | A termination string of characters sent to the printer at the end of a report. You can add control characters to this string by including an exclamation mark (!) followed by a decimal, octal, or hex numeric value. No default. |
| PRINT_TITLE  | UNIX and VMS only: The burst page job name. Default = CAM Print.  
This field does not apply to Windows, Presentation Manager, or Macintosh. |
| SAT_HOST     | Default Client Host ID field on the CAM Preferences dialog box. No default. |
| USERNAME     | CAM User ID field on the CAM Preferences dialog box. No default. |
| WINDOW_POS   | Location and size of main dialog box. |
Glossary

A

archive - the user-initiated storage of a set of directories and files that is saved for a prescribed or indefinite period of time (or until specifically deleted by a CAM user).

archive report - provides information about archives that have been performed within a specified date or time range.

Automatic Backup Scheduler (ABS) - a CAM component that periodically schedules CAM backups by searching the CAM database, via the SDB, and submitting all jobs ready for execution.

B

backup - the result of automatic, routine data storage, intended to be used as insurance for potential disaster recovery.

backup report - provides information about backups that have been performed within a specified date or time range.

backup/restore engine - performs all job operations (backup, restore, archive, retrieve) by connecting through the client host SI to the UA Responder.

C

CAM - a backup software product that enables a central server in a multi-vendor network to function as a central backup and archive manager.

CAM administrator - a central server administrator who is responsible for system backups.

CAM Server - a CAM component that issues requests to the CAM RM and CAM SDB on behalf of the CAM GUI client host. Each connected GUI client host has its own CAM server.
**CAM user** - a user who has been assigned a CAM user ID and granted access to one or more client hosts. A CAM user can be assigned responsibility as a client host administrator and/or a project administrator of one or more client hosts or projects.

**central server** - one of the main components of a CAM system, which consists of a central server, the network, and client hosts. When part of a CAM system, the central server automatically backs up data from client systems to storage devices located at the server.

**client host** - one of the main components of a CAM system, which consists of a central server, the network, and client hosts.

**client host administrator** - responsible for the backup of one or more specific client hosts within a CAM system.

**Client Service Initiator (SI)** - validates the client user name and password provided by the central server, by logging into the client system. Starts the UA Responder for the specified user, to which the backup/restore engine reconnects.

**Command Line Interface (CLI)** - provides a line mode interface from any CAM client host to the CAM central server to perform CAM backups and basic CAM operator functions.

**custom backup schedule** - a backup schedule defined by the CAM administrator. Compare with predefined backup schedule.

**D**

**daily administrator’s report** - provides the status of all CAM jobs run during the 24 hours preceding the start of the current day (which is defined in the configuration file).

**Database Maintenance utility (DBM)** - a CAM component that periodically (once a day) expires backups and archives as necessary, and cleans up any deleted volumes, client hosts, users, and so on, from the CAM database.

**differential (diff) backup** - backs up only volume data that has been modified since the last full backup.

**E**

**expiration report** - provides a list of dates on which the backup container and index files on the central server are scheduled to expire.
**F**

**Forecast report** - provides a list of all backups scheduled to run on a specified date.

**Full backup** - backs up all data (except for excluded files and directories) on a volume.

**I**

**Incremental (incr) backup** - backs up only volume data that has been modified since the last full, incremental, or differential backup.

**G**

**Group** - A group of individual volumes on a particular client host that share the same backup parameters.

**J**

**Job** - the process and outcome of performing a CAM backup, archive, restore, or retrieve.

**Job log** - a chronological log of all events that comprise a backup, restore, archive, or retrieve job.

**P**

**Predefined backup schedule** - a backup schedule provided with CAM that provides efficient backup scheduling. CAM provides 16 predefined backup schedules. *Compare with custom backup schedule.*

**Project** - a unit of storage by which one or more archives are organized and maintained.

**Project administrator** - a CAM user to whom the CAM administration has granted responsibility for maintaining the archives within a specific project.

**R**

**Report Generator (RPG)** - a CAM component that periodically creates and mails reports to the e-mail address of each CAM client host administrator.
resilient network transfer - provides automatic recovery from network failures from the point of interruption.

Resource Manager (RM) - a CAM component that starts and maintains all CAM job queues and periodically starts the RPG, DBM, ABS, and backup/restore engine.

restore - the recovery of a backup. See also retrieve.

retrieve - the recovery of an archive. See also restore.

S

Secure Database Server (SDB) - a CAM component that verifies CAM GUI client logins and assists with CAM database setup. Also provides schedule information to the CAM ABS and controls and logs access to all CAM database objects.

special (spec) backup - a full backup that does not affect any other backups performed.

storage class - an entity that determines the output media type and retention period of a specific backup.

T

trace flag - a setting that controls the format of CAM job logs. Trace flags are intended for diagnostic purposes, and should not be specified unless instructed to do so by support personnel.

transaction log (tran) backup - backs up databases. See CAM documentation for applicable database types.

U

uabackup utility - a backup utility commonly used by CAM.

UA Responder - performs the backup on the client and delivers the data, as it is generated, to the backup engine on the central server. Receives restore data from the central server’s restore engine, and writes this data to the client’s disk.

unscheduled backup - a backup submitted on demand by a CAM administrator or client host administrator.
**volume** - an entity of data to be backed up; a portion of a client host.
Index

A
ABORT command 95
aborting a job (GUI) 103
access to CAM by users 179
active
  client host 148
  job status 58
  volume 172
adding client host volumes 150, 152, 170
archive
  copying existing definition 111
  deleting existing 127
  description 4
  granting users access 120
  managing 124
  manually specifying files 116
  modifying 125
  moving existing 127
  overview 106
Archive dialog box 109
Archive Selection dialog box 112, 125
Archive-Modify dialog box 125
automatic volume configuration, about 3

B
backup
  checking status of 55
  deleting 185
  description 4
  managing 180
  modifying existing 183
  retention, changing 183
Backup Management Selection List dialog box 183
Backup-Modify dialog box 183
BLOCKsize connect parameter 16

C
CAM
  Daily Administrator’s Reports 186
  description 2
  logging in 6
  logging out 15
  main dialog box 7, 8
  menus 8
CAM Client dialog box 7, 8
CAM Help dialog box 13
CAM Preferences dialog box 10
canceling a job 103
central server
  connecting to 6, 15
  disconnecting from 15
Change Password dialog box 9
classes, viewing definition 17
CLI (command line interface) 84
client host volumes
  adding to system 150, 152, 170
  default 150, 153
  deleting definitions 167, 179
  expiring 167, 179
  managing 165
  modifying definitions 165
  NetWare-specific details 131
client hosts
  modifying definitions 146
  setting up 146
  viewing definition 17
command line interface (CLI) 84
completed job status 58
Connect to Central Server dialog box 6, 15
central server 6, 15
copying an existing archive definition 111

Index-1
Daily Administrator’s Reports 186
default volume 150, 153
defaults, setting for connection 10
definitions, viewing 17
delete (in Status field)
  client host 148
  volume 172
deleted files, about 3
deleting
  archives 127
  client host volume definitions 167, 179
  existing archives 127
  existing backups 185
DETAIL command 92
dialog boxes
  Archive 109
  Archive Selection 42, 112, 125
  Archive-Modify 125
  Backup Management Selection List 183
  CAM Client 7, 8
  CAM Help 13
  CAM main 7, 8
  CAM Preferences 10
  Change Password 9
  Connect to Central Server 6, 15
  Edit Archive 116
  Group 178
  Initiate Retrieve 49
  Job Detail 66
  Job Detail (archive/retrieve jobs) 74
  Job Type Selection 57
  Modify Job 101
  New Project User 122
  New Volume 153, 170
  Project 121
  Search Path View 27
  Search Path View (archive) 46
  Search Selection 21
  Search Tree View 24
  Search Tree View (archive) 44
disconnecting from the central CAM server 15

Edit Archive dialog box 116
e-mail addresses 186
encrypting passwords 97
exceptions, file 138
Exit button 8

expire
  client host 148
  volume 172
external
  client host 148
  volume 172
failure status 73, 80
file exceptions 138
file menu 8
Full Restore button 37
functions menu 8

groups
  about 3
  attaching volumes to 175
  deleting definitions 179
  detaching volumes from 176
  modifying definitions 177
help menu 8
help, online 13
holding a job 101
host setup, viewing definition 17
hosts. See client hosts

inactive
  client host 148
  volume 172
Initiate Restore dialog box 26
Initiate Retrieve dialog box 49
INTerval connect parameter 16

Index-2 CAM NetWare Client and User Guide — 4th Edition
J

job
data, viewing 66, 74, 81
log, interpreting 81
menu 8
status 58, 81
Job Detail dialog box, archive/retrieve jobs 74
Job Detail dialog box, backup/restore jobs 66
Job Type Selection dialog box 57
jobs
aborting 103
selecting 56
viewing 55

L

LIST command 90
logging into CAM 6
logging out of CAM 15

M

main dialog box 8
managing
archives 124
backups 180
client host volumes 165
manually specifying files to archive 116
MODIFY command 93
Modify Job dialog box 101
modifying
archives 125
client host volume definition 165
client hosts 146
existing backups 183
moving existing archives 127

N

NetWare volumes 131
New Archive dialog box 108
New Volume dialog box 153, 170

O

online help 13
options menu 8
other parameters field 16
overview of NetWare client host 130

P

password
changing 9
encrypting 97
preferences, setting 10
printer setup 12
Project dialog box 121
projects
administration 105
viewing definition 17
putting a job on hold 101

R

releasing a held job 103
REMOTE command 86
reports, Daily Administrator’s 186
Restore button 8
restore description 5
restoring a NetWare client host 37
restoring a NetWare volume 35
restoring files
checking status 55
overview 20
selecting files from directory tree 24
selecting files from pathname list 27
specifying a volume to restore 21
Retrieve button 8
retrieve description 5
retrieving files
overview 40
retrieving from directory tree 44
selecting files from pathname list 46
specifying an archive 41
S
schedules, viewing definitions 17
Search Path View dialog box 27
Search Selection dialog box 21
Search Tree View dialog box 24
Search Tree View dialog box (archive) 44
Search-Path View dialog box (archive) 46
security 130
segments (Maximum Line Count field) 12
server. See central server
SERvice connect parameter 16
-SERvice field, CONNECT command 85
setting up client hosts 146
setup menu 8
setup procedures 139
status
  of client host 148
  of volume 172
SUBMIT command 87
success status 73, 80
suspending a job 101

T
TIMEout connect parameter 16
trace flags 160, 174
trusteeonly utility 33

U
uabackup utility 32
UA, starting 84
USER command 84
USER-Access, starting 84
users
  defining 143
  granting access to archives 120
  granting access to backups 179
  granting access to CAM 143
utility option
  trusteeonly 33
  uabackup 32

V
viewing definitions 17
Volume dialog box 165
volumes. See client host volumes

W
warnings status 73, 80