Migrate data

XCP

NetApp
January 22, 2026

This PDF was generated from https://docs.netapp.com/us-en/xcp/xcp-migrate-data.html on January 22, 2026. Always check docs.netapp.com for the latest.

Table of Contents

Migrate data . . . 1
- Migrate NFS data . . . 1
  - Copy . . . 1
  - Resume . . . 1
  - Sync . . . 1
  - Verify . . . 2
  - iSync . . . 2
- Migrate SMB data . . . 3
  - Copy . . . 3
  - Sync . . . 3
  - Verify . . . 3
- NTFS alternate data streams migration for SMB . . . 4
  - NTFS alternate data streams migration for SMB . . . 4
- Migrate HDFS data . . . 4
  - Copy . . . 4
  - Resume . . . 5
  - Verify . . . 5
- Run multiple XCP jobs on the same XCP host . . . 6
  - Minimum system requirements . . . 6
  - Logging . . . 6
  - Supported commands . . . 6
  - Unsupported commands . . . 7
- Additional NFS features . . . 7
  - Chown and Chmod . . . 7
  - XCP Estimation . . . 8
  - indexdelete . . . 8

Migrate data

Migrate NFS data

After planning the migration with the `show` and `scan` commands, you can migrate the NFS 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 <source_nfs_export_path> <destination_nfs_export_path>
```

POSIX path example:

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

Run `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 -id <catalog_name>
```

Run `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 -id <catalog_name>
```

Run `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 <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

POSIX path example:

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

Run `xcp help verify` for more details.

iSync

The `isync` command compares the source and destination and synchronizes the differences on the target without using the catalog index.

Example

```
xcp isync <source_ip_address>:/src <destination_ip_address>:/dest
```

You can use `isync` with the `estimate` option to estimate the time it takes for the `isync` command to synchronize the incremental changes. The `-id` parameter specifies the catalog name of a previous copy operation.

If you change more than 25% of the data set size used, the `isync estimate` command might not show the expected results.

Example

```
xcp isync estimate -id <name>
```

Run `xcp help isync` for more details.

Migrate SMB data

After planning the migration with the `show` and `scan` commands, you can migrate the SMB 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 \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Run `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 \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Run `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.

Example:

```
C:\xcp>xcp verify \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Run `xcp help verify` for more details.

NTFS alternate data streams migration for SMB

NTFS alternate data streams migration for SMB

Beginning with XCP 1.9.3, XCP SMB supports migration of NTFS alternate data streams by using the `-ads` option with the XCP SMB commands.

Supported use cases

You can use the XCP SMB `copy` and `sync` commands to migrate data that includes alternate data streams, and the XCP SMB `scan` command to scan the SMB share for alternate data streams.

Supported XCP SMB commands

The following XCP SMB commands support the `-ads` option:

- `scan`
- `copy`
- `verify`
- `sync`

Command examples

The following example commands show how to use the `-ads` option:

- `xcp scan -ads \\<SMB share>`
- `xcp copy -ads \\<source SMB share> \\<destination SB share>`
- `xcp sync -ads \\<source SMB share> \\<destination SB share>`
- `xcp verify -ads \\<source SMB share> \\<destination SB share>`

Migrate HDFS data

After planning the migration with the `scan` command, you can migrate the HDFS data.

Copy

The `copy` command scans and copies the entire source Hadoop Distributed File System (HDFS) data to an NFS or Simple Storage Service (S3) bucket. 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.

NFS path example:

```
xcp copy -newid <id> hdfs:///demo/user dst_server:/dst_export
```

POSIX path example:

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

S3 path example:

```
xcp copy -newid <id> hdfs:///demo/user s3://my-bucket
xcp copy -newid <id> -s3.profile <s3 profile name> -s3.endpoint <endpoint-
url> hdfs:///demo/user s3://my-bucket
```

Run `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 in the `<catalog path>:/catalog/indexes` directory.

Example:

```
xcp resume [options] -id <id used for copy>
xcp resume [options] -s3.profile <s3 profile name> -s3.endpoint <endpoint-
url> -id <id used for copy>
```

By default, the XCP `resume` command uses the S3 endpoint and S3 profile from the copy index that was used during the `copy` command. However, if new `-s3.endpoint` and `-s3.profile` values are provided with the `resume` command, the new values for the options are used and the values used with the copy `command` are overridden.

Run `xcp help resume` 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 reads the files on both sides and compares the data.

Example:

```
xcp verify hdfs:///demo/user dst_server:/dst_export
```

POSIX path example:

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

S3 path example:

```
xcp verify hdfs:///user/demo1/data s3://my-bucket
xcp verify -s3.profile <s3 profile name> -s3.endpoint <endpoint-url>
hdfs:///demo/user s3://my-bucket
```

Run `xcp help verify` for more details.

Run multiple XCP jobs on the same XCP host

Beginning with XCP 1.9.2, you can run multiple XCP jobs or commands on a single XCP host, provided that the host has sufficient resources for each job. When you run a command that supports multiple jobs, XCP uses minimal host memory to complete the job, which creates the capacity to run additional jobs on the same host configuration.

Minimum system requirements

For each XCP job, you should allow up to 64GB of host memory and eight cores for medium to large migrations.

Running multiple XCP jobs on the same host is not supported for SMB data migration.

Logging

By default, each XCP job is logged in a separate log file that is unique to the job ID. This logging mechanism works well when running multiple jobs on the same individual host. NetApp does not recommend changing the `xcpLogConfig.Json` file to use a single `xcp.log` file to log multiple XCP jobs running in parallel on the same host.

Supported commands

Running multiple XCP jobs on the same host is supported with the following XCP commands:

- `scan`
- `copy`
- `resume`
- `verify`

- `isync`
- `chmod`
- `chown`
- `delete`

Unsupported commands

Running multiple XCP jobs on the same host is not supported with the `sync` command.

Additional NFS features

XCP includes some additional NFS features.

Chown and Chmod

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.

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 an 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

You can use the XCP `chown` command 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.

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

XCP Estimation

The XCP estimation feature estimates the time to complete a baseline `copy` operation from the source to the destination. It calculates the estimated time to complete a baseline `copy` operation by using all the currently available system resources such as CPU, RAM, network, or other parameters. When you use the `-target` option, XCP runs a sample copy operation to find the estimation time.

Example

```
server : NFS server IP
export : NFS exported path for the above IP

xcp static estimation
xcp estimate -id <scan id>

xcp live estimation with default time
xcp estimate -id <scan id> -target server:/export

xcp live estimation with -t option
xcp estimate -id <scan id> -t <time for which estimation should run>
-target server:/export
```

indexdelete

You can use the `indexdelete` command to delete catalog indexes.

Example

```
xcp indexdelete
```

Run `xcp help indexdelete` for more details.

Copyright information

Copyright © 2026 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

Trademark information

NETAPP, the NETAPP logo, and the marks listed at http://www.netapp.com/TM are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.