HPE Aruba Networking Orchestrator VMware Hypervisor on Premises

Deployment Guide

Important Notice

V2.0
March 7, 2025

Hewlett Packard Enterprise Company
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Contents

Document Revision History

Document version	Date	Section and text revised
1.0	December 21, 2023	Initial release.
2.0	March 4, 2025	Prerequisites section: Clarified requirements, fixed links to external documents, added reference for how to expand disk space using Gparted utility. Configure Orchestrator Server Settings Using the CLI section: Added note about applicability of CLI utility commands

Objective

This guide provides instructions for deploying an on-premises HPE Aruba Networking SD-WAN Orchestrator on a VMware ESXi hypervisor.

Prerequisites

- Supported VMware ESXi / ESX versions include:
  - 6.7
  - 7.0
- Orchestrator requires a minimum of 512 GB storage. Consult the Orchestrator Host System Requirements – On-Prem document to determine the necessary resources and verify that at least one datastore contains sufficient free space.
- Reserve allocated RAM for virtual appliances to function optimally.
- Reserve vCPU sockets and vCPU clock settings for the VMWare ESXi Orchestrator VM Settings.
- You can expand disk spaces using the GParted utility. For more information, see SD-WAN How to expand disk capacity on an ESXi on prem Orchestrator using the GParted.
- Licensing: before setting up Orchestrator, ensure you get the following information from your sales representative.
  - An account name.
  - An account key.

  Once your account representative submits a request, HPE emails you the required information.
- Experience administering VMware ESXi and SD-WAN.
- Refer to the HPE Aruba Networking EdgeConnect SD-WAN Documentation site for configuration instructions.

NOTE: Instructions in this guide use VMware ESXi Version 7.0 accessed via the ESXi web client.

About Orchestrator

HPE Aruba Networking Orchestrator manages all Edge Connect appliances in your SD-WAN.

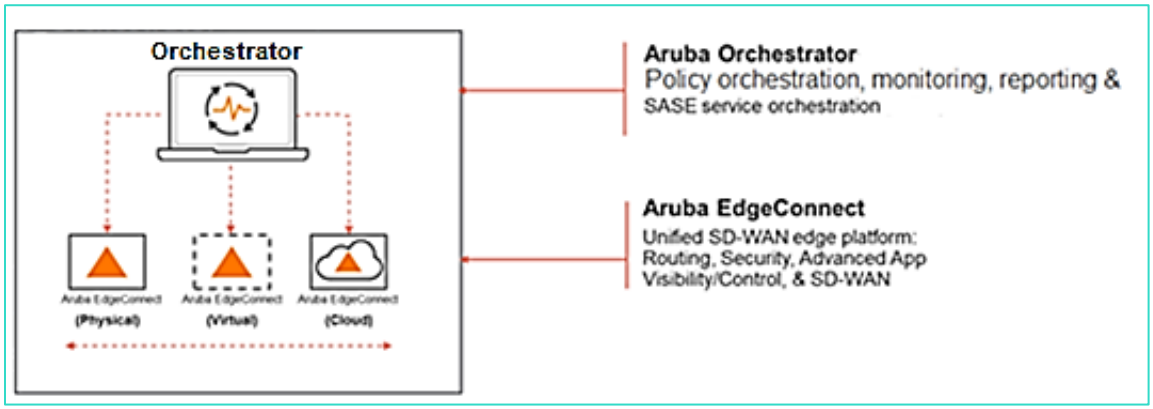


Figure 1 Orchestrator Overview

You can provision, deploy, configure, monitor, and troubleshoot your SD-WAN infrastructure from Orchestrator. Orchestrator manages physical, virtual, and cloud-based EdgeConnect appliances from a single console.

Orchestrator is a virtual appliance and, therefore, requires a suitable host to run on. It must reside on an appropriate computer with adequate resources to host Orchestrator. This guide focuses on deployment locations for Orchestrator in a Network Operations Center (NOC) or a data center.

For licensing, the Orchestrator IP address must be able to reach the HPE Aruba Networking Cloud Portal via the Internet. Allocate an appropriate IP address for the Orchestrator VM and allow it access to the “portal.silver-peak.com” domain through any security components in your environment. Orchestrator requires port 443 access.

The HPE Aruba Cloud Portal Automates Product Activation

The HPE Aruba Networking Cloud Portal registers Orchestrator instances, EdgeConnect appliances, and services.

When you purchase Orchestrator, an account name and instructions to obtain your account key are sent to you. You use these to register your Orchestrator.

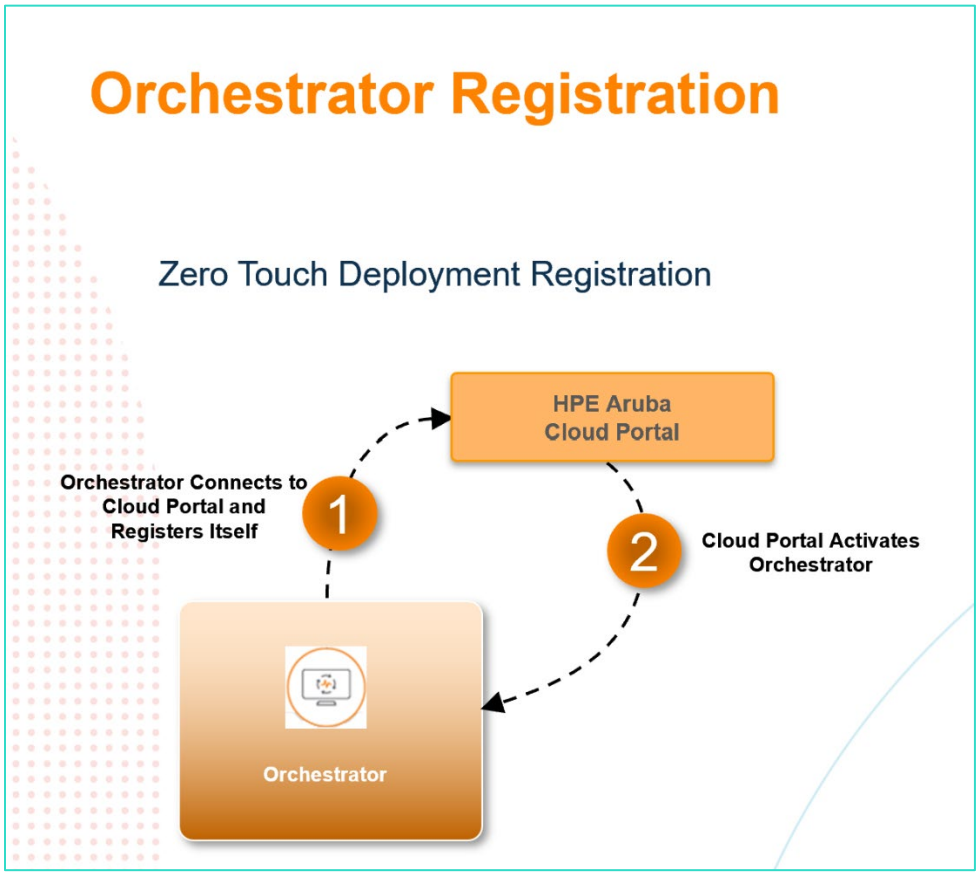


Figure 2 Zero Touch Registration

The cloud portal populates the Contact field from information included in your purchase order. Using these services requires that you access the cloud portal via the internet.

Deployment Overview

The deployment topology is illustrated below.

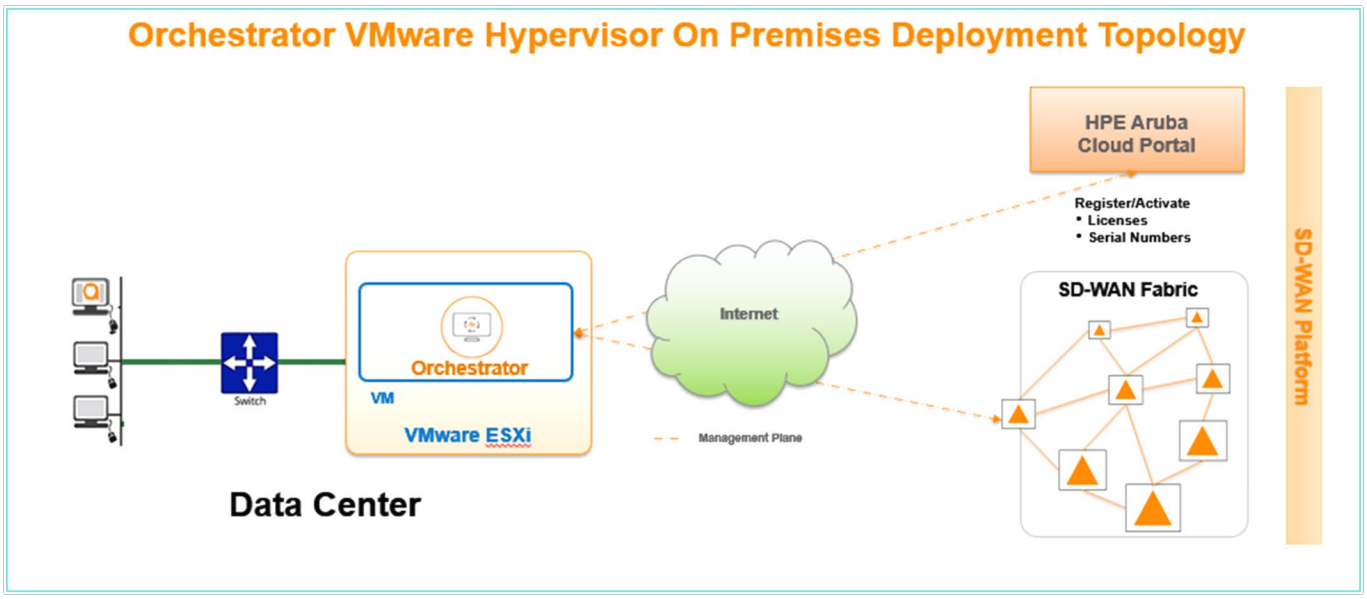


Figure 3 Orchestrator Deployment Topology

The primary deployment steps are as follows:

- Stage the hardware, software, and the VMware ESXi hypervisor
- Download the Orchestrator image.
- Deploy the Orchestrator OVA template file.
- Configure the Orchestrator instance.
- Add the Account name and Account key to register the Orchestrator instance.

1 Stage the Hardware, Software, and VMware Hypervisor

Assuming you have a VMware ESXi installed and configured on either an HPE ProLiant server or an OEM server that meets the necessary CPU, memory, and storage requirements to host multiple virtual machines, you can proceed with downloading the OVA image for the Aruba Orchestrator.

Refer to the Orchestrator Host System Requirements – On-Prem document to check the specific CPU, memory, and storage requirements. Once you have verified and met all the hardware requirements to run an Orchestrator instance, you can download the OVA image for the Orchestrator.

NOTE: Some browsers may change the suffix from .ova to .tar when saving the OVA image file. If it does, change the suffix back to ***.ova***.

2 Download the Orchestrator OVA Template File

VMware hypervisors use ***ova*** image files to implement Orchestrator instances. Image files are available from the Aruba Networking Support Portal or Service Portal. Contact your sales representative for more information. Follow the steps below to download an OVA image file.

1. **Log** in to the HPE Aruba Networking Support Portal (https://asp.arubanetworks.com/).
2. **Select** Software & Documents, then Select EdgeConnect Enterprise.
3. Filter the Software Group by putting a checkmark on the EC Orchestrator.

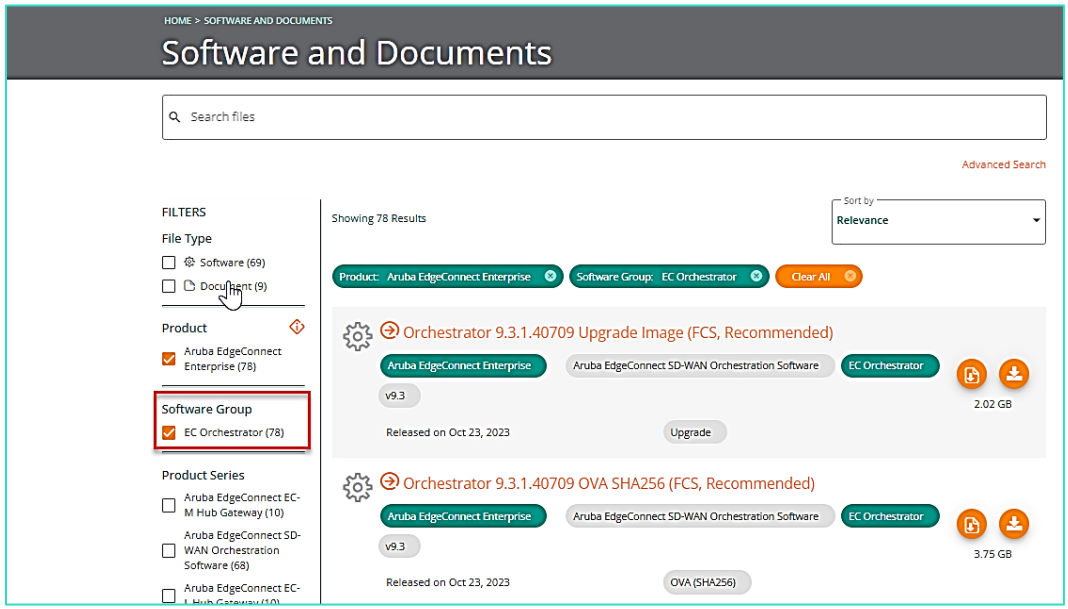


Figure 4 Orchestrator OVA Downloads

4. Select the Orchestrator version you are looking for and select the down arrow icon to begin your download.

   This guide uses EC Orchestrator image version 9.3**.**

   Save the OVA file on the VMware host server. The OVA file is a .tar file containing the OVF template and other required files.

   NOTE: If the browser saves the file as a `.tar` file, change the extension back to `.ova` before using the file.

3 Deploy the Orchestrator OVA Template

Use the instructions below to access your VMware hypervisor and verify that 500GB of storage Is available.

1. Login to the VMware ESXi Server.
2. Click **Create / Register VM** on the Virtual Machines menu bar to open the New virtual machine wizard**.**

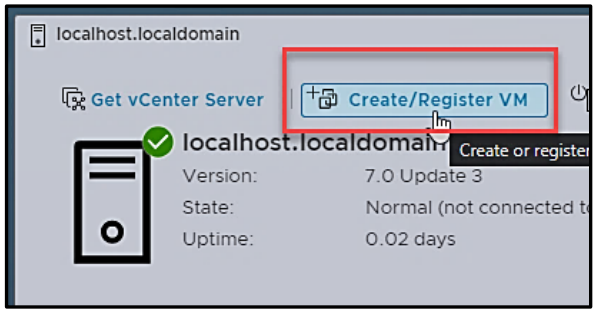


Figure 5 Create VM

3. Select Deploy a virtual machine from an OVF or OVA file in the Select creation type section and click Next.

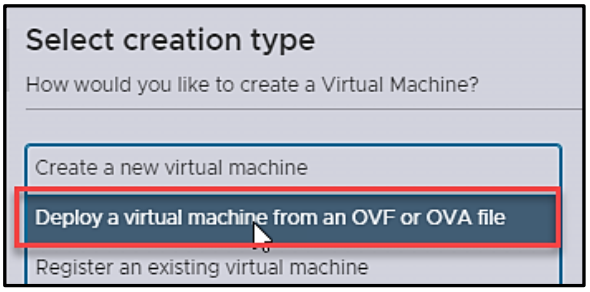
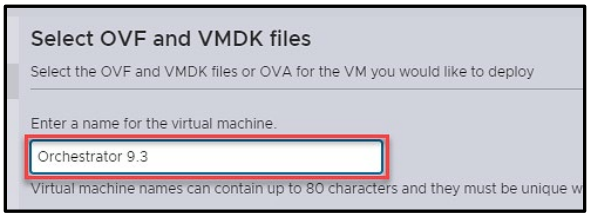


Figure 6 Creation Type

4. Enter the virtual server's name, for example, Orchestrator 9.3.



5. Click **Select files or drag/drop**,

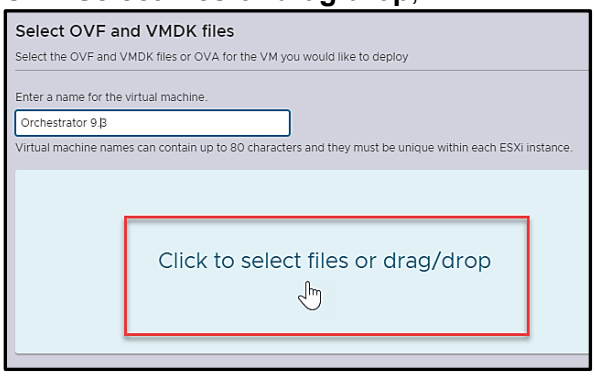


Figure 7 Select OVA file

6. Navigate to the saved OVA file folder, select the file, and click **Open**.
7. Click **Next**.
8. In Select storage, choose **Standard** and choose a datastore.

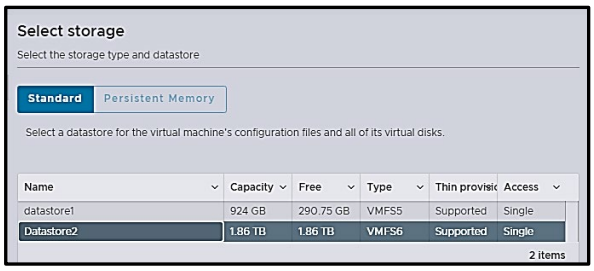


Figure 8 Select storage.

NOTE: The deployment fails if the hypervisor storage medium is less than 500GB free.

9. Select **Deployment Options**.

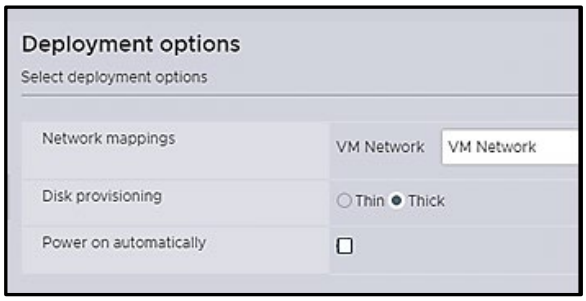


Figure 9 Deployment options

Enter the following settings:

- Network Mapping: Select **VM Network**.
- Disk provisioning: Select **Thick.**
- Power on automatically: **Unchecked**.

10. Click **Next** to review the parameter settings on the Ready to Complete page.

    Click **Finish** to accept the settings. The New Virtual Machine Wizard closes**.** The OVA image file uploads to the ESXi server. The recent task window will provide the upload status.

11. Once the OVA upload is complete, go to the VM resources settings, put a checkmark next to the Orchestrator VM, and select **Actions**.

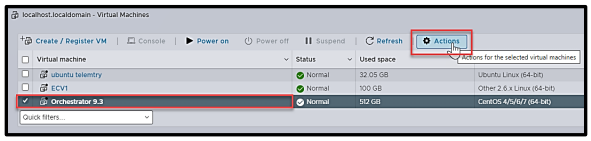


Figure 10 Virtual Machines Actions

12. Select Edit Settings > Virtual Hardware to reserve VM resources in the Actions menu.

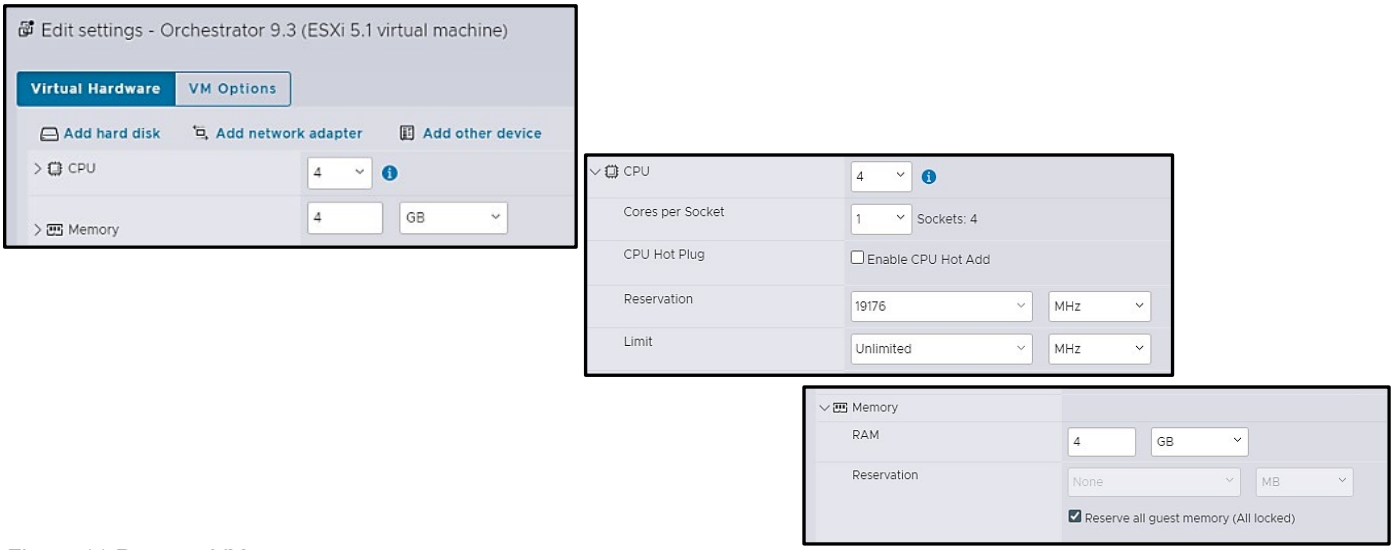


Figure 11 Reserve VM resources

CPU and Memory must be reserved for virtual servers to function optimally.

- Expand the CPU dropdown and enter the reservation in MHz. This is the sum of the number of CPUs allocated multiplied by the clock speed presented by the hypervisor. For example, 4 x 2592 = 10368. This is usually pre-calculated in the drop-down menu.
- Expand **Memory** and tick **Reserve all guest memory.**

13. Click **Save**.

14. Review the settings of the virtual machine. If everything looks correct, click **Finish**. VMware takes a couple of minutes to deploy the system. The Recent Tasks section in the ESXi client displays the status of the VM deployment.

15. Select the Orchestrator VM by putting a checkmark next to it, and click **Power on**.

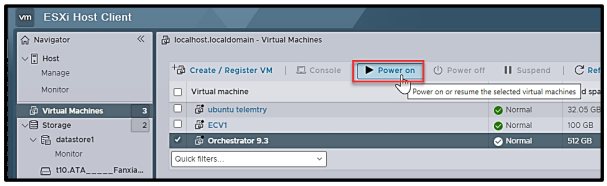


Figure 12 Power On the Orchestrator VM

4 Change the Orchestrator CLI Admin and Root Passwords

Follow the steps below to change the admin and root passwords.

1. In the vSphere client, select the Orchestrator VM and double-click **Console** to open a Console window.

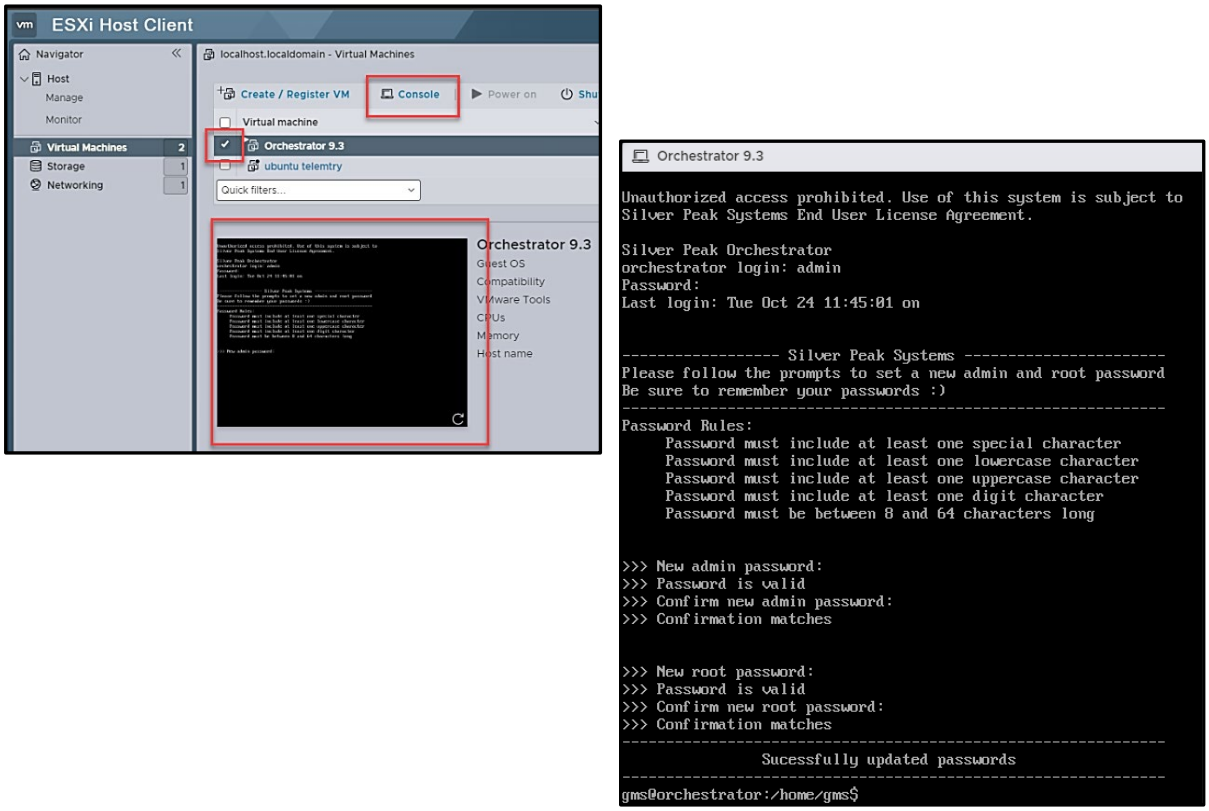


Figure 14 Open a Console Window

2. Follow the CLI screen prompts to change the admin and root passwords.

   The default username is **admin**.

   The default password is **admin**.

5 Configure Orchestrator Server Settings Using the CLI

Use the `orch-setup` utility in the CLI to configure the following Orchestrator settings:

- NTP settings.
- Time and date.
- Orchestrator hostname.
- Orchestrator IP address, netmask, and gateway DNS servers.
- Apply security patches.

You can configure all these options in the CLI but only some in a GUI.

NOTE: The Orchestrator CLI utility commands are not applicable to customer managed public cloud deployments.

NOTE: To set up Orchestrator as a Stats Collector, see Stats Collector Configuration in the Orchestrator User Guide.

Follow the steps below to configure the Orchestrator.

1. If not already running, open a CLI session (SSH or hypervisor console) to the Orchestrator.
2. Log in as the root user with the root password you set in Change the CII Admin and Root Passwords above. If you are not logged in as a root user, you will be prompted for the root password after each selection below.

   Enter `su - root`

   `Password:`

   Enter the root password.

   The Orchestrator VM is running and needs to be configured. Use the `orch-setup` utility to make configuration changes, apply patches, and perform upgrades via the CLI.

   `usage: orch-setup [-h] (-u | -c | -p | -m)`

Field	Description
`-h, --help`	Show the help message and exit
`-u, --upgrade`	Upgrade to a different Orchestrator release
`-c, --change-config`	Configure changes like IP, hostname, DNS, time zone, or NTP
`-p, --apply-patches`	Apply patches using the dnf/yum update
`-m, --change-mode`	Configure VM as Orchestrator-only, Stats Collector-only, or both

   Follow the steps below to configure the Time Zone, NTP, Hostname, IP Address, and DNS settings.

3. Enter `/home/gms/gms/orch-setup -c`

```
OS version: CentOS Linux release 7.9.2009 (Core)
```

```
Would you like to change timezone information [y/n] y
```

4. Enter `y` to change the time zone.

```
Current timezone is America/Los_Angeles
New timezone:
```

5. Enter a time zone.

   TIP: To display a list of valid time zones, enter `timedatectl list-timezone`

```
Timezone set to America/Phoenix
Would you like to set up NTP servers to synchronize dates and times across
Orchestrator and EdgeConnect appliances? [y/n]:
```

6. Enter `y` to set up an NTP server.

```
Setting up NTP server
NTP server(IP/name):
```

7. Enter a valid NTP server, for example, `time.nist.gov`. The NTP server will synchronize the date and time for Orchestrator and all associated EdgeConnect appliances.

```
NTP server(s) added time.nist.gov
Would you like to change the network configuration and hostname via GUI? [y/n]
```

   NOTE: To enter an additional NTP server, run /home/gms/gms/orch-setup -c again or add another NTP server in the Orchestrator application after you complete the configuration.

8. Enter `n`.

```
**************************************************************************
*Configuring via CLI *
**************************************************************************
Would you like to change the Orchestrator hostname? [y/n]
```

9. Enter `y`.

```
New hostname:
```

10. Enter a descriptive name to identify this VM.

```
**************************************************************************
*For the hostname to change permanently, you would need to reboot*
*>su -c "shutdown -r now" *
```

```
**********************************************************************
Would you like to change the IP address? [y/n]
```

NOTE: The default IP address is a dynamic IP address. If you change the IP address, it will become a static IP address. Aruba recommends that you set a static IP address.

11. Enter `y`.
12. Enter the IP address.

    ```
    IP address:
    ```

13. Enter the netmask.

    ```
    Netmask:
    ```

14. Enter the gateway address.

    ```
    Gateway:
    ```

    ```
    Would you like to change the primary and secondary DNS servers used in a static IP
    address? [y/n]
    ```

15. Enter `y`.

    ```
    DNS Server1:
    ```

16. Enter the DNS server address, for example `8.8.8.8`.

    ```
    DNS Server2(optional):
    ```

17. Enter a second DNS server address. This step is optional.

    ```
    Restarting network. This may take a while...
    ```

NOTE: If the environment is set up for DHCP, you can obtain the Orchestrator IP address in the vSphere client by going to the Navigator pane and selecting the Orchestrator VM. The General Information section displays the Orchestrator IP address.

6 Register the Orchestrator Server

1. In a supported browser, enter the Orchestrator IP address to access its login page.

2. Log in using the default credentials and agree to the EULA.

   NOTE: This is not the password you set earlier in the CLI steps. The CLI admin account and the GUI interface account are not synchronized. The default password here is **admin.** Orchestrator prompts you to change the password upon first login.

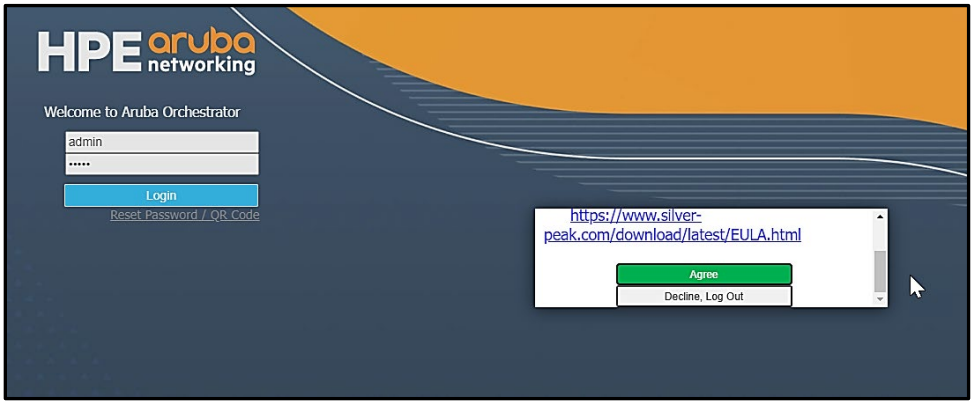


Figure 15 Orchestrator login screen

   - Username: **`admin`**
   - Password: **`admin`**

3. Change the admin password and click **Save Password**.

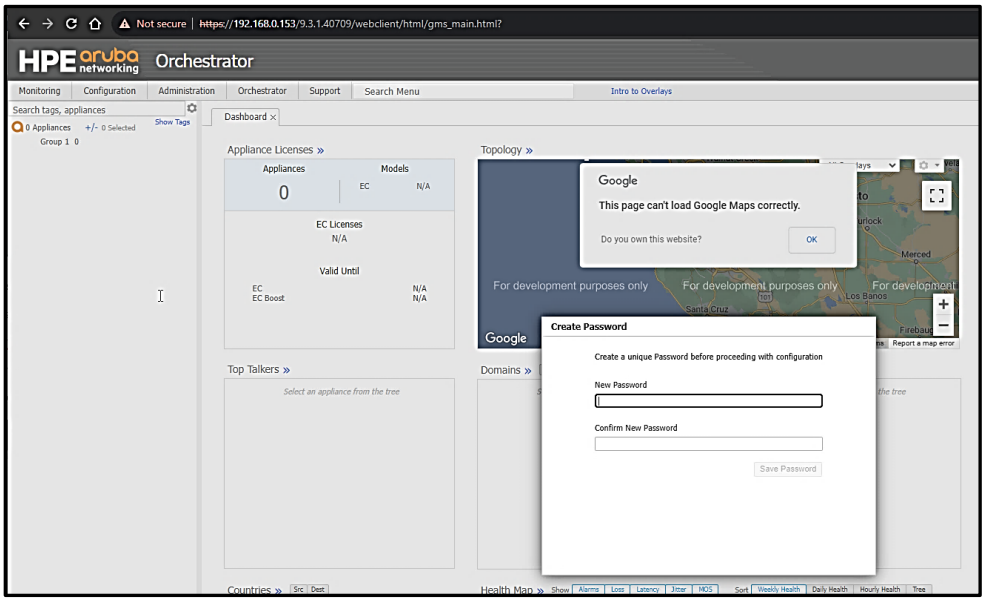


Figure 16 Change Orchestrator Default Password

4. The Orchestrator logs you out and asks you to log back in.

5. Log in to Orchestrator. The Getting Started Wizard displays.

6. Select Products for your network; the example shows EdgeConnect

7. Add the account name and account key to register the Orchestrator and click Next.

   NOTE: Assure that the account name is entered strictly as provided. Failure to do so could cause the registration to fail.

Figure 17 Orchestrator Getting Started Wizard

1. Provide Email and Backup information to schedule Orchestrator backups, then select Apply. It will take a few minutes for Orchestrator to sync with the cloud portal, so be patient.
2. Verify the registration by going to **Configuration Menu > OVERLAY & SECURITY > Licensing > Cloud Portal** or go to **Orchestrator Menu > Orchestrator Server > Licensing > Cloud Portal**.

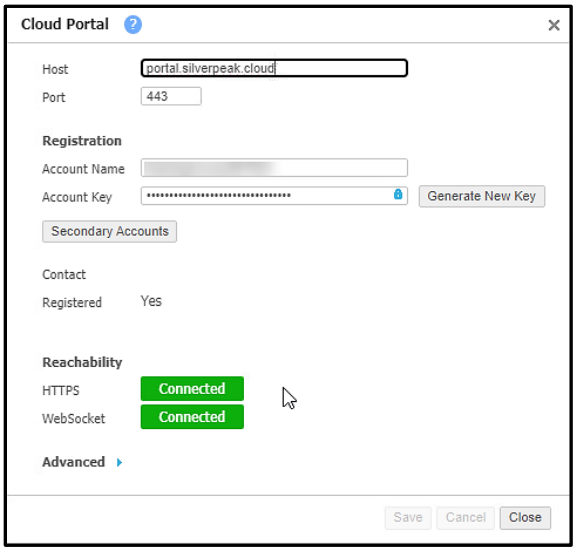


Figure 18 Verify registration.

3. Click **Close**.

The Orchestrator deployment is complete. For operating instructions, refer to the Orchestrator User Guide.