Hewlett Packard Enterprise

HPE Aruba Networking Central On-Premises 3.0.4.3 Installation and Setup Guide

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About this Guide

This HPE Aruba Networking Central On-Premises Installation and Setup Guide provides detailed instructions to install and setup the software.

Related Documents

- HPE Aruba Networking Central On-Premises Installation and Setup Guide
- HPE Aruba Networking Central On-Premises User Guide
- HPE GreenLake Account Home User Guide

Conventions

The following conventions are used throughout this guide to emphasize important concepts:

Table 1: Typographical Conventions

Type Style	Description
Italics	This style is used to emphasize important terms and to mark the titles of books.
`System items`	This fixed - width font depicts the following: • Sample screen output • System prompts

NOTE: Indicates helpful suggestions, pertinent information, and important things to remember.

CAUTION: Indicates a risk of damage to your hardware or loss of data.

WARNING: Indicates a risk of personal injury or death.

Contacting Support

Table 2: Contact Information

Main Site	**arubanetworking.hpe.com**
Support Site	**networkingsupport.hpe.com**

Table Continued

Airheads Social Forums and Knowledge Base	**community.arubanetworks.com**
North American Telephone	1 - 800 - 943 - 4526 (Toll Free)
International Telephone	**arubanetworks.com/support - services/contact - support/**
Software Licensing Site	**licensemanagement.hpe.com**
End - of - life Information	**networkingsupport.hpe.com/end - of - life**
Security Incident Response Team	Site: **arubanetworks.com/support - services/security - bulletins/** Email: **aruba - sirt@hpe.com**

Installation Workflow

The installation and deployment of HPE Aruba Networking Central On-Premises includes a list of steps. Before starting the installation, ensure that you have all the server hardware requirements, prerequisites, and good network connectivity. For the list of prerequisites and server requirements, see **Prerequisites** and **Installation Server Requirements**.

To install the HPE Aruba Networking Central On-Premises software, complete the following steps:

Step 1: Unpacking and Rack Mounting

To initiate the installation, check the package and ensure that the components are in good condition and ready to be deployed.

This step consists of the following tasks:

1. Unpacking the HPE Aruba Networking Central On-Premises Kit
2. Mounting the Server on the Rack
3. Power-On the server
4. Checking the Server Readiness, see **Deployment**.
    a. Check the CPU
    b. Check the Memory
    c. Check the Hard disk
    d. Add ILO version, NIC version, and ROM version, For more information, see **Prerequisite** in **Installing Service Pack** section.
5. Setting up the Console Access

Step 2: Setting up the Server

To ensure an efficient deployment process, set up the key elements in the server for installing the HPE Aruba Networking Central On-Premises software.

This step consists of the following tasks:

1. **Setting Up the iLO Network Configuration**
2. **Checking the System Information**

NOTE:

Setting up an appliance-based server typically takes about 1 hour.

Step 3: Installing ISO

To install the image from HPE Networking Support Portal, download and copy the ISO file.

This step consists of the following tasks:

1. **Downloading the ISO image**
2. **Downloading Apps Package Files**
3. **Validating Checksum for the Downloaded Files**

4. **Installing ISO Files**
5. Reboot the Server

NOTE:

Installing ISO approximately takes 45 minutes to 1 hour.

Step 4: Installing Software

To deploy the HPE Aruba Networking Central On-Premises software, configure the network setting.

This step consists of the following tasks:

1. **Login to HPE Aruba Networking Central On-Premises**
2. **Run the Network Setup from the CLI**
   a. **Setting Connections to the Server**
   b. **Setting up the Permanent Network**
3. **Copy the HPE Aruba Networking Central On-Premises Software (based on bandwidth - 20 to 30 min)**
4. **Installation**

NOTE:

- Running the network setup and establishing server connections typically takes about 15 minutes.
- Copying the software requires approximately 20 to 30 minutes, depending on network bandwidth.
- The complete software installation, including the application package, takes around 1 hour and 15 minutes.

Step 5: Configuring the Cluster

Once the ISO and HPE Aruba Networking Central On-Premises software installations are complete, you can set up the HPE Aruba Networking Central On-Premises cluster.

NOTE:

Complete the ISO and software installation on all cluster nodes before initiating cluster configuration.

This step consists of the following tasks:

1. **Setting up the Cluster Using Web Browser**
2. **[%=Variables.Central_long%] Configuration**

NOTE:

- Configuring the cluster typically requires approximately three to four hours.
- In case the setup wizard or the setup cluster fails, it is recommended to perform a Factory Reset for all the nodes in the cluster.

Installation Server Requirements

To complete the HPE Aruba Networking Central On-Premises setup, ensure that the following server requirements are met:

Server Hardware Details

HPE Aruba Networking Central On-Premises can be installed on an Aruba Central ready Airwave appliance and Aruba Central appliance. The supported servers are:

- **HPE ProLiant DL365 Gen11** server with 128 physical cores, 1024 GB RAM, 7 Hard Disks with 1.6 TB each (RAID 6), and 10 Gbps interface speed.
- **HPE ProLiant DL360 Gen11** server with 128 physical cores, 512 GB RAM, 5 Hard Disks with 1.6 TB each (RAID 6), and 10 Gbps interface speed.
- **HPE ProLiant DL360 Gen10** server with 40 physical cores, 512 GB RAM, 4 Hard Disks with 960 GB each (RAID 0), and 10 Gbps network interface speed.

NOTE:

- FIPS mode is not supported on HPE ProLiant DL360 Gen10 server.
- On HPE ProLiant DL365 Gen11 and HPE ProLiant DL360 Gen11 serves, FIPS mode is supported only on FIPS-enabled SKUs.

Prerequisites

Watch a video for this task—**Prerequisites**.

Server Specific Prerequisites

The following list outlines the prerequisites for each server type in HPE Aruba Networking Central On-Premises, HPE DL365 Gen11, HPE DL360 Gen11, and HPE DL360 Gen10.

For HPE DL365 Gen 11 Server

NOTE: On HPE ProLiant DL365 Gen11 serves, FIPS mode is supported only on FIPS-enabled SKUs.

To install HPE Aruba Networking Central On-Premises on HPE DL365 Gen 11 server ensure that the following specifications are met:

- Hardware specification:

	Appliance Mode	FIPS Mode
CPU	128 physical cores (2*AMD EPYC 9555 64 - Core Processor)	128 physical cores (2*AMD EPYC 9555 64 - Core Processor)
RAM	1024 GB	1024 GB
Storage	7 Solid State Drives (SSDs) with 1.6 TB each (RAID 6)	7 Self - Encrypting Drive (SEDs) with 1.6 TB each (RAID 6)
Network Interface Card (NIC)	10Gig Interface	10Gig Interface

- To connect HPE DL365 server to 10-Gigabit Ethernet (GbE) interface on HPE Aruba Networking Central On-Premises, you must use only the Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter
- For successful installation, the server must meet or exceed these minimum component versions:
  - NIC Version—4.2
  - ROM—2.12
  - ILO—1.56

  NOTE: Installation is not supported on older server component versions, but it will work on higher versions.
- Ensure that the servers are connected to 10-Gigabit Ethernet (GbE) interface and the interface names are correctly entered. For Gen 11 servers, the interfaces can be ens22f0 or ens22f1 or different. You must identify the correct interface name and provide it during the network configuration.
- In Appliance mode, all hard drives present in the server must be Solid State Drives (SSDs). Installation is not supported if there is any other type of drives for example, HDDs, or hybrid drives present in the server.

- In FIPS mode, all hard drives present in the server must be Self-Encrypting Drive (SEDs). Installation is not supported if there is any other type of drives for example, HDDs, or hybrid drives present in the server.
- You must configure all the disks in RAID and only one logical drive must be present in server. The configuration must present a single logical drive and the RAID array must include all installed hard drives.

For HPE DL360 Gen 11 Server

NOTE: On HPE ProLiant DL360 Gen11 serves, FIPS mode is supported only on FIPS-enabled SKUs.

To install HPE Aruba Networking Central On-Premises on HPE DL360 Gen 11 server ensure that the following specifications are met:

- Hardware specification:

	Appliance Mode	FIPS Mode
CPU	128 physical cores (2 × Intel Xeon Gold 6530 2.1 GHz, 64-core, 270W Processor)	128 physical cores (2 × Intel Xeon Gold 6530 2.1 GHz, 64-core, 270W Processor)
RAM	512 GB	512 GB
Storage	5 Solid State Drives (SSDs) with 1.6 TB each (RAID 6)	5 Self - Encrypting Drive (SEDs) with 1.6 TB each (RAID 6)
Network Interface Card (NIC)	10Gig Interface	10Gig Interface

- To connect HPE DL360 server to 10-Gigabit Ethernet (GbE) interface on HPE Aruba Networking Central On-Premises, you must use only the Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter
- For successful installation, the server must meet or exceed these minimum component versions:
  - NIC Version—4.2
  - ROM—2.12
  - ILO—1.56

  NOTE: Installation is not supported on older server component versions, but it will work on higher versions.
- Ensure that the servers are connected to 10-Gigabit Ethernet (GbE) interface and the interface names are correctly entered. For Gen 11 servers, the interfaces can be ens15f0 or ens15f1 or different. You must identify the correct interface name and provide it during the network configuration.
- In Appliance mode, all hard drives present in the server must be Solid State Drives (SSDs). Installation is not supported if there any other type of drives for example, HDDs or hybrid drives present in the server.
- In FIPS mode, all hard drives present in the server must be Self-Encrypting Drives (SEDs). Installation is not supported if there any other type of drives for example, HDDs or hybrid drives present in the server.
- You must configure all the disks in RAID and only one logical drive must be present in server. The configuration must present a single logical drive and the RAID array must include all installed hard drives.

For HPE DL360 Gen 10 server

NOTE: FIPS mode is not supported on HPE DL360 Gen 10 server.

To install HPE Aruba Networking Central On-Premises on HPE DL360 Gen 10 server ensure that the following specifications are met:

- CPU with 40 physical cores, 512 GB RAM, 3.84 TB Hard disk (RAID 0), and 10Gig Interface
- To connect HPE DL360 server to 10-Gigabit Ethernet (GbE) interface on HPE Aruba Networking Central On-Premises, you must use only the Intel Ethernet 10Gb 2-port 562SFP+ Adapter
- (Appliance Mode) For successful installation, the server must meet or exceed these minimum component versions:
  - NIC Version—11.1.1
  - ROM—2.68
  - ILO—2.72

  NOTE: Installation is not supported on older server component versions, but it will work on higher versions.
- Ensure that the servers are connected to 10-Gigabit Ethernet (GbE) interface and the interface names are correctly entered. For Gen 10 servers, the interfaces can be ens1f0 or ens1f1 or different. You must identify the correct interface name and provide it during the network configuration.
- All hard drives present in the server must be Solid State Drives (SSDs). Installation is not supported if there any other type of drives for example, HDDs or hybrid drives present in the server.
- You must configure all the disks in RAID and only one logical drive must be present in server. The configuration must present a single logical drive and the RAID array must include all installed SSDs.

Global Prerequisites

The following prerequisites apply to all server types:

- Minimum 200 GB web server storage is required to proceed with the installation.
- The nodes of a HPE Aruba Networking Central On-Premises cluster must be deployed in the same data center and same L2 VLAN setup. It is a prerequisite to get 10 Gbps throughput for intra-cluster communication.
- During cluster setup, ensure that the node running the highest software version is selected as the first node. The software gets synchronized from the first node to the other nodes.
- Server's iLO port is connected to a switch and it is configured with iLO IP, Gateway IP, and Netmask which are reachable. The iLO credentials are placed on the top of the server. Ensure to make a note of the iLO credentials.
- The iLO setup timezone must be current date and time. It must not have an older timezone.
- If your system is running the below mentioned server component version or higher version, you can skip the service pack installation.
  - NIC Version—11.1.1
  - ROM—2.68
  - ILO—2.72

  If your system is running lower version of server component as mentioned, then you must install the service pack. For more information, see **Installing Service Pack**. For additional assistance, contact Aruba TAC (Technical Assistance Center) team.

- To install Service pack, go to **Firmware** and **OS Software** > **Update Firmware** from the right menu, browse for the service pack and install it.
- For FIPS mode, ensure that **Secure Boot** is enabled in the **System Utilities** settings. For more information, see **Secure Boot**.
- During HPE Aruba Networking Central On-Premises installation, it is recommended not to rename or modify any file names for `*.iso` and `*.tar.gz`, as renaming the file names might lead to installation failure.
- A valid FQDN for each HPE Aruba Networking Central On-Premises server node, which resolves with the IP address you configure in the network settings during HPE Aruba Networking Central On-Premises setup. These FQDNs must be resolvable by any client that you will log into HPE Aruba Networking Central On-Premises.

  NOTE:

  - HPE Aruba Networking Central On-Premises supports a maximum of 64 characters for FQDN. This is also applicable for CNAME (Canonical Name) entries.
  - Currently, all the IPs are automatically generated based on Node FQDNs.

- The primary NTP server is mandatory while installing HPE Aruba Networking Central On-Premises.
- Ensure that the following details are mentioned correctly and are reachable while configuring the cluster:
  - FQDN, IP Address, Subnet Mask, Gateway, DNS IP for each node in the cluster, VIP (Virtual IP for each cluster), and cluster FQDN.
  - For a dual-stack deployment, ensure that the following prerequisites are met:
    - Both IPv4 and IPv6 network addresses must be reachable from the cluster nodes.
    - The configured DNS server must resolve both IPv4 (A record) and IPv6 (AAAA record) for the cluster FQDN.
    - To validate DNS resolution for IPv4 and IPv6, run the following commands:

      ```
      # Verify IPv4 DNS resolution
      $ dig +short A <cluster-fqdn>
      192.0.2.xxx

      # Verify IPv6 DNS resolution
      $ dig +short AAAA <cluster-fqdn>
      2001:db8:xxxx:xxxx::xxxx
      ```

  - POD IP range must be within xxx.xx.x.x/16 subnet.

    For dual-stack setup, the POD IP range must be xxxx:x:x:x/64 subnet.
  - Service IP range must be with xxx.xx.x.x/23 subnet.

    For dual-stack setup, the service IP range must be within xxxx:x:x:x/112 subnet.

    NOTE: If the network falls within the same range, you must update the values; otherwise, you can continue using the default settings.

- All the nodes in the cluster must have the same interface speed, same network, same subnet mask, and same gateway. Mixed mode is not supported. For example, if it is a 3-node cluster, all 3 nodes must have 10 Gbps speed where each node is provisioned with dedicated iLO and in-band management connectivity.

Nodes	ILO IP	Management IP	FQDN	Serial Number
Node 1	10.149.1.000	10.14.120.11	cop1.hpe - bgl.eu	3M1D0M12XN
Node 2	10.149.2.000	10.14.120.12	cop2.hpe.bgl.eu	3M1D0N12BP
Node 3	10.149.3.000	10.14.120.13	cop3.hpe.bgl.eu	3M1D0P12AB

Required Setup Details

You must keep the following details ready before starting the installation process:

- IPv4 Address
- IPv6 Address (only for dual-stack setup)
- FQDNs
- CNAMES:
  - cluster_fqdn
  - central-<cluster_fqdn>
  - apigw-<cluster_fqdn>
  - ccs-user-api-<cluster_fqdn>
  - sso-<cluster_fqdn>

Password Specifications

HPE Aruba Networking Central On-Premisesconfiguration requires the password specifications. The password must be alphanumeric. The minimum requirement is 14 characters that include a combination of letters, numbers, and special characters.

This password specification is applicable for the following operations:

- For setup-wizard through a web browser during fresh installation.
- For setup-cluster through CLI during fresh installation.
- GUI password change through CLI. For more information, see **Reset GUI Admin Password** on **The CLI Bank**.
- CLI password change through CLI. For more information, see **Reset CLI Admin Password** on **The CLI Bank**.

Table 3: Password Requirements

Requirement	Description
Password length	The minimum number of alphanumeric characters required for a password is **14**. Range: 14 - 48 (combination of alphabets, numbers, and special characters).
Password character	Password should contain at least **5** unique characters. The password should not contain the strings of username in any form. Password must not contain more than two identical characters consecutively.
Upper Case characters	Use a minimum of 1 uppercase alphabet in password. Alphabets **A** to **Z**.
Lower Case characters	Use a minimum of 1 lowercase alphabet in password. Alphabets **a** to **z**.
Numbers	Use a minimum of 1 digit (number) in password. Numbers **0** - **9**.
Special characters	Use a minimum of 5 special character in password. Supported special characters are **~**, **!**, **@**, **#**, **$**, **%**, **^**, **&**, *****, **(**, **)**, **<**, **>**, **{**, **}**, **;**, **:**, **.** and **,**.

Supported Ports and FQDNs

As a part of the HPE GreenLake updates, HPE Aruba Networking Central On-Premises requires multiple FQDNs along with node FQDNS and ports configured for HPE Aruba Networking Central On-Premises cluster.

Multiple FQDNs

NOTE:

- The multiple FQDNs created must resolve to the same Cluster Virtual IP Address (VIP).
- These multiple FQDNs should be resolvable by both primary and secondary DNS servers configured on HPE Aruba Networking Central On-Premises.

All the FQDNs should be resolved to the same IP address (both IPv4 or IPv6 address must be resolved in a dual-stack cluster setup) and the new FQDNs should be in the format mentioned below:

- cluster_fqdn
- central-<cluster_fqdn>
- apigw-<cluster_fqdn>
- ccs-user-api-<cluster_fqdn>
- sso-<cluster_fqdn>

The following table provides details of the multiple FQDNs and their canonical names that are configured for HPE Aruba Networking Central On-Premises cluster:

Table 4: Multiple FQDNs Example

FQDN	Canonical Names (cnames)
cop - deployment.companyx.com	Central - UI home page access from the browser
central - cop - deployment.companyx.com	Central - UI NMS page access from the browser
apigw - cop - deployment.companyx.com	Central NBAPI access from the customer application
ccs - user - api - cop - deployment.companyx.com	Central - UI API access
sso - cop - deployment.companyx.com	Central - UI authentication page access

Additionally, the DNS servers must also resolve the public and private DNS namespaces required by the organization.

Inbound and Outbound Ports/URLs

The following table lists the required ports and URLs that needs to be enabled and allowed over the network and there should not be a any port access restriction between HPE Aruba Networking Central On-Premises nodes within a cluster for inter-node communication:

Table 5: Domain Names and Ports for HPE Aruba Networking Central On-Premises

Protocol and port	Domain Names and Purpose
Inbound Ports Traffic	
TCP 443	To access and manage HPE Aruba Networking Central On-Premises
	For HTTPS and web - socket between HPE Aruba Networking Central On-Premises and devices.
TCP 22	To access and manage HPE Aruba Networking Central On-Premises through SSH CLI.
TCP 80	For browser redirect from HTTP to HTTPS.
TCP 2379, 2380, 4433, 6433, and 10250	For communication between HPE Aruba Networking Central On-Premises nodes in a cluster.

Table Continued

Protocol and port	Domain Names and Purpose
TCP 4343	To access the setup - wizard installation.
	The HPE Aruba Networking Central On-Premises setup - wizard is shut down and the port 4343 is closed after 2 hours when the HPE Aruba Networking Central On-Premises setup is completed successfully. The time span of 2 hours is provided to the user to inspect the status of the HPE Aruba Networking Central On-Premises cluster setup.
TCP 22020	To allow remote console (RCS) access of device from HPE Aruba Networking Central On-Premises.
TCP 8888	For HTTP - based firmware image download for CX and PVOS Switches.
Outbound Ports Traffic	
TCP 25, 465, or 587	Dependent on the SMTP configuration for alerts, reports, and HPE Aruba Networking Central On-Premises account registration.
UDP 123	To access ntp.ubuntu.com.
	This is default destination. Users can reconfigure this port.
TCP 22	To access nexus2.airwave.com to support connection.
TCP 443	Following URLs are required to access and allow HPE Aruba Networking Central On-Premises to check firmware versions for Online Upgrades. • Quay - ""quay.io"" ""stage.quay.io"" ""cdn.quay.io"" ""cdn01.quay.io"" ""cdn02.quay.io"" ""cdn03.quay.io"" • ECR - 192111006018.dkr.ecr.us - west - 2.amazonaws.com • NSP - https://api.networkingsupport.hpe.com/ • Coreupdate - https:// coreupdate.central.arubanetworks.com/ • https://coreupdate - prod.central.arubanetworks.com/ **Note for Airgap deployment:** In a HPE Aruba Networking Central On-Premises setup that is deployed in Airgap mode, accessing the above URLs is not a requirement as HPE Aruba Networking Central On-Premises supports upgrade in an Airgap environment.
	To access maps.googleapis.com to translate, address.
	To access api.mapbox.com to view maps from user's browser.

Table Continued

Protocol and port	Domain Names and Purpose
	To access d1c50u1zbkqmph.cloudfront.net for CDN from user's browser.
	To access **https://enterpriselicense.hpe.com** for licensing.
	To access help.arubanetworks.com for documentation from user's browser.
	To access subnet.min.io for License registration and Health Check.
	To access api.bcti.brightcloud.com and api - dualstack.bcti.brightcloud.com for downloading URL classification from the GW and AP devices.
	From user's Web browser, to access networkingsupport.hpe.com for support.
	From user's Web browser, to access airheads.hpe.com for accessing airheads community.

HPE Aruba Networking Central On-Premises Installation Checklist

This checklist ensures smooth deployment and configuration of HPE Aruba Networking Central On-Premises

Following are the mandatory requirements to install HPE Aruba Networking Central On-Premises on a **HPE DL365 Gen 11 server**:

Hardware Specification

- Ensure the server has a CPU with 128 physical cores.
- Verify the server has 1024 GB RAM.
- Confirm the server has 7 Hard Disks with 1.6 TB each configured in RAID 6.
- Confirm the server has a 10Gig Interface.

Network Adapter Requirements

Use only the Intel Ethernet 10Gb 2-port 562SFP+ Adapter to connect the server to the 10-Gigabit Ethernet (GbE) interface.

Minimum Server Component Versions

Ensure the server meets the following minimum component version requirements:

- NIC Version: 4.2
- ROM Version: 2.12
- ILO Version: 1.56

Network Interface Configuration

- Ensure the server is connected to a 10-Gigabit Ethernet (GbE) interface.
- Only a single interface (10 Gig) is required.

NOTE: During the initial network interface configuration, Link Aggregation Group (LAG) configuration is not available. LAG can be configured only after the installation is completed successfully. To enable LAG, ensure that two 10 Gigabit network interfaces are configured, then access the system through the **iLO console** and configure LAG using the `copadmin` user account.

For more infromation, see **The CLI Bank**.

- Identify and correctly enter the interface name during network configuration. For Gen 10 servers, interface names may include ens22f0, ens22f1, or others. You must identify the correct interface name and provide it during the network configuration.

Storage Requirements

- Verify that all hard drives in the server are Solid State Drives (SSDs). Installation is not supported with HDDs or hybrid drives.
- Ensure all disks are configured in RAID with only one logical drive present.

Following are the mandatory requirements to install HPE Aruba Networking Central On-Premises on a **HPE DL360 Gen 11 server**:

Hardware Specification

- Ensure the server has a CPU with 48 physical cores.
- Verify the server has 512 GB RAM.
- Confirm the server has a 5 Hard Disks with 1.6 TB each configured in RAID 6.
- Confirm the server has a 10Gig Interface.

Network Adapter Requirements

Use only the Intel Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter to connect the server to the 10-Gigabit Ethernet (GbE) interface.

Minimum Server Component Versions

Ensure the server meets the following minimum component version requirements:

- NIC Version: 4.2
- ROM Version: 2.12
- ILO Version: 1.56

Network Interface Configuration

- Ensure the server is connected to a 10-Gigabit Ethernet (GbE) interface.
- Only a single interface (10 Gig) is required.

NOTE: During the initial network interface configuration, Link Aggregation Group (LAG) configuration is not available. LAG can be configured only after the installation is completed successfully. To enable LAG, ensure that two 10 Gigabit network interfaces are configured, then access the system through the **iLO console** and configure LAG using the `copadmin` user account.

For more infromation, see **The CLI Bank**.

- Identify and correctly enter the interface name during network configuration. For Gen 11 servers, interface names may include ens15f0, ens15f1, or others. You must identify the correct interface name and provide it during the network configuration.

Storage Requirements

- Verify that all hard drives in the server are Solid State Drives (SSDs). Installation is not supported with HDDs or hybrid drives.
- Ensure all disks are configured in RAID with only one logical drive present.

Following are the mandatory requirements to install HPE Aruba Networking Central On-Premises on a **HPE DL360 Gen 10 server**:

Hardware Specification

- Ensure the server has a CPU with 40 physical cores.
- Verify the server has 512 GB RAM.
- Confirm the server has a 3.84 TB Hard Disk configured in RAID 0.
- Confirm the server has a 10Gig Interface.

Network Adapter Requirements

Use only the Intel Ethernet 10Gb 2-port 562SFP+ Adapter to connect the server to the 10-Gigabit Ethernet (GbE) interface.

Minimum Server Component Versions

Ensure the server meets the following minimum component version requirements:

- NIC Version: 11.1.1
- ROM Version: 2.68
- ILO Version: 2.72

Network Interface Configuration

- Ensure the server is connected to a 10-Gigabit Ethernet (GbE) interface.
- Only a single interface (10 Gig) is required.

NOTE: During the initial network interface configuration, Link Aggregation Group (LAG) configuration is not available. LAG can be configured only after the installation is completed successfully. To enable LAG, ensure that two 10 Gigabit network interfaces are configured, then access the system through the **iLO console** and configure LAG using the `copadmin` user account.

For more infromation, see **The CLI Bank**.

- Identify and correctly enter the interface name during network configuration. For Gen 10 servers, interface names may include ens1f0, ens1f1, or others. You must identify the correct interface name and provide it during the network configuration.

Storage Requirements

- Verify that all hard drives in the server are Solid State Drives (SSDs). Installation is not supported with HDDs or hybrid drives.
- Ensure all disks are configured in RAID with only one logical drive present.

Following are the mandatory requirements that must be followed while installing HPE Aruba Networking Central On-Premises on any server (HPE 360 Gen 10 or Gen 11 and HPE 365 Gen 11):

Cluster Deployment

- Ensure all cluster nodes are deployed in the same data center and same L2 VLAN setup.
- Verify that the setup achieves 10 Gbps throughput for intra-cluster communication.

iLO Configuration

- Confirm the server's iLO port is connected to a switch and it is configured with ILO IP, Gateway IP, and Netmask which are reachable.
- Verify the iLO credentials are placed on top of the server and make a note of them.
- Set the iLO timezone to the current date and time. Ensure the timezone is not older.

FQDN Configuration

- Provide a valid FQDN for each server node that:
  - Resolves with the IP address configured in the network settings.
  - Is resolvable by any client accessing the New HPE Aruba Networking Central On-Premises.

NTP Server

Configure a primary NTP server, which is mandatory for installation.

Service Pack Installation

Verify server component versions:

- NIC Version: 11.1.1
- ROM Version: 2.68
- ILO Version: 2.72
- If the server is running lower versions than specified, install the service pack.
- Navigate to **Firmware** and **OS Software** > **Update Firmware** from the right menu from the right menu, browse for the service pack and install it.

File Naming

- During installation, do not rename or modify file names for the following files:
  - *.iso
  - *.tar.gz
- Ensure file names remain unchanged to avoid installation failures.

Cluster Configuration Details

Ensure the following details are correctly mentioned and reachable for each node in the cluster:

- FQDN
- IP Address
- Subnet Mask
- Gateway
- DNS IP
- VIP (Virtual IP for each cluster)
- Cluster FQDN

IP Range Requirements

Ensure the following IP ranges align with the correct subnet:

- POD IP Range should be within xxx.xx.x.x/16 subnet.
- Service IP Range should be within xxx.xx.x.x/23 subnet.

NOTE:

If the network falls within the same range, you must update the values; otherwise, you can continue using the default settings.

Deployment

In HPE Aruba Networking Central On-Premises Appliance mode, customers deploy HPE Aruba Networking Central On-Premises on Aruba Central Appliance (R1Q05A, R1Q05B) or Aruba Central Ready AirWave 8 Appliance (R1Q04A, R1Q04B). For Gen 11, it supports the following appliance:

- S4P01A
- S4P02A
- S6F39A
- S6H63A

NOTE: While using HPE DL360 servers, you can use a mix of Gen 10 and Gen 11 servers.

You can also deploy HPE Aruba Networking Central On-Premises on HPE servers as mentioned in the following tables:

- **HPE OEM ProLiant DL365 Gen11 8SFF CTO Server Specifications**
- **Table 7: HPE OEM ProLiant DL360 Gen11 8SFF CTO Server Specifications**
- **Table 8: HPE OEM ProLiant DL360 Gen10 8SFF CTO Server Specifications**

The following accessories are required to support HPE Aruba Networking Central On-Premises on both Appliance and Non-Appliance mode for Gen 10 or Gen 11:

- Aruba 10Gb SFP+ to SFP+ 1m Direct Attach Cable J9281D
- Aruba 10Gb SFP+ to SFP+ 3m Direct Attach Cable J9283D
- Aruba 10Gb SFP+ to SFP+ 7m Direct Attach Cable J9285D
- 9150D (Aruba 10G SFP+ LC SR 300m OM3 MMF (Short-rangeTransceiver with supported fiber cable)
- J9151E - HPE Aruba 10G SFP+ LC LR 10km SMF (Long-rangeTransceiver with supported fiber cable)

The following table lists the only supported server specification that can be purchased from HPE to support HPE Aruba Networking Central On-Premises on Bare Metal mode for HPE DL365 Gen 11:

Table 6: HPE OEM ProLiant DL365 Gen11 8SFF CTO Server Specifications

Quantity	Product Part Number	Description
1	P67161 - B21	HPE OEM ProLiant DL365 Gen11 8SFF Configure - to - order Server
1	P67161 - B21 UUF	HPE OEM DL365 Gen11 8SFF CTO Svr
2	P76562 - B21	AMD EPYC 9555 3.2 - 3.4GHz 64 - core 360W Processor for HPE OEM
2	P76562 - B21 0D1	Factory Integrated
16	P64986 - B21	HPE 64GB (1x64GB) Dual Rank x4 DDR5 - 6400 CAS - 52 - 52 - 52 EC8 Registered Smart Memory Kit
16	P64986 - B21	Factory Integrated
1	P55020 - B21	HPE ProLiant DL365 Gen11 8SFF Tri - Mode U.3 x1 BC FIO Backplane Kit
7	P49049 - B21	HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD
7	P49049 - B21 0D1	Factory Integrated
1	P56915 - B21	HPE ProLiant DL3X5 Gen11 1U x16 Riser Kit
1	P56915 - B21 0D1	Factory Integrated
1	P51178 - B21	Broadcom BCM5719 Ethernet 1Gb 4 - port BASE - T Adapter for HPE
1	P51178 - B21 0D1	Factory Integrated

Table Continued

Quantity	Product Part Number	Description
1	P01367 - B21	HPE 96W Smart Storage Lithium - ion Battery with 260mm Cable Kit
1	P01367 - B21 0D1	Factory Integrated
1	P57884 - B21	HPE ProLiant DL3X5 Gen11 Smart Storage Battery 2P 96W Cable Kit
1	P57884 - B21 0D1	Factory Integrated
1	P47781 - B21	HPE MR416i - o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller
1	P47781 - B21 0D1	Factory Integrated
1	P10106 - B21	Intel E810 - XXVDA2 Ethernet 10/25Gb 2 - port SFP28 OCP3 Adapter for HPE
1	P10106 - B21 0D1	Factory Integrated
7	P58462 - B21	HPE ProLiant DL3XX Gen11 1U Performance Fan Kit
7	P58462 - B21 0D1	Factory Integrated
2	P03178 - B21	HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit
2	P03178 - B21 0D1	Factory Integrated
1	BD505A	HPE iLO Advanced 1 - server License with 3yr Support on iLO Licensed Features
1	BD505A 0D1	Factory Integrated
1	P56901 - B21	HPE ProLiant DL365 Gen11 8SFF OROC x1 SAS/SATA/NVMe Cable Kit
1	P56901 - B21 0D1	Factory Integrated
1	P52351 - B21	HPE DL3XX Gen11 Easy Install Rail 2 Kit
1	P52351 - B21 0D1	Factory Integrated

Table Continued

Quantity	Product Part Number	Description
2	P58457 - B21	HPE ProLiant DL3X5 Gen11 1U CPU Performance Heat Sink Kit
2	P58457 - B21 0D1	Factory Integrated

The following table lists the only supported server specification that can be purchased from HPE to support HPE Aruba Networking Central On-Premises on Bare Metal mode for HPE DL360 Gen 11:

Table 7: HPE OEM ProLiant DL360 Gen11 8SFF CTO Server Specifications

Quantity	Product Part Number	Description
1	P55428 - B21	HPE OEM ProLiant DL360 Gen11 SFF NC Configure - to - order Server
1	P55428 - B21 UUF	HPE OEM ProLiant DL360 Gen11 SFF NC Configure - to - order Server
2	P67827 - B21	Intel Xeon - Gold 6530 2.1GHz 32 - core 270W Processor for HPE OEM
2	P67827 - B21 0D1	Factory Integrated
16	P64706 - B21	HPE 32GB (1x32GB) Dual Rank x8 DDR5 - 5600 CAS - 46 - 45 - 45 EC8 Registered Smart Memory Kit
16	P64706 - B21 0D1	Factory Integrated
1	P48895 - B21	HPE ProLiant DL360 Gen11 8SFF x1 U.3 Tri - Mode Backplane Kit
1	P48895 - B21 0D1	Factory integrated
5	P49049 - B21	HPE 1.6TB SAS 24G Mixed Use SFF BC Multi Vendor SSD
5	P49049 - B21 0D1	Factory Integrated
1	P48926 - B21	HPE ProLiant DL3X0 Gen11 1U 8SFF Display Port/USB/Optical Drive Blank Kit
1	P48926 - B21 0D1	Factory Integrated

Table Continued

Quantity	Product Part Number	Description
1	726536 - B21	HPE 9.5mm SATA DVD - ROM Optical Drive
1	726536 - B21 0D1	Factory Integrated
1	P51178 - B21	Broadcom BCM5719 Ethernet 1Gb 4 - port BASE - T Adapter for HPE
1	P51178 - B21 0D1	Factory Integrated
1	P01366 - B21	HPE 96W Smart Storage Lithium - ion Battery with 145mm Cable Kit
1	P01366 - B21 0D1	Factory Integrated
1	P48918 - B21	HPE ProLiant DL360 Gen11 Storage Controller Enablement Cable Kit
1	P48918 - B21 0D1	Factory Integrated
1	P47781 - B21	HPE MR416i - o Gen11 x16 Lanes 8GB Cache OCP SPDM Storage Controller
1	P47781 - B21 0D1	Factory Integrated
1	P10106 - B21	Intel E810 - XXVDA2 Ethernet 10/25Gb 2 - port SFP28 OCP3 Adapter for HPE
1	P10106 - B21 0D1	Factory Integrated
1	P48908 - B21	HPE ProLiant DL3X0 Gen11 1U High Performance Fan Kit
1	P48908 - B21 0D1	Factory Integrated
1	P03178 - B21	HPE 1000W Flex Slot Titanium Hot Plug Power Supply Kit
1	P03178 - B21 0D1	Factory Integrated
1	BD505A	HPE iLO Advanced 1 - server License with 3yr Support on iLO Licensed Features
1	BD505A 0D1	Factory Integrated

Table Continued

Quantity	Product Part Number	Description
1	P48830 - B21	HPE ProLiant DL3XX Gen11 CPU2 to OCP2 x8 Enablement Kit
1	P48830 - B21 0D1	Factory Integrated
1	P52416 - B21	HPE ProLiant DL360 Gen11 OROC Tri - Mode Cable Kit
1	P52416 - B21 0D1	Factory Integrated
1	P26489 - B21	HPE ProLiant DL300 Gen10 Plus 1U Cable Management Arm for Rail Kit
1	P26489 - B21 0D1	Factory Integrated
2	P48905 - B21	HPE ProLiant DL3XX/560 Gen11 High Performance Heat Sink Kit
2	P48905 - B21 0D1	Factory Integrated
1	P52341 - B21	HPE ProLiant DL3XX Gen11 Easy Install Rail 3 Kit
1	P52341 - B21	Factory integrated

The following table lists the only supported server specification that can be purchased from HPE to support HPE Aruba Networking Central On-Premises on Bare Metal mode for HPE DL360 Gen 10:

Table 8: HPE OEM ProLiant DL360 Gen10 8SFF CTO Server Specifications

Quantity	Product Part Number	Description
1	869121 - B21	HPE OEM ProLiant DL360 Gen10 8SFF Configure - to - order Server
1	869121 - B22	HPE OEM DL360 Gen10 8 - SFF CTO Server
1	869121 - B23	OEM LL DL360 Gen10 6138 Xeon - G FIO Kit
1	869121 - B24	OEM LL DL360 Gen10 6138 Xeon - G Kit
1	869121 - B25	Factory Integrated

Table Continued

Quantity	Product Part Number	Description
16	869121 - B26	HPE 32GB (1x32GB) Dual Rank x4 DDR4 - 2666 CAS - 19 - 19 - 19 Registered Smart Memory Kit
16	869121 - B27	Factory Integrated
1	869121 - B28	HPE DL360 Gen10 8SFF Display Port/USB/Optical Drive Blank Kit
1	869121 - B29	Factory Integrated
4	869121 - B30	HPE 960GB SATA 6G Mixed Use SFF SC Multi Vendor SSD
4	869121 - B31	Factory Integrated
1	726536 - B21	HPE 9.5mm SATA DVD - ROM Optical Drive
1	726536 - B21 0D1	Factory Integrated
1	727055 - B21	HPE Ethernet 10Gb 2 - port SFP+ X710 - DA2 Adapter
1	727055 - B21 0D1	Factory Integrated
1	P01366 - B21	HPE 96W Smart Storage Lithium - ion Battery with 145mm Cable Kit
1	P01366 - B21 0D1	Factory Integrated
1	804331 - B21	HPE Smart Array P408i - a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller
1	804331 - B21 0D1	Factory Integrated
1	865408 - B21	HPE 500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit
1	865408 - B21 0D1	Factory Integrated
1	512485 - B21	HPE iLO Advanced 1 - server License with 1yr Support on iLO Licensed Features

Table Continued

Quantity	Product Part Number	Description
1	512485 - B21 0D1	Factory Integrated
1	734811 - B21	HPE 1U Cable Management Arm for Rail Kit
1	734811 - B21 0D1	Factory Integrated
1	864279 - B21	HPE Trusted Platform Module 2.0 Gen10 Option
1	864279 - B21 0D1	Factory Integrated
	872211 - B21	HPE OEM 1U Non - Brand Gen10 Bezel FIO Kit
1	873770 - B21	HPE DL3XX Gen10 Rear Serial Cable and Enablement Kit
1	873770 - B21 0D1	Factory Integrated
1	874543 - B21	HPE 1U Gen10 SFF Easy Install Rail Kit
1	874543 - B21 0D1	Factory Integrated
Total = 68		

HPE Aruba Networking Central On-Premises supports deployment only on dedicated appliance servers. In this mode, you must deploy HPE Aruba Networking Central On-Premises on HPE Aruba Networking Central On-Premises Appliance (R1Q05A, R1Q05B) or Aruba Central Ready AirWave 8 Appliance (R1Q04A, R1Q04B) before setting up the cluster.

NOTE: To onboard an IAP websocket connection, you must upload any trusted CA certificate to the HPE Aruba Networking Central On-Premises cluster.

Installing Service Pack

About this task

If your system is running the below mentioned server component version or higher version, you can skip the service pack installation.

- NIC Version—11.1.1
- ROM—2.68
- ILO—2.72

Admins must prepare all the HPE Aruba Networking Central On-Premises nodes to upgrade with HPE release Service Pack for proper functioning of the nodes. It is recommended by HPE to keep iLO to the supported Service Pack as it improves the reliability and performance of the servers.

The Service pack consists of a number of firmwares and other associated drivers of different components such as Power Controller, NIC, ILO5, RAID, BIOS, and so on. This Service pack fixes any kind of known vulnerabilities and provides security updates for the drivers along with additional features.

To install the iLO service pack, complete the following steps:

Prerequisite

- Download new iLO Service Pack from HPE Support Portal, **HPE Support Center**.
- Download custom patched Service Pack by HPE from, **SPP Custom Download.**

  Before proceeding to COP iLO installation, your COP server should meet the following minimum criteria with respect to server components:

  - NIC version—11.1.1
  - ROM—2.68
  - ILO—2.72

  NOTE: HPE Aruba Networking Central On-Premises supports "`2022.09.01.00`" or higher service pack versions.

- For a fast and simultaneous installation of the SP ISO image, host the SP ISO image on the webserver, for example, Apache which is used to mount the ISO from iLO virtual disk option.

Procedure

1. Login to ILO with copilo user.

   NOTE:

   - For HPE Aruba Networking Central appliances, the default ILO credentials are copilo and server serial number whereas, for Airwave appliances, it is the iLO password on the server.
   - One the iLO console, ensure that under **Security** > **Encryption** > **Current Settings**, **Security State** is set to **Production**.

2. Mount the Service Pack ISO and perform the installation.

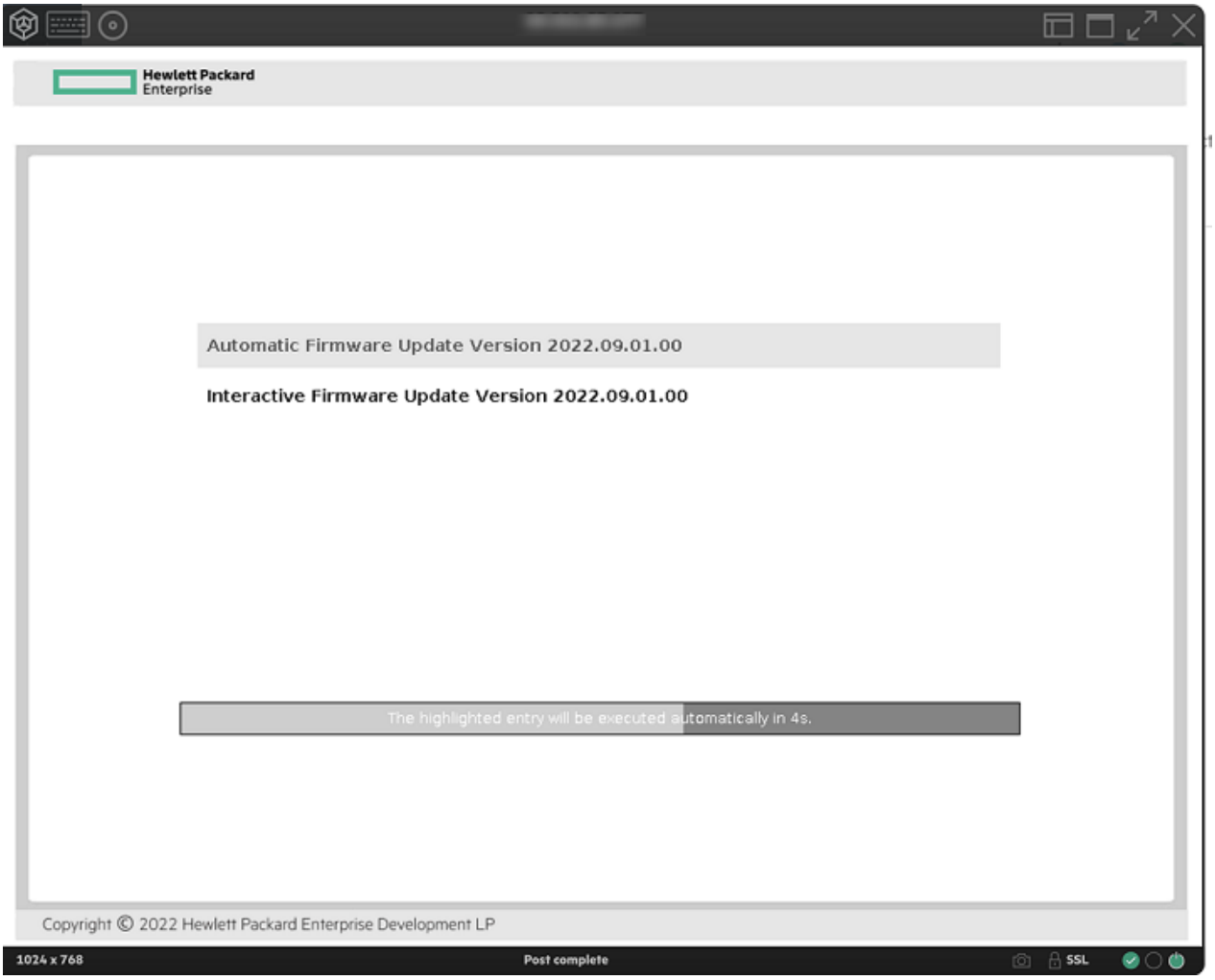


Figure 1: ILO Service Pack Installation

NOTE:

- Service pack installation takes approximately 1 hour for each node in the cluster.
- You can trigger the Service Pack upgrade only from the iLO console. This operation cannot be done from the COP CLI console.

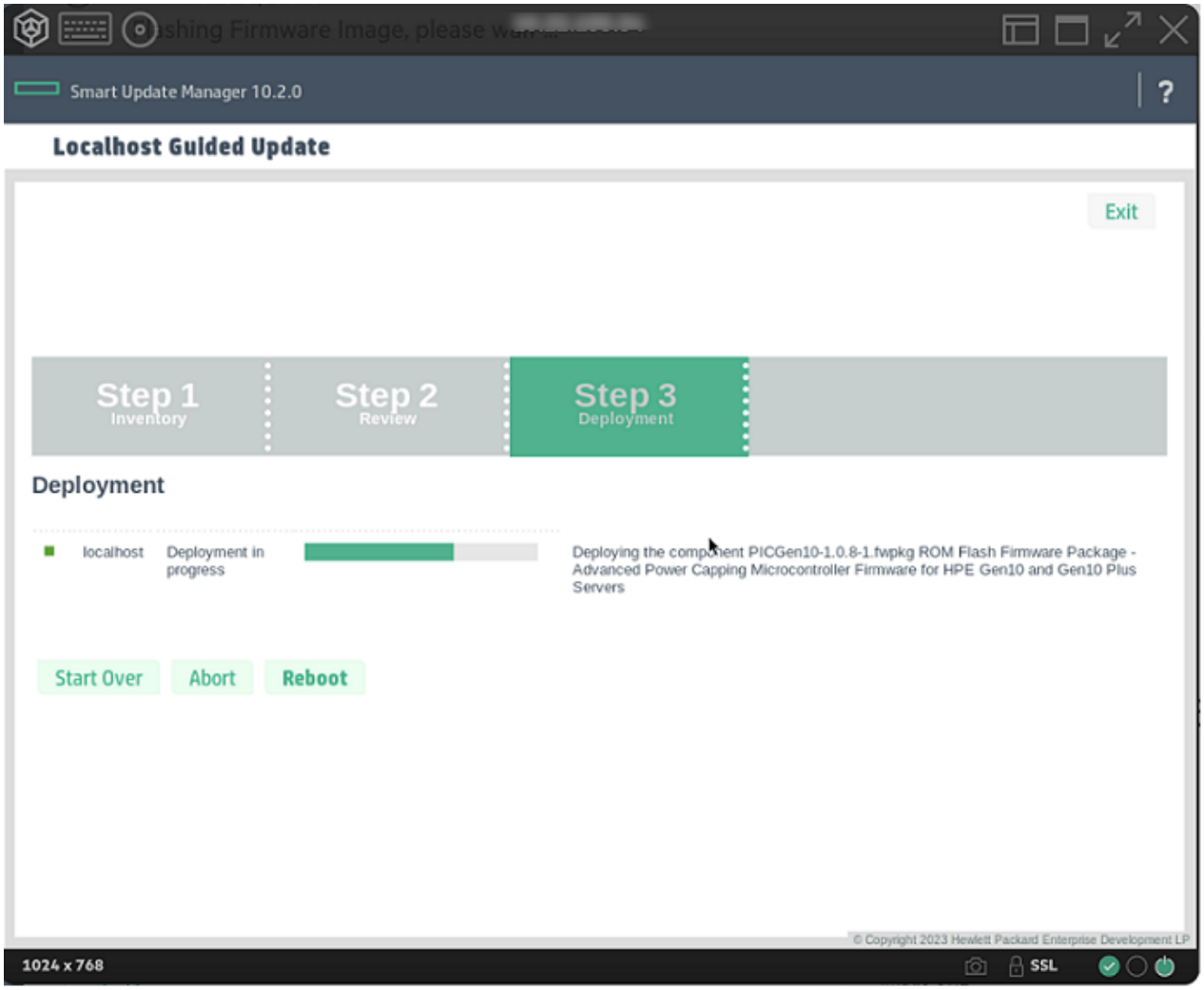


Figure 2: Status

Secure Boot

About this task

Secure Boot is a security feature in the servers firmware (BIOS/UEFI) that ensures the system boots using only trusted and digitally signed software.

Secure Boot must be disabled for Appliance mode HPE Aruba Networking Central On-Premises installation.

NOTE: During FIPS mode, to successfully complete the HPE Aruba Networking Central On-Premises installation the Secure Boot must be enabled.

To enable or disable the **Secure Boot**, complete the following steps.

Procedure

1. Log in to the iLO server as an administrator.
2. Reboot the server by clicking on **Power** icon > **Cold Boot**.
3. Confirm the cold boot operation when prompted, and wait for the **Power-On Self-Test (POST)** screen to be displayed.

4. On a Windows system, press **F9**, or on a Mac system, press **Fn+F9** to open **System Utilities**.
5. Enter the Administrator password.
6. Click **System Configuration**.
7. Click **BIOS/Platform Configuration (RBSU)**.
8. Click **Server Security**.
9. Click **Secure Boot Settings**.
10. In the **Attempt Secure Boot** drop-down, select **Enable** or **Disable**.

    By default, the secure boot is set to **Disable**. Enable the secure boot only during FIPS mode.
11. In the Warning pop-up, click **Ok** to confirm the configuration change.
12. Click **Exit**, until the **System Utilities** page is displayed.
13. Click **Reboot the System**, and confirm the reboot operation.

Unpacking and Rack Mounting

About this task

To initiate the installation, check the package and ensure that the components are in good condition and ready to be deployed.

There are two different ways to install HPE Aruba Networking Central On-Premises through ISO, you can mount the server through virtual media (remote server) or you can mount the server from your local system.

NOTE: It is recommended to use virtual media to mount the server as the network connectivity from ISO server is consistent, and there will be no connectivity lose.

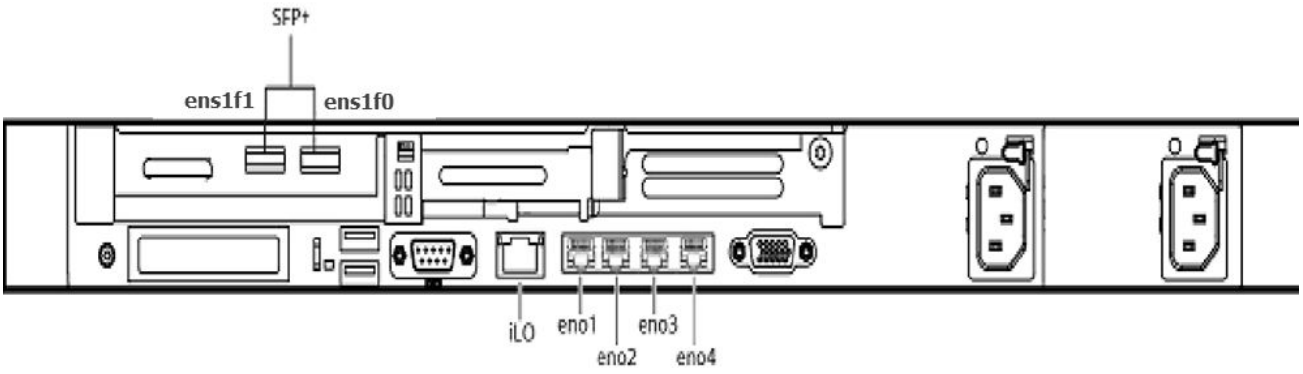
Prerequisite

Since iLO is not present in the server by default, you must first mount the server to the rack. You must set the network function and connect the server physically to the monitor and keyboard.

Procedure

1. Boot the server.
2. After the booting is complete, there will be options to configure the server with ILO IP and other network parameters. For more information see, Configuring ILO IP Address in **Installing ISO**.
3. Reboot the server.
4. After the reboot is successful, you can initiate a remote session to the server ILO IP address.

To set connections to the server, connect a 10G SFP cable to the SFP+ port through the compatible SFP transceivers.



Setting up the Server

Before installing HPE Aruba Networking Central On-Premises, you must first prepare the server. Ensure that you have all the prerequisites and good network connectivity. For the list of prerequisites, see **Prerequisites**.

Setting Up the iLO Network Configuration Utility

NOTE: You must connect an Ethernet cable to the iLO port to a network with DHCP, or connect a monitor and keyboard to the server to configure a static IP for iLO.

You can now login to the iLO server with the default credentials provided by HPE.

NOTE: For HPE Aruba Networking Central On-Premises appliances, the default ILO credentials are copilo and server serial number whereas, for Airwave appliances, it is the iLO password on the server.

In Appliance mode installation the administrator user is disabled and RAID is pre-configured.

Static ILO IP Configuration

Procedure

1. Connect a monitor and keyboard to the server's ports.
2. Reboot the server.
3. Log in using the following credentials:
   - **Username**—copadmin
   - **Password**—Serial Number of the server
4. From the CLI menu, select Option 5, **Advanced**> option 4, **Configure iLO IP**.
5. Enter the required network settings:
   - IP Address
   - Subnet Mask
   - Gateway
   - DNS Server(s)

Setting the RAID Level

About this task

You must set the RAID level only if RAID is not configured.

RAID Configuration Check

Procedure

1. Access the iLO the following iLO page, https://<iLO IP>.
2. Log in to the iLO Interface using one of the following credentials:
   - **Username**—copilo and **Password**—Serial Number of the server *OR*
   - **Username**—administrator and **Password**—Provided on the sticker attached to the server
3. Navigate to **System Information** > **Storage** > **Volumes** > **Drive/Volume**
4. Verify the RAID configuration type and ensure all drives are selected and properly enabled:
   - For Gen10 HPE servers, you must select RAID level as **RAID0**.
   - For Gen11 HPE servers, you must select RAID level as **RAID6**.

   NOTE: If RAID is not configured, you must configure the RAID level.

Checking the System Information

About this task

After setting up the boot order and boot mode, you can proceed with the installation, provided other software and hardware requirements are present.

To verify the system information, perform the following steps:

Procedure

1. From the **Information-iLO Overview** page. Click **System Information** on the left pane.
2. Click the **Memory** option from the top menu.
3. Scroll down and verify the **Memory Summary**. The total memory should be 512GB.
4. Scroll down to verify the memory slots. Total number of slots should be 16 and the RAM status should be **Good, In Use**.
5. Select **Processors** from the top menu to view the processor details.

   The processors information with the number of cores is displayed.

   NOTE: HPE Aruba Networking recommends using **Intel(R) Xenon(R) Gold 6138 CPU@ 2.00GHz** processor and the total execution technology should be 80 threads.

   Your server is ready for HPE Aruba Networking Central On-Premises installation.

Installing ISO

HPE Aruba Networking Central On-Premises supports single-node and multi-node cluster. Multi-node cluster configuration consisting of 3, 5, 7, 9, and 11 nodes. This document provides guidance for planning and performing the installation of HPE Aruba Networking Central On-Premises on appliance mode. For more information on cluster device scaling, see **Cluster Device Scaling**.

HPE Aruba Networking Central On-Premises also supports bare metal mode installation for customers who prefer not to deploy HPE Aruba Networking Central appliances.

For more information on HPE Aruba Networking Central On-Premises deployment, see **HPE Aruba Networking Central On-Premises Deployment.**

Watch a video for this task—**Installing ISO**.

Downloading the ISO Image

Before starting the installation, you must download the ISO image file to your local system from **HPE Networking Support Portal (NSP)**.

Download the appropriate ISO image file based on the HPE Aruba Networking Central On-Premises mode:

- FIPS Mode— COP-installer-iso-<version number>-<build number>-<patch number number>-FIPS-prod.iso
- Appliance Mode—COP-installer-iso-<version number>-<build number>-<patch number number>-prod.iso

Place the ISO image onto an HTTPS server. HTTPS Server must be reachable from the HPE Aruba Networking Central On-Premises server iLO IP address.

NOTE:

- Local ISO-based installations are sensitive to network glitches. It is recommended to use a web server to perform the ISO install.
- If you are downloading and installing the image from your local PC, ensure that you are always connected to the network. Any network disconnection will result in failures.

Downloading Apps Package Files

By default, HPE Aruba Networking Central On-Premises 3.0.4.3 Apps_package comes in two parts (part-01 an part-02). The Apps Package files follows the naming convention COP-apps-pkg-<version>-<build-number>-<patch-number>-prod.tar.gz.part-<part-number>.

An example of the two Apps_package file name:

- COP-apps-pkg-<version number>-<build number>-<patch number number>-prod.tar.gz.part-01
- COP-apps-pkg-<version number>-<build number>-<patch number number>-prod.tar.gz.part-02

You must download these two files to the local machine.

Validating Checksum for the Downloaded Files

After downloading the files (.tar and iso files), you must perform the checksum validation to verify the integrity and accuracy of the downloaded files. You can validate the checksum through md5sum and sha256sum. When you run md5sum and sha256sum against the downloaded files, an output is generated. This output must match with the checksum file to ensure that the files were downloaded correctly and are free from any errors.

NOTE: Due to network, disk space, or any other potential issues, if the checksum is not matching with the downloaded file, then redownload the file and verify the checksum again.

Installing ISO Files

There are three ways to install HPE Aruba Networking Central On-Premises ISO to the Central Appliance. You can use either of the following options:

- **Option 1: Using the ISO image on an HTTPS server or CD/DVD "Virtual Media URL"**
- **Option 2: Using the iLO interface with ISO image on the local PC or DVD (CD/DVD "Local *.iso file")**
- **Option 3: Using the USB drive**

Important Note

HPE recommends using HTTPS Server (CD/DVD "Virtual Media URL") option

NOTE: During HPE Aruba Networking Central On-Premises installation on the iLO server, if there are any iLO accounts created by the customer, those accounts will be deleted. Only 'administrator' and 'copilo' accounts can be created and retained as a part of the ISO installation.

Option 1: Using the ISO image on an HTTPS server or CD/DVD "Virtual Media URL"

About this task

To install HPE Aruba Networking Central On-Premises ISO files using the iLO interface with ISO image on an HTTPS server, complete the following steps:

Procedure

1. From the downloaded files, right-click on the .iso file and click **Copy Link Address**.

   For example, <https://<ip address>/.iso>
2. Login to the server that was set up in the first workflow.
3. You can mount the image using either of the following options:

   - From the User Interface (UI)
     a. Click **Remote Console & Media** option from the left-hand menu.

        The **Remote Console & Media- iLO Integrated Remote Console** page is displayed.

     b. Click **Virtual Media** from the top menu.

c. From the **Connect CD/DVD-ROM**, click **Insert Media** button.

d. Paste the URL copied in step 1 in the **Image URL** field.

e. Select the **Boot on Next Reset** checkbox.

f. Reboot the server by clicking on **Power** icon > **Cold Boot**.

- From the console:

  NOTE:

  These steps are only applicable for HPE Gen 10 servers.

  a. Click the icon > **CD/DVD** > **Virtual Media URL**.

  The **Virtual Media URL** pop-up is displayed.

  NOTE:

  Select Local *.iso image if the image is downloaded into your local PC and relevant options to upload the image is displayed.

  b. Paste the URL copied in step 1 in the **Virtual Media URL** field and click **Apply**.

4. Reboot the server by clicking on **Power** icon > **Cold Boot**.

   NOTE:

   - ISO installation starts, and this installation must take approximately 45 minutes.
   - If you are installing from the ISO for the first time, you will be prompted to enter an admin password. Provide the password to continue with the installation.

   Once the installation is complete, a blank screen is displayed with a message, **Reboot: System halted**, to reboot the server.

5. Reboot the server by clicking on **Power** icon > **Cold Boot**.

   A message, **Media Ejected Successfully**, is displayed.

After the server reboots, the ISO installation is complete and the user login prompt is displayed. Continue with the Installing Software procedure. For detailed instructions, see **Installing Software**.

Option 2: Using the iLO interface with ISO image on the local PC or DVD (CD/DVD "Local *.iso file")

About this task

To install HPE Aruba Networking Central On-Premises ISO files using the iLO interface with ISO image on your personal computer, complete the following steps:

Procedure

1. Obtain the iLO IP address assigned statically or by DHCP.

2. Login to the iLO IP address using the following credentials:

   Username—administrator and **Password**—Provided on the sticker attached to the server.

   NOTE:

   If you are reinstalling ISO, contact Aruba TAC for the password.

3. Download the ISO image to the computer.

4. Select **Administration** > **Boot Order** and under **One-Time Boot Status** option, select **Select One-Time Boot Option** as **CD/DVD Drive** and then click **Apply**.

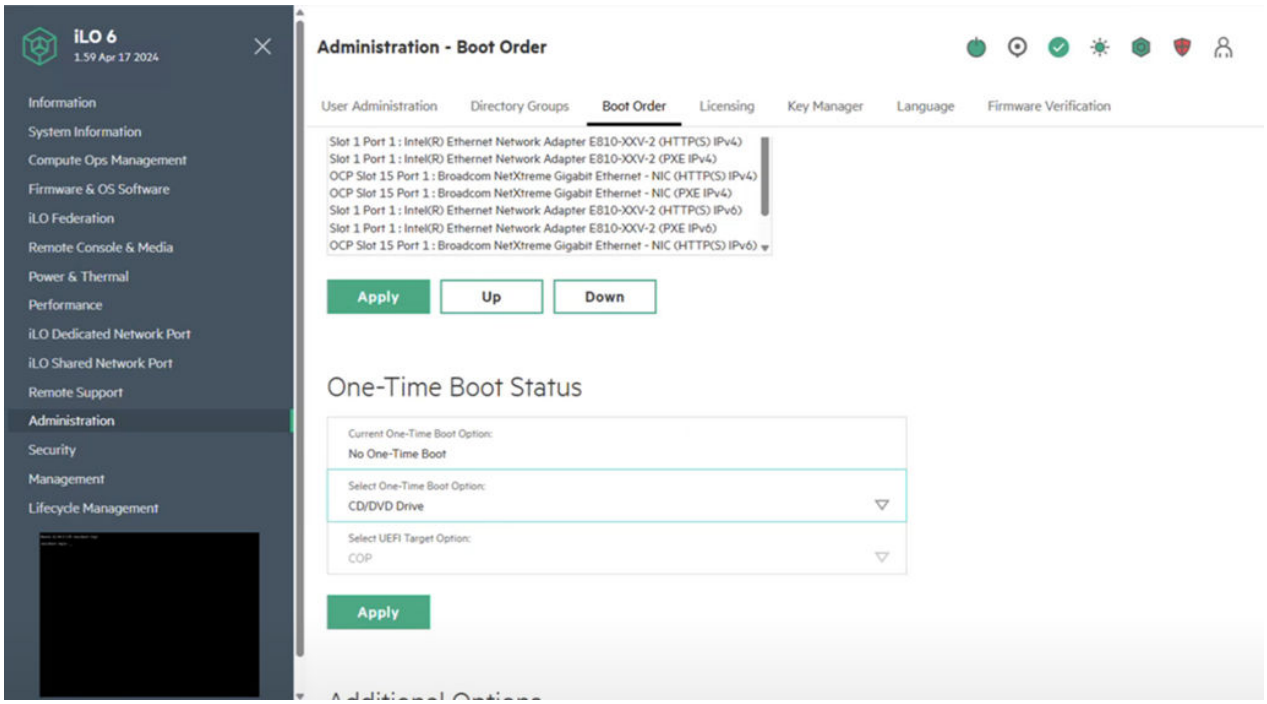


Figure 3: ISO Boot Order

5. Connect to the Java Web Console or HTML console on the iLO.

6. Select the **Disk icon** > **CD/DVD** > **Local *.iso file**.

7. Browse and select the ISO file from the computer and the ISO file is mounted to the server.

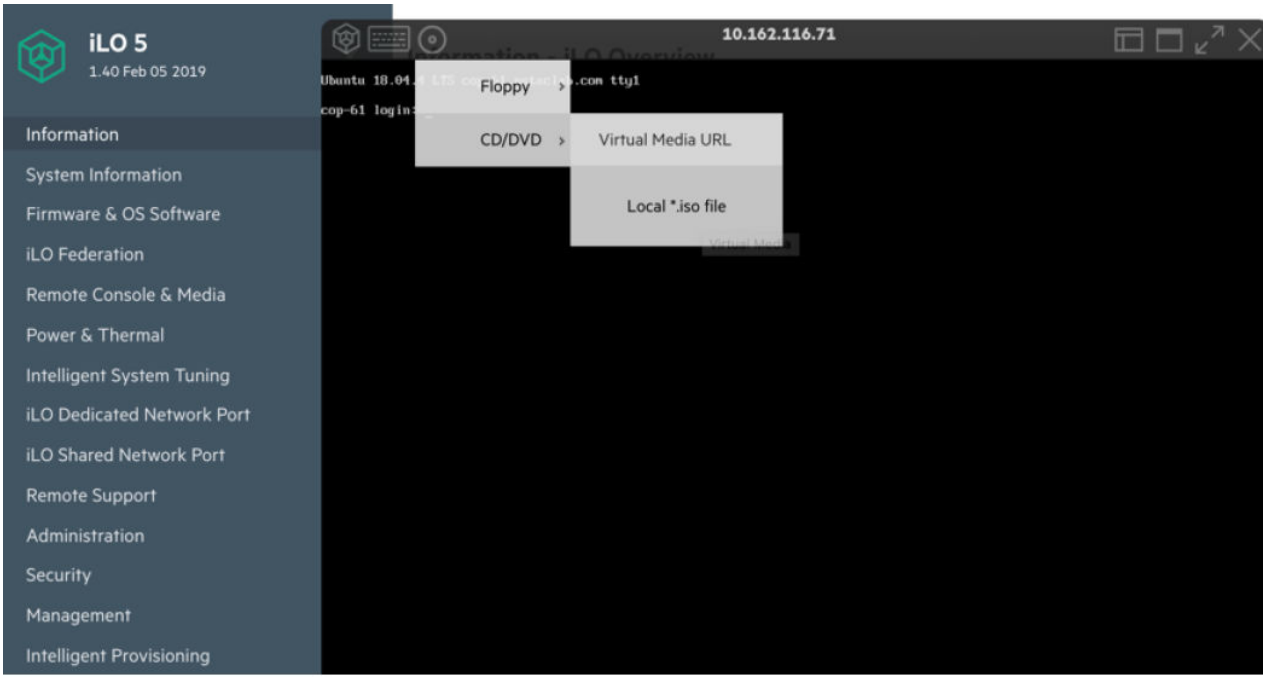


Figure 4: iLO Java Console Page

8. Reboot using the **iLO icon** > **Power** > **Cold Boot**. The server boots up with an ISO image and installs the Central OS.

NOTE:

- If a logout or login occurs, or the browser is refreshed, or the iLO console window is closed during the installation process, the mounted ISO (CD/**DVD** > **Local***.iso file) is disconnected. This disconnection typically causes the installer to fail, indicating that an installation step has failed.
- Ensure that the browser remains open, and do not log out or close the iLO console window while the ISO installation is in progress.

The installation process takes approximately 1 hour 15 minutes to complete.

Once the installation is complete, a blank screen is displayed with a message, **Reboot: System halted**, to reboot the server.

9. Reboot the server by clicking on **Power** icon > **Cold Boot**.

After the server reboots, the ISO installation is complete and the user login prompt is displayed. Continue with the Installing Software procedure. For detailed instructions, see **Installing Software**.

Option 3: Using the USB drive

Prerequisites

USB drive installation involves creating a bootable USB drive containing the ISO and the apps-pakage files. Once the USB is connected to the server, the ISO installation process is initiated, and the required apps-package files are copied to the server.

NOTE:

- In FIPS mode, USB-based ISO installation is not supported.
- In USB-based installation mode, you do not have to copy the apps package files separately. It is part of the USB installation procedure.

- **Supported Client OS and Specs**
  - Ubuntu-based Linux - 18.04+ 64Bitz
  - MAC OS - Sonoma version 14.5
  - Client laptop must have RAM 16 GB and Hard Disk with 500 GB free space
- **Supported USB**
  - Sandisk CZ73 Flair 512GB Pen drive
  - Kingston Data Traveler Max (DTMAXA/512GB)

    Supported only on HPE DL360 Gen 11 and HPE DL365 Gen 11 servers.
- **Prerequisite**
  - While performing a USB drive ISO install secure boot must be disabled
  - Internet connection is required to download the libraries (xorriso package) on the client laptop
    - Run `sudo apt install xorriso` for Ubuntu linux
    - Run `brew install xorriso` for MacOS
  - Download the ISO and respective app package file on the client laptop from the **NSP portal**
  - Download the script COP-usb-scripts-<version number>-<build number>-<patch number number>.tar.gz to create the bootable USB drive from the **NSP portal**
  - ILO settings must be in production (**Security** > **Encryption** > **Update Security Settings** > **Security State**)

NOTE: The ISO installation takes approximately 2 to 3 hours, however, it will vary based on the client laptop specifications. It can go up to 7 hours with low-end laptop specifications.

About this task

To install HPE Aruba Networking Central On-Premises using the USB Drive, complete the following steps:

Procedure

1. Extract the USB script using the `tar -xvzf COP-usb-scripts-<version number>-<build number>-<patch number>.tar.gz` command and place it in the same folder where ISO and apps-package files are present.
2. Plug in the USB drive to the client laptop and run the extracted script and select the appropriate USB disk.

   For Ubuntu/ Linux OS — `sudo ./bootable_usb_linux.sh`

   For MAC OS client — `sudo ./bootable_usb_mac.sh`

```
Available USB Drives:-----------------------------------1. /dev/disk2
Select a USB Drive by number: 1
You selected /dev/disk2
The bootable USB will include COP-apps-pkg-<Build number>-prod.tar.gz
Do you want to proceed with creating the bootable USB with apps_pkg? (Y/N) : Y
Starting USB creation process...
================================================================
IMPORTANT Do not unplug or disconnect /dev/disk2 while the ISO is being written.
Interrupting this process may corrupt your USB drive.
```

```
Do you want to proceed with writing the ISO to /dev/disk2? (Y/N) : Y
[2026-01-15 22:04:19] Starting SUB writing process to /dev/disk2

Data synced successfully!
Unmounting /dev/disk2 to ensure all data is written...
Disk /dev/disk2 ejected
================================================================================
Bootable USB creation complete!
================================================================================
[2026-02-09 06:21:10] Script completed successfully

[2026-02-09 06:21:10] Total execution time: 82 minutes and 6 seconds
```

3. After you receive the success message, unplug the USB drive from the client laptop and plug it in the HPE Aruba Networking Central On-Premises server.

   NOTE: Do not attach the USB drive to the ILO port. You must use any other USB port.

4. Login to the iLO IP address with the following credentials:

   Username—administrator and **Password**—Provided on the sticker attached to the server.

   NOTE: If you are reinstalling ISO, contact HPE Aruba Networking TAC for the password.

5. In **Administration** > **Boot Order**, select the following based on the server type:

   - For HPE DL 360 Gen 11 and HPE DL365 Gen 11, select **Generic USB Port** option from the list
   - For the HPE DL360 Gen10, move and select the **USB Storage Device** to the top of the boot order using the Up button.

6. Click **Apply**.

7. Reboot using the **iLO icon** > **Power** > **Cold Boot**. The server boots up with an ISO image and installs the Central OS.

   NOTE: In this process, the apps package files are copied to the server while the ISO installation process is initiated. You do not have to copy the apps package file separately.

   Once the installation is complete, a blank screen is displayed with a message, **Reboot: System halted**, to reboot the server.

8. Reboot the server by clicking on **Power** icon > **Cold Boot**.

After the server reboots, the ISO installation is complete and the user login prompt is displayed. Continue with the Installing Software procedure. For detailed instructions, see **Installing Software**.

IMPORTANT CONSIDERATIONS

Ensure that the following prerequisites are met before setting up HPE Aruba Networking Central On-Premises.

NOTE: Any mistype or incorrect details in the **Network Settings** cannot be modified after the cluster setup. The only option is to perform Factory Reset and re-run HPE Aruba Networking Central On-Premises.

- FQDN, IP Address, Subnet Mask, Gateway, DNS IP is configured for each node in cluster
- VIP (Virtual IP for cluster), Subnet Mask, Gateway, and multiple FQDNs (FQDNs for VIP) for the cluster is configured

NOTE:

- The HPE Aruba Networking Central On-Premises appliance opens multiple ports for communication, so it is recommended that you host the HPE Aruba Networking Central On-Premises appliance behind a firewall.
- In HPE Aruba Networking Central On-Premises deployment, the port 8888 is a dedicated inbound port which is used for HTTP-based firmware image download on CX and PVOS devices.
- During the ISO installation process, progress may remain at, for example, 15% or 40% for an extended period (sometimes hours) before completing quickly. This is an expected behavior.

Cluster Scaling

Scaling devices in a cluster enables you to add or optimize devices to increase the capacity of the cluster. HPE Aruba Networking Central On-Premises supports switches, gateways, and HPE Aruba Networking APs. When multiple nodes are added in the cluster, accordingly the number of supported devices increase.

Table 9: Maximum Number of Supported Devices on HPE DL360 Gen 10 and Gen 11

Appliance	Node Type	Total Device (Overlay or Underlay)	Switches (AOS - CX only)	Mixed - Mode (Bridge + Tunnel WLAN)	
DL360 Gen 10 and Gen 11				APs	Switches (AOS - CX)
	1	1000	200	800	200
	3	2000	400	1600	400
	5	8000	1600	6400	1600
	7	12000	2400	9600	2400
	9	16000	3200	12800	3200
	11	20000	4000	16000	4000

Table 10: Maximum Number of Supported Devices on HPE DL365 Gen 11

Appliance	Node Type	Total Device (Overlay or Underlay)	Switches (AOS - CX only)	Mixed Mode (Bridge + Tunnel WLAN)	
DL365 Gen 11				APs	Switches (AOS - CX)
	3	10000	2000	8000	2000
	5	20000	4000	16000	4000

Table Continued

Appliance	Node Type	Total Device (Overlay or Underlay)	Switches (AOS - CX only)	Mixed Mode (Bridge + Tunnel WLAN)	
	7	30000	6000	24000	6000
	9	40000	8000	32000	8000
	11	50000	10000	40000	10000

NOTE:

Some insights may not be available on smaller clusters due to resource the limitations. For more information, see **Accessing Insights Page.**

Feature Availability on HPE DL360

The HPE DL360 1-node and 3-node clusters are optimized for performance and support core management functionality. The 3-node cluster additionally supports high availability (HA). A subset of advanced capabilities that require more system capacity are supported on larger clusters and are not included in 1-node and 3-node HPE DL360 deployments.

Table 11: Features Excluded on 1-Node and 3-Node Clusters

S. No.	Feature Name	Excluded Cluster Sizes
1	Extensions	1 and 3-node
2	Open Locate	1 and 3-node
3	Location Analytics	1 and 3-node
4	ClearPass Device Insight	1 and 3-node
5	Intrusion Detection and Prevention System	1 and 3-node
6	AirGroup	1 and 3-node
7	Unified Communications and Collaboration	1 and 3-node
8	Streaming API	1 and 3-node
9	WebCC	1 and 3-node
10	Selected Client Insight features • Client Classification Rule • Client Tag	1 and 3-node

NOTE: AIOps Alerts and Insights (Recommenders) are not supported on single-node CNXOP clusters.

Installing Software

During the installation and setup process, the administrator account on the iLO logs out and a new HPE Aruba Networking Central On-Premises iLO user account is created. The BIOS password is secured as an internal hash.

Step 1: Login to HPE Aruba Networking Central On-Premises

About this task

Before proceeding with the procedure for running the network the setup cluster, perform the following steps:

Procedure

1. Login to HPE Aruba Networking Central On-Premises with copadmin as username and the serial number as the password. To retrieve the server serial number, follow the steps:

   a. Navigate to the server and click **Information** on the left pane.

      The **Information - ILO Overview** page is displayed. Under **Server** details, you can see the **Server Serial Number**.

   b. Open the console again.

NOTE:

- To log into iLO web interface, enter the credentials:
  - Username: copilo
  - Password: server serial number
- To log into iLO console, enter the credentials:
  - Username: copadmin
  - Password: server serial number

Step 2: Run the Network Setup from the CLI

Procedure

1. Log in to HPE Aruba Networking Central On-Premises CLI through a serial console.
2. At the prompt, login to the server using the following credentials:

   - user name = **copadmin**
   - password = **<server serial number>**

   Before configuring the HPE Aruba Networking Central On-Premises server, ensure that the following details are ready:

Table 12: Parameters

Parameters	Description	Example
FQDN	FQDN of the cluster	cop - deployment.companyx.com
IP Address	IP address of the HPE Aruba Networking Central On-Premises server	10.250.0.10
Subnet Mask	Subnet mask of the HPE Aruba Networking Central On-Premises server	255.255.255.0
Gateway	Gateway details of the cluster	10.250.0.1
Primary DNS Server	Primary DNS Server for the cluster	172.20.0.10
Secondary DNS Server	Secondary DNS Server for the cluster	172.20.0.11
Primary NTP	Primary NTP Server for the cluster	172.20.0.12
Virtual IP (VIP)	Virtual IP of the cluster	10.250.0.100

IMPORTANT: Any mistype or incorrect details in the **Network Settings** cannot be reverted. The only option to make network changes is to reinstall the HPE Aruba Networking Central On-Premises ISO image.

After logging in to the server, perform the following steps:

Step a: Setting Connections to the Server

Connect a 10G SFP cable to the SFP+ port through the compatible SFP transceivers. For detailed interface mapping categorized by server model see the table, **Table 13: 10 GbE Interface Mapping by Server Model (with iLO Port Labels)**.

NOTE: To view all the supported SFP modules, see **Supported SFP Modules.**

Table 13: 10 GbE Interface Mapping by Server Model (with iLO Port Labels)

Server Model	iLO Port Label (Adapter)	Linux Interface Name (10 GbE)
HPE DL 360 Gen 10	Port 1 (10 GbE)	ens1f0
	Port 2 (10 GbE)	ens1f1
	Port 3 (10 GbE)	ens1f2
	Port 4 (10 GbE)	ens1f3

Table Continued

Server Model	iLO Port Label (Adapter)	Linux Interface Name (10 GbE)
HPE DL360 Gen11	Port 1	ens15f0
	Port 2	ens15f1
HPE DL365 Gen11	Port 1	ens22f0
	Port 2	ens22f1

Step b: Setting up the Permanent Network

About this task

Prerequisites

Ensure that the following actions are complete before setting up the permanent network:

- You must have the cluster FQDNs ready before performing a permanent network setting.
- The HPE Aruba Networking Central On-Premises ISO installation is completed on a Central-ready appliance.
- The HPE Aruba Networking Central On-Premises server is manually rebooted.

Perform the following steps to set up a permanent network:

Procedure

1. Login to HPE Aruba Networking Central On-Premises server using the following default credentials as mentioned in Step 1 under **Step 1: Configure ILO IP Address**.

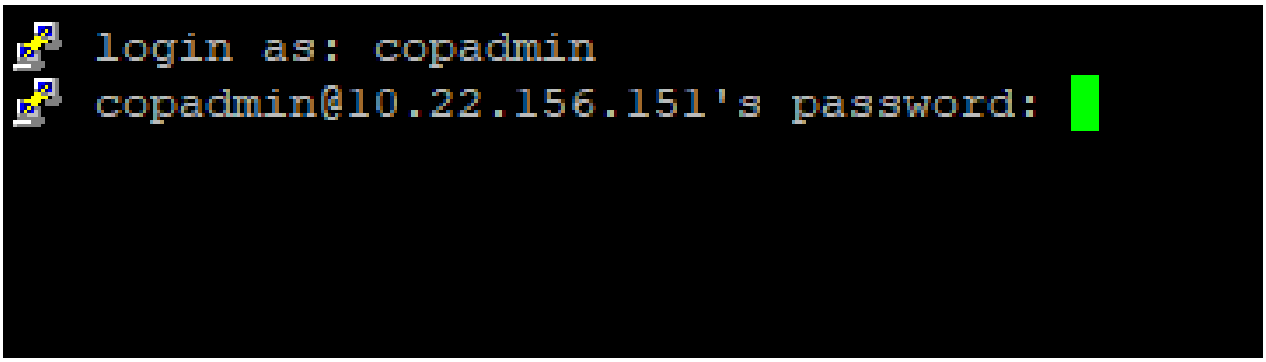


Figure 5: CLI Login Page

The HPE Aruba Networking Central On-Premises CLI menu is displayed.

NOTE: You can derive the serial number from the label of the Central appliance. For example, SGH****.

2. Enter **4** to select the **System Configuration** option and go to the next menu item.

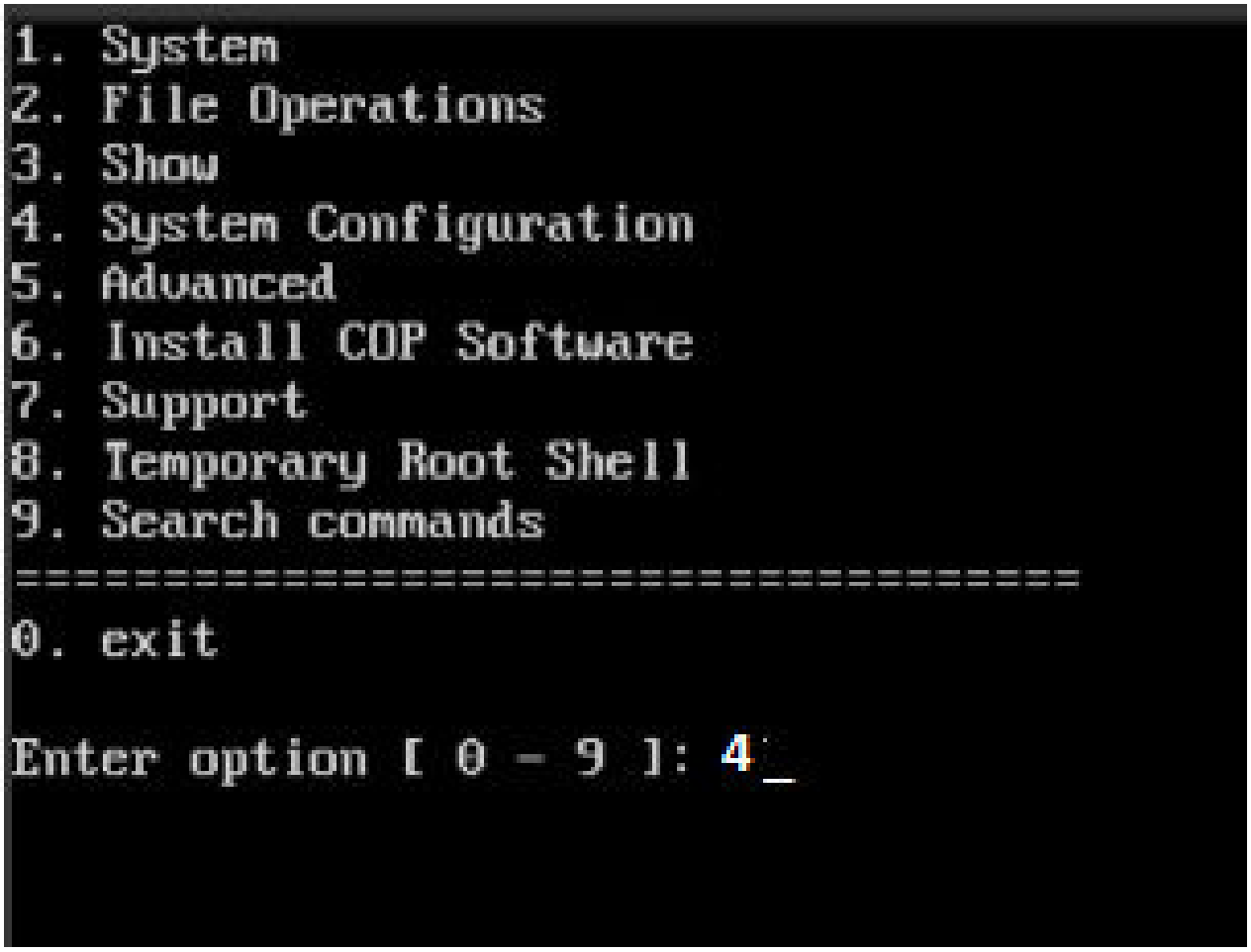


Figure 6: CLI Main Menu Page

3. Enter **1** to select the **Network Setup** option and go to the next menu item.

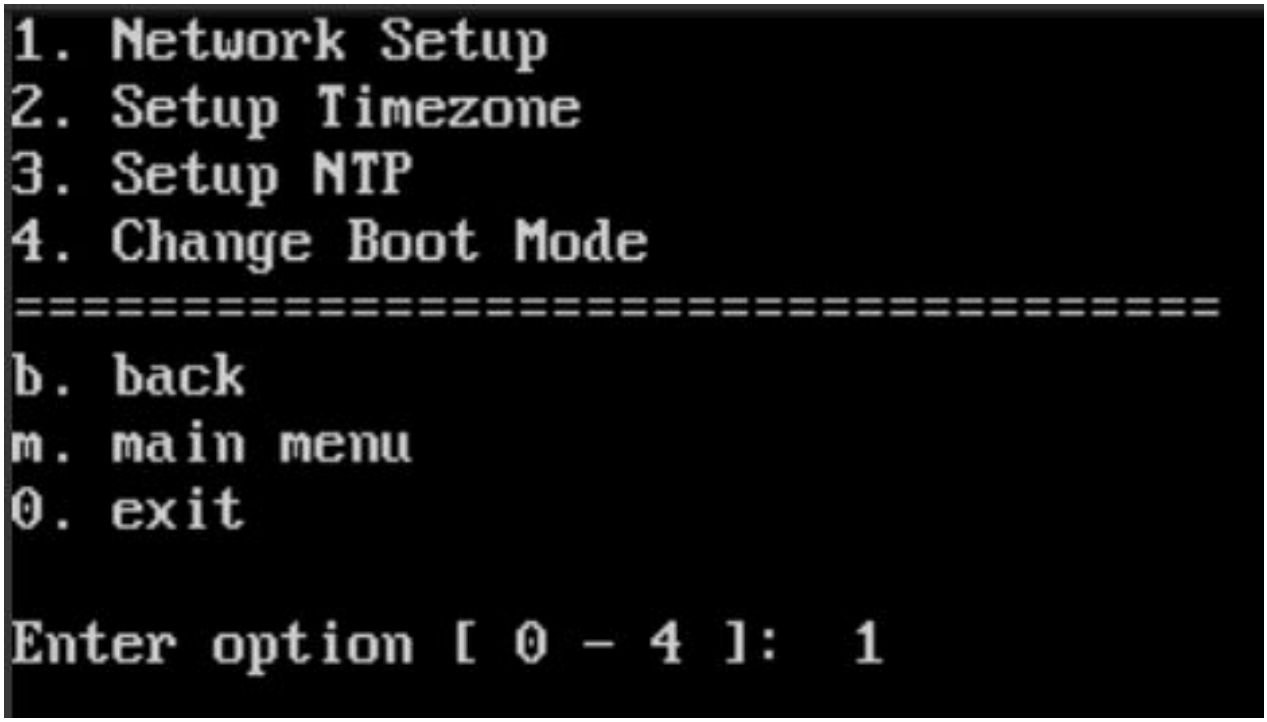


Figure 7: CLI Network Setup Page

4. Enter **1** to select the **Permanent (Network Settings)** option and go to the next menu item.

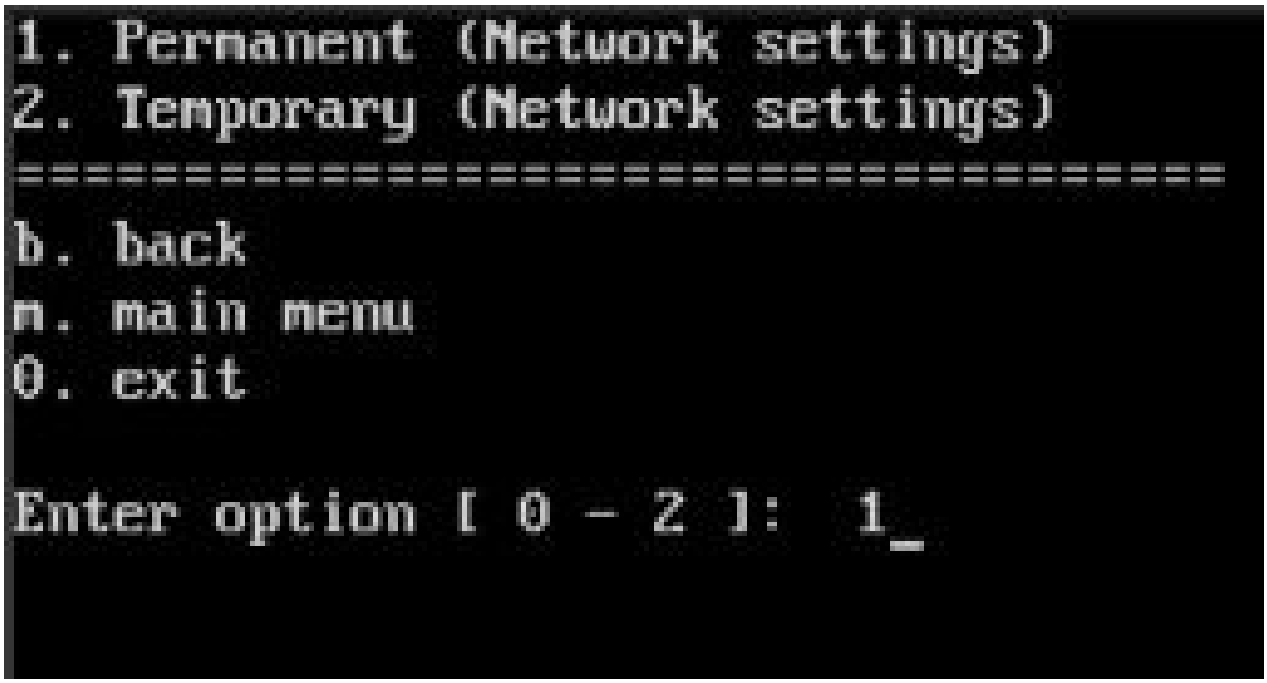


Figure 8: CLI Permanent Network Page

5. To configure the dual-stack cluster, follow the onscreen prompt and enable dual-stack mode.

NOTE: For a single stack cluster, you must disable the dual-stack mode.

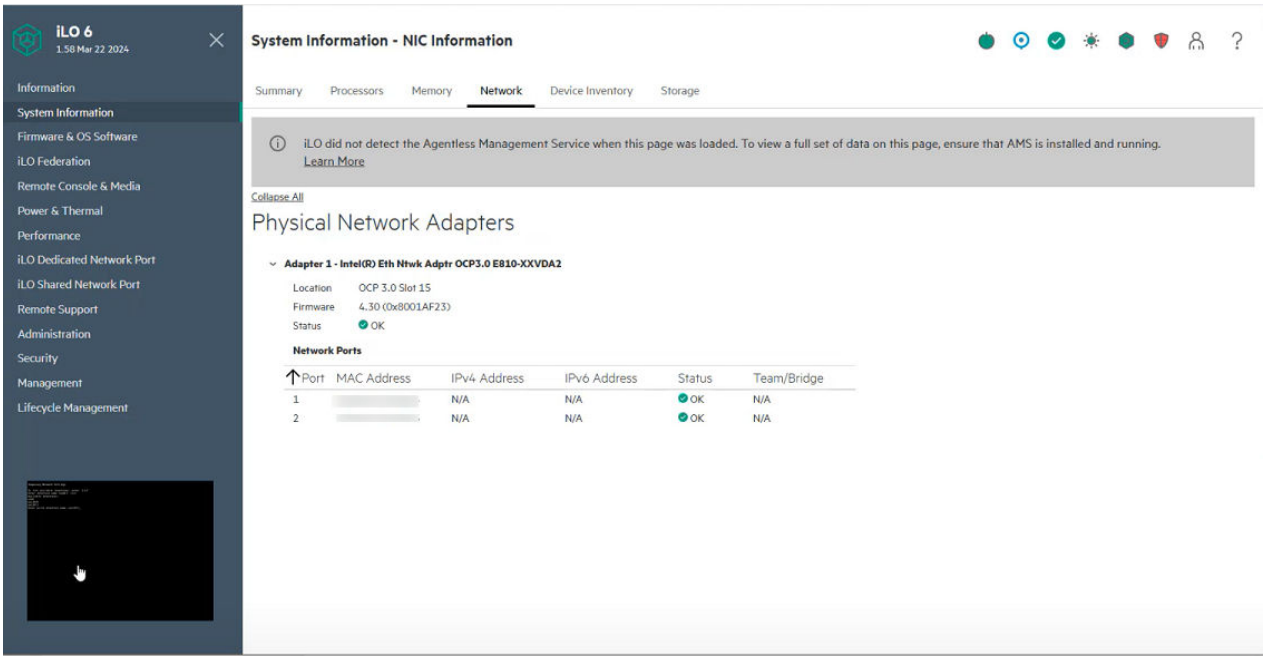
6. Enter **list** to list all the interfaces and then enter the valid interface name.

7. When prompted, enter the following network settings to set up the permanent network:

- Interface name
- Server IP address
- Subnet mask
- Gateway IP address
- DNS server IP address
- Secondary DNS IP address
- Hostname
- Timezone
- IPv6 address (Only for dual-stack cluster setup)
- IPv6 Gateway (Only for dual-stack cluster setup)
- IPv6 Subnet mask (Only for dual-stack cluster setup)

NOTE:

- If any information in the Network Settings is entered incorrectly, it cannot be undone. The only way to modify the network configuration afterward is to reinstall the ISO image.
- In a dual-stack setup, the DNS server and Secondary DNS server can be configured using either an IPv4 or IPv6 address.
- For the connected interface information, navigate to **System Information** > **Network** to check all the available interfaces.



Enter **m** to go back to the main menu.

Step 3: Copy the HPE Aruba Networking Central On-Premises Software

About this task

NOTE: This step is not required when you are installing the ISO using USB drive. For more information on installing ISO using USB drive, see **Installing ISO**.

Procedure

1. From the CLI options displayed, enter **2** to select the **File Operations** option and go to the next menu item.

Figure 9: CLI Menu Page

2. You can upload a file through SCP, SFTP, or HTTP/HTTPS. Select desired option by entering the corresponding number.

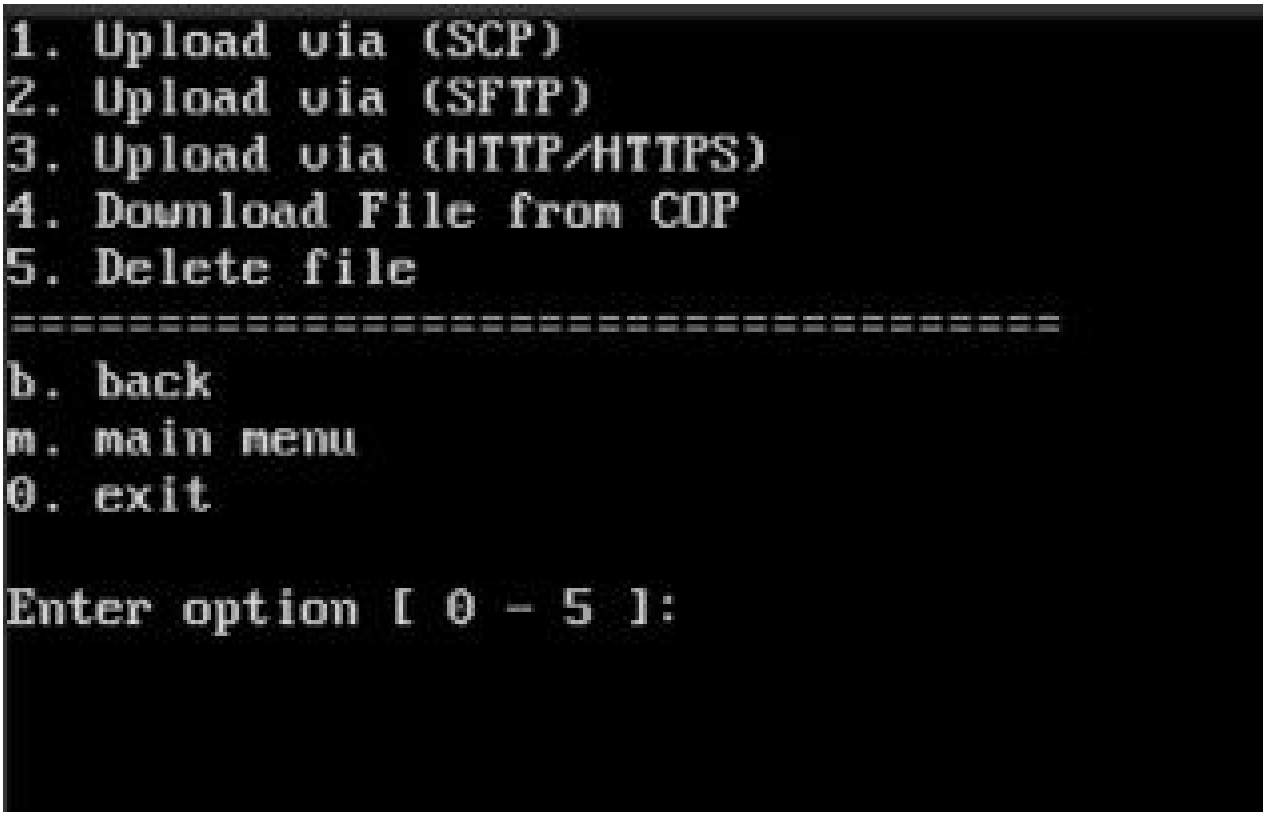


Figure 10: Upload File

NOTE:

Ensure that the apps package is downloaded to SCP server or SFTP server and you have the file path ready.

3. Enter the file path (remote host) where the package is downloaded. Upload the following two apps package parts:

   - COP-apps-pkg-<version number>-<build number>-<patch number number>-prod.tar.gz.part-01
   - COP-apps-pkg-<version number>-<build number>-<patch number number>-prod.tar.gz.part-02

   NOTE:

   - HPE Aruba Networking recommends to enter the file path manually rather than copying the file path.
   - You must upload both the file parts (part-01 and part-02) one after the other.

4. Press **Enter**.

5. Enter the password.

   The copying takes approximately 30 minutes. After the file is copied, perform the checksum validation for the .tar.gz file. You can validate the checksum by comparing the checksum value populated on the screen with the checksum file given by Aruba. For more information, see **Validating Checksum for the Downloaded Files**.

   After this press **m** to go back to the main menu and start the installation.

Step 4: Installation

About this task

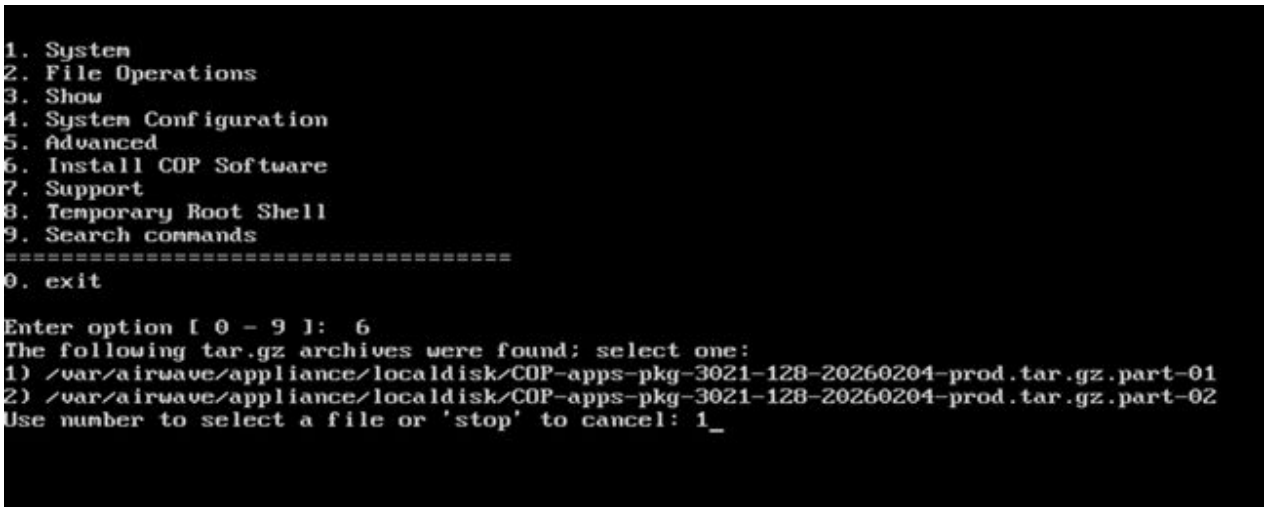
To install the HPE Aruba Networking Central On-Premises software through the CLI, complete the following steps:

Procedure

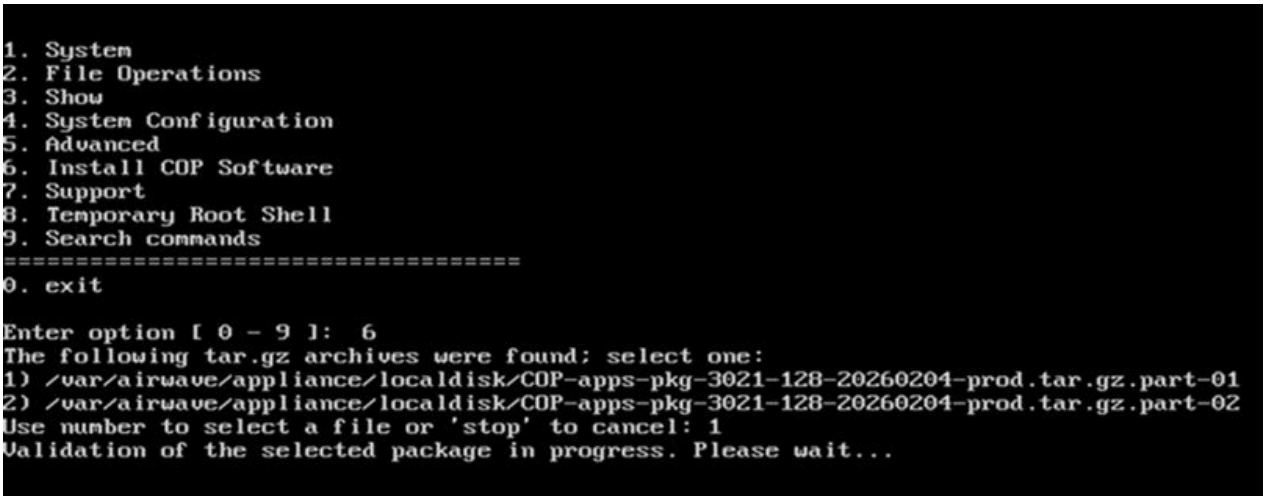
1. In the HPE Aruba Networking Central On-Premises CLI, enter **6** to select the **Install COP Software** option.

Figure 11: CLI Main Menu Page

A list of available tarball file candidates is displayed along with the two file parts (part-01 and part-02).



2. Select either part by choosing option 1 or 2.



3. After the validation successful, wait for the software installation to complete.
4. When prompted, press **Enter** and reboot the server.

   Once the ISO and software installations are complete, you can proceed with configuring the cluster. For more information, see **Configuring the Cluster**.

Configuring the Cluster

Now that HPE Aruba Networking Central On-Premises software installation is complete, you can now set up the cluster.

Watch a video for this task—**Cluster Configuration**.

Attention

Cluster setup can be done through the web browser or the CLI menu. During installation of the HPE Aruba Networking Central On-Premises software, you can specify the required cluster size (5), provide the host name for the cluster node, and set up the NTP server.

Setting up the Cluster Using Web Browser

About this task

To set up the HPE Aruba Networking Central On-Premises cluster through the web browser, complete the following steps:

Procedure

1. Open the browser and enter any one of the HPE Aruba Networking Central On-Premises node IP address in the following format: **https://<node IP>:4343**.

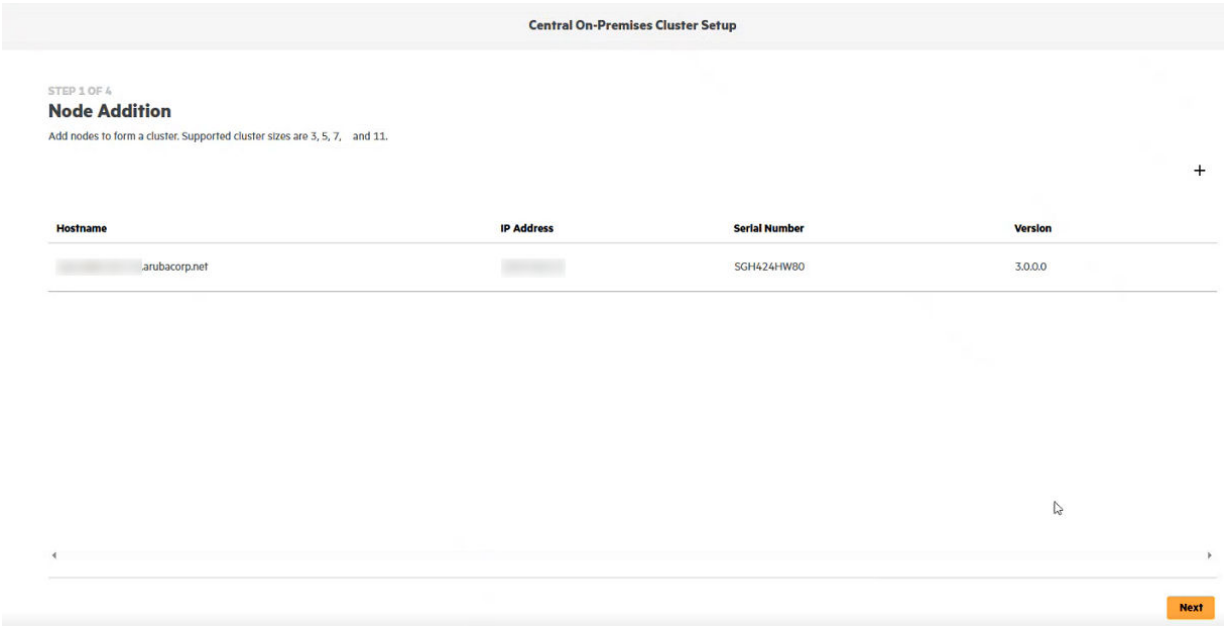
   NOTE: You must log in to the node running the highest software version, as this node serves as the first node. During cluster setup, the software is synchronized from this node to the other nodes in the cluster.

2. Press Enter.

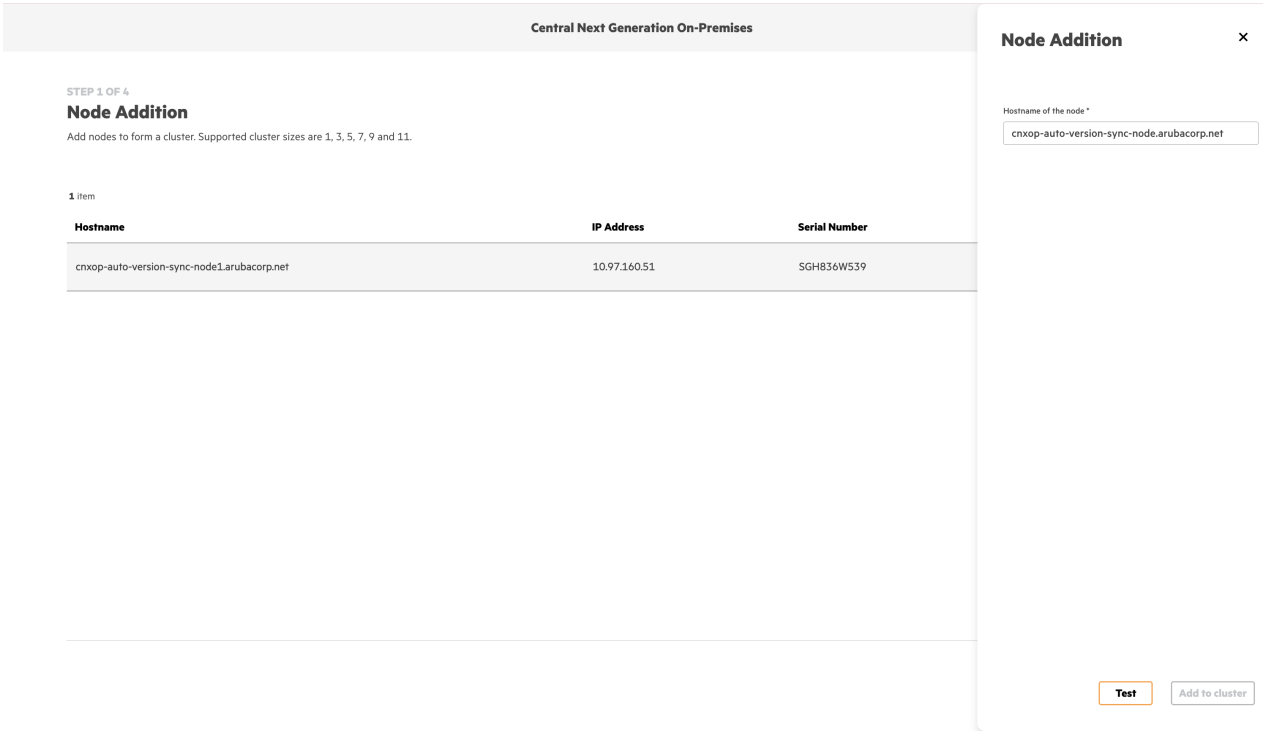
   Login prompt is displayed. Login using the following credentials:

   - Username as copadmin
   - Password as the server serial number

     The **Setup Wizard** page is displayed. By default, the self node through which you logged in is displayed. In a dual-stack cluster setup, the **IP Address** column displays the IPv6 Address.



3. Click the **+** icon at the top-right corner to add your nodes directly. For example, if you have a 3 node cluster, you must add the other 2 nodes of the cluster.



To add the nodes to the cluster, complete the following steps:

a. Enter the node hostname in the **Hostname of the node *** field.

b. Click **Test** to run the bandwidth test of the cluster.

c. Click **Add to cluster**.

NOTE: The Add to cluster button is enabled only when the bandwidth test is successful or in a warning state. It remains disabled when there is a network issue or the test results in a critical state. The following are the different states of the bandwidth test:

- **Success**—The test result is above 70% of the maximum interface speed.
- **Warning**—The test result is between 10% and 70% of the maximum interface speed. You can either change the node or continue with the current node.
- **Critical**—The test result is below 10% of the maximum interface speed. Change the node, run the test again, and then add it to the cluster.

4. Click **Next** after you have added the required number of nodes to the cluster.

   The **Version Selection** page appears.

   NOTE:

   - HPE Aruba Networking Central On-Premises automatically updates the node the **IP Address**, **Serial Number**, and **Version** information.
   - All nodes must be connected to the network using a minimum of 10-Gigabit Ethernet (GbE) interface or higher. For additional assistance, contact HPE Aruba Networking TAC (Technical Assistance Center) team.

5. Click the **Version** drop-down list to select the version of the nodes.

   The **Version** drop-down list is only available if you have installed COP ISO images from different versions of HPE Aruba Networking Central On-Premises. The drop-down list shows all the versions on HPE Aruba Networking Central On-Premises from where the images are installed. When you select a specific version from the drop-down list, for example, 3.0.0.0, then all other nodes also change to the 3.0.0.0 version automatically and forms a cluster.

   If all the images in the cluster are from the same HPE Aruba Networking Central On-Premises version, the drop-down list is not available and the version number is displayed in the **Version** field by default.

   NOTE: During cluster setup, ensure that you log in to the node running the highest software version, as this node becomes the first node from which the software is synchronized to the other nodes.The cluster setup fails in the following scenarios:

   - The version selected from the drop-down list is lower than the software version installed on the first node.
   - Any node (other than the first node) is running a higher software version than the first node.

   If the cluster setup fails, contact the HPE Aruba Networking Technical Support team to resolve the issue.

6. Click **Next**.

   The **Cluster Details** page is displayed. For more information, see **Cluster Configuration**.

Configuring Cluster

About this task

NOTE: Incorrect configuration of FQDN, DNS, IP, or NTP settings cannot be reversed. It would require reinstalling the ISO and re deploying the system.

To configure the credentials for an administrator, complete the following steps:

Procedure

1. In the Cluster FQDN field, enter the FQDN, for example (cop-vip-xxx-xx.arubacoep.net).
2. Enter the **POD IP Range**.

   The POD IP range should be with xxx.xx.x.x/16 subnet for IPv4.

   If dual-stack is enabled, the POD IP range should be with xxxx:x:x:x/64 subnet for IPv6.
3. Enter the **Service IP Range**.

   The Service IP range should be with xxx.xx.x.x/23 subnet for IPv4.

   If dual-stack is enabled, the Service IP range should be with xxxx:x:x:x/112 subnet for IPv6.

   NOTE:

   - The POD IP range and the Service IP range should not conflict with your network.
   - The POD IP range xxx.xx.x.x/16 and the Service IP range xxx.xx.x.x/23 is reserved for internal HPE Aruba Networking Central On-Premises cluster networking for IPv4.
   - The POD IP range and the Service IP range must not fall within the multicast IP range (224.0.0.0 to 239.255.255.255).
   - In a dual-stack cluster setup the POD IP range xxxx:x:x:x/64 and the Service IP range xxxx:x:x:x/112 is reserved for internal HPE Aruba Networking Central On-Premises cluster networking for IPv6.
4. Enter the NTP server details.

   NTP server is mandatory to keep all the cluster nodes in the same timestamp.

   NOTE:

   - If dual-stack is enabled, you can enter either an IPv4 or IPv6 address for the NTP server details.
   - HPE Aruba Networking Central On-Premises recommends the secure NTP feature for your setups. You will be prompted to specify a secure key, compliant with the algorithm, if the **Secure NTP** option is selected.
   - For a better synchronization, you must use a single reliable NTP server.
5. Enable the **Secure NTP** check-box and provide the following details:

   - **Key Type**—Select the required option from the **Key Type** drop-down.
   - **Key ID**—Specify the key ID for the primary NTP server.
   - **Pre-shared Key (PSK)**—Specify the existing PSK.
6. Click **Next**.
7. Under **Cluster Username**, provide the following details to access the cluster through the GUI (user interface):

   a. **Password**—Specify the GUI password.

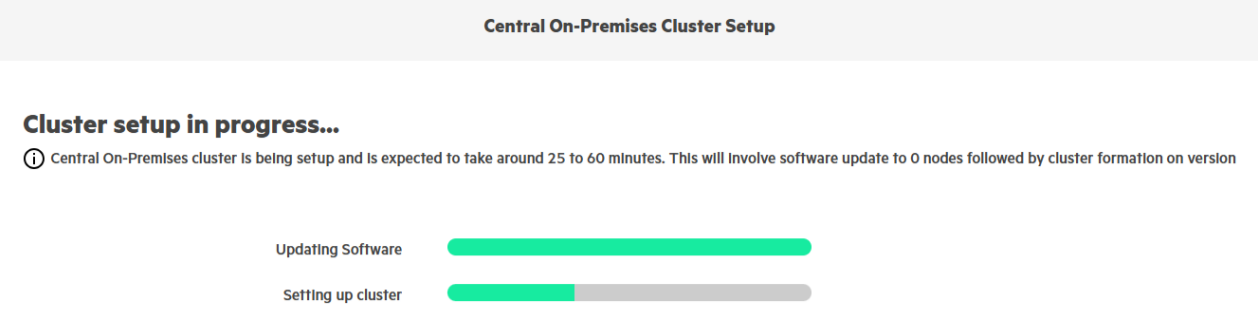
   b. **Repeat Password**—Retype the GUI password.
8. Under **CLI Username**, provide the following details to access the cluster through the CLI (Command Line Interface):

a. **Password**—Specify the CLI password.

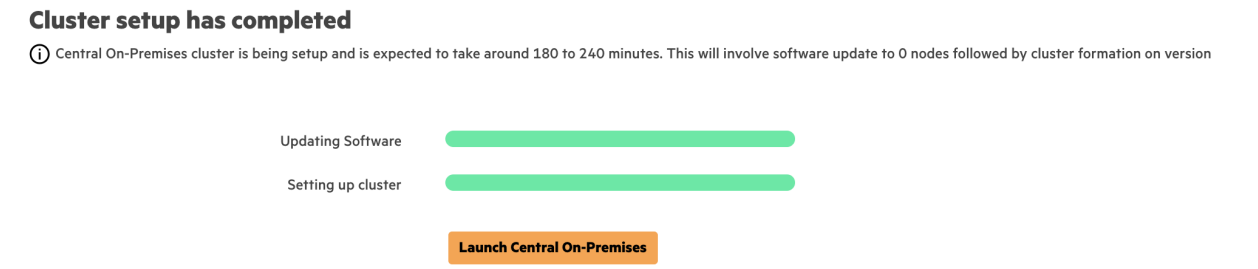
b. **Repeat Password**—Retype the CLI password.

9. Click **Finish**.

   The cluster setup progress screen is displayed.



   After the cluster setup is complete, you will see a launch button.



NOTE: After the pop-up appears, you may be prompted to enter a password. Once the password is provided, the iLO interface will perform a reset and automatically log you out.

Click **Launch Central On-Premises** to open the HPE Aruba Networking Central On-Premises user interface.

NOTE: The **Launch Central On-Premises** button is approximately available only for one hour. You are automatically logged out after an hour, and though the installation is successful, you will need to use the HPE Aruba Networking Central On-Premises product cluster FQDN directly to access the user interface.

Once the HPE GreenLake Account Home sign in page appears, you must log in using the following credentials:

- **Username**—admin@clusterFQDN
- **Password**—Use the same password that you configured in the setup wizard page

Factory Reset

About this task

Factory Reset enables you to restore the nodes in case there is any failure while installation.

NOTE:

- Factory Reset is not a mandatory step while installing HPE Aruba Networking Central On-Premises. In case the setup wizard or the setup cluster fails, it is recommended to perform a Factory Reset for all the nodes in the cluster individually.
- In case of a system failure, run the Factory Reset from the iLO console.
- In case of IP or FQDN changes, a factory reset is required. If the cluster is already up and running, ensure that you take a backup of the system before performing the factory reset.

To perform a factory reset, complete the following steps:

Procedure

1. Login to HPE Aruba Networking Central On-Premises.

   The user name is copadmin and the password is the CLI password that you set while configuring the cluster through CLI. For more information, see **Configuring Cluster**.

2. From the CLI options displayed, enter **1** to select the **System** option.

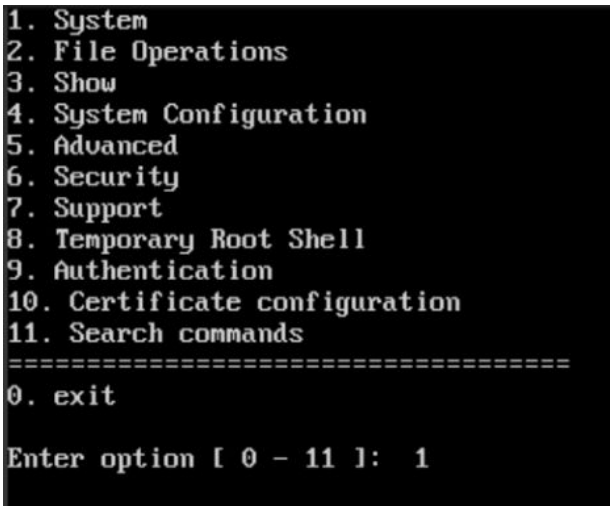


Figure 12: CLI Menu

The **System** menu displays the following options:

Figure 13: System Menu Options

3. Enter **3** to select **Factory Reset** and confirm to begin the node reset.

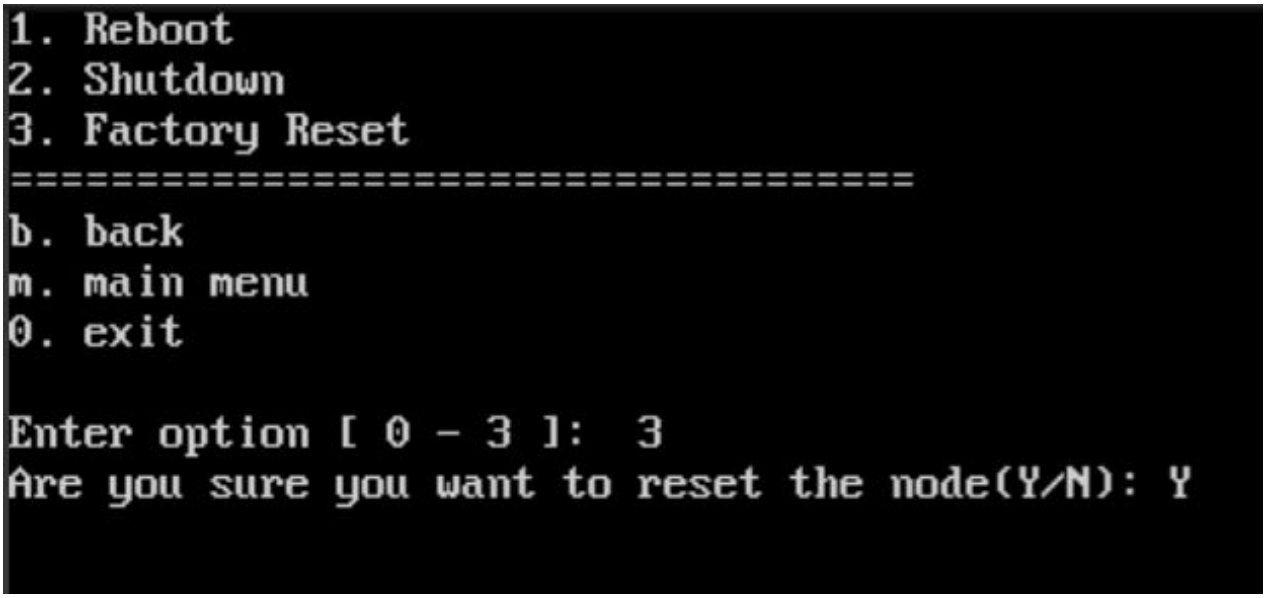


Figure 14: Factory Reset

The Factory Reset operation starts. It takes approximately 45 to 50 minutes to complete depending on the number of devices present in the cluster.

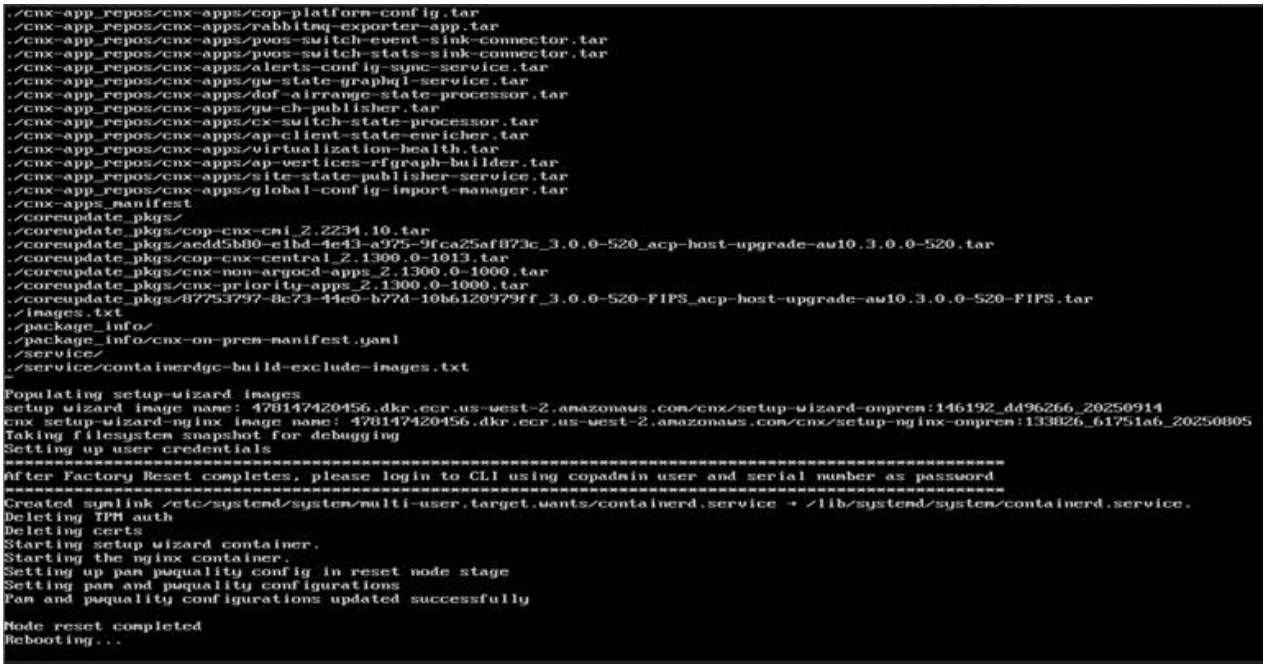


Figure 15: Factory Reset Operation Completion

After the factory reset is complete, you can login again and start the installation process. For more information, see **Configuring the Cluster**.