Install XCP

XCP

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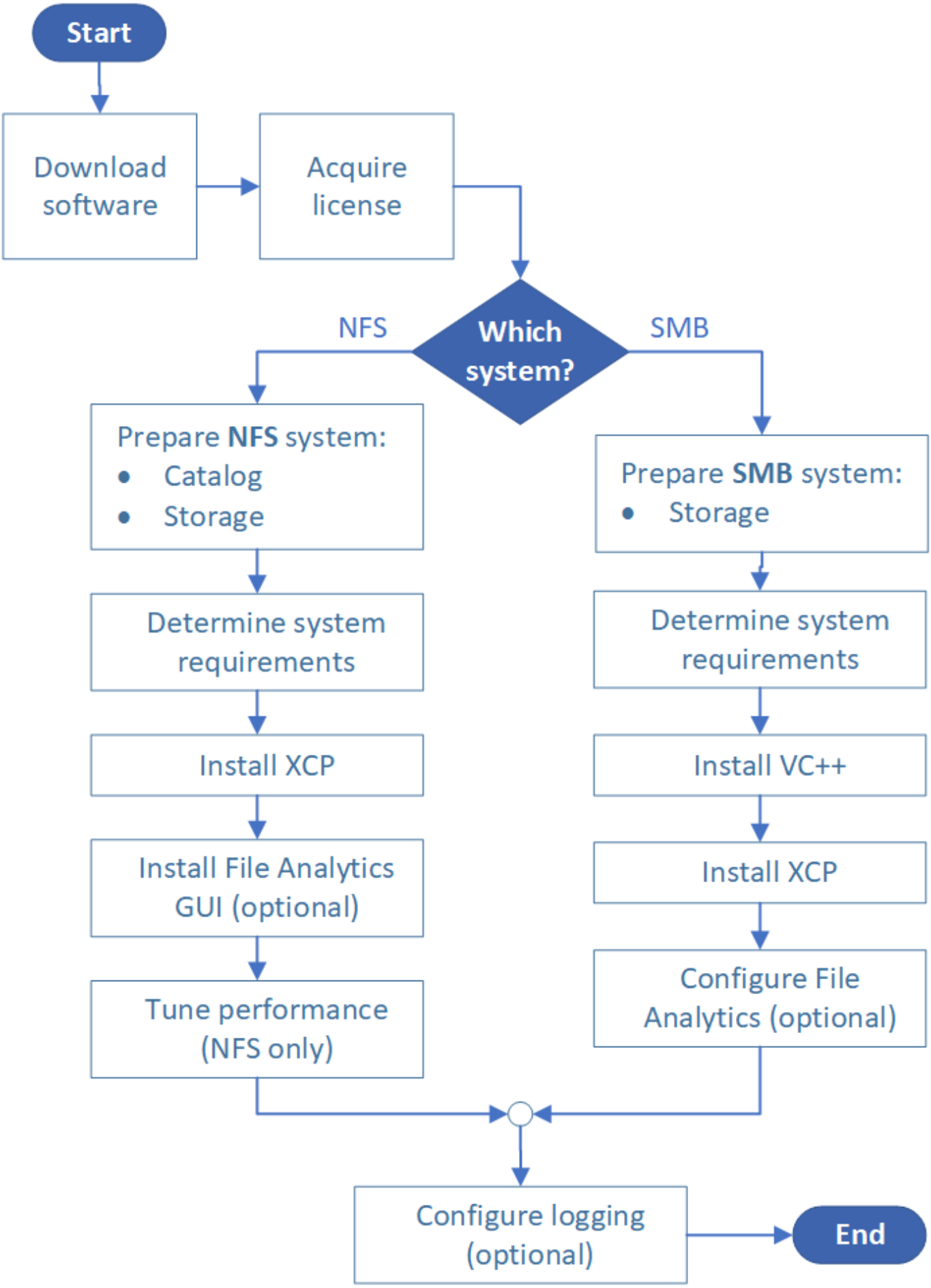
Install XCP

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
                00906A52DFE247F
xx.xxx.xxx.xxx
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.

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