

Install Cisco Optical Network Planner

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Cisco Optical Network Planner

Cisco Optical Network Planner (Cisco ONP) is a software tool that

- models and tests Optical Transport Network (OTN) and Dense Wavelength Division Multiplexing (DWDM) optical networks,
- operates within a graphical environment, and
- supports the design and validation of networks of NCS 1000, NCS 2000, and NCS 4000 series.

Cisco ONP capabilities

Cisco ONP capabilities include:

- creation of multiple network instances,
- modification of parameters for each instance, and
- comparison between different network instances.

Hardware and software requirements

Table 1: Feature History

Feature Name	Release Information	Feature Description
Additional installation server and browser support	Cisco ONP Release 25.1.1	**Operating System support**: Cisco ONP can now be installed on Red Hat servers with versions 8.8 or 8.10, in addition to the previously supported Ubuntu servers. **Browser support**: Mozilla Firefox is now supported for use with Cisco ONP, alongside the existing support for Google Chrome and Microsoft Edge browsers.

The hardware and software requirements for installing Cisco ONP are:

Hardware requirements

You need to have an Ubuntu server with version 22.04 or 24.04, or Red Hat server with version 8.8 or 8.10

Recommended Server Configuration for Cisco Optical Network Planner (ONP):

- 8 CPU, 48 GB RAM, and 500GB server free space after installation, for 3 concurrent Parallel ONP analysis
- 8 CPU, 64 GB RAM, and 500GB server free space after installation, for 6 concurrent Parallel ONP analysis
- 8 CPU, 96 GB RAM, and 500GB server free space after installation, for 10 concurrent Parallel ONP analysis

Software requirements

- Supported browsers: Google Chrome, Mozilla Firefox, and Microsoft Edge
- Recommended version of the Google Chrome browser:
  - For Windows: Version 134.0.6998.89
  - For Mac: Version 134.0.6998.44

  Recommended version of the Microsoft Edge browser:
  - For Windows: Version 134.0.3124.51
  - For Mac: Version 134.0.3124.51

  Recommended version of the Mozilla Firefox browser:
  - For Windows: Version 136.0
  - For Mac: Version 136.0



Note For an optimal Cisco ONP user experience, we recommend a minimum internet speed of 100 Mbps.

Hardware and software requirements

Table 2: Feature History

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  Recommended version of the Mozilla Firefox browser:
  - For Windows: Version 136.0
  - For Mac: Version 136.0

Note For an optimal Cisco ONP user experience, we recommend a minimum internet speed of 100 Mbps.

Install Cisco ONP

Set up Cisco ONP software by extracting the provided package and running the installer.

The Cisco ONP application is delivered as a bundled tar, signature file, and pubkey files package. The tar file (CONP-xx.xx.xx.xx.tar.gz) contains these files:

- ONP component
- A shell script (Installer.sh) to install ONP component
- SSF component
- README file for installation Procedure of SSF Component

Follow these steps to install Cisco ONP by using the tar archive and the installation script.



Note This task is also applicable for upgrading Cisco ONP 24.3.1 to Cisco ONP 25.1.1. If you are upgrading from software version prior to R24.3.1 to R25.1.1, you must upgrade to R24.3.1 and then to R25.1.1 to retain data from software version prior to R24.3.1.

If the host server is upgraded from Ubuntu 22.04 to 24.04, restart the Ubuntu host server before proceeding with the Cisco ONP installation.

Procedure

Step 1 Log in to the Ubuntu server or Red Hat server as root or a user with sudo privileges, where Cisco ONP is to be installed.

Step 2 Create the *25.1.1_Build* folder under *ONP_Builds* to keep all the required files for the installation.

Example:

```
user@host:~/Desktop$ mkdir ONP_Builds/25.1.1_Build
```

Note
The example path here `/home/ user/Desktop/ONP_Builds/25.1.1_Build` is referenced as $ONP_HOME in this document.

The $ONP_HOME directory can be any other directory in your server. You can create a directory of your choice and copy the ONP build tar file, signature file, and pubkey file to that directory.

Step 3 Copy or download the Cisco ONP build tar, signature file, and public key file to the created ONP_Builds directory.

Step 4 Go to the $ONP_HOME directory and perform these steps:

a) Assign full permission to the build tar.

Example:

```
cd /home/user/Desktop/ONP_Builds
sudo chmod 777 CONP-xx-xx.xx.xx.tar.gz
```

b) Untar the Cisco ONP build.

```
tar -xvf CONP-xx-xx-xx.xx.tar.gz
```

c) Set read, write, and execute permissions for the Install script, and ONP folders using these commands.

```
sudo chmod -R 777 ONP
sudo chmod 777 Installer.sh
```

d) Check whether curl is installed in the server by entering this command.

```
root:~/$ONP_HOME# curl
```

If you see this output, curl is installed. Otherwise, install curl.

```
curl: try 'curl --help' or 'curl --manual' for more information
```

To install curl, run this command.

```
root:~/$ONP_HOME# sudo apt install curl
```

e) Enter **y** or **n** to change the default IP address.

```
Would you like to change the IP (y/n)
```

If you enter **n**, the installation proceeds with the same IP address as mentioned above and if you enter **y**, you must provide the IP address and the installation proceeds with the IP address that is provided by you.

```
ONP Host IP: 10.76.82.14
```

Step 5 Start Cisco ONP installation. Type the command sudo *./<install file> <tar file> <public key>*," and press **Enter**.

Example:

```
sudo ./Installer.sh CONP-xx.xx.xx.xx.tar.gz CONP-xx.xx.xx.xx_pem.pubkey
```

a) Enter **y** or **n** to change the default IP address.

```
Would you like to change the IP (y/n)
```

If you enter **n**, the installation proceeds with the same IP address as mentioned above and if you enter **y**, you must provide the IP address and the installation proceeds with the IP address that is provided by you.

```
ONP Host IP: 10.76.82.14
```

b) Enter your ONP database credentials.

Note
Make sure to use **ONLY alphabets or numbers**. We recommend not to use any special characters.

If you are installing Cisco ONP for the first time, you must set the username and password for the database.

```
Would you like to set database username and password (y/n).
```

The above option appears only when you already have the 24.3.1 image installed and upgrade to 25.1.1. Otherwise you are prompted to enter ONP database username.

If you enter **y**, then prompt appears and asks you to enter username and password. If you enter **n**, you can proceed with the next step.

```
Enter your ONP database username, only alphanumeric characters are valid [user]:

Enter your ONP database password, only alpha numeric characters are valid (len >= 8 and <= 64
characters) [password]:

Repeat your ONP database password.
```

Step 6 Wait for the installation to complete.

Note

The Cisco ONP services start automatically, after you successfully install the build.

The install logs are located in this path:

```
/var/log/cnp/install.log
```

Run this command to see the list of services running:

```
root:~/$ONP_HOME# sudo docker ps
```

You can confirm the successful installation based on whether these services are up and running for more than five minutes:

- cnp_cnp
- cnp_ode.1
- cnp_ode.2
- cnp_ode.3
- cnp_pce.1
- cnp_pce.2
- cnp_cnp_frontend
- cnp_gene
- cnp_postgres

Step 7 After you confirm that all the mentioned services in the previous step are up, you can access the Cisco ONP using the Google Chrome, Mozilla Firefox, or Microsoft Edge browser pointing to Ubuntu server hostname or IP address.

Step 8 To install the SSF component, refer the README file for SSF installation.

After you install the SSF component, you can add SSF server details in the Cisco ONP application at **Preferences** > **General Settings** > **SSF Server Details**.

Install Cisco ONP on laptop through Oracle VirtualBox

Use this task to install Cisco ONP on a Windows laptop or Apple MacBook.

Before you begin

Ensure that your Windows laptop or Apple MacBook has at least 16 GB of RAM.

Follow these steps to install Cisco Optical Network Planner on your laptop using Oracle VirtualBox:

Procedure

Step 1 Download and install the latest version of Oracle VirtualBox on your Windows or Mac laptop. See Downloads and Youtube.

We recommend downloading "macOS /Intel hosts" for the Apple MacBook.

Step 2 Download the Ubuntu 22.04 Desktop AMD64 image from the link: https://releases.ubuntu.com/focal/ and install it on the VirtualBox.

Note
Ensure that you allocate at least 30 GB of storage space on the VirtualBox, 8 GB of RAM and four virtual CPUs, and mount a directory with full access for file sharing. See How to setup shared folders in VirtualBox 6.

Step 3 Install VirtualBox Guest Additions to share the clipboard operations and to share the folder access between the Host and Guest operating systems. See Installing and Maintaining Guest Additions.

Step 4 Download the Cisco ONP tar build, public key, and signature files from Downloads to the Host Windows laptop or MacBook, and copy it into the shared folder mounted as in Step 3.

Step 5 Log in to the VirtualBox and access the Cisco ONP tar build, public key, and signature files through the shared folder.

Step 6 Open the terminal in the VirtualBox, navigate to the shared folder and, install Cisco ONP. See Step 4.a.

Step 7 To log into Cisco ONP, see Log into Cisco ONP.

Note
Try launching Cisco ONP through https://localhost if you are not able to launch it through ipaddress/hostname.

Upgrade Cisco ONP from Release 24.3.1 to 25.1.1

Follow these steps to upgrade Cisco ONP software from Release 24.3.1 to 25.1.1.

Follow these steps to upgrade your Cisco ONP software:

Procedure

Step 1 Install Cisco ONP 25.1.1 image using the steps 1 to 5 of the procedure Install Cisco ONP, on page 4.

Step 2 In the displayed table, find out the container ID that is corresponding to the image "cnp_postgress image - dockerhub.cisco.com/cnp-rpt-dev-docker/postgres:14.9"

Step 3 Use this command to enter inside the container.

```
#docker exec -it <cnp_postgress container ID> bash
```

a) Use the command in the container to log into the database.

```
psql -U <db_username> CnpDB
```

b) After you log in the database you will see this message.

```
psql (14.9)
 Type "help" for help
 CnpDB=#
```

c) Enter the command **Analyze;**.

This command takes a few minutes based on your database size.

d) Enter the command **DROP TABLE IF EXISTS databasechangeloglock**.

This command removes Liquibase Lock if it exists and enables seamless login and design activities after upgrade from 24.3.1 to 25.1.1.

e) Enter **Exit** to come out of the database.

Step 4 Enter **Exit** to come out of the container.

Note
Reanalyze the R24.3.1 analyzed networks after the upgrade to get the updated power consumption values.

Cisco ONP is upgraded to the required release. The database is updated and ready for post-upgrade operations.

Log into Cisco ONP

Access the Cisco ONP user interface using the default administrator credentials after installation.

Follow these steps to log into the Cisco ONP user interface, after installing Cisco ONP.

Procedure

Step 1 Open the Google Chrome browser.

Note
Clear the browser cache if you have used earlier versions of Cisco ONP.

Step 2 In the browser's address bar, enter *https://hostname* or *https://ipaddress*, where *hostname* or *IP address* belongs to the Ubuntu server used for Cisco ONP installation, for example: *https://cisco-onp-server.cisco.com* or *https://10.76.82.14*.

The Cisco ONP user interface displays the Login window.

Step 3 Enter **admin** and **cisco123** as the default username and password.

Step 4 Click **Login** to log into Cisco ONP.

Note
Cisco ONP prompts you to change the administrator password, when you log in for the first time after installation. Cisco recommends that you create a new user with valid email ID and administrative privileges. Do not use the default administrator username because the administrator password cannot be recovered, if forgotten.

Step 5 To change the administrator password, perform these actions in the prompt.

a) Enter **Old Password**.
b) Enter **New Password**.

As you enter the password, the Cisco ONP prompt displays the strength of the password in different colors.

c) Enter **Repeat New Password** to confirm the new password.
d) Click **Update**.

Wait until the Password updated successfully message appear.

Update the default self-signed certificates

Use this task to update the default self-signed certificates for Cisco ONP, after installation.

Follow these steps to update the default self-signed certificates for Cisco ONP:

Procedure

Step 1 Log into the server where Cisco ONP is hosted.

Step 2 Use the `cd` command, to go to the path `/opt/cnp/nginx/conf/ssl`.

Example:

```
cd /opt/cnp/nginx/conf/ssl
```

Step 3 Delete the existing self-signed certificates.

Step 4 Copy the Certificate Authority (CA)-signed certificates, then paste the certificates and key.

Note
You must have CA-signed certificates.

Step 5 Edit the ssl_certificate and ssl_certificate_key filenames in the default.conf file (located at /opt/cnp/nginx/conf) so that they match the new certificate and key filenames.

Example:

```
server {
listen 443 ssl default_server;
server_name localhost;
ssl_certificate /etc/nginx/ssl/cnp_dev_selfsigned.crt;
ssl_certificate_key /etc/nginx/ssl/cnp_dev_selfsigned.key;
ssl_protocols TLSv1.2 TLSv1.3;
client_max_body_size 200M;
```

Step 6 Restart Cisco ONP. See Restart Cisco ONP, on page 9.

Restart Cisco ONP

Restart the Cisco ONP server to ensure continued proper operation after maintenance or troubleshooting.

Follow these steps to restart the Cisco ONP server:

Procedure

Step 1 Go to $ONP_HOME.

Step 2 Execute this command:

```
sudo docker stack rm cnp
```

Step 3 Go to $ONP_HOME/ONP:

```
cd /home/user/Desktop/ONP_Builds/ONP
sudo docker stack deploy -c images/conf/docker-compose.yml --resolve-image=never cnp
```

Uninstall Cisco ONP

Remove Cisco ONP and its associated files from your system by running a series of commands.

Warning: When you uninstall Cisco ONP, you will lose all created networks and users. You must again set the admin password.

Note We suggest that you perform a database backup before uninstallation. For more information, see Backup Cisco ONP Database.

Follow these steps to uninstall Cisco ONP and remove all related files:

Procedure

Run these commands **one-by-one**:

```
sudo docker stack rm cnp
sudo docker swarm leave --force

sudo apt -y purge docker-ce
sudo apt -y purge docker-ce-cli
sudo rm -rf /var/lib/postgresdb_cnp
sudo rm -rf /opt/cnp
sudo rm -rf /var/log/cnp
sudo rm -rf /var/log/nginx
sudo docker image prune -a -f
sudo rm -rf ONP
sudo rm -rf Installer.sh
sudo rm -rf SSF.sh
sudo rm -rf README.md
```

Uninstall WSL Ubuntu

Uninstall Ubuntu from the Windows Subsystem for Linux (WSL) environment.

Follow these steps to remove the Ubuntu distribution from Windows Subsystem for Linux:

Procedure

Step 1 Click on the Windows **Start** button and search for **Ubuntu**.

Step 2 Right click on **Ubuntu** and select and click **Uninstall**.

Step 3 Open **Windows PowerShell** and type the command **wsl -l**.

Step 4 Unregister Ubuntu by typing the command **wsl --unregister Ubuntu**.

Docker commands

This table lists docker commands that you can use to perform a specific task.

Task	Docker command
Check installed docker version	docker -v docker --version
List available docker images	docker images
List all running containers	docker ps
List all running and exited containers	docker ps -a
Remove a particular container	docker rm <container ID/ container name>
Remove a particular docker image	docker rmi <Image name / Image ID>
Fetch the logs of a container	docker logs -f <container ID>
Fetch the resource utilization by a container	docker stats <container ID>

Cisco ONP logs

Cisco ONP provide these logs.

This table lists the different log types available for Cisco ONP, their descriptions, and the methods or locations for accessing each log.

Table 3: Logs

Logs	Description	Example

Container logs	The command *sudo docker ps* provides the list of running containers and their IDs. Copy the container ID of that container whose log you require.
	You can obtain the log or activities of the container by using this command.
	`sudo docker logs (container name/ID) > filename.log/txt`
		Example:
		`sudo docker logs cnp > file.log`
		`sudo docker logs 274a5fc1152b > file.log`

Logs	Description	Example
Application logs	You can find Cisco ONP application logs in these locations: • `/var/log/cnp` • `/var/log/nginx`	—
Install logs	You can find Cisco ONP install logs in this location. `/var/log/cnp`	—

Monitor the Cisco ONP health

Ensure Cisco ONP system operates reliably by confirming all containers are healthy.

Follow this step to check the status or health of Cisco ONP.

Procedure

Run this command to list all running containers.

Example:

```
$sudo docker ps
```