NetApp XCP documentation

XCP

NetApp
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NetApp XCP documentation

XCP v1.9.4 Release Notes

The XCP v1.9.4 Release Notes describe new features, upgrade notes, fixed issues, known limitations, and known issues.

You are required to sign on to the NetApp Support Site to access the Release Notes.

Get started with XCP

Learn about XCP

NetApp XCP is a client-based software that allows for scalable and high-performance data migrations for any-to-NetApp and NetApp-to-NetApp data migrations and file analytics. XCP is designed to scale and achieve greater performance by utilizing all the available system resources to manage high-volume datasets and high-performance data migrations. XCP helps you get complete visibility into the file system with the option to generate customer reports. Thanks to the matching and formatting capabilities, you can customize the reports to match any reporting needs.

Use XCP for NFS or SMB systems as one of the following solutions:

- Migration solution
- File Analytics solution

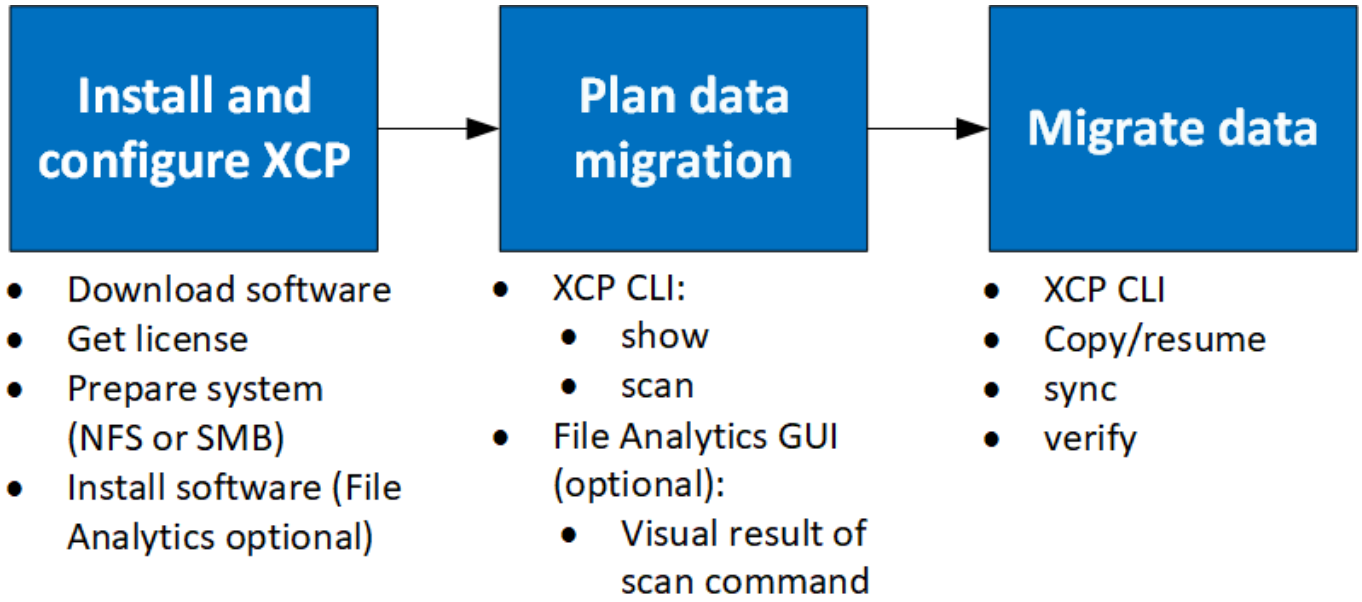
XCP is command-line software available in a single package supporting NFS and SMB protocols. XCP is available as a Linux binary for NFS datasets and is available as a Windows executable for SMB datasets.

XCP File Analytics is host-based software that detects file shares, runs scans on the file system, and provides a dashboard for file analytics. XCP File Analytics works for both NetApp and third-party systems and runs on Linux or Windows hosts to provide analytics for NFS and SMB exported file systems. The binary for the file analytics GUI is included in the single package supporting NFS and SMB protocols.

> The XCP binary is code signed. For more details, please refer to the README in `NETAPP_XCP_<version>.tgz`.

The XCP CLI is robust. For more information, download *XCP Reference* on the XCP site.

XCP workflow



XCP NFS add-on features

The XCP NFS add-on features support the use of POSIX and HDFS connectors, enhance security, and support the use of scale-out architecture to speed up data migrations.

NFSv4 support

When you only enable NFSv4 on the source, destination, and catalog volumes in the data center, you can use the POSIX path instead of the export path to migrate your data. To use the POSIX path, you must first mount the source, destination, and catalog volumes on the host system running XCP and then use the POSIX file path to provide the source and destination to XCP. See Configure the POSIX connector.

- NFSv4 support is limited to the POSIX path and the `copy` operation, the `sync` operation is not supported.
- The POSIX connector might be slower when compared to the XCP NFSv3 TCP socket client engine.

POSIX connectors

XCP supports the use of POSIX connectors to provide source, destination, and catalog paths for data migration. The POSIX connector (file:///) gives XCP the capability to access any Linux-mounted file system, such as NFSv4, XFS, and Veritas. For non-root users, the system administrator can mount the file system to give any non-root user the capability to access the file system by using a POSIX connector with the file:// prefix.

You can benefit from using POSIX connectors when you do not have enough permissions to mount the file or when the support available in the data centers is limited to NFSv4. In such cases, any root user can mount the source and destination and then access the path by using a POSIX connector. When you are using POSIX connectors, you can only run the `xcp copy` operation.

XCP security

The XCP security feature gives you the capability to perform a migration as a non-root user on a Linux host machine. In earlier XCP versions, as a root user on the Linux machine, you perform a migration with all the permissions for the source, destination, and catalog volumes, and the mount is completed by the XCP operations.

When you are preforming data migrations, it is common to turn off security and let an administrator copy everything as fast as possible. For ongoing transitions in production environments where XCP has been in use for several years, it is not secure to run as an administrator (or root). Therefore, removing the requirement to run XCP as the root user gives you the capability to use XCP in secure environments. When a regular non-root user runs XCP operations, the non-root user has the same access rights and limits as the user.

In this secure environment, a root user can mount the source, destination, and catalog volume on the host machine and provide the necessary permissions for the destination and catalog volumes for a non-root user to write the data. This gives the non-root user the capability to perform a migration by using the XCP POSIX connector feature.

XCP scale-out

Until now, data migration using XCP was limited to a single host with higher RAM and CPU. To speed up the migration, memory and cores on the single host were increased, but it could still take a significant time to copy petabytes of data. XCP scaled-out architecture gives you the capability to use multiple hosts to perform a data migration. With this feature, you can use multiple Linux hosts to distribute your workload and decrease the migration time.

You can benefit from multinode scale-out in any environment where the performance of a single system is not sufficient. To overcome the performance limits of a single node, you can use a single `copy` (or `scan -md5`) command to run workers on multiple Linux systems or Hadoop cluster nodes. Currently, XCP scale-out is only supported for `copy` command operations.

Hadoop Distributed File System connectors

XCP supports migrating data from a Hadoop Distributed File System (HDFS) file system to a NetApp file system and vice versa. In a Hadoop environment with security enabled, a non-root user on a Hadoop cluster can perform the migration to a NetApp NFSv4 exported file system. The HDFS connector (hdfs://) gives XCP the capability to access any HDFS file system that is available with different vendors. A non-root user can use XCP to perform migrations by using HDFS or POSIX connectors.

You can include HDFS clusters in an XCP scale-out configuration because they use multiple high end Linux machines. This minimizes the requirement for additional XCP worker nodes. For the data migration, you have the choice to reuse the HDFS cluster nodes or to go with separate hosts.

> HDFS connectors are qualified and supported for MapR and Cloudera clusters but can only perform a baseline `copy` operation.

Unsupported features

The following features are not supported on XCP NFS:

Feature Name	Description
IPv6	Does not support IP version 6 (IPv6)
NFSv4 access control lists (ACLs) (third-party)	Does not support third-party to NetApp NFSv4 ACLs
POSIX connector	• The `sync` command does not support the POSIX connector • You should not use the `copy` command when the source is active
Linux	XCP is no longer supported on earlier distributions of Linux that were supported by XCP 1.6.3.
Active source support	XCP does not support combining baseline or incremental Snapshot copy operations with live source migrations.
NFS to S3 migration	XCP does not support NFS to S3 migration.

The following features are not supported on XCP SMB:

Feature Name	Description
Third-party to NetApp NTFS access control lists (ACLs)	XCP SMB does not support migration of third-party ACLs from non-NetApp to NetApp systems.
NFS symbolic link (symlink)	NFS symlink is not supported in XCP SMB
ACL option for scan	ACLs not supported for scan option
IPv6	Does not support IP version 6 (IPv6)
XCP Filters	The XCP SMB exclude option currently excludes directories based on their pattern in the filter and traverses the filesystem of those directories.
Live source migration	XCP does not support modifying data on the source volume during migration.
Multiple instances of XCP on the same host	When running multiple instances of XCP on the same host you might get unpredictable results.

The following common features are not available for XCP NFS and SMB:

- **Time to complete migration**: XCP upfront does not provide the time to complete the migration or the time to complete any command used for migration. If you are doing final cutover confirm that data churn on the source volume is low.
- **Running copy again on an uncleaned target**: XCP baseline copy will fail when there is partial data on the destination target. For a successful XCP baseline copy and XCP verify, the destination must be clean.
- **Live destination**: XCP does not support modifying data on the destination volume during a migration or during an incremental sync.
- **Non-root user for File Analytics**: XCP does not support installations and configurations performed by a non-root user or a sudo user.

The following features are not available for Hadoop Distributed File System (HDFS) connectors:

Feature Name	Description
Support for the `sync` command	The HDFS connector does not support the `sync` command.
Symbolic link (symlink) and hard link support	The HDFS file system does not support symlinks, hard links, or special files.
Live source HDFS migration	XCP does not support modifying data on the HDFS file system at the source during migration

The following features are not available for Simple Storage Service (S3) connectors:

- **Migration with S3 bucket as the source**: XCP does not support migration with an S3 bucket as the source.

Supported configurations

All the XCP supported configurations such as hosts, ONTAP versions, and supported browsers, are listed in the Interoperability Matrix Tool (IMT).

Ports used by XCP

The following ports are used by XCP.

Service	Port
CIFS	445 TCP/UDP
HTTP (httpd)	80
HTTPS	443
NFS	111 TCP/UDP and 2049 TCP/UDP
Postgresql	5432
XCP (as a service for File Analytics)	5030
HDFS	7222

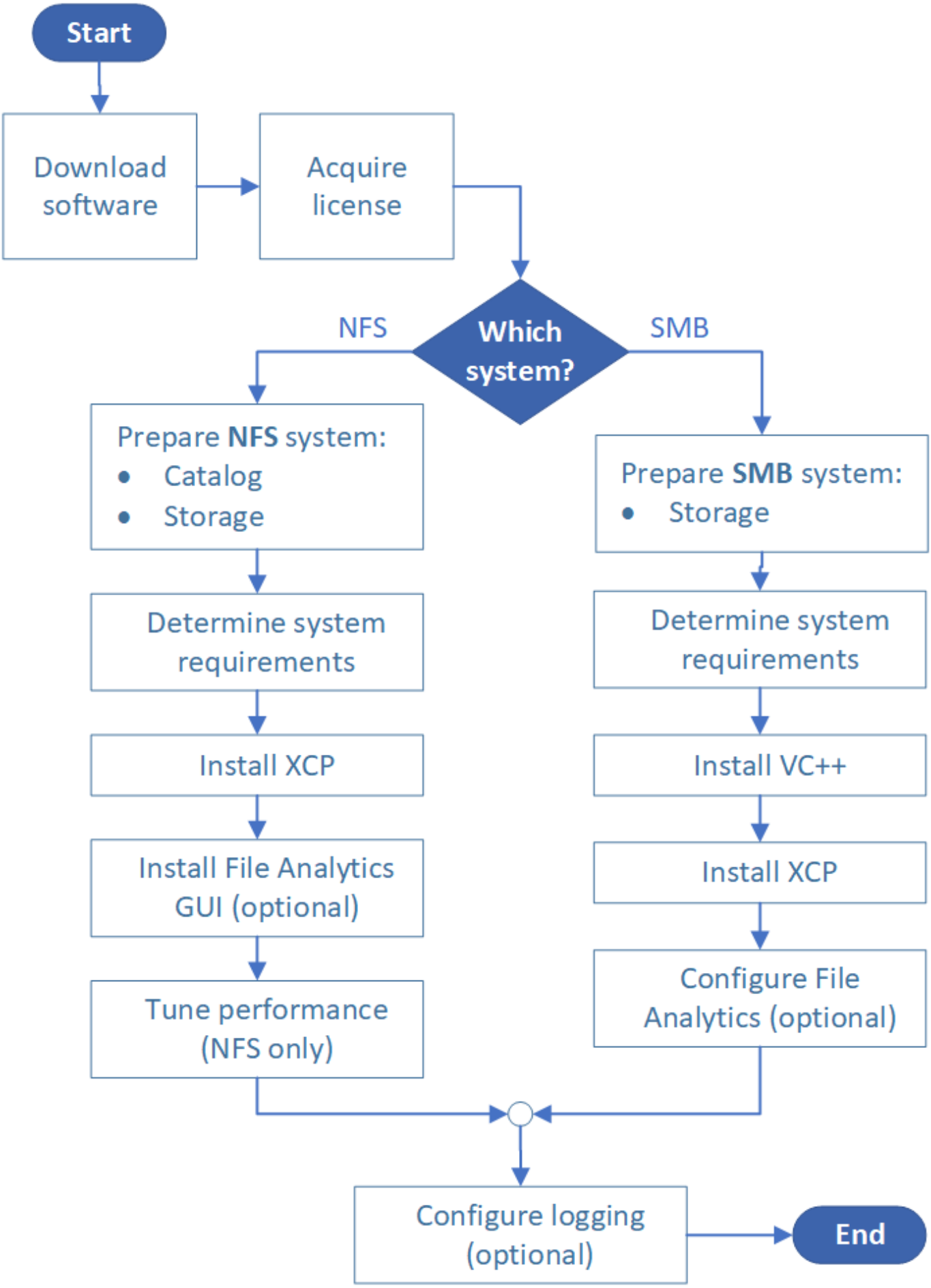
Install XCP

Prepare for XCP installation

In preparation for installation, you download XCP, obtain a license, and prepare your system.

Install and configure workflow

This document provides an easy workflow for installing and setting up XCP on NFS and SMB systems.


Start
Download software
Acquire license
Which system?
NFS
SMB
Prepare NFS system:
Catalog
Storage
Determine system requirements
Install XCP
Install File Analytics GUI (optional)
Tune performance (NFS only)
Prepare SMB system:
Storage
Determine system requirements
Install VC++
Install XCP
Configure File Analytics (optional)
Configure logging (optional)
End

Download XCP

Download XCP from the NetApp support site and obtain a license from the XCP site.

You can download XCP from the NetApp Support site.

License XCP

NetApp offers a free one year XCP license. You can obtain the license file from the XCP site. The licensing portal offers different licensing options. After one year, you can renew the license for another year using the same portal.

The XCP license is available as an offline or online license. If you want to send migration statistics use an online license. The online license requires an internet connection. The offline license does not require an internet connection.

To run XCP 1.9.3 and later, you must obtain a new XCP license from the XCP site.

> Licenses used with XCP 1.9.2 and earlier are not supported in XCP 1.9.3 and later. Similarly, licenses used with XCP 1.9.3 and later are not supported in XCP 1.9.2 and earlier.

Prepare your system

If you are using XCP NFS on a Linux system, you must prepare catalog and storage.

If you are using XCP SMB on a Microsoft Windows system, you must prepare storage.

Prepare Linux for XCP NFS

XCP NFS uses Linux client host systems to generate parallel I/O streams and fully use available network and storage performance.

You can configure your setup for a root and a non-root user and then, depending on your setup, you can select either user.

Configure catalog

XCP saves operation reports and metadata in an NFSv3-accessible catalog directory or on any POSIX path with the required permissions.

- Provisioning the catalog is a one-time pre-installation activity.
- Approximately 1 GB of space is indexed for every 10 million objects (directories plus files and hard links); each copy that can be resumed or synched and each offline-searchable scan requires an index.
- To support performance, at least ten disks or SSDs are required in the aggregate containing the export directory.

> You must store XCP catalogs separately. They must not be located on either the source or the destination NFS export directory. XCP maintains the metadata, which are the reports in the catalog location specified during the initial setup. Before you run any operation using XCP, you must specify and update the location for storing the reports.

Configure storage

XCP NFS transitions and migrations have the following source and target storage requirements:

- Source and target servers must have the NFSv3 or NFS v4.0 protocol service enabled
  - For NFSv4 ACL migration, you must enable NFSv4 protocol service and NFSv4 ACL on the destination server
- Source and target volumes must be exported with `root` access to the XCP Linux client host
- For NFSv4 ACL migration, NFSv4 requires that you use the encoding language UTF-8 for volumes that require ACL migration.

> - To prevent administrators accidentally modifying the source volume, you should configure the source volume for the NFSv3 and NFSv4 export directories as read-only.
> - In ONTAP, you can use the diagnostic `-atime-update` option to preserve atime on source objects. This feature is only available in ONTAP and is helpful if you want to preserve atime in source objects while running XCP.
> - In XCP, you can use the `-preserve-atime` option to preserve atime on source objects. This option is available to use with all commands that access source objects.

Root user

A root user on a Linux machine has the permissions to mount the source, destination, and catalog volumes.

Non-root user

A non-root user is required to have the following permissions on a mounted volume:

- Read permission access to the source volume
- Read/write permission access to the mounted destination volume
- Read/write permission access to the catalog volume

Prepare Windows for XCP SMB

XCP SMB uses Windows client host systems to generate parallel I/O streams and fully use available network and storage performance.

Configure storage

XCP SMB transitions and migrations have the following user login requirements:

- XCP host system: An XCP host user must have administrator privilege (the user must be part of the "BUILTIN\Administrators" group on the target SMB server).
- Add the migration or XCP host user to the audit and security log policy for Active Directory. To locate the 'Manage Auditing and Security Log' Policy on Windows 10, follow these steps:

  Steps

  1. Open the **Group Policy Editor** dialog box.
  2. Go to **Computer Configuration > Windows Settings > Security Settings > Local Policies > User**

Rights Assignment.

3. Select **Mange auditing and security log**.
4. To add an XCP host user, select **Add User or Group**.

   For more information, see: Manage auditing and security log.

- Target storage system: XCP host user must have read and write access.
- Source storage system:
  - If the user is part of the “Backup Operators” group in the source storage system, the members of this group can read files while bypassing the security rules, regardless of any permissions that protect those files.
  - If the user is not part of “Backup Operators” group in source system, the user must have read access.

> Write permission is required in the source storage system for supporting the XCP option `-preserve-atime`.

Configure a Windows client

- Add the destination storage box and the source storage box to the host file:
  1. Navigate to the following location: `(C:\Windows\System32\drivers\etc\hosts)`
  2. Insert the following host entries to the file in the following format:

     ```
     <Source data vserver data interface ip> <Source cifs server name>
     <Destination data vserver data interface ip> <Destination cifs server name>
     ```

     Example

```
# Copyright (c) 1993-2009 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows.
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#     xxx.xx.xx.xx        rhino.acme.com          # source server
#       xx.xx.xx          x.acme.com              # x client host

# localhost name resolution is handled within DNS itself.
#       127.0.0.1       localhost
#       ::1             localhost
xx.xxx.xxx.xxx   00906A52DFE247F
xx.xxx.xxx.xxx   42D1BBE1219CE63
```

Prepare File Analytics

Prepare for your data migration using File Analytics.

File Analytics has the following two parts:

- File Analytics server running on Linux
- XCP SMB service running on Windows

File Analytics installation has the following requirements:

- Supported OS and system requirements are the same as given for NFS and SMB installation. Because the database will reside on a Linux box, you must make sure you have a minimum of 10 GB free space.
- The Linux machine where you install the File Analytics server must be connected to the internet or the yum repository. The installation script talks to the yum repository to download the required packages, such as PostgreSQL, HTTP and SSL.
- The File Analytics GUI can only be hosted on a Linux machine along with XCP services for Linux running on same box.
- For running SMB services, complete the following steps:
  - Verify that your Windows box can ping the Linux machine where the File Analytics server is running.
  - If you are inside a firewall, verify that ports 5030 and 5432 are open. Port 5030 is used to make the REST call to Windows. Port 5432 port is used for the PostgreSQL connection.

The XCP File Analytics server always runs on a Linux machine. There is no separate installation available for SMB File Analytics. If you are a Windows user and want to run File Analytics for SMB share, then you must install File Analytics for Linux and connect the Windows box to a Linux database.
If you only use XCP File Analytics, you do not need to configure the XCP Catalog for NFS.

Install XCP NFS

If you want to upgrade XCP, delete the current installation and replace it with a new installation of the latest version.
This section details the system requirements and the procedures for the initial setup of XCP on a Linux client and the INI file configuration.

System Requirements

Item	Requirement
System	64-bit Intel or AMD server, minimum 8 cores and 64 GB RAM
Operating System & Software	See the IMT for supported operating systems
Special Requirements	Network connectivity and root level access to source and destination NFSv3 exports No other active applications
Storage	20 MB of disk space for the XCP binary and at least 50 MB of disk space for the logs that are stored in the /opt/NetApp/xFiles/xcp/ directory
Supported Protocol Version	NFSv3 and NFSv4 (POSIX and ACL)
Supported browser (File Analytics only)	Refer to the IMT matrix for all supported browser versions for XCP File Analytics.

The recommended configuration for live source migration is 8 cores and 64 GB RAM.

Install XCP NFS for a root user

You can use the following procedure to install XCP for a root user.

Steps

1. Log in to the Linux machine as the root user and download and install the license:

```
[root@scspr1980872003 ~]# ls -l
total 36188
-rw-r--r--  1 root root 37043983 Oct  5 09:36 NETAPP_XCP_<version>.tgz
-rw-------. 1 root root     1994 Sep  4  2019 license
```

2. To extract the tool, untar XCP:

```
[root@scspr1980872003 ~]# tar -xvf NETAPP_XCP_<version>.tgz
[root@scspr1980872003 ~]# ls
NETAPP_XCP_<version>.tgz license xcp
[root@scspr1980872003 ~]# cd xcp/linux/
[root@scspr1980872003 linux]# ls
xcp
```

3. Verify that the `/opt/NetApp/xFiles/xcp` path is available on the system from a previous version of XCP.

   If `/opt/NetApp/xFiles/xcp` is available, activate the license by using the `xcp activate` command and proceed with data migration.

   If `/opt/NetApp/xFiles/xcp` is not available, when you run the `xcp activate` command is run for the first time, the system creates the XCP host configuration directory in `/opt/NetApp/xFiles/xcp`.

   The `xcp activate` command fails because the license is not installed:

```
[root@scspr1980872003 linux]# ./xcp activate
(c) yyyy NetApp, Inc.
xcp: Host config file not found. Creating sample at
'/opt/NetApp/xFiles/xcp/xcp.ini'

xcp: ERROR: License file /opt/NetApp/xFiles/xcp/license not found.
Register for a license at https://xcp.netapp.com
```

4. Copy the license to `/opt/NetApp/xFiles/xcp/`:

```
[root@scspr1980872003 linux]# cp ~/license /opt/NetApp/xFiles/xcp/
```

5. Verify that the license file was copied to `/opt/NetApp/xFiles/xcp/`:

```
[root@ scspr1980872003 ~]# ls -altr /opt/NetApp/xFiles/xcp/
total 44
drwxr-xr-x 3 root root    17 Oct  1 06:07 ..
-rw-r--r-- 1 root root   304 Oct  1 06:07 license
drwxr-xr-x 2 root root     6 Oct  1 10:16 xcpfalogs
drwxr-xr-x 2 root root    21 Oct  1 10:16 xcplogs
-rw-r--r-- 1 root root   110 Oct  5 00:48 xcp.ini
drwxr-xr-x 4 root root    83 Oct  5 00:48 .
[root@scspr1978802001 ~]#
```

6. Activate XCP:

```
[root@scspr1980872003 linux]# ./xcp activate
XCP <version>; (c) yyyy NetApp, Inc.;
XCP activated
```

Install XCP for a non-root user

You can use the following procedure to install XCP for a non-root user.

Steps

1. Log in to the Linux machine as the non-root user and download and install the license:

```
[user1@scspr2474004001 ~]$ ls -l
total 36640
-rwxr-xr-x 1 user1 user1      352 Sep 20 01:56 license
-rw-r--r-- 1 user1 user1 37512339 Sep 20 01:56
NETAPP_XCP_Nightly_dev.tgz
[user1@scspr2474004001 ~]$
```

2. To extract the tool, untar XCP:

```
[user1@scspr2474004001 ~]$ tar -xvf NETAPP_XCP_Nightly_dev.tar
[user1@scspr2474004001 ~]$ cd xcp/linux/
[user1@scspr2474004001 linux]$ ls
xcp
[user1@scspr2474004001 linux]$
```

3. Verify that the `/home/user1/NetApp/xFiles/xcp` path is available on the system from a previous version of XCP.

   If the `/home/user1/NetApp/xFiles/xcp` path is available, activate the license by using the `xcp activate` command and proceeding with data migration.

   If `/home/user1/NetApp/xFiles/xcp` is not available, when you run the `xcp activate` command for the first time, the system creates the XCP host configuration directory in `/home/user1/NetApp/xFiles/xcp`.

   The `xcp activate` command fails because the license is not installed:

```
[user1@scspr2474004001 linux]$ /home/user1/xcp/linux/xcp activate
(c) yyyy NetApp, Inc.
xcp: Host config file not found. Creating sample at
'/home/user1/NetApp/xFiles/xcp/xcp.ini'

xcp: ERROR: License file /home/user1/NetApp/xFiles/xcp/license not
found.
Register for a license at https://xcp.netapp.com
[user1@scspr2474004001 linux]$
```

4. Copy the license to `/home/user1/NetApp/xFiles/xcp/`:

```
[user1@scspr2474004001 linux]$ cp ~/license
/home/user1/NetApp/xFiles/xcp/
[user1@scspr2474004001 linux]$
```

5. Verify that the license file was copied to `/home/user1/NetApp/xFiles/xcp/`:

```
[user1@scspr2474004001 xcp]$ ls -ltr
total 8
drwxrwxr-x 2 user1 user1  21 Sep 20 02:04 xcplogs
-rw-rw-r-- 1 user1 user1  71 Sep 20 02:04 xcp.ini
-rwxr-xr-x 1 user1 user1 352 Sep 20 02:10 license
[user1@scspr2474004001 xcp]$
```

6. Activate XCP:

```
[user1@scspr2474004001 linux]$ ./xcp activate
(c) yyyy NetApp, Inc.

XCP activated

[user1@scspr2474004001 linux]$
```

Install XCP SMB

This section details the system requirements and the procedure for VC++ redistributable installation and the initial setup of XCP on a Windows client.

There is no option to upgrade; reinstall XCP to replace any existing version.

System Requirements

Item	Requirement
System	64-bit Intel or AMD server, minimum 4 cores and 32 GB RAM
Operating System & Software	Windows 2012 R2 or above. For supported Microsoft OS versions, see the Interoperability Matrix Tool. Visual C++ 2017 redistributable must be installed on the XCP host.
Special Requirements	The source storage system, XCP host, and the target ONTAP system must be part of same Active Directory domain
Storage	20 MB of disk space for the XCP binary and at least 50 MB of disk space for the logs that are stored in the C:\NetApp\XCP directory
Supported Protocol Version	All SMB protocol versions
Supported browser (File Analytics only)	Refer to the IMT matrix for all supported browser versions for XCP File Analytics.

XCP SMB Microsoft VC++ Redistributable installation

Follow these steps for the VC++ redistributable installation.

Steps

1. Click VC++ 2017 redistributable to download the executable to your default downloads folder.
2. To start the installation, double click the installer. Accept the terms and conditions and select **Install**.
3. When the installation is complete, restart the Windows client.

XCP SMB Initial Setup Procedure

Follow these steps to perform the initial setup of XCP SMB.

Steps

1. Download the license and the XCP SMB binary `NETAPP_XCP_<version>.tgz` on a Windows client.
2. Extract the `NETAPP_XCP_<version>.tgz` file.
3. Copy the `xcp.exe` file to your Windows C: drive, this binary is available inside `NETAPP_XCP_<version>\xcp\windows` after you extract the `tgz` file.
4. Verify that the `C:\NetApp\XCP` path is available on the system from a previous version of XCP.
   If `C:\NetApp\XCP` is available, activate XCP by using the `xcp.exe activate` command and proceed with data migration.

   If `C:\NetApp\XCP` is not available, the system creates the XCP host configuration directory and files it at `C:\NetApp\XCP` when you run the `xcp.exe activate` command for the first time. The `xcp.exe activate` command fails and creates an error message asking for a new license.

```
C:\>xcp.exe activate
(c) yyyy NetApp, Inc.

License file C:\NetApp\XCP\license not found.
Register for a license at https://xcp.netapp.com
```

5. Copy the license to the newly created folder `C:\NetApp\XCP`:

```
C:\>copy license c:\NetApp\XCP
        1 file(s) copied.
```

6. Activate XCP:

```
C:\>xcp.exe activate
XCP SMB; (c) yyyy NetApp, Inc.;

XCP activated

C:\>
```

Install File Analytics for NFS

Install or upgrade File Analytics for NFS.

About this task

For system requirements for NFS, see Install XCP NFS.

The `configure.sh` script installs XCP File Analytics on a Red Hat Enterprise Linux (RHEL) host machine. As part of the installation, the script installs Postgres Database, Apache HTTPD server, and other required packages on the host Linux machine. For information on specific supported RHEL versions, refer to the IMT. You can change or update to a more recent version as needed and to adhere to security guidelines. To learn more about the `configure.sh` script, run `./configure.sh -h` on the command line.

Before you begin

- If any XCP operations are running, NetApp recommends that you complete the operations before you start the configuration.
- Your Linux machine must be connected to the Yum repository server or the internet.
- If a firewall is configured on the Linux machine, you must change the firewall settings to enable port 5030, which is used by the XCP service.

Steps

1. Install or upgrade File Analytics for NFS.

Install File Analytics

a. Navigate to the `xcp` folder and run the `./configure.sh` script.

   If installation is successful, the following message is displayed:

```
You can now access XCP file analytics using
(<username>:<password>)
https://<ip_address>/xcp
```

   You can use this username and password to log in to the File Analytics GUI.

Upgrade File Analytics

a. Navigate to the `xcp` folder and run `./configure.sh -f`.
b. At the prompt, enter `y` to clean up and reconfigure the system.

   After the script is approved, it cleans up the existing configuration and reconfigures the system.

   If successful, the following message is displayed:

```
You can now access XCP file analytics using
(<username>:<password>)
https://<ip_address>/xcp
```

2. Launch File Analytics in a supported browser: **https://<ip address of linux>/xcp**.

   Refer to Install XCP NFS for information on supported browsers.

Install File Analytics for SMB

Install or upgrade File Analytics for SMB.

About this task

For system requirements for SMB, see Install XCP SMB.

Before you begin

- You must configure XCP File Analytics for NFS on a Linux machine to use the XCP SMB service.
- Make sure the XCP service is running on your Linux machine, before you begin configuring XCP File Analytics on a Windows machine.

Fresh install of File Analytics for SMB

To perform a fresh install of File Analytics for SMB, complete the following steps.

Steps

1. Copy the `xcp.exe` file to your Windows `C:` drive, this binary is available inside `/xcp/windows` after you untar the `tgz` file.
2. Download the XCP license file from the XCP site.
3. Create the folder `C:\\NetApp\XCP` and copy the XCP license to this location.
4. Activate the XCP license using the following command at the command prompt: `xcp.exe activate`
5. In the Windows CLI command prompt, run `xcp configure`.
6. When prompted, provide the IP address of the Linux machine where the XCP File Analytics server is configured.
7. Copy the `server.key` and `server.crt` files from `/opt/NetApp/xFiles/xcp/` (in the Linux box where XCP File Analytics is already configured) to `C:\NetApp\XCP`.

   Optionally, if you have a CA certificate, place the certificate in `C:\NetApp\XCP` with the same name and extensions.

8. Go to your Windows machine and run `xcp listen`, now XCP File Analytics for SMB is configured. Keep the window open to continuously run the service.
9. Launch File Analytics on a supported browser: `https://<ip address of linux>/xcp`

   Refer to Install XCP SMB for information on supported browsers.

10. Select `OK` when the dialog box displays.

    A new tab opens. Enable pop-ups on the browser if they are blocked.

11. Accept the privacy policy for the URL. The following message displays: `SMB agent is ready to use. Please refresh the analytics page`
12. Display the SMB agent under the Agents card by returning to the original tab hosting the XCP File Analytics GUI and refreshing the page.

Upgrade of File Analytics for SMB

To upgrade the existing File Analytics for SMB, complete the following steps.

1. Before you run File Analytics, verify that the Linux server that File Analytics is running on is also upgraded and that the service is running.
2. In Windows, stop the existing XCP service by entering `CTRL-C` on the command line.
3. Replace `xcp.exe` with the latest binary.
4. Go to your Windows machine and run `xcp listen` to configure XCP File Analytics for SMB. Keep the window open to continuously run the service.
5. Launch File Analytics on a supported browser: `https://<ip address of linux>/xcp`

   Refer to Install XCP SMB for information on supported browsers.

6. Select **OK** when the dialog box displays.

A new tab opens. Enable pop-ups on the browser if they are blocked.

7. Accept the privacy policy for the URL. The following message displays: `SMB agent is ready to use. Please refresh the analytics page`
8. Display the SMB agent under the Agents card by returning to the original tab hosting the XCP File Analytics GUI and refreshing the page.

Configure XCP

Configure the INI file

Steps to configure the INI file for XCP.

Configure the INI file for a root user

You can use the following procedure to configure the INI file for an XCP NFS root user.

Steps

1. Add the catalog location for the XCP server in the host configuration file by using the `vi` editor:

> Catalog location should be exported before modifying the details in the `xcp.ini` XCP configuration file. Catalog location (NFSv3) should be mountable by the XCP Linux host but not necessarily be mounted.

```
[root@localhost /]# vi /opt/NetApp/xFiles/xcp/xcp.ini
```

2. Verify that the XCP Linux client host configuration file entries for the catalog were modified:

```
[root@localhost /]# cat /opt/NetApp/xFiles/xcp/xcp.ini
# Sample xcp config
[xcp]
catalog = 10.61.82.210:/vol/xcpvol/
```

Configure the INI file for a non-root user

As a non-root user, you do not have permission to mount the NFS file system. A root user is required to first mount the catalog volume and then, as a non-root user running XCP, if you have read/write permission to the catalog volume, you can access the mounted catalog volume by using a POSIX connector. After the volume is mounted, you can add catalog the path:

```
(t/10.237.170.53_catalog_vol - This is the path where catalog volume is
mounted)as follows.

[user1@scspr2474004001 xcp]$ ls -ltr
total 8
drwxrwxr-x 2 user1 user1  21 Sep 20 02:04 xcplogs
-rw-rw-r-- 1 user1 user1  71 Sep 20 02:04 xcp.ini
-rwxr-xr-x 1 user1 user1 352 Sep 20 02:10 license
[user1@scspr2474004001 xcp]$ cat /home/user1/NetApp/xFiles/xcp/xcp.ini

Sample xcp config [xcp]
catalog = file:///t/10.237.170.53_catalog_vol
```

Performance tuning

For XCP NFS, after planning the migration by using the `show` and `scan` commands, you can migrate data.

> When you are performing data migration as a non-root user, a root user can perform the following step.

For the optimal performance and reliability, NetApp recommends setting the following Linux kernel TCP performance parameters in `/etc/sysctl.conf` on the XCP Linux client host. Run `sysctl -p` or the `reboot` command to commit the changes:

```
net.core.rmem_default = 1342177
net.core.rmem_max = 16777216
net.core.rmem_max = 16777216
net.core.wmem_default = 1342177
net.core.wmem_max = 16777216
net.ipv4.tcp_rmem = 4096 1342177 16777216
net.ipv4.tcp_wmem = 4096 1342177 16777216
net.core.netdev_max_backlog = 300000
net.ipv4.tcp_fin_timeout = 10
```

> For a non-root user, the setting must be performed by a root user.

Environment variable

Optional environment variable configuration for XCP NFS systems.

> A non-root user can also use the following variables.

The environment variable `XCP_CONFIG_DIR` overrides the default location, `/opt/NetApp/xFiles/xcp`. If set, the value should be an OS filesystem path, possibly to a mounted NFS directory. When the `XCP_CONFIG_DIR` variable is set, a new directory with the same name as the host name is created inside the custom configuration directory path, new logs are stored at this location.

```
[root@localhost /]# export XCP_CONFIG_DIR ='/tmp/xcp_config_dir_path'
```

The environment variable `XCP_LOG_DIR` overrides the default location that stores the XCP log in the configuration directory. If set, the value should be an OS filesystem path, possibly to a mounted NFS directory. When the `XCP_LOG_DIR` variable is set, a new directory with the same name as the host name is created inside the custom log directory path, new logs are stored at this location.

```
[root@localhost /]# export XCP_LOG_DIR='/tmp/xcp_log_dir_path'
```

The environment variable `XCP_CATALOG_PATH` overrides the setting in xcp.ini. If set, the value should be in the xcp path format, `server:export[:subdirectory]`.

```
[root@localhost /]# export XCP_CATALOG_PATH='10.61.82.210:/vol/xcpvol/'
```

> For a non-root user, you must replace `XCP_CATALOG_PATH` from the exported path with the POSIX path.

Configure the POSIX connector

XCP NFS now supports the use of POSIX connectors to provide source and destination paths for data migration.

Supported features

The following features are supported for POSIX connectors:

- For POSIX file systems that support nanosecond `atime`, `mtime`, and `ctime`, the `scan` command gets the full values (seconds and nanoseconds) and the `copy` command sets them
- POSIX connectors are more secure than XCP with NFSv3 TCP sockets.

Path Syntax

The path syntax for a POSIX connector is `file:///<mounted path on linux>`.

Set up a POSIX connector

To set up a POSIX connector, you must perform the following tasks:

- Mount a source and a destination volume
- Verify that the destination path has the necessary permission to write the data

A destination and a catalog are mounted in the following example:

```
root@scspr2395903001 ~]# findmnt -t nfs4
TARGET SOURCE FSTYPE OPTIONS
/t/10.237.170.39_src_vol 10.237.170.39:/source_vol nfs4
rw,relatime,vers=4.0,rsize=65536,wsize=65536,namlen=255,hard,proto=t
cp,timeo=600,retrans=2,sec=sys,clien
/t/10.237.170.53_dest_vol 10.237.170.53:/dest_vol nfs4
rw,relatime,vers=4.0,rsize=65536,wsize=65536,namlen=255,hard,proto=t
cp,timeo=600,retrans=2,sec=sys,clien
/t/10.237.170.53_catalog_vol 10.237.170.53:/xcp_catalog nfs4
rw,relatime,vers=4.0,rsize=65536,wsize=65536,namlen=255,hard,proto=t
cp,timeo=600,retrans=2,sec=sys,clien
[root@scspr2395903001 ~]#
```

POSIX connectors access a source and destination volume by using the POSIX syntax `file://`. In the above example, the source path is `file:///t/10.237.170.39_src_vol` and the destination path is `file:// /t/10.237.170.53_dest_vol`.

You can manage the sample configuration of an XCP catalog shared by non-root users by creating a Linux group for XCP users. For non-root users, the following the permissions are required for Linux group users to perform migrations.

In the following sample output, `demo` is the non-root user and `/mnt/xcp-catalog` is the path where catalog volume is mounted:

```
sudo groupadd -g 7711 xcp_users
sudo usermod -G xcp_users -a demo
sudo chown -R :xcp_users /mnt/xcp-catalog
sudo chmod -R g+w /mnt/xcp-catalog
```

The XCP catalog does not store data but it does store scan and copy file names, directory names, and other metadata. Therefore, it is recommended that you configure the catalog file system permissions for allowed users to give them the capability to secure the stored metadata.

Ownership (UID and GID)

When you are set up as a regular user, by default, a `copy` command to a POSIX or NFS3 destination does not attempt to set the ownership (user ID (UID) and group ID (GID)). Setting the ownership is typically performed by an administrator. When user A copies files from user B, user A expects to own the destination. However, this is not the case when a root user copies the files. When a root user copies the files, the `-chown` option changes the behavior so that a non-root `copy` command with `-chown` attempts to set the UID and GID.

Increase the maximum number of open file descriptors

For optimal performance and reliability, you can increase the maximum number of open file descriptors for the XCP user on all nodes.

Steps

1. Open the file by using the following command:
   `vi /etc/security/limits.conf`
2. Add the following line to the file:
   `<username> - nofile 999999`

Example

```
root - nofile 999999
```

See Red Hat solutions for more information.

Configure the HDFS connector

For XCP NFS, the Hadoop Distributed File System (HDFS) connector (hdfs://) gives XCP the capability to access any HDFS file system that is available with different vendors.

Supported features

The `copy` command operation from HDFS to NFS is supported for HDFS connectors.

Path Syntax

The path syntax for a HDFS connector is `hdfs://[user@host:port]/full-path`.

> If you do not specify a user, host, and port, XCP calls `hdfsConnect` with the host set to `default` and the port set to `0`.

Set up a HDFS connector

To run the HDFS `copy` command, you must set the HDFS client on the Linux system, and based on the Hadoop vendor, follow the setup configuration available on the internet. For example, you can set the client for a MapR cluster by using `https://docs.datafabric.hpe.com/60/AdvancedInstallation/SettingUptheClient-redhat.html`.

After you complete the HFDS client setup, you must complete the configuration on the client. To use the HDFS paths with XCP commands, you must have the following environment variables:

- NHDFS_LIBHDFS_PATH
- NHDFS_LIBJVM_PATH

In the following examples, the settings work with MapR and java-1.8.0-openjdk-devel on CentOS:

```
export JAVA_HOME=$(dirname $(dirname $(readlink $(readlink $
(which javac)))))
export NHDFS_LIBJVM_PATH=`find $JAVA_HOME -name "libjvm.so"` export
NHDFS_LIBHDFS_PATH=/opt/mapr/lib/libMapRClient.so
```

```
[demo@mapr0 ~]$ hadoop fs -ls Found 3 items
drwxr-xr-x - demo mapr 0 2021-01-14 00:02 d1
drwxr-xr-x - demo mapr 0 2021-01-14 00:02 d2
drwxr-xr-x - demo mapr 0 2021-01-14 00:02 d3
```

Configure multinode scale-out

For XCP NFS, you can overcome the performance limits of a single node by using a single `copy` (or `scan -md5`) command to run workers on multiple Linux systems or cluster nodes.

Supported features

Multinode scale-out is helpful in any environment where the performance of a single system is not sufficient, for example, in the following scenarios:

- When it takes months for a single node to copy petabytes of data
- When high latency connections to cloud object stores slows down an individual node
- In large HDFS cluster farms where you run a very large number of I/O operations

Path syntax

The path syntax for multinode scale-out is `--nodes worker1,worker2,worker3`.

Set up multinode scale-out

Consider a setup with four Linux hosts with similar CPU and RAM configurations. You can use all four hosts for migration because XCP can coordinate the copy operations across all the host nodes. To make use of these nodes in a scale-out environment, you must identify one of the four nodes as the master node and other nodes as worker nodes. For example, for a Linux four-node setup, name the nodes as "master", "worker1", "worker2", and "worker3" and then set up the configuration on the master node:

1. Copy XCP in the home directory.
2. Install and activate the XCP license.
3. Modify the `xcp.ini` file and add the catalog path.
4. Set passwordless Secure Shell (SSH) from the master node to the worker nodes:
   a. Generate the key on the master node:

      ```
      ssh-keygen -b 2048 -t rsa -f /root/.ssh/id_rsa -q -N ''
      ```

   b. Copy the key to all the worker nodes:

      ```
      ssh-copy-id -i /root/.ssh/id_rsa.pub root@worker1
      ```

The XCP master node uses SSH to run workers on other nodes. You must configure the worker nodes to enable passwordless SSH access for the user running XCP on the master node. For example, to enable a user demonstration on a master node to use node "worker1" as an XCP worker node, you must copy XCP binary from the master node to all the worker nodes in the home directory.

MaxStartups

When you start up multiple XCP workers simultaneously, to avoid errors, you should increase the `sshd MaxStartups` parameter on each worker node as shown in the following example:

```
echo "MaxStartups 100" | sudo tee -a /etc/ssh/sshd_config
sudo systemctl restart sshd
```

The "nodes.ini" file

When XCP runs a worker on a cluster node, the worker process inherits the environment variables from the main XCP process on the master node. To customize a particular node environment, you must set the variables in the `nodes.ini` file in the configuration directory only on the master node (worker nodes do not have a configuration directory or catalog). For example, for an ubuntu server mars that has its `libjvm.so` in a different location to the master node, such as wave (which is CentOS), it requires a configuration directory to allow a worker on mars to use the HDFS connector. This setup is shown in the following example:

```
[schay@wave ~]$ cat /opt/NetApp/xFiles/xcp/nodes.ini [mars]
NHDFS_LIBJVM_PATH=/usr/lib/jvm/java-8-openjdk-amd64/jre/lib/
amd64/server/libjvm.so
```

If you are using a multisession with POSIX and HDFS file paths, you must mount the file system and the source and destination exported file system on the master node and all worker nodes.

When XCP runs on a worker node, the worker node has no local configuration (no license, log files, or catalog). XCP binary only is required on the system in your home directory. For example, to run the `copy` command, the master node and all worker nodes need access to the source and destination. For `xcp copy --nodes linux1,linux2 hdfs:///user/demo/test file:///mnt/ontap`, the `linux1` and `linux2` hosts must have the HDFS client software configured and the NFS export mounted on /mnt/ontap, and, as mentioned previously, a copy of the XCP binary in the home directory.

Combine POSIX and HDFS connectors, multinode scale-out, and security features

You can use the POSIX and HDFS connectors, multinode scale-out, and security features in combination. For example, the following `copy` and `verify` commands combine POSIX and HDFS connectors with the security and scale-out features:

- `copy` command example:

  ```
  ./xcp copy hdfs:///user/demo/d1 file:///mnt/nfs-server0/d3
  ./xcp copy -match "'USER1 in name'" file:///mnt/nfs-server0/d3
  hdfs:///user/demo/d1
  ./xcp copy —node worker1,worker2,worker3 hdfs:///user/demo/d1
  file:///mnt/nfs-server0/d3
  ```

- `verify` command example:

  ```
  ./xcp verify hdfs:///user/demo/d2 file:///mnt/nfs-server0/d3
  ```

Configure the S3 connector

Beginning with XCP 1.9.2, the Simple Storage Service (S3) connector enhances the scope of XCP data migration by enabling data migration from Hadoop Distributed File System (HDFS) file systems to S3 object storage.

Supported migration use cases

The following migration use cases are supported for the S3 connectors:

- Migration from HDFS to NetApp StorageGRID
- Migration from HDFS to Amazon S3
- Migration from HDFS to NetApp ONTAP S3

> Currently MapR is only qualified and supported for HDFS.

Supported features

Support for the `scan`, `copy`, `verify`, `resume` and `delete` commands is available for the S3 connectors.

Unsupported Features

Support for the `sync` command is not available for the S3 connectors.

Path Syntax

The path syntax for the S3 connector is `s3://<bucket in S3>`.

- You can provide a specific S3 profile for the XCP commands using the `-s3.profile` option.
- You can use the `s3.endpoint` option to modify the endpoint value to communicate with S3

> Endpoint usage is mandatory for StorageGRID and ONTAP S3.

Set up an S3 connector

Steps

1. To run the XCP command with the S3 connector, create a bucket in S3 by following the online documentation for the respective platforms:
   - ONTAP S3 object storage management
   - StorageGRID: Use a tenant account overview

   > Before continuing, you must have the `access key`, `secret key`, certificate authority (CA) certificate bundle, and `endpoint url` information. XCP identifies and connects to the S3 bucket using these parameters before initiating an operation.

2. Install the Amazon Web Services (AWS) CLI packages and run the AWS CLI commands to configure the keys and Secure Sockets Layer (SSL) certificates for S3 accounts:
   - See Installing or updating the latest version of the AWS CLI to install the AWS packages.
   - See the AWS CLI Command Reference for more information.
3. Use the `aws configure` command to configure your credentials file. By default, the file's location is

`/root/.aws/credentials`. The credentials file should specify the access key and secret access key.

4. Use the `aws configure set` command to specify a CA certificate bundle, which is a file with the `.pem` extension that is used when verifying SSL certificates. By default, the file's location is `/root/.aws/config`.

   Example:

```
[root@client1 ~]# aws configure
AWS Access Key ID [None]: <access_key>
AWS Secret Access Key [None]: <secret_key>
Default region name [None]:
Default output format [None]:
[root@client1 ~]# cat /root/.aws/credentials
[default]
aws_access_key_id = <access_key>
aws_secret_access_key = <secret_key>
[root@client1 ~]#
[root@client1 ~]# aws configure set default.ca_bundle
/u/xxxx/s3/ca/aws_cacert.pem
[root@client1 ~]# cat /root/.aws/config
[default]
ca_bundle = /u/xxxx/s3/ca/aws_cacert.pem
```

5. After the required setup configuration is completed, confirm that the AWS CLI commands can access the S3 buckets from the Linux client before running the XCP commands:
   `aws s3 ls --endpoint-url <endpoint_url> s3://bucket-name/`

   `aws s3 ls --profile <profile> --endpoint-url <endpoint_url> s3://bucket-name`

   Example:

```
[root@client1 linux]# aws s3 ls --profile <profile> --endpoint
<endpoint_url>  s3://<bucket-name>
                           PRE 1G/
                           PRE aws_files/
                           PRE copied_folders/
                           PRE d1/
                           PRE d2/
                           PRE giant_size_dirs/
                           PRE medium_size_dirs/
                           PRE small_size_dirs/
[root@client1 l
```

Plan data migration

You can plan your migration using the CLI or the File Analytics GUI.

Use the following commands to plan your migration:

- Show
- Scan

Use File Analytics to visualize the statistics for exports and shares.

Plan NFS data migration

Plan your NFS data migrations.

show

The `show` command queries the RPC services and NFS exports of one or more storage servers. The command lists the available services and exports with the used and free capacity of each export, followed by the root attributes of each export.

Example:

- `xcp show <NFS file server IP/FQDN>`
- `xcp show nfs_server01.netapp.com`

Run `xcp help show` for more details.

scan

The `scan` command recursively scans the entire source NFSv3 exported paths and prints the statistics of file structure at the end of the scan. NetApp recommends putting the source NFS export mounts in read-only mode during the scan operation.

> If a file or directory name contains non-UTF-8 characters, these characters are converted to the UTF-8 format and displayed when you run the `xcp-scan` command. Depending on the translation from the source encoding to UTF-8, the characters might not display as expected.

Example:

- `xcp scan NFS [server:/export path | file:// ]`
- `xcp scan nfs_server01.netapp.com:/export1`
- `xcp scan file:///mnt/nfs-source`

Run `xcp help scan` for more details.

Optionally, use File Analytics to view the results graphically.

Plan SMB data migration

Plan your SMB data migrations.

Show

The `show` command shows all SMB shares available on the server with the permissions and space available. Example:

- `xcp show \\<SMB file server IP/FQDN>`
- `xcp show smb_server01.netapp.com`

Run `xcp help show` for more details.

Scan

The `scan` command recursively scans the entire SMB share and lists all the files at the end of the scan.

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

Example:

- `xcp scan \\SMB server\share1`
- `xcp scan smb_server01.netapp.com:/share1`

Run `xcp help scan` for more details.

Optionally, use File Analytics to view the results graphically.

Plan HDFS data migration

Plan your HDFS data migrations.

Scan

The `scan` command recursively scans the entire source paths and prints the statistics for the file structure at the end of the scan.

- `xcp scan HDFS [hdfs://<hdfs mounted path> ]`
- `xcp scan hdfs:///demo/user1`
- `xcp scan s3://my-bucket`
- `xcp scan -s3.profile <s3 profile name> -s3.endpoint <endpoint-url> s3://my-bucket`

Run `xcp help scan` for more details.

Plan using File Analytics

Plan your data migration

Plan your data migration using File Analytics.

> XCP is a CLI, whereas File Analytics has a GUI.

Overview

XCP File Analytics uses the XCP scan API to collect data from NFS or SMB hosts. This data is then displayed on XCP File Analytics GUI. There are three main components involved in XCP File Analytics:

- XCP service
- File Analytics database
- File Analytics GUI to manage and view data

The deployment method for XCP File Analytics components depends on the solution required:

- Deploying XCP File Analytics solutions for NFS file systems:
  - You can deploy the File Analytics GUI, database, and XCP service in the same Linux host.
- Deploying XCP File Analytics solutions for SMB file systems:
  You must deploy the File Analytics GUI and database in a Linux host and deploy the XCP service on a Windows host.

Access File Analytics

File Analytics provides a graphical view of scan results.

Log in to the File Analytics GUI

The XCP File Analytics GUI provides a dashboard with graphs for visualizing File Analytics. The XCP File Analytics GUI is enabled when you configure XCP on a Linux machine.

> To check the supported browsers for accessing File Analytics, see the NetApp IMT.

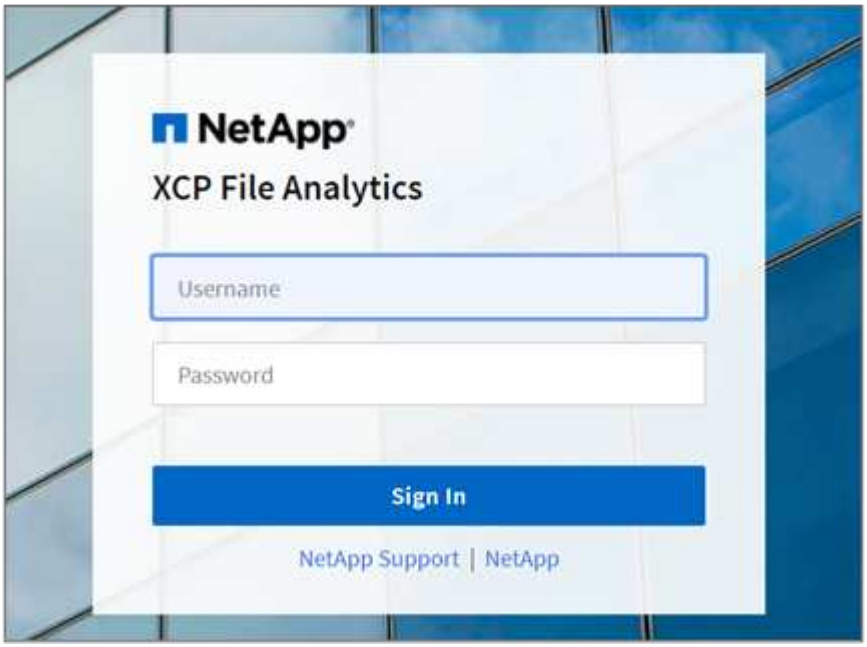
Steps

1. Use the link `https://<IP address of linux machine>/xcp` to access the File Analytics GUI. When prompted, accept the security certificate:
   a. Select **Advanced** below the privacy statement.
   b. Select the **Proceed to `<IP address of linux machine>`** link.
2. Log in to the File Analytics GUI.

   There are two ways to log in to the File Analytics GUI:

Log in using user credentials

a. Log in to the GUI using the user credentials obtained when you installed File Analytics.



b. Optionally, change the password to your own password.

   If you want to change the password obtained during installation to your own password, select the user icon and select **Change password**.

   Your new password must be at least eight characters in length and contain at least one number, one upper case letter, one lower case letter, and one special character (! @ # $ % ^ & * - _).

> After changing the password, you are automatically logged out of the GUI and you must sign in again using the new password that you created.

Configure and enable SSO capability

You can use this login capability to set up XCP File Analytics on a particular machine and share the web UI URL enterprise-wide, allowing users to log in to the UI using their single sign-on (SSO) credentials.

> SSO login is optional and can be configured and enabled permanently.
> To set up Security Assertion Markup Language (SAML) based SSO login, see Configure SSO credentials.

3. After logging in, you can see the NFS agent; a green tick is present showing minimal system configuration of the Linux system and XCP version.
4. If you have configured an SMB agent, you can see the SMB agent added in the same agent card.

Configure SSO credentials

The SSO login functionality is implemented in XCP File Analytics using SAML and is supported with the Active

Directory Federation Services (ADFS) identity provider. SAML offloads the authentication task to the third-party identity provider (IdP) for your enterprise which can utilize any number of approaches for MFA (multifactor authentication).

Steps

1. Register the XCP File Analytics application with your enterprise identity provider.

   File Analytics now runs as a service provider and therefore must be registered with your enterprise identity provider. Generally, there is a team in the enterprise that handles this SSO integration process. The first step is to find and reach out to the relevant team and share the File Analytics application metadata details with them.

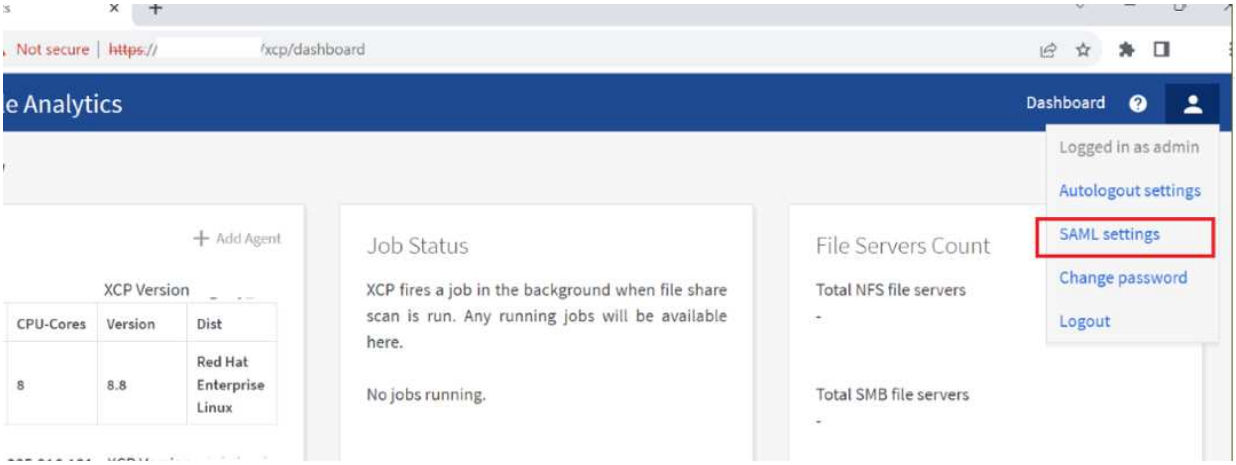
   The following are the mandatory details that you must share to register with your identity provider:

   - **Service provider entity ID:** `https://<IP address of linux machine>/xcp`
   - **Service provider Assertion Consumer Service (ACS) URL:** `https://<IP address of linux machine>:5030/api/xcp/SAML/sp`

     You can also verify these details by logging in to the File Analytics UI:

     a. Log in to the GUI using the steps described in Log in to the File Analytics GUI.
     b. Select the **User** icon on the top right corner of the page, then select **SAML settings**.

        Check **Service provider settings** in the drop down menu that appears.

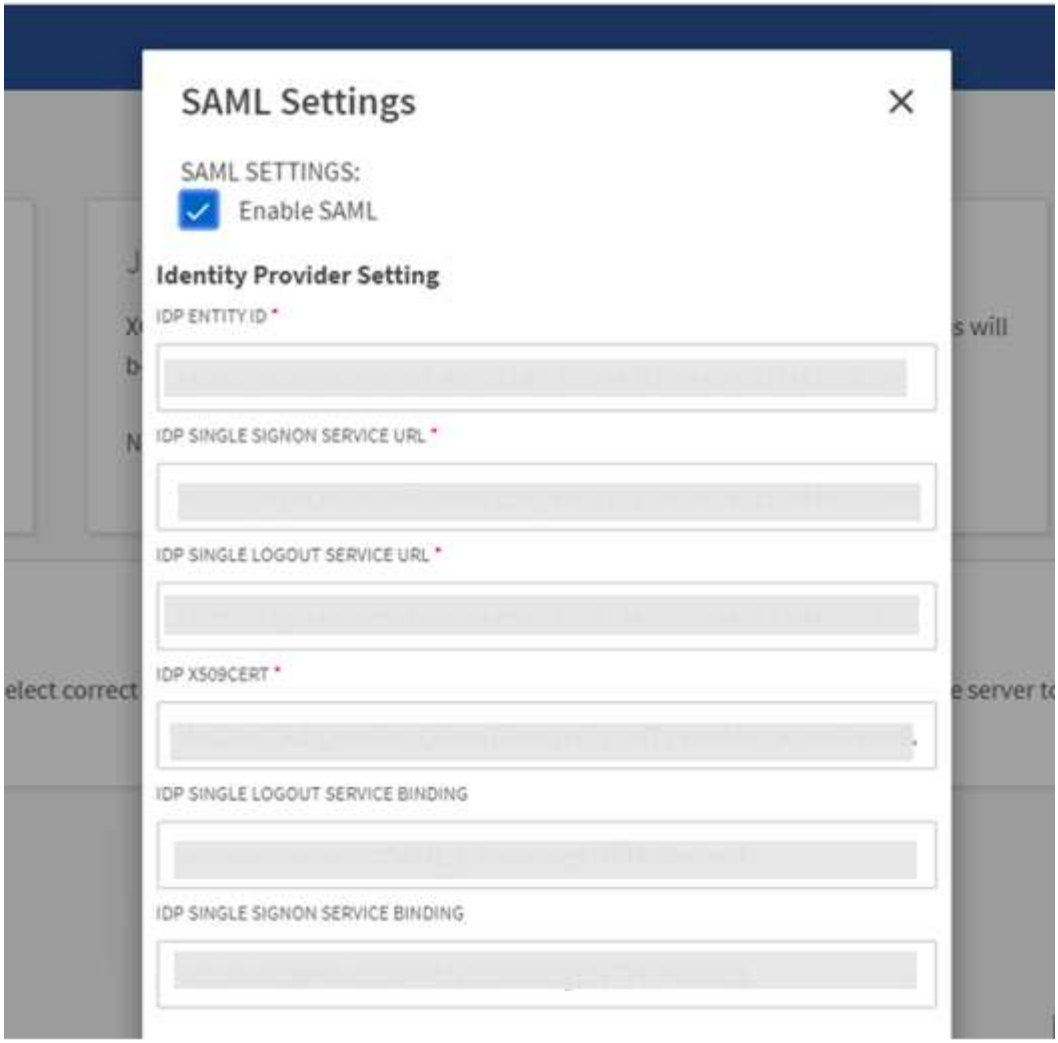


        After registration, you receive the IdP endpoint details for your enterprise. You are required to provide this IdP endpoint metadata to the File Analytics UI.

2. Provide the IdP details:

   a. Go to **Dashboard**. Select the **User** icon at the top right corner of the page and select **SAML settings**.
   b. Input the IdP details that you obtained after registration.

      Example



c. Select the **Enable SAML** checkbox to permanently enable SAML-based SSO.
d. Select **Save**.
e. Log out of File Analytics and log back in again.

   You are redirected to your enterprise SSO page.

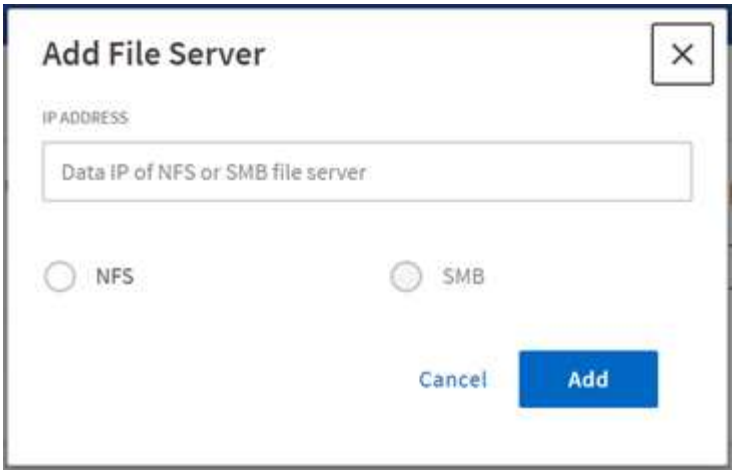
Add file servers

You can configure NFS and SMB exported file systems in the XCP File Analytics GUI.

This enables XCP File Analytics to scan and analyze data on the file system. Use the following steps to add NFS or SMB file servers.

Step

1. To add file servers, select **Add File Server**.



Add the file server IP address, select the NFS or SMB option and click **Add**.

> If an SMB agent is not visible in the GUI, you will not be able to add SMB server.

After adding the file server, XCP displays:

- Total file shares available
- File shares with analytics data
  (The initial count is “0”, this updates when you run a successful scan)
- Total space utilization – the sum of space utilized by all the exports
- The data for file shares and space utilization is real-time data direct from the NFS/SMB server. Collecting and processing the data takes several seconds.

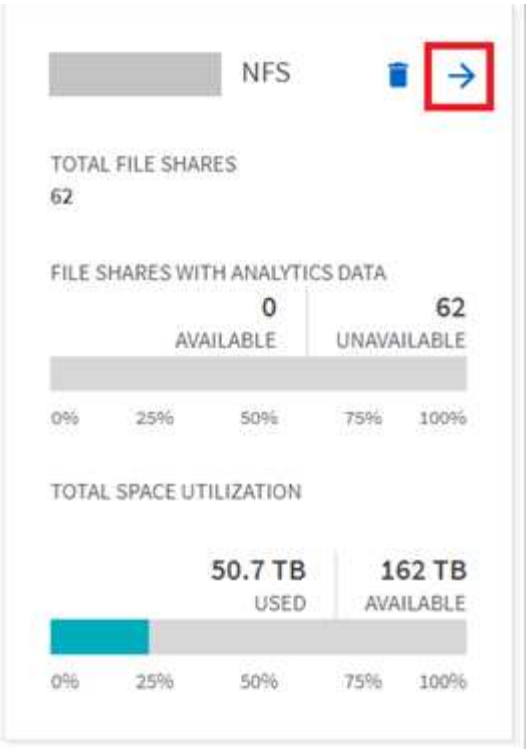
> Space available versus space used in File Analytics is calculated from each exported file system available over NFS. For example, if the volumes consist of qtrees and the exports are created over a qtree, the overall space is the cumulative space of the volume size and the qtree size.

Run a scan

When the NFS/SMB files system is added to the XCP File Analytics GUI, you can start a file system scan to analyze and represent the data.

Steps

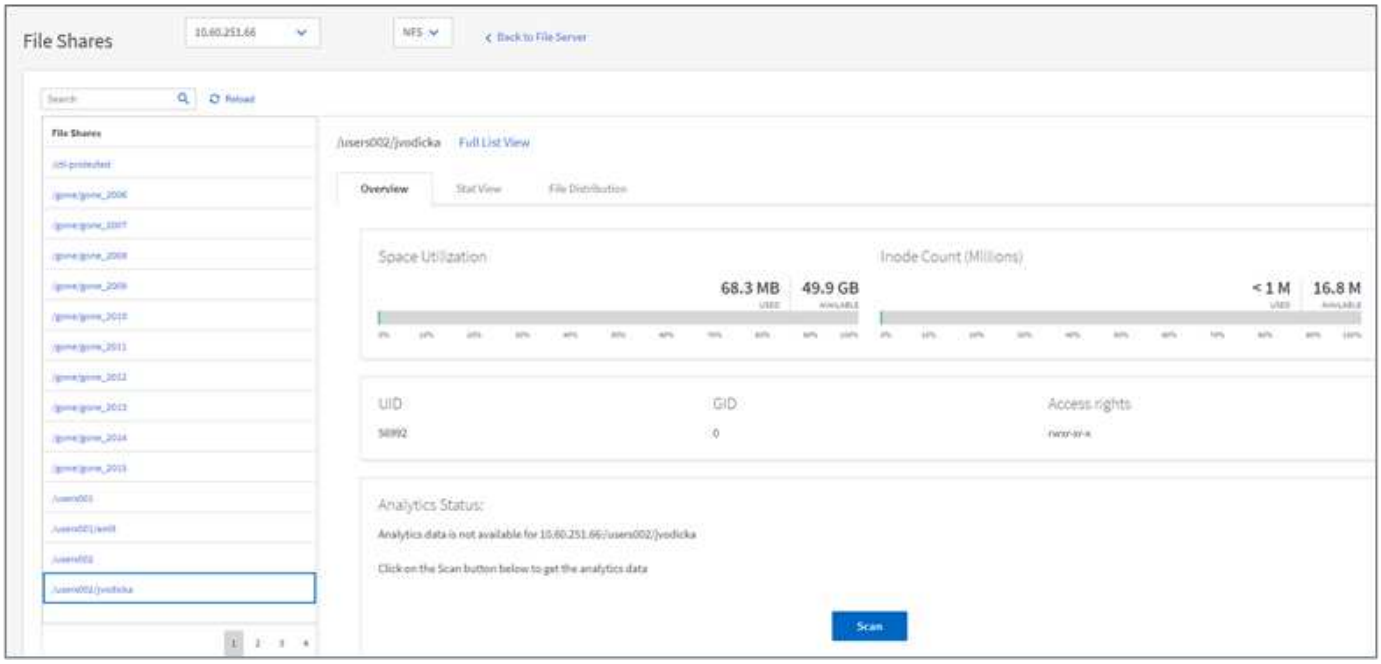
1. Select the arrow on the added file server card to view the file shares on the file server.



2. From the list of file shares, select the name of the file share to scan.
3. Select **Scan** to start the scan.

   XCP displays a progress bar for the scan.

4. When the scan is complete the **stat view** and **file distribution** tabs are enabled to allow you to view graphs.

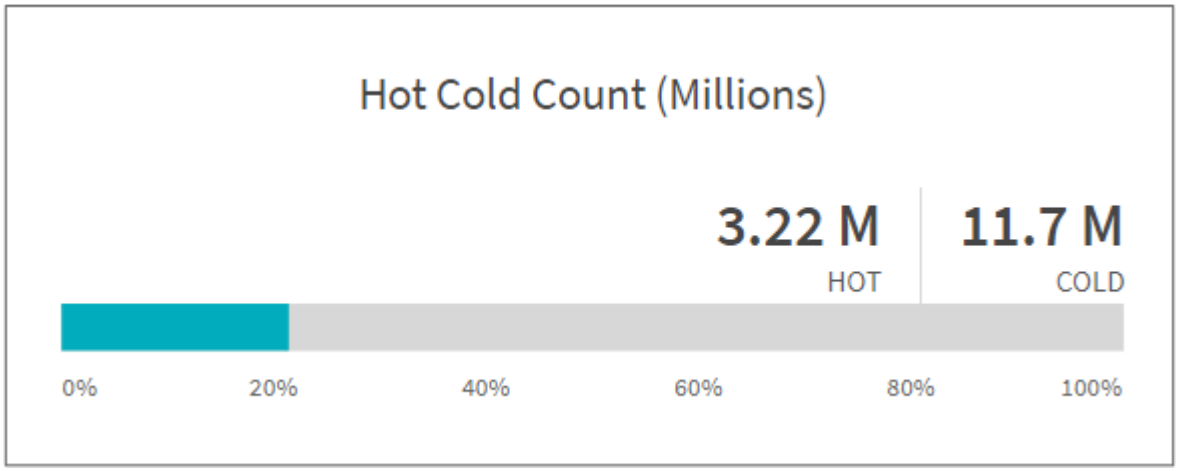


Learn about graphs

The File Analytics GUI dashboard displays multiple graphs for visualizing File Analytics.

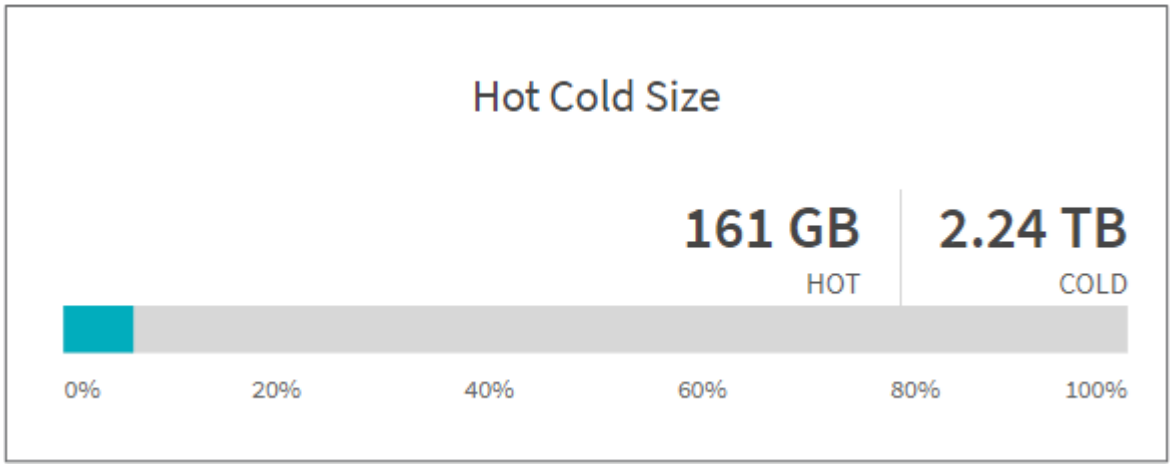
Hot Cold Count Graph

XCP File Analytics categorizes files not accessed for 90 days as cold data. Files accessed in the last 90 days are hot data. Criteria to define hot and cold data is based on access time only.



The Hot Cold Count graph displays the number of inodes (in millions) that are hot or cold in XCP NFS. In XCP SMB, this graph denotes the number of files that are hot or cold.
The colored bar represents the hot data and shows the percentage of files accessed within 90 days.

Hot Cold Size Graph



The Hot Cold Size graph displays the percentage of files that are hot and cold and the total size of the files in each category. The colored bar represents the hot data and the uncolored part represents the cold data. Criteria to define hot and cold data is based on access time only.

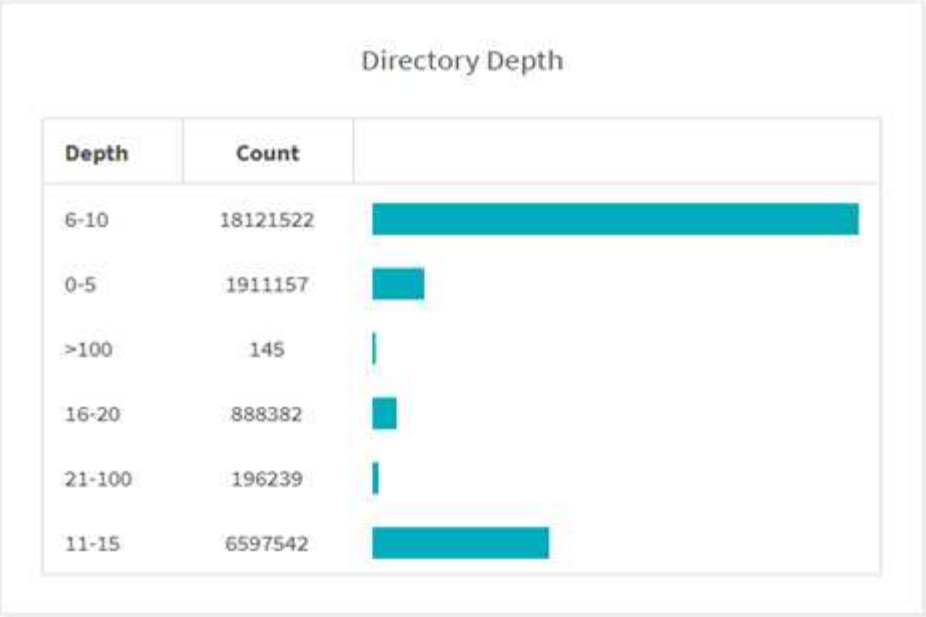
Entries in Directory Graph

The Entries in Directories graph displays the number of entries in directories. The Depth column contains different directory sizes and the Count column indicates the number of entries in each directory depth.

File Distribution by Size Graph

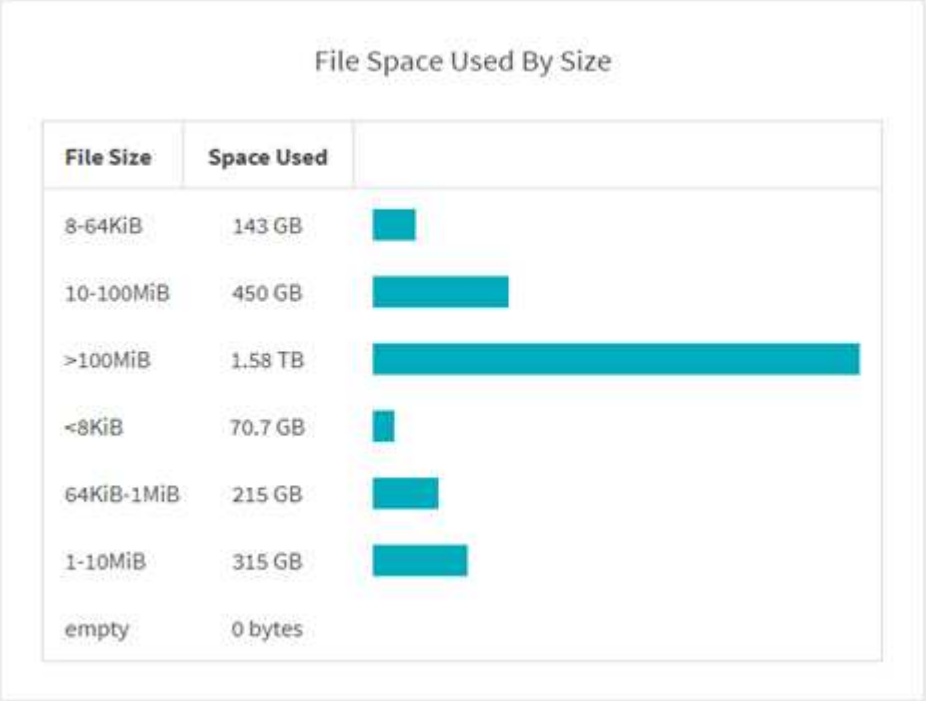
The File Distribution by Size graph displays the number of files that are under the given file sizes. The File Size column contains the categories of file size and the Count column indicates the distribution of the number of files.

Directory Depth Graph



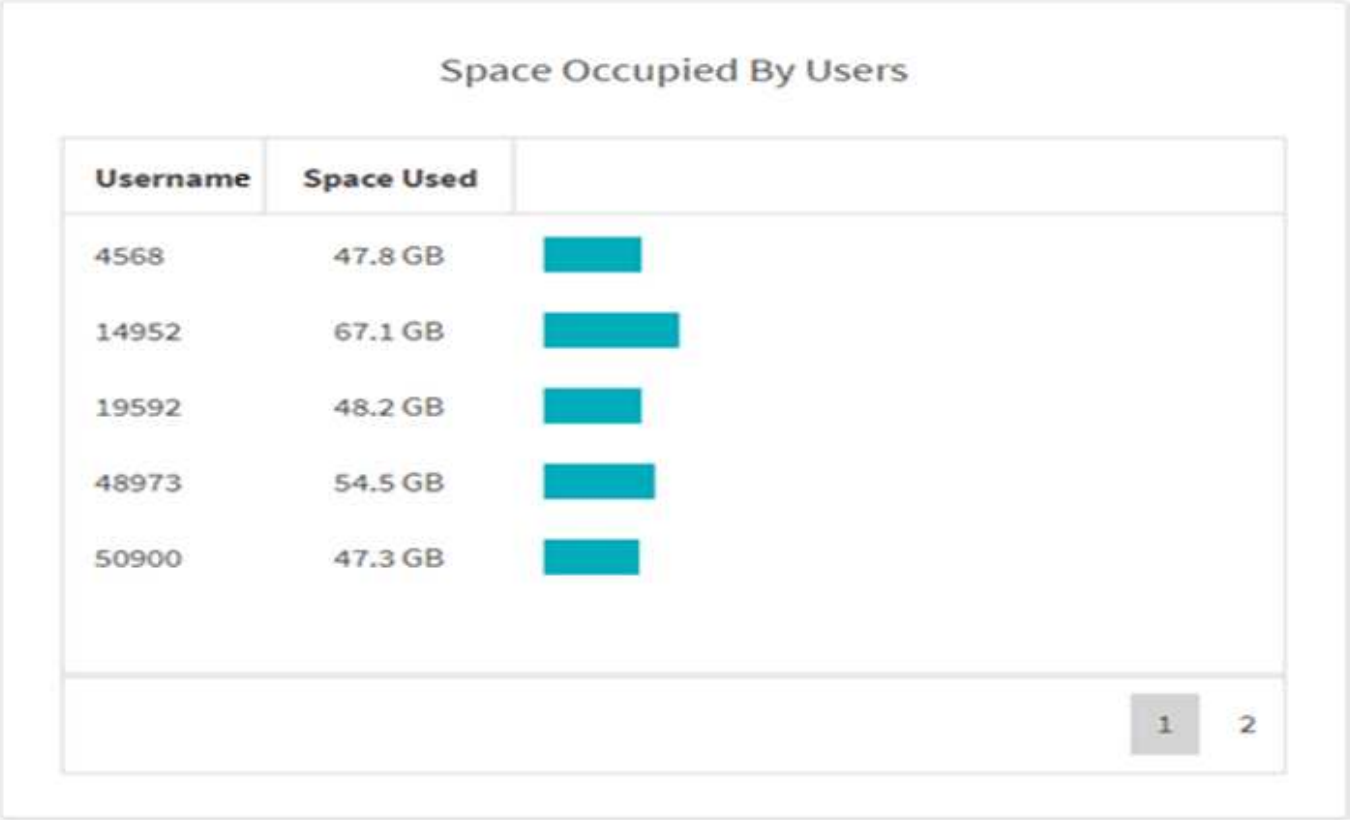
The Directory Depth graph represents the distribution of the number of directories in various directory depth ranges. The Depth column contains various directory depths and the Count column contains the count of each directory depth in the file share.

File Space Used by Size Graph



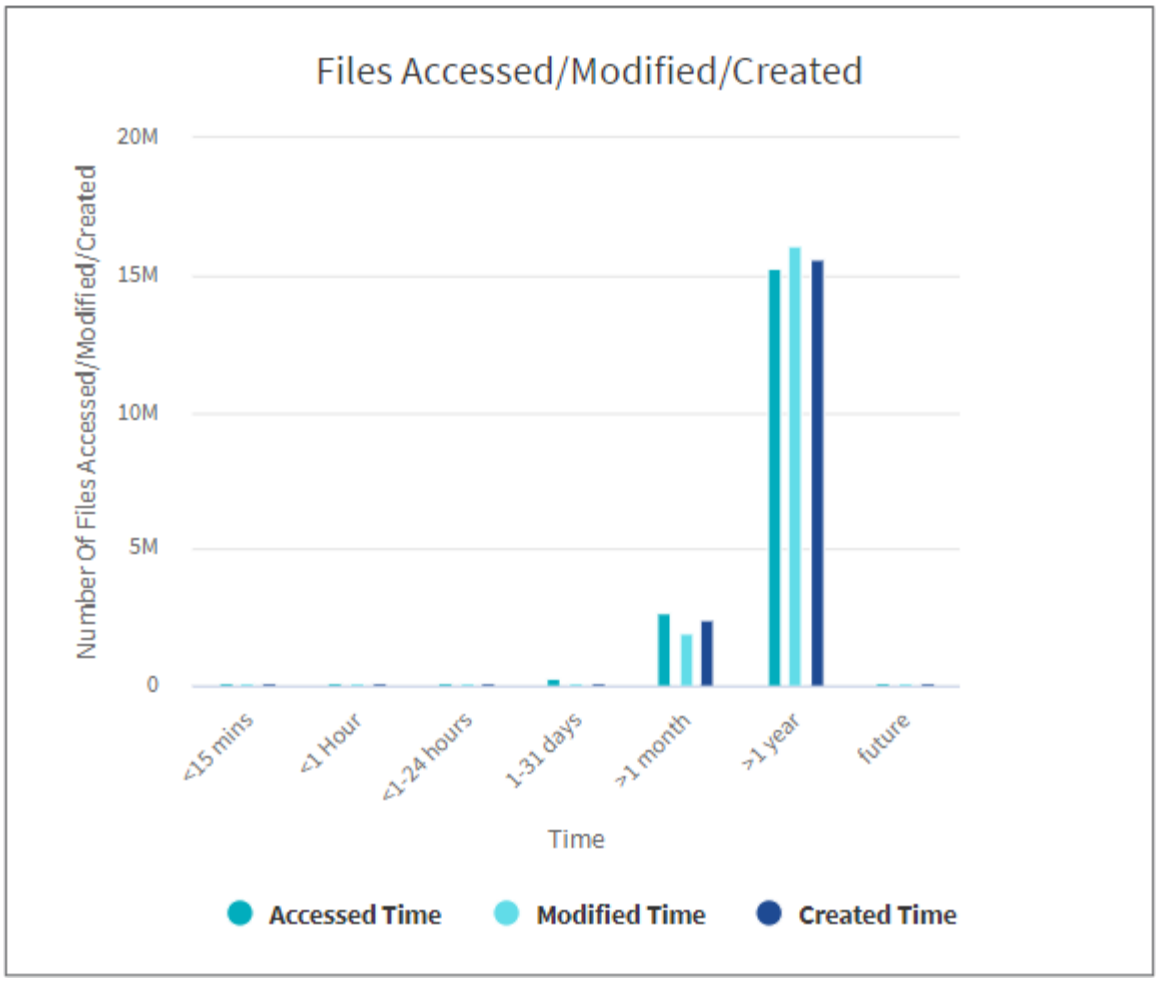
The File Space Used by Size graph displays the number of files in different file-size ranges. The File Size column contains different file size ranges and the Space Used column indicates the space used by each file size range.

Space Occupied by Users Graph



The Space Occupied by Users graph displays the space used by users. The Username column contains the names of users (UID when usernames cannot be retrieved) and the Space Used column indicates the space used by each username.

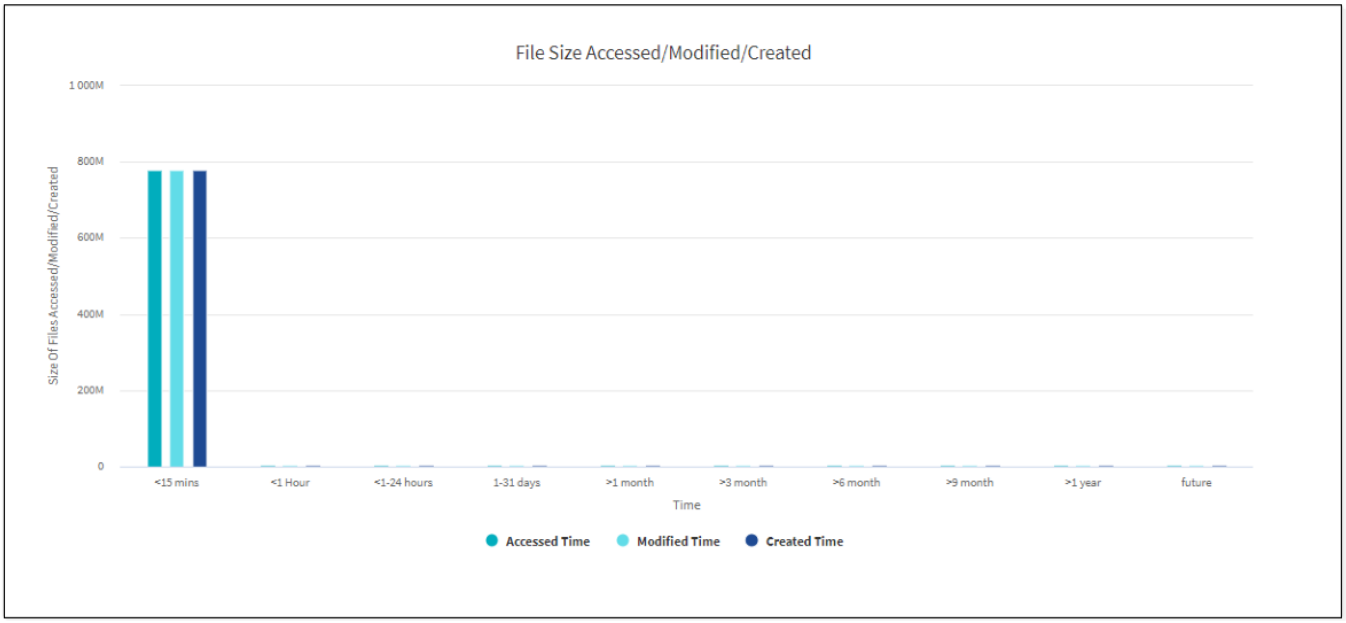
Files Accessed/Modified/Created Graph



The Files Accessed/Modified/Created graph displays the count of files changed over time. The X-axis represents the period of time within which changes were made and the Y-axis represents the number of files changed.

> To get the access time (atime) graph in SMB scans, check the box for preserving atime before running a scan.

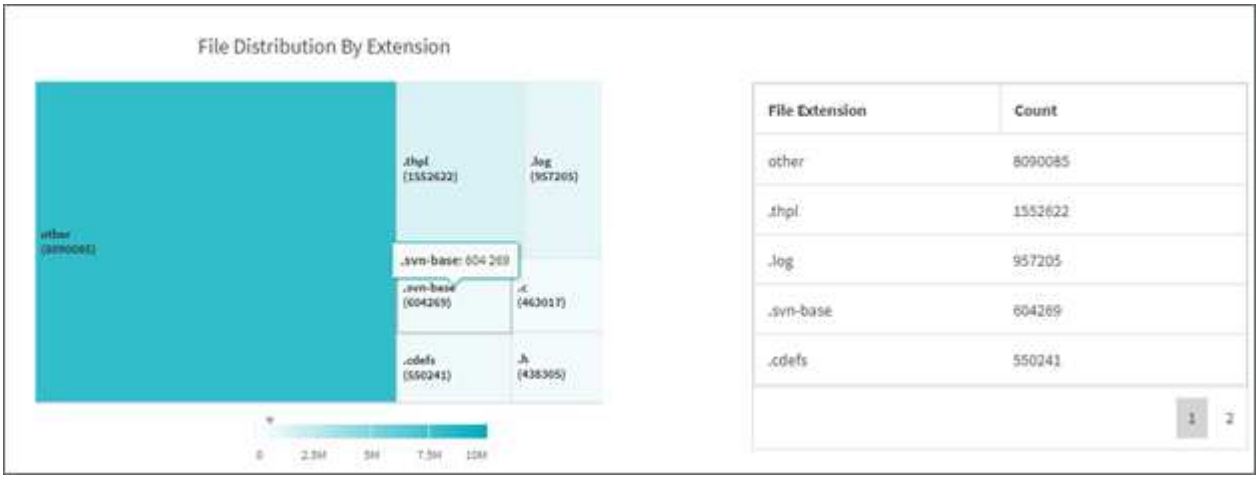
File Size Accessed/Modified/Created Graph



The File Size Accessed/Modified/Created graph displays the size of files changed over time. The X-axis represents the period of time within which changes were made and the Y- axis represents the size of files changed.

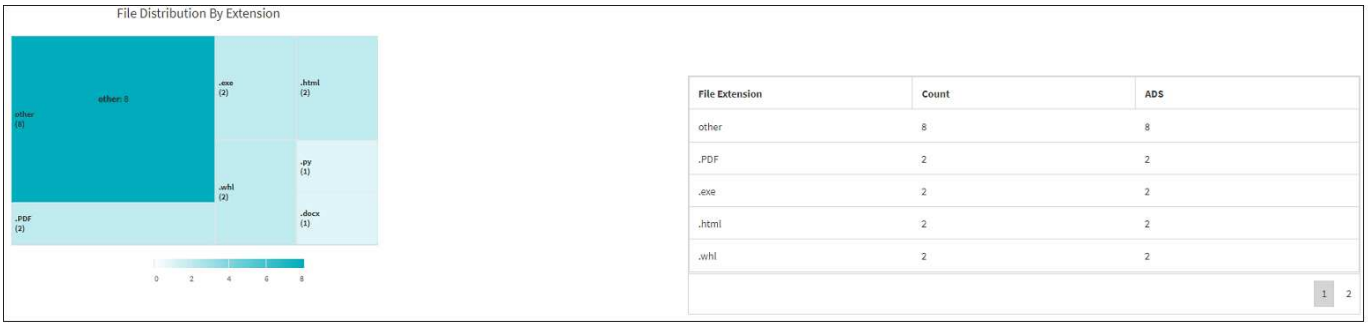
To get the access time (atime) graph in SMB scans, check the box for preserving atime before running a scan.

File Distribution by Extension Graph



The File Distribution by Extension graph represents the count of the different file extensions in a file share. The size of the divisions representing the extensions is based on the number of files with each extension.

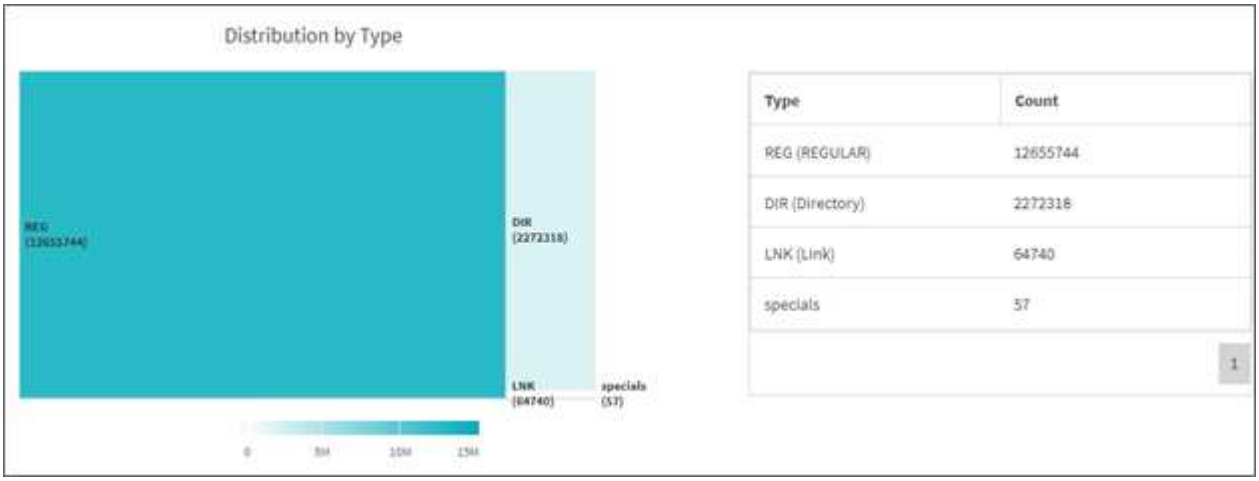
Additionally, for SMB shares, you can get the number of alternate data streams files for each file extension by checking the box for alternate data streams before running a scan.



File Size Distribution by Extension Graph

The File Size Distribution by Extension graph represents the cumulative size of the different file extensions in a file share. The size of the divisions representing the extensions is based on the size of files with each extension.

File Distribution by Type Graph



The Distribution by Type graph represents the count of the following types of files:

- REG: Regular files
- LNK: Files with links
- Specials: Files with device files and character files.
- DIR: Files with directories

- Junction: Available in SMB only

Additionally, for SMB shares, you can get the number of alternate data streams files for different types by checking the box for alternate data streams before running a scan.

Filters

XCP provides filter options that can be used in XCP operations.

XCP uses filters for `-match` and `-exclude` options for NFS and SMB.

For NFS, run `xcp help info` and refer to the FILTERS section to see how to use `-match` and `-exclude` filters.

For SMB, run `xcp help -match` and `xcp help -exclude` to get more details on `match` and `exclude` filters.

If you want to use filters in XCP commands, run `xcp help <command>` to see if they are supported options.

Logging for NFS and SMB (optional)

Logging for XCP NFS and SMB.

XCP supports configuring multiple optional features by using the `xcpLogConfig.json` JSON configuration file. To enable only specific features, manually create the `xcpLogConfig.json` configuration file. You can use the `xcpLogConfig.json` configuration file to enable:

- event log messages
- syslog client for XCP
- custom XCP logging

Event log messages and the syslog client are disabled in the default configuration. Configuration is common for both NFS and SMB.

Config JSON file location	NFS	SMB
Config file default location	/opt/NetApp/xFiles/xcp/	C:\NetApp\XCP\ConfigFile
Custom location requires the `XCP_CONFIG_DIR` environment variable	Use the location you have set against the `XCP_CONFIG_DIR` variable	N/A

The JSON configuration file options are case sensitive. These options are the same for XCP NFS and XCP SMB.

Sub options name	JSON data type	Default	Description
logConfig			Option to customize XCP logging.
“level”	String	INFO	Log message severity filter level. XCP log messages support five severity levels in order of decreasing severity: CRITICAL, ERROR, WARNING, INFO, DEBUG (NetApp strongly recommends using INFO or DEBUG)
“maxBytes”	Integer	52428800	Size of each rotating log file. Max supported rotation files are 10.
“name”	String	xcp.log	Option to set custom log file name.
eventlog			Option to configure event log message.
“isEnabled”	Boolean	true	This boolean option is used to enable event messaging. Setting it to `false` will not generate any event messages and no event logs will be published to event log file.
“level”	String	INFO	Event message severity filter level. Event messaging support five severity levels in order of decreasing severity: CRITICAL, ERROR, WARNING, INFO, DEBUG
syslog			Option to configure syslog messaging.
“isEnabled”	Boolean	false	This boolean option is used to enable syslog client in XCP.
“level”	String	INFO	Message severity filter level. XCP event log messages support five severity levels in order of decreasing severity: CRITICAL, ERROR, WARNING, INFO, DEBUG
“serverIp”	String	None	Remote syslog server IP addresses or hostname.
“port”	Integer	514	Remote syslog receiver port. Syslog receivers accepting syslog datagrams on a different port can be configured with port option UDP port 514 but you can also configure to the desired port.

Sub options name	JSON data type	Default	Description
“sanitize”	Boolean	false	A common option for XCP support; setting its value to true hides sensitive information (IP and username) in the messages going to support (logging, events, syslog, and so on). For example, with the `sanitize` option as `false`: * `2020-07-17 03:10:23,779 - INFO - 12806 xcp xcp Paths: ['10.234.104.251:/cat_vol']` * `2020-07-17 03:10:23,778 - INFO - 12806 xcp xcp User Name: root` With the `sanitize` option as `true`: * `2020-07-17 03:13:51,596 - INFO - 12859 xcp xcp Paths: ['IP: XX.XX.XX.XX:/cat_vol']` * `2020-07-17 03:13:51,595 - INFO - 12859 xcp xcp User Name: * * *`

Create the JSON configuration file

If you want to enable event log messages, the syslog client, or customer logging, complete the following steps.

Steps

1. Open any text editor, such as notepad or vi.
2. Create a new file with the following JSON template.

```
{
  "logConfig": {
    "level": "INFO",
    "maxBytes": 52428800,
    "name": "xcp.log"
  },
  "eventlog": {
    "isEnabled": false,
    "level": "INFO"
  },
  "syslog": {
    "isEnabled": false,
    "level": "INFO",
    "serverIp": "10.234.219.87",
    "port": 514
  },
  "sanitize": false
}
```

3. For any features that you want to enable, change the `isEnabled` value to `true`.
4. Name the file `xcpLogConfig.json` and save it to the default location: /opt/NetApp/xFiles/xcp/

   If the `XCP_CONFIG_DIR` environment variable is set, save the `xcpLogConfig.json` file in the same location that is set against the `XCP_CONFIG_DIR` variable.

Default configuration	Example json configuration file
`{ "logConfig": { "level": "INFO", "maxBytes": 52428800, "name": "xcp.log" }, "sanitize": false }`	`{ "logConfig": { "level": "INFO", "maxBytes": 52428800, "name": "xcp.log" }, "eventlog": { "isEnabled": false, "level": "INFO" }, "syslog": { "isEnabled": false, "level": "INFO", "serverIp": "10.234.219.87", "port": 514 }, "sanitize": false }`

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

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.

Troubleshoot

Troubleshoot XCP NFS errors

Review the solutions to troubleshoot your issue.

XCP issues and solutions

XCP issue	Solution
`xcp: ERROR`: compare batches: Incompatible index file. Please use the index file generated with the current version of XCP only. Alternatively, you can download an older XCP binary from xcp.netapp.com.	You are trying to perform operations on an index that was generated using an XCP version older than XCP 1.9. This is not supported. It is recommended to complete any in-progress migrations and then switch to this version of XCP. Alternatively, you can re-run the `scan`, `copy` or `verify` commands to generate a new index with XCP 1.9.
`xcp: ERROR`: must run as root	Execute XCP commands as root user
`xcp: ERROR`: License file `/opt/NetApp/xFiles/xcp/license` not found.	Download the license from the XCP site, copy it to `/opt/NetApp/xFiles/xcp/`, and activate it by running the `xcp activate` command.
`xcp: ERROR`: This license has expired	Renew or obtain the new XCP license from the XCP site.
`xcp: ERROR`: License unreadable	License file might be corrupted. Obtain the new XCP license from the XCP site.
`xcp: ERROR`: XCP not activated, run 'activate' first	Run the `xcp activate` command
This copy is not licensed	Obtain the appropriate XCP license file. Copy the XCP license to the `/opt/NetApp/xFiles/xcp/` directory on the XCP server. Run the `xcp activate` command to activate the license.
`xcp: ERROR`: Failed to activate license: Server unreachable	You are trying to activate the online license and your host system is not connected to the internet. Make sure your system is connected to the internet.
`xcp: ERROR`: Failed to activate license: Server xcp.netapp.com unreachable `xcp: HINT`: Configure DNS on this host or return to the license page to request a private license Expected error: Failed to activate license: Server xcp.netapp.com unreachable	Make sure xcp.netapp.com is reachable from your host or request for the offline license

XCP issue	Solution

`xcp: ERROR`: Catalog inaccessible: Cannot mount `nfs_server:/export[:subdirectory]`	Open the editor on the XCP Linux client host and update the configuration file with the proper catalog location. The XCP configuration file is located at `/opt/NetApp/xFiles/xcp/xcp.ini`. Sample entries of configuration file:
	
	`[root@scspr1949387001 ~]# cat /opt/NetApp/xFiles/xcp/xcp.ini`
	`[xcp]`
	`catalog = 10.235.128.153:/catalog`

`nfs3 error 2`: no such file or directory	Operation did not find the source file(s) on the target NFS export. Run the `xcp sync` command to copy the incremental updates from source to destination
`xcp: ERROR`: Empty or invalid index	Previous copy operation was interrupted before the index file was created. Rerun the same command with the new index and when the command is executing, verify that the keyword “indexed” is displayed in the stats.
`xcp: ERROR`: compare batches: child process failed `(exit code -9): recv <type 'exceptions.EOFError'>`	Follow the instructions in the following KB article: Cannot allocate memory when synching NFS data
`xcp: ERROR`: For xcp to process ACLs, please mount `<path>` using the OS nfs4 client	Mount the source and target on the XCP host using NFSv4, for example, `mount -o vers=4.0 10.10.10.10:/source_vol /mnt/source`
The XCP `verify` command fails during a migration. The STATUS shows as FAILED. (Live)	The XCP `verify` command was run when the source was live. Run the XCP `verify` command after the final cutover.
The XCP `verify` command fails after a cutover. (Live)	The XCP cutover sync operation might not have copied all the data. Rerun the XCP `sync` command followed by the `verify` command after the final cutover. If the problem persists, contact technical support.
The XCP `sync` command fails (this applies to all sync failures during migrations). (Live)	XCP is not able to read the data, this might be due to an XCP issue. Check the XCP STATUS message after the command operation completes. Rerun the `sync` command. If the sync operation fails again, contact technical support.
The XCP `copy`, `resume`, and `sync` commands fail due to insufficient memory. XCP crashes and the XCP status shows as FAILED. (Live)	There is low available memory on the host or there has been a huge incremental change. Follow the instructions in the following KB article: Cannot allocate memory when synching NFS data
`mnt3 error 13: permission denied`	As a non-root user, you do not have the correct permissions to access the file system. Check if you can access the file system and perform read write operations.

XCP issue	Solution
`xcp: batch 1: ERROR: [Errno 13] Permission denied:`	As a non-root user, you do not have the correct permissions to access the file system. Check if you can access the file system and perform read write operations.
`mxcp: ERROR: OSMounter 'file:///t/10.234.115.215_src_vol/DIR': [Errno 2] No such file or directory`	The path `/t/10.234.115.215_src_vol/ DIR` is not mounted on the Linux file system. Check if the path exists.
`ERROR: run sync {-id: 'xcp_index_1624263869.3734858'}: sync not yet available for hdfs/ posix/s3fs sources and targets -workaround is copy with a match filter for recent mods`	The `sync` command is not supported in XCP for the POSIX and HDFS connectors.
The `xcp verify` command fails with different mod time	You can identify the file and manually copy the file to the destination.
`Non dir object copy/sync can not be resumed; try copy again.` `For more details please refer XCP user guide.`	Because you cannot resume a single file, it is recommended to run the `xcp copy` command again for the file. Any change in the file leads to a complete copy of the file. As a result, performance is not affected.
`Non dir object can not be synced; try copy again.` `For more details please refer XCP user guide.`	Because you cannot sync a single file, it is recommended to run the `xcp copy` command again for the file. Any change in the file leads to a complete copy of the file. As a result, performance is not affected.
`xcp: ERROR: batch 4: Could not connect to node:`	Verify that the node given in the `–nodes` parameter is reachable. Try connecting by using Secure Shell (SSH) from the master node
`[Error 13] permission denied`	Check if you have permission to write on the destination volume.
`xcp: ERROR: batch 2: child process failed (exit code -6): recv <type 'exceptions.EOFError'>:`	Increase your system memory and rerun the test.
`xcp:ERROR: invalid path 'IP:/users009/user1/2022-07-01_04:36:52_1489367`	If there is one or more colons in the NFS server share path name, use a double colon (::) instead of a single colon (:) to separate the NFS server IP and NFS server share path.

XCP issue	Solution

The SnapLock volume does not retain the WORM files after an `xcp copy` operation.	XCP copies the WORM files to the volume successfully but the files are not retained by the SnapLock volume.
	
	1. Perform the `xcp copy` operation from the source to the destination volume:
	`xcp copy src_server:/src_export dst_server:/dst_export`
	2. Use the `xcp chmod` command to change the file permissions on the destination volume to **readonly**:
	`xcp chmod -mode a-w dst_server:/dst_export`
	
	When the above steps are complete, the SnapLock volume starts retaining the copied files.
	
	The retention time of a SnapLock volume is governed by the volume's default retention policy. Check the volume retention settings before starting migration: Set the retention time

Logdump

If you encounter an issue with an XCP command or job, the `logdump` command enables you to dump log files related to the issue into a `.zip` file that can be sent to NetApp for debugging. The `logdump` command filters logs based on the migration ID or job ID and dumps those logs into a `.zip` file in the current directory. The `.zip` file has the same name as the migration or job ID that is used with the command.

Example

```
xcp logdump -j <job id>
xcp logdump -m <migration id>
```

After migration, if you use the `XCP_CONFIG_DIR` or `XCP_LOG_DIR` environment variables to override the default config location or log location, the `logdump` command fails when used with an old migration or job ID. To avoid this, use the same logpath until migration completes.

Troubleshoot XCP SMB errors

Review the solutions to troubleshoot your issue.

Issue	Solution
XCP commands do not show the expected results when a junction path is used in the source or destination.	Use an SMB share path instead of a junction path when running XCP commands.

A traceback error might occur if the source, destination, or both is a junction with no directories and an online license is used in migration. If this occurs, the XCP command status is `PASSED` but the following error is returned at the end of the console output:
 	
`Error in atexit._run_exitfuncs:`
`Traceback (most recent call last):`
`  File "xcp\stats.py", line 214,`
`in call_home`
`  File "xcp\histograms.py", line`
`387, in calculate_averages`
`ZeroDivisionError: division by`
`zero`
	Use an offline license instead of an online license.

`xcp: ERROR`: This license has expired	Renew or obtain the new XCP license from the XCP site.
This copy is not licensed	Obtain the appropriate XCP license file. Copy the XCP license to the `c:\netapp\xcp` folder on the XCP host. Run the `xcp activate` command to activate the license
`xcp: ERROR`: XCP not activated, run 'activate' first	Download the XCP license from the XCP site. Copy the file on the XCP Linux client host at `c:\netapp\xcp` on the XCP host. Run the `xcp activate` command to activate the license.
`xcp: ERROR`: License file C:\NetApp\XCP\license not found	Register for the XCP license on the XCP site. Download and copy the license file to `C:\NetApp\XCP\` on the XCP Windows client host.
xcp scan Error: The network name cannot be found	Rerun the command with correct share name
xcp copy Error: ERROR failed to obtain fallback security principal Error message logged in xcp.log file: `pywintypes.error: (1722, 'LookupAccountName', 'The RPC server is unavailable.')`	Add the destination box in the hosts file (`C:\Windows\System32\drivers\etc\hosts`). Netapp storage destination box entry must be in the below format: `<data vserver data interface ip>` 1 or more white spaces `<cifs server name>`

Issue	Solution
`xcp copy: ERROR` failed to obtain fallback security principal (Post adding destination box entry in the hosts files) Error messaged logged in xcp.log file: `'No mapping between account names and security IDs was done'`	The fallback user/group does not exist at the target system (destination box) or active directory. Rerun the command with correct fallback user/group options
`xcp copy: ERROR` failed to obtain fallback security principal (Post adding destination box entry in the hosts files) Error messaged logged in xcp.log file: `pywintypes.error: (87, 'LookupAccountName', 'The parameter is incorrect.')`	Incorrect parameter for fallback user/group option. Rerun the command with the correct syntax for fallback user/group options
`xcp copy` with ACL migration Error message logged in xcp.log file: `pywintypes.error: (1314, 'GetNamedSecurityInfo', 'A required privilege is not held by the client.')`	An issue related to security descriptors because the migration user account only has the required privileges for XCP to retrieve owner, group, and DACL. It cannot retrieve SACL. Add your migration user account to the "Manage Audit and Security Log" policy in your Active Directory. Reference: Manage auditing and security log

Troubleshoot XCP File Analytics errors

Review the solutions to troubleshoot your issue.

Issue	Solution

PostgreSQL service failed	Run configure again and select the installation option. If the previous installation was successful, you can select the repair option. If you are still getting the error, try manual steps as follows:
	
	1. Restart the PostgreSQL service:
	
	`sudo systemctl restart postgresql.service`
	
	2. Check the service status:
	
	`sudo systemctl status postgresql.service | grep Active`

Issue	Solution

HTTPD service failed	Run configure again and select the installation option. If the previous installation was successful, you can select the repair option. If you are still getting the error, try manual steps as follows:
	
	1. Restart the HTTPD services:
	
	`sudo systemctl restart httpd`
	
	2. Check the HTTPD service status:
	
	`sudo systemctl status httpd | grep Active`

Not able to open login page after successful install	Verify that your system can ping the Linux machine where XCP File Analytics is installed and HTTPD is running. If the services are not running, run `configure` and choose the repair option. Verify that you are using a supported browser version. See the IMT.
User login failed	• Verify that you are using a supported browser version. See the IMT. • Verify that the user is “admin” and the password is correct. • Verify that the XCP service is running by issuing `xcp service status`. • Verify that port 5030 is open on Linux. Open the application at **https:// <linux ip> :5030/api/xcp**, and confirm that the messagereads msg: `Missing Authorization Header`. • Check whether the `xcp.ini` file is present in the `/opt/NetApp/xFiles/xcp/` location. To reset the `xcp.ini` file, run the configuration script and select the **Repair** option. Next, select the menu option to **rebuild xcp.ini file**. • Manually run the `xcp --listen` command on the CLI and try logging in. If you do not receive a request on the server, re-check the installation and the ports used for communication with the server. After you verify that the installation is correct, run the `service xcp start` command to restart the service.
XCP GUI is not showing updated pages	Clear the cache and try again
XCP service is not starting	To run the `xcp` service, use the `sudo systemctl start xcp` command. Alternatively, run the configuration script and select the **Repair** option to start the services that are stopped.

Issue	Solution
Failed to scan file share	File share/volume might not be readable. Check manually whether the file share is accessible/readable by running the `xcp show` command. Also, check if the `xcp.ini` file is deleted. If it is deleted, rebuild the `xcp.ini` file by using the configure.sh script repair option.
Could not load file servers	Try a page refresh. If the problem persists, manually run the `xcp show` command on the prompt and check whether you can scan the file server. If successful, raise a ticket with NetApp customer support. If unsuccessful, check if the file server is active by performing a manual check. Check whether the `xcp.ini` file and license files are in the correct location. To reset the `xcp.ini` file, run the configuration script and select the **Repair** option. Next, select the menu option to **rebuild xcp.ini file.** Check the `xcpfalogs` logs to see if the license needs renewal.
XCP File Analytics page is not displayed after system reboot	XCP services might be down. Run the configuration script and select the option to **Repair**. This will restart all the services that are stopped.
The total space for an exported file system on a given file server might show more space compared to the allocated physical storage.	This can happen when there are qtree level exports inside the volume. For example, if the volume size that is exported as `/vol1` is 10 GB and there is a qtree inside the volume `/vol1/qtree1`, then the `xcp show` command will show the `vol1` size as `10 GB` and the `qtree1` size as `10 GB`. XCP File Analytics sums the space of both exports and gives the total space, in this case, `20 GB`. It does not understand that `qtree1` is a logical space.

Issue	Solution

The site can't be reached or user login failed after a successful install.	1. Check if XCP services are running: `service xcp status`
	2. Start the XCP listen operation and confirm that there are no errors:
	
	`xcp -listen`
	
	3. If you see the following error, install the CodeReady packages using yum, such as `yum install codeready-builder-for-rhel-8-x86_64-rpms`:
	
	``
	Error:
	------- 	
	Traceback (most recent call last):
	  File "xcp.py", line 1146, in <module>
	  File "xcp.py", line 1074, in main
	  File "<frozen importlib._bootstrap>",
	line 991, in _find_and_load
	  File "<frozen importlib._bootstrap>",
	line 975, in _find_and_load_unlocked
	  File "<frozen importlib._bootstrap>",
	line 671, in _load_unlocked
	  File
	"PyInstaller/loader/pyimod03_importers.py"
	, line 495, in exec_module
	  File "rest/routes.py", line 61, in
	<module>
	  File "<frozen importlib._bootstrap>",
	line 991, in _find_and_load
	  File "<frozen importlib._bootstrap>",
	line 975, in _find_and_load_unlocked
	  File "<frozen importlib._bootstrap>",
	line 671, in _load_unlocked
	  File
	"PyInstaller/loader/pyimod03_importers.py"
	, line 495, in exec_module
	  File "onelogin/saml2/auth.py", line 14,
	in <module>
	xmlsec.Error: (1, 'cannot load crypto
	library for xmlsec.')
	[23891] Failed to execute script 'xcp' due
	to unhandled exception!
	``

XCP reference

XCP command reference overview

The XCP command reference provides examples of the available commands for XCP NFS and SMB. Each command has additional parameters that you can use alone or in combination, as required. XCP supports log file rotation and log filtering based on the severity level.

NFS command reference

help

The NFS `help` command displays a list of commands, command parameters, and a brief description of each. The `help` command is useful for beginners who are new to the XCP tool.

Syntax

```
xcp help
```

Show example

```
[root@client1 linux]# ./xcp help
 USAGE:
xcp [[help] [command]| -version]
optional arguments:
help Show XCP help message and exit
-version Show XCP version number and exit
To see help text, you can run:
xcp help Display this content
xcp help info Step by step usage of all commands
xcp help <command> Individual command help
command:
activate Activate an XCP license on the current host
license Show XCP license information
show Request information from host about NFS exports
scan Read all the files from export path
copy Recursively copy everything from source to target
resume Resume copy operation from the point it was halted
sync Synchronize increment changes on source to target after copy
isync Sync changes on target without index
verify Verify that the target is the same as the source
delete Delete data on the NFS exported volume
chown Change the ownership on the NFS exported volume
chmod Change the permissions on the NFS exported volume
logdump Collect all logs related to the XCP job and dump those into
        a zipped folder named <ID>.zip under the current dir
estimate Estimate the time taken for the copy command to complete
indexdelete Remove indexes from catalog
```

help info

Use the `info` parameter with the `help` command to display documentation, examples, and tuning recommendations.

Syntax

```
xcp help info
```

Show example

```
[root@client1 linux]# ./xcp help info
COMMAND
info


USAGE
help info


DESCRIPTION
Step by step usage of the XCP command. Follow these steps after you
copy the binary and license

1. Download the XCP license and XCP binary to the Linux machine. Run
XCP activate: xcp activate

2. On a fresh system, the above command will fail when looking for a
license in
/opt/NetApp/xFiles/xcp.
Copy the XCP license to /opt/NetApp/xFiles/xcp and run the activate
command again: xcp activate


3. Check the validity of the license: xcp license


4. Configure the ini file located at /opt/NetApp/xFiles/xcp/xcp.ini
with catalog details: add catalog = catalog_nfs_server:/catalog_path


5. List all the exports and details from the NFS server: xcp show
server


6. Pick up one of the exports and run a scan of the export: xcp scan
server:/export1


7. Initiate baseline copy:
xcp copy -newid id1 server:/export1 server2:/e

8. If the copy is halted for some reason, you can use the "xcp resume"
command to resume the copy operation:
xcp resume -id id1
```

```
9. Start with incremental sync after the baseline is completed:
xcp sync -id id1

10. After copy or after every sync, you can verify to check data
integrity:
xcp verify server:/export1 server2:/export2

SUPPORTED COMMANDS
help: Display information about commands and options
 -exclude: Display examples of filters
 -fmt: Display examples of filters
 -match: Display examples of filters
help info: Display documentation, examples, and tuning
recommendations
show: Request information from hosts about NFS and other RPC services
 -v: Show more detailed information about servers
 -loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)
scan: Read all the directories in a file tree or a saved index
 -l, -q: File listing output formats
 -stats, -csv, -html: Tree statistics report formats
 -nonames: Do not look up user and group names for file listings or
reports
 -newid <name>: Catalog name for a new index
 -id <name>: Catalog name of a previous copy or scan index
 -match <filter>: Only process files and directories that match the
filter
 -fmt <string expression>: Formatted output
 -du: Summarize space usage of each directory, including
subdirectories
 -md5: Checksum the files (also save the checksum files when indexing)
(default: False)
 -duk: Summarize space usage of directory, include subdirectories, with
output in kilobytes
 -acl4: Process NFSv4 access control lists (ACLs)
 -acl4.threads <n>: Per-process thread pool size (default: 100)
 -depth <n>: Limit the search depth
 -dircount <n[k]>: Request size for reading directories (default: 64k)
 -edupe: Include deduplication estimate in reports (see documentation
for details)
 -bs <n[k]>: Read/write block size for scans that read data with -md5
or -edupe (default: 64k)
 -parallel <n>: Maximum concurrent batch processes (default: 7)
 -noId: Disable the creation of a default index (default: False)
 -exclude <filter>: Exclude the files and directories that match the
```

```
filter
 -preserve-atime: preserve atime of the file/dir (default: False)
 -nodes <name>: comma-separated list of worker nodes
 -s3.insecure: use http instead of https
 -s3.noverify: do not verify ssl certificates
 -s3.endpoint <S3 endpoint Url>: path such as https://10.10.10.101:1010
 -s3.profile <profile-name>: config/cred profile to be used
 -loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)
copy: Recursively copy everything from source to target
 -newid <name>: Catalog name for a new index
 -md5: Checksum the files (also save the checksum files when indexing)
(default: False)
 -edupe: Include deduplication estimate in reports (see documentation
for details)
 -nonames: Do not look up user and group names for file listings or
reports
 -acl4: Process NFSv4 access control lists (ACLs)
 -acl4.threads <n>: Per-process thread pool size (default: 100)
 -acl4.alwaysset: call "setacl" for all ACL-capable files and
directories
 -bs <n[k]>: read/write blocksize (default: 64k)
 -dircount <n[k]>: Request size for reading directories (default: 64k)
 -parallel <n>: Maximum concurrent batch processes (default: 7)
 -noId: Disable the creation of a default index (default: False)
 -match <filter>: Only process files and directories that match the
filter
 -exclude <filter>: Exclude the files and directories that match the
filter
 -copybatch <filename [args]>: custom batch processing module
 -chown: set destination uid and gid when copying as non-root    user
(default: False)
 -preserve-atime: preserve atime of the file/dir (default: False)
 -nodes <name>: comma-separated list of worker nodes
 -s3.insecure: use http instead of https
 -s3.noverify: do not verify ssl certificates
 -s3.endpoint <S3 endpoint Url>: path such as https://10.10.10.101:1010
 -loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)
verify: Verify that the target is the same as the source
[no options]: Full verification of target structure, names, attributes,
and data
-stats, -csv: Scan source and target trees in parallel and compare tree
statistics
-nodata: Do not check data
-noattrs: Do not check attributes (default: False)
```

```
-noown: Do not check ownership (uid and gid) (default: False)
-nomods: Do not check file modification times
-mtimewindow <s>: Acceptable modification time difference for
verification
-newid <name>: Catalog name for a new index
-v, -l: Output formats to list any differences found
-acl4: Process NFSv4 access control lists (ACLs)
-acl4.threads <n>: Per-process thread pool size (default: 100)
-nonames: Do not look up user and group names for file listings or
reports
-match <filter>: Only process files and directories that match the
filter
-bs <n[k]>: read/write blocksize (default: 64k)
-parallel <n>: Maximum concurrent batch processes (default: 7)
-dircount <n[k]>: Request size for reading directories (default: 64k)
-noId: Disable the creation of a default index (default: False)
-exclude <filter>: Exclude the files and directories that match the
filter
-preserve-atime: preserve atime of the file/dir (default: False)
-s3.insecure: use http instead of https
-s3.noverify: do not verify ssl certificates
-s3.endpoint <S3 endpoint Url>: path such as https://10.10.10.101:1010
-s3.profile <profile-name>: config/cred profile to be used
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)

sync: Find all source changes and apply them to the target
-id <name>: Catalog name of a previous copy index
-snap <name or path>: Access a Snapshot copy of the source tree
-nonames: Do not look up user and group names for file listings or
reports
-bs <n[k]>: read/write blocksize (default: 64k)
-dircount <n[k]>: Request size for reading directories (default: 64k)
-parallel <n>: Maximum concurrent batch processes (default: 7)
-acl4.threads <n>: Per-process thread pool size (default: 100)
-exclude <filter>: Exclude the files and directories that match the
filter
-preserve-atime: preserve atime of the file/dir (default: False)
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)

sync dry-run: Find source changes but don't apply them to the target
-id <name>: Catalog name of a previous copy index
-snap <name or path>: Access a Snapshot copy of the source tree
-stats: Deep scan the modified directories and report on everything new
-nonames: Do not look up user and group names for file listings or
```

```
reports
-v, -l, -q: File listing output formats
-dircount <n[k]>: Request size for reading directories (default: 64k)
-parallel <n>: Maximum concurrent batch processes (default: 7)
-target: Check that the target files match the index
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)

isync: Sync changes on target without index
  -nodata: Do not check data
  -noattrs: Do not check attributes
  -nomods: Do not check file modification times
  -mtimewindow <s>: Acceptable modification time difference for
verification
  -acl4: Process NFSv4 access control lists (ACLs)
  -acl4.threads <n>: Per-process thread pool size (default: 100)
  -acl4.alwaysset: call "setacl" for all ACL-capable files and
directories
  -match <filter>: Only process files and directories that match the
filter
  -bs <n[k]>: read/write blocksize (default: 64k)
  -parallel <n>: Maximum concurrent batch processes (default: 7)
  -dircount <n[k]>: Request size for reading directories (default: 64k)
  -exclude <filter>: Exclude the files and directories that match the
filter
  -newid <name>: Catalog name for a new index
  -loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)
  -preserve-atime: preserve atime of the file/dir (default: False)
  -s3.insecure: use http instead of https
  -s3.noverify: do not verify ssl certificates
  -s3.endpoint <S3 endpoint Url>: path such as
https://10.10.10.101:1010
  -s3.profile <profile-name>: config/cred profile to be used


 isync estimate: Find the estimated time to complete the next isync
command
  -nodata: Do not check data
  -noattrs: Do not check attributes
  -nomods: Do not check file modification times
  -mtimewindow <s>: Acceptable modification time difference for
verification
  -acl4: Process NFSv4 access control lists (ACLs)
  -acl4.threads <n>: Per-process thread pool size (default: 100)
  -acl4.alwaysset: call "setacl" for all ACL-capable files and
```

```
directories
  -match <filter>: Only process files and directories that match the
filter
  -bs <n[k]>: read/write blocksize (default: 64k)
  -parallel <n>: Maximum concurrent batch processes (default: 7)
  -dircount <n[k]>: Request size for reading directories (default: 64k)
  -exclude <filter>: Exclude the files and directories that match the
filter
  -loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)
  -preserve-atime: preserve atime of the file/dir (default: False)
  -s3.insecure: use http instead of https
  -s3.noverify: do not verify ssl certificates
  -s3.endpoint <S3 endpoint Url>: path such as
https://10.10.10.101:1010
  -s3.profile <profile-name>: config/cred profile to be used
  -id <name>: Catalog name of a previous copy index

resume: Restart an interrupted copy
-id <name>: Catalog name of a previous copy index
-bs <n[k]>: read/write
-s3.insecure: use http instead of https
-s3.noverify: do not verify ssl certificates
-s3.endpoint <S3 endpoint Url>: path such as https://10.10.10.101:1010
-s3.profile <profile-name>: config/cred profile to be used
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)



delete: Delete everything recursively
-match <filter>: Only process files and directories that match the
filter
-force: Delete without confirmation
-removetopdir: remove directory including children
-exclude <filter>: Exclude the files and directories that match the
filter
-parallel <n>: Maximum concurrent batch processes (default: 7)
-preserve-atime: preserve atime of the file/dir (default: False)
-s3.insecure: use http instead of https
-s3.noverify: do not verify ssl certificates
-s3.endpoint <S3 endpoint Url>: path such as https://10.10.10.101:1010
-s3.profile <profile-name>: config/cred profile to be used
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)
```

```
activate: Activate a license on the current host
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)


license: Show xcp license info


license update: Retrieve the latest license from the XCP server


chown: changing ownership of a file object
exclude <filter>: Exclude the files and directories that match the
filter
-match <filter>: Only process files and directories that match the
filter
-group <group>: linux gid to be set at source
-user <user>: linux uid to be set at source
-user-from <userFrom>: user to be changed
-group-from <groupFrom>: group to be changed
-reference <reference>: referenced file or directory point
-v: reports output for every object processed
-preserve-atime: preserve atime of the file/dir (default: False)
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)


chmod: changing permissions of a file object
-exclude <filter>: Exclude the files and directories that match the
filter
-match <filter>: Only process files and directories that match the
filter
-reference <reference>: referenced file or directory point
-v: reports output for every object processed
-mode <mode>: mode to be set
-preserve-atime: preserve atime of the file/dir (default: False)
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)


logdump: Collect all logs related to the XCP job and dump those into a
zipped folder named <ID>.zip under current dir
-m <migration ID>: Filter logs by migration ID
-j <job ID>: Filter logs by job ID


estimate: Use a saved scan index to estimate copy time
```

```
-id <name>: Catalog name of a previous copy or scan index
-gbit <n>: Gigabits of bandwidth to estimate best-case time (default:
1)
-target <path>: Target to use for live test copy
-t <n[s|m|h]>: Duration of live test copy (default: 5m)
-bs <n[k]>: read/write blocksize (default: 64k)
-dircount <n[k]>: Request size for reading directories (default: 64k)
-parallel <n>: Maximum concurrent batch processes (default: 7)
preserve-atime:
 preserve atime of the file/dir (default: False)
-loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)

indexdelete: delete catalog indexes
  -match <filter>: Only process files and directories that match the
filter
  -loglevel <name>: Option to set log level; available levels are INFO,
DEBUG (default: INFO)

OUTPUT
In the -l output, the size, space used, and modification time are all
shown in human- readable format. Time is relative to the current time,
so it is time zone independent. For example, "14d1h" means that the
file was modified 14 days and one hour ago. Note: "current time" is the
time XCP started. The timestamp is saved in the index metadata
(catalog:/xFiles/indexes/*.json) and is used for reports against the
index.

The -stats option prints a human-readable report to the console. Other
report format options are -html or -csv. The comma-separated values
(CSV) format has exact values. CSV and HTML reports are automatically
saved in the catalog, if there is one.

The histograms for modified, accessed, and changed only count regular
files.

FILTERS
A filter expression should evaluate to True or False in Python. Filters
are used in XCP for the -match and -exclude options. See below for some
examples of the filters. Use "xcp help <command>" to check which
options are supported for commands.


Variables and file attributes currently available to use in a filter:
modified, accessed, changed: Floats representing age in hours depth,
size, used, uid, gid, type, nlinks, mode, fileid: Integers name, base,
```

```
ext: Strings (if name is "demo.sql" then base is =="demo" and ext is
==".sql") owner, group: Strings size units: k, m, g, t, p = K, M, G, T,
P = 1024, 1048576, 2**30, 2**40, 2**50 file types: f, d, b, c, l, s, q
= F, D, B, C, L, S, Q = 1, 2, 3, 4, 5, 6, 7

Functions available to use in a filter:
rxm(pattern): Regular expression match for each file name fnm(pattern):
Unix-style wildcard match for each file name load(path): List of lines
from a local (external) file rand(N): Match one out of every N files at
random path(pattern): Wildcard match for the full path
paths(<full_file_path>): Match or exclude all NFS export paths listed
in the file Note: unlike most shell wildcards, pattern "/a/*" will
match path /a/b/c

The rxm() function only runs Python re.compile (pattern) once.
Similarly, load() only reads its file once.


Filter examples:
Match files modified less than half an hour ago "type == f and modified
< .5"

Find anything with "core" in the name ("in" is a Python operator):
"'core' in name"

Same match using regular expressions: "rxm('.*core.*')"


Same match using wildcards: "fnm('*core*')"

Match files that are not regular files, directories, or links: "type
not in (f,d,l)"


Find jpg files over 500 megabytes (M is a variable): "fnm('*.jpg') and
size > 500*M"

Find files with "/demo/smith" in the path (x is the file; str(x) is its
full path): "'/demo/smith' in str(x)"

Exclude copying anything with "f" in its name: "fnm('*f*')"

Exclude multiple export paths specified in "/root/excludePaths.txt".
"paths('/root/excludePaths.txt')"
The file "excludePaths.txt" may contain multiple export paths where
each path is listed on a new line.
The export paths may contain wildcards.
```

```
For example, 10.10.1.10:/source_vol/*.txt in file excludePaths.txt will
exclude all files having ".txt" extension

If there are incremental changes in previously included directories and
you want to exclude anything that has "dir40" as a substring in its
name, you can specify the new exclude filter with the sync. This
overrides the exclude filter used previously with the copy command and
applies the new exclude filter.
Note that if there are incremental changes on the source after the copy
operation and there are files with "f" in their name, then these are
copied on to the target when the sync operation is performed. If you
want to avoid copying such files or directories, you can use the
following command: xcp sync -exclude "'f' in name" -id <id>

PERFORMANCE
On Linux, please set the following in /etc/sysctl.conf and run "sysctl
-p":

net.core.rmem_default = 1342177
net.core.rmem_max = 16777216
net.core.wmem_default = 1342177
net.core.wmem_max = 16777216
net.ipv4.tcp_rmem = 4096 1342177 16777216
net.ipv4.tcp_wmem = 4096 1342177 16777216
net.core.netdev_max_backlog = 300000
net.ipv4.tcp_fin_timeout = 10

Make sure that your system has multiple CPUs and at least a few
gigabytes (GBs) of free memory.

Searching, checksumming or copying hundreds of thousands or millions of
files should be many times faster with XCP than with standard tools
such cp, find, du, rsync, or OS drag-and-drop.

For the case of a single file, reading or copying with XCP is usually
faster with
a faster host CPU. When processing many files, reading or copying is
faster with more cores or CPUs.

The main performance throttle option is -parallel for the maximum
number of concurrent processes as the number of concurrent directories
being read and files being processed. For small numbers of files and/or
when there is a network quality of service (QoS) limiter, you might
also be able to increase performance by opening multiple channels. The
usage section above shows how to use multiple host target addresses.
The same syntax also opens more channels to a single target.
```

```
For example: "host1,host1:/vol/src" makes each XCP process open two
channels to host1. In some WAN environments, this can improve
performance. Within a datacenter, if there are only 1 GbE network
interface cards (NICs) on the host with XCP it usually helps to use the
multipath syntax to leverage more than one NIC.
To verify that you are running I/O over multiple paths, use OS tools to
monitor network I/O. For example, on Linux, try "sar -n DEV 2 200".

ENVIRONMENT VARIABLES
XCP_CONFIG_DIR: Override the default location /opt/NetApp/xFiles/xcp
If set, the value should be an OS filesystem path, possibly a mounted
NFS directory. When XCP_CONFIG_DIR is set, a new directory with name
same as hostname is created inside the custom configuration directory
path wherein new logs will be stored


XCP_LOG_DIR: Override the default, which stores the XCP log in the
configuration directory. If set, the value should be an OS filesystem
path, possibly a mounted NFS directory.
When XCP_LOG_DIR is set, a new directory with name same as hostname is
created inside the custom log directory path wherein new logs will be
stored


XCP_CATALOG_PATH: Override the setting in xcp.ini. If set, the value
should be in the XCP path format, server:export[:subdirectory].


SECURITY
All the files and directories in the catalog are world readable except
for the index files, which have a ".index" suffix and are located in
subdirectories under the top-level catalog "indexes" directory.
Because each index file is essentially an archive of metadata of an
entire file tree, the catalog should be stored on a NetApp volume with
export permissions matching the the actual sources and targets. Note
that file data is not stored in the index, only metadata.

SUPPORT
https://www.netapp.com/us/contact-us/support.aspx
```

show

The NFS `show` command queries the RPC services and NFS exports of one or more storage servers. The command also lists the available services and exports and shows the used and free capacity of each export, followed by the attributes of the root of each

export.

Syntax

```
xcp show <ip_address_or_host_name>
```

The `show` command requires the host name or IP address of the NFSv3 exported system.

Show example

```
[root@localhost linux]# ./xcp show <IP address or hostname of NFS
server>

getting pmap dump from <IP address or hostname of NFS server> port
111... getting export list from <IP address or hostname of NFS
server>...
sending 3 mounts and 12 nfs requests to <IP address or hostname of NFS
server>...

== RPC Services ==
'<IP address or hostname of NFS server>': UDP rpc services: MNT v1/2/3,
NFS v3, NLM v4, PMAP v2/3/4, STATUS v1
'<IP address or hostname of NFS server>': TCP rpc services: MNT v1/2/3,
NFS v3/4, NLM v4, PMAP v2/3/4, STATUS v1

== NFS Exports == Mounts Errors Server
3   0 <IP address or hostname of NFS server>

Space      Files   Space       Files
Free        Free    Used       Used Export

93.9 MiB    19,886  1.10 MiB    104 <IP address or hostname of NFS
server>:/
9.44 GiB    2.49M   65.7 MiB    276 <IP address or hostname of NFS
server>:/catalog_vol
84.9 GiB    22.4M   593 MiB 115 <IP address or hostname of NFS
server>:/source_vol

== Attributes of NFS Exports ==
drwxr-xr-x --- root root 4KiB 4KiB 6d2h <IP address or hostname of
NFSserver>:/
drwxr-xr-x --- root root 4KiB 4KiB 6d2h <IP address or hostname of NFS
server>:/catalog_vol
drwxr-xr-x --- root root 4KiB 4KiB 1h30m <IP address or hostname of NFS
server>:/source_vol

Xcp command : xcp show <IP address or hostname of NFS server>
0 error
Speed   : 3.62 KiB in (17.9 KiB/s), 6.28 KiB out (31.1 KiB/s) Total
Time : 0s.
STATUS  : PASSED
```

show -v

Use the `-v` parameter with the `show` command to return details about NFS servers using the IP address or host name.

Syntax

```
xcp show -v
```

license

The NFS `license` command displays XCP license information.

Before running this command, verify that the license file is downloaded and copied to the `/opt/NetApp/xFiles/xcp/` directory on the XCP Linux client host.

Syntax

```
xcp license
```

Show example

```
[root@localhost /]# ./xcp license

Licensed to "XXX, NetApp Inc, XXX@netapp.com" until Sun Mar 31 00:00:00
2029 License type: SANDBOX
License status: ACTIVE
Customer name: N/A
Project number: N/A
Offline Host: Yes
Send statistics: No
Host activation date: N/A
License management URL: https://xcp.netapp.com
```

license update

Use the `update` parameter with the `license` command to retrieve the latest license from the XCP server.

Syntax

```
xcp license update
```

Show example

```
[root@localhost /]# ./xcp license update

XCP <version>; (c) yyyy NetApp, Inc.; Licensed to XXX [NetApp Inc]
until Sun Mar 31 00:00:00 yyyy
```

activate

The NFS `activate` command activates the XCP license.

> Before running this command, verify that the license file is downloaded and copied to the `opt/NetApp/xFiles/xcp/` directory on the XCP Linux client host.

Syntax

```
xcp activate
```

Show example

```
[root@localhost linux]# ./xcp activate

XCP activated
```

scan

The XCP NFS `scan` command recursively scans the entire source NFSv3 exported paths and returns file structure statistics.

NetApp recommends that you put the source NFS export mounts in read-only mode during the scan operation.

Syntax

```
xcp scan <source_nfs_export_path>
```

Show example

```
[root@localhost linux]# ./xcp scan <IP address of NFS server>:/

source_vol
source_vol
source_vol/r1.txt
source_vol/USER.1
source_vol/USER.2
source_vol/USER.1/FILE_1
source_vol/USER.1/FILE_2
source_vol/USER.1/FILE_3
source_vol/USER.1/FILE_4
source_vol/USER.1/FILE_5
source_vol/USER.1/file1.txt
source_vol/USER.1/file2.txt
source_vol/USER.1/logfile.txt
source_vol/USER.1/log1.txt
source_vol/USER.2/FILE_1
source_vol/USER.2/FILE_5
source_vol/USER.2/FILE_2
source_vol/USER.2/FILE_3
source_vol/USER.2/FILE_4
Xcp command : xcp scan <IP address of NFS server>:/source vol
```

The following table lists the `scan` parameters and their description.

Parameter	Description
scan -l	Lists files in the long listing output format.
scan -q	Shows the number of files scanned.
scan -stats	Lists files in the tree statistic report format.
scan -csv	Lists files in the tree statistic CSV report format.
scan -html	Lists files in the tree statistic HTML report format.
scan -nonames	Excludes user and group names from file listings and reports.
scan -newid <name>	Specifies the catalog name for a new index.
scan -id <catalog_name>	Specifies the catalog name of a previous copy or scan index.
scan -match <filter>	Only processes files and directories that match the filter.

Parameter	Description
scan -fmt <string_expression>	Only processes files and directories that match the format.
scan -du	Summarizes the space usage of each directory, including subdirectories.
scan -md5 <string_expression>	Generates checksums on the files and saves the checksums when indexing (default: false).
scan -depth <n>	Limits the search depth.
scan -dircount <n[k]>	Specifies the request size when reading directories.
scan -edupe	Includes the dedupe estimate in reports.
scan -bs <n[k]>	Specifies the read/write block size for scans that read data using `-md5` or `-edupe` (default: 64k).
scan -parallel <n>	Specifies the maximum number of concurrent batch processes (default: 7).
scan -noId	Disables the creation of a default index (default: false).
scan -subdir-names	Retrieves the names of the top-level subdirectories in a directory.
scan -preserve-atime	Restores all files to the last accessed date on the source.
scan -s3.insecure	Provides the option to use HTTP instead of HTTPS for S3 bucket communication.
scan -s3.endpoint <s3_endpoint_url>	Overrides the default Amazon Web Services (AWS) endpoint URL with the specified URL for S3 bucket communication.
scan -s3.profile <profile_name>	Specifies a profile from the AWS credential file for S3 bucket communication.
scan -s3.noverify	Overrides the default verification of SSL certification for S3 bucket communication.

scan -l

Use the `-l` parameter with the `scan` command to list files in the long listing output format.

Syntax

```
xcp scan -l <ip_address_or_hostname>:/source_vol
```

Show example

```
root@localhost linux]# ./xcp scan -l <IP address or hostname of
NFSserver>:/source_vol

drwxr-xr-x --- root root 4KiB 4KiB 6s source_vol
drwxr-xr-x --- root root 4KiB 4KiB 42s source_vol/USER.1
drwxr-xr-x --- root root 4KiB 4KiB 42s source_vol/USER.2
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.1/FILE_1
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.1/FILE_2
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.1/FILE_3
rw-r--r-- --- root root 1KiB 4KiB 42ssource_vol/USER.1/FILE_4
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.1/FILE_5
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.2/FILE_1
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.2/FILE_5
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.2/FILE_2
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.2/FILE_3
rw-r--r-- --- root root 1KiB 4KiB 42s source_vol/USER.2/FILE_4
Xcp command : xcp scan -l <IP address or hostname of NFS
server>:/source_vol
13 scanned, 0 matched, 0 error
Speed : 3.73 KiB in (4.89 KiB/s), 756 out (989/s)
Total Time : 0s.
STATUS : PASSED
```

scan -q

Use the `-q` parameter with the `scan` command to show the number of files scanned.

Syntax

```
xcp scan -q <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -q <IP address or hostname of
NFSserver>:/source_vol

Xcp command : xcp scan -q <IP address or hostname of NFS
server>:/source_vol
13 scanned, 0 matched, 0 error
Speed : 3.73 KiB in (3.96 KiB/s), 756 out(801/s)
Total Time : 0s.
STATUS : PASSED
```

scan -stats, scan -csv, and scan -html

Use the `-stats`, `-csv`, and `-html` parameters with the `scan` command to list files in the tree statistic report format.

> XCP reports (.csv, .html) are saved in the catalog location specified in the `xcp.ini` file. The files are stored in the `<catalog path>/catalog/indexes/1/reports` folder. You can view sample reports in the appendix.

Syntax

```
xcp scan -stats <ip_address>:/source_vol
```

Show example

```
root@client1 linux]# ./xcp scan -stats <ip_address>:/fg1

Job ID: Job_2023-11-23_23.23.33.930501_scan
== Maximum Values ==
Size Used Depth File Path Namelen Dirsize
50.4 MiB 50.6 MiB 1 24 20 33
== Average Values ==
Size Depth Namelen Dirsize
15.3 MiB 0 6 33
== Top Space Users ==
root
107 MiB
== Top File Owners ==
root
34
== Top File Extensions ==
.sh .out .py .sh1 other
8 2 2 1 20
16.0 KiB 3.09 MiB 448 1.48 KiB 502 MiB
== Number of files ==
empty <8KiB 8-64KiB 64KiB-1MiB 1-10MiB 10-100MiB >100MiB
20 1 2 10
== Space used ==
empty <8KiB 8-64KiB 64KiB-1MiB 1-10MiB 10-100MiB >100MiB
76 KiB 12 KiB 5.16 MiB 102 MiB
== Directory entries ==
empty 1-10 10-100 100-1K 1K-10K >10K

== Depth ==
0-5 6-10 11-15 16-20 21-100 >100
34
== Accessed ==
>1 year9-12 months 6-9 months 3-6 months 1-3 months 1-31 days 1-24 hrs
<1 hour <15 mins
future
33
505 MiB
== Modified ==
>1 year9-12 months 6-9 months 3-6 months 1-3 months 1-31 days 1-24 hrs
<1 hour <15 mins
future
16
17
400 MiB 105
```

```
MiB
== Changed ==
>1 year9-12 months 6-9 months 3-6 months 1-3 months 1-31 days 1-24 hrs
<1 hour <15 mins
future
16
17
400 MiB 105
MiB
== Path ==
0-1024 >1024
33
Total count: 34
Directories: 1
Regular files: 33
Symbolic links: None
Special files: None
Hard links: None
Multilink files: None
Space Saved by Hard links (KB): 0
Sparse data: N/A
Dedupe estimate: N/A
Total space for regular files: size: 505 MiB, used: 107 MiB
Total space for symlinks: size: 0, used: 0
Total space for directories: size: 8 KiB, used: 8 KiB
Total space used: 107 MiB
Xcp command : xcp scan -stats <ip_address>:/fg1
Stats : 34 scanned
Speed : 6.35 KiB in (7.23 KiB/s), 444 out (506/s)
Total Time : 0s.
Job ID : Job_2023-11-23_23.23.33.930501_scan
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/
Job_2023-11-23_23.23.33.930501_scan.log

STATUS : PASSED
[root@client 1 linux]#
```

Syntax

```
xcp scan -csv <ip_address_or_hostname>:/source_vol
```

Show example

```
root@localhost linux]# ./xcp scan -csv <IP address or hostname of NFS
server>:/source_vol

scan <IP address or hostname of NFS server>:/source_vol
options,"{'-csv': True}"
summary,"13 scanned, 3.73 KiB in (11.3 KiB/s), 756 out (2.23 KiB/s),
0s."
Maximum Values,Size,Used,Depth,Namelen,Dirsize
Maximum Values,1024,4096,2,10,5
Average Values,Namelen,Size,Depth,Dirsize
Average Values,6,1024,1,4
Top Space Users,root
Top Space Users,53248
Top File Owners,root
Top File Owners,13
Top File Extensions,other
Top File Extensions,10
Number of files,empty,<8KiB,8-64KiB,64KiB-1MiB,1-10MiB,10-
100MiB,>100MiB
Number of files,0,10,0,0,0,0,0
Space used,empty,<8KiB,8-64KiB,64KiB-1MiB,1-10MiB,10-100MiB,>100MiB
Space used,0,40960,0,0,0,0,0
Directory entries,empty,1-10,10-100,100-1K,1K-10K,>10K
Directory entries,0,3,0,0,0,0
Depth,0-5,6-10,11-15,16-20,21-100,>100
Depth,13,0,0,0,0,0
Accessed,>1 year,>1 month,1-31 days,1-24 hrs,<1 hour,<15 mins,future
Accessed,0,0,0,0,0,10,0
Modified,>1 year,>1 month,1-31 days,1-24 hrs,<1 hour,<15 mins,future
Modified,0,0,0,0,0,10,0
Changed,>1 year,>1 month,1-31 days,1-24 hrs,<1 hour,<15 mins,future
Changed,0,0,0,0,0,10,0

Total count,13
Directories,3
Regular files,10
Symbolic links,0
Special files,0
Hard links,0,
multilink files,0,
Space Saved by Hard links (KB),0
Sparse data,N/A
Dedupe estimate,N/A
Total space for regular files,size,10240,used,40960
```

```
Total space for symlinks,size,0,used,0
Total space for directories,size,12288,used,12288
Total space used,53248
Xcp command : xcp scan -csv <IP address or hostname of NFS
server>:/source_vol
13 scanned, 0 matched, 0 error
Speed : 3.73 KiB in (11.2 KiB/s), 756 out (2.22 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

Syntax

```
xcp scan -html <ip_address_or_hostname>:/source_vol
```

Show example

```
root@localhost linux]# ./xcp scan -html <IP address or hostname of NFS
server>:/source_vol

<!DOCTYPE html PUBLIC "-//W3C//DTD HTML
4.01//EN""http://www.w3.org/TR/html4/strict.dtd">
<html><head>
[redacted HTML contents]
</body></html>
Xcp command : xcp scan -html <IP address or hostname of
NFSserver>:/source_vol
13 scanned, 0 matched, 0 error
Speed : 3.73 KiB in (4.31 KiB/s), 756 out(873/s)
Total Time : 0s.
STATUS : PASSED
[root@localhost source_vol]#
```

scan -nonames

Use the `-nonames` parameter with the `scan` command to exclude user and group names from file listings or reports.

> When used with the `scan` command, the `-nonames` parameter only applies to file listings returned using the `-l` option.

Syntax

```
xcp scan -nonames <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -nonames <IP address or hostname of
NFS server>:/source_vol

source_vol
source_vol/USER.1
source_vol/USER.2
source_vol/USER.1/FILE_1
source_vol/USER.1/FILE_2
source_vol/USER.1/FILE_3
source_vol/USER.1/FILE_4
source_vol/USER.1/FILE_5
source_vol/USER.2/FILE_1
source_vol/USER.2/FILE_5
source_vol/USER.2/FILE_2
source_vol/USER.2/FILE_3
source_vol/USER.2/FILE_4
Xcp command : xcp scan -nonames <IP address or hostname of
NFSserver>:/source_vol
13 scanned, 0 matched, 0 error
Speed : 3.73 KiB in (4.66 KiB/s), 756 out(944/s)
Total Time : 0s.
STATUS : PASSED
```

scan -newid <name>

Use the `-newid <name>` parameter with the `scan` command to specify the catalog name for a new index when running a scan.

Syntax

```
xcp scan -newid <name> <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -newid ID001 <IP address or hostname
of NFS server>:/source_vol

Xcp command : xcp scan -newid ID001 <IP address or hostname of NFS
server>:/source_vol
13 scanned, 0 matched, 0 error
Speed : 13.8 KiB in (17.7 KiB/s), 53.1 KiB out (68.0 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

scan -id <catalog_name>

Use the `-id` parameter with the `scan` command to specify the catalog name of previous copy or scan index.

Syntax

```
xcp scan -id <catalog_name>
```

Show example

```
[root@localhost linux]# ./xcp scan -id 3

xcp: Index: {source: 10.10.1.10:/vol/ex_s01/etc/keymgr, target: None}
keymgr/root/cacert.pem
keymgr/cert/secureadmin.pem
keymgr/key/secureadmin.pem
keymgr/csr/secureadmin.pem
keymgr/root
keymgr/csr
keymgr/key
keymgr/cert
keymgr
9 reviewed, 11.4 KiB in (11.7 KiB/s), 1.33 KiB out (1.37 KiB/s), 0s.
```

scan -match <filter>

Use the `-match <filter>` parameter with the `scan` command to specify that only the files and directories that match a filter are processed.

Syntax

```
xcp scan -match <filter> <ip_address_or_hostname>:/source_vol
```

Show example

```
root@localhost linux]# ./xcp scan -match bin <IP address or hostname of
NFS server>:/source_vol

source_vol
source_vol/USER.1/FILE_1
source_vol/USER.1/FILE_2
source_vol/USER.1/FILE_3
source_vol/USER.1/FILE_4
source_vol/USER.1/FILE_5
source_vol/USER.1/file1.txt
source_vol/USER.1/file2.txt
source_vol/USER.1/logfile.txt
source_vol/USER.1/log1.txt
source_vol/r1.txt
source_vol/USER.1
source_vol/USER.2
source_vol/USER.2/FILE_1
source_vol/USER.2/FILE_5
source_vol/USER.2/FILE_2
source_vol/USER.2/FILE_3
source_vol/USER.2/FILE_4
Filtered: 0 did not match
Xcp command : xcp scan -match bin <IP address or hostname of
NFSserver>:/source_vol
18 scanned, 18 matched, 0 error
Speed : 4.59 KiB in (6.94 KiB/s), 756 out (1.12KiB/s)
Total Time : 0s.
STATUS : PASSED
```

scan -fmt <string_expression>

Use the `-fmt` parameter with the `scan` command to specify that only files and directories that match the specified format are returned.

Syntax

```
xcp scan -fmt <string_expression> <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -fmt "'{}, {}, {}, {},
{}'.format(name, x, ctime, atime, mtime)"
<IP address or hostname of NFS server>:/source_vol

source_vol, <IP address or hostname of NFS server>:/source_vol,
1583294484.46, 1583294492.63,
1583294484.46
ILE_1, <IP address or hostname of NFS
server>:/source_vol/USER.1/FILE_1, 1583293637.88,
1583293637.83, 1583293637.83
FILE_2, <IP address or hostname of NFS
server>:/source_vol/USER.1/FILE_2, 1583293637.88,
1583293637.83, 1583293637.84
FILE_3, <IP address or hostname of NFS
server>:/source_vol/USER.1/FILE_3, 1583293637.88,
1583293637.84, 1583293637.84
FILE_4, <IP address or hostname of NFS
server>:/source_vol/USER.1/FILE_4, 1583293637.88,
1583293637.84, 1583293637.84
FILE_5, <IP address or hostname of NFS
server>:/source_vol/USER.1/FILE_5, 1583293637.88,
1583293637.84, 1583293637.84
file1.txt, <IP address or hostname of NFS
server>:/source_vol/USER.1/file1.txt, 1583294284.78,
1583294284.78, 1583294284.78
file2.txt, <IP address or hostname of NFS
server>:/source_vol/USER.1/file2.txt, 1583294284.78,
1583294284.78, 1583294284.78
logfile.txt, <IP address or hostname of NFS
server>:/source_vol/USER.1/logfile.txt,
1583294295.79, 1583294295.79, 1583294295.79
log1.txt, <IP address or hostname of NFS
server>:/source_vol/USER.1/log1.txt, 1583294295.8,
1583294295.8, 1583294295.8
r1.txt, <IP address or hostname of NFS server>:/source_vol/r1.txt,
1583294484.46, 1583294484.45,
1583294484.45
USER.1, <IP address or hostname of NFS server>:/source_vol/USER.1,
1583294295.8, 1583294492.63,
1583294295.8
USER.2, <IP address or hostname of NFS server>:/source_vol/USER.2,
1583293637.95, 1583294492.63,
1583293637.95
FILE_1, <IP address or hostname of NFS
```

```
server>:/source_vol/USER.2/FILE_1, 1583293637.95,
1583293637.94, 1583293637.94
FILE_5, <IP address or hostname of NFS
server>:/source_vol/USER.2/FILE_5, 1583293637.96,
1583293637.94, 1583293637.94
FILE_2, <IP address or hostname of NFS
server>:/source_vol/USER.2/FILE_2, 1583293637.96,
1583293637.95, 1583293637.95
FILE_3, <IP address or hostname of NFS
server>:/source_vol/USER.2/FILE_3, 1583293637.96,
1583293637.95, 1583293637.95
FILE_4, <IP address or hostname of NFS
server>:/source_vol/USER.2/FILE_4, 1583293637.96,
1583293637.95, 1583293637.96
Xcp command : xcp scan -fmt '{}, {}, {}, {}, {}'.format(name, x, ctime,
atime, mtime) <IP address
or hostname of NFS server>:/source_vol
18 scanned, 0 matched, 0 error
Speed : 4.59 KiB in (4.14 KiB/s), 756 out (683/s)
Total Time : 1s.
STATUS : PASSED
```

scan -du

Use the `-du` parameter with the `scan` command to summarize the space usage of each directory, including subdirectories.

Syntax

```
xcp scan -du <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -du <IP address or hostname of
NFSserver>:/source_vol

24KiB source_vol/USER.1
24KiB source_vol/USER.2
52KiB source_vol
Xcp command : xcp scan -du <IP address or hostname of
NFSserver>:/source_vol
18 scanned, 0 matched, 0 error
Speed : 4.59 KiB in (12.9 KiB/s), 756 out (2.07KiB/s)
Total Time : 0s.
STATUS : PASSED
```

scan -md5 <string_expression>

Use the `-md5` parameter with the `scan` command to generate checksums for the file listings and save the checksums when indexing. The default value is set to false.

> The checksums are not used for file verification; they are only used for file listings during scan operations.

Syntax

```
xcp scan -md5 <ip_address_or_hostname>:/source_vol
```

Show example

```
root@localhost linux]# ./xcp scan -md5 <IP address or hostname of
NFSserver>:/source_vol

source_vol
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.1/FILE_1
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.1/FILE_2
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.1/FILE_3
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.1/FILE_4
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.1/FILE_5
d41d8cd98f00b204e9800998ecf8427e source_vol/USER.1/file1.txt
d41d8cd98f00b204e9800998ecf8427e source_vol/USER.1/file2.txt
d41d8cd98f00b204e9800998ecf8427esource_vol/USER.1/logfile.txt
d41d8cd98f00b204e9800998ecf8427e source_vol/USER.1/log1.txt
e894f2344aaa92289fb57bc8f597ffa9 source_vol/r1.txt
source_vol/USER.1
source_vol/USER.2
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.2/FILE_1
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.2/FILE_5
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.2/FILE_2
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.2/FILE_3
d47b127bc2de2d687ddc82dac354c415 source_vol/USER.2/FILE_4
Xcp command : xcp scan -md5 <IP address or hostname of NFS
server>:/source_vol
18 scanned, 0 matched, 0 error
Speed : 16.0 KiB in (34.5 KiB/s), 2.29 KiB out (4.92 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

scan -depth <n>

Use the `-depth <n>` parameter with the `scan` command to limit the search depth of a scan. The `-depth <n>` parameter specifies the depth into the subdirectories that XCP can scan files. For example, if the number 2 is specified, XCP will only scan the first two subdirectory levels.

Syntax

```
xcp scan -depth <n> <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -depth 2 <IP address or hostname of
NFS server>:/source_vol

source_vol
source_vol/r1.txt
source_vol/USER.1
source_vol/USER.2
source_vol/USER.1/FILE_1
source_vol/USER.1/FILE_2
source_vol/USER.1/FILE_3
source_vol/USER.1/FILE_4
source_vol/USER.1/FILE_5
source_vol/USER.1/file1.txt
source_vol/USER.1/file2.txt
source_vol/USER.1/logfile.txt
source_vol/USER.1/log1.txt
source_vol/USER.2/FILE_1
source_vol/USER.2/FILE_5
source_vol/USER.2/FILE_2
source_vol/USER.2/FILE_3
source_vol/USER.2/FILE_4
Xcp command : xcp scan -depth 2 <IP address or hostname of
NFSserver>:/source_vol
18 scanned, 0 matched, 0 error
Speed : 4.59 KiB in (6.94 KiB/s), 756 out (1.12KiB/s)
Total Time : 0s.
STATUS : PASSED
```

scan -dircount <n[k]>

Use the `-dircount <n[k]>` parameter with the `scan` command to specify the request size when reading directories in a scan. The default value is 64k.

Syntax

```
xcp scan -dircount <n[k]> <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -dircount 64k <IP address or
hostname of NFS server>:/source_vol

source_vol
source_vol/USER.1/FILE_1
source_vol/USER.1/FILE_2
source_vol/USER.1/FILE_3
source_vol/USER.1/FILE_4
source_vol/USER.1/FILE_5
source_vol/USER.1/file1.txt
source_vol/USER.1/file2.txt
source_vol/USER.1/logfile.txt
source_vol/USER.1/log1.txt
source_vol/r1.txt
source_vol/USER.1
source_vol/USER.2
source_vol/USER.2/FILE_1
source_vol/USER.2/FILE_5
```

scan -edupe

Use the `-edupe` parameter with the `scan` command to include the deduplication estimate in reports.

> Simple Storage Service (S3) does not support sparse files. Therefore, specifying an S3 bucket as the target destination for `scan -edupe` returns the value "None" for sparse data.

Syntax

```
xcp scan -edupe <ip_address_or_hostname>:/source_vol
```

Show example

```
root@localhost linux]# ./xcp scan -edupe <IP address or hostname of
NFSserver>:/source_vol

== Maximum Values ==
Size Used Depth Namelen Dirsize
1 KiB 4 KiB 2 11 9
== Average Values ==
Namelen Size Depth Dirsize
6 682 1 5
== Top Space Users ==
root
52 KiB
== Top File Owners ==
root
18
== Top File Extensions ==
.txt other
5 10
== Number of files ==
empty <8KiB 8-64KiB 64KiB-1MiB 1-10MiB 10-100MiB >100MiB
    4 11
== Space used ==
empty <8KiB 8-64KiB 64KiB-1MiB 1-10MiB 10-100MiB >100MiB
40 KiB
== Directory entries ==
empty 1-10 10-100 100-1K 1K-10K >10K
3
== Depth ==
0-5 6-10 11-15 16-20 21-100 >100
18
== Accessed ==
>1 year >1 month 1-31 days 1-24 hrs <1 hour
4
<15 mins
11
future
== Modified ==
>1 year >1 month 1-31 days 1-24 hrs <1 hour <15 mins future
15
== Changed ==
>1 year >1 month 1-31 days 1-24 hrs <1 hour <15 mins future
                                       15
Total count: 18
Directories: 3
```

```
Regular files: 15
Symbolic links: None
Special files: None
Hard links: None,
multilink files: None,
Space Saved by Hard links (KB): 0
Sparse data: None
Dedupe estimate: N/A
Total space for regular files: size: 10.0 KiB, used: 40 KiB
Total space for symlinks: size: 0, used: 0
Total space for directories: size: 12 KiB, used: 12 KiB
Total space used: 52 KiB
Xcp command : xcp scan -edupe <IP address or hostname of
NFSserver>:/source_vol
18 scanned, 0 matched, 0 error
Speed : 16.0 KiB in (52.7 KiB/s), 2.29 KiB out (7.52 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

scan -bs <n[k]>

Use the `-bs <n[k]>` parameter with the `scan` command to specify the read/write block size. This applies to scans that read data using the `-md5` or `-edupe` parameters. The default block size is 64k.

Syntax

```
xcp scan -bs <n[k]> <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -bs 32 <IP address or hostname of
NFS server>:/source_vol

source_vol
source_vol/r1.txt
source_vol/USER.1
source_vol/USER.2
source_vol/USER.1/FILE_1
source_vol/USER.1/FILE_2
source_vol/USER.1/FILE_3
source_vol/USER.1/FILE_4
source_vol/USER.1/FILE_5
source_vol/USER.1/file1.txt
source_vol/USER.1/file2.txt
source_vol/USER.1/logfile.txt
source_vol/USER.1/log1.txt
source_vol/USER.2/FILE_1
source_vol/USER.2/FILE_5
source_vol/USER.2/FILE_2
source_vol/USER.2/FILE_3
source_vol/USER.2/FILE_4
Xcp command : xcp scan -bs 32 <IP address or hostname of
NFSserver>:/source_vol
18 scanned, 0 matched, 0 error
Speed : 4.59 KiB in (19.0 KiB/s), 756 out (3.06KiB/s)
Total Time : 0s.
STATUS : PASSED
```

scan -parallel <n>

Use the `-parallel` parameter with the `scan` command to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

```
xcp scan -parallel <n> <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -parallel 5 <IP address or hostname
of NFS server>:/source_vol

source_vol
source_vol/USER.1/FILE_1
source_vol/USER.1/FILE_2
source_vol/USER.1/FILE_3
source_vol/USER.1/FILE_4
source_vol/USER.1/FILE_5
source_vol/USER.1/file1.txt
source_vol/USER.1/file2.txt
source_vol/USER.1/logfile.txt
source_vol/USER.1/log1.txt
source_vol/r1.txt
source_vol/USER.1
source_vol/USER.2
source_vol/USER.2/FILE_1
source_vol/USER.2/FILE_5
source_vol/USER.2/FILE_2
source_vol/USER.2/FILE_3
source_vol/USER.2/FILE_4
Xcp command : xcp scan -parallel 5 <IP address or hostname of NFS
server>:/source_vol
18 scanned, 0 matched, 0 error
Speed : 4.59 KiB in (7.36 KiB/s), 756 out (1.19 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

scan -noId

Use the `-noId` parameter with the `scan` command to disable the creation of a default index. The default value is false.

Syntax

```
xcp scan -noId <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -noId <IP address or hostname of NFS
server>:/source_vol

source_vol
source_vol/USER.1/FILE_1
source_vol/USER.1/FILE_2
source_vol/USER.1/FILE_3
source_vol/USER.1/FILE_4
source_vol/USER.1/FILE_5
source_vol/USER.1/file1.txt
source_vol/USER.1/file2.txt
source_vol/USER.1/logfile.txt
source_vol/USER.1/log1.txt
source_vol/r1.txt
source_vol/USER.1
source_vol/USER.2
source_vol/USER.2/FILE_1
source_vol/USER.2/FILE_5
source_vol/USER.2/FILE_2
source_vol/USER.2/FILE_3
source_vol/USER.2/FILE_4
Xcp command : xcp scan -noId <IP address or hostname of
NFSserver>:/source_vol
18 scanned, 0 matched, 0 error
Speed : 4.59 KiB in (5.84 KiB/s), 756 out(963/s)
Total Time : 0s.
STATUS : PASSED
```

scan -subdir-names

Use the `-subdir-names` parameter with the `scan` command to retrieve the names of the top-level subdirectories in a directory.

Syntax

```
xcp scan -subdir-names <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@localhost linux]# ./xcp scan -subdir-names <IP address or
hostname of NFS server>:/source_vol

source_vol
Xcp command : xcp scan -subdir-names <IP address or hostname of NFS
server>:/source_vol
7 scanned, 0 matched, 0 error
Speed : 1.30 KiB in (1.21 KiB/s), 444 out(414/s)
Total Time : 1s.
STATUS : PASSED
```

scan -preserve-atime

Use the `-preserve-atime` parameter with the `scan` command to restore all files to the last accessed date on the source.

When an NFS share is scanned, the access time is modified on the files if the storage system is configured to modify access time on read. XCP does not directly change the access time. XCP reads the files one by one and this triggers an update to the access time. The `-preserve-atime` option resets the access time to the original value set before the XCP read operation.

Syntax

```
xcp scan -preserve-atime <ip_address_or_hostname>:/source_vol
```

Show example

```
[root@client 1 linux]# ./xcp scan -preserve-atime
101.10.10.10:/source_vol

xcp: Job ID: Job_2022-06-30_14.14.15.334173_scan
source_vol/USER2/DIR1_4/FILE_DIR1_4_1024_1
source_vol/USER2/DIR1_4/FILE_DIR1_4_13926_4
source_vol/USER2/DIR1_4/FILE_DIR1_4_65536_2
source_vol/USER2/DIR1_4/FILE_DIR1_4_7475_3
source_vol/USER2/DIR1_4/FILE_DIR1_4_20377_5
source_vol/USER2/DIR1_4/FILE_DIR1_4_26828_6
source_vol/USER2/DIR1_4/FILE_DIR1_4_33279_7
source_vol/USER2/DIR1_4/FILE_DIR1_4_39730_8
source_vol/USER1
source_vol/USER2
source_vol/USER1/FILE_USER1_1024_1
source_vol/USER1/FILE_USER1_65536_2
source_vol/USER1/FILE_USER1_7475_3
source_vol/USER1/FILE_USER1_13926_4
source_vol/USER1/FILE_USER1_20377_5
source_vol/USER1/FILE_USER1_26828_6
source_vol/USER1/FILE_USER1_33279_7
source_vol/USER1/FILE_USER1_39730_8
source_vol/USER1/DIR1_2
source_vol/USER1/DIR1_3
source_vol/USER2/FILE_USER2_1024_1
source_vol/USER2/FILE_USER2_65536_2
source_vol/USER2/FILE_USER2_7475_3
source_vol/USER2/FILE_USER2_13926_4
source_vol/USER2/FILE_USER2_20377_5
source_vol/USER2/FILE_USER2_26828_6
source_vol/USER2/FILE_USER2_33279_7
source_vol/USER2/FILE_USER2_39730_8
source_vol/USER2/DIR1_3
source_vol/USER2/DIR1_4
source_vol/USER1/DIR1_2/FILE_DIR1_2_1024_1
source_vol/USER1/DIR1_2/FILE_DIR1_2_7475_3
source_vol/USER1/DIR1_2/FILE_DIR1_2_33279_7
source_vol/USER1/DIR1_2/FILE_DIR1_2_26828_6
source_vol/USER1/DIR1_2/FILE_DIR1_2_65536_2
source_vol/USER1/DIR1_2/FILE_DIR1_2_39730_8
source_vol/USER1/DIR1_2/FILE_DIR1_2_13926_4
source_vol/USER1/DIR1_2/FILE_DIR1_2_20377_5
source_vol/USER1/DIR1_3/FILE_DIR1_3_1024_1
source_vol/USER1/DIR1_3/FILE_DIR1_3_7475_3
```

```
source_vol/USER1/DIR1_3/FILE_DIR1_3_65536_2
source_vol/USER1/DIR1_3/FILE_DIR1_3_13926_4
source_vol/USER1/DIR1_3/FILE_DIR1_3_20377_5
source_vol/USER1/DIR1_3/FILE_DIR1_3_26828_6
source_vol/USER1/DIR1_3/FILE_DIR1_3_33279_7
source_vol/USER1/DIR1_3/FILE_DIR1_3_39730_8
source_vol/USER2/DIR1_3/FILE_DIR1_3_1024_1
source_vol/USER2/DIR1_3/FILE_DIR1_3_65536_2
source_vol/USER2/DIR1_3/FILE_DIR1_3_7475_3
source_vol/USER2/DIR1_3/FILE_DIR1_3_13926_4
source_vol/USER2/DIR1_3/FILE_DIR1_3_20377_5
source_vol/USER2/DIR1_3/FILE_DIR1_3_26828_6
source_vol/USER2/DIR1_3/FILE_DIR1_3_33279_7
source_vol/USER2/DIR1_3/FILE_DIR1_3_39730_8
source_vol
Xcp command : xcp scan -preserve-atime 101.10.10.10:/source_vol
Stats : 55 scanned
Speed : 14.1 KiB in (21.2 KiB/s), 2.33 KiB out (3.51 KiB/s)
Total Time : 0s.
Job ID : Job_2022-06-30_14.14.15.334173_scan
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2022-06-
30_14.14.15.334173_scan.log
STATUS : PASSED
```

scan -s3.insecure

Use the `-s3.insecure` parameter with the `scan` command to use HTTP instead of HTTPS for S3 bucket communication.

Syntax

```
xcp scan -s3.insecure s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp scan -s3.insecure s3://bucket1

Job ID: Job_2023-06-08_08.16.31.345201_scan
file5g_1
USER1/FILE_USER1_1024_1
USER1/FILE_USER1_1024_2
USER1/FILE_USER1_1024_3
USER1/FILE_USER1_1024_4
USER1/FILE_USER1_1024_5
Xcp command : xcp scan -s3.insecure s3:// -bucket1
Stats : 8 scanned, 6 s3.objects
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 2s.
Job ID : Job_2023-06-08_08.16.31.345201_scan
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
08_08.16.31.345201_scan.log
STATUS : PASSED
```

scan -s3.endpoint <s3_endpoint_url>

Use the `-s3.endpoint <s3_endpoint_url>` parameter with the `scan` command to override the default AWS endpoint URL with a specified URL for S3 bucket communication.

Syntax

```
xcp scan -s3.endpoint https://<endpoint_url>: s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp scan -s3.endpoint https://<endpoint_url>:
s3://xcp-testing

Job ID: Job_2023-06-13_11.23.06.029137_scan
aws_files/USER1/FILE_USER1_1024_1
aws_files/USER1/FILE_USER1_1024_2
aws_files/USER1/FILE_USER1_1024_3
aws_files/USER1/FILE_USER1_1024_4
aws_files/USER1/FILE_USER1_1024_5
Xcp command : xcp scan -s3.endpoint https://<endpoint_url>: s3://xcp-
testing
Stats : 8 scanned, 5 s3.objects
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 0s.
Job ID : Job_2023-06-13_11.23.06.029137_scan
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
13_11.23.06.029137_scan.log
STATUS : PASSED
```

scan -s3.profile <name>

Use the `s3.profile` parameter with the `scan` command to specify a profile from the AWS credential file for S3 bucket communication.

Syntax

```
xcp scan -s3.profile <name> -s3.endpoint https://<endpoint_url>:
s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp scan -s3.profile sg -s3.endpoint
https://<endpoint_url>:
s3://bucket1

Job ID: Job_2023-06-08_08.47.11.963479_scan
1 scanned, 0 in (0/s), 0 out (0/s), 5s
USER1/FILE_USER1_1024_1
USER1/FILE_USER1_1024_2
USER1/FILE_USER1_1024_3
USER1/FILE_USER1_1024_4
USER1/FILE_USER1_1024_5
Xcp command : xcp scan -s3.profile sg -s3.endpoint
https://<endpoint_url>: s3://bucket1
Stats : 7 scanned, 5 s3.objects
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 6s.
Job ID : Job_2023-06-08_08.47.11.963479_scan
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
08_08.47.11.963479_scan.log
STATUS : PASSED
[root@client1 linux]#
```

scan -s3.noverify

Use the `-s3.noverify` parameter with the `scan` command to override the default verification of SSL certification for S3 bucket communication.

Syntax

```
xcp scan -s3.noverify s3://<bucket_name>
```

Show example

```
root@client1 linux]# ./xcp scan -s3.noverify s3:// bucket1

Job ID: Job_2023-06-13_11.00.59.742237_scan
aws_files/USER1/FILE_USER1_1024_1
aws_files/USER1/FILE_USER1_1024_2
aws_files/USER1/FILE_USER1_1024_3
aws_files/USER1/FILE_USER1_1024_4
aws_files/USER1/FILE_USER1_1024_5
Xcp command : xcp scan -s3.noverify s3://bucket1
Stats : 8 scanned, 5 s3.objects
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 2s.
Job ID : Job_2023-06-13_11.00.59.742237_scan
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
13_11.00.59.742237_scan.log
STATUS : PASSED
```

copy

The XCP NFS `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.

- The runtime log file is located in `/opt/NetApp/xFiles/xcp/xcp.log` This path is configurable. Additional logging is located in the catalog after each command is run.
- If the source is a 7-Mode system, you can use a Snapshot copy as a source. For example: `<ip_address>:/vol/ex_s01/.snapshot/<snapshot_name>`

Syntax

```
xcp copy <source_nfs_export_path> <destination_nfs_export_path>
```

Show example

```
root@localhost linux]# ./xcp copy <IP address of NFS
server>:/source_vol < IP address of
destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_copy_2020-03-
03_23.46.33.153705
Xcp command : xcp copy <IP address of NFS server>:/source_vol <IP
address of destination NFS
server>:/dest_vol
18 scanned, 0 matched, 17 copied, 0 error
Speed : 38.9 KiB in (51.2 KiB/s), 81.2 KiB out (107KiB/s)
Total Time : 0s.
STATUS : PASSED
```

The following table lists the `copy` parameters and their description.

Parameter	Description
copy -nonames	Excludes user and group names from file listings and reports.
copy -match <filter>	Only processes files and directories that match the filter.
copy -md5 <string_expression>	Generates checksums on the files and saves the checksums when indexing (default: false).
copy -dircount <n[k]>	Specifies the request size when reading directories.
copy -edupe	Includes the dedupe estimate in reports.
copy -bs <n[k]>	Specifies the read/write block size (default: 64k).
copy -parallel <n>	Specifies the maximum number of concurrent batch processes (default: 7).
copy -preserve-atime	Restores all files to the last accessed date on the source.
copy -s3.insecure	Provides the option to use HTTP instead of HTTPS for S3 bucket communication.
copy -s3.endpoint <s3_endpoint_url>	Overrides the default Amazon Web Services (AWS) endpoint URL with the specified URL for S3 bucket communication.
copy -s3.profile <profile_name>	Specifies a profile from the AWS credential file for S3 bucket communication.

Parameter	Description
copy -s3.noverify	Overrides the default verification of SSL certification for S3 bucket communication.

copy -nonames

Use the `-nonames` parameter with the `copy` command to exclude user and group names from file listings or reports.

Syntax

```
xcp copy -nonames <source_ip_address_or_hostname>:/source_vol
<destination_ip_address_or_hostname>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp copy -nonames <IP address or hostname of
NFS server>:/source_vol <IP
address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_copy_2020-03-
03_23.48.48.147261
Xcp command : xcp copy -nonames <IP address or hostname of NFS
server>:/source_vol <IP address of
destination NFS server>:/dest_vol
18 scanned, 0 matched, 17 copied, 0 error
Speed : 38.9 KiB in (53.5 KiB/s), 81.3 KiB out (112 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

copy -match <filter>

Use the `-match <filter>` parameter with the `copy` command to specify that only the files and directories that match a filter are processed.

Syntax

```
xcp copy -match <filter> <source_ip_address_or_hostname>:/source_vol
<destination_ip_address_or_hostname>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp copy -match bin <IP address or hostname
of NFS server>:/source_vol <IP
address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_copy_2020-03-
04_00.00.07.125990
Xcp command : xcp copy -match bin <IP address or hostname of NFS
server>:/source_vol <IP address
of destination NFS server>:/dest_vol
18 scanned, 18 matched, 17 copied, 0 error
Speed : 39.1 KiB in (52.6 KiB/s), 81.7 KiB out (110 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

copy -md5 <string_expression>

Use the `-md5` parameter with the `copy` command to generate checksums for the file listings and save the checksums when indexing. The default value is set to false.

Syntax

```
xcp copy -md5 <source_ip_address_or_hostname>:/source_vol
<destination_ip_address_or_hostname>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp copy -md5 <IP address or hostname of NFS
server>:/source_vol <IP
address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_copy_2020-03-
03_23.47.41.137615
Xcp command : xcp copy -md5 <IP address or hostname of NFS
server>:/source_vol <IP address of
destination NFS server>:/dest_vol
18 scanned, 0 matched, 17 copied, 0 error
Speed : 38.9 KiB in (52.1 KiB/s), 81.3 KiB out (109 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

copy -dircount <n[k]>

Use the `-dircount <n[k]>` parameter with the `copy` command to specify the request size when reading directories. The default value is 64k.

Syntax

```
xcp copy -dircount <n[k]> <source_ip_address_or_hostname>:/source_vol
<destination_ip_address_or_hostname>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp copy -dircount 32k <IP address or
hostname of NFS server>:/source_vol
<IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_copy_2020-03-
03_23.58.01.094460
Xcp command : xcp copy -dircount 32k <IP address or hostname of NFS
server>:/source_vol <IP
address of destination NFS server >:/dest_vol
18 scanned, 0 matched, 17 copied, 0 error
Speed : 39.1 KiB in (56.7 KiB/s), 81.6 KiB out (119 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

copy -edupe

Use the `-edupe` parameter with the `copy` command to include the deduplication estimate in reports.

> Simple Storage Service (S3) does not support sparse files. Therefore, specifying an S3 bucket as the target destination for `copy -edupe` returns the value "None" for sparse data.

Syntax

```
xcp copy -edupe <source_ip_address_or_hostname>:/source_vol
<destination_ip_address_or_hostname>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp copy -edupe <IP address or hostname of
NFS server>:/source_vol <IP
address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_copy_2020-03-
03_23.48.10.436325
== Maximum Values ==
Size Used Depth Namelen Dirsize
1 KiB 4 KiB 2 11 9
== Average Values ==
Namelen Size Depth Dirsize
6 682 1 5
== Top Space Users ==
root
52 KiB
== Top File Owners ==
root
18
== Top File Extensions ==
.txt other
5 10
== Number of files ==
empty <8KiB 8-64KiB 64KiB-1MiB 1-10MiB 10-100MiB >100MiB
4 11
== Space used ==
empty <8KiB 8-64KiB 64KiB-1MiB 1-10MiB 10-100MiB >100MiB
40 KiB
== Directory entries ==
empty 1-10
3
10-100 100-1K 1K-10K >10K
== Depth ==
0-5 6-10 11-15 16-20 21-100 >100
18
== Accessed ==
>1 year >1 month 1-31 days 1-24 hrs <1 hour <15 mins future
4 11
== Modified ==
>1 year >1 month 1-31 days 1-24 hrs <1 hour <15 mins future
10 5
== Changed ==
>1 year >1 month 1-31 days 1-24 hrs <1 hour <15 mins future
10 5
```

```
Total count: 18
Directories: 3
Regular files: 15
Symbolic links: None
Special files: None
Hard links: None,
multilink files: None,
Space Saved by Hard links (KB): 0
Sparse data: None
Dedupe estimate: N/A
Total space for regular files: size: 10.0 KiB, used: 40 KiB
Total space for symlinks: size: 0, used: 0
Total space for directories: size: 12 KiB, used: 12 KiB
Total space used: 52 KiB
Xcp command : xcp copy -edupe <IP address or hostname of NFS
server>:/source_vol <destination NFS
export path>:/dest_vol
18 scanned, 0 matched, 17 copied, 0 error
Speed : 38.9 KiB in (36.7 KiB/s), 81.3 KiB out (76.7 KiB/s)
Total Time : 1s.
STATUS : PASSED
```

copy -bs <n[k]>

Use the `-bs <n[k]>` parameter with the `copy` command to specify the read/write block size. The default block size is 64k.

Syntax

```
xcp copy -bs <n[k]> <ip_address_or_hostname>:/source_vol
<destination_ip_address_or_hostname>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp copy -bs 32k <IP address or hostname of
NFS server>:/source_vol <IP
address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_copy_2020-03-
03_23.57.04.742145
Xcp command : xcp copy -bs 32k <IP address or hostname of NFS
server>:/source_vol <IP address of
destination NFS server>:/dest_vol
18 scanned, 0 matched, 17 copied, 0 error
Speed : 39.1 KiB in (115 KiB/s), 81.6 KiB out (241 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

copy -parallel <n>

Use the `-parallel <n>` parameter with the `copy` command to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

```
xcp copy -parallel <n> <ip_address_or_hostname>:/source_vol
destination_ip_address_or_hostname:/<dest_vol>
```

Show example

```
[root@localhost linux]# ./xcp copy -parallel 4 <IP address or hostname
of NFS server>:/source_vol
<IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_copy_2020-03-
03_23.59.41.477783
Xcp command : xcp copy -parallel 4 <IP address or hostname of NFS
server>:/source_vol <IP address
of destination NFS server>:/dest_vol
18 scanned, 0 matched, 17 copied, 0 error
Speed : 39.1 KiB in (35.6 KiB/s), 81.6 KiB out (74.4 KiB/s)
Total Time : 1s.
STATUS : PASSED
```

copy -preserve-atime

Use the `-preserve-atime` parameter with the `copy` command to restore all files to the last accessed date on the source.

The `-preserve-atime` option resets the access time to the original value set before the XCP read operation.

Syntax

```
xcp copy -preserve-atime <source_ip_address_or_hostname>:/source_vol
<destination_ip_address_or_hostname>:/dest_vol
```

Show example

```
[root@client1 linux]# ./xcp copy -preserve-atime
101.10.10.10:/source_vol 10.102.102.10:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2022-06-
30_14.22.53.742272
xcp: Job ID: Job_XCP_copy_2022-06-30_14.22.53.742272_2022-06-
30_14.22.53.742272_copy
Xcp command : xcp copy -preserve-atime 101.10.10.10:/source_vol
10.102.102.10:/dest_vol
Stats : 55 scanned, 54 copied, 55 indexed
Speed : 1.26 MiB in (852 KiB/s), 1.32 MiB out (896 KiB/s)
Total Time : 1s.
Migration ID: XCP_copy_2022-06-30_14.22.53.742272
Job ID : Job_XCP_copy_2022-06-30_14.22.53.742272_2022-06-
30_14.22.53.742272_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2022-06-
30_14.22.53.742272_2022-06-
30_14.22.53.742272_copy.log
STATUS : PASSED
[root@client1 linux]#
```

copy -s3.insecure

Use the `-s3.insecure` parameter with the `copy` command to use HTTP instead of HTTPS for S3 bucket communication.

Syntax

```
xcp copy -s3.insecure s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp copy -s3.insecure hdfs:///user/test
s3://bucket1

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2023-06-
08_09.01.47.581599
Job ID: Job_XCP_copy_2023-06-08_09.01.47.581599_copy
Xcp command : xcp copy -s3.insecure hdfs:///user/test s3://bucket1
Stats : 8 scanned, 5 copied, 8 indexed, 5 KiB s3.data.uploaded, 5
s3.copied.single.key.file, 5 s3.copied.file
Speed : 6.78 KiB in (1.86 KiB/s), 83.3 KiB out (22.9 KiB/s)
Total Time : 3s.
Migration ID: XCP_copy_2023-06-08_09.01.47.581599
Job ID : Job_XCP_copy_2023-06-08_09.01.47.581599_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
08_09.01.47.581599_copy.log
STATUS : PASSED

[root@client1 linux]# ./xcp copy -s3.insecure hdfs:///user/demo
s3://bucket1

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2023-06-
08_09.15.58.807485
Job ID: Job_XCP_copy_2023-06-08_09.15.58.807485_copy
Xcp command : xcp copy -s3.insecure hdfs:///user/demo s3://bucket1
Stats : 8 scanned, 5 copied, 8 indexed, 5 KiB s3.data.uploaded, 5
s3.copied.single.key.file, 5 s3.copied.file
Speed : 10.4 KiB in (3.60 KiB/s), 85.3 KiB out (29.6 KiB/s)
Total Time : 2s.
Migration ID: XCP_copy_2023-06-08_09.15.58.807485
Job ID : Job_XCP_copy_2023-06-08_09.15.58.807485_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
08_09.15.58.807485_copy.log
STATUS : PASSED
```

copy -s3.endpoint <s3_endpoint_url>

Use the `-s3.endpoint <s3_endpoint_url>` parameter with the `copy` command to override the default AWS endpoint URL with a specified URL for S3 bucket communication.

Syntax

```
xcp copy -s3.endpoint https://<endpoint_url>: s3://<bucket_name>
```

Show example

```
root@client1 linux]# ./xcp copy -s3.endpoint https://<endpoint_url>:
hdfs:///user/test
s3://xcp-testing

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2023-06-
13_11.20.32.571348
Job ID: Job_XCP_copy_2023-06-13_11.20.32.571348_copy
Xcp command : xcp copy -s3.endpoint https://<endpoint_url>
hdfs:///user/test s3://xcp-testing
Stats : 8 scanned, 5 copied, 8 indexed, 5 KiB s3.data.uploaded, 5
s3.copied.single.key.file, 5 s3.copied.file
Speed : 6.78 KiB in (1.77 KiB/s), 83.6 KiB out (21.8 KiB/s)
Total Time : 3s.
Migration ID: XCP_copy_2023-06-13_11.20.32.571348
Job ID : Job_XCP_copy_2023-06-13_11.20.32.571348_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
13_11.20.32.571348_copy.log
STATUS : PASSED
[root@client1 linux]# ./xcp copy -s3.endpoint https://<endpoint_url>:
hdfs:///user/demo
s3://xcp-testing

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2023-06-
13_11.40.26.913130
Job ID: Job_XCP_copy_2023-06-13_11.40.26.913130_copy
15,009 scanned, 1,462 copied, 9 indexed, 1.46 MiB s3.data.uploaded,
1,491
s3.copied.single.key.file, 1,491 s3.copied.file, 4.58 MiB in (933
KiB/s), 1.72 MiB out (350
KiB/s), 5s
15,009 scanned, 4,283 copied, 9 indexed, 4.20 MiB s3.data.uploaded,
4,302
s3.copied.single.key.file, 4,302 s3.copied.file, 7.70 MiB in (629
KiB/s), 4.85 MiB out (632
KiB/s), 10s
15,009 scanned, 7,323 copied, 9 indexed, 7.17 MiB s3.data.uploaded,
7,343
s3.copied.single.key.file, 7,343 s3.copied.file, 11.0 MiB in (672
KiB/s), 8.24 MiB out (681
KiB/s), 15s
15,009 scanned, 10,427 copied, 9 indexed, 10.2 MiB s3.data.uploaded,
10,439
```

```
s3.copied.single.key.file, 10,439 s3.copied.file, 14.5 MiB in (690
KiB/s), 11.7 MiB out (695
KiB/s), 20s
15,009 scanned, 13,445 copied, 9 indexed, 13.1 MiB s3.data.uploaded,
13,454
s3.copied.single.key.file, 13,454 s3.copied.file, 17.8 MiB in (676
KiB/s), 15.0 MiB out (682
KiB/s), 25s
Xcp command : xcp copy -s3.endpoint https://<endpoint_url>:
hdfs:///user/demo s3://xcp-testing
Stats : 15,009 scanned, 15,005 copied, 15,009 indexed, 14.7 MiB
s3.data.uploaded, 15,005
s3.copied.single.key.file, 15,005 s3.copied.file
Speed : 19.2 MiB in (712 KiB/s), 17.1 MiB out (635 KiB/s)
Total Time : 27s.
Migration ID: XCP_copy_2023-06-13_11.40.26.913130
Job ID : Job_XCP_copy_2023-06-13_11.40.26.913130_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
13_11.40.26.913130_copy.log
STATUS : PASSED
```

copy -s3.profile <name>

Use the `s3.profile` parameter with the `copy` command to specify a profile from the AWS credential file for S3 bucket communication.

Syntax

```
xcp copy -s3.profile <name> -s3.endpoint https://<endpoint_url>:
s3://<bucket_name>
```

Show example

```
root@client1 linux]# ./xcp copy -s3.endpoint https://<endpoint_url>:
hdfs:///user/test
s3://xcp-testing

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2023-06-
13_11.20.32.571348
Job ID: Job_XCP_copy_2023-06-13_11.20.32.571348_copy
Xcp command : xcp copy -s3.endpoint https://<endpoint_url>
hdfs:///user/test s3://xcp-testing
Stats : 8 scanned, 5 copied, 8 indexed, 5 KiB s3.data.uploaded, 5
s3.copied.single.key.file, 5 s3.copied.file
Speed : 6.78 KiB in (1.77 KiB/s), 83.6 KiB out (21.8 KiB/s)
Total Time : 3s.
Migration ID: XCP_copy_2023-06-13_11.20.32.571348
Job ID : Job_XCP_copy_2023-06-13_11.20.32.571348_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
13_11.20.32.571348_copy.log
STATUS : PASSED
[root@client1 linux]# ./xcp copy -s3.endpoint https://<endpoint_url>:
hdfs:///user/demo
s3://xcp-testing

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2023-06-
13_11.40.26.913130
Job ID: Job_XCP_copy_2023-06-13_11.40.26.913130_copy
15,009 scanned, 1,462 copied, 9 indexed, 1.46 MiB s3.data.uploaded,
1,491
s3.copied.single.key.file, 1,491 s3.copied.file, 4.58 MiB in (933
KiB/s), 1.72 MiB out (350
KiB/s), 5s
15,009 scanned, 4,283 copied, 9 indexed, 4.20 MiB s3.data.uploaded,
4,302
s3.copied.single.key.file, 4,302 s3.copied.file, 7.70 MiB in (629
KiB/s), 4.85 MiB out (632
KiB/s), 10s
15,009 scanned, 7,323 copied, 9 indexed, 7.17 MiB s3.data.uploaded,
7,343
s3.copied.single.key.file, 7,343 s3.copied.file, 11.0 MiB in (672
KiB/s), 8.24 MiB out (681
KiB/s), 15s
15,009 scanned, 10,427 copied, 9 indexed, 10.2 MiB s3.data.uploaded,
10,439
```

```
s3.copied.single.key.file, 10,439 s3.copied.file, 14.5 MiB in (690
KiB/s), 11.7 MiB out (695
KiB/s), 20s
15,009 scanned, 13,445 copied, 9 indexed, 13.1 MiB s3.data.uploaded,
13,454
s3.copied.single.key.file, 13,454 s3.copied.file, 17.8 MiB in (676
KiB/s), 15.0 MiB out (682
KiB/s), 25s
Xcp command : xcp copy -s3.endpoint https://<endpoint_url>:
hdfs:///user/demo s3://xcp-testing
Stats : 15,009 scanned, 15,005 copied, 15,009 indexed, 14.7 MiB
s3.data.uploaded, 15,005
s3.copied.single.key.file, 15,005 s3.copied.file
Speed : 19.2 MiB in (712 KiB/s), 17.1 MiB out (635 KiB/s)
Total Time : 27s.
Migration ID: XCP_copy_2023-06-13_11.40.26.913130
Job ID : Job_XCP_copy_2023-06-13_11.40.26.913130_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
13_11.40.26.913130_copy.log
STATUS : PASSED
```

copy -s3.noverify

Use the `-s3.noverify` parameter with the `copy` command to override the default verification of SSL certification for S3 bucket communication.

Syntax

```
xcp copy -s3.noverify s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp copy -s3.noverify hdfs://user/test s3://
bucket1

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2023-06-
13_10.57.41.994969
Job ID: Job_XCP_copy_2023-06-13_10.57.41.994969_copy
Xcp command : xcp copy -s3.noverify hdfs://user/test s3://bucket1
Stats : 8 scanned, 5 copied, 8 indexed, 5 KiB s3.data.uploaded, 5
s3.copied.single.key.file, 5 s3.copied.file
Speed : 6.78 KiB in (2.36 KiB/s), 83.3 KiB out (29.0 KiB/s)
Total Time : 2s.
Migration ID: XCP_copy_2023-06-13_10.57.41.994969
Job ID : Job_XCP_copy_2023-06-13_10.57.41.994969_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
13_10.57.41.994969_copy.log
STATUS : PASSED
./xcp copy -s3.profile sg -s3.noverify -s3.endpoint
https://<endpoint_url>: hdfs:///user/demo s3://bucket1

xcp: WARNING: No index name has been specified, creating one with name:
XCP_copy_2023-06-
13_11.26.56.143287
Job ID: Job_XCP_copy_2023-06-13_11.26.56.143287_copy
1 scanned, 9.95 KiB in (1.99 KiB/s), 12.9 KiB out (2.58 KiB/s), 5s
15,009 scanned, 1,555 copied, 9 indexed, 1.54 MiB s3.data.uploaded,
1,572
s3.copied.single.key.file, 1,572 s3.copied.file, 4.68 MiB in (951
KiB/s), 1.81 MiB out (365
KiB/s), 10s
15,009 scanned, 4,546 copied, 9 indexed, 4.46 MiB s3.data.uploaded,
4,572
s3.copied.single.key.file, 4,572 s3.copied.file, 7.95 MiB in (660
KiB/s), 5.15 MiB out (674
KiB/s), 15s
15,009 scanned, 7,702 copied, 9 indexed, 7.53 MiB s3.data.uploaded,
7,710
s3.copied.single.key.file, 7,710 s3.copied.file, 11.5 MiB in (710
KiB/s), 8.65 MiB out (707
KiB/s), 20s
15,009 scanned, 10,653 copied, 9 indexed, 10.4 MiB s3.data.uploaded,
10,669
s3.copied.single.key.file, 10,669 s3.copied.file, 14.7 MiB in (661
KiB/s), 11.9 MiB out (670
```

```
KiB/s), 25s
15,009 scanned, 13,422 copied, 9 indexed, 13.1 MiB s3.data.uploaded,
13,428
s3.copied.single.key.file, 13,428 s3.copied.file, 17.8 MiB in (627
KiB/s), 15.0 MiB out (627
KiB/s), 30s
Xcp command : xcp copy -s3.profile sg -s3.noverify -s3.endpoint
https://<endpoint_url>: hdfs:///user/demo s3://bucket1
Stats : 15,009 scanned, 15,005 copied, 15,009 indexed, 14.7 MiB
s3.data.uploaded, 15,005
s3.copied.single.key.file, 15,005 s3.copied.file
Speed : 19.2 MiB in (609 KiB/s), 17.1 MiB out (543 KiB/s)
Total Time : 32s.
Migration ID: XCP_copy_2023-06-13_11.26.56.143287
Job ID : Job_XCP_copy_2023-06-13_11.26.56.143287_copy
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
13_11.26.56.143287_copy.log
STATUS : PASSED
```

sync

View the descriptions, parameters, and examples for the XCP `sync` command, including when the `sync` command is used with the `dry run` option.

sync

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

> During the sync operation, modified files and directories are copied to the destination NFSv3 export again.

Syntax

```
xcp sync -id <catalog_name>
```

> The `-id <catalog_name>` parameter is required with the `sync` command.

Show example

```
[root@localhost linux]# ./xcp sync -id autoname_copy_2020-03-
04_01.10.22.338436

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync -id autoname_copy_2020-03-04_01.10.22.338436
0 scanned, 0 copied, 0 modification, 0 new item, 0 delete item, 0 error
Speed : 26.4 KiB in (27.6 KiB/s), 22.7 KiB out (23.7 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

The following table lists the `sync` parameters and their description.

Parameter	Description
sync -id <catalog_name>	Specifies the catalog name of a previous copy index. This is a required parameter for the `sync` command.
sync -nonames	Excludes user and group names from file listings and reports.
sync -bs <n[k]>	Specifies the read/write block size (default: 64k).
sync -dircount <n[k]>	Specifies the request size when reading directories.
sync -parallel <n>	Specifies the maximum number of concurrent batch processes (default: 7).
sync -preserve-atime	Restores all files to the last accessed date on the source.

sync -nonames

Use the the `-nonames` parameter with the `sync` command to exclude user and group names from file listings or reports.

Syntax

```
xcp sync -id <catalog_name> -nonames
```

Show example

```
[root@localhost linux]# ./xcp sync -id ID001 -nonames

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync -id ID001 -nonames
0 scanned, 0 copied, 0 modification, 0 new item, 0 delete item, 0 error
Speed : 26.4 KiB in (22.2 KiB/s), 22.3 KiB out (18.8 KiB/s)
Total Time : 1s.
STATUS : PASSED
```

sync -bs <n[k]>

Use the the `-bs <n[k]>` parameter with the `sync` command to specify the read/write block size. The default block size is 64k.

Syntax

```
xcp sync -id <catalog_name> -bs <n[k]>
```

Show example

```
[root@localhost linux]# ./xcp sync -id ID001 -bs 32k

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync -id ID001 -bs 32k
0 scanned, 0 copied, 0 modification, 0 new item, 0 delete item, 0 error
Speed : 25.3 KiB in (20.4 KiB/s), 21.0 KiB out (16.9 KiB/s)
Total Time : 1s.
STATUS : PASSED
```

sync -dircount <n[k]>

Use the the `-dircount <n[k]>` parameter with the `sync` command to specify the request size when reading directories. The default value is 64k.

Syntax

```
xcp sync -id <catalog_name> -dircount <n[k]>
```

Show example

```
[root@localhost linux]# ./xcp sync -id ID001 -dircount 32k

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync -id ID001 -dircount 32k
0 scanned, 0 copied, 0 modification, 0 new item, 0 delete item, 0 error
Speed : 25.3 KiB in (27.8 KiB/s), 21.0 KiB out (23.0 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

sync -parallel

Use the the `-parallel` parameter with the `sync` command to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

```
xcp sync -id <catalog_name> -parallel <n>
```

Show example

```
[root@localhost linux]# ./xcp sync -id ID001 -parallel 4

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync -id ID001 -parallel 4
0 scanned, 0 copied, 0 modification, 0 new item, 0 delete item, 0 error
Speed : 25.3 KiB in (20.6 KiB/s), 21.0 KiB out (17.1 KiB/s)
Total Time : 1s.
STATUS : PASSED
```

-preserve-atime

Use the the `-preserve-atime` parameter with the `sync` command to restore all files to the last accessed date on the source.

The `-preserve-atime` option resets the access time to the original value set before the XCP read operation.

Syntax

```
xcp sync -preserve-atime -id <catalog_name>
```

Show example

```
[root@client-1 linux]# ./xcp sync -preserve-atime -id XCP_copy_2022-06-
30_14.22.53.742272

xcp: Job ID: Job_XCP_copy_2022-06-30_14.22.53.742272_2022-06-
30_14.27.28.660165_sync
xcp: Index: {source: 101.10.10.10:/source_vol, target:
10.201.201.20:/dest_vol}
xcp: diff 'XCP_copy_2022-06-30_14.22.53.742272': 55 reviewed, 55
checked at source, 1 modification,
54 reindexed, 23.3 KiB in (15.7 KiB/s), 25.1 KiB out (16.9 KiB/s), 1s.
xcp: sync 'XCP_copy_2022-06-30_14.22.53.742272': Starting search pass
for 1 modified directory...
xcp: find changes: 55 reviewed, 55 checked at source, 1 modification,
55 re-reviewed, 54 reindexed,
28.0 KiB in (18.4 KiB/s), 25.3 KiB out (16.6 KiB/s), 1s.
xcp: sync phase 2: Rereading the 1 modified directory...
xcp: sync phase 2: 55 reviewed, 55 checked at source, 1 modification,
55 re-reviewed, 1 new dir, 54
reindexed, 29.2 KiB in (19.0 KiB/s), 25.6 KiB out (16.7 KiB/s), 1s.
xcp: sync 'XCP_copy_2022-06-30_14.22.53.742272': Deep scanning the 1
modified directory...
xcp: sync 'XCP_copy_2022-06-30_14.22.53.742272': 58 scanned, 55 copied,
56 indexed, 55 reviewed, 55
checked at source, 1 modification, 55 re-reviewed, 1 new dir, 54
reindexed, 1.28 MiB in (739
KiB/s), 1.27 MiB out (732 KiB/s), 1s.
Xcp command : xcp sync -preserve-atime -id XCP_copy_2022-06-
30_14.22.53.742272
Stats : 58 scanned, 55 copied, 56 indexed, 55 reviewed, 55 checked at
source, 1 modification,
55 re-reviewed, 1 new dir, 54 reindexed
Speed : 1.29 MiB in (718 KiB/s), 1.35 MiB out (755 KiB/s)
Total Time : 1s.
Migration ID: XCP_copy_2022-06-30_14.22.53.742272
Job ID : Job_XCP_copy_2022-06-30_14.22.53.742272_2022-06-
30_14.27.28.660165_sync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2022-06-
30_14.22.53.742272_2022-06-
30_14.27.28.660165_sync.log
STATUS : PASSED
```

sync dry-run

The `sync` command with the `dry-run` option looks for changes or modifications made to the source NFS directory using the previous catalog index number of a copy operation. This command also detects files and directories that are new, moved, deleted, or renamed since the previous copy operation. The command reports the source changes but does not apply them to the target.

Syntax

```
xcp sync dry-run -id <catalog_name>
```

The `-id <catalog_name>` parameter is required with the `sync dry-run` command option.

Show example

```
[root@localhost linux]# ./xcp sync dry-run -id ID001

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync dry-run -id ID001
0 matched, 0 error
Speed : 15.2 KiB in (46.5 KiB/s), 5.48 KiB out (16.7 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

The following table lists the `sync dry-run` parameters and their description.

Parameter	Description
sync dry-run -id <catalog_name>	Specifies the catalog name of a previous copy index. This is a required parameter for the `sync` command.
sync dry-run -stats	Performs a deep scan of the modified directories and reports everything that is new.
sync dry-run -l	Prints details about files and directories that changed.
sync dry-run -nonames	Excludes user and group names from file listings and reports.
sync dry-run -dircount <n[k]>	Specifies the request size when reading directories.
sync dry-run -parallel <n>	Specifies the maximum number of concurrent batch processes (default: 7).

sync dry-run -id <catalog_name>

Use the the `-id <catalog_name>` parameter with `sync dry-run` to specify the catalog name of a previous

copy index.

> The `-id <catalog_name>` parameter is required with the `sync dry-run` command option.

Syntax

```
xcp sync dry-run -id <catalog_name>
```

Show example

```
[root@localhost linux]# ./xcp sync dry-run -id ID001

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync dry-run -id ID001
0 matched, 0 error
Speed : 15.2 KiB in (21.7 KiB/s), 5.48 KiB out (7.81 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

sync dry-run -stats

Use the the `-stats` parameter with `sync dry-run` to perform a deep scan of the modified directories and report everything that is new.

Syntax

```
xcp sync dry-run -id <catalog_name> -stats
```

Show example

```
[root@localhost linux]# ./xcp sync dry-run -id ID001 -stats

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
4,895 reviewed, 43,163 checked at source, 12.8 MiB in (2.54 MiB/s),
5.49 MiB out (1.09 MiB/s),
5s
4,895 reviewed, 101,396 checked at source, 19.2 MiB in (1.29 MiB/s),
12.8 MiB out (1.47 MiB/s),
10s
Xcp command : xcp sync dry-run -id ID001 -stats
0 matched, 0 error
Speed : 22.9 MiB in (1.74 MiB/s), 17.0 MiB out (1.29 MiB/s)
Total Time : 13s.
STATUS : PASSED
```

sync dry-run -l

Use the the `-l` parameter with `sync dry-run` to print details about files and directories that changed.

Syntax

```
xcp sync dry-run -id <catalog_name> -l
```

Show example

```
[root@localhost linux]# ./xcp sync dry-run -id ID001 -l

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync dry-run -id ID001 -l
0 matched, 0 error
Speed : 15.2 KiB in (13.6 KiB/s), 5.48 KiB out (4.88 KiB/s)
Total Time : 1s.
STATUS : PASSED
```

sync dry-run -nonames

Use the the `-nonames` parameter with `sync dry-run` to exclude user and group names from file listings or

reports.

Syntax

```
xcp sync dry-run -id <catalog_name> -nonames
```

Show example

```
[root@localhost linux]# ./xcp sync dry-run -id ID001 -nonames

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync dry-run -id ID001 -nonames
0 matched, 0 error
Speed : 15.2 KiB in (15.8 KiB/s), 5.48 KiB out (5.70 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

sync dry-run -dircount <n[k]>

Use the the `-dircount <n[k]>` parameter with `sync dry-run` to specify the request size when reading directories. The default value is 64k.

Syntax

```
xcp sync dry-run -id <catalog_name> -dircount <n[k]>
```

Show example

```
[root@localhost linux]# ./xcp sync dry-run -id ID001 -dircount 32k

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync dry-run -id ID001 -dircount 32k
0 matched, 0 error
Speed : 15.2 KiB in (32.5 KiB/s), 5.48 KiB out (11.7 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

sync dry-run -parallel

Use the the `-parallel` parameter with `sync dry-run` to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

```
xcp sync dry-run -id <catalog_name> -parallel <n>
```

Show example

```
[root@localhost linux]# ./xcp sync dry-run -id ID001 -parallel 4

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
Xcp command : xcp sync dry-run -id ID001 -parallel 4
0 matched, 0 error
Speed : 15.2 KiB in (25.4 KiB/s), 5.48 KiB out (9.13 KiB/s)
Total Time : 0s.
STATUS : PASSED
```

resume

The XCP NFS `resume` command restarts an interrupted copy operation by specifying the catalog index name or number. The catalog index name or number of the previous copy operation is located in the `<catalog path>:/catalog/indexes` directory.

Syntax

```
xcp resume -id <catalog_name>
```

> The `-id <catalog_name>` parameter is required with the `resume` command.

Show example

```
[root@localhost linux]# ./xcp resume -id ID001

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
xcp: resume 'ID001': Reviewing the incomplete index...
xcp: diff 'ID001': Found 652 completed directories and 31 in progress
4,658 reviewed, 362 KiB in (258 KiB/s), 7.66 KiB out (5.46 KiB/s), 1s.
xcp: resume 'ID001': Starting second pass for the in-progress
directories...
xcp: resume 'ID001': Resuming the in-progress directories...
xcp: resume 'ID001': Resumed command: copy {-newid: u'ID001'}
xcp: resume 'ID001': Current options: {-id: 'ID001'}
xcp: resume 'ID001': Merged options: {-id: 'ID001', -newid: u'ID001'}
xcp: resume 'ID001': Values marked with a * include operations before
resume
28,866
MiB/s),
scanned*,
5s 9,565 copied*, 4,658 indexed*, 108 MiB in (21.6 MiB/s), 100.0 MiB
out(20.0
44,761
MiB/s),
44,761
scanned*,
11s
scanned*,
16,440
20,795
copied*,
copied*,
4,658 indexed*, 206 MiB in (19.3 MiB/s), 191 MiB out (17.9
4,658 indexed*, 362 MiB in (31.3 MiB/s), 345 MiB out (30.8
MiB/s),
44,761
16s
scanned*, 25,985 copied*, 4,658 indexed*, 488 MiB in (25.2 MiB/s), 465
MiB out (24.0
MiB/s),
44,761
21s
scanned*, 31,044 copied*, 4,658 indexed*, 578 MiB in (17.9 MiB/s), 558
MiB out (18.6
MiB/s),
```

```
54,838
26s
scanned*, 36,980 copied*, 14,276 indexed*, 679 MiB in (20.2 MiB/s), 657
MiB out (19.8
MiB/s),
67,123
31s
scanned*, 42,485 copied*, 29,160 indexed*, 742 MiB in (12.5 MiB/s), 720
MiB out (12.4
MiB/s),
79,681
36s
scanned*, 49,863 copied*, 39,227 indexed*, 801 MiB in (11.8 MiB/s), 779
MiB out (11.7
MiB/s),
79,681
41s
scanned*, 56,273 copied*, 39,227 indexed*, 854 MiB in (10.6 MiB/s), 832
MiB out (10.6
MiB/s),
79,681
46s
scanned*, 62,593 copied*, 39,227 indexed*, 906 MiB in (10.2 MiB/s), 881
MiB out (9.70
MiB/s),
84,577
51s
scanned*, 68,000 copied*, 44,047 indexed*, 976 MiB in (14.0 MiB/s), 951
MiB out (14.1
MiB/s),
86,737
56s
scanned*, 72,738 copied*, 49,071 indexed*, 1.04 GiB in (17.8 MiB/s),
1.01 GiB out (17.5
MiB/s),
89,690
1m1s
scanned*, 77,440 copied*, 54,110 indexed*, 1.14 GiB in (20.5 MiB/s),
1.11 GiB out (20.1
MiB/s), 1m6s
110,311 scanned*, 84,497 copied*, 74,158 indexed*, 1.24 GiB in (20.3
MiB/s), 1.21 GiB out (20.4
MiB/s), 1m11s
114,726 scanned*, 91,285 copied*, 74,158 indexed*, 1.33 GiB in (17.9
MiB/s), 1.30 GiB out (17.6
MiB/s), 1m16s
```

```
114,726 scanned*, 97,016 copied*, 74,158 indexed*, 1.46 GiB in (26.6
MiB/s), 1.43 GiB out (26.6
MiB/s), 1m21s
118,743 scanned*, 100,577 copied*, 79,331 indexed*, 1.65 GiB in (40.1
MiB/s), 1.62 GiB out (39.3
MiB/s), 1m26s
122,180 scanned*, 106,572 copied*, 84,217 indexed*, 1.77 GiB in (24.7
MiB/s), 1.74 GiB out (25.0
MiB/s), 1m31s
124,724 scanned*, 111,727 copied*, 84,217 indexed*, 1.89 GiB in (22.8
MiB/s), 1.86 GiB out (22.5
MiB/s), 1m36s
128,268 scanned*, 114,686 copied*, 99,203 indexed*, 1.99 GiB in (21.1
MiB/s), 1.96 GiB out (21.2
MiB/s), 1m41s
134,630 scanned*, 118,217 copied*, 104,317 indexed*, 2.06 GiB in (13.8
MiB/s), 2.03 GiB out
(13.7 MiB/s), 1m46s
134,630 scanned*, 121,742 copied*, 109,417 indexed*, 2.10 GiB in (9.02
MiB/s), 2.07 GiB out
(9.30 MiB/s), 1m51s
134,630 scanned*, 126,057 copied*, 109,417 indexed*, 2.20 GiB in (21.0
MiB/s), 2.17 GiB out
(21.0 MiB/s), 1m56s
134,630 scanned*, 130,034 copied*, 114,312 indexed*, 2.36 GiB in (32.1
MiB/s), 2.33 GiBout
(31.8 MiB/s), 2m1s
Xcp command : xcp resume -id ID001
134,630 scanned*, 134,630 copied*, 0 modification, 0 new item, 0 delete
item, 0 error
Speed : 2.40 GiB in (19.7 MiB/s), 2.37 GiB out (19.5 MiB/s)
Total Time : 2m4s.
STATUS : PASSED
```

The following table lists the `resume` parameters and their description.

Parameter	Description
resume -id <catalog_name>	Specifies the catalog name of a previous copy index. This is a required parameter for the resume command.
resume -bs <n[k]>	Specifies the read/write block size (default: 64k).
resume -dircount <n[k]>	Specifies the request size when reading directories.
resume -parallel <n>	Specifies the maximum number of concurrent batch processes (default: 7).

Parameter	Description
resume -preserve-atime	Restores all files to the last accessed date on the source.
resume -s3.insecure	Provides the option to use HTTP instead of HTTPS for S3 bucket communication.
resume -s3.endpoint <s3_endpoint_url>	Overrides the default Amazon Web Services (AWS) endpoint URL with the specified URL for S3 bucket communication.
resume -s3.profile <profile_name>	Specifies a profile from the AWS credential file for S3 bucket communication.
resume -s3.noverify	Overrides the default verification of SSL certification for S3 bucket communication.

resume -bs <n[k]>

Use the `-bs <n[k]>` parameter with the `resume` command to specify the read/write block size. The default block size is 64k.

Syntax

```
xcp resume -id <catalog_name> -bs <n[k]>
```

Show example

```
[root@localhost linux]# ./xcp resume -id ID001 -bs 32k

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
xcp: resume 'ID001': Reviewing the incomplete index...
xcp: diff 'ID001': Found 2,360 completed directories and 152 in
progress
19,440 reviewed, 1.28 MiB in (898 KiB/s), 9.77 KiB out (6.71 KiB/s),
1s.
xcp: resume 'ID001': Starting second pass for the in-progress
directories...
xcp: resume 'ID001': Resuming the in-progress directories...
xcp: resume 'ID001': Resumed command: copy {-newid: u'ID001'}
xcp: resume 'ID001': Current options: {-bs: '32k', -id: 'ID001'}
xcp: resume 'ID001': Merged options: {-bs: '32k', -id: 'ID001', -newid:
u'ID001'}
xcp: resume 'ID001': Values marked with a * include operations before
resume
44,242
MiB/s),
scanned*,
5s 24,132 copied*, 19,440 indexed*, 36.7 MiB in (7.34 MiB/s), 30.6 MiB
out (6.12
59,558
MiB/s),
59,558
scanned*,
10s
scanned*,
30,698
35,234
copied*,
copied*,
19,440
19,440
indexed*,
indexed*,
142
203
MiB
MiB
in
in
```

```
(20.9 MiB/s), 125
(12.1 MiB/s), 187
MiB
MiB
out
out
(18.8
(12.2
MiB/s),
59,558
15s
scanned*, 40,813 copied*, 19,440 indexed*, 286 MiB in (16.5 MiB/s), 269
MiB out (16.5
MiB/s),
65,126
20s
scanned*, 46,317 copied*, 24,106 indexed*, 401 MiB in (22.9 MiB/s), 382
MiB out (22.5
MiB/s),
69,214
25s
scanned*, 53,034 copied*, 29,031 indexed*, 496 MiB in (19.0 MiB/s), 476
MiB out (18.7
MiB/s),
85,438
30s
scanned*, 60,627 copied*, 53,819 indexed*, 591 MiB in (18.9 MiB/s), 569
MiB out (18.5
MiB/s),
94,647
35s
scanned*, 66,948 copied*, 53,819 indexed*, 700 MiB in (21.6 MiB/s), 679
MiB out (21.9
MiB/s),
94,647
40s
scanned*, 73,632 copied*, 53,819 indexed*, 783 MiB in (16.5 MiB/s), 761
MiB out (16.4
MiB/s),
99,683
45s
scanned*, 80,541 copied*, 58,962 indexed*, 849 MiB in (13.0 MiB/s), 824
MiB out (12.4
MiB/s), 50s
99,683
MiB/s),
```

```
scanned*,
55s
84,911 copied*, 58,962 indexed*, 1013 MiB in (32.8 MiB/s), 991 MiB out
(33.2
101,667 scanned*, 91,386 copied*, 73,849 indexed*, 1.06 GiB in (15.4
MiB/s), 1.04 GiB out (15.4
MiB/s), 1m0s
118,251 scanned*, 98,413 copied*, 89,168 indexed*, 1.13 GiB in (14.0
MiB/s), 1.11 GiB out (13.3
MiB/s), 1m5s
124,672 scanned*, 104,134 copied*, 89,168 indexed*, 1.25 GiB in (23.9
MiB/s), 1.22 GiB out (23.2
MiB/s), 1m10s
130,171 scanned*, 109,594 copied*, 94,016 indexed*, 1.38 GiB in (25.7
MiB/s), 1.35 GiB out (25.5
MiB/s), 1m15s
134,574 scanned*, 113,798 copied*, 94,016 indexed*, 1.52 GiB in (28.6
MiB/s), 1.48 GiB out (28.2
MiB/s), 1m20s
134,574 scanned*, 118,078 copied*, 94,016 indexed*, 1.64 GiB in (24.6
MiB/s), 1.61 GiB out (25.1
MiB/s), 1m25s
134,574 scanned*, 121,502 copied*, 94,016 indexed*, 1.80 GiB in (34.0
MiB/s), 1.77 GiB out (33.0
MiB/s), 1m30s
134,630 scanned*, 126,147 copied*, 104,150 indexed*, 1.88 GiB in (16.2
MiB/s), 1.86 GiB out
(17.5 MiB/s), 1m35s
134,630 scanned*, 131,830 copied*, 119,455 indexed*, 1.95 GiB in (13.6
MiB/s), 1.92 GiB out
(13.5 MiB/s), 1m41s
Xcp command : xcp resume -id ID001 -bs 32k
134,630 scanned*, 134,630 copied*, 0 modification, 0 new item, 0 delete
item, 0 error
Speed : 2.02 GiB in (19.9 MiB/s), 1.99 GiB out (19.7 MiB/s)
Total Time : 1m43s.
STATUS : PASSED
```

resume -dircount <n[k]>

Use the `-dircount <n[k]>` parameter with the `resume` command to specify the request size when reading directories. The default value is 64k.

Syntax

```
xcp resume -id <catalog_name> -dircount <n[k]>
```

Show example

```
root@localhost linux]# ./xcp resume -id ID001 -dircount 32k

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
xcp: resume 'ID001': Reviewing the incomplete index...
xcp: diff 'ID001': Found 4,582 completed directories and 238 in
progress
39,520 reviewed, 2.47 MiB in (1.49 MiB/s), 12.6 KiB out (7.62 KiB/s),
1s.
xcp: resume 'ID001': Starting second pass for the in-progress
directories...
xcp: resume 'ID001': Resuming the in-progress directories...
xcp: resume 'ID001': Resumed command: copy {-newid: u'ID001'}
xcp: resume 'ID001': Current options: {-dircount: '32k', -id: 'ID001'}
xcp: resume 'ID001': Merged options: {-dircount: '32k', -id: 'ID001',
-newid: u'ID001'}
xcp: resume 'ID001': Values marked with a * include operations before
resume
76,626 scanned*, 43,825 copied*, 39,520 indexed*, 31.7 MiB in (6.33
MiB/s), 23.0 MiB out (4.60
MiB/s), 5s
79,751 scanned*, 49,942 copied*, 39,520 indexed*, 140 MiB in (21.7
MiB/s), 131 MiB out (21.5
MiB/s), 10s
79,751 scanned*, 55,901 copied*, 39,520 indexed*, 234 MiB in (18.8
MiB/s), 223 MiB out (18.3
MiB/s), 15s
79,751 scanned*, 61,764 copied*, 39,520 indexed*, 325 MiB in (18.0
MiB/s), 313 MiB out (17.9
MiB/s), 20s
84,791 scanned*, 68,129 copied*, 44,510 indexed*, 397 MiB in (14.3
MiB/s), 384 MiB out (14.2
MiB/s), 25s
94,698 scanned*, 74,741 copied*, 54,039 indexed*, 485 MiB in (17.4
MiB/s), 473 MiB out (17.8
MiB/s), 30s
99,734 scanned*, 80,110 copied*, 59,044 indexed*, 605 MiB in (24.1
MiB/s), 591 MiB out (23.7
MiB/s), 35s
104,773 scanned*, 86,288 copied*, 69,005 indexed*, 716 MiB in (22.2
MiB/s), 703 MiB out (22.3
MiB/s), 40s
110,076 scanned*, 93,265 copied*, 79,102 indexed*, 795 MiB in (15.8
```

```
MiB/s), 781 MiB out (15.5
MiB/s), 45s
121,341 scanned*, 100,077 copied*, 84,096 indexed*, 897 MiB in (20.4
MiB/s), 881 MiB out (19.9
MiB/s), 50s
125,032 scanned*, 105,712 copied*, 89,132 indexed*, 1003 MiB in (21.2
MiB/s), 985 MiB out (20.7
MiB/s), 55s
129,548 scanned*, 110,382 copied*, 89,132 indexed*, 1.14 GiB in (32.0
MiB/s), 1.12 GiB out (32.1
MiB/s), 1m0s
131,976 scanned*, 115,158 copied*, 94,221 indexed*, 1.23 GiB in (19.2
MiB/s), 1.21 GiB out (18.3
MiB/s), 1m5s
134,430 scanned*, 119,161 copied*, 94,221 indexed*, 1.37 GiB in (27.8
MiB/s), 1.35 GiB out (28.3
MiB/s), 1m10s
134,630 scanned*, 125,013 copied*, 109,402 indexed*, 1.47 GiB in (21.2
MiB/s), 1.45 GiB out
(21.4 MiB/s), 1m15s
134,630 scanned*, 129,301 copied*, 114,532 indexed*, 1.61 GiB in (29.4
MiB/s), 1.60 GiB out
(29.8 MiB/s), 1m20s
134,630 scanned*, 132,546 copied*, 124,445 indexed*, 1.69 GiB in (14.8
MiB/s), 1.67 GiBout
(15.0 MiB/s), 1m25s
Xcp command : xcp resume -id ID001 -dircount 32k
134,630 scanned*, 134,630 copied*, 0 modification, 0 new item, 0 delete
item, 0 error
Speed : 1.70 GiB in (19.7 MiB/s), 1.69 GiB out (19.5 MiB/s)
Total Time : 1m28s.
STATUS : PASSED
```

resume -parallel <n>

Use the `- parallel <n>` parameter with the `resume` command to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

```
xcp resume -id <catalog_name> -parallel <n>
```

Show example

```
[root@localhost linux]# ./xcp resume -id ID001 -parallel 3

xcp: Index: {source: <IP address or hostname of NFS
server>:/source_vol, target: <IP address of
destination NFS server>:/dest_vol}
xcp: resume 'ID001': Reviewing the incomplete index...
xcp: diff 'ID001': Found 2,347 completed directories and 149 in
progress
19,399 reviewed, 1.28 MiB in (659 KiB/s), 9.77 KiB out (4.93 KiB/s),
1s.
xcp: resume 'ID001': Starting second pass for the in-progress
directories...
xcp: resume 'ID001': Resuming the in-progress directories...
xcp: resume 'ID001': Resumed command: copy {-newid: u'ID001'}
xcp: resume 'ID001': Current options: {-id: 'ID001', -parallel: 3}
xcp: resume 'ID001': Merged options: {-id: 'ID001', -newid: u'ID001',
-parallel: 3}
xcp: resume 'ID001': Values marked with a * include operations before
resume
39,610 scanned*, 23,642 copied*, 19,399 indexed*, 56.3 MiB in (11.2
MiB/s), 45.8 MiB out (9.15
MiB/s), 5s
39,610 scanned*, 28,980 copied*, 19,399 indexed*, 145 MiB in (17.6
MiB/s), 134 MiB out (17.6
MiB/s), 10s
48,111 scanned*, 34,782 copied*, 34,042 indexed*, 223 MiB in (15.8
MiB/s), 212 MiB out (15.7
MiB/s), 15s
55,412 scanned*, 40,468 copied*, 34,042 indexed*, 317 MiB in (18.4
MiB/s), 304 MiB out (18.1
MiB/s), 21s
59,639 scanned*, 46,980 copied*, 39,032 indexed*, 390 MiB in (14.6
MiB/s), 377 MiB out (14.5
MiB/s), 26s
69,520 scanned*, 55,251 copied*, 49,006 indexed*, 438 MiB in (9.59
MiB/s), 423 MiB out (9.21
MiB/s), 31s
78,596 scanned*, 62,054 copied*, 59,001 indexed*, 492 MiB in (10.7
MiB/s), 476 MiB out (10.6
MiB/s), 36s
79,673 scanned*, 68,163 copied*, 59,001 indexed*, 610 MiB in (23.5
MiB/s), 593 MiB out (23.5
MiB/s), 41s
84,600 scanned*, 74,238 copied*, 64,150 indexed*, 723 MiB in (22.5
```

```
MiB/s), 705 MiB out (22.3
MiB/s), 46s
94,525 scanned*, 80,754 copied*, 74,157 indexed*, 807 MiB in (16.7
MiB/s), 788 MiB out (16.4
MiB/s), 51s
94,525 scanned*, 85,119 copied*, 74,157 indexed*, 1007 MiB in (39.9
MiB/s), 988 MiB out (39.9
MiB/s), 56s
09,514 scanned*, 93,474 copied*, 89,192 indexed*, 1.08 GiB in (20.7
MiB/s), 1.06 GiB out (20.2
MiB/s), 1m1s
111,953 scanned*, 100,639 copied*, 94,248 indexed*, 1.18 GiB in (19.3
MiB/s), 1.16 GiB out (19.2
MiB/s), 1m6s
114,605 scanned*, 105,958 copied*, 94,248 indexed*, 1.36 GiB in (36.8
MiB/s), 1.34 GiB out (36.6
MiB/s), 1m11s
124,531 scanned*, 112,340 copied*, 104,275 indexed*, 1.51 GiB in (29.8
MiB/s), 1.48 GiB out
(29.4 MiB/s), 1m16s
129,694 scanned*, 117,218 copied*, 109,236 indexed*, 1.67 GiB in (33.2
MiB/s), 1.65 GiB out
(33.1 MiB/s), 1m21s
131,753 scanned*, 123,850 copied*, 114,358 indexed*, 1.80 GiB in (25.9
MiB/s), 1.77 GiB out
(25.9 MiB/s), 1m26s
134,630 scanned*, 130,829 copied*, 124,437 indexed*, 1.85 GiB in (11.2
MiB/s), 1.83 GiBout
(11.2 MiB/s), 1m31s
Xcp command : xcp resume -id ID001 -parallel 3
134,630 scanned*, 134,630 copied*, 0 modification, 0 new item, 0 delete
item, 0 error
Speed : 2.02 GiB in (21.6 MiB/s), 2.00 GiB out (21.3 MiB/s)
Total Time : 1m35s.
STATUS : PASSED
```

resume -preserve-atime

Use the `-preserve-atime` parameter with the `resume` command to restore all files to the last accessed date on the source.

The `-preserve-atime` parameter resets the access time to the original value set before the XCP read operation.

Syntax

```
xcp resume -id <catalog_name> -preserve-atime
```

Show example

```
root@client1 linux]# ./xcp resume -preserve-atime -id XCP_copy_2022-06-
30_14.22.53.742272

xcp: Job ID: Job_XCP_copy_2022-06-30_14.22.53.742272_2022-06-
30_14.37.07.746208_resume
xcp: Index: {source: 101.10.10.12:/source_vol, target:
10.102.102.70:/dest_vol}
xcp: Tune: Previous operation on id 'XCP_copy_2022-06-
30_14.22.53.742272' already completed;
nothing to resume
0 in (0/s), 0 out (0/s), 6s
Xcp command : xcp resume -preserve-atime -id XCP_copy_2022-06-
30_14.22.53.742272
Stats :
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 6s.
Migration ID: XCP_copy_2022-06-30_14.22.53.742272
Job ID : Job_XCP_copy_2022-06-30_14.22.53.742272_2022-06-
30_14.37.07.746208_resume
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2022-06-
30_14.22.53.742272_2022-06-
30_14.37.07.746208_resume.log
STATUS : PASSED
```

resume -s3.insecure

Use the `-s3.insecure` parameter with the `resume` command to use HTTP instead of HTTPS for S3 bucket communication.

> If the `-s3.insecure` parameter is used with the `copy` command, it is ignored on resume. You must specify `-s3.insecure` again to use the option on resume.

Syntax

```
xcp resume -s3.insecure -id <catalog_name>
```

Show example

```
root@client1 linux]# ./xcp resume -s3.insecure -id XCP_copy_2023-06-
08_10.31.47.381883

Job ID: Job_XCP_copy_2023-06-08_10.31.47.381883_2023-06-
08_10.34.02.964143_resume
Index: {source: 1 hdfs:///user/demo, target: s3://bucket1/}
Reviewing the incomplete index...
Found 0 completed directories and 2 in progress
4,009 reviewed, 88.7 KiB in (76.1 KiB/s), 332 out (285/s), 1s.
4,009 reviewed, 90.9 KiB in (77.6 KiB/s), 2.44 KiB out (2.08 KiB/s),
1s.
Starting second pass for the in-progress directories...
4,009 reviewed, 4,009 re-reviewed, 179 KiB in (130 KiB/s), 2.72 KiB out
(1.98 KiB/s), 1s.
9,008 scanned*, 4,540 copied*, 4,009 indexed*, 534 KiB
s3.data.uploaded, 534
s3.copied.single.key.file, 534 s3.copied.file, 2.28 MiB in (464 KiB/s),
631 KiB out (126 KiB/s),
5s
9,008 scanned*, 5,551 copied*, 4,009 indexed*, 1.51 MiB
s3.data.uploaded, 1,544
s3.copied.single.key.file, 1,544 s3.copied.file, 3.38 MiB in (222
KiB/s), 1.74 MiB out (226
KiB/s), 10s
9,008 scanned*, 6,596 copied*, 4,009 indexed*, 2.53 MiB
s3.data.uploaded, 2,595
s3.copied.single.key.file, 2,595 s3.copied.file, 4.55 MiB in (235
KiB/s), 2.91 MiB out (236
KiB/s), 15s
9,008 scanned*, 7,658 copied*, 4,009 indexed*, 3.57 MiB
s3.data.uploaded, 3,652
s3.copied.single.key.file, 3,652 s3.copied.file, 5.71 MiB in (234
KiB/s), 4.09 MiB out (238
KiB/s), 20s
9,008 scanned*, 8,711 copied*, 4,009 indexed*, 4.60 MiB
s3.data.uploaded, 4,706
s3.copied.single.key.file, 4,706 s3.copied.file, 6.88 MiB in (235
KiB/s), 5.26 MiB out (236
KiB/s), 25s
Xcp command : xcp resume -s3.insecure -id XCP_copy_2023-06-
08_10.31.47.381883
Stats : 9,008 scanned*, 9,006 copied*, 9,009 indexed*, 4.88 MiB
s3.data.uploaded, 4,996
s3.copied.single.key.file, 4,996 s3.copied.file
```

```
Speed : 7.10 MiB in (270 KiB/s), 5.76 MiB out (219 KiB/s)
Total Time : 26s.
Migration ID: XCP_copy_2023-06-08_10.31.47.381883
Job ID : Job_XCP_copy_2023-06-08_10.31.47.381883_2023-06-
08_10.34.02.964143_resume
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
08_10.31.47.381883_2023-06-
08_10.34.02.964143_resume.log
STATUS : PASSED
```

resume -s3.endpoint <s3_endpoint_url>

Use the `-s3.endpoint <s3_endpoint_url>` parameter with the `resume` command to override the default AWS endpoint URL with the specified URL for S3 bucket communication.

> By default, resume uses the S3 profile and S3 endpoint specified during the copy operation. However, if you specify a new S3 endpoint and S3 profile on resume, it overrides the default used with the `copy` command.

Syntax

```
xcp resume -s3.profile <profile_name> -s3.endpoint https://<endpoint_url>:
-id <catalog_name>
```

Show example

```
[root@client1 linux]# ./xcp resume -id XCP_copy_2023-06-
13_11.48.59.454327

Job ID: Job_XCP_copy_2023-06-13_11.48.59.454327_2023-06-
13_11.49.34.887164_resume
Index: {source: hdfs:///user/demo, target: s3://xcp-testing/}
Reviewing the incomplete index...
Found 0 completed directories and 2 in progress
9 reviewed, 4.53 KiB in (2.47 KiB/s), 188 out (102/s), 1s.
9 reviewed, 6.81 KiB in (3.70 KiB/s), 2.30 KiB out (1.25 KiB/s), 1s.
Starting second pass for the in-progress directories...
9 reviewed, 9 re-reviewed, 10.9 KiB in (5.65 KiB/s), 2.44 KiB out (1.26
KiB/s), 1s.
15,008 scanned*, 1,532 copied*, 9 indexed*, 1.50 MiB s3.data.uploaded,
1,539
s3.copied.single.key.file, 1,539 s3.copied.file, 4.64 MiB in (946
KiB/s), 1.77 MiB out (360
KiB/s), 6s
15,008 scanned*, 4,764 copied*, 9 indexed*, 4.67 MiB s3.data.uploaded,
4,784
s3.copied.single.key.file, 4,784 s3.copied.file, 8.21 MiB in (727
KiB/s), 5.38 MiB out (736
KiB/s), 11s
15,008 scanned*, 7,928 copied*, 9 indexed*, 7.75 MiB s3.data.uploaded,
7,935
5,008 scanned*, 7,928 copied*, 9 indexed*, 7.75 MiB s3.data.uploaded,
7,935
s3.copied.single.key.file, 7,935 s3.copied.file, 11.7 MiB in (703
KiB/s), 8.89 MiB out (708
KiB/s), 16s
15,008 scanned*, 10,863 copied*, 9 indexed*, 10.6 MiB s3.data.uploaded,
10,864
s3.copied.single.key.file, 10,864 s3.copied.file, 14.9 MiB in (660
KiB/s), 12.2 MiB out (664
KiB/s), 21s
15,008 scanned*, 14,060 copied*, 9 indexed*, 13.7 MiB s3.data.uploaded,
14,076
s3.copied.single.key.file, 14,076 s3.copied.file, 18.5 MiB in (716
KiB/s), 15.7 MiB out (725
KiB/s), 26s
Xcp command : xcp resume -id XCP_copy_2023-06-13_11.48.59.454327
Stats : 15,008 scanned*, 15,006 copied*, 15,009 indexed*, 14.6 MiB
s3.data.uploaded,
14,996 s3.copied.single.key.file, 14,996 s3.copied.file
```

```
Speed : 19.2 MiB in (708 KiB/s), 17.1 MiB out (631 KiB/s)
Total Time : 27s.
Migration ID: XCP_copy_2023-06-13_11.48.59.454327
Job ID : Job_XCP_copy_2023-06-13_11.48.59.454327_2023-06-
13_11.49.34.887164_resume
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
13_11.48.59.454327_2023-06-
13_11.49.34.887164_resume.log
STATUS : PASSED
```

resume s3.profile <profile_name>

Use the `-s3.profile <profile_name>` parameter with the `resume` command to specify a profile from the AWS credential file for S3 bucket communication.

> By default, resume uses the S3 profile and S3 endpoint specified during the copy operation. However, if you specify a new S3 endpoint and S3 profile on resume, it overrides the default used with the `copy` command.

Syntax

```
xcp resume -s3.profile <name> -s3.endpoint -id <catalog_name>
```

Show example

```
[root@client1 linux]# ./xcp resume -s3.profile sg -s3.endpoint
https://<endpoint_url>: -id
XCP_copy_2023-06-08_10.40.42.519258

Job ID: Job_XCP_copy_2023-06-08_10.40.42.519258_2023-06-
08_10.52.18.453982_resume
Index: {source: hdfs:///user/demo target: s3://xxx-bucket/
Reviewing the incomplete index...
Found 0 completed directories and 2 in progress
9 reviewed, 4.53 KiB in (3.03 KiB/s), 188 out (126/s), 1s.
9 reviewed, 6.81 KiB in (4.52 KiB/s), 2.30 KiB out (1.53 KiB/s), 1s.
Starting second pass for the in-progress directories...
9 reviewed, 9 re-reviewed, 10.9 KiB in (6.76 KiB/s), 2.44 KiB out (1.51
KiB/s), 1s.
15,008 scanned*, 1,660 copied*, 9 indexed*, 1.64 MiB s3.data.uploaded,
1,675
s3.copied.single.key.file, 1,675 s3.copied.file, 4.75 MiB in (971
KiB/s), 1.92 MiB out (392
KiB/s), 5s
15,008 scanned*, 3,453 copied*, 9 indexed*, 3.39 MiB s3.data.uploaded,
3,467
s3.copied.single.key.file, 3,467 s3.copied.file, 6.79 MiB in (412
KiB/s), 3.91 MiB out (403
KiB/s), 10s
15,008 scanned*, 6,296 copied*, 9 indexed*, 6.16 MiB s3.data.uploaded,
6,305
s3.copied.single.key.file, 6,305 s3.copied.file, 9.86 MiB in (619
KiB/s), 7.08 MiB out (637
KiB/s), 15s
15,008 scanned*, 9,527 copied*, 9 indexed*, 9.33 MiB s3.data.uploaded,
9,554
s3.copied.single.key.file, 9,554 s3.copied.file, 13.4 MiB in (717
KiB/s), 10.7 MiB out (726
KiB/s), 20s
15,008 scanned*, 12,656 copied*, 9 indexed*, 12.4 MiB s3.data.uploaded,
12,648
s3.copied.single.key.file, 12,648 s3.copied.file, 16.9 MiB in (715
KiB/s), 14.1 MiB out (706
KiB/s), 25s
Xcp command : xcp resume -s3.profile sg -s3.endpoint
https://<endpoint_url>: -id XCP_copy_2023-
06-08_10.40.42.519258
Stats : 15,008 scanned*, 15,006 copied*, 15,009 indexed*, 14.6 MiB
s3.data.uploaded,
```

```
14,996 s3.copied.single.key.file, 14,996 s3.copied.file
Speed : 19.2 MiB in (661 KiB/s), 17.1 MiB out (590 KiB/s)
Total Time : 29s.
Migration ID: XCP_copy_2023-06-08_10.40.42.519258
Job ID : Job_XCP_copy_2023-06-08_10.40.42.519258_2023-06-
08_10.52.18.453982_resume
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
08_10.40.42.519258_2023-06-
08_10.52.18.453982_resume.log
STATUS : PASSED
```

resume -s3.noverify

Use the `-s3.noverify` parameter with the `resume` command to override the default verification of SSL certification for S3 bucket communication.

Syntax

```
xcp resume -s3.noverify -id <catalog_name>
```

Show example

```
[root@client1 linux]# ./xcp resume -s3.noverify -id XCP_copy_2023-06-
13_11.32.47.743708

Job ID: Job_XCP_copy_2023-06-13_11.32.47.743708_2023-06-
13_11.33.41.388541_resume
Index: {source: hdfs:///user/demo, target: s3://bucket/
Reviewing the incomplete index...
Found 0 completed directories and 2 in progress
9 reviewed, 4.53 KiB in (3.70 KiB/s), 188 out (153/s), 1s.
9 reviewed, 6.81 KiB in (5.52 KiB/s), 2.30 KiB out (1.87 KiB/s), 1s.
Starting second pass for the in-progress directories...
9 reviewed, 9 re-reviewed, 10.9 KiB in (8.19 KiB/s), 2.44 KiB out (1.83
KiB/s), 1s.
15,008 scanned*, 1,643 copied*, 9 indexed*, 1.62 MiB s3.data.uploaded,
1,662
s3.copied.single.key.file, 1,662 s3.copied.file, 4.78 MiB in (969
KiB/s), 1.90 MiB out (385
KiB/s), 5s
15,008 scanned*, 4,897 copied*, 9 indexed*, 4.78 MiB s3.data.uploaded,
4,892
s3.copied.single.key.file, 4,892 s3.copied.file, 8.38 MiB in (735
KiB/s), 5.50 MiB out (737
KiB/s), 10s
15,008 scanned*, 8,034 copied*, 9 indexed*, 7.86 MiB s3.data.uploaded,
8,048
s3.copied.single.key.file, 8,048 s3.copied.file, 11.8 MiB in (696
KiB/s), 9.02 MiB out (708
KiB/s), 15s
15,008 scanned*, 11,243 copied*, 9 indexed*, 11.0 MiB s3.data.uploaded,
11,258
s3.copied.single.key.file, 11,258 s3.copied.file, 15.3 MiB in (709
KiB/s), 12.6 MiB out (724
KiB/s), 20s
15,008 scanned*, 14,185 copied*, 9 indexed*, 13.9 MiB s3.data.uploaded,
14,195
s3.copied.single.key.file, 14,195 s3.copied.file, 18.6 MiB in (662
KiB/s), 15.9 MiB out (660
KiB/s), 25s
Xcp command : xcp resume -s3.noverify -id XCP_copy_2023-06-
13_11.32.47.743708
Stats : 15,008 scanned*, 15,006 copied*, 15,009 indexed*, 14.6 MiB
s3.data.uploaded,
14,996 s3.copied.single.key.file, 14,996 s3.copied.file
Speed : 19.2 MiB in (736 KiB/s), 17.1 MiB out (657 KiB/s)
```

```
Total Time : 26s.
Migration ID: XCP_copy_2023-06-13_11.32.47.743708
Job ID : Job_XCP_copy_2023-06-13_11.32.47.743708_2023-06-
13_11.33.41.388541_resume
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_XCP_copy_2023-06-
13_11.32.47.743708_2023-06-
13_11.33.41.388541_resume.log
STATUS : PASSED
```

verify

The `verify` command uses full byte-by-byte data comparison between source and target directories after a 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.

Syntax

```
xcp verify <source NFS export path> <destination NFS exportpath>
```

Show example

```
[root@localhost linux]# ./xcp verify <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
04_23.54.40.893449
32,493 scanned, 11,303 found, 7,100 compared, 7,100 same data, 374 MiB
in (74.7 MiB/s), 4.74 MiB
out (971 KiB/s), 5s
40,109 scanned, 24,208 found, 18,866 compared, 18,866 same data, 834
MiB in (91.5 MiB/s), 10.5
MiB out (1.14 MiB/s), 10s
56,030 scanned, 14,623 indexed, 33,338 found, 27,624 compared, 27,624
same data, 1.31 GiB in
(101 MiB/s), 15.9 MiB out (1.07 MiB/s), 15s
73,938 scanned, 34,717 indexed, 45,583 found, 38,909 compared, 38,909
same data, 1.73 GiB in
(86.3 MiB/s), 22.8 MiB out (1.38 MiB/s), 20s
76,308 scanned, 39,719 indexed, 61,810 found, 54,885 compared, 54,885
same data, 2.04 GiB in
(62.8 MiB/s), 30.2 MiB out (1.48 MiB/s), 25s
103,852 scanned, 64,606 indexed, 77,823 found, 68,301 compared, 68,301
same data, 2.31 GiB in
(56.0 MiB/s), 38.2 MiB out (1.60 MiB/s), 30s
110,047 scanned, 69,579 indexed, 89,082 found, 78,794 compared, 78,794
same data, 2.73 GiB in
(85.6 MiB/s), 43.6 MiB out (1.06 MiB/s), 35s
113,871 scanned, 79,650 indexed, 99,657 found, 89,093 compared, 89,093
same data, 3.23 GiB in
(103 MiB/s), 49.3 MiB out (1.14 MiB/s), 40s
125,092 scanned, 94,616 indexed, 110,406 found, 98,369 compared, 98,369
same data, 3.74 GiB in
(103 MiB/s), 55.0 MiB out (1.15 MiB/s), 45s
134,630 scanned, 104,764 indexed, 120,506 found, 106,732 compared,
106,732 same data, 4.23 GiB
in (99.9 MiB/s), 60.4 MiB out (1.05 MiB/s), 50s
134,630 scanned, 114,823 indexed, 129,832 found, 116,198 compared,
116,198 same data, 4.71 GiB
in (97.2 MiB/s), 65.5 MiB out (1.04 MiB/s), 55s
Xcp command : xcp verify <IP address of NFS server>:/source_vol <IP
address of destination NFS
server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
```

```
different item, 0 error
Speed : 4.95 GiB in (86.4 MiB/s), 69.2 MiB out (1.18 MiB/s)
Total Time : 58s.
STATUS : PASSED
```

The following table lists the `verify` parameters and their description.

Parameter	Description
verify -stats	Scans the source and target trees in parallel and compares tree statistics.
verify -csv	Scans the source and target trees in parallel and compares tree statistics.
verify -nodata	Does not check data.
verify -noattrs	Does not check attributes.
verify -nomods	Does not check file modification times.
verify -mtimewindow <s>	Specifies the acceptable modification time difference for verification.
verify -v	Retrieves output formats to list any differences found.
verify -l	Retrieves output formats to list any differences found.
verify -nonames	Excludes user and group names from file listings or reports.
verify -match <filter>	Only processes files and directories that match the format.
verify -bs <n[k]>	Specifies the read/write block size (default: 64k).
verify -parallel <n>	Specifies the maximum number of concurrent batch processes (default: 7).
verify -dircount <n[k]>	Specifies the request size when reading directories.
verify -noId	Disables the creation of a default index (default: False).
verify -preserve-atime	Restores all files to the last accessed date on the source.
verify -s3.insecure	Provides the option to use HTTP instead of HTTPS for S3 bucket communication.
verify -s3.endpoint <s3_endpoint_url>	Overrides the default Amazon Web Services (AWS) endpoint URL with the specified URL for S3 bucket communication.
verify -s3.profile <profile_name>	Specifies a profile from the AWS credential file for S3 bucket communication.
verify -s3.noverify	Overrides the default verification of SSL certification for S3 bucket communication.

verify -stats and verify -csv

Use the `-stats` and `-csv` parameters with the `verify` command to scan the source and target trees in parallel and compare tree statistics.

Syntax

```
cp verify -stats <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -stats
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol

228,609 scanned, 49.7 MiB in (9.93 MiB/s), 3.06 MiB out (625 KiB/s), 5s
== Number of files ==
empty <8KiB 8-64KiB 64KiB-1MiB 1-10MiB 10-100MiB >100MiB
235 73,916 43,070 4,020 129 15
same same same same same same
== Directory entries ==
empty 1-10 10-100 100-1K 1K-10K >10K
3
same
10,300
same
2,727
same
67
same
11
same
== Depth ==
0-5 6-10 11-15 16-20 21-100 >100
47,120
same
79,772
same
7,608
same
130
same
== Modified ==
>1 year >1 month 1-31 days 1-24 hrs <1 hour <15 mins future
15
same 116,121
same 5,249
same
Total count: 134,630 / same
Directories: 13,108 / same
Regular files: 121,385 / same
Symbolic links: 137 / same
Special files: None / same
Hard links: None / same, Multilink files: None / same
Xcp command : xcp verify -stats <source_ip_address>:/source_vol
<<destination_ip_address>:/dest_vol
```

```
269,260 scanned, 0 matched, 0 error
Speed : 59.5 MiB in (7.44 MiB/s), 3.94 MiB out (506 KiB/s)
Total Time : 7s.
STATUS : PASSED
```

Syntax

```
xcp verify -csv <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -csv
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol

222,028 scanned, 48.2 MiB in (9.63 MiB/s), 2.95 MiB out (603 KiB/s), 5s
== Number of files ==
empty
235
same    <8KiB 73,916
same    8-64KiB
43,070
same    64KiB-1MiB
4,020
same    1-10MiB
129
same    10-100MiB   >100MiB
15
same
== Directory entries ==
empty   1-10    10-100  100-1K  1K-10K  >10K
3
same    10,300
same    2,727
same    67
same    11
same
== Depth ==
0-5
6-10
11-15
16-20
21-100
>100
47,120
same    79,772
same    7,608
same    130
same
== Modified ==
>1 year  >1 month
1-31 days
1-24 hrs
<1 hour
<15 mins
future
```

```
    15
same    121,370
same

Total count: 134,630 / same Directories: 13,108 / same Regular files:
121,385 / same Symbolic links: 137 / same Special files: None / same
Hard links: None / same, Multilink files: None / same

Xcp command : xcp verify -csv <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
269,260 scanned, 0 matched, 0 error
Speed   : 59.5 MiB in (7.53 MiB/s), 3.94 MiB out (512 KiB/s) Total Time
: 7s.
STATUS  : PASSED
```

Syntax

```
xcp verify -stats -csv <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -stats -csv <IP address of source
NFS server>:/source_vol <IP
address of destination NFS server>:/dest_vol

224,618 scanned, 48.7 MiB in (9.54 MiB/s), 2.98 MiB out (597 KiB/s), 5s
== Number of files ==
empty <8KiB 8-64KiB 64KiB-1MiB 1-10MiB 10-100MiB >100MiB
235 73,916 43,070 4,020 129 15
same same same same same same
== Directory entries ==
empty 1-10 10-100 100-1K 1K-10K >10K
3
same
10,300
same
2,727
same
67
same
11
same
== Depth ==
0-5 6-10 11-15 16-20 21-100 >100
47,120
same
79,772
same
7,608
same
130
same
== Modified ==
>1 year >1 month 1-31 days 1-24 hrs <1 hour <15 mins future
15
same 121,370
same
Total count: 134,630 / same
Directories: 13,108 / same
Regular files: 121,385 / same
Symbolic links: 137 / same
Special files: None / same
Hard links: None / same, Multilink files: None / same
Xcp command : xcp verify -stats -csv <IP address of source NFS
server>:/source_vol <IP
```

```
address of destination NFS server>:/dest_vol
269,260 scanned, 0 matched, 0 error
Speed : 59.5 MiB in (7.49 MiB/s), 3.94 MiB out (509 KiB/s)
Total Time : 7s.
STATUS : PASSED
```

verify -nodata

Use the `-nodata` parameter with the `verify` command to specify not to check data.

Syntax

```
xcp verify -nodata <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -nodata <IP address of source NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_02.18.01.159115
70,052 scanned, 29,795 indexed, 43,246 found, 25.8 MiB in (5.14 MiB/s),
9.39 MiB out
(1.87 MiB/s), 5s
117,136 scanned, 94,723 indexed, 101,434 found, 50.3 MiB in (4.90
MiB/s), 22.4 MiB out (2.60
MiB/s), 10s
Xcp command : xcp verify -nodata <IP address of source NFS
server>:/source_vol <IP address of
destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (attrs, mods), 0
different item, 0 error
Speed : 62.7 MiB in (4.65 MiB/s), 30.2 MiB out (2.24MiB/s)
Total Time : 13s.
STATUS : PASSED
```

verify -noattrs

Use the `-noattrs` parameter with the `verify` command to specify not to check attributes.

Syntax

```
xcp verify -noattrs <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -noattrs <IP address of source NFS
server>:/source_vol <IP address
of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-05_02.19.14.011569

40,397 scanned, 9,917 found, 4,249 compared, 4,249 same data, 211 MiB
in (41.6 MiB/s), 3.78 MiB
out (764 KiB/s), 5s
40,397 scanned, 14,533 found, 8,867 compared, 8,867 same data, 475 MiB
in (52.9 MiB/s), 6.06 MiB
out (466 KiB/s), 10s
40,397 scanned, 20,724 found, 15,038 compared, 15,038 same data, 811
MiB in (67.0 MiB/s), 9.13
MiB out (628 KiB/s), 15s
40,397 scanned, 25,659 found, 19,928 compared, 19,928 same data, 1.02
GiB in (46.6 MiB/s), 11.5
MiB out (477 KiB/s), 20s
40,397 scanned, 30,535 found, 24,803 compared, 24,803 same data, 1.32
GiB in (62.0 MiB/s), 14.0
MiB out (513 KiB/s), 25s
75,179 scanned, 34,656 indexed, 39,727 found, 32,595 compared, 32,595
same data, 1.58 GiB in
(53.4 MiB/s), 20.1 MiB out (1.22 MiB/s), 30s
75,179 scanned, 34,656 indexed, 47,680 found, 40,371 compared, 40,371
same data, 1.74 GiB in
(32.3 MiB/s), 23.6 MiB out (717 KiB/s), 35s
75,179 scanned, 34,656 indexed, 58,669 found, 51,524 compared, 51,524
same data, 1.93 GiB in
(37.9 MiB/s), 28.4 MiB out (989 KiB/s), 40s
78,097 scanned, 39,772 indexed, 69,343 found, 61,858 compared, 61,858
same data, 2.12 GiB in
(39.0 MiB/s), 33.4 MiB out (1015 KiB/s), 45s
110,213 scanned, 69,593 indexed, 80,049 found, 69,565 compared, 69,565
same data, 2.37 GiB in
(51.3 MiB/s), 39.3 MiB out (1.18 MiB/s), 50s
110,213 scanned, 69,593 indexed, 86,233 found, 75,727 compared, 75,727
same data, 2.65 GiB in
(57.8 MiB/s), 42.3 MiB out (612 KiB/s), 55s
110,213 scanned, 69,593 indexed, 93,710 found, 83,218 compared, 83,218
same data, 2.93 GiB in
(56.1 MiB/s), 45.8 MiB out (705 KiB/s), 1m0s
110,213 scanned, 69,593 indexed, 99,700 found, 89,364 compared, 89,364
```

```
same data, 3.20 GiB in
(56.9 MiB/s), 48.7 MiB out (593 KiB/s), 1m5s
124,888 scanned, 94,661 indexed, 107,509 found, 95,304 compared, 95,304
same data, 3.54 GiB in
(68.6 MiB/s), 53.5 MiB out (1000 KiB/s), 1m10s
134,630 scanned, 104,739 indexed, 116,494 found, 102,792 compared,
102,792 same data, 3.94 GiB
in (81.7 MiB/s), 58.2 MiB out (949 KiB/s), 1m15s
134,630 scanned, 104,739 indexed, 123,475 found, 109,601 compared,
109,601 same data, 4.28 GiB
in (70.0 MiB/s), 61.7 MiB out (711 KiB/s), 1m20s
134,630 scanned, 104,739 indexed, 129,354 found, 115,295 compared,
115,295 same data, 4.55 GiB
in (55.3 MiB/s), 64.5 MiB out (572 KiB/s), 1m25s
Xcp command : xcp verify -noattrs <IP address of source NFS
server>:/source_vol <IP address
of destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, mods), 0
different item, 0 error
Speed : 4.95 GiB in (56.5 MiB/s), 69.2 MiB out (789 KiB/s)
Total Time : 1m29s.
STATUS : PASSED
```

verify -nomods

Use the `-nomods` parameter with the `verify` command to specify not to check file modification times.

Syntax

```
xcp verify -nomods <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -nomods <IP address of NFS
server>:/source_vol <IP address of
destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_02.22.33.738593
40,371 scanned, 10,859 found, 5,401 compared, 5,401 same data, 296 MiB
in (59.1 MiB/s), 4.29 MiB
out (876 KiB/s), 5s
40,371 scanned, 22,542 found, 17,167 compared, 17,167 same data, 743
MiB in (88.9 MiB/s), 9.67
MiB out (1.07 MiB/s), 10s
43,521 scanned, 4,706 indexed, 32,166 found, 26,676 compared, 26,676
same data, 1.17 GiB in
(91.3 MiB/s), 14.5 MiB out (996 KiB/s), 15s
70,260 scanned, 29,715 indexed, 43,680 found, 37,146 compared, 37,146
same data, 1.64 GiB in
(96.0 MiB/s), 21.5 MiB out (1.38 MiB/s), 20s
75,160 scanned, 34,722 indexed, 60,079 found, 52,820 compared, 52,820
same data, 2.01 GiB in
(74.4 MiB/s), 29.1 MiB out (1.51 MiB/s), 25s
102,874 scanned, 69,594 indexed, 77,322 found, 67,907 compared, 67,907
same data, 2.36 GiB in
(71.2 MiB/s), 38.3 MiB out (1.85 MiB/s), 30s
110,284 scanned, 69,594 indexed, 89,143 found, 78,952 compared, 78,952
same data, 2.82 GiB in
(92.8 MiB/s), 43.9 MiB out (1.08 MiB/s), 35s
112,108 scanned, 79,575 indexed, 100,228 found, 89,856 compared, 89,856
same data, 3.25 GiB in
(89.3 MiB/s), 49.6 MiB out (1.15 MiB/s), 40s
128,122 scanned, 99,743 indexed, 111,358 found, 98,663 compared, 98,663
same data, 3.80 GiB in
(112 MiB/s), 55.8 MiB out (1.24 MiB/s), 45s
134,630 scanned, 104,738 indexed, 123,253 found, 109,472 compared,
109,472 same data, 4.36 GiB
in (114 MiB/s), 61.7 MiB out (1.16 MiB/s), 50s
134,630 scanned, 119,809 indexed, 133,569 found, 120,008 compared,
120,008 same data, 4.94 GiB
in (115 MiB/s), 67.8 MiB out (1.20 MiB/s), 55s]

Xcp command : xcp verify -nomods <IP address of NFS server>:/source_vol
<IP address of destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
```

```
verified (data, attrs), 0
different item, 0 error
Speed : 4.95 GiB in (90.5 MiB/s), 69.2 MiB out (1.24 MiB/s)
Total Time : 56s.
STATUS : PASSED
```

verify -mtimewindow <s>

Use the `-mtimewindow <s>` parameter with the `verify` command to specify the acceptable modification time difference for verification.

Syntax

```
xcp verify -mtimewindow <s> <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -mtimewindow 2 <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
06_02.26.03.797492
27,630 scanned, 9,430 found, 5,630 compared, 5,630 same data, 322 MiB
in (64.1 MiB/s), 3.91 MiB
out (798 KiB/s), 5s
38,478 scanned, 19,840 found, 14,776 compared, 14,776 same data, 811
MiB in (97.8 MiB/s), 8.86
MiB out (1012 KiB/s), 10s
55,304 scanned, 14,660 indexed, 29,893 found, 23,904 compared, 23,904
same data, 1.33 GiB in
(109 MiB/s), 14.6 MiB out (1.14 MiB/s), 15s
64,758 scanned, 24,700 indexed, 43,133 found, 36,532 compared, 36,532
same data, 1.65 GiB in
(65.3 MiB/s), 21.0 MiB out (1.28 MiB/s), 20s
75,317 scanned, 34,655 indexed, 56,020 found, 48,942 compared, 48,942
same data, 2.01 GiB in
(72.5 MiB/s), 27.4 MiB out (1.25 MiB/s), 25s
95,024 scanned, 54,533 indexed, 70,675 found, 61,886 compared, 61,886
same data, 2.41 GiB in
(81.3 MiB/s), 34.9 MiB out (1.49 MiB/s), 30s
102,407 scanned, 64,598 indexed, 85,539 found, 76,158 compared, 76,158
same data, 2.74 GiB in
(67.3 MiB/s), 42.0 MiB out (1.42 MiB/s), 35s
113,209 scanned, 74,661 indexed, 97,126 found, 86,525 compared, 86,525
same data, 3.09 GiB in
(72.6 MiB/s), 48.0 MiB out (1.19 MiB/s), 40s
125,040 scanned, 84,710 indexed, 108,480 found, 96,253 compared, 96,253
same data, 3.51 GiB in
(84.0 MiB/s), 53.6 MiB out (1.10 MiB/s), 45s
132,726 scanned, 99,775 indexed, 117,252 found, 103,740 compared,
103,740 same data, 4.04 GiB in
(108 MiB/s), 58.4 MiB out (986 KiB/s), 50s
134,633 scanned, 109,756 indexed, 126,700 found, 112,978 compared,
112,978 same data, 4.52 GiB
in (97.6 MiB/s), 63.6 MiB out (1.03 MiB/s), 55s
134,633 scanned, 129,807 indexed, 134,302 found, 120,779 compared,
120,779 same data, 4.95 GiB
in (86.5 MiB/s), 68.8 MiB out (1.02 MiB/s), 1m0s
Xcp command : xcp verify -mtimewindow 2 <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol
```

```
134,633 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
different item, 0 error
Speed : 4.95 GiB in (83.6 MiB/s), 69.2 MiB out (1.14 MiB/s)
Total Time : 1m0s.
STATUS : PASSED
```

verify -v and verify -l

Use the `-v` and `l` parameters with the `verify` command to retrieve output formats and list any differences found.

Syntax

```
xcp verify -v <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -v <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_02.26.30.055115
32,349 scanned, 10,211 found, 5,946 compared, 5,946 same data, 351 MiB
in (70.1 MiB/s), 4.27 MiB
out (872 KiB/s), 5s
40,301 scanned, 21,943 found, 16,619 compared, 16,619 same data, 874
MiB in (104 MiB/s), 9.74
MiB out (1.09 MiB/s), 10s
52,201 scanned, 14,512 indexed, 33,173 found, 27,622 compared, 27,622
same data, 1.35 GiB in
(102 MiB/s), 16.0 MiB out (1.24 MiB/s), 15s
70,886 scanned, 34,689 indexed, 46,699 found, 40,243 compared, 40,243
same data, 1.77 GiB in
(86.2 MiB/s), 23.3 MiB out (1.47 MiB/s), 20s
80,072 scanned, 39,708 indexed, 63,333 found, 55,743 compared, 55,743
same data, 2.04 GiB in
(55.4 MiB/s), 31.0 MiB out (1.54 MiB/s), 25s
100,034 scanned, 59,615 indexed, 76,848 found, 67,738 compared, 67,738
same data, 2.35 GiB in
(61.6 MiB/s), 37.6 MiB out (1.31 MiB/s), 30s
110,290 scanned, 69,597 indexed, 88,493 found, 78,203 compared, 78,203
same data, 2.75 GiB in
(81.7 MiB/s), 43.4 MiB out (1.14 MiB/s), 35s
116,829 scanned, 79,603 indexed, 102,105 found, 90,998 compared, 90,998
same data, 3.32 GiB in
(117 MiB/s), 50.3 MiB out (1.38 MiB/s), 40s
59
128,954 scanned, 94,650 indexed, 114,340 found, 101,563 compared,
101,563 same data, 3.91 GiB in
(121 MiB/s), 56.8 MiB out (1.30 MiB/s), 45s
134,630 scanned, 109,858 indexed, 125,760 found, 112,077 compared,
112,077 same data, 4.41 GiB
in (99.9 MiB/s), 63.0 MiB out (1.22 MiB/s), 50s
Xcp command : xcp verify -v <IP address of NFS server>:/source_vol <IP
address of destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
different item, 0 error
Speed : 4.95 GiB in (91.7 MiB/s), 69.2 MiB out (1.25 MiB/s)
Total Time : 55s.
STATUS : PASSED
```

Syntax

```
xcp verify -l <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -l <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_02.27.58.969228
32,044 scanned, 11,565 found, 7,305 compared, 7,305 same data, 419 MiB
in (83.7 MiB/s), 4.93 MiB
out (1008 KiB/s), 5s
40,111 scanned, 21,352 found, 16,008 compared, 16,008 same data, 942
MiB in (104 MiB/s), 9.64
MiB out (962 KiB/s), 10s
53,486 scanned, 14,677 indexed, 30,840 found, 25,162 compared, 25,162
same data, 1.34 GiB in
(86.4 MiB/s), 15.0 MiB out (1.07 MiB/s), 15s
71,202 scanned, 34,646 indexed, 45,082 found, 38,555 compared, 38,555
same data, 1.72 GiB in
(76.7 MiB/s), 22.5 MiB out (1.51 MiB/s), 20s
75,264 scanned, 34,646 indexed, 60,039 found, 53,099 compared, 53,099
same data, 2.00 GiB in
(58.5 MiB/s), 29.1 MiB out (1.30 MiB/s), 25s
95,205 scanned, 54,684 indexed, 76,004 found, 67,054 compared, 67,054
same data, 2.34 GiB in
(67.5 MiB/s), 37.0 MiB out (1.57 MiB/s), 30s
110,239 scanned, 69,664 indexed, 87,892 found, 77,631 compared, 77,631
same data, 2.78 GiB in
(89.7 MiB/s), 43.2 MiB out (1.23 MiB/s), 35s
115,192 scanned, 79,627 indexed, 100,246 found, 89,450 compared, 89,450
same data, 3.22 GiB in
(90.0 MiB/s), 49.4 MiB out (1.24 MiB/s), 40s
122,694 scanned, 89,740 indexed, 109,158 found, 97,422 compared, 97,422
same data, 3.65 GiB in
(89.4 MiB/s), 54.2 MiB out (978 KiB/s), 45s
134,630 scanned, 104,695 indexed, 119,683 found, 106,036 compared,
106,036 same data, 4.17 GiB
in (105 MiB/s), 59.9 MiB out (1.11 MiB/s), 50s
134,630 scanned, 109,813 indexed, 129,117 found, 115,432 compared,
115,432 same data, 4.59 GiB
in (86.1 MiB/s), 64.7 MiB out (979 KiB/s), 55s
Xcp command : xcp verify -l <IP address of NFS server>:/source_vol <IP
address of destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
different item, 0 error
```

```
Speed : 4.95 GiB in (84.9 MiB/s), 69.2 MiB out (1.16 MiB/s)
Total Time : 59s.
STATUS : PASSED
```

Syntax

```
xcp verify -v -l <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -v -l <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_02.30.00.952454
24,806 scanned, 8,299 found, 4,817 compared, 4,817 same data, 296 MiB
in (59.1 MiB/s), 3.44 MiB
out (704 KiB/s), 5s
39,720 scanned, 20,219 found, 14,923 compared, 14,923 same data, 716
MiB in (84.0 MiB/s), 8.78
MiB out (1.07 MiB/s), 10s
44,395 scanned, 9,648 indexed, 29,851 found, 24,286 compared, 24,286
same data, 1.20 GiB in (102
MiB/s), 14.0 MiB out (1.05 MiB/s), 15s
62,763 scanned, 24,725 indexed, 40,946 found, 34,760 compared, 34,760
same data, 1.69 GiB in
(101 MiB/s), 20.2 MiB out (1.24 MiB/s), 20s
76,181 scanned, 39,708 indexed, 57,566 found, 50,595 compared, 50,595
same data, 1.98 GiB in
(58.7 MiB/s), 28.3 MiB out (1.61 MiB/s), 25s
90,411 scanned, 49,594 indexed, 73,357 found, 64,912 compared, 64,912
same data, 2.37 GiB in
(79.0 MiB/s), 35.8 MiB out (1.48 MiB/s), 30s

110,222 scanned, 69,593 indexed, 87,733 found, 77,466 compared, 77,466
same data, 2.77 GiB in
(80.5 MiB/s), 43.1 MiB out (1.45 MiB/s), 35s
116,417 scanned, 79,693 indexed, 100,053 found, 89,258 compared, 89,258
same data, 3.23 GiB in
(94.3 MiB/s), 49.4 MiB out (1.26 MiB/s), 40s
122,224 scanned, 89,730 indexed, 111,684 found, 100,059 compared,
100,059 same data, 3.83 GiB in
(123 MiB/s), 55.5 MiB out (1.22 MiB/s), 45s
134,630 scanned, 109,758 indexed, 121,744 found, 108,152 compared,
108,152 same data, 4.36 GiB
in (107 MiB/s), 61.3 MiB out (1.14 MiB/s), 50s
134,630 scanned, 119,849 indexed, 131,678 found, 118,015 compared,
118,015 same data, 4.79 GiB
in (87.2 MiB/s), 66.7 MiB out (1.08 MiB/s), 55s
Xcp command : xcp verify -v -l <IP address of NFS server>:/source_vol
<IP address of destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
```

```
different item, 0 error
Speed : 4.95 GiB in (87.6 MiB/s), 69.2 MiB out (1.20 MiB/s)
Total Time : 57s.
STATUS : PASSED
```

verify -nonames

Use the `-nonames` parameter with the `verify` command to exclude user and group names from file listings or reports

Syntax

```
xcp verify -nonames <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -nonames <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_04.03.58.173082
30,728 scanned, 9,242 found, 5,248 compared, 5,248 same data, 363 MiB
in (72.6 MiB/s), 3.93 MiB
out (805 KiB/s), 5s
40,031 scanned, 20,748 found, 15,406 compared, 15,406 same data, 837
MiB in (94.5 MiB/s), 9.19
MiB out (1.05 MiB/s), 10s
50,859 scanned, 9,668 indexed, 32,410 found, 26,305 compared, 26,305
same data, 1.30 GiB in
(99.5 MiB/s), 15.2 MiB out (1.20 MiB/s), 15s
73,631 scanned, 34,712 indexed, 45,362 found, 38,567 compared, 38,567
same data, 1.75 GiB in
(92.2 MiB/s), 22.6 MiB out (1.49 MiB/s), 20s
82,931 scanned, 44,618 indexed, 59,988 found, 52,270 compared, 52,270
same data, 2.08 GiB in
(66.7 MiB/s), 29.6 MiB out (1.39 MiB/s), 25s
96,691 scanned, 59,630 indexed, 77,567 found, 68,573 compared, 68,573
same data, 2.50 GiB in
(85.2 MiB/s), 38.2 MiB out (1.73 MiB/s), 30s
110,763 scanned, 74,678 indexed, 92,246 found, 82,010 compared, 82,010
same data, 2.93 GiB in
(88.8 MiB/s), 45.5 MiB out (1.45 MiB/s), 35s
120,101 scanned, 79,664 indexed, 105,420 found, 94,046 compared, 94,046
same data, 3.47 GiB in
(110 MiB/s), 51.9 MiB out (1.27 MiB/s), 40s
131,659 scanned, 99,780 indexed, 116,418 found, 103,109 compared,
103,109 same data, 4.05 GiB in
(120 MiB/s), 58.1 MiB out (1.25 MiB/s), 45s
134,630 scanned, 114,770 indexed, 127,154 found, 113,483 compared,
113,483 same data, 4.54 GiB
in (100 MiB/s), 64.1 MiB out (1.20 MiB/s), 50s
Xcp command : xcp verify -nonames <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
different item, 0 error
Speed : 4.95 GiB in (92.5 MiB/s), 69.2 MiB out (1.26 MiB/s)
Total Time : 54s.
STATUS : PASSED
```

verify -match <filter>

Use the `-match <filter>` parameter with the `verify` command to only process the files and directories that match the filter.

Syntax

```
xcp verify -match bin <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -match bin <IP address of NFS
server>:/source_vol <IP address
of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_04.16.46.005121
32,245 scanned, 25,000 matched, 10,657 found, 6,465 compared, 6,465
same data, 347 MiB in (69.4
MiB/s), 4.44 MiB out (908 KiB/s), 5s
40,306 scanned, 35,000 matched, 21,311 found, 15,969 compared, 15,969
same data, 850 MiB in (101
MiB/s), 9.44 MiB out (1024 KiB/s), 10s
55,582 scanned, 45,000 matched, 14,686 indexed, 31,098 found, 25,293
compared, 25,293 same data,
1.33 GiB in (102 MiB/s), 15.1 MiB out (1.12 MiB/s), 15s
75,199 scanned, 65,000 matched, 34,726 indexed, 45,587 found, 38,738
compared, 38,738 same data,
1.72 GiB in (77.9 MiB/s), 22.7 MiB out (1.52 MiB/s), 20s
78,304 scanned, 70,000 matched, 39,710 indexed, 61,398 found, 54,232
compared, 54,232 same data,
2.08 GiB in (75.0 MiB/s), 30.0 MiB out (1.45 MiB/s), 25s
102,960 scanned, 95,000 matched, 69,682 indexed, 78,351 found, 69,034
compared, 69,034 same
data, 2.43 GiB in (71.9 MiB/s), 38.8 MiB out (1.76 MiB/s), 30s
110,344 scanned, 105,000 matched, 69,682 indexed, 93,873 found, 83,637
compared, 83,637 same
data, 2.85 GiB in (84.2 MiB/s), 45.6 MiB out (1.36 MiB/s), 35s
121,459 scanned, 120,000 matched, 84,800 indexed, 107,012 found, 95,357
compared, 95,357 same
data, 3.30 GiB in (92.8 MiB/s), 52.3 MiB out (1.33 MiB/s), 40s
130,006 scanned, 125,000 matched, 94,879 indexed, 115,077 found,
102,104 compared, 102,104 same
data, 3.97 GiB in (136 MiB/s), 57.2 MiB out (1001 KiB/s), 45s
134,630 scanned, 134,630 matched, 109,867 indexed, 125,755 found,
112,025 compared, 112,025 same
data, 4.53 GiB in (115 MiB/s), 63.2 MiB out (1.20 MiB/s), 50s
Xcp command : xcp verify -match bin <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol
134,630 scanned, 134,630 matched, 100% found (121,150 have data), 100%
verified (data, attrs,
mods), 0 different item, 0 error
Speed : 4.95 GiB in (92.2 MiB/s), 69.2 MiB out (1.26 MiB/s)
Total Time : 54s.
STATUS : PASSED
```

verify -bs <n>

Use the `-bs <n>` parameter with the `verify` command to specify the read/write block size. The default value is 64k.

Syntax

```
xcp verify -bs 32k  <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -bs 32k <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_04.20.19.266399
29,742 scanned, 9,939 found, 5,820 compared, 5,820 same data, 312 MiB
in (62.3 MiB/s), 4.58 MiB
out (938 KiB/s), 5s
40,156 scanned, 20,828 found, 15,525 compared, 15,525 same data, 742
MiB in (85.0 MiB/s), 10.2
MiB out (1.10 MiB/s), 10s
41,906 scanned, 9,846 indexed, 30,731 found, 25,425 compared, 25,425
same data, 1.14 GiB in
(85.6 MiB/s), 16.1 MiB out (1.18 MiB/s), 15s
66,303 scanned, 29,712 indexed, 42,861 found, 36,708 compared, 36,708
same data, 1.61 GiB in
(94.9 MiB/s), 23.7 MiB out (1.53 MiB/s), 20s
70,552 scanned, 34,721 indexed, 58,157 found, 51,528 compared, 51,528
same data, 1.96 GiB in
(73.0 MiB/s), 31.4 MiB out (1.53 MiB/s), 25s
100,135 scanned, 59,611 indexed, 76,047 found, 66,811 compared, 66,811
same data, 2.29 GiB in
(66.3 MiB/s), 40.7 MiB out (1.82 MiB/s), 30s
105,951 scanned, 69,665 indexed, 90,022 found, 80,330 compared, 80,330
same data, 2.71 GiB in
(85.3 MiB/s), 48.1 MiB out (1.49 MiB/s), 35s
113,440 scanned, 89,486 indexed, 101,634 found, 91,152 compared, 91,152
same data, 3.19 GiB in
(97.8 MiB/s), 55.4 MiB out (1.45 MiB/s), 40s
128,693 scanned, 94,484 indexed, 109,999 found, 97,319 compared, 97,319
same data, 3.59 GiB in
(82.6 MiB/s), 60.2 MiB out (985 KiB/s), 45s
134,630 scanned, 94,484 indexed, 119,203 found, 105,402 compared,
105,402 same data, 3.98 GiB in
(78.3 MiB/s), 65.1 MiB out (986 KiB/s), 50s
134,630 scanned, 104,656 indexed, 127,458 found, 113,774 compared,
113,774 same data, 4.49 GiB
in (103 MiB/s), 70.8 MiB out (1.15 MiB/s), 55s
Xcp command : xcp verify -bs 32k <IP address of NFS server>:/source_vol
<IP address of destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
different item, 0 error
```

```
Speed : 4.96 GiB in (84.5 MiB/s), 77.5 MiB out (1.29 MiB/s)
Total Time : 1m0s.
STATUS : PASSED
```

verify -parallel <n>

Use the `-parallel <n>` parameter with the `verify` command to specify the maximum number of concurrent batch processes.

Syntax

```
xcp verify -parallel <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -parallel 2 <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_04.35.10.356405
15,021 scanned, 6,946 found, 4,869 compared, 4,869 same data, 378 MiB
in (74.5 MiB/s), 3.24 MiB
out (654 KiB/s), 5s
25,165 scanned, 9,671 indexed, 15,945 found, 12,743 compared, 12,743
same data, 706 MiB in (65.4
MiB/s), 7.81 MiB out (934 KiB/s), 10s
35,367 scanned, 19,747 indexed, 24,036 found, 19,671 compared, 19,671
same data, 933 MiB in
(45.3 MiB/s), 11.9 MiB out (827 KiB/s), 15s
45,267 scanned, 29,761 indexed, 32,186 found, 26,909 compared, 26,909
same data, 1.38 GiB in
(94.6 MiB/s), 16.5 MiB out (943 KiB/s), 20s
55,690 scanned, 39,709 indexed, 40,413 found, 34,805 compared, 34,805
same data, 1.69 GiB in
(62.8 MiB/s), 20.9 MiB out (874 KiB/s), 25s
55,690 scanned, 39,709 indexed, 48,325 found, 42,690 compared, 42,690
same data, 1.88 GiB in
(38.1 MiB/s), 24.3 MiB out (703 KiB/s), 31s
65,002 scanned, 49,670 indexed, 57,872 found, 51,891 compared, 51,891
same data, 2.04 GiB in
(33.2 MiB/s), 29.0 MiB out (967 KiB/s), 36s
75,001 scanned, 59,688 indexed, 66,789 found, 60,291 compared, 60,291
same data, 2.11 GiB in
(14.8 MiB/s), 33.4 MiB out (883 KiB/s), 41s
85,122 scanned, 69,690 indexed, 75,009 found, 67,337 compared, 67,337
same data, 2.42 GiB in
(62.3 MiB/s), 37.6 MiB out (862 KiB/s), 46s
91,260 scanned, 79,686 indexed, 82,097 found, 73,854 compared, 73,854
same data, 2.69 GiB in
(55.0 MiB/s), 41.4 MiB out (770 KiB/s), 51s
95,002 scanned, 79,686 indexed, 88,238 found, 79,707 compared, 79,707
same data, 2.99 GiB in
(60.7 MiB/s), 44.4 MiB out (608 KiB/s), 56s
105,002 scanned, 89,787 indexed, 96,059 found, 86,745 compared, 86,745
same data, 3.19 GiB in
(41.3 MiB/s), 48.4 MiB out (810 KiB/s), 1m1s
110,239 scanned, 99,872 indexed, 104,757 found, 94,652 compared, 94,652
same data, 3.47 GiB in
```

```
(57.0 MiB/s), 52.7 MiB out (879 KiB/s), 1m6s
120,151 scanned, 104,848 indexed, 111,491 found, 100,317 compared,
100,317 same data, 3.95 GiB
in (97.2 MiB/s), 56.3 MiB out (733 KiB/s), 1m11s
130,068 scanned, 114,860 indexed, 119,867 found, 107,260 compared,
107,260 same data, 4.25 GiB
in (60.5 MiB/s), 60.6 MiB out (871 KiB/s), 1m16s
134,028 scanned, 119,955 indexed, 125,210 found, 111,886 compared,
111,886 same data, 4.65 GiB
in (83.2 MiB/s), 63.7 MiB out (647 KiB/s), 1m21s
134,630 scanned, 129,929 indexed, 132,679 found, 119,193 compared,
119,193 same data, 4.93 GiB
in (56.8 MiB/s), 67.9 MiB out (846 KiB/s), 1m26s
Xcp command : xcp verify -parallel 2 <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
different item, 0 error
```

verify -dircount <n[k]>

Use the `-dircount <n[k]>` parameter with the `verify` command to specify the request size when reading directories. The default value is 64k.

Syntax

```
xcp verify -dircount <n[k]> <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -dircount 32k <IP address of NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
autoname_verify_2020-03-
05_04.28.58.235953
32,221 scanned, 10,130 found, 5,955 compared, 5,955 same data, 312 MiB
in (62.1 MiB/s), 4.15 MiB
out (848 KiB/s), 5s
40,089 scanned, 21,965 found, 16,651 compared, 16,651 same data, 801
MiB in (97.5 MiB/s), 9.55
MiB out (1.07 MiB/s), 10s

51,723 scanned, 14,544 indexed, 33,019 found, 27,288 compared, 27,288
same data, 1.24 GiB in
(93.8 MiB/s), 15.6 MiB out (1.22 MiB/s), 15s
67,360 scanned, 34,733 indexed, 45,615 found, 39,341 compared, 39,341
same data, 1.73 GiB in
(100 MiB/s), 22.8 MiB out (1.43 MiB/s), 20s
82,314 scanned, 44,629 indexed, 63,276 found, 55,559 compared, 55,559
same data, 2.05 GiB in
(64.7 MiB/s), 31.0 MiB out (1.63 MiB/s), 25s
100,085 scanned, 59,585 indexed, 79,799 found, 70,618 compared, 70,618
same data, 2.43 GiB in
(77.2 MiB/s), 38.9 MiB out (1.57 MiB/s), 30s
110,158 scanned, 69,651 indexed, 93,005 found, 82,654 compared, 82,654
same data, 2.87 GiB in
(89.1 MiB/s), 45.4 MiB out (1.28 MiB/s), 35s
120,047 scanned, 79,641 indexed, 104,539 found, 93,226 compared, 93,226
same data, 3.40 GiB in
(108 MiB/s), 51.4 MiB out (1.20 MiB/s), 40s
130,362 scanned, 94,662 indexed, 114,193 found, 101,230 compared,
101,230 same data, 3.87 GiB in
(97.3 MiB/s), 56.7 MiB out (1.06 MiB/s), 45s
134,630 scanned, 104,789 indexed, 124,272 found, 110,547 compared,
110,547 same data, 4.33 GiB
in (94.2 MiB/s), 62.3 MiB out (1.12 MiB/s), 50s
134,630 scanned, 129,879 indexed, 133,227 found, 119,717 compared,
119,717 same data, 4.93 GiB
in (119 MiB/s), 68.2 MiB out (1.17 MiB/s), 55s
Xcp command : xcp verify -dircount 32k <IP address of NFS
server>:/source_vol <IP address ofdestination NFS server>:/dest_vol
134,630 scanned, 0 matched, 100% found (121,150 have data), 100%
verified (data, attrs, mods), 0
```

```
different item, 0 error
Speed : 4.95 GiB in (89.3 MiB/s), 69.2 MiB out (1.22 MiB/s)
Total Time : 56s.
STATUS : PASSED
```

verify -noId

Use the `-noId` parameter with the `verify` command to disable the creation of a default index. The default value is false.

Syntax

```
xcp verify -noId <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@localhost linux]# ./xcp verify -noid <IP address of source NFS
server>:/source_vol <IP address of destination NFS server>:/dest_vol

Job ID: Job_2024-04-22_07.19.41.825308_verify
 49,216 scanned, 10,163 found, 9,816 compared, 9.59 KiB same data, 1.15
GiB in (234 MiB/s), 5.67 MiB out (1.13 MiB/s), 6s
 49,615 scanned, 4,958 indexed, 27,018 found, 26,534 compared, 25.9 KiB
same data, 3.08 GiB in (390 MiB/s), 15.1 MiB out (1.86 MiB/s), 11s
 73,401 scanned, 34,884 indexed, 46,365 found, 45,882 compared, 44.8
KiB same data, 5.31 GiB in (420 MiB/s), 26.6 MiB out (2.12 MiB/s), 16s
 80,867 scanned, 44,880 indexed, 63,171 found, 62,704 compared, 61.2
KiB same data, 7.23 GiB in (377 MiB/s), 36.2 MiB out (1.83 MiB/s), 21s
 83,102 scanned, 69,906 indexed, 79,587 found, 79,246 compared, 77.4
KiB same data, 9.13 GiB in (387 MiB/s), 46.0 MiB out (1.95 MiB/s), 26s

Xcp command : xcp verify 10.235.122.70:/source_vol
10.235.122.86:/dest_vol
Stats       : 83,102 scanned, 83,102 indexed, 100% found (82,980 have
data), 82,980 compared, 100% verified (data, attrs, mods)
Speed       : 9.55 GiB in (347 MiB/s), 48.4 MiB out (1.72 MiB/s)
Total Time  : 28s.
Job ID      : Job_2024-04-22_07.19.41.825308_verify
Log Path    : /opt/NetApp/xFiles/xcp/xcplogs/Job_2024-04-
22_07.19.41.825308_verify.log
STATUS      : PASSED
```

verify -preserve-atime

Use the `-preserve-atime` parameter with the `verify` command to restore all files to the last accessed date on the source. The `-preserve-atime` parameter resets the access time to the original value set before the XCP read operation.

Syntax

```
xcp verify -preserve-atime <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@client1 linux]# ./xcp verify -preserve-atime
<IP_address>:/source_vol <destination_IP_address>:/dest_vol

xcp: WARNING: No index name has been specified, creating one with name:
XCP_verify_2022-06-
30_15.29.03.686503
xcp: Job ID: Job_2022-06-30_15.29.03.723260_verify
Xcp command : xcp verify -preserve-atime <IP_address>:/source_vol
<destination_IP_address>:/dest_vol Stats :
110 scanned, 110 indexed, 100% found (96 have data), 96 compared, 100%
verified (data, attrs,
mods)
Speed : 4.87 MiB in (3.02 MiB/s), 160 KiB out (99.4 KiB/s) Total Time :
1s.
Job ID : Job_2022-06-30_15.29.03.723260_verify
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2022-06-
30_15.29.03.723260_verify.log STATUS :
PASSED
```

verify -s3.insecure

Use the `-s3.insecure` parameter with the `verify` command to use HTTP instead of HTTPS for S3 bucket communication.

Syntax

```
xcp verify -s3.insecure hdfs:///user/test s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp verify -s3.insecure hdfs://<HDFS source>
s3://<s3-bucket>

xcp: WARNING: No index name has been specified, creating one with name:
XCP_verify_2023-06-
08_09.04.33.301709
Job ID: Job_2023-06-08_09.04.33.301709_verify
Xcp command : xcp verify -s3.insecure hdfs://<HDFS source> s3://<s3-
bucket>
Stats : 8 scanned, 8 indexed, 100% found (5 have data), 5 compared,
100% verified (data)
Speed : 21.3 KiB in (8.20 KiB/s), 90.8 KiB out (34.9 KiB/s)
Total Time : 2s.
Job ID : Job_2023-06-08_09.04.33.301709_verify
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
08_09.04.33.301709_verify.log
STATUS : PASSED
```

verify -s3.endpoint <s3_endpoint_url>

Use the `-s3.endpoint <s3_endpoint_url>` parameter with the `verify` command to override the default AWS endpoint URL with a specified URL for S3 bucket communication.

Syntax

```
xcp verify -s3.endpoint https://<endpoint_url>: s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp verify -s3.endpoint https://<endpoint_url>
hdfs://<HDFS source> s3://<s3-bucket>

xcp: WARNING: No index name has been specified, creating one with name:
XCP_verify_2023-06-
13_11.20.48.203492
Job ID: Job_2023-06-13_11.20.48.203492_verify
2 scanned, 2 found, 9.55 KiB in (1.90 KiB/s), 12.5 KiB out (2.50
KiB/s), 5s
Xcp command : xcp verify -s3.endpoint https://<endpoint_url>
hdfs://<HDFS source> s3://<s3-bucket>
Stats : 8 scanned, 8 indexed, 100% found (5 have data), 5 compared,
100% verified (data)
Speed : 21.3 KiB in (2.28 KiB/s), 91.1 KiB out (9.72 KiB/s)
Total Time : 9s.
Job ID : Job_2023-06-13_11.20.48.203492_verify
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
13_11.20.48.203492_verify.log
STATUS : PASSED
```

verify -s3.profile <name>

Use the `s3.profile` parameter with the `verify` command to specify a profile from the AWS credential file for S3 bucket communication.

Syntax

```
xcp verify -s3.profile <name> -s3.endpoint https://<endpoint_url>:
s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp verify -s3.profile sg -s3.endpoint
https://<endpoint_url> hdfs://<HDFS source> s3://<s3-bucket>

xcp: WARNING: No index name has been specified, creating one with name:
XCP_verify_2023-06-
08_09.05.22.412914
Job ID: Job_2023-06-08_09.05.22.412914_verify
Xcp command : xcp verify -s3.profile sg -s3.endpoint
https://<endpoint_url> hdfs://<HDFS source> s3://<s3-bucket>
Stats : 8 scanned, 8 indexed, 100% found (5 have data), 5 compared,
100% verified (data)
Speed : 21.3 KiB in (6.52 KiB/s), 91.2 KiB out (27.9 KiB/s)
Total Time : 3s.
Job ID : Job_2023-06-08_09.05.22.412914_verify
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
08_09.05.22.412914_verify.log
STATUS : PASSED
[root@client1 linux]# ./xcp verify -s3.profile sg -s3.endpoint
https://<endpoint_url> hdfs://<HDFS source> s3://<s3-bucket>

xcp: WARNING: No index name has been specified, creating one with name:
XCP_verify_2023-06-
08_09.20.53.763772
Job ID: Job_2023-06-08_09.20.53.763772_verify
Xcp command : xcp verify -s3.profile sg -s3.endpoint
https://<endpoint_url>
hdfs://<HDFS source> s3://<s3-bucket>
Stats : 8 scanned, 8 indexed, 100% found (5 have data), 5 compared,
100% verified (data)
Speed : 25.3 KiB in (14.5 KiB/s), 93.7 KiB out (53.8 KiB/s)
Total Time : 1s.
Job ID : Job_2023-06-08_09.20.53.763772_verify
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
08_09.20.53.763772_verify.log
STATUS : PASSED
```

verify -s3.noverify

Use the `-s3.noverify` parameter with the `verify` command to override the default verification of SSL certification for S3 bucket communication.

Syntax

```
xcp verify -s3.noverify s3://<bucket_name>
```

Show example

```
[root@client1 linux]# ./xcp verify -s3.noverify hdfs://<HDFS source>
s3://<s3-bucket>

xcp: WARNING: No index name has been specified, creating one with name:
XCP_verify_2023-06-
13_10.59.01.817044
Job ID: Job_2023-06-13_10.59.01.817044_verify
Xcp command : xcp verify -s3.noverify hdfs://<HDFS source> s3://<s3-
bucket>
Stats : 8 scanned, 8 indexed, 100% found (5 have data), 5 compared,
100% verified (data)
Speed : 21.3 KiB in (5.84 KiB/s), 90.8 KiB out (24.9 KiB/s)
Total Time : 3s.
Job ID : Job_2023-06-13_10.59.01.817044_verify
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
13_10.59.01.817044_verify.log
STATUS : PASSED

./xcp verify -s3.profile sg -s3.noverify -s3.endpoint
https://<endpoint_url> hdfs://<HDFS source> s3://<s3-bucket>

xcp: WARNING: No index name has been specified, creating one with name:
XCP_verify_2023-06-
13_11.29.00.543286
Job ID: Job_2023-06-13_11.29.00.543286_verify
15,009 scanned, 9 indexed, 1,194 found, 908 compared, 908 same data,
4.87 MiB in (980 KiB/s), 199 KiB
out (39.1 KiB/s), 5s
15,009 scanned, 9 indexed, 2,952 found, 2,702 compared, 2.64 KiB same
data, 8.56 MiB in (745 KiB/s),
446 KiB out (48.7 KiB/s), 10s
15,009 scanned, 9 indexed, 4,963 found, 4,841 compared, 4.73 KiB same
data, 12.9 MiB in (873 KiB/s),
729 KiB out (55.9 KiB/s), 15s
15,009 scanned, 9 indexed, 6,871 found, 6,774 compared, 6.62 KiB same
data, 16.9 MiB in (813 KiB/s),
997 KiB out (53.4 KiB/s), 20s
15,009 scanned, 9 indexed, 8,653 found, 8,552 compared, 8.35 KiB same
data, 20.6 MiB in (745 KiB/s),
1.22 MiB out (49.3 KiB/s), 25s
15,009 scanned, 9 indexed, 10,436 found, 10,333 compared, 10.1 KiB same
data, 24.3 MiB in (754
KiB/s), 1.46 MiB out (49.8 KiB/s), 31s
15,009 scanned, 9 indexed, 12,226 found, 12,114 compared, 11.8 KiB same
```

```
data, 28.0 MiB in (751
KiB/s), 1.71 MiB out (49.7 KiB/s), 36s
15,009 scanned, 9 indexed, 14,005 found, 13,895 compared, 13.6 KiB same
data, 31.7 MiB in (756
KiB/s), 1.95 MiB out (50.0 KiB/s), 41s
15,009 scanned, 9 indexed, 14,229 found, 14,067 compared, 13.7 KiB same
data, 32.2 MiB in (102
KiB/s), 1.98 MiB out (6.25 KiB/s), 46s
Xcp command : xcp verify -s3.profile sg -s3.noverify -s3.endpoint
https://<endpoint_url> <HDFS source> s3://<s3-bucket>
Stats : 15,009 scanned, 15,009 indexed, 100% found (15,005 have data),
15,005 compared, 100%
verified (data)
Speed : 33.9 MiB in (724 KiB/s), 2.50 MiB out (53.5 KiB/s)
Total Time : 47s.
Job ID : Job_2023-06-13_11.29.00.543286_verify
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
13_11.29.00.543286_verify.log
STATUS : PASSED
```

chmod

The XCP NFS `chmod` command scans and changes the file permission of all the files for the given directory structure. The 'chmod' command requires mode or reference, NFS share, or the POSIX path as a variable. The XCP `chmod` command recursively changes the permissions for a given path. The command output displays the total files scanned and the permissions changed in the output.

Syntax

```
xcp chmod -mode <value> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chmod -mode <IP address>:/source_vol

Xcp command : xcp chmod -mode <IP address>://source_vol
Stats : 6 scanned, 4 changed mode
Speed : 1.96 KiB in (2.13 KiB/s), 812 out (882/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux] #
```

The following table lists the `chmod` parameters and their description.

Parameter	Description
chmod -exclude <filter>	Excludes the files and directories that match the filter.
chmod -match <filter>	Only processes the files and directories that match the filter.
chmod -reference <reference>	Specifies the referenced file or directory point.
chmod -v	Reports the output for every object processed.

chmod -exclude <filter>

Use the `-exclude <filter>` parameter with the `chmod` command to exclude the files and directories that match the filter.

Syntax

```
xcp chmod -exclude <filter> -mode <value> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chmod -exclude "fnm('3.img')" -mode 770
101.11.10.10:/s_v1/D3/

Excluded: 1 excluded, 0 did not match exclude criteria
Xcp command : xcp chmod -exclude fnm('3.img') -mode 770
101.11.10.10:/s_v1/D3/
Stats : 5 scanned, 1 excluded, 5 changed mode
Speed : 2.10 KiB in (7.55 KiB/s), 976 out (3.43 KiB/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux]#
```

chmod -match <filter>

Use the `-match <filter>` parameter with the `chmod` command to only process the files and directories that match the filter.

Syntax

```
xcp chmod -match <filter>  -mode <value> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chmod -match "fnm('2.img')" -mode 777
101.11.10.10:/s_v1/D2/

Filtered: 1 matched, 5 did not match
Xcp command : xcp chmod -match fnm('2.img') -mode
101.11.10.10:/s_v1/D2/
Stats : 6 scanned, 1 matched, 2 changed mode
Speed : 1.67 KiB in (1.99 KiB/s), 484 out (578/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux]
```

chmod -reference <reference>

Use the `-reference <reference>` parameter with the `chmod` command to specify the referenced file or directory point.

Syntax

```
xcp chmod -reference <reference> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chmod -reference 101.11.10.10:/s_v1/D1/1.txt
102.21.10.10:/s_v1/D2/

Xcp command : xcp chmod -reference 101.11.10.10:/s_v1/D1/1.txt
102.21.10.10:/s_v1/D2/
Stats : 6 scanned, 6 changed mode
Speed : 3.11 KiB in (3.15 KiB/s), 1.98 KiB out (2.00 KiB/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux]#
```

chmod -v

Use the `-v` parameter with the `chmod` command to report the output for every object processed.

Syntax

```
chmod -mode <value> -v <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chmod -mode 111 -v file:///mnt/s_v1/D1/

mode of 'file:///mnt/s_v1/D1' changed from 0777 to 0111
mode of 'file:///mnt/s_v1/D1/1.txt' changed from 0777 to 0111
mode of 'file:///mnt/s_v1/D1/softlink_1.img' changed from 0777 to 0111
mode of 'file:///mnt/s_v1/D1/softlink_to_hardlink_1.img' changed from
0777 to 0111 mode
of 'file:///mnt/s_v1/D1/1.img' changed from 0777 to 0111
mode of 'file:///mnt/s_v1/D1/hardlink_1.img' changed from 0777 to 0111
mode of
'file:///mnt/s_v1/D1/1.img1' changed from 0777 to 0111
Xcp command : xcp chmod -mode 111 -v file:///mnt/s_v1/D1/ Stats : 7
scanned, 7
changed mode
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux]#
```

chown

The XCP NFS `chown` command scans and changes the ownership of all the files for the given directory structure. The `chown` command requires an NFS share or the POSIX path as a variable. XCP chown recursively changes the ownership for a given path. The `chown` command displays the changed user ID (UID) for a file.

Syntax

```
xcp chown -user/-group <user-name/group-name> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -user user2 -v
101.101.10.110:/s_v1/smaple_set/D1

Sat Apr 2 23:06:05 2022
changed ownership of 101.101.10.110:/s_v1/smaple_set/D1 from 1001:0 to
1004:0
changed ownership of 101.101.10.110:/s_v1/smaple_set/D1/1.txt from
1001:0 to 1004:0
changed ownership of 101.101.10.110:/s_v1/smaple_set/D1/softlink_1.img
from 1001:0 to 1004:0
changed ownership of 101.101.10.110:/s_v1/smaple_set/D1/1.img from
1001:0 to 1004:0
changed ownership of 101.101.10.110:/s_v1/smaple_set/D1/hardlink_1.img
from 1001:0 to 1004:0
changed ownership of
101.101.10.110:/s_v1/smaple_set/D1/softlink_to_hardlink_1.img from
1001:0 to
1004:0
Xcp command : xcp chown -user user2 -v
101.101.10.110:/s_v1/smaple_set/D1
Stats : 6 scanned, 6 changed ownership
Speed : 2.25 KiB in (1.82 KiB/s), 1.11 KiB out (923/s)
Total Time : 1s.
STATUS : PASSED
[root@user-1 linux]#
```

The following table lists the `chown` parameters and their description.

Parameter	Description
chown -exclude <filter>	Excludes the files and directories that match the filter.
chown -match <filter>	Only processes the files and directories that match the filter.
chown -group <group>	Sets the Linux group ID (GID) at the source.
chown -user <user>	Sets the Linux UID at the source.
chown -user-from <user_from>	Changes the UID.
chown -group-from <group_from>	Changes the GID.
chown -reference <reference>	Specifies the referenced file or directory point.
chown -v	Reports the output for every object processed.

chown -exclude <filter>

Use the `-exclude <filter>` parameter with the `chown` command to exclude the files and directories that match the filter.

Syntax

```
xcp chown -exclude <filter> -user <user_name> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -exclude "fnm('1.img')" -user user2
101.101.10.210:/s_v1/smaple_set/D1

Excluded: 1 excluded, 0 did not match exclude criteria
Xcp command : xcp chown -exclude fnm('1.img') -user
user2101.101.10.210:/s_v1/smaple_set/D1
Stats : 5 scanned, 1 excluded, 5 changed ownership
Speed : 2.10 KiB in (1.75 KiB/s), 976 out (812/s)
Total Time : 1s.
STATUS : PASSED
[root@user-1 linux]#
```

chown -match <filter>

Use the `-match <filter>` parameter with the `chown` command to only process the files and directories that match the filter.

Syntax

```
xcp chown -match <filter>  -user <user_name> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -exclude "fnm('1.img')" -user user2
101.101.10.210:/s_v1/smaple_set/D1

Excluded: 1 excluded, 0 did not match exclude criteria
Xcp command : xcp chown -exclude fnm('1.img') -user
user2101.101.10.210:/s_v1/smaple_set/D1
Stats : 5 scanned, 1 excluded, 5 changed ownership
Speed : 2.10 KiB in (1.75 KiB/s), 976 out (812/s)
Total Time : 1s.
STATUS : PASSED
[root@user-1 linux]#
```

chown -group <group>

Use the `-group <group>` parameter with the `chown` command to set the Linux GID at the source.

Syntax

```
xcp chown -match <filter> -user <user_name> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -group group1
101.101.10.210:/s_v1/smaple_set/D1

Xcp command : xcp chown -group group1
101.101.10.210:/s_v1/smaple_set/D1
Stats : 6 scanned, 6 changed ownership
Speed : 2.25 KiB in (1.92 KiB/s), 1.11 KiB out (974/s)
Total Time : 1s.
STATUS : PASSED
[root@user-1 linux]#
```

chown -user <user>

Use the `-user <user>` parameter with the `chown` command to set the Linux UID at the source.

Syntax

```
xcp chown -user -user <user_name> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -user user1
102.101.10.210:/s_v1/smaple_set/D1

Xcp command : xcp chown -user user1 102.101.10.210:/s_v1/smaple_set/D1
Stats : 6 scanned, 6 changed ownership
Speed : 2.25 KiB in (3.12 KiB/s), 1.11 KiB out (1.55 KiB/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux]#
```

chown -user-from <user_from>

Use the `-user-from <user_from>` parameter with the `chown` command to change the UID.

Syntax

```
xcp chown -user-from user1 -user <user_name> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -user-from user1 -user user2
101.101.10.210:/s_v1/smaple_set/D1

Xcp command : xcp chown -user-from user1 -user user2
102.108.10.210:/s_v1/smaple_set/D1
Stats : 6 scanned, 6 changed ownership
Speed : 2.25 KiB in (2.44 KiB/s), 1.11 KiB out (1.21 KiB/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux]#
```

chown -group-from <group_from>

Use the `-group-from <group_from>` parameter with the `chown` command to change the GID.

Syntax

```
xcp chown -group-from <group_name> -group <group_name> <source NFS export
path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -group-from group1 -group group2
101.101.10.210:/s_v1/smaple_set/D1

Xcp command : xcp chown -group-from group1 -group group2
101.101.10.210:/s_v1/smaple_set/D1
Stats : 6 scanned, 6 changed ownership
Speed : 2.25 KiB in (4.99 KiB/s), 1.11 KiB out (2.47 KiB/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux]#
```

chown -reference <reference>

Use the `-reference <reference>` parameter with the `chown` command to specify the referenced file or directory point.

Syntax

```
xcp chown -reference <reference> <source NFS export path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -reference
101.101.10.210:/s_v1/smaple_set/D2/2.img
101.101.10.210:/s_v1/smaple_set/D1

Xcp command : xcp chown -reference
101.101.10.210:/s_v1/smaple_set/D2/2.img
101.101.10.210:/s_v1/smaple_set/D1
Stats : 6 scanned, 6 changed ownership
Speed : 3.11 KiB in (6.25 KiB/s), 2.01 KiB out (4.05 KiB/s)
Total Time : 0s.
STATUS : PASSED
[root@user-1 linux]#
```

chown -v

Use the `-v` parameter with the `chown` command to report the output for every object processed.

Syntax

```
xcp chown -user-from <user_name> -v -user <user_name> <source NFS export
path>
```

Show example

```
[root@user-1 linux]# ./xcp chown -user-from user2 -v -user user1
101.101.10.210:/s_v1/smaple_set/D1

changed ownership of 101.101.10.210:/s_v1/smaple_set/D1 from 1004:1003
to 1001:1003
changed ownership of 101.101.10.210:/s_v1/smaple_set/D1/1.img from
1004:1003 to 1001:1003
changed ownership of 101.101.10.210:/s_v1/smaple_set/D1/1.txt from
1004:1003 to 1001:1003
changed ownership of 101.101.10.210:/s_v1/smaple_set/D1/softlink_1.img
from 1004:1003 to
1001:1003
changed ownership of
101.101.10.210:/s_v1/smaple_set/D1/softlink_to_hardlink_1.img from
1004:1003 to 1001:1003
changed ownership of 101.101.10.210:/s_v1/smaple_set/D1/hardlink_1.img
from 1004:1003 to
1001:1003
Xcp command : xcp chown -user-from user2 -v -user user1
101.101.10.210:/s_v1/smaple_set/D1
Stats : 6 scanned, 6 changed ownership
Speed : 2.25 KiB in (2.02 KiB/s), 1.11 KiB out (1.00 KiB/s)
Total Time : 1s.

STATUS : PASSED
[root@user-1]
```

logdump

The NFS `logdump` command filters logs based on the migration ID or job ID and dumps those logs into a `.zip` file in the current directory. The `.zip` file has the same name as the migration or job ID that is used with the command.

Syntax

```
xcp logdump -m <migration ID>
xcp logdump -j <job ID>
```

Show example

```
[root@client1 xcp_nfs]# xcp logdump -j Job_2022-06-
14_21.49.28.060943_scan

xcp: Job ID: Job_2022-06-14_21.52.48.744198_logdump
Xcp command : xcp logdump -j Job_2022-06-14_21.49.28.060943_scan
Stats :
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 0s.
Job ID : Job_2022-06-14_21.52.48.744198_logdump
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2022-06-
14_21.52.48.744198_logdump.log
STATUS : PASSED
[root@client xcp_nfs]# ls Job_2022-06-14_21.49.28.060943_scan
Job_2022-06-14_21.49.28.060943_scan.log supplementary
[root@client1 xcp_nfs]# ls Job_2022-06-
14_21.49.28.060943_scan/supplementary/
Job_idx_2022-06-14_21.46.05.167338_copy.log Job_idx_2022-06-
14_21.47.41.868410_sync.log
xcp_history.json

Job_idx_2022-06-14_21.46.35.134294_sync.log Job_idx_2022-06
14_21.48.00.085869_sync.log
[root@client1 xcp_nfs]#
[root@client1 xcp_nfs]# ./xcp logdump -m idx

xcp: Job ID: Job_2022-06-14_21.56.04.218977_logdump
Xcp command : xcp logdump -m idx
Stats :
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 0s.
Job ID : Job_2022-06-14_21.56.04.218977_logdump
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2022-06-
14_21.56.04.218977_logdump.log
STATUS : PASSED
[root@client1 xcp_nfs]# ls idx
Job_idx_2022-06-14_21.46.05.167338_copy.log Job_idx_2022-06-
14_21.47.41.868410_sync.log
xcp_history.json
Job_idx_2022-06-14_21.46.35.134294_sync.log Job_idx_2022-06-
14_21.48.00.085869_sync.log
```

delete

The XCP NFS `delete` command deletes everything in a given path.

Syntax

```
xcp delete <NFS export path>
```

Show example

```
[root@localhost ]# /xcp/linux/xcp delete <IP address of destination
NFSserver>:/dest_vol

WARNING: You have selected <IP address of destination NFS
server>:/dest_vol for
removing data.Data in this path /dest_vol will be deleted.
Are you sure you want to delete (yes/no): yes
Recursively removing data in <IP address of destination NFS
server>:/dest_vol ...
31,996 scanned, 5,786 removes, 3 rmdirs, 8.27 MiB in (1.65 MiB/s), 1.52
MiB out (312
KiB/s), 5s
40,324 scanned, 19,829 removes, 22 rmdirs, 12.2 MiB in (799 KiB/s),
3.89 MiB out
(485 KiB/s),10s
54,281 scanned, 32,194 removes, 2,365 rmdirs, 17.0 MiB in (991 KiB/s),
6.15 MiB out
(463 KiB/s),15s
75,869 scanned, 44,903 removes, 4,420 rmdirs, 23.4 MiB in (1.29 MiB/s),
8.60
MiB out (501KiB/s), 20s
85,400 scanned, 59,728 removes, 5,178 rmdirs, 27.8 MiB in (881 KiB/s),
11.1 MiB out
(511 KiB/s),25s
106,391 scanned, 76,229 removes, 6,298 rmdirs, 34.7 MiB in (1.39
MiB/s), 14.0
MiB out (590KiB/s), 30s
122,107 scanned, 93,203 removes, 7,448 rmdirs, 40.9 MiB in (1.24
MiB/s), 16.9
MiB out (606KiB/s), 35s
134,633 scanned, 109,815 removes, 9,011 rmdirs, 46.5 MiB in (1.12
MiB/s), 20.0
MiB out (622KiB/s), 40s
134,633 scanned, 119,858 removes, 9,051 rmdirs, 47.9 MiB in (288
KiB/s), 21.4
MiB out (296KiB/s), 45s
134,633 scanned, 119,858 removes, 9,051 rmdirs, 47.9 MiB in (0/s), 21.4
MiB out (0/s), 50s
134,633 scanned, 121,524 removes, 9,307 rmdirs, 48.2 MiB in (51.7
KiB/s), 21.7
MiB out (49.5KiB/s), 55s
Xcp command : xcp delete <IP address of destination NFS
server>:/dest_vol134,633 scanned, 0 matched, 134,632 delete
items, 0 error
```

```
Speed : 48.7 MiB in (869 KiB/s), 22.2 MiB out
(396 KiB/s)Total Time : 57s.
STATUS : PASSED
```

The following table lists the `delete` parameters and their description.

Parameter	Description
delete -match <filter>	Only processes the files and directories that match the filter.
delete -force	Deletes without confirmation.
delete -removetopdir	Removes the directory, including child directories.
delete -exclude <filter>	Excludes the files and directories that match the filter.
delete -parallel <n>	Specifies the maximum concurrent batch processes (default: 7).
delete -preserve-atime	Preserves access time of the file or directory (default: false).
delete -loglevel <name>	Sets the log level; available levels are INFO, DEBUG (default: INFO).
delete -s3.insecure	Provides the option to use HTTP instead of HTTPS for S3 bucket communication.
delete -s3.endpoint <s3_endpoint_url>	Overrides the default Amazon Web Services (AWS) endpoint URL with the specified URL for S3 bucket communication.
delete -s3.profile <profile_name>	Specifies a profile from the AWS credential file for S3 bucket communication.
delete -s3.noverify	Overrides the default verification of SSL certification for S3 bucket communication.

delete -match <filter>

Use the `-match <filter>` parameter with the `delete` command to only process the files and directories that match the filter.

Syntax

```
xcp delete -match <filter> <NFS export path>
```

Show example

```
[root@client1 linux]# ./xcp delete -match "fnm('XCP_copy_2023-04-
25_05.51.28.315997')" 10.101.10.101:/xcp_catalog

Job ID: Job_2023-04-25_06.10.29.637371_delete
WARNING: You have selected 10.101.10.101:/xcp_catalog for removing
data. Data in this path
/xcp_catalog will be deleted.
Are you sure you want to delete (yes/no): yes
Recursively removing data in 10.101.10.101:/xcp_catalog ...
Xcp command : xcp delete -match fnm('XCP_copy_2023-04-
25_05.51.28.315997')
10.101.10.101:/xcp_catalog
Stats : 209 scanned, 14 matched, 12 removes, 2 rmdirs
Speed : 58.9 KiB in (18.6 KiB/s), 8.25 KiB out (2.60 KiB/s)
Total Time : 3s.
Job ID : Job_2023-04-25_06.10.29.637371_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
25_06.10.29.637371_delete.log
STATUS : PASSED
```

delete -force

Use the `-force` parameter with the `delete` command to delete without confirmation.

Syntax

```
xcp delete -force <NFS export path>
```

Show example

```
[root@client1 linux]# ./xcp delete -force
10.101.10.101:/xcp_catalog/catalog/indexes/XCP_copy_2023-04-
25_05.53.58.273910

Job ID: Job_2023-04-25_06.11.30.584440_delete
WARNING: You have selected
10.101.10.101:/xcp_catalog/catalog/indexes/XCP_copy_2023-04-
25_05.53.58.273910 for removing data. Data in this path
/xcp_catalog/catalog/indexes/XCP_copy_2023-04-25_05.53.58.273910 will
be deleted.
Recursively removing data in
10.101.10.101:/xcp_catalog/catalog/indexes/XCP_copy_2023-04-
25_05.53.58.273910 ...
Xcp command : xcp delete -force
110.101.10.101:/xcp_catalog/catalog/indexes/XCP_copy_2023-04-
25_05.53.58.273910
Stats : 14 scanned, 12 removes, 1 rmdir
Speed : 6.44 KiB in (4.73 KiB/s), 3.59 KiB out (2.64 KiB/s)
Total Time : 1s.
Job ID : Job_2023-04-25_06.11.30.584440_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
25_06.11.30.584440_delete.log
STATUS : PASSED
[root@client-1 linux] #
```

delete -removetopdir

Use the `-removetopdir` parameter with the `delete` command to remove the directory, including child directories.

Syntax

```
xcp delete -force -loglevel <name> -removetopdir <NFS export path>
```

Show example

```
[root@client1 linux]# ./xcp delete -force -loglevel DEBUG -removetopdir
10.101.10.101:/temp7/user9

Job ID: Job_2023-04-25_08.03.38.218893_delete
WARNING: You have selected 10.101.10.101:/temp7/user9 for removing
data. Data in this path
/temp7/user9 will be deleted.
Recursively removing data in 10.101.10.101:/temp7/user9 ...
50,500 scanned, 16,838 removes, 11.5 MiB in (2.27 MiB/s), 2.70 MiB out
(547 KiB/s), 5s
85,595 scanned, 43,016 removes, 21.5 MiB in (1.97 MiB/s), 6.70 MiB out
(806 KiB/s), 10s
.
.
.
1.01M scanned, 999,771 removes, 1,925 rmdirs, 324 MiB in (1.42 MiB/s),
153 MiB out (922
KiB/s), 3m6s

Xcp command : xcp delete -force -loglevel DEBUG -removetopdir
10.101.10.101:/temp7/user9
Stats : 1.01M scanned, 1.01M removes, 2,041 rmdirs
Speed : 326 MiB in (1.73 MiB/s), 155 MiB out (842 KiB/s)
Total Time : 3m8s.
Job ID : Job_2023-04-25_08.03.38.218893_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
25_08.03.38.218893_delete.log
STATUS : PASSED
[root@client1 linux]#
```

delete -exclude <filter>

Use the `-exclude <filter>` parameter with the `delete` command to exclude the files and directories that match the filter.

Syntax

```
xcp delete -force -exclude <filter>  <NFS export path>
```

Show example

```
[root@client1 linux]# ./xcp delete -force -exclude "fnm('USER5')"
10.101.10.101:/temp7/user2/

Job ID: Job_2023-04-25_07.54.25.241216_delete
WARNING: You have selected 10.101.10.101:/temp7/user2 for removing
data. Data in this path
/temp7/user2 will be deleted.
Recursively removing data in 10.101.10.101:/temp7/user2 ...
29,946 scanned, 1 excluded, 6,492 removes, 977 rmdirs, 7.42 MiB in
(1.48 MiB/s), 1.54 MiB out
(316 KiB/s), 5s
Xcp command : xcp delete -force -exclude fnm('USER5')
10.101.10.101:/temp7/user2/
Stats : 29,946 scanned, 1 excluded, 28,160 removes, 1,785 rmdirs
Speed : 10.6 MiB in (1.18 MiB/s), 5.03 MiB out (574 KiB/s)
Total Time : 8s.
Job ID : Job_2023-04-25_07.54.25.241216_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
25_07.54.25.241216_delete.log
STATUS : PASSED
[root@client1 linux]#
```

delete -parallel <n>

Use the `-parallel <n>` parameter with the `delete` command to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

```
xcp delete -force -parallel <n> -match <filter> <NFS export path>
```

Show example

```
[root@client1 linux]# ./xcp delete -force -parallel 8 -match
"fnm('2023-04-25_05.49.26.733160*')" 10.101.10.101:/xcp_catalog/

Job ID: Job_2023-04-25_06.15.27.024987_delete
WARNING: You have selected 10.101.10.101:/xcp_catalog for removing
data. Data in this path /xcp_catalog will be deleted.
Recursively removing data in 10.101.10.101:/xcp_catalog ...
Xcp command : xcp delete -force -parallel 8 -match fnm('2023-04-
25_05.49.26.733160*')
10.101.10.101:/xcp_catalog/
Stats : 182 scanned, 1 matched, 1 remove
Speed : 50.0 KiB in (115 KiB/s), 5.45 KiB out (12.5 KiB/s)
Total Time : 0s.
Job ID : Job_2023-04-25_06.15.27.024987_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
25_06.15.27.024987_delete.log
STATUS : PASSED
[root@client1 linux]#
```

delete -preserve-atime

Use the `-preserve-atime <preserve-atime>` parameter with the `delete` command to preserve the access time of a file or directory. The default value is false.

Syntax

```
xcp delete -force -preserve-atime <NFS export path>
```

Show example

```
[root@client1 linux]# ./xcp delete -force -preserve-atime
<IP_address>:/temp7/user2/

Job ID: Job_2023-04-25_07.55.30.972162_delete
WARNING: You have selected <IP_address>:/temp7/user2 for removing data.
Data in this path
/temp7/user2 will be deleted.
Recursively removing data in <IP_address>:/temp7/user2 ...
Xcp command : xcp delete -force -preserve-atime
<IP_address>:/temp7/user2/
Stats : 256 scanned, 255 rmdirs
Speed : 199 KiB in (108 KiB/s), 75.7 KiB out (41.1 KiB/s)
Total Time : 1s.
Job ID : Job_2023-04-25_07.55.30.972162_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
25_07.55.30.972162_delete.log
STATUS : PASSED
[root@client-1 linux]#
```

delete -loglevel <name>

Use the `-loglevel <name>` parameter with the `delete` command to set the log level; available levels are INFO and DEBUG. The default level is INFO.

Syntax

```
xcp delete -force -loglevel DEBUG -removetopdir <NFS export path>
```

Show example

```
[root@client1 linux]# ./xcp delete -force -loglevel DEBUG -removetopdir
10.101.10.101:/temp7/user9

Job ID: Job_2023-04-25_08.03.38.218893_delete
WARNING: You have selected 10.101.10.101:/temp7/user9 for removing
data. Data in this
path /temp7/user9 will be deleted.
Recursively removing data in 10.101.10.101:/temp7/user9 ...
50,500 scanned, 16,838 removes, 11.5 MiB in (2.27 MiB/s), 2.70 MiB out
(547 KiB/s), 5s
85,595 scanned, 43,016 removes, 21.5 MiB in (1.97 MiB/s), 6.70 MiB out
(806 KiB/s),
10s
.
.
.
1.01M scanned, 999,771 removes, 1,925 rmdirs, 324 MiB in (1.42 MiB/s),
153 MiB out
(922 KiB/s), 3m6s
Xcp command : xcp delete -force -loglevel DEBUG -removetopdir
10.101.10.101:/temp7/user9
Stats : 1.01M scanned, 1.01M removes, 2,041 rmdirs
Speed : 326 MiB in (1.73 MiB/s), 155 MiB out (842 KiB/s)
Total Time : 3m8s.
Job ID : Job_2023-04-25_08.03.38.218893_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
25_08.03.38.218893_delete.log
STATUS : PASSED
[root@client-1 linux]#
```

delete -s3.insecure

Use the `-s3.insecure` parameter with the `delete` command to use HTTP instead of HTTPS for S3 bucket communication.

Syntax

```
xcp delete -s3.insecure s3://bucket1
```

Show example

```
[root@client1 linux]# ./xcp delete -s3.insecure s3:// bucket1

Job ID: Job_2023-06-08_08.51.40.849991_delete
WARNING: You have selected s3://bucket1 for removing data. Data in this
path //bucket1 will be
deleted.
Are you sure you want to delete (yes/no): yes
Recursively removing data in s3://bucket1 ...
Xcp command : xcp delete -s3.insecure s3://bucket1
Stats : 8 scanned, 6 s3.objects, 6 s3.removed
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 5s.
Job ID : Job_2023-06-08_08.51.40.849991_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
08_08.51.40.849991_delete.log
STATUS : PASSED
```

delete -s3.endpoint <s3_endpoint_url>

Use the `-s3.endpoint <s3_endpoint_url>` parameter with the `delete` command to override the default AWS endpoint URL with a specified URL for S3 bucket communication.

Syntax

```
xcp delete -s3.endpoint https://<endpoint_url>: s3://bucket
```

Show example

```
[root@client1 linux]# ./xcp delete -s3.endpoint https://<endpoint_url>:
s3://xcp-testing

Job ID: Job_2023-06-13_11.39.33.042545_delete
WARNING: You have selected s3://xcp-testing for removing data. Data in
this path //xcp-testing
will be deleted.
Are you sure you want to delete (yes/no): yes
Recursively removing data in s3://xcp-testing ...
Xcp command : xcp delete -s3.endpoint https://<endpoint_url>: s3://xcp-
testing
Stats : 8 scanned, 5 s3.objects, 5 s3.removed
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 4s.
Job ID : Job_2023-06-13_11.39.33.042545_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
13_11.39.33.042545_delete.log
STATUS : PASSED
```

delete -s3.profile <name>

Use the `s3.profile` parameter with the `delete` command to specify a profile from the AWS credential file for S3 bucket communication.

Syntax

```
xcp delete -s3.profile sg -s3.endpoint https://<endpoint_url>:
s3://bucket
```

Show example

```
[root@client1 linux]# ./xcp delete -s3.profile sg -s3.endpoint
https://<endpoint_url>: s3://bucket

Job ID: Job_2023-06-08_08.53.19.059745_delete
WARNING: You have selected s3://bucket for removing data. Data in this
path //bucket will be deleted.
Are you sure you want to delete (yes/no): yes
Recursively removing data in s3://bucket ...
1 scanned, 0 in (0/s), 0 out (0/s), 5s
Xcp command : xcp delete -s3.profile sg -s3.endpoint
https://<endpoint_url>: s3:/ bucket
Stats : 7 scanned, 5 s3.objects, 5 s3.removed
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 9s.
Job ID : Job_2023-06-08_08.53.19.059745_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
08_08.53.19.059745_delete.log
STATUS : PASSED
```

delete -s3.noverify

Use the `-s3.noverify` parameter with the `delete` command to override the default verification of SSL certification for S3 bucket communication.

Syntax

```
xcp delete -s3.noverify s3://bucket
```

Show example

```
[root@client-1 linux]# ./xcp delete -s3.noverify s3://bucket1

Job ID: Job_2023-06-13_10.56.19.319076_delete
WARNING: You have selected s3://bucket1 for removing data. Data in this
path //bucket1 will be
deleted.
Are you sure you want to delete (yes/no): yes
Recursively removing data in s3://bucket1 ...
2,771 scanned, 0 in (0/s), 0 out (0/s), 5s
9,009 scanned, 9,005 s3.objects, 2,000 s3.removed, 0 in (0/s), 0 out
(0/s), 10s
Xcp command : xcp delete -s3.noverify s3://bucket1
Stats : 9,009 scanned, 9,005 s3.objects, 9,005 s3.removed
Speed : 0 in (0/s), 0 out (0/s)
Total Time : 15s.
Job ID : Job_2023-06-13_10.56.19.319076_delete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-06-
13_10.56.19.319076_delete.log
STATUS : PASSED
```

estimate

The XCP NFS `estimate` command is used to estimate the time to complete a baseline copy from the source to destination. It calculates the estimated time to complete a baseline copy by using all of the current available system resources, such as CPU, RAM, Network, and other parameters. You can use the `-target` option to start a sample copy operation and get the estimation time.

Syntax

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

Show example

```
[root@client-01 linux]# ./xcp estimate -t 100 -id estimate01 -target
10.101.10.10:/temp8

xcp: WARNING: your license will expire in less than 10 days! You can
renew your license at https://xcp.netapp.com
Job ID: Job_2023-04-12_08.09.16.126908_estimate
Starting live test for 1m40s to estimate time to copy
'10.101.10.10:/temp4' to
'10.101.10.10:/temp8'...
estimate regular file copy task completed before the 1m40s duration
0 in (0/s), 0 out (0/s), 5s
0 in (0/s), 0 out (0/s), 10s
Estimated time to copy '10.101.12.11:/temp4' to '10.101.12.10:/temp8'
based on a 1m40s live test:
5.3s
Xcp command : xcp estimate -t 100 -id estimate01 -target
10.101.12.10:/temp8
Estimated Time : 5.3s
Job ID : Job_2023-04-12_08.09.16.126908_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
12_08.09.16.126908_estimate.log
STATUS : PASSED
[root@client-01linux]#
```

The following table lists the `estimate` parameters and their description.

Parameter	Description
estimate -id <name>	Specifies the catalog name of a previous copy or scan index.
estimate -gbit <n>	Uses gigabits of bandwidth to estimate best-case time (default: 1).
estimate -target <path>	Specifies the target to use for live test copy.
estimate -t <n/s/m/h]>	Specifies the duration of live test copy (default: 5m).
estimate -bs <n[k]>	Specifies the read/write block size (default: 64k).
estimate -dircount <n[k]>	Specifies the request size for reading directories (default: 64k).
estimate -preserve-atime	Preserves access time of the file or directory (default: False).
estimate -loglevel <name>	Sets the log level; available levels are INFO, DEBUG (default: INFO)

estimate -id <name>

Use the `-id <name>` parameter with the `estimate` command to exclude the files and directories that match the filter.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp estimate -id csdata01

xcp: WARNING: your license will expire in less than 11 days! You can
renew your license at
https://xcp.netapp.com
xcp: WARNING: XCP catalog volume is low on disk space: 99.99% used,
62.0 MiB free space.
Job ID: Job_2023-04-20_12.59.31.260914_estimate
== Best-case estimate to copy 'data-set:/user1given 1 gigabit of
bandwidth ==
112 TiB of data at max 128 MiB/s: at least 10d13h
Xcp command : xcp estimate -id csdata01
Estimated Time : 10d13h
Job ID : Job_2023-04-20_12.59.31.260914_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
20_12.59.31.260914_estimate.log
STATUS : PASSED
xcp: WARNING: XCP catalog volume is low on disk space: 99.99% used,
62.0 MiB free space.
[root@client1 linux]#
```

estimate -gbit <n>

Use the `-gbit <n>` parameter with the `estimate` command to estimate best-case time (default: 1). This option cannot be used with the `-target` option.

Syntax

```
xcp estimate -gbit <n> -id <name>
```

Show example

```
[root@client-01 linux]# ./xcp estimate -gbit 10 -id estimate01

xcp: WARNING: your license will expire in less than 10 days! You can
renew your license at
https://xcp.netapp.com
Job ID: Job_2023-04-12_08.12.28.453735_estimate
== Best-case estimate to copy '10.101.12.11:/temp4' given 10 gigabits
of bandwidth ==
0 of data at max 1.25 GiB/s: at least 0.0s
Xcp command : xcp estimate -gbit 10 -id estimate01
Estimated Time : 0.0s
Job ID : Job_2023-04-12_08.12.28.453735_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
12_08.12.28.453735_estimate.log
STATUS : PASSED
[root@client-01linux]#
```

estimate -target <path>

Use the `-target <path>` parameter with the `estimate` command to specify target to use for live test copy.

Syntax

```
xcp estimate -t 100 -id <name> -target <path>
```

Show example

```
[root@client-01 linux]# ./xcp estimate -t 100 -id estimate01 -target
10.101.12.11:/temp8

xcp: WARNING: your license will expire in less than 10 days! You can
renew your license at https://xcp.netapp.com
Job ID: Job_2023-04-12_08.09.16.126908_estimate
Starting live test for 1m40s to estimate time to copy
'10.101.12.11:/temp4' to '10.101.12.11:/temp8'...
estimate regular file copy task completed before the 1m40s duration
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
12_08.09.16.126908_estimate.log
STATUS : PASSED
[root@client-01linux]#
```

estimate -t <n[s|m|h]>

Use the `-t <n[s|m|h]>` parameter with the `estimate` command to specify the duration of live test copy. The default value is 5m.

Syntax

```
xcp estimate -t <n[s|m|h]> -id <name> -target <path>
```

Show example

```
[root@client-01 linux]# ./xcp estimate -t 100 -id estimate01 -target
10.101.12.12:/temp8

xcp: WARNING: your license will expire in less than 10 days! You can
renew your license at
https://xcp.netapp.com
Job ID: Job_2023-04-12_08.09.16.126908_estimate
Starting live test for 1m40s to estimate time to copy
'10.101.12.11:/temp4' to
'10.101.12.12:/temp8'...
estimate regular file copy task completed before the 1m40s duration
0 in (0/s), 0 out (0/s), 5s
0 in (0/s), 0 out (0/s), 10s
Estimated time to copy '10.101.12.11:/temp4' to '10.101.12.12:/temp8'
based on a 1m40s live
test: 5.3s

Xcp command : xcp estimate -t 100 -id estimate01 -target
10.101.12.11:/temp8
Estimated Time : 5.3s
Job ID : Job_2023-04-12_08.09.16.126908_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
12_08.09.16.126908_estimate.log
STATUS : PASSED
[root@client-01linux]#
```

estimate -bs <n[k]>

Use the `-bs <n[k]>` parameter with the `estimate` command to specify the read/write block size. The default value is 64k.

Syntax

```
xcp estimate -id <name> -bs <n[k]>
```

Show example

```
[root@client1 linux]# ./xcp estimate -id estimate01 -bs 128k

xcp: WARNING: your license will expire in less than 7 days! You can
renew your license at
https://xcp.netapp.com
Job ID: Job_2023-04-24_08.44.12.564441_estimate
63.2 KiB in (12.5 KiB/s), 2.38 KiB out (484/s), 5s
== Best-case estimate to copy 'xxx' given 1 gigabit of bandwidth ==
112 TiB of data at max 128 MiB/s: at least 10d13h
Xcp command : xcp estimate -id estimate01 -bs 128k
Estimated Time : 10d13h
Job ID : Job_2023-04-24_08.44.12.564441_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
24_08.44.12.564441_estimate.log
STATUS : PASSED
[root@client1 linux]#
```

estimate -dircount <n[k]>

Use the `-dircount <n[k]>` parameter with the `estimate` command to specify the requested size for reading directories. The default value is 64k.

Syntax

```
xcp estimate -id <name> -dircount <n[k]> -t <n> -target <path>
```

Show example

```
[root@client1 linux]# ./xcp estimate -id csdata01 -dircount 128k -t 300
-target <path>

xcp: WARNING: your license will expire in less than 11 days! You can
renew your license at
https://xcp.netapp.com
xcp: WARNING: XCP catalog volume is low on disk space: 99.99% used,
61.6 MiB free space.
Job ID: Job_2023-04-20_13.03.46.820673_estimate
Starting live test for 5m0s to estimate time to copy ‘data-set:/user1
to `<path>`...
1,909 scanned, 126 copied, 2 giants, 580 MiB in (115 MiB/s), 451 MiB
out (89.5 MiB/s), 5s
1,909 scanned, 134 copied, 2 giants, 1.23 GiB in (136 MiB/s), 1015 MiB
out (112 MiB/s), 10s
1,909 scanned, 143 copied, 2 giants, 1.88 GiB in (131 MiB/s), 1.54 GiB
out (113 MiB/s), 15s
.
.
.
7,136 scanned, 2,140 copied, 4 linked, 8 giants, 33.6 GiB in (110
MiB/s), 32.4 GiB out (110
MiB/s), 4m57s
Sample test copy completed for, 300.03s
0 in (-7215675436.180/s), 0 out (-6951487617.036/s), 5m2s
2,186 scanned, 610 KiB in (121 KiB/s), 76.9 KiB out (15.3 KiB/s), 5m7s
Estimated time to copy ‘data-set:/user1to '10.01.12.11:/mapr11' based
on a 5m0s live test:
7d6h
Xcp command : xcp estimate -id csdata01 -dircount 128k -t 300 -target
10.101.12.11:/mapr11
Estimated Time : 7d6h
Job ID : Job_2023-04-20_13.03.46.820673_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
20_13.03.46.820673_estimate.log
STATUS : PASSED
xcp: WARNING: XCP catalog volume is low on disk space: 99.99% used,
61.6 MiB free space.
[root@client1 linux]#
```

estimate -parallel <n>

Use the `-parallel <n>` parameter with the `estimate` command to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

```
xcp estimate -loglevel <name> -parallel <n> -id <name>
```

Show example

```
[root@client1 linux]# ./xcp estimate -loglevel DEBUG -parallel 8 -id
estimate1

xcp: WARNING: your license will expire in less than 11 days! You can
renew your license at
https://xcp.netapp.com
Job ID: Job_2023-04-20_11.36.45.535209_estimate
== Best-case estimate to copy '10.10.101.10:/users009/xxx/mnt' given 1
gigabit of bandwidth ==
6.75 GiB of data at max 128 MiB/s: at least 54.0s
Xcp command : xcp estimate -loglevel DEBUG -parallel 8 -id estimate1
Estimated Time : 54.0s
Job ID : Job_2023-04-20_11.36.45.535209_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
20_11.36.45.535209_estimate.log
STATUS : PASSED
[root@client1 linux]#
```

estimate -preserve-atime

Use the `-preserve-atime` parameter with the `estimate` command to preserve the access time of the file or directory. The default value is false.

Syntax

```
xcp estimate -loglevel <name> -preserve-atime -id <name>
```

Show example

```
root@client1 linux]# ./xcp estimate -loglevel DEBUG -preserve-atime -id
estimate1

xcp: WARNING: your license will expire in less than 11 days! You can
renew your license at
https://xcp.netapp.com
Job ID: Job_2023-04-20_11.19.04.050516_estimate
== Best-case estimate to copy '10.10.101.10:/users009/xxx/mnt' given 1
gigabit of bandwidth
==
6.75 GiB of data at max 128 MiB/s: at least 54.0s
Xcp command : xcp estimate -loglevel DEBUG -preserve-atime -id
estimate1
Estimated Time : 54.0s
Job ID : Job_2023-04-20_11.19.04.050516_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
20_11.19.04.050516_estimate.log
STATUS : PASSED
[root@client1 linux]#
```

estimate -loglevel <name>

Use the `-loglevel <name>` parameter with the `estimate` command to set the log level; available levels are INFO and DEBUG. The default level is INFO.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp estimate -loglevel DEBUG -parallel 8 -id
estimate1

xcp: WARNING: your license will expire in less than 11 days! You can
renew your license at
https://xcp.netapp.com
Job ID: Job_2023-04-20_11.36.45.535209_estimate
== Best-case estimate to copy '10.10.101.10:/users009/xxx/mnt' given 1
gigabit of bandwidth ==
6.75 GiB of data at max 128 MiB/s: at least 54.0s
Xcp command : xcp estimate -loglevel DEBUG -parallel 8 -id estimate1
Estimated Time : 54.0s
Job ID : Job_2023-04-20_11.36.45.535209_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-04-
20_11.36.45.535209_estimate.log
STATUS : PASSED
[root@client1 linux]#
```

indexdelete

The NFS `indexdelete` command deletes catalog indexes.

Syntax

```
xcp indexdelete
```

Show example

```
[root@client1 linux]# ./xcp indexdelete

Job ID: Job_2023-11-16_02.41.20.260166_indexdelete
=========================================================================
====================
Name Command Size Created Updated
=========================================================================
====================
isync_tc1_retry copy 996 KiB 15-Nov-2023 15-Nov-2023
isync_est_isync isync 1012 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_05.56.17.522428 verify 1016 KiB 15-Nov-2023 15-
Nov-2023
XCP_verify_2023-11-15_06.04.31.693517 verify 1.00 MiB 15-Nov-2023 15-
Nov-2023
isync_tc1_retry1 copy 988 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_09.02.46.973624 verify 988 KiB 15-Nov-2023 15-
Nov-2023
est001 isync 1012 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_09.37.24.179634 verify 0 15-Nov-2023 15-Nov-2023
a1batch_error1 copy 368 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_09.45.53.104055 verify 360 KiB 15-Nov-2023 15-
Nov-2023
a1batch_error2 isync 376 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_09.48.05.000473 verify 372 KiB 15-Nov-2023 15-
Nov-2023
b1batch_error1 copy 4.50 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_12.00.29.214479 verify 4.50 KiB 15-Nov-2023 15-
Nov-2023
b1batch_error2 isync 4.50 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_12.00.40.536687 verify 4.50 KiB 15-Nov-2023 15-
Nov-2023
XCP_verify_2023-11-15_12.27.08.055501 verify 4.50 KiB 15-Nov-2023 15-
Nov-2023
XCP_verify_2023-11-15_12.27.39.797020 verify 4.50 KiB 15-Nov-2023 15-
Nov-2023
XCP_verify_2023-11-15_12.52.29.408766 verify 4.50 KiB 15-Nov-2023 15-
Nov-2023
XCP_verify_2023-11-15_12.53.01.870109 verify 4.50 KiB 15-Nov-2023 15-
Nov-2023
c1batch_error1 copy 988 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_22.54.11.081944 verify 976 KiB 15-Nov-2023 15-
Nov-2023
c1batch_error2 isync 1020 KiB 15-Nov-2023 15-Nov-2023
XCP_verify_2023-11-15_23.19.44.158263 verify 1.00 MiB 15-Nov-2023 15-
```

```
Nov-2023
XCP_verify_2023-11-15_23.44.01.274732 verify 4.50 KiB 15-Nov-2023 15-
Nov-2023
c1batch_error132576 copy 992 KiB 16-Nov-2023 16-Nov-2023
c1batch_error227998 isync 1004 KiB 16-Nov-2023 16-Nov-2023
XCP_verify_2023-11-16_01.07.45.824516 verify 1012 KiB 16-Nov-2023 16-
Nov-2023
S3_index copy 52.5 KiB 16-Nov-2023 16-Nov-2023
S3_index1 copy 52.5 KiB 16-Nov-2023 16-Nov-2023
c1batch_error14383 copy 728 KiB 16-Nov-2023 16-Nov-2023
32 scanned, 941 KiB in (1.04 MiB/s), 48.8 KiB out (55.4 KiB/s), 0s.
WARNING: 31 indexes will be deleted permanently.
Are you sure you want to delete (yes/no): yes
Xcp command : xcp indexdelete
Stats : 466 scanned, 31 index deleted
Speed : 1.09 MiB in (216 KiB/s), 133 KiB out (25.8 KiB/s)
Total Time : 5s.
Job ID : Job_2023-11-16_02.41.20.260166_indexdelete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.41.20.260166_indexdelete.log
STATUS : PASSED
[root@client1 linux]#
```

The following table lists the `indexdelete` parameters and their description.

Parameter	Description
indexdelete -match <filter>	Only processes the files and directories that match the filter.
indexdelete -loglevel <name>	Sets the log level; available levels are INFO, DEBUG (default: INFO).

indexdelete -match <filter>

Use the `-match <filter>` parameter with the `indexdelete` command to only process the files and directories that match the filter.

Syntax

```
xcp indexdelete -match <filter>
```

Show example

```
[root@client1 linux]# ./xcp indexdelete -match "fnm('S3_index12')"

Job ID: Job_2023-11-16_02.44.39.862423_indexdelete
======================================================================
==
Name Command Size Created Updated
======================================================================
==
S3_index12 copy 52.5 KiB 16-Nov-2023 16-Nov-2023
5 scanned, 1 matched, 141 KiB in (121 KiB/s), 6.05 KiB out (5.20
KiB/s), 1s.
WARNING: 1 matched index will be deleted permanently.
Are you sure you want to delete (yes/no): yes
Xcp command : xcp indexdelete -match fnm('S3_index12')
Stats : 19 scanned, 1 matched, 1 index deleted
Speed : 146 KiB in (29.3 KiB/s), 8.59 KiB out (1.72 KiB/s)
Total Time : 4s.
Job ID : Job_2023-11-16_02.44.39.862423_indexdelete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.44.39.862423_indexdelete.log
STATUS : PASSED
[root@client1 linux]#
```

indexdelete -loglevel <name>

Use the `-loglevel <name>` parameter with the `indexdelete` command to set the log level; available levels are INFO and DEBUG. The default level is INFO.

Syntax

```
xcp indexdelete -loglevel <name> -match <filter>
```

Show example

```
root@client1 linux]# ./xcp indexdelete -loglevel DEBUG -match
"fnm('test*')"

Job ID: Job_2023-11-16_03.39.36.814557_indexdelete
======================================================================
====================
Name Command Size Created Updated
======================================================================
====================
testing scan 24.5 KiB 16-Nov-2023 16-Nov-2023
testingisync isync 12.5 KiB 16-Nov-2023 16-Nov-2023
5 scanned, 2 matched, 65.1 KiB in (61.1 KiB/s), 6.24 KiB out (5.85
KiB/s), 1s.
WARNING: 2 matched indexes will be deleted permanently.
Are you sure you want to delete (yes/no): yes
6 scanned, 2 matched, 65.1 KiB in (10.5 KiB/s), 6.39 KiB out (1.03
KiB/s), 7s
Xcp command : xcp indexdelete -loglevel DEBUG -match fnm('test*')
Stats : 32 scanned, 2 matched, 2 index deleted
Speed : 75.5 KiB in (10.3 KiB/s), 11.1 KiB out (1.52 KiB/s)
Total Time : 7s.
Job ID : Job_2023-11-16_03.39.36.814557_indexdelete
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_03.39.36.814557_indexdelete.log
STATUS : PASSED
[root@client1 linux]#
```

isync

View the descriptions, parameters, and examples for the XCP `isync` command, including when the `isync` command is used with the `estimate` option.

isync

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

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync <source_ip_address>:/src
<destination_ip_address>:/dest

Job ID: Job_2023-11-20_04.11.03.128824_isync
41,030 scanned, 935 MiB in (162 MiB/s), 4.23 MiB out (752 KiB/s), 6s
57,915 scanned, 2.10 GiB in (239 MiB/s), 10.00 MiB out (1.13 MiB/s),
11s
57,915 scanned, 3.20 GiB in (210 MiB/s), 14.6 MiB out (879 KiB/s), 16s
92,042 scanned, 4.35 GiB in (196 MiB/s), 21.6 MiB out (1.17 MiB/s), 22s
123,977 scanned, 5.70 GiB in (257 MiB/s), 29.6 MiB out (1.49 MiB/s),
27s
137,341 scanned, 6.75 GiB in (212 MiB/s), 36.0 MiB out (1.25 MiB/s),
32s
154,503 scanned, 8.00 GiB in (226 MiB/s), 43.0 MiB out (1.24 MiB/s),
38s
181,578 scanned, 36 copied, 8.68 GiB in (132 MiB/s), 49.7 MiB out (1.26
MiB/s), 43s
target scan completed: 181,656 scanned, 1,477 copied, 1 removed, 8.76
GiB in (200 MiB/s), 123 MiB
out (2.75 MiB/s), 44s.
181,907 scanned, 10,013 copied, 1 removed, 9.17 GiB in (95.3 MiB/s),
545 MiB out (95.2 MiB/s), 49s
Xcp command : xcp isync <source_ip_address>:/src
<destination_ip_address>:/dest
Stats : 1 removed, 181,907 scanned, 10,263 copied
Speed : 9.17 GiB in (190 MiB/s), 548 MiB out (11.1 MiB/s)
Total Time : 49s.
Job ID : Job_2023-11-20_04.11.03.128824_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
20_04.11.03.128824_isync.log
STATUS : PASSED
[root@client1 linux]
```

The following table lists the `isync` parameters and their description.

Parameter	Description
isync -nodata	Does not check data.
isync -noattrs	Does not check attributes.
isync -nomods	Does not check file modification times.
isync -mtimewindow <s>	Specifies the acceptable modification time difference for verification.

Parameter	Description
isync -match <filter>	Only processes the files and directories that match the filter.
isync -bs <n[k]>	Specifies the read/write block size (default: 64k).
isync -parallel <n>	Specifies the maximum number of concurrent batch processes (default: 7).
isync -dircount <n[k]>	Specifies the request size when reading directories (default 64k).
isync -exclude <filter>	Excludes the files and directories that match the filter.
isync -newid <name>	Specifies the catalog name for a new index catalog.
isync -loglevel <name>	Sets the log level; available levels are INFO, DEBUG (default: INFO).
isync -preserve-atime	Restores all files to the last accessed date on the source.
isync -s3.insecure	Provides the option to use HTTP instead of HTTPS for S3 bucket communication.
isync -s3.endpoint <s3_endpoint_url>	Overrides the default Amazon Web Services (AWS) endpoint URL with the specified URL for S3 bucket communication.
isync -s3.profile <profile_name>	Specifies a profile from the AWS credential file for S3 bucket communication.
isync -s3.noverify	Overrides the default verification of SSL certification for S3 bucket communication.

isync -nodata

Use the the `-nodata` parameter with the `isync` command to specify not to check data.

Syntax

```
xcp isync -nodata <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
root@client1 linux]# ./xcp isync -nodata
<source_ip_address>:/source_vol<destination_ip_address>:/dest_vol

Job ID: Job_2023-11-16_22.47.20.930900_isync
11,301 scanned, 3.26 MiB in (414 KiB/s), 479 KiB out (59.5 KiB/s), 8s
28,644 scanned, 437 copied, 33.7 MiB in (5.39 MiB/s), 27.2 MiB out
(4.75 MiB/s), 13s
29,086 scanned, 1,001 copied, 58.2 MiB in (3.54 MiB/s), 51.8 MiB out
(3.55 MiB/s), 20s
29,490 scanned, 1,001 copied, 597 removed, 61.1 MiB in (592 KiB/s),
53.7 MiB out (375 KiB/s),
25s
98
.
.
.
43,391 scanned, 1,063 copied, 1,001 removed, 2.49 GiB in (115 MiB/s),
2.48 GiB out (115 MiB/s),
1m17s
43,391 scanned, 1,082 copied, 1,001 removed, 3.08 GiB in (119 MiB/s),
3.07 GiB out (119 MiB/s),
1m23s
43,391 scanned, 1,088 copied, 1,001 removed, 3.68 GiB in (122 MiB/s),
3.67 GiB out (122 MiB/s),
1m28s
Xcp command : xcp isync -nodata <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 1,001 removed, 43,391 scanned, 1,108 copied
Speed : 4.19 GiB in (46.7 MiB/s), 4.18 GiB out (46.5 MiB/s)
Total Time : 1m31s.
Job ID : Job_2023-11-16_22.47.20.930900_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_22.47.20.930900_isync.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_22.47.20.930900_isync.error
STATUS : PASSED
```

isync -noattrs

Use the the `-noattrs` parameter with the `isync` command to specify not to check attributes.

Syntax

```
xcp isync -noattrs <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@client1 linux]# ./xcp isync -noattrs
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol

Job ID: Job_2023-11-16_22.49.22.056646_isync
18,036 scanned, 940 MiB in (168 MiB/s), 2.67 MiB out (488 KiB/s), 5s
30,617 scanned, 285 removed, 4.23 GiB in (666 MiB/s), 12.0 MiB out
(1.82 MiB/s), 10s
32,975 scanned, 746 removed, 6.71 GiB in (505 MiB/s), 18.3 MiB out
(1.25 MiB/s), 15s
34,354 scanned, 1,000 removed, 9.39 GiB in (543 MiB/s), 24.9 MiB out
(1.32 MiB/s), 20s
34,594 scanned, 1,000 removed, 12.1 GiB in (540 MiB/s), 31.2 MiB out
(1.24 MiB/s), 26s
36,142 scanned, 722 copied, 1,000 removed, 14.9 GiB in (540 MiB/s),
73.7 MiB out (7.93 MiB/s),
31s
.
.
.
42,496 scanned, 1,000 copied, 1,000 removed, 234 GiB in (716 MiB/s),
582 MiB out (1.55 MiB/s),
7m22s
Xcp command : xcp isync -noattrs <<source_ip_address>>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 1,000 removed, 42,496 scanned, 1,000 copied
Speed : 234 GiB in (542 MiB/s), 583 MiB out (1.32 MiB/s)
Total Time : 7m22s.
Job ID : Job_2023-11-16_22.49.22.056646_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_22.49.22.056646_isync.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_22.49.22.056646_isync.error
STATUS : PASSED
```

isync -nomods

Use the the `-nomods` parameter with the `isync` command to specify not to check file modification times.

Syntax

```
isync -nomods <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@client1 linux]# ./xcp isync -nomodes
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol

Job ID: Job_2023-11-16_22.56.48.571392_isync
13,897 scanned, 763 MiB in (152 MiB/s), 2.28 MiB out (463 KiB/s), 5s
21,393 scanned, 148 removed, 4.81 GiB in (739 MiB/s), 12.5 MiB out
(1.81 MiB/s), 11s
28,517 scanned, 148 removed, 7.68 GiB in (578 MiB/s), 19.1 MiB out
(1.31 MiB/s), 16s
28,517 scanned, 148 removed, 10.7 GiB in (619 MiB/s), 26.3 MiB out
(1.43 MiB/s), 21s
29,167 scanned, 396 copied, 148 removed, 13.2 GiB in (434 MiB/s), 51.4
MiB out (4.33 MiB/s), 27s
.
.
.
42,790 scanned, 1,000 copied, 1,000 removed, 229 GiB in (641 MiB/s),
571 MiB out (1.40 MiB/s),
6m42s
42,790 scanned, 1,000 copied, 1,000 removed, 232 GiB in (668 MiB/s),
578 MiB out (1.46 MiB/s),
6m47s
Xcp command : xcp isync -nomods <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 1,000 removed, 42,790 scanned, 1,000 copied
Speed : 234 GiB in (585 MiB/s), 583 MiB out (1.42 MiB/s)
Total Time : 6m50s.
Job ID : Job_2023-11-16_22.56.48.571392_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_22.56.48.571392_isync.log
STATUS : PASSED
```

isync -mtimewindow <s>

Use the the `-mtimewindow <s>` parameter with the `isync` command to specify the acceptable modification time difference for verification.

Syntax

```
xcp isync -mtimewindow <s> <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@client1 linux]# ./xcp isync -mtimewindow 10
10.101.101.101:/source_vol 10.101.101.101:/dest_vol


Job ID: Job_2023-11-16_23.03.41.617300_isync

 23,154 scanned, 146 removed, 1.26 GiB in (247 MiB/s), 4.50 MiB out
(882 KiB/s), 5s

 29,587 scanned, 485 removed, 4.51 GiB in (659 MiB/s), 13.4 MiB out
(1.77 MiB/s), 10s

 29,587 scanned, 485 removed, 7.40 GiB in (590 MiB/s), 20.0 MiB out
(1.32 MiB/s), 16s

 32,712 scanned, 485 removed, 10.3 GiB in (592 MiB/s), 26.9 MiB out
(1.34 MiB/s), 21s

 33,712 scanned, 485 removed, 13.2 GiB in (578 MiB/s), 33.6 MiB out
(1.33 MiB/s), 26s

 33,712 scanned, 961 copied, 485 removed, 15.5 GiB in (445 MiB/s), 86.6
MiB out (9.89 MiB/s), 31s

.

.

.

42,496 scanned, 1,000 copied, 1,000 removed, 233 GiB in (655 MiB/s),
581 MiB out (1.43 MiB/s), 7m11s


Xcp command : xcp isync -mtimewindow 10 -loglevel DEBUG
10.101.101.101:/source_vol 10.101.101.101:/dest_vol

Stats       : 1,000 removed, 42,496 scanned, 1,000 copied

Speed       : 234 GiB in (554 MiB/s), 583 MiB out (1.35 MiB/s)

Total Time  : 7m12s.

Job ID      : Job_2023-11-16_23.03.41.617300_isync
```

```
Log Path    : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.03.41.617300_isync.log

Error Path  : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.03.41.617300_isync.error

STATUS      : PASSED
```

isync -match <filter>

Use the `-match <filter>` parameter with the `isync` command to only process the files and directories that match the filter.

Syntax

```
xcp isync  -match <filter> -id <name>
```

Show example

```
[root@client1 linux]# ./xcp isync -match fnm("FILE_USER5*")
<source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Job ID: Job_2023-11-16_23.25.03.734323_isync
24,006 scanned, 570 matched, 32.5 MiB in (5.31 MiB/s), 221 KiB out
(36.2 KiB/s), 6s
33,012 scanned, 570 matched, 34.2 MiB in (223 KiB/s), 237 KiB out (2.06
KiB/s), 14s
33,149 scanned, 572 matched, 275 MiB in (38.3 MiB/s), 781 KiB out (86.6
KiB/s), 20s
39,965 scanned, 572 matched, 276 MiB in (214 KiB/s), 812 KiB out (4.95
KiB/s), 27s
40,542 scanned, 572 matched, 276 MiB in (15.4 KiB/s), 818 KiB out (1.00
KiB/s), 32s
40,765 scanned, 1,024 matched, 1.88 GiB in (297 MiB/s), 4.51 MiB out
(682 KiB/s), 38s
target scan completed: 41,125 scanned, 1,055 matched, 1.88 GiB in (48.9
MiB/s), 4.51 MiB out
(117 KiB/s), 39s.
42,372 scanned, 1,206 matched, 4.26 GiB in (445 MiB/s), 9.92 MiB out
(1013 KiB/s), 43s
Filtered: 1206 matched, 41290 did not match
Xcp command : xcp isync -match fnm("FILE_USER5*")
<source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 42,496 scanned, 1,206 matched
Speed : 6.70 GiB in (145 MiB/s), 15.4 MiB out (332 KiB/s)
Total Time : 47s.
Job ID : Job_2023-11-16_23.25.03.734323_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.25.03.734323_isync.log
STATUS : PASSED
```

isync -bs <n[k]>

Use the the `-bs <n[k]>` parameter with the `isync` command to specify the read/write block size. The default block size is 64k.

Syntax

```
xcp isync -loglevel DEBUG -bs <n[k]> <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
root@client1 linux]# ./xcp isync -loglevel DEBUG -bs 32k
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol

Job ID: Job_2023-11-17_00.49.20.336389_isync
20,616 scanned, 1.62 GiB in (332 MiB/s), 8.23 MiB out (1.64 MiB/s), 5s
30,240 scanned, 4.55 GiB in (594 MiB/s), 22.4 MiB out (2.81 MiB/s), 10s
30,439 scanned, 7.47 GiB in (589 MiB/s), 35.6 MiB out (2.60 MiB/s), 15s
30,439 scanned, 10.5 GiB in (617 MiB/s), 49.5 MiB out (2.75 MiB/s), 20s
30,863 scanned, 1 copied, 13.3 GiB in (547 MiB/s), 62.7 MiB out (2.56
MiB/s), 25s
.
.
.
42,497 scanned, 71 copied, 227 GiB in (637 MiB/s), 5.12 GiB out (2.79
MiB/s), 6m40s
42,497 scanned, 71 copied, 229 GiB in (538 MiB/s), 5.13 GiB out (2.35
MiB/s), 6m45s
Xcp command : xcp isync -loglevel DEBUG -bs 32k
<source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 42,497 scanned, 71 copied
Speed : 231 GiB in (579 MiB/s), 5.14 GiB out (12.9 MiB/s)
Total Time : 6m48s.
Job ID : Job_2023-11-17_00.49.20.336389_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
17_00.49.20.336389_isync.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
17_00.49.20.336389_isync.error
STATUS : PASSED
[root@client1 linux]#
```

isync -parallel

Use the the `-parallel <n>` parameter with the `isync` command to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

```
xcp isync -parallel <n> <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@client1 linux]# xcp isync -parallel 16
<source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol

Job ID: Job_2023-11-16_23.25.57.058655_isync
21,279 scanned, 765 MiB in (104 MiB/s), 2.43 MiB out (337 KiB/s), 7s
30,208 scanned, 126 removed, 3.00 GiB in (461 MiB/s), 9.11 MiB out
(1.33 MiB/s), 12s
35,062 scanned, 592 removed, 6.01 GiB in (615 MiB/s), 17.2 MiB out
(1.61 MiB/s), 17s
35,062 scanned, 592 removed, 7.35 GiB in (272 MiB/s), 20.3 MiB out (642
KiB/s), 22s
.
.
.
42,496 scanned, 1,027 copied, 1,027 removed, 231 GiB in (602 MiB/s),
576 MiB out (1.31 MiB/s),
7m40s
Xcp command : xcp isync -parallel 16 <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 1,027 removed, 42,496 scanned, 1,027 copied
Speed : 234 GiB in (515 MiB/s), 584 MiB out (1.26 MiB/s)
Total Time : 7m45s.
Job ID : Job_2023-11-16_23.25.57.058655_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.25.57.058655_isync.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.25.57.058655_isync.error
STATUS : PASSED
```

isync -dircount <n[k]>

Use the the `-dircount <n[k]>` parameter with the `isync` command to specify the request size when reading directories. The default value is 64k.

Syntax

```
xcp isync -dircount <n[k]> <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
root@client1 linux]# ./xcp isync -dircount 32k
<source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Job ID: Job_2023-11-16_23.33.45.854686_isync
16,086 scanned, 824 MiB in (164 MiB/s), 2.75 MiB out (558 KiB/s), 5s
24,916 scanned, 4.42 GiB in (727 MiB/s), 12.5 MiB out (1.91 MiB/s), 11s
31,633 scanned, 237 removed, 7.19 GiB in (567 MiB/s), 19.0 MiB out
(1.30 MiB/s), 16s
31,633 scanned, 237 removed, 9.74 GiB in (512 MiB/s), 24.7 MiB out
(1.13 MiB/s), 21s
33,434 scanned, 237 removed, 11.6 GiB in (385 MiB/s), 29.3 MiB out (935
KiB/s), 26s
33,434 scanned, 499 copied, 237 removed, 13.1 GiB in (298 MiB/s), 57.7
MiB out (5.66 MiB/s), 31s
.
.
.
42,496 scanned, 1,000 copied, 1,000 removed, 229 GiB in (609 MiB/s),
572 MiB out (1.34 MiB/s),
7m3s
42,496 scanned, 1,000 copied, 1,000 removed, 232 GiB in (549 MiB/s),
578 MiB out (1.20 MiB/s),
7m8s
Xcp command : xcp isync -dircount 32k <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 1,000 removed, 42,496 scanned, 1,000 copied
Speed : 234 GiB in (555 MiB/s), 583 MiB out (1.35 MiB/s)
Total Time : 7m11s.
Job ID : Job_2023-11-16_23.33.45.854686_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.33.45.854686_isync.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.33.45.854686_isync.error
STATUS : PASSED
```

isync -exclude <filter>

Use the the `-exclude <filter>` parameter with the `isync` command to exclude the files and directories that match the filter.

Syntax

```
xcp isync -exclude <filter> <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@client1 linux]# ./xcp isync -exclude fnm("FILE_USER5*")
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol
Job ID: Job_2023-11-16_23.41.00.713151_isync
14,514 scanned, 570 excluded, 675 MiB in (133 MiB/s), 2.03 MiB out (411
KiB/s), 5s
24,211 scanned, 570 excluded, 4.17 GiB in (713 MiB/s), 11.0 MiB out
(1.79 MiB/s), 10s
30,786 scanned, 574 excluded, 116 removed, 7.07 GiB in (589 MiB/s),
17.7 MiB out (1.32
MiB/s), 15s
30,786 scanned, 574 excluded, 116 removed, 10.1 GiB in (629 MiB/s),
24.7 MiB out (1.40
MiB/s), 20s
31,106 scanned, 222 copied, 574 excluded, 116 removed, 12.8 GiB in (510
MiB/s), 42.3 MiB out
(3.33 MiB/s), 26s
.
.
.
41,316 scanned, 1,000 copied, 1,206 excluded, 1,000 removed, 225 GiB in
(616 MiB/s), 563 MiB
out (1.36 MiB/s), 6m35s
Excluded: 1206 excluded, 0 did not match exclude criteria
Xcp command : xcp isync -exclude fnm("FILE_USER5*")
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol
Stats : 1,000 removed, 41,316 scanned, 1,000 copied, 1,206 excluded
Speed : 227 GiB in (584 MiB/s), 568 MiB out (1.42 MiB/s)
Total Time : 6m38s.
Job ID : Job_2023-11-16_23.41.00.713151_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.41.00.713151_isync.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_23.41.00.713151_isync.error
STATUS : PASSED
```

isync -newid <name>

Use the the `-newid <name>` parameter with the `isync` command to specify the catalog name for a new index catalog.

Syntax

```
xcp isync -newid <name> -s3.endpoint <S3_endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate/
```

Show example

```
root@client1 linux]# ./xcp isync -newid testing -s3.endpoint
<S3_endpoint_url> <source_ip_address>:/src/USER4 s3://isyncestimate/

Job ID: Job_2023-11-16_04.33.32.381458_isync
target scan completed: 502 scanned, 250 s3.objects, 251 indexed, 118
KiB in (38.9 KiB/s), 63.7
KiB out (20.9 KiB/s), 3s.
Xcp command : xcp isync -newid testing -s3.endpoint S3_endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate/
Stats : 502 scanned, 250 s3.objects, 251 indexed
Speed : 118 KiB in (38.8 KiB/s), 63.7 KiB out (20.9 KiB/s)
Total Time : 3s.
Job ID : Job_2023-11-16_04.33.32.381458_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_04.33.32.381458_isync.log
STATUS : PASSED
```

isync -loglevel <name>

Use the the `-loglevel <name>` parameter with the `isync` command to set the log level; available levels are INFO and DEBUG. The default value is INFO.

Syntax

```
xcp isync -loglevel <name> -bs <n[k]> <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@client1 linux]# ./xcp isync -loglevel DEBUG -bs 32k
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol

Job ID: Job_2023-11-17_00.49.20.336389_isync
20,616 scanned, 1.62 GiB in (332 MiB/s), 8.23 MiB out (1.64 MiB/s), 5s
30,240 scanned, 4.55 GiB in (594 MiB/s), 22.4 MiB out (2.81 MiB/s), 10s
30,439 scanned, 7.47 GiB in (589 MiB/s), 35.6 MiB out (2.60 MiB/s), 15s
30,439 scanned, 10.5 GiB in (617 MiB/s), 49.5 MiB out (2.75 MiB/s), 20s
30,863 scanned, 1 copied, 13.3 GiB in (547 MiB/s), 62.7 MiB out (2.56
MiB/s), 25s
.
.
.
42,497 scanned, 71 copied, 227 GiB in (637 MiB/s), 5.12 GiB out (2.79
MiB/s), 6m40s
42,497 scanned, 71 copied, 229 GiB in (538 MiB/s), 5.13 GiB out (2.35
MiB/s), 6m45s
Xcp command : xcp isync -loglevel DEBUG -bs 32k
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol
Stats : 42,497 scanned, 71 copied
Speed : 231 GiB in (579 MiB/s), 5.14 GiB out (12.9 MiB/s)
Total Time : 6m48s.
Job ID : Job_2023-11-17_00.49.20.336389_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
17_00.49.20.336389_isync.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
17_00.49.20.336389_isync.error
STATUS : PASSED
```

isync -preserve-atime

Use the the `-preserve-atime` parameter with the `isync` command to restore all files to the last accessed date on the source.

Syntax

```
xcp isync -preserve-atime <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
```

Show example

```
[root@client1 linux]# ./xcp isync -preserve-atime
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol

Job ID: Job_2023-11-17_01.31.26.077154_isync
21,649 scanned, 1.41 GiB in (260 MiB/s), 5.63 MiB out (1.01 MiB/s), 5s
32,034 scanned, 10.9 GiB in (400 MiB/s), 29.3 MiB out (925 KiB/s), 30s
33,950 scanned, 1 copied, 12.9 GiB in (399 MiB/s), 35.5 MiB out (1.24
MiB/s), 35s
33,950 scanned, 1 copied, 14.7 GiB in (361 MiB/s), 39.6 MiB out (830
KiB/s), 41s
.
.
.
42,499 scanned, 1 copied, 229 GiB in (623 MiB/s), 529 MiB out (1.37
MiB/s), 7m16s
42,499 scanned, 1 copied, 233 GiB in (719 MiB/s), 536 MiB out (1.56
MiB/s), 7m21s
Xcp command : xcp isync -preserve-atime <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 42,499 scanned, 1 copied
Speed : 234 GiB in (541 MiB/s), 540 MiB out (1.22 MiB/s)
Total Time : 7m23s.
Job ID : Job_2023-11-17_01.31.26.077154_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
17_01.31.26.077154_isync.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
17_01.31.26.077154_isync.error
STATUS : PASSED
```

isync -s3.insecure

Use the `-s3.insecure` parameter with the `isync` command to use HTTP instead of HTTPS for S3 bucket communication.

Syntax

```
xcp isync -newid <name> -s3.insecure -s3.endpoint <S3_endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate/
```

Show example

```
[root@client1 linux]# ./xcp isync -newid testing2 -s3.insecure
-s3.endpoint <S3_endpoint_url> <source_ip_address>:/src/USER4
s3://isyncestimate/

Job ID: Job_2023-11-16_05.09.28.579606_isync
target scan completed: 502 scanned, 250 s3.objects, 118 KiB in (47.6
KiB/s), 50.8 KiB out (20.5
KiB/s), 2s.
Xcp command : xcp isync -newid testing2 -s3.insecure -s3.endpoint
<S3_endpoint_url> <source_ip_address>:/src/USER4 s3://isyncestimate/
Stats : 502 scanned, 250 s3.objects, 251 indexed
Speed : 118 KiB in (38.5 KiB/s), 63.8 KiB out (20.7 KiB/s)
Total Time : 3s.
Job ID : Job_2023-11-16_05.09.28.579606_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_05.09.28.579606_isync.log
STATUS : PASSED
[root@client1 linux]#
```

isync -s3.endpoint <s3_endpoint_url>

Use the `-s3.endpoint <s3_endpoint_url>` parameter with the `isync` command to override the default AWS endpoint URL with a specified URL for S3 bucket communication.

Syntax

```
xcp isync -newid <name> -s3.noverify -s3.endpoint <endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate/
```

Show example

```
root@client1 linux]# ./xcp isync -newid testing -s3.endpoint <S3-
endpoint_url> <source_ip_address>:/src/USER4 s3://isyncestimate/

Job ID: Job_2023-11-16_04.33.32.381458_isync
target scan completed: 502 scanned, 250 s3.objects, 251 indexed, 118
KiB in (38.9 KiB/s), 63.7 KiB
out (20.9 KiB/s), 3s.
Xcp command : xcp isync -newid testing -s3.endpoint S3-endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate/
Stats : 502 scanned, 250 s3.objects, 251 indexed
Speed : 118 KiB in (38.8 KiB/s), 63.7 KiB out (20.9 KiB/s)
Total Time : 3s.
Job ID : Job_2023-11-16_04.33.32.381458_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_04.33.32.381458_isync.log
STATUS : PASSED
```

isync -s3.profile <name>

Use the `s3.profile` parameter with the `isync` command to specify a profile from the AWS credential file for S3 bucket communication.

Syntax

```
xcp isync -s3.profile <name> -s3.endpoint <S3-endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate
```

Show example

```
[root@client1 linux]# /xcp/linux/xcp isync -s3.profile s3_profile
-s3.endpoint <S3-endpoint_url> <source_ip_address>:/src/USER4
s3://isyncestimate

Job ID: Job_2023-11-16_05.29.21.279709_isync
target scan completed: 502 scanned, 250 s3.objects, 108 KiB in (46.5
KiB/s), 38.4 KiB out (16.5
KiB/s), 2s.
Xcp command : xcp isync -s3.profile s3_profile -s3. <S3-endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate
Stats : 502 scanned, 250 s3.objects
Speed : 108 KiB in (34.2 KiB/s), 38.4 KiB out (12.1 KiB/s)
Total Time : 3s.
Job ID : Job_2023-11-16_05.29.21.279709_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_05.29.21.279709_isync.log
STATUS : PASSED
[root@client1 linux]#
```

isync -s3.noverify

Use the `-s3.noverify` parameter with the `isync` command to override the default verification of SSL certification for S3 bucket communication.

Syntax

```
xcp isync -newid <name> -s3.noverify -s3.endpoint <endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate/
```

Show example

```
root@client1 linux]# ./xcp isync -newid testing5 -s3.noverify
-s3.endpoint <endpoint_url> <source_ip_address>:/src/USER4
s3://isyncestimate/

Job ID: Job_2023-11-16_05.11.12.803441_isync
target scan completed: 502 scanned, 250 s3.objects, 118 KiB in (40.8
KiB/s), 50.8 KiB out (17.6
KiB/s), 2s.
Xcp command : xcp isync -newid testing5 -s3.noverify -s3.endpoint
<endpoint_url>
<source_ip_address>:/src/USER4 s3://isyncestimate/
Stats : 502 scanned, 250 s3.objects, 251 indexed
Speed : 118 KiB in (34.7 KiB/s), 63.8 KiB out (18.6 KiB/s)
Total Time : 3s.
Job ID : Job_2023-11-16_05.11.12.803441_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_05.11.12.803441_isync.log
STATUS : PASSED
[root@client1 linux]#
```

isync estimate

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

Syntax

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

The `-id` parameter is required with the `isync estimate` command option.

Show example

```
[root@client1 linux]# ./xcp isync estimate -id <name>

Job ID: Job_2023-11-20_04.08.18.967541_isync_estimate
Index: aa1batch_error1 {source: <source_ip_address>:/src, target:
<destination_ip_address>:/dest}
30,611 scanned, 786 MiB in (141 MiB/s), 3.60 MiB out (661 KiB/s), 5s
45,958 scanned, 1.92 GiB in (223 MiB/s), 8.48 MiB out (939 KiB/s), 10s
53,825 scanned, 3.11 GiB in (216 MiB/s), 13.5 MiB out (912 KiB/s), 16s
67,260 scanned, 4.33 GiB in (231 MiB/s), 18.6 MiB out (961 KiB/s), 22s
81,328 scanned, 5.57 GiB in (253 MiB/s), 23.8 MiB out (1.05 MiB/s), 27s
85,697 scanned, 6.85 GiB in (241 MiB/s), 29.2 MiB out (1005 KiB/s), 32s
85,697 scanned, 8.14 GiB in (262 MiB/s), 34.5 MiB out (1.06 MiB/s), 37s
Xcp command : xcp isync estimate -id <name>
Estimated Time : 45.1s
Job ID : Job_2023-11-20_04.08.18.967541_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
20_04.08.18.967541_isync_estimate.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
20_04.08.18.967541_isync_estimate.error
STATUS : PASSED
```

The following table lists the `isync estimate` parameters and their description.

Parameter	Description
isync estimate -nodata	Does not check data.
isync estimate -noattrs	Does not check attributes.
isync estimate -nomods	Does not check file modification times.
isync estimate -mtimewindow <s>	Specifies the acceptable modification time difference for verification.
isync estimate -match <filter>	Only processes the files and directories that match the filter.
isync estimate -bs <n[k]>	Specifies the read/write block size (default: 64k).
isync estimate -parallel <n>	Specifies the maximum number of concurrent batch processes (default: 7).
isync estimate -dircount <n[k]>	Specifies the request size when reading directories (default 64k).
isync estimate -exclude <filter>	Excludes the files and directories that match the filter.
isync estimate -id <name>	Specifies the catalog name for a previous copy operation.

Parameter	Description
isync estimate -loglevel <name>	Sets the log level; available levels are INFO, DEBUG (default: INFO).
isync estimate -preserve-atime	Restores all files to the last accessed date on the source.
isync estimate -s3.insecure	Provides the option to use HTTP instead of HTTPS for S3 bucket communication.
isync estimate -s3.endpoint <s3_endpoint_url>	Overrides the default Amazon Web Services (AWS) endpoint URL with the specified URL for S3 bucket communication.
isync -s3.profile <profile_name>	Specifies a profile from the AWS credential file for S3 bucket communication.
isync estimate -s3.noverify	Overrides the default verification of SSL certification for S3 bucket communication.

isync estimate -nodata

Use the the `-nodata` parameter with `isync estimate` to specify not to check data.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -nodata -id <name>

Job ID: Job_2023-11-23_23.19.45.648691_isync_estimate
Index: isync_est {source: <source_ip_address>:/fg1, target:
<destination_ip_address>:/fv}
Xcp command : xcp isync estimate -nodata -id <name>
Estimated Time : 0.6s
Job ID : Job_2023-11-23_23.19.45.648691_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
23_23.19.45.648691_isync_estimate.log
STATUS : PASSED
```

isync estimate -noattrs

Use the the `-noattrs` parameter with `isync estimate` to specify not to check attributes.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -noattrs -id <name>

Job ID: Job_2023-11-23_23.20.25.042500_isync_estimate
Index: isync_est {source: <source_ip_address>:/fg1, target:
<target_ip_address>:/fv}
Xcp command : xcp isync estimate -noattrs -id <name>
Estimated Time : 2.4s
Job ID : Job_2023-11-23_23.20.25.042500_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
23_23.20.25.042500_isync_estimate.log
STATUS : PASSED
```

isync estimate -nomods

Use the the `-nomods` parameter with `isync estimate` to specify not to check file modification times.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync -nomodes
<source_ip_address>:/source_vol <destination_ip_address>:/dest_vol

Job ID: Job_2023-11-16_22.56.48.571392_isync
13,897 scanned, 763 MiB in (152 MiB/s), 2.28 MiB out (463 KiB/s), 5s
21,393 scanned, 148 removed, 4.81 GiB in (739 MiB/s), 12.5 MiB out
(1.81 MiB/s), 11s
28,517 scanned, 148 removed, 7.68 GiB in (578 MiB/s), 19.1 MiB out
(1.31 MiB/s), 16s
28,517 scanned, 148 removed, 10.7 GiB in (619 MiB/s), 26.3 MiB out
(1.43 MiB/s), 21s
29,167 scanned, 396 copied, 148 removed, 13.2 GiB in (434 MiB/s), 51.4
MiB out (4.33 MiB/s), 27s
.
.
.
42,790 scanned, 1,000 copied, 1,000 removed, 229 GiB in (641 MiB/s),
571 MiB out (1.40 MiB/s),
6m42s
42,790 scanned, 1,000 copied, 1,000 removed, 232 GiB in (668 MiB/s),
578 MiB out (1.46 MiB/s),
6m47s
Xcp command : xcp isync -nomods <source_ip_address>:/source_vol
<destination_ip_address>:/dest_vol
Stats : 1,000 removed, 42,790 scanned, 1,000 copied
Speed : 234 GiB in (585 MiB/s), 583 MiB out (1.42 MiB/s)
Total Time : 6m50s.
Job ID : Job_2023-11-16_22.56.48.571392_isync
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_22.56.48.571392_isync.log
STATUS : PASSED
```

isync estimate -mtimewindow <s>

Use the the `-mtimewindow <s>` parameter with `isync estimate` to specify the acceptable modification time difference for verification.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -mtimewindow 10 -id <name>

Job ID: Job_2023-11-16_01.47.05.139847_isync_estimate
Index: <name> {source: <source_ip_address>:/source_vol, target:
<destination_ip_address>:/dest_vol}
Xcp command : xcp isync estimate -mtimewindow 10 -id <name>
Estimated Time : 2m42s
Job ID : Job_2023-11-16_01.47.05.139847_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_01.47.05.139847_isync_estimate.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_01.47.05.139847_isync_estimate.error
STATUS : PASSED
```

isync estimate -match <filter>

Use the `-match <filter>` parameter with `isync estimate` to only process the files and directories that match the filter.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -match <filter> -id <name>

Job ID: Job_2023-11-16_02.13.34.904794_isync_estimate
Index: <name> {source: <source_ip_address>:/source_vol, target:
<destination_ip_address>:/dest_vol}
Filtered: 0 matched, 6 did not match
Xcp command : xcp isync estimate -match fnm('FILE_*') -id <name>
Estimated Time : 0.8s
Job ID : Job_2023-11-16_02.13.34.904794_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.13.34.904794_isync_estimate.log
STATUS : PASSED
```

isync estimate -bs <n[k]>

Use the the `-bs <n[k]>` parameter with `isync estimate` to specify the read/write block size. The default

block size is 64k.

Syntax

```
xcp isync estimate -bs <n[k]> -id <name>
```

Show example

```
[root@client1 linux]# ./xcp isync estimate -bs 128k -id <name>

Job ID: Job_2023-11-16_02.14.21.263618_isync_estimate
Index: <name> {source: <source_ip_address>:/source_vol, target:
<destination_ip_address>:/dest_vol}
Xcp command : xcp isync estimate -bs 128k -id <name>
Estimated Time : 6m48s
Job ID : Job_2023-11-16_02.14.21.263618_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.14.21.263618_isync_estimate.log
STATUS : PASSED
```

isync estimate -parallel

Use the the `-parallel <n>` parameter with `isync estimate` to specify the maximum number of concurrent batch processes. The default value is 7.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -parallel 10 -id <name>

Job ID: Job_2023-11-16_02.15.25.109554_isync_estimate
Index: <name> {source: <source_ip_address>:/source_vol, target:
<destination_ip_address>:/dest_vol}
Xcp command : xcp isync estimate -parallel 10 -id <name>
Estimated Time : 8m3s
Job ID : Job_2023-11-16_02.15.25.109554_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.15.25.109554_isync_estimate.log
STATUS : PASSED
```

isync estimate -dircount <n[k]>

Use the the `-dircount <n[k]>` parameter with `isync estimate` to specify the request size when reading directories. The default value is 64k.

Syntax

```
xcp isync estimate -dircount <n[k]> -id <name>
```

Show example

```
[root@client1 linux]# ./xcp isync estimate -dircount 128k -id <name>

Job ID: Job_2023-11-16_02.15.56.200697_isync_estimate
Index: <name> {source: <source_ip_address>:/source_vol, target:
<destination_ip_address>:/dest_vol}
Xcp command : xcp isync estimate -dircount 128k -id <name>
Estimated Time : 8m6s
Job ID : Job_2023-11-16_02.15.56.200697_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.15.56.200697_isync_estimate.log
STATUS : PASSED
```

isync estimate -exclude <filter>

Use the the `-exclude <filter>` parameter with `isync estimate` to exclude the files and directories that match the filter.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -exclude "fnm('DIR1*')" -id
<name>

Job ID: Job_2023-11-16_02.16.30.449378_isync_estimate
Index: <name> {source: <source_ip_address>:/source_vol, target:
<destination_ip_address>:/dest_vol}
Excluded: 60 excluded, 0 did not match exclude criteria
Xcp command : xcp isync estimate -exclude fnm('DIR1*') -id <name>
Estimated Time : 3m29s
Job ID : Job_2023-11-16_02.16.30.449378_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.16.30.449378_isync_estimate.log
STATUS : PASSED
```

isync estimate -id <name>

Use the the `-id <name>` parameter with `isync estimate` to specify the catalog name pf a previous copy operation.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -id <name>

Job ID: Job_2023-11-20_04.08.18.967541_isync_estimate
Index: <name> {source: <source_ip_address>:/src, target:
<destination_ip_address>:/dest}
30,611 scanned, 786 MiB in (141 MiB/s), 3.60 MiB out (661 KiB/s), 5s
45,958 scanned, 1.92 GiB in (223 MiB/s), 8.48 MiB out (939 KiB/s), 10s
53,825 scanned, 3.11 GiB in (216 MiB/s), 13.5 MiB out (912 KiB/s), 16s
67,260 scanned, 4.33 GiB in (231 MiB/s), 18.6 MiB out (961 KiB/s), 22s
81,328 scanned, 5.57 GiB in (253 MiB/s), 23.8 MiB out (1.05 MiB/s), 27s
85,697 scanned, 6.85 GiB in (241 MiB/s), 29.2 MiB out (1005 KiB/s), 32s
85,697 scanned, 8.14 GiB in (262 MiB/s), 34.5 MiB out (1.06 MiB/s), 37s
Xcp command : xcp isync estimate -id <name>
Estimated Time : 45.1s
Job ID : Job_2023-11-20_04.08.18.967541_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
20_04.08.18.967541_isync_estimate.log
Error Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
20_04.08.18.967541_isync_estimate.error
STATUS : PASSED
```

isync estimate -loglevel <name>

Use the the `-loglevel <name>` parameter with `isync estimate` to set the log level; available levels are INFO and DEBUG. The default value is INFO.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -loglevel DEBUG -id <name>

Job ID: Job_2023-11-16_02.16.58.212518_isync_estimate
Index: <name> {source: <source_ip_address>:/source_vol, target:
<destination_ip_address>:/dest_vol}
Xcp command : xcp isync estimate -loglevel DEBUG -id <name>
Estimated Time : 8m18s
Job ID : Job_2023-11-16_02.16.58.212518_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.16.58.212518_isync_estimate.log
STATUS : PASSED
```

isync estimate -preserve-atime

Use the the `-preserve-atime` parameter with `isync estimate` to restore all files to the last accessed date on the source.

Syntax

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

Show example

```
[root@client1 linux]# ./xcp isync estimate -preserve-atime -id <name>

Job ID: Job_2023-11-16_02.17.32.085754_isync_estimate
Index: <name> {source: <source_ip_address>:/source_vol, target:
<destination_ip_address>:/dest_vol}
Xcp command : xcp isync estimate -preserve-atime -id <name>
Estimated Time : 8m26s
Job ID : Job_2023-11-16_02.17.32.085754_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.17.32.085754_isync_estimate.log
STATUS : PASSED
```

isync estimate -s3.insecure

Use the `-s3.insecure` parameter with `isync estimate` to use HTTP instead of HTTPS for S3 bucket communication.

Syntax

```
xcp isync estimate -s3.insecure -id <name>
```

Show example

```
[root@client1 linux]# ./xcp isync estimate -s3.insecure -id S3_index

Job ID: Job_2023-11-16_02.22.36.481539_isync_estimate
Index: S3_index {source: <source_ip_address>:/source_vol/USER5, target:
s3://
xcptesting/test_ankit/}
2,002 scanned, 432 KiB in (86.1 KiB/s), 5.53 KiB out (1.10 KiB/s), 5s
2,002 scanned, 432 KiB in (0/s), 5.53 KiB out (0/s), 10s
Xcp command : xcp isync estimate -s3.insecure -id S3_index
Estimated Time : 9.4s
Job ID : Job_2023-11-16_02.22.36.481539_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.22.36.481539_isync_estimate.log
STATUS : PASSED
```

isync estimate -s3.endpoint <s3_endpoint_url>

Use the `-s3.endpoint <s3_endpoint_url>` parameter with `isync estimate` to override the default AWS endpoint URL with a specified URL for S3 bucket communication.

Syntax

```
xcp isync estimate -s3.endpoint <S3_endpoint_url> -id <name>
```

Show example

```
[root@client1 linux]# ./xcp isync estimate -s3.endpoint
<S3_endpoint_url> -id S3_index1

Job ID: Job_2023-11-16_02.35.49.911194_isync_estimate
Index: S3_index1 {source: <source_ip_address>:/source_vol/USER5,
target: s3://isyncestimate/}
2,002 scanned, 432 KiB in (85.6 KiB/s), 5.54 KiB out (1.10 KiB/s), 5s
2,002 scanned, 432 KiB in (0/s), 5.54 KiB out (0/s), 10s
Xcp command : xcp isync estimate -s3.endpoint <S3_endpoint_url> -id
S3_index1
Estimated Time : 13.3s
Job ID : Job_2023-11-16_02.35.49.911194_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.35.49.911194_isync_estimate.log
STATUS : PASSED
```

isync estimate -s3.profile <name>

Use the `s3.profile` parameter with `isync estimate` to specify a profile from the AWS credential file for S3 bucket communication.

Syntax

```
xcp isync estimate -s3.profile s3_profile -id <name>
```

Show example

```
[root@client1 linux]# ./xcp isync estimate -s3.profile s3_profile -id
S3_index

Job ID: Job_2023-11-16_02.25.57.045692_isync_estimate
Index: S3_index {source: <source_ip_address>:/source_vol/USER5, target:
s3://
xcptesting/test_ankit/}
2,002 scanned, 432 KiB in (84.9 KiB/s), 5.53 KiB out (1.09 KiB/s), 5s
2,002 scanned, 432 KiB in (0/s), 5.53 KiB out (0/s), 10s
Xcp command : xcp isync estimate -s3.profile s3_profile -id S3_index
Estimated Time : 9.7s
Job ID : Job_2023-11-16_02.25.57.045692_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.25.57.045692_isync_estimate.log
STATUS : PASSED
```

isync estimate -s3.noverify

Use the `-s3.noverify` parameter with `isync estimate` to override the default verification of SSL certification for S3 bucket communication.

Syntax

```
xcp isync estimate -s3.noverify -id <name>
```

Show example

```
[root@client1 linux]# ./xcp isync estimate -s3.noverify -id S3_index

Job ID: Job_2023-11-16_02.23.36.515890_isync_estimate
Index: S3_index {source: <source_ip_address>:/source_vol/USER5, target:
s3://
xcptesting/test_ankit/}
2,002 scanned, 432 KiB in (85.7 KiB/s), 5.53 KiB out (1.10 KiB/s), 5s
2,002 scanned, 432 KiB in (0/s), 5.53 KiB out (0/s), 10s
Xcp command : xcp isync estimate -s3.noverify -id S3_index
Estimated Time : 9.3s
Job ID : Job_2023-11-16_02.23.36.515890_isync_estimate
Log Path : /opt/NetApp/xFiles/xcp/xcplogs/Job_2023-11-
16_02.23.36.515890_isync_estimate.log
STATUS : PASSED
```

SMB command reference

help

The SMB `help` command displays a list of commands, command parameters, and a brief description of each. This command is very useful for beginners who are new to XCP.

Syntax

```
xcp --help
```

Show example

```
C:\Users\Administrator\Desktop\xcp>xcp --help
usage: xcp [-h] [-version]

{scan,show,listen,configure,copy,sync,verify,license,activate,help}
            ...
optional arguments:
  -h, --help       show this help message and exit
  -version         show program's version number and exit

XCP commands:
  {scan,show,listen,configure,copy,sync,verify,license,activate,help}
    scan           Read all the files in a file tree
    show           Request information from host about SMB shares
    listen         Run xcp service
    configure      Configure xcp.ini file
    copy           Recursively copy everything from source to target
    sync           Sync target with source
    verify         Verify that the target is the same as the source
    license        Show xcp license info
    activate       Activate a license on the current host
    help           Show help for commands
```

help <command>

Use <command> with `help` to display examples and option details for the specified <command>.

Syntax

```
xcp help <command>
```

The following example output shows the details, usage, arguments, and optional arguments for the `sync`

command.

Show example

```
C:\Users\Administrator\Desktop\xcp>xcp help sync
usage: xcp sync [-h] [-v] [-parallel <n>] [-match <filter>] [-preserve-
atime]
[-noatime] [-noctime] [-nomtime] [-noattrs]
[-noownership] [-atimewindow <float>] [-ctimewindow <float>]
[-mtimewindow <float>] [-acl] [-fallback-user FALLBACK_USER]
[-fallback-group FALLBACK_GROUP] [-l]
source target
Note: ONTAP does not let a SMB client modify COMPRESSED or ENCRYPTED
attributes.
XCP sync will ignore these file attributes.
positional arguments:
source
target
optional arguments:
-h, --help            show this help message and exit
-v                    increase debug verbosity
-parallel <n>         number of concurrent processes (default: <cpu-
count>)
-match <filter>       only process files and directories that match the
filter
                      see `xcp help -match` for details)
-preserve-atime       restore last accessed date on source
-noatime              do not check file access time
-noctime              do not check file creation time
-nomtime              do not check file modification time
-noattrs              do not check attributes
-noownership          do not check ownership
-atimewindow <float>  acceptable access time difference in seconds
-ctimewindow <float>  acceptable creation time difference in seconds
-mtimewindow <float>  acceptable modification time difference in
seconds
-acl                  copy security information
-fallback-user FALLBACK_USER
                      a user on the target machine to receive the
permissions of local
(nondomain)source machine users (eg. domain\administrator)
-fallback-group       FALLBACK_GROUP
                      a group on the target machine to receive the
permissions oflocal
(non-domain) source machine groups (eg. domain\administrators)
-l                    increase output
-root                 sync acl for root directory
C:\Users\Administrator\Desktop\xcp>
```

show

The SMB `show` command queries the RPC services and NFS exports of one or more storage servers. The command also lists the available services and exports with the used and free capacity of each export, followed by the attributes of the root of each export.

Syntax

The `show` command requires the host name or IP address of the NFSv3 exported system:

```
xcp show \\<IP address or hostname of SMB server>
```

Show example

```
C:\Users\Administrator\Desktop\xcp>xcp show \\<IP address or hostname
of SMB server>
Shares Errors Server
7 0 <IP address or hostname of SMB server>
== SMB Shares ==
Space Space Current
Free Used Connections Share Path Folder Path
0 0 N/A \\<IP address or hostname of SMB server>\IPC$ N/A
533GiB 4.72GiB 0 \\<IP address or hostname of SMB server>\ETC$ C:\etc
533GiB 4.72GiB 0 \\<IP address or hostname of SMB server>\HOME
C:\vol\vol0\home
533GiB 4.72GiB 0 \\<IP address or hostname of SMB server>\C$ C:\
972MiB 376KiB 0 \\<IP address or hostname of SMB
server>\testsecureC:\vol\testsecure
12 XCP SMB v1.6 User Guide © 2020 NetApp, Inc. All rights reserved.
47.8GiB 167MiB 1 \\<IP address or hostname of SMB server>\volxcp
C:\vol\volxcp
9.50GiB 512KiB 1 \\<IP address or hostname of SMB server>\jl C:\vol\jl
== Attributes of SMB Shares ==
Share Types Remark
IPC$ PRINTQ,IPC,SPECIAL,DEVICE Remote IPC
ETC$ SPECIAL Remote Administration
HOME DISKTREE Default Share
C$ SPECIAL Remote Administration
testsecure DISKTREE for secure copy
volxcp DISKTREE for xcpSMB
jl DISKTREE
== Permissions of SMB Shares ==
Share Entity Type
IPC$ Everyone Allow/Full Control
ETC$ Administrators Allow/FullControl
HOME Everyone Allow/Full Control
C$ Administrators Allow/Full Control

xcp show \\<IP address or hostname of SMB server>
0 errors
Total Time : 0s
STATUS : PASSED
```

The following table lists the `show` parameters and their description.

Parameter	Description
show -v	Prints verbose details about SMB servers using the IP address or host name.
show -h, --help	Displays detailed information about how to use the command.

license

The SMB `license` command displays XCP license information.

Syntax

```
xcp license
```

Show example

```
C:\Users\Administrator\Desktop\xcp>xcp license
xcp license
XCP <version>; (c) yyyy NetApp, Inc.; Licensed to XXX [NetApp Inc]
until Mon Dec 31 00:00:00 yyyy
License type: SANDBOX
License status: ACTIVE
Customer name: N/A
Project number: N/A
Offline Host: Yes
Send statistics: No
Host activation date: N/A
License management URL: https://xcp.netapp.com
```

activate

The SMB `activate` command activates the XCP license. Before running this command, verify that the license file is downloaded and copied on the C:\NetApp\XCP directory on the XCP host or client machine. The license can be activated on any number of hosts.

Syntax

```
xcp activate
```

Show example

```
C:\Users\Administrator\Desktop\xcp>xcp activate
XCP activated
```

scan

The SMB `scan` command recursively scans the entire SMB share and lists all the files by the end of the `scan` command.

Syntax

```
xcp scan \\<SMB share path>
```

Show example

```
C:\Users\Administrator\Desktop\xcp>xcp scan \\<IP address or hostname
of SMB server>\volxcp
c:\netapp\xcp\xcp scan \\<IP address of SMB destination
server>\source_share
volxcp\3333.txt
volxcp\SMB.txt
volxcp\SMB1.txt
volxcp\com.txt
volxcp\commands.txt
volxcp\console.txt
volxcp\linux.txt
volxcp\net use.txt
volxcp\newcom.txt
volxcp\notepad.txt
c:\netapp\xcp\xcp scan \\<IP address of SMB destination
server>\source_share
60,345 scanned, 0 matched, 0 errors
Total Time : 8s
STATUS : PASSED
C:\Users\Administrator\Desktop\xcp>Parameters
```

The following table lists the `scan` parameters and their description.

Parameter	Description
scan -h, –-help	Displays detailed information about how to use the scan command.

Parameter	Description
scan -v	Increases debug verbosity.
scan -parallel <n>	Specifies the number of concurrent processes (default: <cpu-count>).
scan -match <filter>	Only processes files and directories that match the filter.
scan -exclude <filter>	Only excludes files and directories in the filter.
scan -preserve-atime	Restores the last accessed date on source.
scan -depth <n>	Limits the search depth to n levels.
scan -stats	Lists files in the tree statistic report format.
scan -html	Lists files in the tree statistic HTML report format.
scan -csv	Lists files in the tree statistic CSV report format.
scan -l	Lists files in the long listing output format.
scan -ownership	Retrieves ownership information of files and directories on the source system.
scan -du	Summarizes space usage of each directory including subdirectories.
scan -fmt <expression>	Formats file listing according to the Python expression (see `xcp help -fmt` for details).
scan -ads	Recursively scans the entire SMB share and lists all files and any associated alternate data streams.

scan -h, –-help

Use the `-h` and `--help` parameters with the `scan` command to display detailed information about how to use the scan command.

Syntax

```
xcp scan --help
```

Show example

```
C:\netapp\xcp>xcp scan --help

usage: xcp scan [-h] [-v] [-parallel <n>] [-match <filter>] [-exclude
<filter>] [-preserve-atime] [-depth
<n>] [-loglevel <name>] [-stats] [-l] [-ownership] [-du]
                [-fmt <expression>] [-html] [-csv] [-edupe] [-bs <n>]
[-ads]
                source
positional arguments:
   source
optional arguments:
   -h, --help           show this help message and exit
   -v                   increase debug verbosity
   -parallel <n>        number of concurrent processes (default: <cpu-
count>)
   -match <filter>      only process files and directories that match
the filter (see `xcp help -match` for     details)
   -exclude <filter>    Exclude files and directories that match the
filter (see `xcp help -exclude` for details)
   -preserve-atime      restore last accessed date on source
   -depth <n>           limit the search depth
   -loglevel <name>     option to set log level filter (default:INFO)
   -stats               print tree statistics report
   -l                   detailed file listing output
   -ownership           retrieve ownership information
   -du                  summarize space usage of each directory
including subdirectories
   -fmt <expression>    format file listing according to the python
expression (see `xcp help -fmt` for details)
   -html                Save HTML statistics report
   -csv                 Save CSV statistics report
   -edupe               Include dedupe and sparse data estimate in
reports (see documentation for details)
   -bs <n>              read/write block size for scans which read data
with -edupe (default: 64k)
   -ads                 scan NTFS alternate data stream
```

scan -v

Use the `-v` parameter with the `scan` command to provide detailed logging information to troubleshoot or debug when an error or warning is reported.

Syntax

```
xcp scan -v \\<IP address or hostname of SMB server>\source_share
```

Show example

```
c:\netapp\xcp>xcp scan -v \\<IP address or hostname of SMB
server>\source_share
xcp scan -v \\<IP address or hostname of SMB server>\source_share
---Truncated output----
source_share\ASUP.pm
source_share\ASUP_REST.pm
source_share\Allflavors_v2.pm
source_share\Armadillo.pm
source_share\AsupExtractor.pm
source_share\BTS_Config.pm
source_share\Backup.pm
source_share\Aggregate.pm
source_share\Burt.pm
source_share\CConfig.pm
source_share\CIFS.pm
source_share\CR.pm
source_share\CRC.pm
source_share\CSHM.pm
source_share\CSM.pm
source_share\agnostic\SFXOD.pm
source_share\agnostic\Snapmirror.pm
source_share\agnostic\VolEfficiency.pm
source_share\agnostic\flatfile.txt
source_share\agnostic
source_share
xcp scan \\<IP address or hostname of SMB server>\source_share
317 scanned, 0 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

scan -parallel <n>

Use the `-parallel <n>` parameter with the `scan` command to set a higher or lower number of XCP concurrent processes.

> The maximum value for n is 61.

Syntax

```
xcp scan -parallel <n> \\<IP address or hostname of SMB
server>\source_share
```

Show example

```
c:\netapp\xcp>xcp scan -parallel 8 \\<IP address or hostname of SMB
server>\cifs_share
xcp scan -parallel 8 \\<IP address or hostname of SMB
server>\cifs_share

cifs_share\ASUP.pm
cifs_share\ASUP_REST.pm
cifs_share\Allflavors_v2.pm
cifs_share\Armadillo.pm
cifs_share\AsupExtractor.pm
cifs_share\BTS_Config.pm
cifs_share\Backup.pm
cifs_share\Aggregate.pm
cifs_share\agnostic\CifsAccess.pm
cifs_share\agnostic\DU_Cmode.pm
cifs_share\agnostic\Flexclone.pm
cifs_share\agnostic\HyA_Clone_Utils.pm
cifs_share\agnostic\Fileclone.pm
cifs_share\agnostic\Jobs.pm
cifs_share\agnostic\License.pm
cifs_share\agnostic\Panamax_Clone_Utils.pm
cifs_share\agnostic\LunCmds.pm
cifs_share\agnostic\ProtocolAccess.pm
cifs_share\agnostic\Qtree.pm
cifs_share\agnostic\Quota.pm
cifs_share\agnostic\RbacCmdFetcher.pm
cifs_share\agnostic\RbacCmdFetcher_ReadMe
cifs_share\agnostic\SFXOD.pm
cifs_share\agnostic\Snapmirror.pm
cifs_share\agnostic\VolEfficiency.pm
cifs_share\agnostic\flatfile.txt
cifs_share\agnostic
cifs_share
xcp scan -parallel 8 \\<IP address or hostname of SMB
server>\cifs_share
317 scanned, 0 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

scan -match <filter>

Use the `-match <filter>` parameter with the `scan` command to only process files and directories that match the filter.

Syntax

```
xcp scan -match <filter> \\<IP address or hostname of SMB
server>\source_share
```

In the following example, `scan -match` scans all files that have changed between one month and one year and prints a line to the console for each file found. The ISO format of its last modification time, a human-readable size of the file, its type, and its relative path are returned for each file.

Show example

```
c:\netapp\xcp>xcp scan -match "1*month < modified < 1*year" -fmt
"'{:>15} {:>7}{}
{}'.format(iso(mtime), humanize_size(size), type, relpath)" \\<IP
address or hostname of SMB server>\source_share
xcp scan -match "1*month < modified < 1*year" -fmt "'{:>15} {:>7} {}
{}'.format(iso(mtime), humanize_size(size), type, relpath)" \\<IP
address or hostname of SMB server>\source_share

xcp scan -match 1*month < modified < 1*year -fmt '{:>15} {:>7} {}
{}'.format(iso(mtime), humanize_size(size), type, relpath) \\<IP
address or hostname of SMB server>\source_share
317 scanned, 0 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

In the following example, `scan -match` lists the files that have not been modified for more than 3 months and have a size bigger than 4MB.

Show example

```
c:\netapp\xcp>xcp scan -match "modified > 3*month and size > 4194304"
-fmt "'{},{},
{}'.format(iso(mtime), humanize_size(size), relpath)" \\<IP address or
hostname of SMB
server>\source_share
xcp scan -match "modified > 3*month and size > 4194304" -fmt "'{}, {},
{}'.format(iso(mtime), humanize_size(size), relpath)" \\<IP address or
hostname of SMB server>\source_share

xcp scan -match modified > 3*month and size > 4194304 -fmt '{}, {},
{}'.format(iso(mtime), humanize_size(size), relpath) \\<IP address or
hostname of SMB server>\source_share
317 scanned, 0 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

The first of the following two examples only matches the directories and the formatting adds a comma between the variables "mtime", "relative path", and "depth".

The second example redirects the same output to "name.csv".

Show example

```
c:\netapp\xcp>xcp scan -match "type is directory" -fmt
"','.join(map(str, [iso(mtime), relpath, depth]))" \\<IP address or
hostname of SMB server>\source_share
xcp scan -match "type is directory" -fmt "','.join(map(str,
[iso(mtime), relpath, depth]))" \\<IP address or hostname of SMB
server>\source_share

2013-03-07_15:41:40.376072,source_share\agnostic,1
2020-03-05_04:15:07.769268,source_share,0

xcp scan -match type is directory -fmt ','.join(map(str, [iso(mtime),
relpath, depth])) \\<IP address or hostname of SMB server>\source_share
317 scanned, 2 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

Show example

```
c:\netapp\xcp>xcp scan -match "type is directory" -fmt
"',',.join(map(str, [iso(mtime), relpath, depth]))" \\<IP address or
hostname of SMB server>\source_share > name.csv
xcp scan -match "type is directory" -fmt "',',.join(map(str,
[iso(mtime), relpath, depth]))" \\<IP address or hostname of SMB
server>\source_share > name.csv
```

The following example prints the full path and the raw `mtime` value of all the files that are not directories. The `mtime` value is padded with 70 characters to facilitate a readable console report.

Show example

```
c:\netapp\xcp>xcp scan -match "type is not directory" -fmt
"'{}{:>70}'.format(abspath, mtime)" \\<IP address or hostname of SMB
server>\source_share
xcp scan -match "type is not directory" -fmt "'{}
{:>70}'.format(abspath, mtime)" \\<IP address or hostname of SMB
server>\source_share

--truncated output--
\\<IP address or hostname of SMB server>\source_share\ASUP.pm
1362688899.238098
\\<IP address or hostname of SMB server>\source_share\ASUP_REST.pm
1362688899.264073
\\<IP address or hostname of SMB server>\source_share\Allflavors_v2.pm
1362688899.394938
\\<IP address or hostname of SMB server>\source_share\Armadillo.pm
1362688899.402936
\\<IP address or hostname of SMB server>\source_share\AsupExtractor.pm
1362688899.410922
\\<IP address or hostname of SMB server>\source_share\BTS_Config.pm
1362688899.443902
\\<IP address or hostname of SMB server>\source_share\Backup.pm
1362688899.444905
\\<IP address or hostname of SMB server>\source_share\Aggregate.pm
1362688899.322019
\\<IP address or hostname of SMB server>\source_share\Burt.pm
1362688899.446889
\\<IP address or hostname of SMB server>\source_share\CConfig.pm
1362688899.4479
\\<IP address or hostname of SMB server>\source_share\CIFS.pm
1362688899.562795
\\<IP address or hostname of SMB
server>\source_share\agnostic\ProtocolAccess.pm
1362688900.358093
\\<IP address or hostname of SMB server>\source_share\agnostic\Qtree.pm
1362688900.359095
\\<IP address or hostname of SMB server>\source_share\agnostic\Quota.pm
1362688900.360094
\\<IP address or hostname of SMB
server>\source_share\agnostic\RbacCmdFetcher.pm
1362688900.3611
\\<IP address or hostname of SMB
server>\source_share\agnostic\RbacCmdFetcher_ReadMe
1362688900.362094
\\<IP address or hostname of SMB server>\source_share\agnostic\SFXOD.pm
```

```
1362688900.363094
\\<IP address or hostname of SMB
server>\source_share\agnostic\Snapmirror.pm
1362688900.364092
\\<IP address or hostname of SMB
server>\source_share\agnostic\VolEfficiency.pm
1362688900.375077
\\<IP address or hostname of SMB
server>\source_share\agnostic\flatfile.txt
1362688900.376076

xcp scan -match type is not directory -fmt '{} {:>70}'.format(abspath,
mtime) \\<IP address or hostname of SMB server>\source_share
317 scanned, 315 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

scan -exclude <filter>

Use the `-exclude <filter>` with the `scan` command to exclude directories and files based on the pattern in the filter.

Syntax

```
xcp scan -exclude <filter> \\<IP address or hostname of SMB
server>\source_share
```

In the following example, `scan -exclude` excludes any file that has changed between one month and one year, and prints a line to the console for each file that is not excluded. The details printed for each file are the ISO format of its last modification time, a human-readable size of the file, its type, and its relative path.

Show example

```
c:\netapp\xcp>xcp scan -exclude "1*month < modified < 1*year" -fmt
"'{:>15} {:>7}{}
{}'.format(iso(mtime), humanize_size(size), type, relpath)" \\<IP
address or hostname ofSMB server>\localtest\arch\win32\agnostic
xcp scan -exclude "1*month < modified < 1*year" -fmt "'{:>15} {:>7}
{}{}'.format(iso(mtime), humanize_size(size), type, relpath)" \\<IP
address or hostname of SMB server>\localtest\arch\win32\agnostic
2013-03-07_15:39:22.852698 46 regular agnostic\P4ENV
2013-03-07_15:40:27.093887 8.40KiB regular agnostic\Client_outage.thpl
2013-03-07_15:40:38.381870 23.0KiB regular
agnostic\IPv6_RA_Configuration_Of_LLA_In_SK_BSD.thpl
2013-03-07_15:40:38.382876 12.0KiB regular
agnostic\IPv6_RA_Default_Route_changes.thpl
2013-03-07_15:40:38.383870 25.8KiB regular
agnostic\IPv6_RA_Port_Role_Change.thpl
2013-03-07_15:40:38.385863 28.6KiB regular
agnostic\IPv6_RA_processing_And_Default_Route_Installation.thpl
2013-03-07_15:40:38.386865 21.8KiB regular
agnostic\IPv6_RA_processing_large_No_Prefix.thpl
2013-03-07_15:40:40.323163          225 regular agnostic\Makefile
2013-03-07_15:40:40.324160          165 regular
agnostic\Makefile.template
----truncated output ----
2013-03-07_15:45:36.668516            0 directory
agnostic\tools\limits_finder\vendor\symfony\src
2013-03-07_15:45:36.668514            0 directory
agnostic\tools\limits_finder\vendor\symfony
2013-03-07_15:45:40.782881            0 directory
agnostic\tools\limits_finder\vendor
2013-03-07_15:45:40.992685            0 directory
agnostic\tools\limits_finder
2013-03-07_15:45:53.242817            0 directory agnostic\tools
2013-03-07_15:46:11.334815            0 directory agnostic

xcp scan -exclude 1*month < modified < 1*year -fmt '{:>15} {:>7} {}
{}'.format(iso(mtime), humanize_size(size), type, relpath) \\<IP
address or hostname of SMB server>\localtest\arch\win32\agnostic
140,856 scanned, 1 excluded, 0 errors
Total Time : 46s
STATUS : PASSED
```

In the following example, `scan -exclude` lists the not excluded files that have not been modified for more

than three months and have a size greater than 5.5 KB. The details that are printed for each file are the ISO format of its last modification time, a human-readable size of the file, its type, and its relative path.

Show example

```
c:\netapp\xcp>xcp scan -exclude "modified > 3*month and size > 5650"
-fmt "'{}, {}, {}'.format(iso(mtime), humanize_size(size), relpath)"
\\<IP address or hostname of SMB
server>\localtest\arch\win32\agnostic\snapmirror
xcp scan -exclude "modified > 3*month and size > 5650" -fmt "'{}, {},
{}'.format(iso(mtime), humanize_size(size) relpath)" \\<IP address or
hostname of SMB server>\localtest\arch\win32\agnostic\snapmirror

2013-03-07_15:44:53.713279, 4.31KiB, snapmirror\rsm_abort.thpl
2013-03-07_15:44:53.714269, 3.80KiB, snapmirror\rsm_break.thpl
2013-03-07_15:44:53.715270, 3.99KiB, snapmirror\rsm_init.thpl
2013-03-07_15:44:53.716268, 2.41KiB, snapmirror\rsm_quiesce.thpl
2013-03-07_15:44:53.717263, 2.70KiB, snapmirror\rsm_release.thpl
2013-03-07_15:44:53.718260, 4.06KiB, snapmirror\rsm_resume.thpl
2013-03-07_15:44:53.720256, 4.77KiB, snapmirror\rsm_resync.thpl
2013-03-07_15:44:53.721258, 3.83KiB, snapmirror\rsm_update.thpl
2013-03-07_15:44:53.724256, 4.74KiB, snapmirror\sm_quiesce.thpl
2013-03-07_15:44:53.725254, 4.03KiB, snapmirror\sm_resync.thpl
2013-03-07_15:44:53.727249, 4.30KiB, snapmirror\sm_store_complete.thpl
2013-03-07_15:44:53.729250, 0, snapmirror

xcp scan -exclude modified > 3*month and size > 5650 -fmt '{}, {},
{}'.format(iso(mtime), humanize_size(size), relpath) \\<IP address or
hostname of SMB server>\localtest\arch\win32\agnostic\snapmirror
18 scanned, 6 excluded, 0 errors Total Time : 0s
STATUS : PASSED
```

This following example excludes directories. It lists the not excluded files with formatting that adds a comma between the variables `mtime`, `relpath`, and `depth`.

Show example

```
c:\netapp\xcp>xcp scan -exclude "type is directory" -fmt
"',',.join(map(str, [iso(mtime), relpath, depth]))" \\<IP address or
hostname of SMB server>\localtest\arch\win32\agnostic\snapmirror
xcp scan -exclude "type is directory" -fmt "',',.join(map(str,
[iso(mtime), relpath,depth]))"
\\<IP address or hostname of
SMBserver>\localtest\arch\win32\agnostic\snapmirror
2013-03-07_15:44:53.712271,snapmirror\SMutils.pm,1
2013-03-07_15:44:53.713279,snapmirror\rsm_abort.pm,1
2013-03-07_15:44:53.714269,snapmirror\rsm_break.pm,1
2013-03-07_15:44:53.715270,snapmirror\rsm_init.thpl,1
2013-03-07_15:44:53.716268,snapmirror\rsm_quiesce.thpl,1
2013-03-07_15:44:53.717263,snapmirror\rsm_release.thpl,1
2013-03-07_15:44:53.718260,snapmirror\rsm_resume.thpl,1
2013-03-07_15:44:53.720256,snapmirror\rsm_resync.thpl,1
2013-03-07_15:44:53.721258,snapmirror\rsm_update.thpl,1
2013-03-07_15:44:53.722261,snapmirror\sm_init.thpl,1
2013-03-07_15:44:53.723257,snapmirror\sm_init_complete.thpl,1
2013-03-07_15:44:53.724256,snapmirror\sm_quiesce.thpl,1
2013-03-07_15:44:53.725254,snapmirror\sm_resync.thpl,1
2013-03-07_15:44:53.726250,snapmirror\sm_retrieve_complete.thpl,1
2013-03-07_15:44:53.727249,snapmirror\sm_store_complete.thpl,1
2013-03-07_15:44:53.728256,snapmirror\sm_update.thpl,1
2013-03-07_15:44:53.729260,snapmirror\sm_update_start.thpl,1

xcp scan -exclude type is directory -fmt ',',.join(map(str, [iso(mtime),
relpath, depth])) \\<IP address or hostname of SMB
server>\localtest\arch\win32\agnostic\snapmirror
18 scanned, 1 excluded, 0 errors
Total Time : 0s
STATUS : PASSED
```

This following example prints the complete file path and the raw `mtimevalue` of all files that are not directories. The `mtimevalue` is padded with 70 characters to facilitate a readable console report.

Show example

```
c:\netapp\xcp>xcp scan -exclude "type is not directory" -fmt "'{}
{:>70}'.format(abspath, mtime)" \\<IP address or hostname of
SMBserver>\source_share

xcp scan -exclude type is not directory -fmt '{}
{:>70}'.format(abspath, mtime) \\<IP address or hostname of SMB
server>\source_share
18 scanned, 17 excluded, 0errors
Total Time : 0s
STATUS : PASSED
```

scan -preserve-atime

Use the `-preserve-atime` parameter with the `scan` command to restore the last accessed date of all the files on the source and reset the `atime` to the original value before XCP read the file.

When you scan an SMB share, the access time is modified on the files (if the storage system is configured to modify `atime` on read) because XCP is reading the files one by one. XCP never changes the `atime`, it just reads the file, which triggers an update on `atime`.

Syntax

```
xcp scan -preserve-atime \\<IP address or hostname of SMB
server>\source_share
```

Show example

```
c:\netapp\xcp>xcp scan -preserve-atime \\<IP address or hostname of SMB
server>\source_share
xcp scan -preserve-atime \\<IP address or hostname of SMB
server>\source_share

source_share\ASUP.pm
source_share\ASUP_REST.pm
source_share\Allflavors_v2.pm
source_share\Armadillo.pm
source_share\AsupExtractor.pm
source_share\BTS_Config.pm
source_share\Backup.pm
source_share\Aggregate.pm
source_share\Burt.pm
source_share\CConfig.pm
source_share\agnostic\ProtocolAccess.pm
source_share\agnostic\Qtree.pm
source_share\agnostic\Quota.pm
source_share\agnostic\RbacCmdFetcher.pm
source_share\agnostic\RbacCmdFetcher_ReadMe
source_share\agnostic\SFXOD.pm
source_share\agnostic\Snapmirror.pm
source_share\agnostic\VolEfficiency.pm
source_share\agnostic\flatfile.txt
source_share\agnostic
source_share

xcp scan -preserve-atime \\<IP address or hostname of
SMBserver>\source_share
317 scanned, 0 matched, 0 errors
Total Time : 1s
STATUS : PASSED
```

scan -depth <n>

Use the `-depth <n>` parameter with the `scan` command to limit the search depth of directories inside an SMB share.

> The `-depth` option specifies how deep XCP can scan the files into the subdirectories.

Syntax

```
xcp scan -depth <2> \\<IP address or hostname of SMB server>\source_share
```

Show example

```
c:\netapp\xcp>xcp scan -depth 2 \\<IP address or hostname of SMB
server>\source_share
xcp scan -depth 2 \\<IP address or hostname of SMB server>\source_share

source_share\ASUP.pm
source_share\ASUP_REST.pm
source_share\Allflavors_v2.pm
source_share\Armadillo.pm
source_share\AsupExtractor.pm
source_share\BTS_Config.pm
source_share\Backup.pm
source_share\Aggregate.pm
source_share\Burt.pm
source_share\CConfig.pm
source_share\CIFS.pm
source_share\CR.pm
source_share\CRC.pm
source_share\CSHM.pm
source_share\agnostic\Fileclone.pm
source_share\agnostic\Jobs.pm
source_share\agnostic\License.pm
source_share\agnostic\Panamax_Clone_Utils.pm
source_share\agnostic\LunCmds.pm
source_share\agnostic\ProtocolAccess.pm
source_share\agnostic\Qtree.pm
source_share\agnostic\Quota.pm
source_share\agnostic\RbacCmdFetcher.pm
source_share\agnostic\RbacCmdFetcher_ReadMe
source_share\agnostic\SFXOD.pm
source_share\agnostic\Snapmirror.pm
source_share\agnostic\VolEfficiency.pm
source_share\agnostic\flatfile.txt
source_share\agnostic
source_share

xcp scan -depth 2 \\<IP address or hostname of SMB server>\source_share
317 scanned, 0 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

scan -stats

Use the `-stats` parameter with the `scan` command to list files in a tree statistics report format.

Syntax

```
xcp scan -stats \\<IP address or hostname of SMB server>\source_share
```

Show example

```
C:\netapp\xcp>xcp scan -stats \\<IP address or hostname of SMB
server>\cifs_share

== Maximum Values ==
        Size      Depth      Namelen     Dirsize
     88.2MiB          3          108          20

== Average Values ==
        Size      Depth      Namelen    Dirsize
     4.74MiB          2           21           9

== Top File Extensions ==
no extension      .PDF       .exe       .html      .whl     .py
other
   22               2          2           2         2        1
9
  20.0KiB        1.54MiB    88.4MiB     124KiB    1.47MiB  1.62KiB
98.3MiB

== Number of files ==
  empty    <8KiB    8-64KiB    64KiB-1MiB    1-10MiB    10-100MiB
>100MiB
      2       24          2             7          2            3

== Space used ==
  empty    <8KiB    8-64KiB    64KiB-1MiB    1-10MiB    10-100MiB
>100MiB
      0  24.0KiB     124KiB       2.87MiB    2.91MiB       184MiB
0

== Directory entries ==
  empty     1-10     10-100        100-1K     1K-10K         >10K
               4          1
== Depth ==
    0-5     6-10      11-15         16-20     21-100         >100
     45

== Modified ==
>1 year  9-12 months  6-9 months  3-6 months  1-3 months  1-31 days  1-
24 hrs  <1
hour     <15 mins       future      <1970       invalid
                                                                    44
1
                                                                 190MiB
```

```
== Created ==
>1 year  9-12 months  6-9 months  3-6 months  1-3 months  1-31 days  1-
24 hrs  <1
hour     <15 mins       future      <1970       invalid
                                                                    45
                                                                190MiB
Total count: 45
Directories: 5
Regular files: 40
Symbolic links:
Junctions:
Special files:
Total space for regular files: 190MiB
Total space for directories: 0
Total space used: 190MiB
Dedupe estimate: N/A
Sparse data: N/A
xcp scan -stats \\<IP address or hostname of SMB server>\cifs_share
45 scanned, 0 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

scan -html

Use the `-html` parameter with the `scan` command to list files in a HTML statistics report.

> XCP reports (.csv, .html) are saved in the same location as the XCP binary. The file name is in the format <xcp_process_id>_<time_stamp>.html. When XCP cannot map security identifiers (SIDs) to owner names, it uses the last few digits after the final "–" in the SID to represent the owner. For example, when XCP is unable to map the SID S-1-5-21-1896871423-3211229150-3383017265-4854184 to its owner, it represents the owner by using 4854184.

Syntax

```
xcp scan -stats -html -preserve-atime -ownership \\<IP address or hostname
of SMB server>\source_share
```

Show example

```
Z:\scripts\xcp\windows>xcp scan -stats -html -preserve-atime -ownership
\\<IP address or hostname of SMB server>\source_share
1,972 scanned, 0 matched, 0 errors, 7s
4,768 scanned, 0 matched, 0 errors,12s
7,963 scanned, 0 matched, 0 errors,17s
10,532 scanned, 0 matched, 0 errors,22s
12,866 scanned, 0 matched, 0 errors,27s
15,770 scanned, 0 matched, 0 errors,32s
17,676 scanned, 0 matched, 0 errors,37s

== Maximum Values ==
     Size      Depth     Namelen     Dirsize
   535KiB         16          33          45

== Average Values ==
     Size      Depth     Namelen     Dirsize
  10.3KiB          7          11           6

== Top File SIDs ==
S-1-5-21-1896871423-3211229150-3383017265-4854184 S-1-5-32-544 S-1-5-
21-1896871423-3211229150-3383017265-3403389
     9318       8470           1

== Top Space SIDs ==
S-1-5-21-1896871423-3211229150-3383017265-4854184 S-1-5-32-544 S-1-5-
21-1896871423-3211229150-3383017265-3403389
  76.8MiB    69.8MiB           0

== Top File Extensions ==
       py         .rst       .html  no  extension       .txt
.png        other
     5418         3738        1974           1197       630         336
1344

== Number of files ==
    empty        <8KiB      8-64KiB     64KiB-1MiB   1-10MiB  10-100MiB
>100MiB
      168        11466        2709            294

== Space used ==
    empty     <8KiB      8-64KiB     64KiB-1MiB   1-10MiB  10-100MiB
>100MiB
        0     24.4MiB    55.3MiB        66.9MiB
```

```
== Directory entries ==
    empty      1-10       10-100         100-1K    1K-10K       >10K
       42      2690          420

== Depth ==
      0-5        6-10          11-15              16-20    21-100
>100
     3832       12527           1424                  6

== Modified ==
  >1 year      >1 month     1-31 days      1-24 hrs     <1 hour
<15 mins    future      invalid
    11718       2961                                 3110
== Created ==
  >1 year    >1 month    1-31 days         1-24 hrs   <1 hour    <15
mins     future      invalid
                                                 1     17788
== Accessed ==
  >1 year    >1 month   1-31 days      1-24 hrs     <1 hour       <15
mins    future      invalid
                                                            14624
3165

Total count: 17789
Directories: 3152
Regular files: 14637
Symbolic links:
Junctions:
Special files:
Total space for regular files:147MiB
Total space for directories: 0
Total space used: 147MiB
Dedupe estimate: N/A
Sparse data: N/A
xcp scan -stats -html -preserve-atime -ownership \\<IP address or
hostname ofSMB
server>\source_share
17,789 scanned, 0 matched, 0errors
Total Time : 39s
STATUS : PASSED
```

scan -csv

Use the `-csv` parameter with the `scan` command to list files in a CSV tree statistics report.

Syntax

```
xcp scan -stats -csv -preserve-atime -ownership \\<IP address or hostname
of SMB server>\source_share
```

Show example

```
Z:\scripts\xcp\windows>xcp scan -stats -csv -preserve-atime -ownership
\\<IP address or hostname of SMB server>\source_share

1,761 scanned, 0 matched, 0 errors, 6s
4,949 scanned, 0 matched, 0 errors,11s
7,500 scanned, 0 matched, 0 errors,16s
10,175 scanned, 0 matched, 0 errors,21s
12,371 scanned, 0 matched, 0 errors,26s
15,330 scanned, 0 matched, 0 errors,31s
17,501 scanned, 0 matched, 0 errors,36s

== Maximum Values ==
    Size      Depth      Namelen     Dirsize
  535KiB           16             33            45

== Average Values ==
    Size        Depth        Namelen       Dirsize
 10.3KiB            7             11             6

== Top File SIDs ==
S-1-5-21-1896871423-3211229150-3383017265-4854184 S-1-5-32-544 S-1-5-
21-1896871423-3211229150- 3383017265-3403389
    9318         8470              1

== Top Space SIDs ==
S-1-5-21-1896871423-3211229150-3383017265-4854184 S-1-5-32-544 S-1-5-
21-1896871423-3211229150- 3383017265-3403389
 76.8MiB      69.8MiB              0

== Top File Extensions ==
      .py       .rst       .html    no extension      .txt       .png
other
     5418       3738        1974          1197       630        336
1344

==  Number of files ==
    empty      <8KiB      8-64KiB    64KiB-1MiB    1-10MiB   10-100MiB
>100MiB
      168      11466            2709           294

== Space used ==
   empty       <8KiB     8-64KiB    64KiB-1MiB    1-10MiB    10-100MiB
>100MiB
      0      24.4MiB        55.3MiB       66.9MiB          0          0
```

```
0

== Directory entries ==
    empty        1-10     10-100        100-1K    1K-10K       >10K
       42        2690        420

==  Depth ==
      0-5        6-10      11-15           16-20      21-100       >100
     3832       12527       1424             6

==  Modified ==
 >1 year  >1 month   1-31 days     1-24 hrs   <1 hour      <15 mins
future  invalid
     11718       2961                     3110

== Created ==
 >1 year  >1 month   1-31 days     1-24 hrs   <1 hour    <15 mins
future  invalid
                                        17789

== Accessed ==
 >1 year  >1 month   1-31 days     1-24 hrs     <1 hour      <15 mins
future  invalid
                                        15754        2035

Total count: 17789
Directories: 3152
Regular files: 14637 Symbolic links:
Junctions:
Special files:
Total space for regular files: 147MiB Total space for directories: 0
Total space used: 147MiB
Dedupe estimate: N/A Sparse data: N/A
xcp scan -stats -csv -preserve-atime -ownership \\<IP address or
hostname of SMB server>\source_share
17,789 scanned, 0 matched, 0 errors Total Time : 40s
STATUS : PASSED
```

scan -l

Use the `-l` parameter with the `scan` command to list files in the long listing output format.

Syntax

```
xcp scan -l \\<IP address or hostname of SMB server>\source_share
```

Show example

```
c:\netapp\xcp>xcp scan -l \\<IP address or hostname of SMB
server>\source_share xcp scan -l \\<IP address or hostname of SMB
server>\source_share

f   195KiB   7y0d source_share\ASUP.pm
f  34.7KiB   7y0d source_share\ASUP_REST.pm
f  4.11KiB   7y0d source_share\Allflavors_v2.pm
f  38.1KiB   7y0d source_share\Armadillo.pm
f  3.83KiB   7y0d source_share\AsupExtractor.pm
f  70.1KiB   7y0d source_share\BTS_Config.pm
f  2.65KiB   7y0d source_share\Backup.pm
f  60.3KiB   7y0d source_share\Aggregate.pm
f  36.9KiB   7y0d source_share\Burt.pm
f  8.98KiB   7y0d source_share\CConfig.pm
f  19.3KiB   7y0d source_share\CIFS.pm
f  20.7KiB   7y0d source_share\CR.pm
f  2.28KiB   7y0d source_share\CRC.pm
f  18.7KiB   7y0d source_share\CSHM.pm
f  43.0KiB   7y0d source_share\CSM.pm
f  19.7KiB   7y0d source_share\ChangeModel.pm
f  33.3KiB   7y0d source_share\Checker.pm
f  3.47KiB   7y0d source_share\Class.pm
f  37.8KiB   7y0d source_share\Client.pm
f   188KiB   7y0d source_share\agnostic\Flexclone.pm
f  15.9KiB   7y0d source_share\agnostic\HyA_Clone_Utils.pm
f  13.4KiB   7y0d source_share\agnostic\Fileclone.pm
f  41.8KiB   7y0d source_share\agnostic\Jobs.pm
f  24.0KiB   7y0d source_share\agnostic\License.pm
f  34.8KiB   7y0d source_share\agnostic\Panamax_Clone_Utils.pm
f  30.2KiB   7y0d source_share\agnostic\LunCmds.pm
f  40.9KiB   7y0d source_share\agnostic\ProtocolAccess.pm
f  15.7KiB   7y0d source_share\agnostic\Qtree.pm
f  29.3KiB   7y0d source_share\agnostic\Quota.pm
f  13.7KiB   7y0d source_share\agnostic\RbacCmdFetcher.pm
f  5.55KiB   7y0d source_share\agnostic\RbacCmdFetcher_ReadMe
f  3.92KiB   7y0d source_share\agnostic\SFXOD.pm
f  35.8KiB   7y0d source_share\agnostic\Snapmirror.pm
f  40.4KiB   7y0d source_share\agnostic\VolEfficiency.pm
f  6.22KiB   7y0d source_share\agnostic\flatfile.txt
d        0   7y0d source_share\agnostic
d        0 19h17m source_share

xcp scan -l \\<IP address or hostname of SMB server>\source_share
317 scanned, 0 matched, 0 errors
```

```
Total Time : 0s
STATUS : PASSED
```

scan -ownership

Use the `-ownership` parameter with the `scan` command to retrieve ownership information for files.

> You can only use `-ownership` with the `-l`, `-match`, `-fmt`, or `-stats` parameters.

Syntax

```
xcp scan -l -ownership \\<IP address or hostname of SMB
server>\source_share
```

Show example

```
c:\netapp\xcp>xcp scan -l -ownership \\<IP address or hostname of SMB
server>\source_share xcp scan -l -ownership \\<IP address or hostname
of SMB server>\source_share

f   BUILTIN\Administrators  195KiB  7y0d    source_share\ASUP.pm
f   BUILTIN\Administrators  34.7KiB 7y0d    source_share\ASUP_REST.pm
f   BUILTIN\Administrators  4.11KiB 7y0d
source_share\Allflavors_v2.pm
f   BUILTIN\Administrators  38.1KiB 7y0d    source_share\Armadillo.pm
f   BUILTIN\Administrators  3.83KiB 7y0d
source_share\AsupExtractor.pm
f   BUILTIN\Administrators  70.1KiB 7y0d    source_share\BTS_Config.pm
f   BUILTIN\Administrators  2.65KiB 7y0d    source_share\Backup.pm
f   BUILTIN\Administrators  60.3KiB 7y0d    source_share\Aggregate.pm
f   BUILTIN\Administrators  36.9KiB 7y0d    source_share\Burt.pm
f   BUILTIN\Administrators  8.98KiB 7y0d    source_share\CConfig.pm
f   BUILTIN\Administrators  19.3KiB 7y0d    source_share\CIFS.pm
f   BUILTIN\Administrators  20.7KiB 7y0d    source_share\CR.pm
f   BUILTIN\Administrators  2.28KiB 7y0d    source_share\CRC.pm
f   BUILTIN\Administrators  18.7KiB 7y0d    source_share\CSHM.pm
f   BUILTIN\Administrators  43.0KiB 7y0d    source_share\CSM.pm
f   BUILTIN\Administrators  19.7KiB 7y0d    source_share\ChangeModel.pm
f   BUILTIN\Administrators  33.3KiB 7y0d    source_share\Checker.pm
f   BUILTIN\Administrators  3.47KiB 7y0d    source_share\Class.pm
f   BUILTIN\Administrators  37.8KiB 7y0d    source_share\Client.pm
f   BUILTIN\Administrators  2.44KiB 7y0d    source_share\ClientInfo.pm
f   BUILTIN\Administrators  37.2KiB 7y0d    source_share\ClientMgr.pm
f   BUILTIN\Administrators  17.1KiB 7y0d    source_share\ClientRPC.pm
f   BUILTIN\Administrators  9.21KiB 7y0d
source_share\ClusterAgent.pm
f   BUILTIN\Administrators  15.7KiB 7y0d source_share\agnostic\Qtree.pm
f   BUILTIN\Administrators  29.3KiB 7y0d source_share\agnostic\Quota.pm
f   BUILTIN\Administrators  13.7KiB 7y0d
source_share\agnostic\RbacCmdFetcher.pm
f   BUILTIN\Administrators  5.55KiB 7y0d
source_share\agnostic\RbacCmdFetcher_ReadMe
f   BUILTIN\Administrators  3.92KiB 7y0d source_share\agnostic\SFXOD.pm
f   BUILTIN\Administrators  35.8KiB 7y0d
source_share\agnostic\Snapmirror.pm
f   BUILTIN\Administrators  40.4KiB 7y0d
source_share\agnostic\VolEfficiency.pm
f   BUILTIN\Administrators  6.22KiB 7y0d
source_share\agnostic\flatfile.txt
d   BUILTIN\Administrators  7y0d source_share\agnostic
```

```
d   BUILTIN\Administrators

xcp scan -l -ownership \\<IP address or hostname of SMB
server>\source_share
317 scanned, 0 matched, 0 errors Total Time : 1s
STATUS : PASSED
```

scan -du

Use the `-du` parameter with the `scan` command to summarize the space usage of each directory, including subdirectories.

Syntax

```
xcp scan -du \\<IP address or hostname of SMB server>\source_share
```

Show example

```
c:\netapp\xcp>xcp scan -du \\<IP address or hostname of SMB
server>\source_share xcp scan -du \\<IP address or hostname of SMB
server>\source_share

  569KiB source_share\agnostic
  19.8MiB source_share

xcp scan -du \\<IP address or hostname of SMB server>\source_share
317 scanned, 0 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

scan -fmt <expression>

Use the `-fmt <expression>` parameter with the `scan` command to format a file listing according to a defined expression.

Syntax

```
xcp scan -fmt "', '.join(map(str, [relpath, name, size, depth]))"
\\<IPaddress or hostname of SMB server>\source_share
```

Show example

```
c:\netapp\xcp>xcp scan -fmt "', '.join(map(str, [relpath, name, size,
depth]))"  \\<IP address or hostname of SMB server>\source_share
xcp scan -fmt "', '.join(map(str, [relpath, name, size, depth]))"
\\<IP address or hostname of SMB server>\source_share

source_share\ASUP.pm, ASUP.pm, 199239, 1
source_share\ASUP_REST.pm, ASUP_REST.pm, 35506, 1
source_share\Allflavors_v2.pm, Allflavors_v2.pm, 4204, 1
source_share\Armadillo.pm, Armadillo.pm, 39024, 1
source_share\AsupExtractor.pm, AsupExtractor.pm, 3924, 1
source_share\BTS_Config.pm, BTS_Config.pm, 71777, 1
source_share\Backup.pm, Backup.pm, 2714, 1
source_share\Aggregate.pm, Aggregate.pm, 61699, 1
source_share\Burt.pm, Burt.pm, 37780, 1
source_share\CConfig.pm, CConfig.pm, 9195, 1
source_share\CIFS.pm, CIFS.pm, 19779, 1
source_share\CR.pm, CR.pm, 21215, 1
source_share\CRC.pm, CRC.pm, 2337, 1
source_share\agnostic\LunCmds.pm, LunCmds.pm, 30962, 2
source_share\agnostic\ProtocolAccess.pm, ProtocolAccess.pm, 41868, 2
source_share\agnostic\Qtree.pm, Qtree.pm, 16057,2
source_share\agnostic\Quota.pm, Quota.pm, 30018,2
source_share\agnostic\RbacCmdFetcher.pm, RbacCmdFetcher.pm, 14067, 2
source_share\agnostic\RbacCmdFetcher_ReadMe, RbacCmdFetcher_ReadMe,
5685, 2
source_share\agnostic\SFXOD.pm, SFXOD.pm, 4019, 2
source_share\agnostic\Snapmirror.pm, Snapmirror.pm, 36624, 2
source_share\agnostic\VolEfficiency.pm, VolEfficiency.pm, 41344, 2
source_share\agnostic\flatfile.txt, flatfile.txt, 6366, 2
source_share\agnostic, agnostic, 0, 1
source_share, , 0, 0
xcp scan -fmt ', '.join(map(str, [relpath, name, size, depth])) \\<IP
address or hostname of SMB server>\source_share
317 scanned, 0 matched, 0 errors
Total Time : 0s
STATUS : PASSED
```

scan -ads

Use the `-ads` flag parameter with the `scan` command with to recursively scan the entire SMB share and list all files and any associated alternate data streams.

Syntax

```
xcp scan -ads \\<source_ip_address>\source_share\src
```

Show example

```
C:\netapp\xcp>xcp scan -ads \\<source_ip_address>\source_share\src

src\file1.txt:ads1
src\file1.txt:ads_file1.txt_1697037934.4154522.txt
src\file1.txt
src\file2.txt:ads1
src\file2.txt:ads_file2.txt_1697037934.5873265.txt
src\file2.txt
src\test1.txt:ads_test1.txt_1697037934.7435765.txt
src\test1.txt
src\dir1\dfile1.txt:ads1
src\dir1\dfile1.txt:ads_dfile1.txt_1697037934.1185782.txt
src\dir1\dfile1.txt:ads_xcp.exe
src\dir1\dfile1.txt:ads_tar
src\dir1\dfile1.txt:java_exe
src\dir1\dfile1.txt:cmdzip
src\dir1\dfile1.txt:ads1_2GB
src\dir1\dfile1.txt
src\dir1:ads1
src\dir1:ads_dir1_1697038504.087317.txt
src\dir1
src:ads_src_1697038504.7123322.txt
src

xcp scan -ads \\<source_ip_address>\source_share\src
6 scanned, 0 matched, 0 errors, 15 ads scanned
Total Time : 2s
STATUS : PASSED
```

copy

The `copy` command scans and copies the entire source directory structure to a destination SMB share. The `copy` command requires 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.

- The run-time log file is stored under "C:\NetApp\XCP".
- This `copy` command copies data without an access control list (ACL).

Syntax

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

Show example

```
c:\netapp\xcp>xcp copy \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp copy \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
317 scanned, 0 matched, 316 copied, 0 errors
Total Time : 2s
STATUS : PASSED
```

The following table lists the `copy` parameters and their description.

Parameter	Description
copy -h, --help	Displays detailed information about the `copy` command.
copy -v	Increase debug verbosity.
copy -parallel <n>	Specifies the number of concurrent processes (default: <cpu-count>).
copy -match <filter>	Only processes files and directories that match the filter (see `xcp help - match` for details).
copy -exclude <filter>	Only excludes files and directories in the filter
copy -preserve-atime	Restores last accessed date on source.
copy -acl	Copies security information.
copy -fallback-user <fallback_user>	Specifies the Active Directory user or local (non-domain) user on the target machine that receives the permissions of local (non-domain) source machine users. For example, domain\administrator.
copy -fallback-group <fallback_group>	Specifies the Active Directory group or local (non-domain) group on the target machine that receives the permissions of local (non-domain) source machine groups. For example, domain\administrators.

Parameter	Description
copy -root	Copies the ACLs for a root directory.
copy -aclverify {yes,no}	Provides an option to skip or include ACL verification during the copy -acl operation.
copy -noownership	Does not copy ownership.
copy -bs <n>	Read/Write blocksize (default:1M)
copy -ads	Copies NTFS alternate data streams from the source SMB share to the destination SMB share.

copy -h, --help

Use the `-h` and `--help` parameters with the `copy` command to display detailed information about the `copy` command

Syntax

```
xcp copy -help
```

Show example

```
C:\netapp\xcp>xcp copy -help

usage: xcp copy [-h] [-v] [-parallel <n>] [-match <filter>] [-exclude
<filter>] [-preserve- atime] [-acl] [-fallback-user FALLBACK_USER]
[-fallback-group FALLBACK_GROUP] [-loglevel <name>] [-root] [-
noownership] [- aclverify {yes,no}] [-bs <n>] [-ads]
         source target

positional arguments:
   source
   target

optional arguments:
-h, --help            show this help message and exit
-v                    increase debug verbosity
-parallel <n>         number of concurrent processes (default: <cpu-
count>)
-match <filter>       only process files and directories that match the
filter (see `xcp help -match` for details)
-exclude <filter>     Exclude files and directories that match the
filter (see `xcp help - exclude` for details)
-preserve-atime       restore last accessed date on source
-acl                  copy security information
-fallback-user FALLBACK_USER
                      the name of the user on the target machine to
receive the permissions of local (non-domain) source machine users (eg.
domain\administrator)
-fallback-group FALLBACK_GROUP
                      the name of the group on the target machine to
receive the permissions of local (non-domain) source machine groups
(eg. domain\administrators)
-loglevel <name>      option to set log level filter (default:INFO)
-root                 copy acl for root directory
-noownership          do not copy ownership
-aclverify {yes,no}   choose whether you need to skip acl verification
-bs <n>               read/write block size for copy (default: 1M)
-ads                  copy NTFS alternate data streams.
```

copy -v

Use the `-v` parameter with the `copy` command to provide detailed debug information.

Syntax

```
xcp copy -v \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp copy -v \\<IP address of SMB destination server>\src
\\<IP address of SMB destination server>\dest\d1

failed to set attributes for "d1": (5, 'CreateDirectory', 'Access is
denied.')
failed to copy "f1.txt": (5, 'CreateFile', 'Access is denied.')
failed to set attributes for "": (5, 'SetFileAttributesW', 'Access is
denied.') error setting timestamps on "": errno (code: 5) Access is
denied.
H:\p 4\xcp_latest\xcp_cifs\xcp\ main .py copy -v \\<IP address of SMB
destination server>\src \\<IP address of SMB destination
server>\dest\d1
3 scanned, 0 matched, 0 skipped, 1 copied, 0 (0/s), 3 errors
Total Time : 3s
STATUS : FAILED
```

copy -parallel <n>

Use the `-parallel <n>` parameter with the `copy` command to set a higher or lower number of XCP concurrent processes. The default value for `-parallel` is equal to the CPU count.

> The maximum value for n is 61.

Syntax

```
xcp copy -parallel <n> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp copy -parallel 7   \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp copy -parallel 7 \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
317 scanned, 0 matched, 316 copied, 0errors
Total Time : 2s
STATUS : PASSED
```

copy -match <filter>

Use the `-match <filter>` parameter with the `copy` command to copy only the data that matches the argument passed.

Syntax

```
xcp copy -match <filter> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp copy -match "'gx' in name" \\<IP address or hostname
of SMB server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp copy -match 'gx' in name \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
317 scanned, 5 matched, 4 copied, 0 errors
Total Time : 1s
STATUS : PASSED
```

copy -exclude <filter>

Use the `-exclude <filter>` parameter with the `copy` command to only copy excluded data.

Syntax

```
xcp copy -exclude <filter> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

In the following example, the files and directories that have the string "resync" in their name have been excluded for copy.

Show example

```
c:\netapp\xcp>xcp copy -exclude "'resync' in name" \\<IP address or
hostname of SMB server>\source_share \\<IP address or hostname of SMB
server>\dest_share


xcp copy -exclude 'resync' in name \\<IP address or hostname of SMB
server>\source_share \\\\<IP address or hostname of SMB
server>\dest_share
18 scanned, 2 excluded, 0 skipped, 15 copied, 122KiB (50.5KiB/s), 0
errors
Total Time : 2s
STATUS : PASSED
```

copy -preserve-atime

Use the `-preserve-atime` parameter with the `copy` command to reset the "atime" to the original value before XCP read the file.

Syntax

```
xcp copy -preserve-atime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp copy -preserve-atime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp copy -preserve-atime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
317 scanned, 0 matched, 316 copied, 0 errors
Total Time : 2s
STATUS : PASSED
```

copy -acl -fallback-user <fallback_user> -fallback-group <fallback_group>

Use the `-acl` parameter with the `copy` command to activate the transfer of the security descriptors (ACLs).

Use the `-acl` parameter with the `-fallback-user` and `-fallback-group` options to specify a user and a group on the target machine or from Active Directory to receive the permissions of local (non-domain) source machine users or groups. This does not refer to unmatched users from an Active Directory.

Syntax

```
xcp copy -acl -fallback-user <fallback_user> -fallback-group
<fallback_group> \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

copy -aclverify {yes,no}

Use the `-aclverify {yes,no}` parameter with the `copy` command to provide an option to skip or include ACL verification during an ACL copy operation.

You must use the `-aclverify {yes,no}` parameter with the `copy -acl` command. By default, the ACL copy operation verifies the ACLs. If you set the `-aclverify` option to `no`, you can skip ACL verification and the `fallback-user` and `fallback-group` options are not required. If you set `-aclverify` to `yes`, it requires the `fallback-user` and `fallback-group` options, as shown in the following example.

Syntax

```
xcp copy -acl -aclverify yes -fallback-user <fallback_user> -fallback
-group <fallback_group> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
C:\NetApp\xcp>xcp copy -acl -aclverify yes -fallback-user "DOMAIN\User"
-fallback-group "DOMAIN\Group"
\\<source_IP_address>\source_share
\\<destination_IP_address>\dest_share

12 scanned, 0 matched, 0 skipped, 0 copied, 0 (0/s), 0 errors, 5s, 0
acls copied
12 scanned, 0 matched, 0 skipped, 0 copied, 0 (0/s), 0 errors, 10s, 0
acls copied
12 scanned, 0 matched, 0 skipped, 0 copied, 0 (0/s), 0 errors, 15s, 0
acls copied xcp copy -acl -aclverify yes -fallback-user "DOMAIN\User"
-fallback-group "DOMAIN\Group" \\<source_IP_address>\source_share
\\<destination_IP_address>\dest_share
12 scanned, 0 matched, 0 skipped, 11 copied, 10KiB (634/s), 0 errors,
11 acls copied
Total Time : 16s
STATUS : PASSED

C:\NetApp\xcp>xcp copy -acl -aclverify no
\\<source_IP_address>\source_share
\\<destination_IP_address>\dest_share

xcp copy -acl -aclverify no \\<source_IP_address>\source_share
\\<destination_IP_address>\dest_share
12 scanned, 0 matched, 0 skipped, 11 copied, 10KiB (5.61KiB/s), 0
errors, 11 acls copied
Total Time : 1s
STATUS : PASSED
```

copy -root

Use the `-root` parameter with the `copy` command to copy the ACLs for the root directory.

Syntax

```
xcp copy -acl -root -fallback-user "DOMAIN\User" -fallback-group
"DOMAIN\Group" \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
C:\NetApp\XCP>xcp copy -acl -root -fallback-user "DOMAIN\User"
-fallback-group "DOMAIN\Group" \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp copy -acl -root -fallback-user "DOMAIN\User" -fallback-group
"DOMAIN\Group" \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
6 scanned, 0 matched, 0 skipped, 5 copied, 200 (108/s), 0 errors, 6
acls copied
Total Time : 1s
STATUS : PASSED
```

copy -noownership

Use the `-noownership` parameter with the `copy` command to specify not to copy the ownership from the source to the destination. You must use `-noownership` with the `-acl` option and it requires `fallback-user` and `fallback-group` as mandatory parameters.

Syntax

```
xcp.exe copy -acl -noownership -fallback-user <fallback_user> -fallback
-group <fallback_group> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
C:\Netapp\xcp>xcp.exe copy -acl -noownership -fallback-user
"DOMAIN\User" -fallback-group "DOMAIN\Group"
\\<source_IP_address>\source_share
\\<destination_IP_address>\dest_share

568 scanned, 0 matched, 0 skipped, 0 copied, 0 (0/s), 0 errors, 5s, 0
acls copied
568 scanned, 0 matched, 0 skipped, 0 copied, 0 (0/s), 0 errors, 10s, 0
acls copied
568 scanned, 0 matched, 0 skipped, 135 copied, 4.26MiB (872KiB/s), 0
errors, 15s, 137 acls copied xcp.exe copy -acl -noownership -fallback
-user "DOMAIN\User" -fallback-group "DOMAIN\Group"
\\<source_IP_address>\source_share
\\<destination_IP_address>\dest_share
568 scanned, 0 matched, 0 skipped, 567 copied, 17.7MiB (1.01MiB/s), 0
errors, 567 acls copied
Total Time : 17s
STATUS : PASSED
```

copy -bs <n>

Use the `-bs <n>` parameter with the `copy` command to provide a read/write block size. The default value is 1M.

Syntax

```
xcp.exe copy -bs <n> \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\Netapp\xcp>xcp.exe copy -bs 32k \\<source_IP_address>\source_share
\\<destination_IP_address>\dest_share

xcp.exe copy -bs 32k \\<source_IP_address>\source_share
\\<destination_IP_address>\dest_share
568 scanned, 0 matched, 0 skipped, 567 copied, 17.7MiB (6.75MiB/s), 0
errors
Total Time : 2s
STATUS : PASSED
```

copy -ads

Use the `-ads` parameter with the `copy` command to copy NTFS alternate data streams from the source SMB share to destination SMB share.

Syntax

```
xcp copy -ads \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp copy -ads \\<source_IP_address>\source_share\src
\\<dest_IP_address>\dest_share

6   scanned, 0 matched, 0 skipped, 3 copied, 13 (2.41/s), 0 errors, 5s,
10 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 10s, 11 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 15s, 12 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 20s, 13 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 25s, 13 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 30s, 13 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 35s, 13 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 40s, 13 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 45s, 13 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 2m15s, 13 ads copied
6   scanned,    0   matched,    0   skipped,    3   copied, 13  (0/s),
0   errors, 3m5s, 13 ads copied
xcp copy -ads \\<source_IP_address>\source_share\src
\\<desination_IP_address>\dest_share
6 scanned, 0 matched, 0 skipped, 5 copied, 26 (0.137/s), 0 errors, 14
ads copied
Total Time : 3m9s
STATUS : PASSED
```

sync

The `sync` command scans for changes and modifications in the source and target shares in parallel and applies the appropriate actions 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.

Syntax

```
xcp sync \\<source SMB share> \\<IP address of SMB destination server>
```

Show example

```
c:\netapp\xcp>xcp sync \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
xcp sync \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 3s
STATUS : PASSED
```

The following table lists the `sync` parameters and their description.

Parameter	Description
sync -h, --help	Show this help message and exit.
sync -v	Increase debug verbosity.
sync -parallel <n>	Number of concurrent processes (default: <cpu-count>).
sync -match <filter>	Only process files and directories that match the filter (see `xcp help - match` for details).
sync -exclude <filter>	Only exclude files and directories in the filter.
sync -preserve-atime	Restore last accessed date on source.
sync -noatime	Do not check file access time.
sync -noctime	Do not check file creation time.
sync -nomtime	Do not check file modification time. (This option is deprecated. Sync will continue to run without this option.)
sync -noattrs	Do not check attributes.

Parameter	Description
sync -noownership	Do not check ownership.
sync -atimewindow <float>	Acceptable access time difference, in seconds.
sync -ctimewindow <float>	Acceptable creation time difference, in seconds.
sync -mtimewindow <float>	Acceptable modification time difference, in seconds,
sync -acl	Copy security information.
sync -fallback-user <fallback_user>	Active Directory user or local(non-domain) user on the target machine to receive the permissions of local (non-domain) source machine users (example: domain\administrator).
sync -fallback-group <fallback_group>	Active Directory group or local(non-domain) group on the target machine to receive the permissions of local(non-domain) source machine groups (example: domain\administrators).
sync -l	Increases output detail.
sync -root	Sync ACLs for the root directory.
sync -onlyacl	Copy only the security information.
sync -aclverify{yes,no}	Provide an option to include or skip ACL verification during the ACL sync operation.
sync -bs <n>	Read/Write blocksize (default:1M).
sync -ads	Use the `sync` command with the `-ads` flag to scan for changes and modifications of alternate data streams in the source and target SMB share. If there are changes, it applies the change to the target to make sure that the target is identical to the source.

sync -h, --help

Use the `-h` and `--help` parameters with the `sync` command to display detailed information about the `sync` command

Syntax

```
xcp sync --help
```

Show example

```
C:\Netapp\xcp>xcp sync --help
usage: xcp sync [-h] [-v] [-parallel <n>] [-match <filter>] [-exclude
<filter>] [-preserve-atime] [-noatime] [-noctime] [-nomtime] [-noattrs]
[-atimewindow <float>]
[-ctimewindow <float>] [-mtimewindow <float>] [-acl] [-fallback-user
FALLBACK_USER] [-fallback-group FALLBACK_GROUP] [-loglevel <name>] [-l]
[-root]
[-noownership] [-onlyacl] [-aclverify {yes,no}] [-bs <n>] [-ads] source
target

Note: ONTAP does not let a SMB client modify COMPRESSED or ENCRYPTED
attributes. XCP sync will ignore these file attributes.

positional arguments:
   source
   target

optional arguments:
   -h, --help              show this help message and exit
   -v                      increase debug verbosity
   -parallel <n>           number of concurrent processes (default:
<cpu-count>)
   -match <filter>         only process files and directories that
match the filter (see `xcp help -match` for details)
   -exclude <filter>       Exclude files and directories that match the
filter (see `xcp help -exclude` for details)
   -preserve-atime         restore last accessed date on source
   -noatime                do not check file access time
   -noctime                do not check file creation time
   -nomtime                do not check file modification time
   -noattrs                do not check attributes
   -atimewindow <float>    acceptable access time difference in seconds
   -ctimewindow <float>    acceptable creation time difference in
seconds
   -mtimewindow <float>    acceptable modification time difference in
seconds
   -acl                    copy security information
   -fallback-user FALLBACK_USER
                           the name of the user on the target machine
to receive the permissions of local (non-domain) source machine users
(eg. domain\administrator)
   -fallback-group FALLBACK_GROUP
                           the name of the group on the target machine
to receive the permissions of local (non-domain) source machine groups
```

```
(eg. domain\administrators)
   -loglevel <name>        option to set log levelfilter
   -l                      increase output detail
   -root                   sync acl for root directory
   -noownership            do not sync ownership
   -onlyacl                sync only acls
   -aclverify {yes,no}     choose whether you need to skip acl
verification
   -bs <n>                 read/write block size for sync (default: 1M)
   -ads                    sync ntfs alternate data stream
```

sync -v

Use the `-v` parameter with the `sync` command to provide detailed debug information.

Syntax

```
xcp sync -v \\<IP address or hostname of SMB
server>\vol_SMB_source_xxxxxx\warning \\<IP address of SMB destination
server>\vol_SMB_target_xxxxxx
```

Show example

```
C:\XCP>xcp sync -v \\<IP address or hostname of SMB
server>\vol_SMB_source_xxxxxx\warning \\<IP address of SMB destination
server>\vol_SMB_target_xxxxxx
ERROR failed to remove from target
"assembly\GAC_32\Microsoft.CertificateServices.PKIClient.Cmdlets\v4.0_6
.3.0.0 31bf3856ad364e35\p ki.psd1": [Errno 13] Access is denied:
'\\\\?\\UNC\\<IP address of SMB destination server>\\vol_SMB_tar
shil\\assembly\\GAC_32\\Microsoft.CertificateServices.PKIClient.Cmdlets
\\v4.0_6.3.0.0 31bf3856ad 364e35\\pki.psd1'
ERROR failed to remove from target
"assembly\GAC_64\Microsoft.GroupPolicy.AdmTmplEditor\v4.0_6.3.0.0
31bf3856ad364e35\Microsoft.Gro upPolicy.AdmTmplEditor.dll": [Errno 13]
Access is denied: '\\\\?\\UNC\\10.61.
\vol_SMB_target_xxxxxx\\assembly\\GAC_64\\Microsoft.GroupPolicy.AdmTmpl
Editor\\v4.0_6.3.0.0 31bf
3856ad364e35\\Microsoft.GroupPolicy.AdmTmplEditor.dll'
1,933 scanned, 1,361 compared, 2 errors, 0 skipped, 0 copied, 1,120
removed, 5s ERROR failed to remove from target
"assembly\GAC_64\System.Printing\v4.0_4.0.0.0
31bf3856ad364e35\System.Printing.dll": [Errno 13] Access is denied:
'\\\\?\\UNC\\<IP address of SMB destination
server>\\vol_SMB_target_xxxxxx\\assembly\
4\\System.Printing\\v4.0_4.0.0.0 31bf3856ad364e35\\System.Printing.dll'
ERROR failed to remove from target
"assembly\GAC_MSIL\Microsoft.PowerShell.Workflow.ServiceCore\v4.0_3.0.0
.0 31bf3856ad364e35\Micro soft.PowerShell.Workflow.ServiceCore.dll":
[Errno 13] Access is denied: '\\\\
\\<IP address of SMB destination
server>\\vol_SMB_target_xxxxxx\\assembly\\GAC_MSIL\\Microsoft.PowerShel
l.Workflow.ServiceCore\\v4
.0_3.0.0.0
31bf3856ad364e35\\Microsoft.PowerShell.Workflow.ServiceCore.dll' ERROR
failed to remove from target
"assembly\GAC_MSIL\Microsoft.RightsManagementServices.ServerManager.Dep
loymentPlugin\v4.0_6.3.0.0
31bf3856ad364e35\Microsoft.RightsManagementServices.ServerManager.Deplo
ymen n.dll": [Errno 13] Access is denied: '\\\\?\\UNC\\<IP address of
SMB destination
server>\\vol_SMB_target_xxxxxx\\assembly\\GAC_MSIL\\Microsoft.RightsMan
agementServices.ServerMana ger.DeploymentPlugin\\v4.0_6.3.0.0
31bf3856ad364e35\\Mic
.RightsManagementServices.ServerManager.DeploymentPlugin.dll'
ERROR failed to remove from target
"assembly\GAC_MSIL\Microsoft.WSMan.Management\v4.0_3.0.0.0
```

```
31bf3856ad364e35\Microsoft.WSMan.Mana gement.dll": [Errno 13] Access is
denied: '\\\\?\\UNC\\<IP address of SMB destination server>\\vol_SMB_
_xxxxxx\\assembly\\GAC_MSIL\\Microsoft.WSMan.Management\\v4.0_3.0.0.0
31bf3856ad364e35\\Microsof t.WSMan.Management.dll'
ERROR failed to remove from target
"assembly\GAC_MSIL\PresentationUI\v4.0_4.0.0.0
31bf3856ad364e35\PresentationUI.dll": [Errno 13] Access is denied:
'\\\\?\\UNC\\<IP address of SMB destination
server>\\vol_SMB_target_xxxxxx\\assembly\
SIL\\PresentationUI\\v4.0_4.0.0.0 31bf3856ad364e35\\PresentationUI.dll'
ERROR failed to remove from target
"assembly\GAC_MSIL\System.IO.Compression.FileSystem\v4.0_4.0.0.0
b77a5c561934e089\System.IO.Comp ression.FileSystem.dll": [Errno 13]
Access is denied: '\\\\?\\UNC\\10.61.71.5
_SMB_target_xxxxxx\\assembly\\GAC_MSIL\\System.IO.Compression.FileSyste
m\\v4.0_4.0.0.0 b77a5c561
934e089\\System.IO.Compression.FileSystem.dll'
ERROR failed to remove from target
"assembly\GAC_MSIL\System.IdentityModel.Selectors\v4.0_4.0.0.0
b77a5c561934e089\System.IdentityM odel.Selectors.dll": [Errno 13]
Access is denied: '\\\\?\\UNC\\<IP address of SMB destination
server>\\v
s_target_xxxxxx\\assembly\\GAC_MSIL\\System.IdentityModel.Selectors\\v4
.0_4.0.0.0 b77a5c561934e0 89\\System.IdentityModel.Selectors.dll'
2,747 scanned, 2,675 compared, 9 errors, 0 skipped, 0 copied, 2,624
removed, 10s ERROR failed to remove from target
"assembly\GAC_MSIL\System.Web.DataVisualization\v4.0_4.0.0.0
31bf3856ad364e35\System.Web.DataVis ualization.dll": [Errno 13] Access
is denied: '\\\\?\\UNC\\<IP address of SMB destination server>\\vol_c
rget_xxxxxx\\assembly\\GAC_MSIL\\System.Web.DataVisualization\\v4.0_4.0
.0.0 31bf3856ad364e35\\Sy stem.Web.DataVisualization.dll'
cp sync -v \\<IP address or hostname of SMB
server>\vol_SMB_source_xxxxxx\warning \\<IP address of SMB destination
server>\vol_SMB_target_xxxxxx
2,831 scanned, 0 copied, 2,831 compared, 0 removed, 10 errors Total
Time : 10s
STATUS : PASSED
```

sync -parallel <n>

Use the `-parallel <n>` parameter with the `sync` command to set a higher or lower number of XCP concurrent processes. The `sync -parallel <n>` command syncs with the number of concurrent processes (default: <cpu-count>).

> The maximum value for n is 61.

Syntax

```
xcp sync -parallel <n>> \\<IP address or hostname of SMB
server>\volxcp\\<IP address of SMB destination server>\xcp1_test1
```

Show example

```
C:\xcp>xcp sync -parallel 5 \\<IP address or hostname of SMB
server>\volxcp\\<IP address of SMB destination server>\xcp1_test1
658 scanned, 244 compared, 0 errors, 0 skipped, 0 copied, 0 removed, 5s
658 scanned, 606 compared, 0 errors, 0 skipped, 0 copied, 0 removed,
10s
658 scanned, 658 compared, 0 errors, 0 skipped, 0 copied, 0 removed,
10s
Sending statistics...
```

sync -match <filter>

Use the `-match <filter>` parameter with the `sync` command to scan the source and target tree and compare only the files or directories that match the filter argument. If there are any differences, the command applies the required actions on the target to keep them in sync.

Syntax

```
xcp sync -match <filter> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp sync -match "'gx' in name" \\<IP address or hostname
of SMB server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -match "'gx' in name" \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp sync -match 'gx' in name \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
634 scanned, 0 copied, 10 compared, 0 removed, 0 errors
Total Time : 2s
STATUS : PASSED
```

sync -exclude <filter>

Use the `-exclude <filter>` parameter with the `sync` command to only exclude files and directories in the filter.

Syntax

```
xcp sync -exclude <filter> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
C:\netapp\xcp>xcp sync -exclude "path('*Exceptions*')" \\<IP address or
hostname of SMB server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp sync -exclude path('*Exceptions*') \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
451 scanned, 427 excluded, 0 copied, 24 compared, 0 skipped, 0 removed,
0 errors
Total Time : 2s
STATUS : PASSED
```

sync -preserve-atime

Use the `-preserve-atime` parameter with the `sync` command to reset "atime" to the original value before XCP read the file.

Syntax

```
xcp sync -preserve-atime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp sync -preserve-atime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -preserve-atime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp sync -preserve-atime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 4s
STATUS : PASSED
```

sync -noatime

Use the `-noatime` parameter with the `sync` command to sync all the differences in the source to the target, excluding files that only have differences in access time.

Syntax

```
xcp sync -noatime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp sync -noatime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -noatime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share

xcp sync -noatime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 3s
STATUS : PASSED
```

sync -noctime

Use the `-noctime` parameter with the `sync` command to sync all the differences in the source to the target,

excluding files that only have differences in creation time.

Syntax

```
xcp sync -noctime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp sync -noctime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -noctime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share

xcp sync -noctime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 3s
STATUS : PASSED
```

sync -nomtime

Use the `-nomtime` parameter with the `sync` command to sync all the differences in the source to the target, excluding files that only have differences in modification time. (This option is deprecated. The `sync` command will continue to run without this option.)

Syntax

```
xcp sync -nomtime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp sync -nomtime \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -nomtime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share

xcp sync -nomtime \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 3s
STATUS : PASSED
```

sync -noattrs

Use the `-noattrs` parameter with the `sync` command to sync all the differences in the source to the target, excluding files that only have differences in file attributes. XCP copies a file only when it has different content (the ACLs are transferred).

Syntax

```
xcp sync -noattrs \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp sync -noattrs  \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -noattrs   \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp sync -noattrs \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 3s
STATUS : PASSED
```

sync -noownership

Use the `-noownership` parameter with the `sync` command to sync all the differences of the source to the

target, excluding files that only have differences in ownership.

Syntax

```
xcp sync -noownership \\<IP address or hostname of SMB
server>\vol_SMB_source_xxxxxx \\<IP address of SMB destination
server>\vol_SMB_target_xxxxxx
```

Show example

```
>xcp sync -acl -noownership -fallback-user "DOMAIN\User" -fallback
-group "DOMAIN\Group" \\<source_IP_address>\source_share \\<IP address
of SMB destination server>\dest_share

      Truncated Output
302,909 scanned,    301,365 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 9m46s
307,632 scanned,    303,530 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 9m51s
308,434 scanned,    305,462 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 9m56s
310,824 scanned,    307,328 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 10m1s
313,238 scanned,    310,083 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 10m6s
314,867 scanned,    313,407 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 10m11s
318,277 scanned,    315,856 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 10m17s
321,005 scanned,    318,384 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 10m22s
322,189 scanned,    321,863 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 10m27s
323,906 scanned,    323,906 compared,   0   errors, 0   skipped,    0
copied, 0   removed, 10m29s

xcp sync -acl -noownership -fallback-user "DOMAIN\User" -fallback-group
"DOMAIN\Group" \\<source_IP_address>\source_share \\<IP address of SMB
destination server>\dest_share
323,906 scanned, 0 copied, 323,906 compared, 0 removed, 0 errors
Total Time : 10m29s
STATUS : PASSED
```

sync -atimewindow <float>

Use the `-atimewindow <float>` parameter with the `sync` command to specify the acceptable difference, in seconds, for the atime of a file from the source to the destination. XCP does not report files as being different if the difference in atime is less than <value>.

Syntax

```
xcp sync -atimewindow <float> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

In the following example, XCP accepts a difference in atime of up to 10 minutes between the source and the destination files, and it does not update the atime on the target.

Show example

```
c:\netapp\xcp>xcp sync -atimewindow 600 \\<IP address or hostname of
SMB server>\source_share \\<IP address of SMB destination
server>\source_share
xcp sync -atimewindow 600 \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\source_share

xcp sync -atimewindow 600 \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\source_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 3s
STATUS : PASSED
```

sync -ctimewindow <float>

Use the `-ctimewindow <float>` parameter with the `sync` command to specify the acceptable difference, in seconds, for the ctime of a file from the source to the destination. XCP does not report files as being different when the difference in ctime is less than <value>.

Syntax

```
xcp sync -ctimewindow <float> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

In the following example, XCP accepts a difference in atime for up to 10 minutes between the source and the destination files, and it does not update the ctime on the target.

Show example

```
c:\netapp\xcp>xcp sync -ctimewindow 600 \\<IP address or hostname of
SMB server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -ctimewindow 600 \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp sync -ctimewindow 600 \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 3s
STATUS : PASSED
```

sync -mtimewindow <float>

Use the `-mtimewindow <float>` parameter with the `sync` command to specify the acceptable difference, in seconds, for the mtime of a file from the source to the destination. XCP does not report files as being different when the difference in mtime is less than <value>.

Syntax

```
xcp sync -mtimewindow <float> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp sync -mtimewindow 600 \\<IP address or hostname of
SMB server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -mtimewindow 600 \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp sync -mtimewindow 600 \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors Total Time :
3s
STATUS : PASSED
```

sync -acl -fallback-user <fallback_user> -fallback-group <fallback_group>

Use the `-acl`, `-fallback-user` and `-fallback-group` parameters with the `sync` command to compare the data and the security information from the source with the target and apply the required actions on the target. The `-fallback-user` and `-fallback-group` options are a user or group on the target machine or in the Active Directory that receive the permissions of the local (non-domain) source users or groups.

> You cannot use the `-acl` option without the `-fallback-user` and `-fallback-group` options.

Syntax

```
xcp sync -acl -fallback-user <fallback_user> -fallback-group
<fallback_group> \\<IP address or hostname of SMB
server>\performance_SMB_home_dirs \\<IP address of SMB destination
server>\performance_SMB_home_dirs
```

Show example

```
C:\xcp>xcp sync -acl -fallback-user "DOMAIN\User" -fallback-group
"DOMAIN\Group" \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
10,796  scanned,    4,002   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    s
15,796  scanned,    8,038   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    0s
15,796  scanned,    8,505   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    5s
15,796  scanned,    8,707   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    0s
15,796  scanned,    8,730   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    5s
15,796  scanned,    8,749   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    0s
15,796  scanned,    8,765   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    5s
15,796  scanned,    8,786   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    0s
15,796  scanned,    8,956   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    5s
15,796  scanned,    9,320   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    0s
15,796  scanned,    9,339   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    5s
15,796  scanned,    9,363   compared,   0   errors, 0   skipped,    0
copied, 0   removed,    m0s
15,796  scanned,    10,019  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m5s
15,796  scanned,    10,042  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m10s
15,796  scanned,    10,059  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m15s
15,796  scanned,    10,075  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m20s
15,796  scanned,    10,091  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m25s
15,796  scanned,    10,108  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m30s
15,796  scanned,    10,929  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m35s
15,796  scanned,    12,443  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m40s
15,796  scanned,    13,963  compared,   0   errors, 0   skipped,    0
```

```
copied  0   removed,    1m45s
15,796  scanned,    15,488  compared,   0   errors, 0   skipped,    0
copied  0   removed,    1m50s
15,796  scanned,    15,796  compared,   0   errors, 0   skipped,     0
copied  0   removed,    1m51s

xcp sync -acl -fallback-user "DOMAIN\User" -fallback-group
"DOMAIN\Group \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
15,796 scanned, 0 copied, 15,796 compared, 0 removed, 0 errors
Total Time : 1m51
STATUS : PASSED
```

sync -l

Use the `-l` parameter with the `sync` command to provide detailed logging information in the standard output for all actions performed by XCP on the target.

Syntax

```
xcp sync -l \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp sync -l \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -l \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share

File "atime" changed, timestamps set for "agnostic"
File "atime" changed, timestamps set for "<root>"
xcp sync -l \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
634 scanned, 0 copied, 634 compared, 0 removed, 0 errors
Total Time : 3s
STATUS : PASSED
```

sync -root

Use the `-root` parameter with the `sync` command to sync the ACLs for the root directory.

Syntax

```
xcp sync -acl -root -fallback-user "DOMAIN\User" -fallback-group
"DOMAIN\Group" \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
C:\NetApp\XCP>xcp sync -acl -root -fallback-user "DOMAIN\User"
-fallback-group "DOMAIN\Group" \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp sync -acl -root -fallback-user "DOMAIN\User" -fallback-group
"DOMAIN\Group" \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
12 scanned, 0 copied, 12 compared, 0 skipped, 0 removed, 0 errors, 1
acls copied
Total Time : 2s
STATUS : PASSED
```

sync -onlyacl-fallback-user <fallback_user> -fallback-group <fallback_group>

Use the `-onlyacl`, `-fallback-user`, and `-fallback-group` parameters with the `sync` command to compare the security information between the source with the target and apply the required actions on the target. The `-fallback-user` and `-fallback-group` are a user or group on the target machine or in the Active Directory that receive the permissions of the local (non-domain) source users or groups.

> You cannot use the `-onlyacl` parameter without the `-fallback-user` and `-fallback -group` options.

Syntax

```
xcp sync -onlyacl -fallback-user <fallback_user> -fallback-group
<fallback_group> \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
C:\Users\ctladmin\Desktop>xcp sync -onlyacl -fallback-user
"DOMAIN\User" -fallback-group "DOMAIN\Group"
\\<source_IP_address>\source_share \\<IP address of SMB destination
server>\dest_share

8,814 scanned,  0   copied, 620 compared,   0   skipped,    0
removed,    0   errors, 6s
9,294 scanned,  0   copied, 2,064   compared,   0   skipped,    0
removed,    0   errors, 11s
12,614 scanned, 0   copied, 3,729   compared,   0   skipped,    0
removed,    0   errors, 16s
13,034 scanned, 0   copied, 5,136   compared,   0   skipped,    0
removed,    0   errors, 21s
14,282 scanned, 0   copied, 7,241   compared,   0   skipped,    0
removed,    0   errors, 26s
14,282 scanned, 0   copied, 8,101   compared,   0   skipped,    0
removed,    0   errors, 31s
14,282 scanned, 0   copied, 8,801   compared,   0   skipped,    0
removed,    0   errors, 36s
14,282 scanned, 0   copied, 9,681   compared,   0   skipped,    0
removed,    0   errors, 41s
14,282 scanned, 0   copied, 10,405  compared,   0   skipped,    0
removed,    0   errors, 46s
14,282 scanned, 0   copied, 11,431  compared,   0   skipped,    0
removed,    0   errors, 51s
14,282 scanned, 0   copied, 12,471  compared,   0   skipped,    0
removed,    0   errors, 56s
14,282 scanned, 0   copied, 13,495  compared,   0   skipped,    0
removed,    0   errors, 1m1s
14,282 scanned, 0   copied, 14,282  compared,   0   skipped,    0
removed,    0   errors, 1m6s

xcp sync -onlyacl -preserve-atime -fallback-user "DOMAIN\User"
-fallback-group "DOMAIN\Group" \\<source_IP_address>\source_share \\<IP
address of SMB destination server>\dest_share
14,282 scanned, 0 copied, 14,282 compared, 0 skipped, 0 removed, 0
errors
Total Time : 1m7s
STATUS : PASSED
```

sync -aclverify{yes,no}

Use the `-aclverify{yes,no}` parameter with the `sync` command to provide an option to include or skip ACL verification during the ACL sync operation. This option can only be used with the `sync -acl` and `sync -onlyacl` commands. ACL sync performs ACL verification by default. If you set the `-aclverify` option to `no`, you can skip ACL verification and the `fallback-user` and `fallback-group` options are not required. If you set `-aclverify` to `yes`, it requires the `fallback-user` and `fallback-group` options, as shown in the following example.

Syntax

```
xcp sync -acl -aclverify yes -fallback-user <fallback_user> -fallback
-group <fallback_group> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
C:\NetApp\xcp>xcp sync -acl -aclverify yes -fallback-user "DOMAIN\User"
-fallback-group "DOMAIN\Group" \\<source_IP_address>\source_share \\<IP
address of SMB destination server>\dest_share

25 scanned, 0 copied, 24 compared, 0 skipped, 0 removed, 0 errors, 5s,
0 acls copied
25 scanned, 0 copied, 24 compared, 0 skipped, 0 removed, 0 errors, 10s,
0 acls copied
25 scanned, 0 copied, 24 compared, 0 skipped, 0 removed, 0 errors, 15s,
0 acls copied xcp sync -acl -aclverify yes -fallback-user "DOMAIN\User"
-fallback-group "DOMAIN\Group" \\<source_IP_address>\source_share \\<IP
address of SMB destination server>\dest_share
25 scanned, 1 copied, 25 compared, 0 skipped, 0 removed, 0 errors, 12
acls copied Total Time : 16s
STATUS : PASSED
C:\NetApp\xcp>xcp sync -acl -aclverify no
\\<source_IP_address>\source_share \\<IP address of SMB destination
server>\dest_share

xcp sync -acl -aclverify no \\<source_IP_address>\source_share \\<IP
address of SMB destination server>\dest_share
27 scanned, 1 copied, 27 compared, 0 skipped, 0 removed, 0 errors, 13
acls copied Total Time : 2s
STATUS : PASSED
C:\NetApp\xcp>xcp sync -onlyacl -aclverify yes -fallback-user
"DOMAIN\User" -fallback-group "DOMAIN\Group"
\\<source_IP_address>\source_share \\<IP address of SMB destination
server>\dest_share
24 scanned, 0 copied, 24 compared, 0 skipped, 0 removed, 0 errors, 5s,
0 acls copied
24 scanned, 0 copied, 24 compared, 0 skipped, 0 removed, 0 errors, 10s,
0 acls copied
24 scanned, 0 copied, 24 compared, 0 skipped, 0 removed, 0 errors, 15s,
0 acls copied xcp sync -onlyacl -aclverify yes -fallback-user
"DOMAIN\User" -fallback-group "DOMAIN\Group"
\\<source_IP_address>\source_share \\<IP address of SMB destination
server>\dest_share
C:\NetApp\xcp>xcp sync -onlyacl -aclverify no
\\<source_IP_address>\source_share \\<IP address of SMB destination
server>\dest_share
xcp sync -onlyacl -aclverify no \\<source_IP_address>\source_share
\\<IP address of SMB destination server>\dest_share
24 scanned, 0 copied, 24 compared, 0 skipped, 0 removed, 0 errors, 11
acls copied
```

```
Total Time : 2s
STATUS : PASSED
```

sync -bs <n>

Use the `-bs <n>` parameter with the `sync` command to provide a read/write block size. The default size is 1M.

Syntax

```
xcp.exe sync -bs <n> \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
C:\Netapp\xcp>xcp.exe sync -bs 64k \\<source_IP_address>\source_share
\\<IP address of SMB destination server>\dest_share
1,136 scanned, 0 copied, 1,135 compared, 0 skipped, 95 removed, 0
errors, 5s
xcp.exe sync -bs 64k \\<source_IP_address>\source_share \\<IP address
of SMB destination server>\dest_share 1,136 scanned, 283 copied, 1,136
compared, 0 skipped, 283 removed, 0 errors
Total Time : 10s
STATUS : PASSED
```

sync -ads

Use `-ads` parameter with the `sync` command to scan for changes and modifications to alternate data streams in the source and target SMB share. If there are changes, it applies the change to the target to make sure that the target is identical to the source.

Syntax

```
xcp sync -ads \\<IP address or hostname of SMB server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
C:\netapp\xcp>xcp sync -ads \\<source_IP_address>\source_share\src
\\<dest_IP_address>\dest_share

13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 5s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 10s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 15s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 20s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 25s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 30s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 1m0s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 2m50s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 2m55s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 3m0s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 3m55s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 4m0s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 4m55s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 5m0s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 5m5s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 5m10s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 5m55s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 6m0s, 1 ads copied
13  scanned,    1   copied, 12  compared,   0   skipped,    0
removed,    0   errors, 6m5s, 1 ads copied
xcp sync -ads \\<source_IP_address>\source_share\src
\\<dest_IP_addess>\dest_share
13 scanned, 1 copied, 13 compared, 0 skipped, 0 removed, 0 errors, 1
```

```
ads copied
Total Time : 6m9s
STATUS : PASSED
```

verify

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

Syntax

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

Show example

```
c:\netapp\xcp>xcp verify  \\<IP address of SMB source
server>\source_share  \\<IP address of SMB destination
server>\dest_share
xcp verify  \\<IP address of SMB source server>\source_share  \\ <IP
address of SMB destination server>\dest_share

xcp verify  \\<IP address of SMB source server>\source_share  \\<IP
address of SMB destination server>\dest_share
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
xcp verify  \\<IP address of SMB source server>\source_share  \\<IP
address of SMB destination server>\dest_share
Total Time : 3s
STATUS : PASSED
```

The following table lists the `verify` parameters and their description.

Parameter	Description
verify -h, --help	Show this help message and exit.
verify -v	Increase debug verbosity.
verify -parallel <n>	Number of concurrent processes (default: <cpu-count>).
verify -match <filter>	Only process files and directories that match the filter (see `xcp help - match` for details).
verify -exclude <filter>	Only exclude files and directories in the filter.

Parameter	Description
verify -preserve-atime	Restore last accessed date on source.
verify -nodata	Do not check data.
verify -atime	Verify file access time.
verify -noctime	Do not check file creation time.
verify -nomtime	Do not check file modification time.
verify -noattrs	Do not check attributes.
verify -noownership	Do not check ownership.
verify -ads	Scan for changes and modifications of alternate data streams in the source and target SMB share. If there are changes, it applies the change to the target to make sure that the target is identical to the source.
verify -noacls	Do not check ACLs.
verify -atimewindow <float>	Acceptable access time difference, in seconds.
verify -ctimewindow <float>	Acceptable creation time difference, in seconds.
verify -mtimewindow <float>	Acceptable modification time difference, in seconds,
verify -stats	Scan source and target trees in parallel and compare tree statistics.
verify -l	Increases output detail.
verify -ll	Increases output detail (git diff format).
verify -fallback-user <fallback_user>	Active Directory user or local(non-domain) user on the target machine to receive the permissions of local (non-domain) source machine users (example: domain\administrator).
verify -fallback-group <fallback_group>	Active Directory group or local(non-domain) group on the target machine to receive the permissions of local(non-domain) source machine groups (example: domain\administrators).
verify -root	Sync ACLs for the root directory.
verify -onlyacl	Copy only the security information.

verify -h, --help

Use the `-h` and `--help` parameters with the `verify` command to display detailed information about the `verify` command

Syntax

```
xcp verify -help
```

Show example

```
C:\Netapp\xcp>xcp verify -help
usage: xcp verify [-h] [-v] [-parallel <n>] [-match <filter>] [-exclude
<filter>][-preserve-atime]
[-loglevel <name>] [-fallback-user FALLBACK_USER]
[-fallback-group FALLBACK_GROUP] [-noacls] [-nodata] [-stats] [-l] [-
root] [-noownership] [-onlyacl] [-noctime] [-nomtime] [-noattrs] [-
atime]
[-atimewindow <float>] [-ctimewindow <float>] [-mtimewindow <float>] [-
ads] source target

Note: ONTAP does not let a SMB client modify COMPRESSED or ENCRYPTED
attributes. XCP sync will ignore these file attributes.

positional arguments:
   source
   target

optional arguments:
-h, --help             show this help message and exit
-v                      increase debug verbosity
-parallel <n>         number of concurrent processes (default: <cpu-
count>)
-match <filter>        only process files and directories that match
the filter (see `xcp help -match` for details)
-exclude <filter>      Exclude files and directories that match the
filter (see `xcp help -exclude` for details)
-preserve-atime      restore last accessed date on source
--help-diag           Show all options including diag.The diag options
should be used only on recommendation by NetApp support.
-loglevel <name>       option to set log level filter (default:INFO)
-fallback-user FALLBACK_USER
                       a user on the target machine to translate the
permissions of local (non-domain) source machine users (eg.
domain\administrator)
-fallback-group FALLBACK_GROUP
                       a group on the target machine to translate the
permissions of local (non- domain) source machine groups (eg.
domain\administrators)
-nodata               do not check data
-stats                scan source and target trees in parallel and
compare tree statistics
-l                      detailed file listing output
-root                    verify acl for root directory
-noacls               do not check acls
```

```
-noownership            do not check ownership
-onlyacl                  verify only acls
-noctime                  do not check file creation time
-nomtime                  do not check file modification time
-noattrs                  do not check attributes
-atime                verify acess time as well
-atimewindow <float>   acceptable access time difference in seconds
-ctimewindow <float>   acceptable creation time difference in seconds
-mtimewindow <float>   acceptable modification time difference in
seconds
-ads                     verify ntfs alternate data stream
```

verify -v

Use the `-v` parameter with the `verify` command to provide detailed debug information.

Syntax

```
xcp verify -v \\<IP address of SMB source server>\source_share address of
SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp> xcp verify -v \\<IP address of SMB source
server>\source_share address of SMB destination server>\dest_share
xcp verify -v  \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share

xcp verify -v \\< IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -parallel <n>

Use the `-parallel <n>` parameter with the `verify` command to set a higher or lower number of XCP concurrent processes. The `verify -parallel <n>` command verifies the number of concurrent processes (default: <cpu-count>).

> The maximum value for n is 61.

Syntax

```
xcp verify -v -parallel <n> \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -v -parallel 8 \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -v -parallel 8 \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp verify -v -parallel 8 \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 4s
STATUS : PASSED
```

verify -match <filter>

Use the `-match <filter>` parameter with the `verify` command to scan the source and target tree and compare only the files or directories that match the filter argument. If there are any differences, the command applies the required actions on the target to keep them in sync.

Syntax

```
xcp verify -v -match <filter> \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -v -match "'Microsoft' in name" \\<IP address
of SMB source server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -v -match "'Microsoft' in name" \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp verify -v -match 'Microsoft' in name \\<IP address of SMB source
server> \source_share \\<IP address of SMB destination
server>\dest_share
374 scanned, 0 compared, 0 same, 0 different, 0 missing, 0 errors
Total Time : 1s
STATUS : PASSED
```

verify -exclude <filter>

Use the `-exclude <filter>` parameter with the `verify` command to only exclude files and directories in the filter.

Syntax

```
xcp verify -exclude <filter> \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
C:\netapp\xcp>xcp verify -exclude "path('*Exceptions*')" \\<IP address
of SMB sourceserver>\source_share \\<IP address of SMB destination
server>\dest_share

210 scanned, 99 excluded, 6 compared, 5 same, 1 different, 0 missing, 0
errors, 5s
210 scanned, 107 excluded, 13 compared, 12 same, 1 different, 0
missing, 0 errors, 10s
210 scanned, 107 excluded, 13 compared, 12 same, 1 different, 0
missing, 0 errors, 15s
210 scanned, 107 excluded, 13 compared, 12 same, 1 different, 0
missing, 0 errors, 20s
335 scanned, 253 excluded, 13 compared, 12 same, 1 different, 0
missing, 0 errors, 25s
445 scanned, 427 excluded, 15 compared, 14 same, 1 different, 0
missing, 0 errors, 30s
445 scanned, 427 excluded, 15 compared, 14 same, 1 different, 0
missing, 0 errors, 35s
445 scanned, 427 excluded, 15 compared, 14 same, 1 different, 0
missing, 0 errors, 40s
445 scanned, 427 excluded, 15 compared, 14 same, 1 different, 0
missing, 0 errors, 45s
445 scanned, 427 excluded, 16 compared, 15 same, 1 different, 0
missing, 0 errors, 50s
xcp verify -exclude path('*Exceptions*') \\<IP address of SMB
sourceserver>\source_share \\<IP address of SMB destination
server>\dest_share
445 scanned, 427 excluded, 17 compared, 17 same, 0 different, 0
missing, 0 errors
Total Time : 1m11s
STATUS : PASSED
```

verify -preserve-atime

Use the `-preserve-atime` parameter with the `verify` command to reset `atime` to the original value before XCP read the file.

Syntax

```
xcp verify -preserve-atime \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -preserve-atime \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -preserve-atime \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share

374 scanned, 179 compared, 179 same, 0 different, 0 missing, 0 errors,
5s
xcp verify -preserve-atime \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 8s
STATUS : PASSED
```

verify -nodata

Use the `-nodata` parameter with the `verify` command to not compare data.

Syntax

```
xcp verify -nodata \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -nodata \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -nodata \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share

xcp verify -nodata \\<IP address of SMB source server> \source_share
\\<IP address of SMB destination server>\dest_share : PASSED
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -atime

Use the `-atime` parameter with the `verify` command to compare file access time stamps from the source to destination.

Syntax

```
xcp verify -ll -atime \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\Netapp\xcp> xcp verify -ll -atime \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share

WARNING: your license will expire in less than one week! You can renew
your license at https://xcp.netapp.com
dir1: Changed (atime)
  atime
     - 2023-04-14 10:28:47 (1681482527.564423)
     + 2023-04-14 10:24:40 (1681482280.366317)
dir2: Changed (atime)
  atime
     - 2023-04-14 10:28:47 (1681482527.564424)
     + 2023-04-14 10:24:40 (1681482280.366318)
<root>: Changed (atime)
  atime
     - 2023-04-14 10:28:47 (1681482527.054403)
     + 2023-04-14 10:28:35 (1681482515.538801)
xcp verify -ll -atime \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share
14 scanned, 13 compared, 10 same, 3 different, 0 missing, 0 errors
Total Time : 1s
STATUS : FAILED
```

verify -noctime

Use the `-noctime` parameter with the `verify` command to not compare file creation time stamps from the source to destination.

Syntax

```
xcp verify -noctime \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -noctime \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -noctime \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share

xcp verify -noctime \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share : PASSED
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -nomtime

Use the `-nomtime` parameter with the `verify` command to not compare file modification time stamps from the source to destination.

Syntax

```
xcp verify -nomtime \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -nomtime \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -nomtime \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share

xcp verify -nomtime \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share : PASSED
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -noattrs

Use the `-noattrs` parameter with the `verify` command to not check attributes.

Syntax

```
xcp verify -noattrs \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -noattrs \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -noattrs \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share

xcp verify -noattrs \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share : PASSED
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -noownership

Use the `-noownership` parameter with the `verify` command to not check ownership.

Syntax

```
xcp verify -noownership \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -noownership \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -noownership \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp verify -noownership \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share : PASSED
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -ads

Using `-ads` parameter with the `verify` command to read if there are any alternate data streams on the source and destination and display any differences.

Syntax

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

Show example

```
c:\netapp\xcp>xcp verify -ads \\<source_IP_address>\source_share\src
\\<dest_IP_address>\dest_share

7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 5s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 10s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 1m0s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 1m55s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 2m0s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 2m5s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 2m55s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 3m0s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 3m5s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 3m55s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 4m55s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 5m0s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 5m5s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 5m55s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 6m0s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 6m5s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 6m10s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 7m0s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 7m5s
7   scanned,    5   compared,   5   same,   0   different,  0
missing,    0   errors, 7m55s
7   scanned,    5   compared,   5   same,   0   different,  0
```

```
missing,    0   errors, 8m0s

xcp verify -ads \\source_Ip_address>\source_share\src
\\<dest_IP_address>\dest_share
7 scanned, 6 compared, 6 same, 0 different, 0 missing, 0 errors
Total Time : 8m4s
STATUS : PASSED
```

verify -noacls

Use the `-noacls` parameter with the `verify` command to not check ACLs.

Syntax

```
xcp verify -noacls -noownership \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -noacls -noownership \\<IP address or hostname
of SMB server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -noacls -noownership \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp verify -noacls -noownership \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
318 scanned, 317 compared, 317 same, 0 different, 0 missing, 0 errors
Total Time : 1s
STATUS : PASSED
```

verify -noacls -noownership

Use the `-noownership` parameter with `verify -noacls` to not check ACLs or ownership from the source to the destination.

Syntax

```
xcp verify -noacls -noownership <source> <target>
```

verify -atimewindow <float>

Use the `-atimewindow <float>` parameter with the `verify` command to specify the acceptable difference, in seconds, for the `atime` of a file from the source to the destination. XCP does not report files as being different if the difference in `atime` is less than <value>. The `verify - atimewindow` command can only be used with the `-atime` flag.

Syntax

```
xcp verify -atimewindow <float> \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\Netapp\xcp> xcp verify -atimewindow 600 -atime \\<IP address of SMB
source server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp verify -atimewindow 600 -atime \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share

14 scanned, 13 compared, 13 same, 0 different, 0 missing, 0 errors
```

verify -ctimewindow <float>

Use the `-ctimewindow <float>` parameter with the `verify` command to specify the acceptable difference, in seconds, for the `ctime` of a file from the source to the destination. XCP does not report files as being different when the difference in `ctime` is less than <value>.

Syntax

```
xcp verify -ctimewindow <float> \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -ctimewindow 600 \\<IP address of SMB
sourceserver>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -ctimewindow 600 \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp verify -ctimewindow 600 \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -mtimewindow <float>

Use the `-mtimewindow <float>` parameter with the `verify` command to specify the acceptable difference, in seconds, for the `mtime` of a file from the source to the destination. XCP does not report files as being different when the difference in `mtime` is less than <value>.

Syntax

```
xcp verify -mtimewindow <float> \\<IP address of SMB
sourceserver>\source_share \\<IP address of SMB destination
server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -mtimewindow 600 \\<IP address of SMB
sourceserver>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -mtimewindow 600 \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share

xcp verify -mtimewindow 600 \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -stats

Use the `-stats` parameter with the `verify` command to scan the source and the destination and print a tree statistics report showing similarities or differences between the two shares.

Syntax

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

Show example

```
c:\netapp\xcp>xcp verify -stats \\<IP address or hostname of SMB
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -stats \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share

       == Number of files ==
                empty    <8KiB    8-64KiB    64KiB-1MiB   1-10MiB   10-
100MiB   >100MiB
                              81        170            62         2
on-target                    same       same          same      same
on-source                    same       same          same      same

       == Directory entries ==
                empty     1-10     10-100        100-1K    1K-10K
>10K
                                       1             1
on-target                                same          same
on-source                        same         same

       == Depth ==
                  0-5     6-10      11-15         16-20    21-100
>100
                  317
on-target           same
on-source         same

       == Modified ==
              >1 year    >1 month  1-31 days    1-24 hrs   <1 hour
<15 mins     future    invalid
                  315                                     2
on-target        same                                  same
on-source        same                                  same

Total count: 317 / same / same
Directories: 2 / same / same
Regular files: 315 / same / same
Symbolic links:
Junctions:
Special files:
xcp verify -stats \\<IP address or hostname of SMB server>\source_share
\\<IP address of SMB destination server>\dest_share
635 scanned, 0 errors Total Time : 1s
STATUS : PASSED
```

verify -l

Use the `-l` parameter with the `verify` command to list the differences between files and directories on the source and destination.

Syntax

```
xcp verify -l \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

In the following example, during copy, the ownership information was not transferred, and you can see the differences in the command output.

Show example

```
c:\netapp\xcp>xcp verify -l \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -l \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share

xcp verify -l \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify -ll

Use the `-ll` parameter with the `verify` command to list the detailed differences of the files or directories from the source and the target. The format is like git diff. The red value is the old one from the source, and the green value is the new one from the target.

Syntax

```
xcp verify -ll \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
c:\netapp\xcp>xcp verify -ll \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination
server>\dest_share
xcp verify -ll \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share

xcp verify -ll \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
374 scanned, 373 compared, 373 same, 0 different, 0 missing, 0 errors
Total Time : 3s
STATUS : PASSED
```

verify-fallback-user <fallback_user> -fallback-group <fallback_group>

Use the `-fallback-user` and `-fallback-group` parameters with the `verify` command to list the ACL and ownership differences between files and directories on the source and destination.

> If you use `fallback-user` and `fallback-group` with a copy or sync operation, NetApp recommends that you also use the `fallback-user` and `fallback-group` parameters with the verify operation.

Syntax

```
xcp verify -fallback-user <fallback_user> -fallback-group <fallback_group>
\\<IP address of SMB source server>\source_share \\<IP address of SMB
destination server>\dest_share
```

verify -noownership-fallback-user <fallback_user> -fallback-group <fallback_group>

Use the `-noownership`, `-fallback-user`, and `-fallback-group` parameters with the `verify` command to list the ACL differences and skip verification of ownership between files and directories on the source and destination.

Syntax

```
xcp verify -noownership -fallback-user <fallback_user> -fallback-group
<fallback_group> \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

verify -noacls-fallback-user <fallback_user> -fallback-group <fallback_group>

Use the `-noacls`, `-fallback-user`, and `-fallback-group` parameters with the `verify` command to skip verification of ACLs and verify ownership between files and directories on the source and destination.

Syntax

```
xcp verify -noacls -fallback-user <fallback_user> -fallback-group
<fallback_group> \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

verify -root

Use the `-root` parameter with the `verify` command to sync the ACLs for the root directory.

Syntax

```
xcp verify -root -fallback-user <fallback_user> -fallback- group
<fallback_group> \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
```

Show example

```
C:\NetApp\XCP>xcp verify -root -fallback-user "DOMAIN\User" -fallback
-group "DOMAIN\Group" \\<IP address of SMB source server>\source_share
\\<IP address of SMB destination server>\dest_share

xcp verify -l -root -fallback-user "DOMAIN\User" -fallback-group
"DOMAIN\Group" \\<IP address of SMB source server>\source_share \\<IP
address of SMB destination server>\dest_share
7 scanned, 6 compared, 6 same, 0 different, 0 missing, 0 errors
Total Time : 1s
STATUS : PASSED
```

verify -onlyacl -fallback-user <fallback_user> -fallback- group <fallback_group>

Use the `-onlyacl`, `-fallback-user` and `-fallback-group` parameters with the `verify` command to compare only the security information between the source and destination.

Syntax

```
xcp verify -onlyacl -preserve-atime -fallback-user <fallback_user>
-fallback- group <fallback_group> \\<IP address of SMB source
server>\source_share \\<IP address of SMB destination server>\dest_share
```

Show example

```
C:\Users\ctladmin\Desktop>xcp verify -onlyacl -preserve-atime -fallback
-user "DOMAIN\User" -fallback- group "DOMAIN\Group" -ll
\\<source_IP_address>\source_share \\<IP address of SMB destination
server>\dest_share

4,722   scanned,    0 compared, 0 same, 0 different, 0 missing, 0
errors, 5s
7,142   scanned,    120 compared, 120 same, 0 different, 0 missing, 0
errors, 10s
7,142   scanned,    856 compared, 856 same, 0 different, 0 missing, 0
errors, 15s
7,142   scanned,    1,374 compared, 1,374 same, 0 different, 0 missing,
0 errors,   20s
7,142   scanned,    2,168 compared, 2,168 same, 0 different, 0 missing,
0 errors,   25s
7,142   scanned,    2,910 compared, 2,910 same, 0 different, 0 missing,
0 errors,   30s
7,142   scanned,    3,629 compared, 3,629 same, 0 different, 0 missing,
0 errors,   35s
7,142   scanned,    4,190 compared, 4,190 same, 0 different, 0 missing,
0 errors,   40s
7,142   scanned,    4,842 compared, 4,842 same, 0 different, 0 missing,
0 errors,   45s
7,142   scanned,    5,622 compared, 5,622 same, 0 different, 0 missing,
0 errors,   50s
7,142   scanned,    6,402 compared, 6,402 same, 0 different, 0 missing,
0 errors,   55s
7,142   scanned,    7,019 compared, 7,019 same, 0 different, 0 missing,
0 errors,   1m0s

xcp verify -onlyacl -preserve-atime -fallback-user "DOMAIN\User"
-fallback-group "DOMAIN\Group" -ll \\<source_IP_address>\source_share
\\<IP address of SMB destination server>\dest_share
7,142 scanned, 7,141 compared, 7,141 same, 0 different, 0 missing, 0
errors
Total Time : 1m2s
STATUS : PASSED
```

configure

The `configure` command configures the SMB system and connects to the system where the PostgreSQL database is running.

Syntax

```
xcp.exe configure
```

Show example

```
C:\NetApp\XCP>xcp.exe configure

Please choose the menu you want to start:
1. Configure xcp.ini file
0. Quit
```

listen

The `listen` command reads the XCP binary and starts the XCP services.

Syntax

```
xcp.exe listen
```

Show example

```
c:\NetApp\XCP>xcp.exe listen
* Serving Flask app "xcp_rest_smb_app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production
deployment. Use a production WSGI server instead.
* Debug mode: off
```

XCP use cases

Use cases for XCP NFS and SMB

Learn about XCP different data migration use cases for NetApp XCP.

Data migration from 7-Mode to ONTAP

CIFS data migration with ACLs from a source storage box to ONTAP

XCP logging

Set the logConfig option

Learn about the logConfig option in the `xcpLogConfig.json` JSON configuration file for XCP NFS and SMB.

The following example shows the JSON configuration file set with the “logConfig” option:

Example

```
{
"level":"INFO",
"maxBytes":"52428800",
"name":"xcp.log"
}
```

- With this configuration you can filter messages according to their severity by selecting a valid level value from `CRITICAL`, `ERROR`, `WARNING`, `INFO`, and `Debug`.
- The `maxBytes` setting enables you to change the file size of the rotating log files. The default is 50MB. Setting the value to 0 stops rotation and a single file is created for all logs.
- The `name` option configures the name of the log file.
- If any key value pair is missing, the system uses the default value. If you make a mistake specifying the name of an existing key, it is treated as a new key, and the new key does not affect how the systems works or system functionality.

Set the eventlog option

XCP supports event messaging, which you can enable using the `eventlog` option in the `xcpLogConfig.json` JSON config file.

For NFS, all event messages are written to the `xcp_event.log` file located in either the default location `/opt/NetApp/xFiles/xcp/` or a custom location configured using the following environment variable:

`XCP_CONFIG_DIR`

> When both locations are set, `XCP_LOG_DIR` is used.

For SMB, all event messages are written to the file `xcp_event.log` located in the default location `C:\NetApp\XCP\`.

JSON configuration for event messaging for NFS and SMB

In the following examples, the JSON configuration files enable event messaging for NFS and SMB.

Example JSON configuration file with the eventlog option enabled

```
{
"eventlog": {
"isEnabled": true,
"level": "INFO"
},
"sanitize": false
}
```

Example JSON configuration file with eventlog and other options enabled

```
{
"logConfig": {
"level": "INFO",
"maxBytes": 52428800,
"name": "xcp.log"
},
"eventlog": {
"isEnabled": true,
"level": "INFO"
},
"syslog": {
"isEnabled": true,
"level": "info",
"serverIp": "10.101.101.10",
"port": 514
},
"sanitize": false
}
```

The following table shows the eventlog sub options and their description:

Sub option	JSON data type	Default value	Description
`isEnabled`	Boolean	False	This boolean option is used to enable event messaging. If set to false, it does not generate any event messages and no event logs are published to the event log file.
`level`	String	INFO	Event message severity filter level. Event messaging support five severity levels in order of decreasing severity: CRITICAL, ERROR, WARNING, INFO, and DEBUG

Template for an NFS event log message

The following table shows a template and an example for an NFS event log message:

Template	Example
<Time stamp> - <Severity level> {"Event ID": <ID>, "Event Category":<category of xcp event log>, "Event Type": <type of event log>, "ExecutionId": < unique ID for each xcp command execution >, "Event Source": <host name>, "Description": <XCP event log message>}	2020-07-14 07:07:07,286 - ERROR {"Event ID": 51, "Event Category": "Application failure", "Event Type": "No space left on destination error", " ExecutionId ": 408252316712, "Event Source": "NETAPP-01", "Description": "Target volume is left with no free space while executing : copy {}. Please increase the size of target volume 10.101.101.101:/cat_vol"}

Eventlog message options

The following options are available for an eventlog message:

- `Event ID`: The unique identifier for each event log message.
- `Event Category`: Explains the category of event type and event log message.
- `Event Type`: This is a short string that describes the event message. Multiple event types can belong to one category.
- `Description`: The description field contains the event log message generated by XCP.
- `ExecutionId`: A unique identifier for each XCP command executed.

Enable the syslog client

XCP supports a syslog client to send XCP event log messages to a remote syslog receiver for NFS and SMB. It supports the UDP protocol using the default port 514.

Configure the syslog client for NFS and SMB

Enabling the syslog client requires configuring the `syslog` option in the the `xcpLogConfig.json` configuration file for NFS and SMB.

The following example configuration for the syslog client for NFS and SMB:

```
{
"syslog":{
"isEnabled":true,
"level":"INFO",
"serverIp":"10.101.101.d",
"port":514
},
"sanitize":false
}
```

Syslog options

The following table shows the syslog sub options and their description:

Sub option	JSON data type	Default value	Description
`isEnabled`	Boolean	False	This Boolean option enables the syslog client in XCP. Setting it to false will ignore the syslog configuration.
`level`	String	INFO	Event message severity filter level. Event messaging support five severity levels in order of decreasing severity: CRITICAL, ERROR, WARNING, INFO, and DEBUG
`serverIp`	String	None	This option lists the remote syslog server IP addresses or hostnames.
`port`	Integar	514	This option is the remote syslog receiver port. You can configure syslog receivers to accept syslog datagrams on a different port with this option.The default UDP port is 514.

> The `sanitize` option should not be specified within “syslog” configuration. This option has a global scope and is common to logging, event log, and syslog within JSON config. Setting this value to “true” will hide sensitive information in syslog messages posted to the syslog server.

Syslog message format

Every syslog messages sent to the remote syslog server over UDP is formatted as per the RFC 5424 format for NFS and SMB.

The following table shows the severity level as per RFC 5424 supported for syslog messages for XCP:

Severity values	Severity level
3	Error: error conditions
4	Warning: warning conditions
6	Informational: informational messages
7	Debug: debug-level messages

In the syslog header for NFS and SMB, version has a value of 1 and the facility value for all messages for XCP is set to 1 (user-level messages):

```
<PRI> = syslog facility * 8 + severity value
```

XCP application syslog message format with a syslog header for NFS:

The following table shows a template and example of the syslog message format with a syslog header for NFS:

Template	Example
<PRI><version> <Time stamp> <hostname> xcp_nfs - - - <XCP message>	<14>1 2020-07-08T06:30:34.341Z netapp xcp_nfs - - - INFO {"Event ID": 14, "Event Category": "XCP job status", "Event Type": "XCP scan completion", "Event Source": "netapp", "Description": "XCP scan is completed by scanning 8 items"}

XCP application message without syslog header for NFS

The following table shows a template and example of the syslog message format without a syslog header for NFS:

Template	Example
<message severity level i.e CRITICAL, ERROR, WARNING, INFO, DEBUG> <XCP event log message>	INFO {"Event ID": 14, "Event Category": "XCP job status", "Event Type": "XCP scan completion", "Event Source": "netapp", "Description": "XCP scan is completed by scanning 8 items"}

XCP application syslog message format with syslog header for SMB

The following table shows a template and example of the syslog message format with a syslog header for SMB:

Template	Example
<PRI><version> <Time stamp> <hostname> xcp_smb - - - <XCP message	<14>1 2020-07-10T10:37:18.452Z bansala01 xcp_smb - - - INFO {"Event ID": 14, "Event Category": "XCP job status", "Event Type": "XCP scan completion", "Event Source": "NETAPP-01", "Description": "XCP scan is completed by scanning 17 items"}

XCP application message without syslog header for SMB

The following table shows a template and example of the syslog message format without a syslog header for SMB:

Template	Example
<message severity level i.e CRITICAL, ERROR, WARNING, INFO, DEBUG> <XCP event log message>	NFO {"Event ID": 14, "Event Category": "XCP job status", "Event Type": "XCP scan completion", "Event Source": "NETAPP-01", "Description": "XCP scan is completed by scanning 17items"}

XCP event logs

XCP NFS event logs

Review example event logs for XCP NFS.

The following table shows event logs for XCP NFS.

Event ID	Event template	Event example
401	Mounted on NFS export <mount path> with maximum read block size <read block size> bytes, maximum write block size <write block size> bytes. Mount point has mode value<mode bits> and type: <fattr3 type>.	2020-07-14 03:53:59,811 - INFO {"Event ID":401, "Event Category": "Mounting unmounting file system", "Event Type": "Mount file system information", "ExecutionId": 408249379415, "Event Source": "NETAPP-01","Description": "Mounted on NFS export <IPaddress of NFS server>:/test1 with maximum read block size 65536 bytes, maximum write block size 65536 bytes. Mount point has mode value 493 and type : Directory"}
181	This license is issued to <username>of <company name>,license type is <license type> with <license status> status, license willexpire on <expire date>	2020-07-14 03:53:59,463 - INFO {"Event ID": 181, "Event Category": "Authentication and authorization", "Event Type": "License information", "ExecutionId": 408249379415, "Event Source": "NETAPP-01", "Description": "This license is issued to NetApp User of Network Appliance, Inc, license type is SANDBOX with ACTIVE status, license will expire on Thu Jul 1 00:00:00 2021"}

Event ID	Event template	Event example
183	The license issued to <username> of <company name> will expire in less than one week	2020-07-14 04:02:55,151 - WARNING {"Event ID": 183, "Event Category": "Authentication and authorisation", "Event Type": "License warning", "ExecutionId": 408249519546, "Event Source": "NETAPP-01", "Description": "The license issued to NetApp User of Network Appliance, Inc will expire in less than one week"}
581	Catalog path <catalog volume path> to store catalog directory is not accessible. Refer user guide for configuring catalog volume.	2020-07-14 04:05:00,857 - ERROR {"Event ID": 581, "Event Category": "Catalog and indexing", "Event Type": "Catalog exporting error", "ExecutionId": 408249552351, "Event Source": "NETAPP-01", "Description": "Catalog path <IP address of NFS server>:/test11 to store catalog directory is not accessible. Refer user guide for configuring catalog volume."}
582	Failed creating catalog directory in catalog volume path <catalog volume path>	2020-07-14 04:10:12,895 - ERROR {"Event ID": 582, "Event Category": "Catalog and indexing", "Event Type": "Catalog directory creation error", "ExecutionId": 408249630498, "Event Source": "NETAPP-01", "Description": "Failed creating catalog directory in catalogvolume path 10.234.104.250:/cat_vol"}

Event ID	Event template	Event example
584	Error in creating index directory <index id> for <command>	2020-07-14 04:52:15,918 - ERROR {"Event ID":584, "Event Category": "Catalog and indexing", "Event Type": "Error in index creation", "ExecutionId": 408250278214, "Event Source": "NETAPP-01", "Description": "Error in creating index directory abc7 for scan"}
586	Failed to create index <index id> in catalog volume while executing command : <command>	2020-07-14 04:45:46,275 - ERROR {"Event ID": 586, "Event Category": "Catalog and indexing", "Event Type": "Error in index creation", "ExecutionId": 408250177021, "Event Source": "NETAPP-01", "Description": "Failed to create index abc6 in catalog volume while executing command : scan {- newid: 'abc6'}"}
351	System resources available while executing xcp command: <command>, are : <CPU info>, <memory info>	2020-07-14 05:08:35,393 - INFO {"Event ID":351, "Event Category": "System resource utilization", "Event Type": "Resources available for scan", "ExecutionId": 408250529264, "Event Source": "NETAPP-01", "Description": "System resources available while executing xcp command : scan , are : CPU: count 4, load avg (1/5/15m) 0.0, 0.0, 0.0, System memory (GiB): avail 7.3, total 7.8, free 6.6, buffer 0.1, cache 0.5"}

Event ID	Event template	Event example
13	XCP <command> is running on platform <platform info> for source <source info>	2020-07-14 05:08:35,478 - INFO {"Event ID": 13, "Event Category": "XCP job status", "Event Type": "Starting xcp scan operation", "ExecutionId": 408250529264, "Event Source": "NETAPP-01", "Description": "XCP command : scan {-newid: 'abc7'} is running on platform Linux-2.6.26-2-amd64-x86_64-with-debian- 5.0.10 for source 10.234.104.250:/test1"}
14	XCP scan completed successfully after scanning <scan item count> items. Source : <source scanned>	2020-07-14 05:08:35,653 - INFO {"Event ID": 14, "Event Category": "XCP job status", "Event Type": "XCP scan completion", "ExecutionId": 408250529264, "Event Source": "NETAPP-01", "Description": "XCP scan completed successfully after scanning 479 items. Source : 10.234.104.250:/test1"}
354	System resources available while executing xcp command: <command>, are : <CPU info>, <memory info>	2020-07-14 05:15:13,562 - INFO {"Event ID": 354, "Event Category": "System resource utilization", "Event Type": "Resources available for copy", "ExecutionId": 408250596708, "Event Source": "NETAPP-01", "Description": "System resources available while executing xcp command : copy , are : CPU: count 4, load avg (1/5/15m) 0.0, 0.0, 0.0, System memory (GiB): avail 7.3, total 7.8, free 6.6, buffer 0.1, cache 0.5"}

Event ID	Event template	Event example
25	XCP <command> is running on platform <platform info> for source <copy source> and destination <copy destination/target>	2020-07-14 05:15:13,647 - INFO {"Event ID": 25, "Event Category": "XCP job status", "Event Type": "Starting xcp copy operation", "ExecutionId": 408250596708, "Event Source": "NETAPP-01", "Description": "XCP command : copy {} is running on platform Linux-2.6.26- 2-amd64-x86 64-with-debian-5.0.10 for source <IP address of NFS server>:/source_vol and destination <NFS destination source>:/test1"}
26	XCP copy completed successfully after scanning <scanned item count> of which <matched item count> are matched and <copied item count> items are copied to the destination. Source : <copy source>, destination :<copy destination/target	2020-07-14 05:15:13,885 - INFO {"Event ID":26, "Event Category": "XCP job status", "Event Type": "XCP copy completion", "ExecutionId": 408250596708, "Event Source": "NETAPP-01", "Description": "XCP copy completed successfully after scanning 3 of which 0 are matched and 2 items are copied to the destination. Source : <IP address of NFS server>:/source_vol, destination : <NFS destination source>:/test1"}

Event ID	Event template	Event example
16	XCP <command> is running on platform <platform info> for source <sync source> and destination <sync destination>	2020-07-14 06:41:20,145 - INFO {"Event ID": 16, "Event Category": "XCP job status", "Event Type": "Starting xcp sync operation", "ExecutionId": 408251920146, "Event Source": "NETAPP-01", "Description": "XCP command : sync {-id: 'autoname_copy_2020-07- 14_06.22.07.233271'} is running on platform Linux-2.6.26-2-amd64-x86_64-with-debian-5.0.10 for source <IP address of NFS server>:/src_vol and destination <NFS destination source>:/dest_vol"}
352	System resources available while executing xcp command: <command>, are : <CPU info>, <memory info>	2020-07-14 06:41:28,728 - INFO {"Event ID": 352, "Event Category": "System resource utilization", "Event Type": "Resource available for sync", "ExecutionId": 408251920146, "Event Source": "NETAPP-01", "Description": "System resources available while executing xcp command : sync {-id: 'autoname_copy_2020-07-14_06.22.07.233271'} , are : CPU: count 4, load avg (1/5/15m) 0.1, 0.0, 0.0, System memory (GiB): avail 7.2, total 7.8, free 6.6, buffer 0.1, cache 0.5"}

Event ID	Event template	Event example
17	XCP sync is completed. Total scanned <scanned item count>, copied <copied item count>, modification <modification item count>, new file <new file count>, delete item <delete item count>. Command executed : <command>	2020-07-14 06:41:29,245 - INFO {"Event ID":17, "Event Category": "XCP job status", "Event Type": "XCP sync completion", "ExecutionId": 408251920146, "Event Source": "NETAPP-01", "Description": "XCP sync is completed. Total scanned 66, copied 0, modification 1, new file 0, delete item 0. Command executed : sync {-id: 'autoname_copy_2020-07-14_06.22.07.233271'}"}
19	XCP <command> is running on platform <platform info> for source <verify source> and destination <verify destination>	2020-07-14 06:54:59,084 - INFO {"Event ID": 19, "Event Category": "XCP job status", "Event Type": "Starting xcp verify operation", "ExecutionId": 408252130477, "Event Source": "NETAPP-01", "Description": "XCP command : verify {} is running on platform Linux-2.6.26-2-amd64-x86_64-with- debian-5.0.10 for source <IP address of NFS server>:/src_vol and destination <IP address of NFS destination server>:/dest_vol"}
353	System resources available while executing xcp command: <command>, are : <CPU info>, <memory info>	2020-07-14 06:54:59,085 - INFO {"Event ID": 353, "Event Category": "System resource utilization", "Event Type": "Resources available for verify", "ExecutionId": 408252130477, "Event Source": "NETAPP-01","Description": "System resources available while executing xcp command : verify , are : CPU: count 4, load avg (1/5/15m) 0.0, 0.0, 0.0, System memory (GiB): avail 7.3, total 7.8, free 6.6, buffer 0.1, cache 0.5"}

Event ID	Event template	Event example
211	log file path : <file path> , severity filter level <severity level>, log message sanitization is set as <sanitization value>	2020-07-14 06:40:59,104 - INFO {"Event ID": 211, "Event Category": "Logging and supportability", "Event Type": "XCP logging information", "ExecutionId": 408251920146, "Event Source": "NETAPP-01", "Description": "Log file path : /opt/NetApp/xFiles/xcp/xcplogs/xcp.log, severity filter level INFO, log message sanitization is set as False"}
215	Event file path: <file path>, severity filter level <severity level>, event message sanitization is set as <sanitization value>	2020-07-14 06:40:59,105 - INFO {"Event ID": 215, "Event Category": "Logging and supportability", "Event Type": "XCP event information", "ExecutionId": 408251920146, "Event Source": "NETAPP-01", "Description": "Event file path :/opt/NetApp/xFiles/xcp/xcplogs/xcp_event.log, severity filter level INFO, event message sanitization is set as False"}
54	Catalog volume is left with no free space please increase the size of catalog volume <catalog volume running out of space>	2020-07-14 04:10:12,897 - ERROR {"Event ID":54, "Event Category": "Application failure", "Event Type": "No space left on Catalog volume error", "ExecutionId": 408249630498, "Event Source": "NETAPP-01", "Description": "Catalog volume is left with no free space. Please increase the size of catalog volume<IP address of NFS destination server>:/cat_vol"}

Event ID	Event template	Event example
53	Catalog volume <catalog volume> is left with no free space to store index <index id> while executing <command>. Please increase the size of the catalog volume <catalog volume running out of space>	2020-07-14 04:52:15,922 - ERROR {"Event ID": 53, "Event Category": "Application failure", "Event Type": "No space left for catalog volume error", "ExecutionId": 408250278214, "Event Source": "NETAPP-01", "Description": "Catalog volume 10.234.104.250:/cat_vol is left with no free space to store index abc7 while executing : scan {-newid: 'abc7'}. Please increase the size of the catalog volume <IP address of NFS destination server>:/cat_vol"}
61	NFS LIF <LIF IP> is not reachable for path <volume path without IP> while executing <command>. Please check volume is not offline and is reachable.	2020-07-14 07:38:20,100 - ERROR {"Event ID":61, "Event Category": "Application failure", "Event Type": "NFS mount has failed", "ExecutionId": 408252799101, "Event Source": "NETAPP-01", "Description": "NFS LIF <IP address of NFS destination server> is not reachable for path /test11 while executing : scan {}. Please check volume is not offline and is reachable"}
71	TCP connection could not be established for IP address <IP>. Check network setting and configuration.	2020-07-14 07:44:44,578 - ERROR {"Event ID": 71, "Event Category": "Application failure", "Event Type": "IP is not active", "ExecutionId": 408252889541, "Event Source": "NETAPP-01", "Description": "TCP connection could not be established to the address <IP address of NFS destination server>. Check network setting and configuration."} (UT done)

Event ID	Event template	Event example
51	Target volume is left with no free space while executing: <command>. Please increase the size of target volume <volume running out of space>.	2020-07-14 07:07:07,286 - ERROR {"Event ID": 51, "Event Category": "Application failure", "Event Type": "No space left on destination error", "ExecutionId": 408252316712, "Event Source": "NETAPP-01", "Description": "Target volume is left with no free space while executing : copy {}. Please increase the size of target volume <IP address of NFS destination server>:/cat_vol"}
76	Index id {} is already present . Use new index id and rerun command : <command>	2020-07-14 09:18:41,441 - ERROR {"Event ID": 76, "Event Category": "Application failure", "Event Type": "Index ID problem", "ExecutionId": null, "Event Source": "NETAPP-01", "Description": "Index id asd is already present . Use new index id and rerun command: scan {-newid: 'asd'} "}
362	CPU usage has crossed <percentage CPU used>%	2020-06-16 00:17:28,294 - ERROR {"Event ID": 362, "Event Category": "System resource utilization", "Event Type": "resources available for xcp", "Event Source": "NETAPP- 01 ", "Description": "CPU Usage has crossed 90.07%"}
363	Memory Usage has crossed <percentage memory used>%	2020-06-16 00:17:28,300 - ERROR {"Event ID": 363, "Event Category": "System resource utilization", "Event Type": "resources available for xcp", "Event Source": "NETAPP- 01", "Description": "Memory Usage has crossed 95%"}

Event ID	Event template	Event example
22	XCP <command> is running on platform <platform information> for source <resume source> and destination <resume destination>	2020-07-14 06:24:26,768 - INFO {"Event ID": 22, "Event Category": "XCP job status", "Event Type": "Starting xcp resume operation", "ExecutionId": 408251663404, "Event Source": "NETAPP-01", "Description": "XCP command : resume {-id: 'autoname_copy_2020-07-14_06.22.07.233271'} is running on platform Linux-2.6.26-2-amd64- x86_64-with-debian-5.0.10 for source <IP address for NFS sever>:/src_vol and destination <IP address of NFS destination server>:/dest_vol"}
356	System resources available while executing xcp command: <command> , are : <CPU info>, <memory information>	2020-07-14 06:24:26,837 - INFO {"Event ID": 356, "Event Category": "System resource utilization", "Event Type": "Resource available for resume", "ExecutionId": 408251663404, "Event Source": "NETAPP-01","Description": "System resources available while executing xcp command : resume {-id: 'autoname_copy_2020-07-14_06.22.07.233271'} , are : CPU: count 4, load avg (1/5/15m) 0.1, 0.1, 0.0, System memory (GiB): avail 7.2,total 7.8, free 6.6, buffer 0.1, cache 0.5"}

Event ID	Event template	Event example
23	XCP resume is completed. Total scanned items <scanned item count>, total copied items <copied item count>. Command executed :<command>	2020-07-14 06:26:15,608 - INFO {"Event ID": 23, "Event Category": "XCP job status", "Event Type": "XCP resume completion", "ExecutionId": 408251663404, "Event Source": "NETAPP-01", "Description": "XCP resume is completed. Total scanned items 5982, total copied items 5973. Command executed : resume {-id: 'autoname_copy_2020-07-14_06.22.07.233271'} "}
76	Index id <index id> is already present. Use new index id and rerun command : <command>	2020-07-14 09:43:08,381 - ERROR {"Event ID": 76, "Event Category": "Application failure", "Event Type": "Index ID problem", "ExecutionId": null, "Event Source": "NETAPP-01", "Description": "Index id asd is already present . Use new index id and rerun command : scan {-newid: 'asd'} "}
82	Index id <index id> used while executing sync is incomplete. Try resume on the existing index id <index id>	2020-07-14 10:33:09,307 - ERROR {"Event ID": 82, "Event Category": "Application failure", "Event Type": "Incomplete index used for sync", "ExecutionId": null, "Event Source": "NETAPP-01", "Description": "Index id autoname_copy_2020-07-14_10.28.22.323897 used while executing sync is incomplete. Try resume on the existing index id autoname_copy_2020-07-14_10.28.22.323897."}

Event ID	Event template	Event example
365	CPU utilization reduced to <CPU percentage used>%	2020-07-14 09:43:08 381 - ERROR {"Event ID": 364, "Event Category": "System resource utilization", "Event Type": "Resources available for xcp", "ExecutionId": 408251663404, "Event Source": "NETAPP-01", "Description": " CPU utilization reduced to 26%}
364	Memory utilization reduced to <CPU percentage used>%	2020-07-14 09:43:08,381 - INFO {"Event ID": 364, "Event Category": " Resources available for xcp", "Event Type": "Resources available for xcp", "ExecutionId": 408351663478, "Event Source": "NETAPP-01", "Description": " Memory utilization reduced to 16.2%"}
10	XCP command <command> has failed	2020-07-14 09:43:08,381 - INFO {"Event ID": 10, "Event Category": " Xcp job status", "Event Type": "XCP command failure", "ExecutionId":4082516634506, "Event Source": "NETAPP-01", "Description": " XCP command verify has failed”

XCP SMB event logs

Review example event logs for XCP SMB.

The following table shows event logs for XCP SMB.

Event ID	Event template	Event example
355	CPU usage has crossed <CPU percentage use>%	2020-06-23 12:42:02,705 - INFO {"Event ID": 355, "Event Category": "System resource utilization", "Event Type": "CPU usage for xcp", "Event Source": "NETAPP-01", "Description": "CPU usage has crossed 96%"}

Event ID	Event template	Event example
356	Memory usage has crossed <memory percentage use>%	2020-06-23 12:42:02,705 - INFO {"Event ID": 356, "Event Category": "System resource utilization", "Event Type": "Memory usage for xcp", "Event Source": "NETAPP-01", "Description": "CPU usage has crossed92.5%"}
61	Address was not found: <complete address over which command is fired>	2020-07-15 02:57:06,466 - ERROR {"Event ID": 61, "Event Category": "Application Failure", "Event Type": "Address was not found", "ExecutionId": 408264113696, "Event Source": "NETAPP-01", "Description": "Address was not found: \"\\\\<IP address of SMB server>\\cifs1\""}
62	Interface cannot be found: < complete address over which command is fired >	2020-07-15 02:52:00,603 - ERROR {"Event ID": 62, "Event Category": "Application Failure", "Event Type": "Interface was not found", "ExecutionId": 408264071616, "Event Source": "NETAPP-01", "Description": "Interface cannot be found: \"\\\\<IP address of SMB server>\\cifs11\""}
63	Invalid Address. Please make sure that the Address starts with '\\'	2020-07-15 03:00:10,422 - ERROR {"Event ID": 63, "Event Category": "Application Failure", "Event Type": "Invalid Address", "ExecutionId": 408264197308, "Event Source": "NETAPP-01", "Description": "Invalid Address. Please make sure that the Address starts with '\\'"}

Event ID	Event template	Event example
41	Destination volume is left with no free space please increase the size target volume:<destination volume>	2020-06-15 17:12:46,413 - ERROR {"Event ID": 41, "Event Category": "Application Failure", "Event Type": "No space left on destination error", "Event Source": "NETAPP-01", "Description": "Destination volume is left with no free space please increase the size of target volume: <IP address of SMB server>\\to"}
211	Log file path : <file path>, severity filter level <severity level>, log message sanitization is set as <value of sanitization option>	{"Event ID": 211, "Event Category": "Logging and supportability", "Event Type": "XCP logging information", "ExecutionId": 408252673852, "Event Source": "NETAPP-01", "Description": "Log file path : C:\\NetApp\\XCP\\Logs\\xcp.log, severity filter level DEBUG, log message sanitization is set as False"}
215	Event file path : <file path>, severity filter level <severity level>, Event message sanitization is set as <sanitization option>	{"Event ID": 215, "Event Category": "Logging and supportability", "Event Type": "XCP event information", "ExecutionId": 408252673852, "Event Source": "NETAPP-01", "Description": "Event file path : C:\\NetApp\\XCP\\Logs\\xcp_event.log, severity filter level INFO, Event message sanitization is set as False"}

Event ID	Event template	Event example
181	This license is issued to <user name> of <company name>, license type is <license type> with <status> status, license will expire expires on <expiration date>	{"Event ID": 181, "Event Category": "Authentication and authorization", "Event Type": "license information", "ExecutionId": 408252673852, "Event Source": "NETAPP-01", "Description": "This license is issued to calin of NetApp Inc, license type is SANDBOX with ACTIVE status, license will expire on Mon Dec 31 00:00:00 2029"}
13	XCP <command> is running on platform <platform information> for source <scan source>	2020-07-15 02:12:56,917 - INFO {"Event ID": 13, "Event Category": "XCP job status", "Event Type": "Starting xcp scan operation", "ExecutionId": 408263470688, "Event Source": "NETAPP-01", "Description": "XCP {scan} is running on platform Windows- 8.1-6.3.9600-SP0 for source \\\\<IP address of SMB server>\\cifs"}
351	System resources available wile command : <command>, are : cpu <CPU information>, total memory <total memory on system>, available memory	2020-07-15 02:12:56,917 - INFO {"Event ID": 351, "Event Category": "System resource utilization", "Event Type": "Resources available for scan", "ExecutionId": 408263470688, "Event Source": "NETAPP-01", "Description": "System resources available while executing xcp command : scan, are : cpu 4, total memory 8.00GiB, available memory 6.81GiB"}

Event ID	Event template	Event example
14	XCP scan completed successfully after scanning <scanned items count> items. Source :<scan source>	2020-07-15 02:12:57,932 - INFO {"Event ID": 14, "Event Category": "XCP job status", "Event Type": "XCP scan completion", "ExecutionId": 408263470688, "Event Source": "NETAPP-01", "Description": "XCP scan completed successfully after scanning 29 items. Source : \\\\<IP address of SMB server>\\cifs"}
25	XCP <command> is running on platform <platform information> for source <copy source> and destination <copy destination>	2020-07-15 02:19:06,562 - INFO {"Event ID": 25, "Event Category": "XCP job status", "Event Type": "Starting xcp copy operation", "ExecutionId": 408263563552, "Event Source": "NETAPP-01", "Description": "XCP {copy} is running on platform Windows- 8.1-6.3.9600-SP0 for source \\\\<IP address of SMB server>\\cifs and destination \\\\<IP address of SMB destination server>\\source_vol"}
352	System resources available while executing command :<command>, are : cpu <CPU information>, total memory <Total memory>, available memory <memory available for execution>	2020-07-15 02:19:06,562 - INFO {"Event ID": 352, "Event Category": "System resource utilization", "Event Type": "Resources available for copy", "ExecutionId": 408263563552, "Event Source": "NETAPP-01", "Description": "System resources available while executing xcp command : copy, are : cpu 4, total memory 8.00GiB, available memory 6.82GiB"}

Event ID	Event template	Event example
26	XCP copy completed successfully after copying <copied items count> items. Source :<copy source>, destination : <copy destination>	2020-07-15 02:19:14,500 - INFO {"Event ID": 26, "Event Category": "XCP job status", "Event Type": "XCP copy completion", "ExecutionId": 408263563552, "Event Source": "NETAPP-01", "Description": "XCP copy completed successfully after copying 0 items. Source :
16	XCP <command> is running on platform <platform> for source <sync source> and destination <sync destination>	2020-07-15 02:27:10,490 - INFO {"Event ID": 16, "Event Category": "XCP job status", "Event Type": "Starting xcp sync operation", "ExecutionId": 408263688308, "Event Source": "NETAPP-01", "Description": "XCP {sync} is running on platform Windows- 8.1-6.3.9600-SP0 for source \\\\<IP address of SMB server>\\cifs and destination \\\\<IP address of SMB destination server>\\source_vol"}
353	System resources available while executing xcp command: <command>, are : cpu <CPU information>, total memory <total memory>, available memory <available memory>	2020-07-15 02:27:10,490 - INFO {"Event ID": 353, "Event Category": "System resource utilization", "Event Type": "Resources available for sync", "ExecutionId": 408263688308, "Event Source": "NETAPP-01", "Description": "System resources available while executing xcp command : sync, are : cpu 4, total memory 8.00GiB, available memory 6.83GiB"}

Event ID	Event template	Event example
17	XCP sync completed successfully after scanning <scanned item count> items, copying <copied item count> items, comparing <compared item count> items, removing <removed item count> items. Source : <sync source>, destination : <sync destination>	2020-07-15 03:04:14,269 - INFO {"Event ID": 17, "Event Category": "XCP job status", "Event Type": "XCP sync completion", "ExecutionId": 408264256392, "Event Source": "NETAPP-01", "Description": "XCP sync completed successfully after scanning30 items, copying 20 items, comparing 30 items, removing 0 items. Source : \\\\<IP address of SMB server>\\cifs, destination :\\\\<IP address of SMB destination server>\\source_vol"}
19	XCP <command> is running on platform <platform information> for source <verify source> and destination <verify destination>	2020-07-15 03:14:04,854 - INFO {"Event ID": 19, "Event Category": "XCP job status", "Event Type": "Starting xcp verify operation", "ExecutionId": 408264409944, "Event Source": "NETAPP-01", "Description": "XCP {verify -noacl} is running on platform Windows-8.1-6.3.9600-SP0 for source \\\\<IP address of SMB server>\\cifs and destination \\\\<IP address of SMB destination server>\\source_vol"}
354	System resources available for command : <command>, are : cpu <CPU information>, total memory <total memory>, available memory <available memory for execution>	2020-07-15 03:14:04,854 - INFO {"Event ID": 354, "Event Category": "System resource utilization", "Event Type": "Resources available for verify", "ExecutionId": 408264409944, "Event Source": "NETAPP-01", "Description": "System resources available while executing xcp command : verify, are : cpu 4, total memory 8.00GiB, available memory 6.80GiB"}

Event ID	Event template	Event example
20	XCP verify is completed by scanning <scanned item count> items, comparing <compared item count> items	{"Event ID": 20, "Event Category": "XCP job status", "Event Type": "XCP verify completion", "command Id": 408227440800, "Event Source": "NETAPP-01", "Description": "XCP verify is completed by scanning 59 items, comparing 0 items"}
357	CPU utilization reduced to <CPU utilization percentage>%	{"Event ID": 357, "Event Category": "System resource utilization", "Event Type": "CPU usage for xcp", "Event Source": "NETAPP- 01", "Description": "CPU utilization reduced to 8.2%"}
358	Memory utilization reduced to <memory utilization percentage>%	{"Event ID": 358, "Event Category": "System resource utilization", "Event Type": "Memory usage for xcp", "Event Source": "NETAPP-01", "Description": "Memory utilization reduced to 19%"}
10	XCP command <command> has failed	2020-07-14 09:43:08,381 - INFO {"Event ID": 10, "Event Category": " Xcp job status", "Event Type": "XCP command failure", "Event Source": "NETAPP-01", "Description": " XCP command H:\\console_msg\\xcp_cifs\\xcp\\ main .py verify \\\\<IP address of SMB server>\\cifs \\\\<IP address of SMB destination server>\\source_vol has failed”

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