



Technical FAQ

NetApp XCP Migration Tool Technical FAQ

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Abstract

This technical FAQ addresses the frequently asked questions that are related to XCP migrations from third-party storage to NetApp® storage and NetApp to NetApp transitions.

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1 Purpose

This technical FAQ addresses many of the commonly asked questions that are related to XCP migrations from third-party storage to NetApp® storage and NetApp to NetApp transitions.

1.1 Definition

What is NetApp XCP Migration Tool?

Answer: NetApp XCP Migration Tool is a high-performance NFSv3 migration tool for fast and reliable migrations from third-party storage to NetApp and NetApp to NetApp transitions.

1.2 General

How do I check the version details?

Answer: The version is displayed when you run each command.

How do I upgrade to the latest version?

Answer: To update the binary, download the new version from the [NetApp ToolChest](#).

2 Uninstallation

How do I uninstall XCP?

Answer: Remove the binary from the host and delete the `/opt/NetApp/xFiles/xcp/` folder. If you do not want to retain the XCP operations history and reports, you should also delete the catalog.

3 Configuration

Are there any user roles to be defined, or how do we configure user access (RBAC rules)?

Answer: XCP should be run as root; it is an administrator's utility.

Can XCP create the target directory?

Answer: No. The source and target directories have to preexist; XCP does not create them.

Do the source or target volumes have to be mounted in Linux?

Answer: No. XCP mounts the source volumes internally by using its own built-in NFS client. This feature allows XCP to bypass several layers of the OS to optimize performance, and it also prevents other applications on the Linux client host from having access.

However, the Linux client host must be able to mount the volumes. To troubleshoot setup problems such as `permission denied` errors, verify that Linux mounts are working. If Linux can mount the source or target, XCP should be able to access them, also.

When XCP copy reports `30 scanned, 29 copied`, did it copy everything?

Answer: Yes. The source directory was scanned but not copied, because the target already existed. Everything under the source was copied. When indexing, the final report would be `30 scanned, 29 copied, 30 indexed` because XCP archives (indexes) the metadata of all the files.

How does sync work, and can XCP sync a source and target more than once?

Answer: To perform sync, XCP requires a full index of the source and the target. An index is generated when you perform an XCP copy operation with `-newid`. The “index” is really an archive of the metadata of every file and directory.

The XCP sync operation reviews the index, checks everything at the source, and makes appropriate changes to the target. XCP sync should create a new index automatically so that it can simply sync again, but XCP version 1.0 does not have that capability yet.

For more details, see the [XCP User Guide](#) or contact ng-xcp-support@netapp.com.

How do I monitor the progress of the data that is being migrated?

Answer: Once every 5 seconds, XCP reports about the number of files that have been scanned, copied, and verified.

How can XCP operations be throttled?

Answer: For copy and verify, use NetApp clustered Data ONTAP® quality of service on the target volume to throttle XCP. Create a policy and then apply the policy to the volume to limit the bandwidth. The policy can be changed immediately.

For all XCP operations, the `-parallel` option sets the number of parallel processes and other parameters such as the number of directories and files processed concurrently. In XCP 1.0, the `-parallel` option is a work in progress and will be improved in the future. The lowest possible setting is `-parallel 1`. The default is 7.

4 Interoperability and Limits

Does XCP have a compatibility matrix?

Answer: No. XCP works with all known Linux distributions, starting with kernel 2.6.18-404 (circa Red Hat Enterprise Linux 5.11) or later, as well as many older distributions that we have tested.

XCP also supports all source servers that conform to the NFSv3 RFC specifications.

Does XCP have limits?

Answer: No. XCP has no built-in artificial limits on file count, change rate, or performance. As with all host-based utilities using the NFS protocol, XCP performance depends on the hardware infrastructure available. In unusual situations such as millions of changed directories to sync or millions of hard links in a source, XCP requires more memory on the source Linux system. Scoping and planning will identify these environments and host, network, and storage performance monitoring will facilitate smooth operations even in extreme situations.

5 Troubleshooting

How do I access logs? Where are the logs stored (directory structure)?

Answer: The run-time log file is `/opt/NetApp/xFiles/xcp/xcp.log`. Additional logs, statistics, and reports for each command execution are stored in the catalog.

6 Use Cases

Can XCP copy a single file?

Answer: XCP is designed to benefit users with many files (thousands, millions, or more), because processing many files is a big challenge for standard tools such as `find` and `rsync`. With just one file, XCP becomes a normal tool and is not as exciting as it is with millions of files.

Generally, you should use XCP with `xcp copy <source dir> <target dir>` and let it work on all the files under those directories.

Does this tool copy locked, hidden, or open files?

Answer: XCP relies on NFSv3 protocol rules, so the file locks are ignored, and hidden files and open files are copied. However, there are three special files that XCP ignores: `“.”`, `“..”`, and `“.snapshot”`.

Does the tool perform verification of blocks and files after migration?

Answer: Yes, run `xcp verify`, which has options to verify metadata and full byte-per-byte data verification.

Can I start multiple sessions at the same time?

Answer: Yes. However, while it is running, XCP maximizes the resources of the CPU of the host, network, or disks of the source or target. In some cases, starting multiple sessions can increase performance, if that was the intention.

Is there an option to resume a failed operation? If so, how do I implement it?

Answer: Yes. You can use the `xcp resume` command, which takes a user-defined operation name (with the `-newid <name>` option) as a parameter. The index is a structure that is generated during an operation, holding the state of the migration when it was interrupted, plus the source and target addresses. For version 1.0, however, only the copy operation can be resumed.

Does XCP require a cutover with application downtime?

Answer: Yes. To cut over and start using the target storage, client hosts have to unmount the source storage and mount the target storage, which requires an outage. During the cutover, XCP can be used to sync and verify any incremental changes.

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