Migrate data

XCP

NetApp
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After planning the migration with the `show` and `scan` commands, you can migrate data.

Copy

The `copy` command scans and copies the entire source directory structure to a destination NFSv3 export. The `copy` command requires having source and destination paths as variables. The scanned and copied files, throughput/speed, and elapsed time details are displayed at the end of the copy operation.

Example:

```
xcp copy -newid <id> src_server:/src_export dst_server:/dst_export
```

POSIX path example:

```
xcp copy -newid <id> file:///mnt/source file:///mnt/dest
```

HDFS path example:

```
xcp copy -newid <id> hdfs:///demo/user file:///mnt/dest
```

See `xcp help copy` for more details.

Resume

The `resume` command restarts a previously interrupted copy operation by specifying the catalog index name or number. The catalog index name or number of the previous copy operation is stored on the `<catalog path>:/catalog/indexes` directory.

Example:

```
xcp resume [options] -id <id used for copy>
```

See `xcp help resume` for more details.

Sync

The `sync` command scans for changes and modifications performed on a source NFS directory using a catalog index tag name or the number of a previous copy operation. Source incremental changes are copied and applied to the target directory. The old catalog index numbers are replaced with a new one after the sync operation.

Example:

```
xcp sync [options] -id <id used for copy>
```

See `xcp help sync` for more details.

Verify

The `verify` command uses a full byte-by-byte data comparison between source and target directories after the copy operation without using a catalog index number. The command checks for modification times and other file or directory attributes, including permissions. The command also reads the files on both sides and compares the data.

Example:

```
xcp verify src_server:/src_export dst_server:/dst_export
```

POSIX path example:

```
xcp verify file:///mnt/source file:///mnt/dest
```

HDFS path example:

```
xcp verify hdfs:///user/demo1/data file:///user/demo1/dest
```

See `xcp help verify` for more details.

Migrate SMB data

After planning the migration with the `show` and `scan` commands, you can migrate data.

Copy

The `copy` command scans and copies the entire source directory structure to a destination SMB share. The `copy` command requires having source and destination paths as variables. The scanned and copied files, throughput/speed, and elapsed time details are printed to the console once every five seconds.

> During the copy operation, you can use the `-preserve-atime` flag with the `copy` command to preserve access time at the source.

Example:

```
C:\xcp>xcp copy \\<source SMB share> \\<destination SMB share>
```

See `xcp help copy` for more details.

Sync

The `sync` command scans for changes and modifications in the source and target shares in parallel, and applies the appropriate actions (remove, modify, rename, and so on) to the target to make sure that the target is identical to the source.

The sync command compares data content, time stamps, file attributes, ownership, and security information.

During the sync operation, you can use the `-preserve-atime` flag with the `sync` command to preserve access time at the source.

Example:

```
C:\xcp>xcp sync \\<source SMB share> \\<destination SMB share>
```

See `xcp help sync` for more details.

Verify

The `verify` command reads both source and target shares and compares them, providing information about what is different. You can use the command on any source and destination, regardless of the tool used to perform the copy or sync.

- During the verify operation, you can use the `-preserve-atime` flag with the `verify` command to preserve access time at the source.
- During the verify operation, you can use the `-noatime` flag with the `verify` command to exclude access time differences.

Example:

```
C:\xcp>xcp verify \\<source SMB share> \\<destination SMB share>
```

See `xcp help verify` for more details.

Additional NFS features

XCP includes some additional NFS features that make it easy to change the ownership and permissions of files and directories for any NFS share or POSIX path. You can use the XCP `chown` and `chmod` commands to recursively change all of the files and directories for a given NFS share or POSIX path. This increases the performance of millions of files.

About this task

Before changing the ownership of the files, you must configure the new owner. Otherwise, the command will fail. The XCP `chown` and `chmod` commands work similar to the Linux `chown` and `chmod` commands.

Chmod

The `chmod` command scans and changes the file permission of all files in the chosen directory structure. The `chmod` command requires a mode or reference and NFS share or POSIX path as variables. XCP `chmod` recursively changes the permissions for a given path. You can use the `chmod` command to display the total files scanned and the permissions that have been changed in the output.

Example:

```
xcp chmod -mode 777 NFS [server:/export path | file://<NFS mounted path>]
xcp chmod -mode 707 nfs_server01.netapp.com:/export1
xcp chmod -reference nfs_server01.netapp.com:/export/dir1/file.txt
nfs_server02.netapp.com: export1
xcp chmod -match "fnm('file.txt')" -mode 111 file:///mnt/nfs_mount_point/
xcp chmod -exclude "fnm('file.txt')" -mode 111 file:///demo/user1/
```

Run the `xcp help chmod` command for more information.

Chown

The `chown` command scans and changes the ownership of all files in the chosen directory structure. The `chown` command requires a NFS share or POSIX path as variables. XCP `chown` recursively change the ownership for a given path.

Example

```
xcp chown -user user1 NFS [server:/export path | file://<NFS mounted path>
xcp chown -user user1 nfs_server01.netapp.com:/export1
xcp chown -user user1 -group group1 nfs_server01.netapp.com:/export1/dir1/
xcp chown  -reference nfs_server01.netapp.com:/export/dir1/file.txt
nfs_server02.netapp.com:/export1
xcp chown -match "fnm('file.txt')" -user user1
file:///mnt/nfs_mount_point/
xcp chown -exclude "fnm('file.txt')" -user user1 -group group1
xcp chown -user-from user1 -user user2 file:///mnt/nfs_mount_point/
xcp chown -group-from group1 -group group2
nfs_server01.netapp.com:/export1/
```

Run the `xcp help chown` command for more information.