EMC® VNX® Series

Release 8.1

Using EMC Utilities for the CIFS Environment

P/N 300-015-105 Rev 01

Contents

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⚠ CAUTION Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

⚠ WARNING Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ DANGER Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

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```
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Introduction

The EMC VNX software includes utilities that perform a number of functions. For instance, they can migrate groups, shares, files, and directories from a Microsoft Windows Server to VNX keeping the original security intact. Other utilities restrict access to files and shares, and help manage user quotas. The utilities are executable files activated from a Microsoft Windows Server console window with a user account with specific privileges.

This document is part of the VNX information set and is intended for those using the EMC CIFS utilities to migrate files and directories.

Topics included are:

System requirements

Table 1 on page 8 describes the EMC® VNX® series software, hardware, network, and storage configurations.

Table 1. System requirements for EMC CIFS utilities

Software	VNX version 8.1
Hardware	No specific hardware requirements
Network	The CIFS utilities are intended for use on CIFS clients only
Storage	No specific storage requirements

Restrictions

Restrictions are listed in each utility section.

Related information

Specific information related to the features and functionality described in this document is included in:

◆ *EMC VNX Command Line Interface Reference for File*

◆ VNX for File man pages

◆ *Parameters Guide for VNX for File*

◆ *Configuring and Managing CIFS on VNX*

◆ *Using Windows Administrative Tools on VNX*

◆ *Using International Character Sets on VNX for File*

EMC VNX documentation on EMC Online Support

The complete set of EMC VNX series customer publications is available on EMC Online Support. To search for technical documentation, go to http://Support.EMC.com. After logging in to the website, click **Support by Product** and type **VNX series** in the Find a Product text box. Then search for the specific feature required.

VNX wizards

Unisphere software provides wizards for performing setup and configuration tasks. The Unisphere online help provides more details on the wizards.

Concepts

The EMC CIFS utilities include six tools that assist with migrating and managing CIFS environments from servers by running Microsoft Windows to VNX. This section provides a brief explanation of each utility and planning considerations.

Topics included are:

LGDUP

LGDUP replicates the local groups and local users database from a server to a single Data Mover. The local groups database of the target server can be updated. Prefix the local groups database to maintain the original user rights when multiple local groups databases reside on a single Data Mover.

EMCOPY

EMCOPY duplicates a directory tree from one server to another, keeping the security intact, including access control lists (ACLs) with local groups' access control entries (ACEs). When copying the local group security entries, EMCOPY first ensures that the local group database has been replicated on the target server. If not, EMCOPY suggests using LGDUP first. Choose other options to specify exactly which security properties to replicate during the copy process. Table 6 on page 26 provides more information.

SHAREDUP

SHAREDUP duplicates the shares from one Windows Server to another with Windows security intact including ACLs with local groups' ACEs.

EMCACL

EMCACL modifies all the security properties of existing files and directories on VNX. The user can specify new ACEs (including local groups) and change the owner of the files or directories.

EMCABE

EMCABE allows a user to enable or disable the access-based enumeration (ABE) feature of a single share or all the shares of a server. The tool also allows a user to view the current state of a specified share.

FSTOOLBOX

FSTOOLBOX helps to manage quota entries for a local or a mapped network drive. It allows a user to list, move, or delete files and directories owned by any user on a specified drive.

Planning considerations

This section describes planning considerations before using one of the utilities.

Note: EMC Professional Services can provide valuable assistance with planning CIFS migrations. Contact EMC Customer Support Representative for more information.

Backups: Before using any utility, back up the contents (metadata and data) of the Windows Servers to be moved to VNX.

Storage: Ensure there is enough storage capacity to hold the contents of the Windows Servers.

Map the Windows Servers contents to the Data Movers: Determine through which Data Movers the contents of the servers are to be accessed before moving files from the Windows Server. For example, move the local groups database from Windows Server A2 to which Data Mover?

Group membership and rights: Before using EMC CIFS utilities, the user accounts used for running the utilities must have certain group memberships and privileges. Unless otherwise noted, the privileges apply only to the computer running the utilities.

summarizes the group memberships, access rights, and permissions required for each utility.

Table 2. EMC CIFS utilities group membership and permissions

Utility	Group	Rights/permissions required
LGDUP	Member of either the Administrators or Account Operators group on the source and target servers.	Must have generate security audits and manage auditing and security log privileges.
EMCOPY	Member of either the Administrators or Account Operators group on the source and target computers.	◆ Backup files and directories required on the source. ◆ Restore files and directories required on the target.
SHAREDUP	Member of the Administrators group on the source and target servers.	No special privileges.
EMCACL	Member of the Users group.	Backup and restore privileges on the server where the pathname resides.
EMCABE	Member of either the Administrators or Account Operators group.	No special privileges.
FSTOOLBOX	Member of the Administrators group.	Backup, restore, and security privileges on the target side.

Configuring

The tasks to configure EMC CIFS utilities are:

LGDUP

LGDUP copies the local groups or local users database from a Windows Server to a Data Mover. This creates a local groups database on a Data Mover (target server) that otherwise cannot access domain-based local groups. It also replicates user and group privileges to the target server:

◆ By default, LGDUP merges the source and target local groups databases.

◆ The **-r** option replaces the target local groups database with the source local groups database.

⚠ CAUTION   In LGDUP releases prior to LGDUP version 1.06, the -r option erased the local groups database on the target server.

◆ By using the -p option, local groups databases can be copied from multiple source servers (incrementally, not simultaneously) to one Data Mover, while leaving the privileges from each source server intact. It prefixes the local group name by using the format <source_server_name>_<local_group_name>.

If the **-p** option is not set, the local groups databases merge, and the privileges from the source server change.

Requirements and limitations

The following requirements and limitations apply to the LGDUP utility:

◆ The user account must be a member of the Administrators or Account Operators local group on both the source and target servers.

◆ Use an account with generate security audits and manage auditing and security log privileges to successfully duplicate all the privileges.

◆ LGDUP must be run for each CIFS server (a Data Mover can house several CIFS servers).

Dependencies with LGDUP and other CIFS utilities

In some circumstances, LGDUP must be run before EMCOPY or SHAREDUP. Therefore, it may be necessary to use LGDUP to migrate local groups before using the other utilities.

Table 3. EMC CIFS utilities LGDUP dependencies

Utility	LGDUP conditions	Reason
EMCOPY	Run LGDUP.exe before EMCOPY.exe with the /lg or /lu option enabled.	EMCOPY with the /lg option does not copy the local group. It copies the security descriptors intact. The security descriptors may include rights assigned to the local groups and information about the local group. If using the /lg option with EMCOPY, the local group must reside on the target server to guarantee the security information copies intact.
SHAREDUP	Run LGDUP.exe before SHAREDUP.exe with the /SD option enabled.	SHAREDUP does not copy the local groups database. If using the /SD option, the local groups database must reside on the target server because the security descriptor on shares can include rights for the local groups.

LGDUP command syntax

Table 4 on page 17 lists the required arguments and options for LGDUP.

Table 4. EMC CIFS utilities LGDUP command syntax

Command/Option	Description
`C:\>`**`LGDUP.exe`** `[`**`-r`**`]` `[`**`-p`**`]` `[`**`-s`**`]` `[`**`-v`**`]` `[`**`-u`**`]` `[`**`-l`**`[`**`+`**`]` `<`*`logFile`*`>]` `[`**`-nopriv`**`]` `\\`*`<source>`*`\\`*`<target>`*	Copies the local groups database from a Windows Server to VNX, where: *`<source>`* is the NetBIOS name of the source Windows Server. *`<target>`* is the NetBIOS name of the target server. Note: For NetBIOS server names, place two slashes (\\) before the source and target names.
`-r`	Replaces the target local groups database with the source local groups database. Without this option, LGDUP merges the contents of each local groups database.

Table 4. EMC CIFS utilities LGDUP command syntax *(continued)*

Command/Option	Description
-p	Adds a prefix to the local group name on the target server in the following format: *<source_server_name>_<local_group_name>* Note: Use this option when maintaining the privledges from the source server when migrating multiple source servers to a single target server.
-s	Does not set or add any number of local groups on the first resolve error. LGDUP stops adding members to a local group on the first resolve error.
-v	Sets verbose mode. This displays all the information in detail for each executed operation from the utility, including: ◆ Local group members ◆ Privledge contents, including members' privledges Note: If this option is not set, only concise informative messages and errors are displayed.
-l *<logFile>*	Redirects standard output to a new log file.
-l + *<logFile>*	Appends standard output to an existing log file.
-nopriv	Does not duplicate local group settings.
-u	Allows the migration of a local user.

LGDUP exit status codes

LGDUP returns an encoding status to indicate whether an error occured in the command execution. A nonzero status code indicates an error occured during the command execution. The status code is stored in the errorlevel variable of the batch caller file. Table 5 on page 18 lists the exit status codes.

Table 5. EMC CIFS utilities LGDUP exit status codes

Encoding status	Meaning
0	No error.
1	Usage error.

LGDUP example

This example shows how to copy a local group database from one CIFS server to another, replacing the existing local group database and setting verbose mode.

Action

To copy a local group database from one CIFS server to a Data Mover, replace the local group database, prefix it, and set verbose mode, use this command syntax:
 	
`C:\>LGDUP.exe-r -p -v \\<source> \\<target>`
 	
Example:
 	
♦ The source is a Windows Server: NTServer.
 	
♦ The target is Data Mover 2.
 	
`C:\>LGDUP.exe -r -p -v \\NT1 \\dm2`

Output

```
LGDUP 1.0.7

        Copyright (C) 1999, All Rights Reserved,
        by EMC Corporation, Hopkinton MA.

Server source:NT1          5.0
Server target:dm2          4.1 EMC-SNAS:T4.2.7.0

 **** Duplicate the local groups ****

Get \\dm2 current local groups...
Administrators:
Members can fully administer the machine

Users:
Ordinary users

Gusts:
Users granted guest access to the computer

Power users:
Members can share directories

Account operators:
Account operators of the machine

Backup Operators:
Members can bypass file security to backup files

Replicator:
Support file replication in a domain

NT1_WINS Users:
Members who have view-only access to the WINS Server

Get source local groups from \\NT1...
Administrators:
Administrators have complete and unrestricted
access to the computer/domain

Backup Operators:
Backup Operators can override security restrictions for the sole purpose
of backing up or restoring files

Guests:

Guests have the same access as members of the Users group by default,
except for the Guest account which is further restricted

Power Users:
Power Users possess most administrative powers with some restrictions.
Thus, Power Users can run legacy applications in addition to certified
applications

Replicator:
Supports file replication in a domain
```

```
Output

Users:
Users are prevented from making accidental or intentional system-wide
changes. Thus, Users can run certified applications, but not most legacy
applications

LG1:
test1

LG2:
test2

WINS Users:
Members who have view-only access to the WINS Server

Check wellknown local groups...
OK
---
Duplicate Administrators...
 WARNING: Member(s) of dm2\Administrators have been removed.

Get content of Administrators from ...

 The Administrators group includes 2 member(s).
S-1-5-15-237abd17-ae2ae01d-be8ef665-1f4 User NT1\Administrator
S-1-5-15-23a68b82-2c5678eb-3f32a78a-200 Group ABCD3\Domain Admins
 WARNING: Account NT1\Administrator cannot be resolved on server \\dm2
        -> NT1\Administrator member is REMOVED.
 1 members removed from local group Administrators of \\dm2.
 1 members set in local group Administrators of \\dm2.
OK
---

Duplicate Backup Operators...
 WARNING: Member(s) of dm2\Backup Operators have been removed.

Get content of Backup Operators from ...

 The Backup Operators group includes 0 member(s).
OK

---
Duplicate Guests...
 WARNING: Member(s) of dm2\Guests have been removed.

Get contents of Guests from ....

 The Guests group includes 3 member(s).
S-1-5-15-234abd17-ab2ab01d-be8ef567-1f5 User NT1\Guest
S-1-5-15-234abd17-ab2ab01d-be8ef567-3e9 User NT1\IWAM_NT1
S-1-5-15-234abd17-ab2ab01d-be8ef567-3ea User NT1\IUSR_NT1
```

Output

```
WARNING: Account NT1\Guest cannot be resolved on server \\dm2
         -> NT1\Guest member is REMOVED.
WARNING: Account NT1\IWAM_NT1 cannot be resolved on server \\dm2
         -> NT1\IWAM_NT1 member is REMOVED.
 WARNING: Account NT1\IUSR_NT1 cannot be resolved on server \\dm2
         -> NT1\IUSR_NT1 member is REMOVED.
3 members removed from local group Guests of \\dm2.

 No member set in local group Guests of \\dm2.
OK

---
Duplicate Power Users...
 WARNING: Member(s) of dm2\Power Users have been removed.

Get content of Power Users from ...

 The Power Users group includes 0 member(s).
OK

---
Duplicate Replicator...
 WARNING: Member(s) of dm2\Replicator have been removed.

Get content of Replicator from ...

 The Replicator group includes 0 member(s).
OK

---
Duplicate Users...
WARNING: Member(s) of dm2\Users have been removed.

Get content of Users from ...

 The Users group includes 1 member(s).
S-1-5-15-23a68b82-2c5678eb-3f32a78a-201 Group ABCD3\Domain Users

 1 members set in local group Users of \\dm2.
OK

---
Duplicate LG1...

LG1 -> NT1_LG1

Create NT1_LG1...
OK

Get content of LG1 from ...

 The LG1 group includes 1 member(s).
S-1-5-15-23a68b82-2c5678eb-3f32a78a-201 Group ABCD3\Domain Users

 1 members set in local group NT1_LG1 of \\dm2.
OK
```

Output

```
*---
Duplicate LG2...

LG2 -> NT1_LG2

Create NT1_LG2...
OK

Get content of LG2 from ...

 The LG2 group includes 1 member(s).
S-1-5-15-28a68b82-2c7925eb-3f32a78a-200 Group ABCD3\Domain Admins

1 members set in local group NT1_LG2 of \\dm2.
OK

---
Duplicate WINS Users...

WINS Users -> NT1_WINS Users
 WARNING: Member(s) of dm2\NT1_WINS Users have been removed.

Get content of WINS Users from ...

 The WINS User group includes 0 member(s).
OK

 **** Duplicate the privileges ****

Open policy to set privileges...
OK

---
Get accounts for "SeTakeOwnerShipPrivilege" from \\NT1...
OK
Grant "SeTakeOwnerShipPrivilege" on \\dm2 to...
S-1-5-20-220 \\BUILTIN\Administrators...OK

---
Get accounts for "SeBackupPrivilege" from \\NT1...
OK
Grant "SeBackupPrivilege" on \\dm2 to...
S-1-5-20-227 \\BUILTIN\Backup Operators...OK
S-1-5-20-220 \\BUILTIN\Administrators...OK

---
Get accounts for "SeRestorePrivilege" from \\NT1...
OK
Grant "SeRestorePrivilege" on \\dm2 to...
S-1-5-20-227 \\BUILTIN\Backup Operators...OK
S-1-5-20-220 \\BUILTIN\Administrators...OK

---
Get accounts for "SeChangeNotifyPrivilege" from \\NT1...
OK
```

```
Output
```

```
Grant "SeChangeNotifyPrivilege" on \\dm2dm2 to...
S-1-5-20-227 \\BUILTIN\Backup Operators...OK
S-1-5-20-223 \\BUILTIN\Power Users...OK
S-1-5-20-221 \\BUILTIN\Users...OK
S-1-5-20-220 \\BUILTIN\Administrators...OK
S-1-1-0 \\\Everyone...OK

---
Get accounts for "SeAuditPrivilege" from \\NT1...
OK
Grant "SeAuditPrivilege" on \\dm2 to...
S-1-5-15-28a68b82-2c1234eb-3f32a78a-455 \\ABCD3\admin...OK
S-1-5-15-237abd17-ae2ae01d-be8ef665-1f4 \\NT1\Administrator...OK

---
Get accounts for "SeIncreaseQuotaPrivilege" from \\NT1..
OK
Grant "SeIncreaseQuotaPrivilege" on \\dm2 to...
S-1-5-20-220 \\BUILTIN\Administrators...OK

---
Get accounts for "SeSecurityPrivilege" from \\NT1..
OK
Grant "SeSecurityPrivilege" on \\dm2 to...
S-1-5-20-220 \\BUILTIN\Administrators...OK

*************************************************************************

LGDUP source:NT1              target:dm2

  - 7 local group(s) have been fully duplicated.
  - 2 local group(s) have been partially duplicated.
  - 7 privilege(s) have been successfully duplicated.

*************************************************************************
```

EMCOPY

EMCOPY lets you copy a file or directory (and included subdirectories) from and to an NTFS partition, keeping security the same on the copy as on the original.

EMCOPY allows you to back up the file and directory security—ACLs, owner information, and audit information—from a source directory to a destination directory without copying the file data.

EMCOPY, however, does not copy the local groups database from one computer to another. You must use LGDUP first to copy the local groups database. Therefore, when the /lg or /lu option is specified, EMCOPY initially verifies that all of the source server's local groups exist on the target server. Even if one group is missing, EMCOPY stops and notifies you to use LGDUP first, as described in .

Requirements and limitations

The requirements and limitations for EMCOPY are as follows:

◆ User account should have the appropriate privileges, which bypass access checking, to back up and restore files and directories. These are required to restore a directory that you do not own.

◆ User account must be a member of the Backup Operators group.

◆ User account must be a member of the Administrators or Account Operators group on both the source and destination computers.

◆ User account must have the Change Audit privilege to copy ACLs.

◆ Source and destination fields for the EMCOPY command must be directories.

◆ Privileges can be set by using Active Directory Users and Computers (ADUC) from a domain controller in Windows environments, and from the Data Mover Security Management Console for Windows 2000 environments. These privileges must be set on both the source and the target server. If they are not, access can be denied, especially on files that include denied ACEs in their ACL.

◆ Decrypt any encrypted directories or files before using EMCOPY. Otherwise the computer running Windows 2000 used as the EMCOPY console should be a Microsoft recovery agent or file owner to copy the encrypted files and directories to VNX. Windows 2000 help provides more information on recovery agents.

Note: VNX does not support Encryption (EFS).

EMCOPY command syntax

Table 6 on page 26 lists the required variables and the options for EMCOPY.

Table 6. EMC CIFS utilities EMCOPY command syntax

Command/Option	Description
`C:\>`**EMCOPY.exe** *\<source>* *\<destination>* [**file** [**\<file>**] ...]	Copies a file or directory (and included subdirectories) from and to an NTFS partition, keeping security the same on the copy as on the original, where: *\<source>* is the path to the source directory. *\<destination>* is the path to the destination directory. Note: The source and directory variables must be directories. *\<file>* is a name of the file being copied. To copy a list of files, you can specify wildcard characters. For example, to copy only matched files in all scanned directories, type the following as the file list: `*.cpp *.h` Note: EMCOPY copies all files when the file argument is omitted.
/nosec	Disables the copy of the security descriptor properties of the file or directory. By default, DACLs are replicated on the created file or directory. Note: This option takes priority over the default on the **/o, /a, /lg,** and **/i** options.
/o	Copies the file's (or directory's) owner. Without this option, the user account used for the copy becomes the file/directory owner on the target server.
/a	Copies auditing information. Note: The user account must also have granted the manage audits and security log privilege on both the source and destination clients before this option is enabled.
/secfix	Forces an update of Windows security properties even if the destination file or directory already exists. If this option is omitted, the security properties are replicated only on newly created files and directories to optimize the performance of the copy.

Command/Option (continued)	Description
/lg	Copies local group security entries: ◆ Without this option, local group entries are ignored. ◆ If the set of local groups on both the source and destination servers is not identical, you must run the LGDUP utility to copy the local groups database before running EMCOPY with the **/lg** option.
/lu	Enables the copy of local user security entries when asked to copy the security information. Without this option, local user entries are ignored.
/i	Ignores security entries with local users: ◆ Use this option to ignore or suppress the ACEs for local users, as this type of user cannot be used on the destination server. Local users are available only for the server where the source files are located, that is, the source server. ◆ Security errors can occur when this option is disabled because the local user is unknown to the destination server. ◆ To preserve the security of the file content, the **/SD** option can be used to erase or suppress the file content when a security error occurs.
/create	Creates a file of zero length, rather than copying the data.
/s	Copies the subdirectories.
/lev:<n>	Sets the depth level (specified by **<n>**) of the subdirectories. For example: This command copies **<n>** (where **<n>** = 1, 2, or 3): 1 = Only files in the specified source directory. 2 = The first level of subdirectories, with their files. 3 = The first and second directory levels and their files (and so on, for increasing the values of **<n>**).
/d	Copies only the files with the LAST MODIFICATION time later than the existing target copy. ───────── Note: Use this option to copy only those files created on the source directory to update a destination directory. ─────────

Command/Option (continued)	Description
/sd	Preserves the copied file's security in the copy. If any error occurs during the security setting, the target file is deleted or erased: ◆ When this option is enabled, the utility copies the data of only the security properties duplicated without any error. ◆ When this option is omitted, users can access a file on the target that they do not normally have access to on the source.
/l	Lists only the files that should be copied without actually duplicating any files. If the **/secfix** option is also specified, the **/l** option compares (and does not change) the Windows security of the source and the destination files or directories. In this case, the **/o** and **/a** options specify the owner and audit properties comparison. When differences occur, the properties of both the source and destination files or directories are printed.
/c	Allows the process to continue after the retries. ——— Note: The copy stops this option is not specified. ———

Comand/Option (continued)	Description
/z	Restarts the copy process of the current file, in the event of a failure, from the point of the failure, rather than from the beginning of the file. ——— Note: This option is especially useful when you are copying large files or are experiencing network problems. ———
/r:n	Specifies the maximum number of retries. The default setting is 100 retries.
/w:n	Specifies the time in seconds to wait between two consecutive retries. The default setting is 30 seconds.
/log:<*filename*>	Creates and names a new file and redirects console messages to it.
/log+:<*filename*>	Appends new console messages to an existing file.

Command/Option (continued)	Description
/purge	Removes file**/purge** from the destination tree that no longer exist in the source tree. Note: This option does not bypass Windows rights. ACEs do not allow the user of EMCOPY to delete some files or directories.
/q	Disables file printing as standard output.
/f	Requests a fullpath print that prints the source and destination paths. Only the source path prints by default.
/nocase	Creates all file and directory names with lowercase characters.
/BackupSD	Allows backup of security properties without copying the file content. Extra files are removed from the destination, equivalent to **/purge** forced. This option takes priority over these options: **/nosec/o/lg/i** **/create/purge/l/lu** **/nocase/d/a** Note: There is no local group translation and local SID suppression.
/Restore SD	Restores the security properties without copying the file content. This option takes priority over these options: **/nosec/o/lg/i** **/create/purge/l/lu** **/nocase/d/a** Note: There is no local group translation and local SID suppression.
/preserveSIDh	Forces EMCOPY to preserve historical SID information during the Security Descriptor translation. By default, every obsolete SID is replaced by its valid substitute SID.

EMCOPY exit status codes

EMCOPY exit status codes

EMCOPY returns an encoding status to indicate whether an error occurred in the command execution. A nonzero status code indicates an error occurred during command execution. The status code is stored in the errorlevel variable of the batch caller file. Table 7 on page 30 lists the exit status codes.

Table 7. EMC CIFS utilities EMCOPY exit status codes

Encoding status	Meaning
0	No error.
1	Mismatch error — A directory was not created because a file with the same name exists.
2	Security error — One or more security descriptors were not applied.
4	Copy of data error — One or more files were not duplicated.
8	Critical error — No files and directories were copied.

EMCOPY example 1

This example shows how to copy one directory with all its contents and its owner to a different directory on a Data Mover.

Action
To copy the source directory to the destination directory, copy the source directory's owner and all the source directory's subdirectories, use this command syntax: `C:\>EMCOPY.exe <source> <destination>`**`/o /s`** Example: `C:\>EMCOPY.exe c:\source\ g:\destination /o /s`

Output	Note
```EMCOPY 02.04b Copyright (C) 2001, All Rights Reserved, by EMC Corporation, Hopkinton, MA Date: 10/24/2001 12:10:26 Source path: c:\source Desti. path: g:\destination Files: *.* List/Modify/Create options: Security options: /o Retry options: /r:1000000 /w:30 Server SRC: NTSERVER1 4.0 Server DEST:DM12_ANA0 4.1 Getting local group(s) from \\NTSERVER1 Processing the copy from c:\source to g:\destination... c:\source\folder1\ -> g:\destination\folder1 c:\source\folder1\ text1.txt -> g:\destination\folder1\tetx1.txt c:\source\folder1\ text2.txt -> g:\destination\folder1\text2.txt --- --- Summary results: File(s) copied: 67 Directory(ies) created: 4 Security Descriptor Setting done: 71 Amount of copied bytes: 3 MB (3864591 Bytes)```	DACLs are also duplicated. By default, the DACLs are copied when the **/NOSEC** option is not set. The owner attribute of the directories and files is also duplicated. The command output includes the list of files and a summary that includes the number of files, directories, bytes copied, and an error count.

EMCOPY example 2

Action
To copy the source directory to the destination directory including the local groups security entries, use this command syntax: C:\>*EMCOPY.exe <source> <destination>***/o /s /lg** Example: **C:\>EMCOPY.exe c:\source\ g:\destination /o /s /lg**

Output	Note
| ```
EMCOPY 02.04b
  Copyright (C) 2001, All Rights
  Reserved,
  by EMC Corporation, Hopkinton, MA
Date: 10/24/2001 12:10:26
Source path: c:\
Desti. path: g:\
Files: *.*
List/Modify/Create options:
Security options: /o /lg
Retry options: /r:1000000 /w:30
Server SRC: NTSERVER1 4.0
Server DEST:DM12_ANA0 4.1
Getting local group(s) from
\\NTSERVER1
Processing the copy from c:\ to
g:\...
c:\source\folder1\ ->
g:\destination\folder1
c:\source\folder1\ text1.txt ->
g:\dest\folder1\text1.txt
c:\source\folder2\abc2.txt ->
g:\dest\folder2\abc2.txt
d:\ntusrmap\ver0\usrmap.db ->
g:\ntusrmap\ver0\usrmap.db
d:\ntusrmap\ver0\usrmap.exe ->
g:\ntusrmap\ver0\usrmap.exe
d:\ntusrmap\ver0\usrmap.log ->
g:\ntusrmap\ver0\usrmap.log
---
---
Summary results:
File(s) copied: 67
Directory(ies) created: 4
Security Descriptor Setting done: 71
Amount of copied bytes: 3 MB
``` | You must use LGDUP before by using EMCOPY with the **/lg** option. |

SHAREDUP

SHAREDUP allows CIFS shares to be copied from one CIFS file server to another. Use it to duplicate many shares. By using the /SD option, you can duplicate the ACLs for the shares if there are local groups or local users in the ACL. The SIDs will be translated to the target equivalent local group/user SID.

Requirements and limitations

The SHAREDUP utility is subject to the following requirements:

- ◆ User must be a local administrator to run SHAREDUP.

- ◆ The target and source servers must be members of the Administrators group.

- Before using the SHAREDUP with the /SD option, use LGDUP to ensure all local groups of the source server are on the target server.

- A share cannot be created on a nonexistent directory.

- The newrootpath and subdirectories must exist.

- SHAREDUP does not duplicate system shares.

SHAREDUP command syntax

Table 8 on page 33 lists the required variables and the options for SHAREDUP.

Table 8. EMC CIFS utilities SHAREDUP command syntax

Command/Option	Description
`C:\>`**SHARDUP.exe** `\\<source> \\<target>` `<srcdrive>`	Copies CIFS shares from one server running Windows to another, primarily when there are many shares to copy, where: `\\<source>` = the NetBIOS name of the source. `\\<target>` = the NetBIOS name of the target. Note: For NetBIOS server names, the `<source>` and `<target>` names must be preceded by two slashes (\\). `<srcdrive>` is the drive letter of the source server to select for duplication (for example, C:). Specify ALL to use all the drives in the source server.
`/P <newrootpath>`	Specifies the root path prefixed to the directory of the created shares.
`/R`	Replaces the target share if it exists already.
`/SD`	Duplicates the share's security descriptor. Note: Use LGDUP.exe prior to using this option to ensure that all the source server's local groups reside on the target server.
`/PREFIX`	Adds a prefix to shares on the target server with the source server name to avoid share name collision in case of multiple server consolidations on a single VNX.
`/FO:<outputFile>`	Creates the list of shares to duplicate on the target server by using the selected options.

Table 8. EMC CIFS utilities SHAREDUP command syntax *(continued)*

Command/Option	Description
/FO+:<outputFile>	Concatenates several drive letters for the same source and target servers in a single file.
/FI:*<inputFile>*	Uses the specified file as a list of shares to create on the target server. This option takes priority over the **/p** and **/prefix** options.
/LOG:*<path>*	Sets the log filename to the path. Erases the file.
/LOG+:*<path>*	Sets the log filename to the path. Appends to the file.
/IP4700	Sets IP4700 compliance mode. Local groups are not translated and local filters are not filtered. This option must be set when the source of the share is an IP4700 system.
/ND:domain_name	Translates SID by using the new domain name instead of the original domain name when security descriptor translation is asked.
/lu	Enables the copying of local user security entries when asked to copy the security information. Without this option, local user entries are ignored.

SHAREDUP exit status codes

SHAREDUP returns an encoding status to indicate whether an error occurred in the command execution. A nonzero status code indicates an error occurred during command execution. The status code is stored in the errorlevel variable of the batch caller file. Table 9 on page 34 lists the exit status codes.

Table 9. EMC CIFS utilities SHAREDUP exit status codes

Exit status	Meaning
0	No error.
1	Syntax error.
2	Server name error or server does not respond.

Table 9. EMC CIFS utilities SHAREDUP exit status codes *(continued)*

Exit status	Meaning
3	Duplication error.

SHAREDUP example

Action
To duplicate all the shares, including security properties, from the source to the destination server, prefix the created shares with the source server name, use this command syntax: *C:\>SHAREDUP.exe \\\<source> \\\<target> <srcdrive>***/P***<newrootpath> **/PREFIX /r /sd** Example: **C:\>SHAREDUP.exe \\NT1 \\dm2 D: /P \fs2 /PREFIX /r /sd**

Output

```
SHAREDUP 01.05a (pre-release)

        Copyright (C) 2000, All Rights Reserved,
        by EMC Corporation, Hopkinton MA.

Source server:NT1          5.0
Target server:dm2          4.1 EMC-SNAS:T4.2.7.0


Getting local group(s) from \\NT1...
Getting local group(s) from \\dm2...

---
Creating share "\\dm2\NT1_share3"
 to export directory "C:\abcd\top\share3"...
 -> OK

---
Creating share "\\dm2\NT1_share1"
 to export directory "C:\abcd\top\share1"...
 -> OK

---
Creating share "\\dm2\NT1_share2"
 to export directory "C:\abcd\top\share2"...
 -> OK

*************************************************************************

SHAREDUP source:NT1                 target:dm2

Summary results:
  Number of share(s) successfully duplicated: 3
  Number of error(s): 0
```

EMCACL

EMCACL allows the ACLs of files or directories to be displayed and edited. It can also be used to change the owner of files or directories. User entries supplied in the command line can be local groups or local users of the server where the pathname is located.

Requirements and limitations

- Enclose user/account names that include spaces in quotation marks. For example, "domain account".

- Use wildcard characters to specify more than one file or directory in a command.

- Specify more than one user in a command (except for the /o option).

- Combine access rights.

- The ACL for a directory includes ACEs that control whether new files or directories created in that directory inherit the directory's user privileges.

- User account should have the appropriate privileges, which bypass access checking, to back up and restore files and directories. These is required to restore a directory that you do not own.

- User account must be a member of the Backup Operators group.

- User account must be a member of the Administrators or Account Operators group on both the source and destination computers.

- User account must have the Change Audit privilege to copy ACLs.

EMCACL command syntax

Table 10 on page 37 lists the required variables and the options for EMCACL.

Table 10. EMC CIFS utilities EMCACL command syntax

Command/Option	Description
`C:\>`**`EMCACL.exe`** `<pathname>`	Displays and edits ACLs for files and directories, and changes file and directory owners, where: `<pathname>` is the path to the target file or directory.
`/H`	Requests more help.
`/T`	By itself, the `/T` option requests a scan of only subdirectories. For example, EMCACL dir1 /T displays the ACL contents for dir1 without making any changes.

Table 10. EMC CIFS utilities EMCACL command syntax *(continued)*

Command/Option	Description
	When specified with at least one of the following options: **/O**, **/G**, **/R**, /P, or /D, the **/T** option changes the ACLs of the files in the specified directory and all subdirectories.
/E	Edits the file or directory's ACL without replacing it. Note: Use this to add an ACE to an existing ACL.
/C	Directs the program to continue if an error occurs.
/O *<user>*	Changes the owner to the specified user.
/G *<user>***:perm [; [T] spec]]**	Grants specified user access rights: ◆ *<user>* is local groups or local users of the server where the pathname is located. ◆ Permissions (**perm**) apply to files and, if the **spec** option is omitted, to directories. ◆ The **spec** option, if specified, applies the spec rights only to directories. The values for the **spec** option are the same as those for the **perm** option. The values for the **perm** and **spec** options are as follows. In this list, Special access means single type access, such as Read, Write, and others: **R**= Read (equivalent to **E + X**) **C**= Change (write) **F**= Full control (**R + C + P + O + D)** **P**= Change permissions (Special access) — allows modification of only the ACL content of a file or directory **O**= Take ownership (Special access) **X**= Execute (Special access) **E**= Read (Special access) **W**= Write (Special access) **D**= Delete (Special access) ◆ The **T** flag applies only before the **spec** option. ◆ If the **T** flag appears just after the semicolon (;), the inheritance of this ACE is disabled. That is, if the **T**

Table 10. EMC CIFS utilities EMCACL command syntax *(continued)*

Command/Option	Description
	flag is present, new files within the parent directory do not inherit the user privileges of the directory itself. ◆ If the **T** flag is omitted, the new files inherit the ACEs of the parent directory.
/R *<user>*	Revokes the specified user's access rights.
/P *<user>*:**perm [; [T] spec]]**	Replaces the specified user's access rights. The values for **perm** and **spec** are the same as those listed for the **/G** option.
/D *<user>*	Denies the specified user's access rights.
/Y	Replaces the user's access rights without confirmation.
/Q	Prints only errors and a summary (Quiet switch).

EMCACL exit status codes

EMCACL returns an encoding status to indicate whether an error occurred in the command execution. A nonzero status code indicates an error occurred during command execution. The status code is stored in the errorlevel variable of the batch caller file. Table 11 on page 39 lists the exit status codes.

Table 11. EMC CIFS utilities EMCACL exit status codes

Encoding Status	Meaning
0	No error.
1	Syntax error - The command used the wrong syntax.
2	Given path not found - The pathname argument is incorrect or not found.
3	ACL change failure.

EMCACL example

Action
To print the ACL for all the files or directories in the current directory and its subdirectories, use this command syntax: *C:\>EMCACL.exe <pathname>***.* /T** Example: **C:\>EMCACL.exe \\NT1\Draft*.txt /t**

Output

```
EMCACL 01.05

        Copyright (C) 2000, All Rights Reserved,
        by EMC Corporation, Hopkinton MA.

Server:NT1            4.1 EMC-SNAS:T5.0.5.4

\\NT1\Draft\
 Owner:"UNIX UID=0x0 ''"
 Group:"UNIX GID=0x0 '_c'"
 DACL count:5
   "BUILTIN\Administrators": Allowed FULL:EWXPOD (0x001F01FF)
Flags:OI,CI
   "Power Users": Allowed FULL:EWXPOD (0x001F01FF) Flags:OI,CI,IO
   S-1-5-20-225        : Allowed CHGE:EWXD (0x001301BF) Flags:OI,CI
   "SYSTEM"            : Allowed FULL:EWXPOD (0x001F01FF) Flags:OI,CI
   "Everyone"     : Allowed FULL:EWXPOD (0x001F01FF) Flags:OI,CI

\\NT1\Draft\r1.txt
 Owner:"Domain A\administrator"
 Group:"Domain A\Users"
 DACL count:5
   "BUILTIN\Administrators": Allowed FULL:EWXPOD (0x001F01FF)
   "BUILTIN\Administrators": Allowed FULL:EWXPOD (0x001F01FF) Flags:IA
   S-1-2-34-567        : Allowed CHGE:EWXD (0x001301BF) Flags:IA
   "SYSTEM"            : Allowed FULL:EWXPOD (0x001F01FF) Flags:IA
   "Everyone"     : Allowed FULL:EWXPOD (0x001F01FF) Flags:IA

\\NT1\Draft\r2.txt
 Owner:"Domain A\administrator"
 Group:"Domain A\Users"
 DACL count:6
   "NT1\EDCBA_[b]"   : Allowed READ:EX    (0x001200A9)
   "BUILTIN\Administrators": Allowed FULL:EWXPOD (0x001F01FF)
   "BUILTIN\Administrators": Allowed FULL:EWXPOD (0x001F01FF) Flags:IA
   S-1-2-34-567        : Allowed CHGE:EWXD (0x001301BF) Flags:IA
   "SYSTEM"            : Allowed FULL:EWXPOD (0x001F01FF) Flags:IA
   "Everyone"     : Allowed FULL:EWXPOD (0x001F01FF) Flags:IA
```

EMCABE

The EMCABE command-line tool enables ABE, disables ABE, and displays the ABE status of a remote Data Mover's shares. The EMCABE tool works with both Windows 2000 and Windows Server 2003 clients. It is enabled by default for Windows Server 2008. EMCABE command-line tool also supports Windows Server 2012.

EMCABE is similar to the Windows ABECMD tool with one additional option that displays the ABE status of a share, as listed in Table 12 on page 41. EMCABE is also run from the Windows command prompt.

Requirements and limitations

This utility is subject to limitations:

◆ User must be a local administrator to run EMCABE.

◆ To set ABE on a share, you must be a member of the Windows Administrators Group or Account Operators Group.

◆ ABE does not affect a user with backup privileges on a CIFS server.

◆ ABE impacts only the last path component of a share request. Parent directories are not impacted.

EMCABE command syntax

Table 12 on page 41 lists the required variables and options for EMCABE.

Table 12. EMC CIFS utilities EMCABE command syntax

Command/Option	Description
`C:\>`**EMCABE** [**/E** | **/D** | **/G**] [**/T** *<servername>*] [**/A** | **/S** *<sharename>*] [**/?**]	Enables and displays ABE and displays the status of ABE, where: *<servername>*= the name of the server. *<sharename>*= the name of the share.
/E	Enables ABE on the specified shares.
/D	Displays ABE on the specified shares.
/G	Displays the status of the specified shares.
/T *<servername>*	Applies the specified command option on the target CIFS server. By default, the target CIFS server is on the local machine.

Table 12. EMC CIFS utilities EMCABE command syntax *(continued)*

Command/Option	Description
/A	Run EMCABE on all shares of the target CIFS server.
/S *<sharename>*	Specifies the share on which to run EMCABE. By default, the system runs EMCABE on all shares of the CIFS server.
/?	Displays the syntax message.

EMCABE example 1

Action
To enable ABE on a share, use this command syntax:

C:\>EMCABE **/E /T***<servername>***/S***<sharename>*

where:

<servername>= name of the server

<sharename>= name of the share

Example:

C:\>EMCABE /E /T \\winserver /S ufs2

Output

```
EMCABE 01.00

    Copyright (C) 2005, All Rights Reserved,
    by EMC Corporation, Hopkinton MA.

ABE is now enabled on share ufs2
```

EMCABE example 2

Action
To enable ABE on all shares of a CIFS server, use this command syntax:

*C:\>EMCABE***/E /T***<servername>* **/A**

where:

<servername>= name of the CIFS server

Action
Example:
`C:\>EMCABE /E /T \\winserver1 /A`

Output
EMCABE 01.00 Copyright (C) 2005, All Rights Reserved, by EMC Corporation, Hopkinton MA. ABE is now enabled on share ufs1 ABE is already enabled on share ufs2 ABE is now enabled on share ufs3 ABE is now enabled on share ufs4

EMCABE example 3

Action
To display the ABE status of all shares on a CIFS server, use this command syntax:
`C:\>EMCABE` **/G /T**`\\`*<servername>*/A
where:
<servername>= the name of the CIFS server
Example:
`C:\>EMCABE /G /T \\winserver1 /A`

Output
EMCABE 01.00 Copyright (C) 2005, All Rights Reserved, by EMC Corporation, Hopkinton MA. ABE is disabled on share ufs1 ABE is enabled on share ufs2 ABE is disabled on share ufs3 ABE is disabled on share ufs4

FSTOOLBOX

FSTOOLBOX is a tool to help manage quota entries for a local or mapped network drive. It allows a user to list, move, or delete whole files and directories owned by a given user on a specified drive.

Requirements and limitations

- User must be a local administrator to run FSTOOLBOX.

- Mapped resource must be the root level of the VNX file system to use FSTOOLBOX.

- Universal naming convention (UNC) paths are unsupported. Only network-mapped resources are supported.

- Domain\name user notation is supported, as well as the user given as a SID value.

- Operator user account must grant the backup, restore, and security privileges on the target side.

FSTOOLBOX command syntax

Table 13 on page 44 lists the command syntax for FSTOOLBOX.EXE.

Table 13. EMC CIFS utilities FSTOOLBOX command syntax

Command/Option	Description
`C:\>`**`FSTOOLBOX`** `<drive>`: [**`info`**] [**`list domain\name`**] [**`EnumAllFiles domain\name`**] [**`removeAllFiles domain\name`**] [**`removeQuota domain\name`**] [**`removeFilesAndQuota domain\name`**] [**`ChangeOwner domain\oldowner domain\newowner`**] [**`moveUserTree domain\name target path`**]	FSTOOLBOX is a tool that allows an administrator to list, move, or delete files and directories, where: `<drive>` = the name of the drive (local or network).
`info`	Prints the user quota setup of the file system.
`list domain\name`	Enumerates all user quotas, or one particular user if specified.
`EnumAllFiles domain\name`	Enumerates all the user files and directories given a **`domain\name`** or a SID value.
`removeAllFiles domain\name`	Deletes all the user files and directories given a **`domain\name`** or a SID value.
`removeQuota domain\name`	Removes the quota entry given a **`domain\name`** or a SID value.

Table 13. EMC CIFS utilities FSTOOLBOX command syntax *(continued)*

Command/Option	Description
	Note: This command functions only if any files belonging to the user remain.
`removeFilesAndQuota domain\name`	Deletes all the user files and directories and removes the quota entry given a `domain\name` or a SID value.
`ChangeOwner domain\oldowner domain\newowner`	Changes ownership to newowner given a `domain\name` or a SID value of files and directories that were previously owned by the oldowner given a `domain\name` or a SID value.
`moveUserTree domain\name targetpath`	Moves all users files, directories, and subdirectories given a `domain\name` or a SID value.

FSTOOLBOX example

The following example shows how to use fstoolbox.exe in a scenario where an administrator wants to view the disk usage of a user, move that user's files and directories, then remove the quota entry of the user:

1. View the quota setting of a drive by using this command syntax:

   `C:\>FSTOOLBOX <drive>:`**info**

   where:

   `<drive>`= letter of the drive

   Example:

   To view the quota setting of drive g:, type:

   `C:\>FSTOOLBOX g: info`

   Output:

```
FSTOOLBOX 01.02

            Copyright (C) 2005, All Rights Reserved,
            by EMC Corporation, Hopkinton MA.

fstoolbox G:\ \\DW2K3B26S2\fs1sh Cmd=info
 GetQuotaState=1
  Quotas are ENABLED but the limit value is not being enforced.
 Users may exceed their quota limit
 DefValues THRESHOLD=0X1C200000 LIMIT=0X1F400000 Log=0
 Default QuotaThreshold: 450 MB
 Default QuotaLimit:     500 MB
 DisplayQuotaLogState=0

Elapsed time: hours: 00, mins: 00, secs: 00
```

2. View the disk usage for a specified user by using this command syntax:

   C:\>FSTOOLBOX <drive>: list <domain\name>

   where:

   <drive>= letter of the drive

   <domain\name>= domain and name of the specified user

   Example:

   To view the disk usage for user dw2k3\admu1, type:

   C:\>FSTOOLBOX g: list dw2k3\admu1

   Output:

```
FSTOOLBOX 01.02

            Copyright (C) 2005, All Rights Reserved,
            by EMC Corporation, Hopkinton MA.

fstoolbox G:\ \\DW2K3B26S2\fs1sh Cmd=list
QuotaInfo for: DW2K3\admu1      S-1-5-15-597E341A-CE8E74D1-
C993CA8E-45D
      Used:               2.40 MBytes   (0x268000)
      Threshold:        450.00 MBytes   (0x1C200000)
      Limit:            500.00 MBytes   (0x1F400000)

Found 2 quota entries for this file system

Elapsed time: hours: 00, mins: 00, secs: 00
```

3. List all the files and directories owned by a specified user by using this command syntax:

   C:\>FSTOOLBOX <drive>: enumallfiles <domain\name>

   where:

   <drive>= letter of the drive

   <domain\name>= domain and name of the specified user

   Example:

   To list all of the files and directories owned by dw2k3\admu1, type:

```
C:\>FSTOOLBOX g: enumallfiles dw2k3\admu1
```

Output:

```
FSTOOLBOX 01.02

              Copyright (C) 2005, All Rights Reserved,
              by EMC Corporation, Hopkinton MA.

fstoolbox G:\ \\DW2K3B26S2\fs1sh Cmd=enumallfiles
Directory : G:\myfile
Directory : G:\myfile\Speech
File :      G:\myfile\Speech\spchtel.dll
File :      G:\myfile\Speech\speech.cnt
File :      G:\myfile\Speech\speech.dll
File :      G:\myfile\Speech\speech.GID
File :      G:\myfile\Speech\speech.hlp
File :      G:\myfile\Speech\vcauto.tlb
File :      G:\myfile\Speech\vcmd.exe
2 dir and 7 files parsed status=0

Elapsed time: hours: 00, mins: 00, secs: 00
```

4. Change the owner of all the files and directories of a specified user by using this command syntax:

   *C:\>FSTOOLBOX <drive>:***changeowner***<domain\olduser> <domain\newuser>*

   where:

   <drive>= letter of the drive

   <domain\olduser>= domain and name of the user

   <domain\newuser>= domain and name of the new user

   Example:

   To change the owner from dw2k3\admu1 to dw2k3\stdu1, type:

   ```
   C:\>FSTOOLBOX g: changeowner dw2k3\admu1 dw2k3\stdu1
   ```

   Output:

   ```
   FSTOOLBOX 01.02

                 Copyright (C) 2005, All Rights Reserved,
                 by EMC Corporation, Hopkinton MA.

   fstoolbox G:\ \\DW2K3B26S2\fs1sh Cmd=changeowner
   Directory : G:\myfile owner set to dw2k3\stdu1
   Directory : G:\myfile\Speech owner set to dw2k3\stdu1
   File :      G:\myfile\Speech\spchtel.dll owner set to dw2k3\stdu1
   File :      G:\myfile\Speech\speech.cnt owner set to dw2k3\stdu1
   File :      G:\myfile\Speech\speech.dll owner set to dw2k3\stdu1
   File :      G:\myfile\Speech\speech.GID owner set to dw2k3\stdu1
   File :      G:\myfile\Speech\speech.hlp owner set to dw2k3\stdu1
   File :      G:\myfile\Speech\vcauto.tlb owner set to dw2k3\stdu1
   File :      G:\myfile\Speech\vcmd.exe owner set to dw2k3\stdu1
   2 dir and 7 files parsed status=0

   Elapsed time: hours: 00, mins: 00, secs: 01
   ```

5. Verify there are no files or directories owned by a specified user by using this command syntax:

C:\>FSTOOLBOX <drive>: **enumallfiles***<domain\user>*

where:

<drive>= letter of the drive

<domain\user>= domain and username of the specified user

Example:

To list all of the files and directories owned by dw2k3\admu1, type:

C:\>FSTOOLBOX g: enumallfiles dw2k3\admu1

Output:

```
FSTOOLBOX 01.02

          Copyright (C) 2005, All Rights Reserved,
          by EMC Corporation, Hopkinton MA.

fstoolbox G:\ \\DW2K3B26S2\fs1sh Cmd=enumallfiles
0 dir and 0 files parsed status=0

Elapsed time: hours: 00, mins: 00, secs: 00
```

6. Move the files and directories of a specified user to another drive by using this command syntax:

C:\>FSTOOLBOX <drive>: **moveusertree***<domain\user> <drive>:\<directory>*

where:

<drive>= letter of the drive

<domain\user>= domain and username of the specified user

<directory>= name of the destination directory

Example:

To move the files and directories of dw2k3\stdu1 from drive g: to c:\move_tree, type:

C:\>FSTOOLBOX g: moveusertree dw2k3\stdu1 c:\move_tree

Output:

```
FSTOOLBOX 01.02

            Copyright (C) 2005, All Rights Reserved,
            by EMC Corporation, Hopkinton MA.

fstoolbox G:\ \\DW2K3B26S2\fs1sh Cmd=moveusertree

Server SRC :DW2K3B26S2       5.0 EMC-SNAS:T5.3.20.0
Server DEST:LEFRANC          5.0

Processing the move from G:\ to c:\myfile\ ...


G:\myfile
G:\myfile\Speech
G:\myfile\Speech\spchtel.dll
G:\myfile\Speech\speech.cnt
G:\myfile\Speech\speech.dll
G:\myfile\Speech\speech.GID
G:\myfile\Speech\speech.hlp
G:\myfile\Speech\vcauto.tlb
G:\myfile\Speech\vcmd.exe

Summary results:
File(s) copied: 7
Directory(ies) created: 2
Security Descriptor Setting(s) done: 9
Amount copied byte(s) : 2 MB (2 387 579 Byte(s))

Elapsed time: hours: 00, mins: 00, secs: 01
```

7. Verify there are no files or directories owned by a specified user by using this command syntax:

    C:\>FSTOOLBOX <drive>: **enumallfiles***<domain\user>*

    where:

    <drive>= letter of the drive

    <domain\user>= domain and username of the specified user

    Example:

    To verify that there are no files or directories owned by dw2k3\stdu1, type:

    C:\>FSTOOLBOX g: enumallfiles dw2k3\stdu1

    Output:

```
FSTOOLBOX 01.02

            Copyright (C) 2005, All Rights Reserved,
            by EMC Corporation, Hopkinton MA.

fstoolbox G:\ \\DW2K3B26S2\fs1sh Cmd=enumallfiles
0 dir and 0 files parsed status=0

Elapsed time: hours: 00, mins: 00, secs: 00
```

8. Remove the quota entry for a specified user by using this command syntax:

    C:\>FSTOOLBOX <drive>: **removequota***<domain\user>*

where:

<drive>= letter of the drive

<domain\user>= domain and username of the specified user

Example:

To remove the quota entry of dw2k3\stdu1, type:

```
C:\>FSTOOLBOX g: removequota dw2k3\stdu1
```

Output:

```
FSTOOLBOX 01.02

            Copyright (C) 2005, All Rights Reserved,
            by EMC Corporation, Hopkinton MA.

fstoolbox G:\ \\DW2K3B26S2\fs1sh Cmd=removequota
User quota removed for user dw2k3\stdu1

Elapsed time: hours: 00, mins: 00, secs: 00
```

Usage of EMC utilities for migration

This section describes an example process that uses some of the EMC utilities. The LGDUP, SHAREDUP, and EMCOPY utilities are used to migrate data and Windows attributes from servers running Windows operating system to a Data Mover.

Migrating utilities example assumes:

◆ The Windows Server is quiet with no users accessing it.

◆ VNX is fully integrated into the target domain.

◆ The source computer resides in the same domain as the VNX.

◆ It is unnecessary to preserve NetBIOS names from the source server to the target server.

Note: EMC Customer Support Representatives offer custom migration solutions for CIFS data migration requirements. If you need experienced help in conducting a more complex migration, contact your local EMC Customer Support Representative.

Migrate EMC utilities

The tasks to migrate EMC utilities are:

Assign the user account to an administrative group with appropriate rights

Assign the user account (NEWUSER) for the migration to the Domain Administrators group, and assign the appropriate rights to the user account to run the utilities. The user account performing these tasks must be a member of the Administrators group:

1. Select **Start ➤ Programs ➤ Administrative Tools (Common) ➤ Active Directory Users and Computers**.

2. On the **User** menu, select **Select Domains**. The **Select Domain** dialog box appears.

3. Double-click the source domain, where source is the source computer running Windows.

   The selected domain information appears in the **Select Domain** dialog box.

4. In the **Groups** pane, double-click **Administrators**.

   In the **local groups** pane, add NEWUSER where NEWUSER is the user account that conducts migration.

   _____

   Note: NEWUSER is used for illustrative purposes. Select whichever user is appropriate.
   _____

   The **Local Group Properties** dialog box appears.

5. In the **Local Group Properties** dialog box, click **Add**.

   The **Active Directory Users and Computers** dialog box appears.

6. In the **Active Directory Users and Computers** dialog box, click the username of the user account to conduct the migration.

   Click **Add**. Click **OK**.

   The **Active Directory Users and Computers** dialog box returns as the active window.

7. On the **Policies** menu, click **User Rights**. The **User Rights Policy** dialog box appears.

8. From the **Rights** drop-down list, select the right to add. Click **Add**.

   The rights are:

   - Back up files and directories
   - Generate security audits
   - Manage auditing and security log
   - Restore files and directories

   The **Add Users and Groups** dialog box appears.

9. In the **Names** pane, select the user to which you want to assign the right. Click **Add**. Click **OK**.

   Repeat steps 8 and 9 for each right.

10. Repeat steps 3 through 9 for the target domain, where the target is VNX.

Log in as a NEWUSER

Log out of the Windows Server and log in as a NEWUSER:

1. Press **Ctrl + Alt + Delete**. The **Security** dialog box appears.

2. Click **Log Off**. A dialog box appears, querying whether you want to log off.

3. Click **Yes**. The **Welcome to Windows** dialog box appears.

4. Press **Ctrl + Alt + Delete**. The **Log On to Windows** dialog box appears.

5. Type the new username in the **User name** text box.

6. Type the password in the **Password** text box and click **OK**.

   The operating system starts up.

Create a file system

Before creating a file system, you must have a metavolume available.

Action
To create a file system, use this command syntax:

```
$ nas_fs -name <name> -create <volume_name>
```

Example:

```
$ nas_fs -name ufs1 -create mtv1
```

Output

```
id        = 18
name      = ufs1
acl       = 0
in_use    = False
type      = uxfs
volume    = mtv1
rw_servers=
ro_servers=
symm_devs = 002806000209-006, 002806000209-007, 002806000209-
008, 002806000209-009
disks     = d3,d4,d5,d6
```

Create a mount point

Create a mount point specifying the name of the Data Mover and path of the mount point created.

Action
To create a mount point, use this command syntax:
$ server_mountpoint *<movername>* **-create** /*<pathname>*
Example:
$ **server_mountpoint server_2 -create /ufs1**
Output
server_2: done

Mount the filesystem

Mount the file system specifying the name of the Data Mover, name of the file system to mount, and the name of the mount point.

Action
To mount a file system, use this command syntax:
`$ server_mount <movername> <fs_name> /<mount_point>`
Example:
`$ server_mount server_2 ufs1 /ufs1`
Output
`server_2: done`

Export the root share

Export the root share specifying the name of the Data Mover, name of the share, and path of the mount point created.

Action
To export the root share, use this command syntax:
$ server_export *<mover_name>* **-Protocol** cifs **-name** *<sharename>* /*<pathname>*
Example:
$ **server_export server_2 -Protocol cifs -name share1 /ufs1**
Output
server_2: done

Copy the local groups database

Use LGDUP to duplicate the local groups database from the source Windows computer to the Data Mover.

Action
To copy the local groups database from the source server to the target server, replace any existing local groups database on the target server, and prefix the source database, use this command syntax: `C:\>LGDUP.exe -r -p -v \\<source>\\<target>` Example: **`C:\>LGDUP.exe -r -p -v \\NT1 \\dm_2`**

Output	Notes
Refer to the LGDUP example on page 19.	◆ By adding a prefix to the local groups database for the source, you can add additional databases and maintain the original rights from each source. ◆ LGDUP does not migrate unknown accounts or user accounts that are local to the source server, such as the local administrator account.

Copy the directory to the Data Mover

Use EMCOPY to copy the source directory and files to the Data Mover.

Action
To copy the source directory on the source to the destination directory on the target server, copy the source directory's owner, audit information, and all the source directory's subdirectories; and update the destination files to Windows security, use this command syntax: `C:\>EMCOPY.exe` *`<source> <destination>`* **`/o /a /lg /s`** Example: **`C:\>EMCOPY.exe C:\source g:\destination /o /a /lg /s`**

Output	Note

<pre>EMCOPY 02.04b
   Copyright (C) 2001, All Rights
   Reserved,
   by EMC Corporation, Hopkinton, MA
Date: 10/24/2001 12:10:26
Source path: c:\source
Desti. path: g:\
Files: *.*
List/Modify/Create options:
Security options: /o /lg
Retry options: /r:1000000 /w:30
Server SRC: NTSERVER1 4.0
Server DEST:DM12_ANA0 4.1
Getting local group(s) from
\\NTSERVER1
Processing the copy from c:\ to
g:\...
c:\source\folder1\ ->
g:\destination\folder1
c:\source\folder1\ text1.txt ->
g:\destination\folder1\tetx1.txt
c:\source\folder2\abc2.txt ->
g:\destination\folder2\abc2.txt
d:\ntusrmap\ver0\usrmap.db ->
g:\ntusrmap\ver0\usrmap.db
d:\ntusrmap\ver0\usrmap.exe ->
g:\ntusrmap\ver0\usrmap.exe
d:\ntusrmap\ver0\usrmap.log ->
g:\ntusrmap\ver0\usrmap.log
--- 	
--- 	
Summary results:
File(s) copied: 67
Directory(ies) created: 4
Security Descriptor Setting done: 71
Amount of copied bytes: 3 MB</pre>
	The DACLs are also duplicated. By default, the DACLs are copied when the /NOSEC switch is not set. The owner attribute of the directories and files is also duplicated. The command output includes the list of files and a summary that includes the number of files, directories, and bytes copied, and an error count.

Duplicate the shares

Use SHAREDUP to duplicate the shares from the source to the destination server.

Action

Note: Prior to this procedure, target directories for the shares must be copied to the Data Mover by using EMCOPY as described in Copy the directory to the Data Mover on page 59.

To duplicate all shares from the source to the destination server and prefix share names on the destination server, use this command syntax:

```
C:\>SHAREDUP.exe \\<source> \\<target> <srcdrive> /p <newrootpath>/PREFIX /r
/sd
```

Example:

```
C:\>SHAREDUP.exe \\NT1 \\EMC1 D: /p /mountfs1 /PREFIX /r /sd
```

Output

```
SHAREDUP 01.05a (pre-release)

        Copyright (C) 2000, All Rights Reserved,
        by EMC Corporation, Hopkinton MA.

Source server:NT1          5.0
Target server:dm2          4.1 EMC-SNAS:T4.2.7.0


Getting local group(s) from \\NT1...
Getting local group(s) from \\dm2...

---
Creating share "\\dm2\NT1_share3"
 to export directory "C:\abcd\top\share3"...
 -> OK

---
Creating share "\\dm2\NT1_share1"
 to export directory "C:\abcd\top\share1"...
 -> OK

---
Creating share "\\dm2\NT1_share2"
 to export directory "C:\abcd\top\share2"...
 -> OK

************************************************************************

SHAREDUP source:NT1               target:dm2

Summary results:
  Number of share(s) successfully duplicated: 3
  Number of error(s): 0
```

After migration is completed

After the migration is completed, repeat the tasks Copy the local groups database on page 58, Copy the directory to the Data Mover on page 59, and Duplicate the shares on page 60 with the next server running Windows. Attempt to access the files from VNX.

Renaming the CIFS server

After the migration is complete and the source Windows Server is removed from the network, the CIFS server can be renamed to the same name as the source Windows Server. After the CIFS server is changed, the user clients will be able to continue accessing CIFS shares without changing any configurations.

To rename a compname:

1. To unjoin the original compname from the domain, type:

   ```
   $ server_cifs server_2 -Unjoin compname=W2kTemp,domain=abc.com,admin=Administrator
   ```

2. To delete the compname from the CIFS configuration of the Data Mover, type:

   ```
   $ server_cifs server_2 -delete compname=W2kTemp
   ```

3. To add the compname back to the CIFS configuration of the Data Mover as a NetBIOS name, type:

   ```
   $ server_cifs server_2 add NetBIOS=W2kTemp,domain=abc,interface=fsn01
   ```

4. To rename the NetBIOS server to the new name, type:

   ```
   $ server_cifs server_2 rename -NetBIOS W2kTemp W2kProd
   ```

5. To delete the renamed NetBIOS name in step 4 from the CIFS configuration, type:

   ```
   $ server_cifs server_2 delete NetBIOS=W2kProd
   ```

6. To add the new compname to the CIFS configuration and active directory (AD) domain, type:

   ```
   $ server_cifs server_2 add compname=W2kProd,domain=abc.com,interface=fsn01
   ```

7. To join the new compname to the CIFS configuration and AD domain, type:

   ```
   $ server_cifs server_2 Join compname=W2kProd,domain=abc.com,admin=Administrator
   ```

Troubleshooting

As part of an effort to continuously improve and enhance the performance and capabilities of its product lines, EMC periodically releases new versions of its hardware and software. Therefore, some functions described in this document may not be supported by all versions of the software or hardware currently in use. For the most up-to-date information on product features, refer to your product release notes.

If a product does not function properly or does not function as described in this document, contact your EMC Customer Support Representative.

Problem Resolution Roadmap for VNX contains additional information about using EMC Online Support and resolving problems.

Topics included in this chapter are:

EMC E-Lab Interoperability Navigator

The EMC E-Lab™ Interoperability Navigator is a searchable, web-based application that provides access to EMC interoperability support matrices. It is available on EMC Online Support at http://Support.EMC.com. After logging in, in the right pane under **Product and Support Tools**, click **E-Lab Navigator**.

VNX user customized documentation

EMC provides the ability to create step-by-step planning, installation, and maintenance instructions tailored to your environment. To create VNX user customized documentation, go to: https://mydocs.emc.com/VNX.

Error messages

All event, alert, and status messages provide detailed information and recommended actions to help you troubleshoot the situation.

To view message details, use any of these methods:

◆ Unisphere software:

• Right-click an event, alert, or status message and select to view Event Details, Alert Details, or Status Details.

◆ CLI:

• Type nas_message -info <MessageID>, where <MessageID> is the message identification number.

◆ *Celerra Error Messages Guide*:

• Use this guide to locate information about messages that are in the earlier-release message format.

◆ EMC Online Support:

• Use the text from the error message's brief description or the message's ID to search the Knowledgebase on EMC Online Support. After logging in to EMC Online Support, locate the applicable **Support by Product** page, and search for the error message.

EMC Training and Professional Services

EMC Customer Education courses help you learn how EMC storage products work together within your environment to maximize your entire infrastructure investment. EMC Customer Education features online and hands-on training in state-of-the-art labs conveniently located throughout the world. EMC customer training courses are developed and delivered by EMC experts. Go to EMC Online Support at http://Support.EMC.com for course and registration information.

EMC Professional Services can help you implement your system efficiently. Consultants evaluate your business, IT processes, and technology, and recommend ways that you can leverage your information for the most benefit. From business plan to implementation, you get the experience and expertise that you need without straining your IT staff or hiring and training new personnel. Contact your EMC Customer Support Representative for more information.

Glossary

A

access control entry (ACE)
In a Microsoft Windows environment, an element of an access control list (ACL). This element defines access rights to a file for a user or group.

access control list (ACL)
List of access control entries (ACEs) that provide information about the users and groups allowed access to an object.

access-based enumeration (ABE)
With ABE enabled, Windows will not display files or folders that the user does not have the rights to access. Only those files or folders that the user has the rights to access are visible, thus increasing folder-level security.

C

Common Internet File System (CIFS)
File-sharing protocol based on the Microsoft Server Message Block (SMB). It allows users to share file systems over the Internet and intranets.

D

discretionary access control list (DACL)
User-specified (as opposed to system- or administrator-specified) functions.

N

network basic input/output system (NetBIOS)
Network programming interface and protocol developed for IBM personal computers.

NT file system (NTFS)

See NTFS.

NTFS

NTFS is the standard file system of Windows NT, including its later versions. NTFS supersedes the FAT file system as the preferred file system for Microsoft Windows. NTFS has several improvements over FAT such as improved support for metadata and the use of advanced data structures to improve performance, reliability, and disk space utilization, plus additional extensions such as security access control lists (ACLs) and file system journaling.

S

security identifier (SID)

Unique identifier that defines a user or group in a Microsoft Windows environment. Each user or group has its own SID.

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