



Deploying Avaya Fabric Orchestrator

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Chapter 1: Introduction

Purpose

This document contains concepts, operations, and tasks related to the management features of the Avaya Fabric Orchestrator (AFO). This guide also describes additional administrative tasks such as backups, software updates, preferences, and troubleshooting.

Related resources

Documentation

The following table lists the documents related to this product. Download the documents from the Avaya Support website at <http://support.avaya.com>.

Document title	Use this document for:	Audience
<i>Avaya Fabric Orchestrator Solution Description</i> , NN48100–100	Description of each verified reference configuration.	System administrator
<i>Deploying Avaya Fabric Orchestrator</i> , NN48100–101	Installing, configuring, initial administration, and basic maintenance checklist and procedures.	System administrator
<i>Getting Started and Locating the latest software and Release Notes for Avaya Fabric Orchestrator</i> , NN48100–102	Locating the latest software and product release notes.	System administrator
<i>Network Monitoring using Avaya Fabric Orchestrator</i> , NN48100–500	Monitoring the managed objects in AFO.	System administrator
<i>Network Configuration using Avaya Fabric Orchestrator</i> , NN48100–501	Configuring and managing Avaya Enterprise family of devices from discovered network.	System administrator

Table continues...

Document title	Use this document for:	Audience
<i>Bulk Device Configuration Management using Avaya Fabric Orchestrator</i> , NN48100–502	Performing a variety of management tasks across multiple device types using a web-based interface.	System administrator
<i>Virtualization Configuration using Avaya Fabric Orchestrator</i> , NN48100–503	Connecting the vCenter server to AFO, to help the data center administrator to configure the network changes that apply to the data center.	System administrator
<i>IP Flow Configuration using Avaya Fabric Orchestrator</i> , NN48100–504	Collecting and analyzing IP flows from IPFIX-, NetFlow v5-, and NetFlow v9- enabled devices.	System administrator
<i>Administration using Avaya Fabric Orchestrator</i> , NN48100–600	AFO System administration procedures.	System administrator
<i>Avaya Fabric Orchestrator Traps and Trends Reference</i> , NN48100–700	Viewing a list of supported traps and trends.	System administrator
<i>Avaya Fabric Orchestrator Supported Devices, Device MIBs, and Legacy Devices Reference</i> , NN48100–701	Confirming support for devices and MIBs.	System administrator

Training

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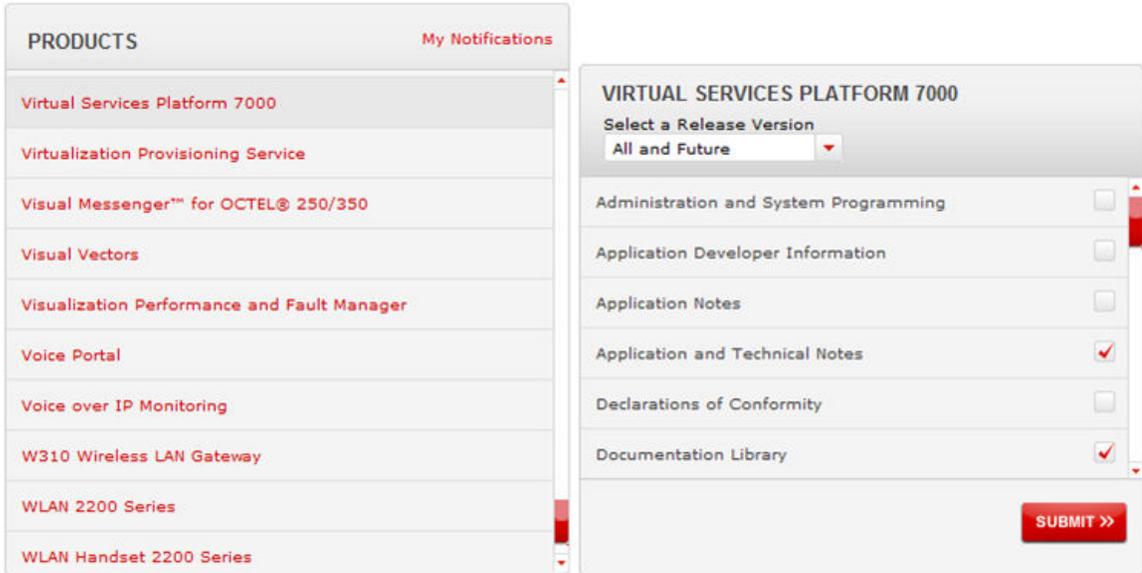
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Chapter 2: New in this document

Deploying Avaya Fabric Orchestrator, NN48100–101 is a new document for Release 1.0 so all the features are new in this release. See *Avaya Fabric Orchestrator Release Notes* for a list of supported features.

Chapter 3: Avaya Fabric Orchestrator (AFO) Overview

The Avaya Fabric Orchestrator (AFO) is the next generation Management and Orchestration solution from Avaya. AFO creates an open framework for managing networking gear at a higher level of abstraction using Avaya Fabric Networking technology. This solution separates the control and data management planes of the network. AFO architecture is comprised of new and existing products intended to ease onboarding of users and devices to the network.

AFO is a single, pre-installed, easily deployable appliance with a web-based multi-user solution. AFO integrates all its tools in a single device. AFO includes a set of management features that helps lower the TCO, delivers automation, and simplifies operational processes. The following is a list of AFO management features:

Table 1: AFO network management applications

Application	Description	Features
AFO Configuration	Provides an intuitive interface to configure and manage the Avaya Enterprise family of devices from a discovered network.	<ul style="list-style-type: none"> • VLAN • MLT • Routing • VRF • Multicast • Fabric Connect • Fabric Extend • Multimedia • Trap/Log Registration • Security • Device Groups • File Inventory
AFO Bulk Provisioning	Performs a variety of management tasks across multiple device types using a web-based interface.	<ul style="list-style-type: none"> • Configuration Backup and Restore • Configuration Update Generator • Device Password Manager • Inventory

Table continues...

Application	Description	Features
		<ul style="list-style-type: none"> • Log Browser • Scheduler • Software Version Updater • TunnelGuard Distributor • Reports
AFO Monitoring	Monitors the managed objects in AFO, and reduces troubleshooting issues because of a more complete view of the network.	<ul style="list-style-type: none"> • Built-in monitoring for supported devices (Availability, KHI Bandwidth only) • Event-driven E-mail action • Event-driven scripting action • Built-in monitoring dashboard (view only) • Built-in reports (view only) • PDF and Excel export of reports and trends • Basic enumerated scopes • Trap and Syslog viewers • Basic virtualization support (Hyervisor and VM discovery) • Advanced discovery (multi-vendor, non-Avaya L4/L7 software and applications) • Advanced monitoring • Custom actions • Dashboards you can customize, and dashboard builder • Reports that you can customize, and reports builder • Advanced scopes • Network baselining
AFO IP Flow	Collects and analyzes IP flows from IPFIX-, NetFlow v5- and NetFlow v9-enabled devices. All management functions are provided through a Web-based user interface.	<ul style="list-style-type: none"> • Flows collection • Flows analysis by protocol and applications • PDF export to charts • Custom protocol monitoring • Custom application monitoring

Table continues...

Application	Description	Features
		<ul style="list-style-type: none">• PDF, Excel, and CSV export of charts and data
AFO Virtualization	Connects the vCenter server to AFO Configuration to help the data center administrator configure the network changes that apply to the data center.	<ul style="list-style-type: none">• Monitoring virtual infrastructure and provision network

AFO delivers enterprise-class reliability, efficiency, and scaling to mission-critical networks around the globe. Thus, significantly reducing the cost of managing networks.

Topology

The Avaya Fabric Orchestrator (AFO) is a hardware appliance with a web-based multi-user solution that runs on virtualized management modules on an RHEL KVM Hypervisor. AFO provides the following features:

- Single pane of glass management of the Avaya SPBM fabric
- Consolidated platform with existing network management applications
- Building blocks of Avaya SDN Fx architecture to enable an SDN controller in future

High Level Architecture

The following figure shows the distinct layers in the AFO platform architecture from a high-level topology perspective:

Avaya Fabric Orchestrator (AFO) 1.0 High Level Architecture

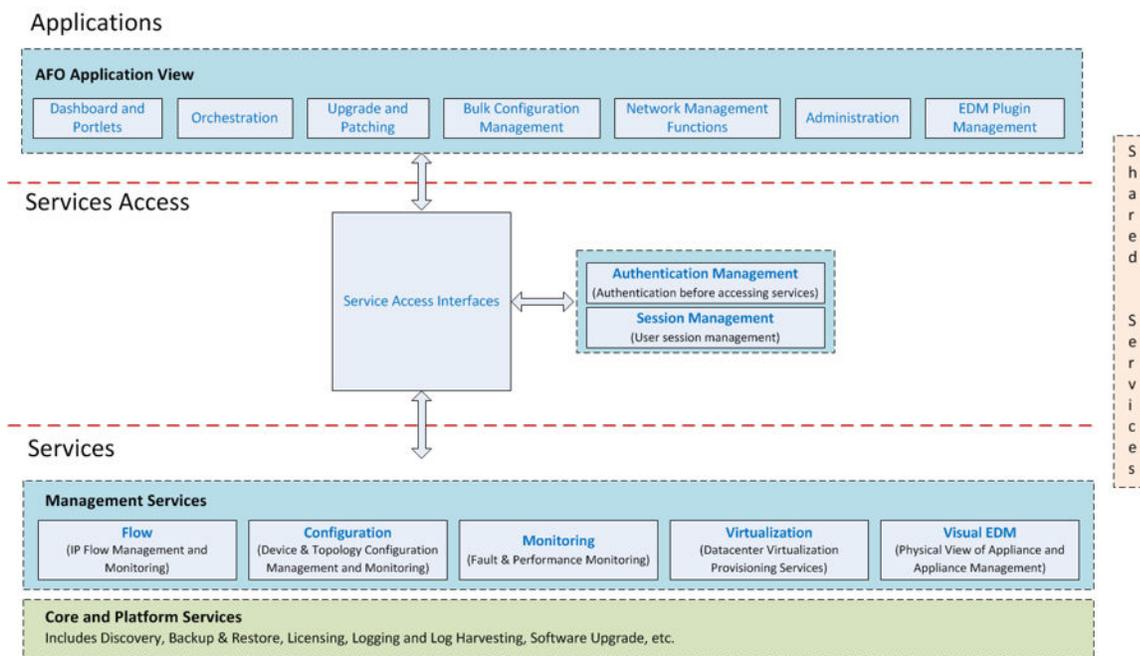


Figure 1: AFO high-level architecture

Components

The following table describes the list of AFO components as shown in the above figure.

Name	Description
Applications	<p>The top layer consists of following applications that can be accessed from AFO user interface.</p> <ul style="list-style-type: none"> • Dashboard and Portlets • Orchestration • Upgrade and Patching • Bulk Configuration Management • Network Management Functions • Administration • EDM Plugin Management <p>For more information on AFO user interface, see <i>Administration using Avaya Fabric Orchestrator</i>, NN48100–600.</p>
Services Access	<p>The middle layer is the services access layer that provides access to the AFO services. These are</p>

Table continues...

Name	Description
	<p>standard based interfaces that are used to access these services.</p> <p>Service Access interface layer interacts with Authentication Management and Session Management to make sure that only authenticated users with correct privileges can access the AFO services.</p>
Services	<p>The bottom layer is the services layer with the following two sub-layers:</p> <ul style="list-style-type: none"> • Management Services- Management Services provide the following management applications as service: <ul style="list-style-type: none"> - AFO IP Flow- Analyses and report application behaviors and their utilization trends. Real-time analysis of IPFIX flows to provide trending, traffic patterns, and reports. - AFO Configuration- Uses web-based Element Management system that is user interface driven. Provides network-wide configuration and provisioning of new and existing network devices, and regular backups of device configurations. - AFO Monitoring- Provides extensive fault management and monitoring capabilities that include collection, correlation, and root-cause analysis of network events. Provides customized event handling features with Layer 2 and Layer 3 diagnostics. - AFO Virtualization- Provides hypervisor agnostic VM lifecycle management and a support for multiple VCenters in a large data center. With service profiling definition you can create fabric connections per service. - vEDM- Provides you the physical view of appliance and appliance management. • Core and Platform Services- Core and Platform Services provide the core and common services that includes: <ul style="list-style-type: none"> - Discovery - Backup and Restore - Licensing - Logging and Log Harvesting

Table continues...

Name	Description
	- Software upgrades

Chapter 4: End-to-end process overview

AFO end-to-end process workflow

The following section depicts end-to-end pre and post deployment high-level process workflow of Avaya Fabric Orchestrator (AFO) at a customer location.

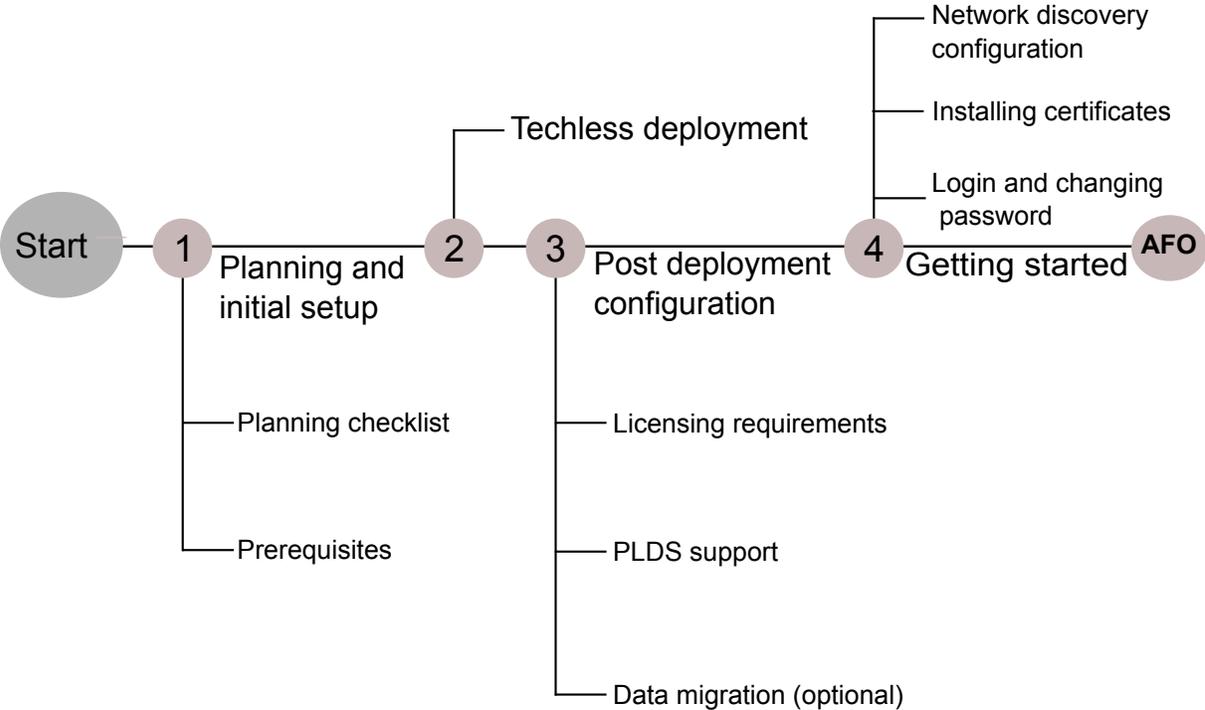


Figure 2: AFO process workflow diagram

Chapter 5: Planning and initial setup

Planning Checklist

You can use this checklist to track each step required for deploying an Avaya Fabric Orchestrator (AFO). See *Avaya Fabric Orchestrator Release Notes* for feature related support for Release 1.0.

Before beginning a new Avaya Fabric Orchestrator (AFO) configuration, print the checklist. Check the steps as you complete them to make sure that you do not overlook any important task.

Table 2: Planning checklist

No.	Task	Comments	✓
1	Assemble the appliance and read the enclosed <i>HP ProLiant DL360 Gen9 Server</i> setup overview information.	AFO is a hardware appliance that operates virtualized management modules on a RHEL KVM Hypervisor. For more information and instructions on installing and commissioning a factory-supplied Avaya Fabric Orchestrator (AFO) appliance, see <i>Getting Started and Locating the latest software and Release Notes for Avaya Fabric Orchestrator</i> , NN48100–102.	
2	Complete the Prerequisites as described in Prerequisites on page 20.	Applications listed in the prerequisites section are pre-installed at the factory site.	
3	Gather the necessary cables and equipment.	<ul style="list-style-type: none">• Minimum of two network cables• Monitor• Keyboard	
4	When installing the appliance in a rack, select a location that meets the environment standards described in <i>HP ProLiant DL360 Gen9 Server User Guide</i> .	To ensure continued safe and reliable equipment operation, install or position the system in a well ventilated, climate-controlled environment.	

Prerequisites

Before deploying the AFO, ensure that you have the following supported browser and applications pre-installed on the hardware appliance.

Applications

- Base Operating System:
 - RHEL 7.1, 64-Bit
- Hypervisor:
 - Redhat KVM version 7.1
- Virtual Network:
 - Linux Bridge/Fabric enabled OpenvSwitch bridge

Supported Browsers:

- Internet Explorer, versions 10, 11
- Mozilla Firefox, versions 40, 41

IP Address Requirements

Before configuring AFO, you should have a minimum of ten IP addresses. For more information, see [IP addresses and ranges reference](#) on page 39.

Chapter 6: Techless deployment

Summary of Techless deployment

This section describes the initial steps for configuring Avaya Fabric Orchestrator (AFO) and presents a flowchart showing the sequence of steps.

See also *Getting Started and Locating the latest software and Release Notes for Avaya Fabric Orchestrator*, NN48100–102.

About this task

Perform this task to configure the AFO appliance.

Procedure

1. Connect the AFO appliance to the network and power on.
2. Click `Enter` to read the Avaya software license terms.

The appliance displays the End User License Agreement (EULA) screen.

3. On the **End User License Agreement (EULA)** screen, the appliance displays the following options. Review and enter `Y` to accept the license agreement.

Choice Option	Choice Description
<code>Y</code>	Enter <code>Y</code> to accept the Avaya software license terms.
<code>N</code>	Enter <code>N</code> to decline the Avaya software license terms.

The Appliance Network configuration screen displays.

4. On the Appliance Network configuration screen, perform the following steps according to the system prompt.
 - a. Choose and enter a **Networking Configuration type**:
 - Enter `1` for the **Same Network for AFO Services and HP Integrated Lights-Out (iLO)**.
 - Enter `2` for a **Different Network for AFO Services and HP Integrated Lights-Out (iLO)**.
 - b. In the **KVM Configuration Parameter** section, enter the following details:
 - Enter the prefix name for the appliance for auto generating the hostname.
 - Enter the domain name for the appliance for auto generating the hostname.

- Enter the IP address of your DNS server.
- Enter the IP address of your NTP server.
- Select the appropriate time zone.
- Select a continent or ocean.
- Select a country.

The Application Network Configuration Details screen displays.

5. In the **Application Network Configuration Details** section, do the following:
 - a. Enter the IP address range for configuring the list of applications as displayed. You can enter multiple IP addresses separated by a comma instead of entering a single IP address each time.

*** Note:**

You must enter a minimum of ten IP addresses to configure the appliance.

The system automatically assigns the IP addresses in sequence and appends the domain name to the auto-generated short hostname.

- b. Enter the Netmask.
- c. Enter the IP address for the default gateway.

The appliance displays the Appliance Network Configuration summary screen.

6. The Appliance Network Configuration summary screen displays the IP addresses and FQDNs for the applications.

! Important:

After completing the configuration, add these listed **IP Addresses** and **FQDNs** on your DNS server.

7. On the Appliance Network Configuration summary screen review the network configuration summary and choose an appropriate option:

Choice Option	Choice Description
y	Enter y to proceed with the configuration.
e	Enter e to edit configuration parameters.
x	Enter x to exit configuration and shutdown the server.

8. If you choose **y** to start the configuration, the system starts the reboot. It takes approximately 40 minutes to complete the configuration.

The system displays the configuration status as `Deployment Successful` or `Deployment Failure`.

- If the configuration status is `Deployment Successful`, the system displays the service FQDN details to launch the AFO application in the web browser.

Next steps

Perform a health check to ensure all the applications are configured successfully and everything is functional. For more information, see *Administration using Avaya Fabric Orchestrator*, NN48100–600.

Configuration Flowchart

The following flowchart depicts the initial steps for configuring Avaya Fabric Orchestrator (AFO).

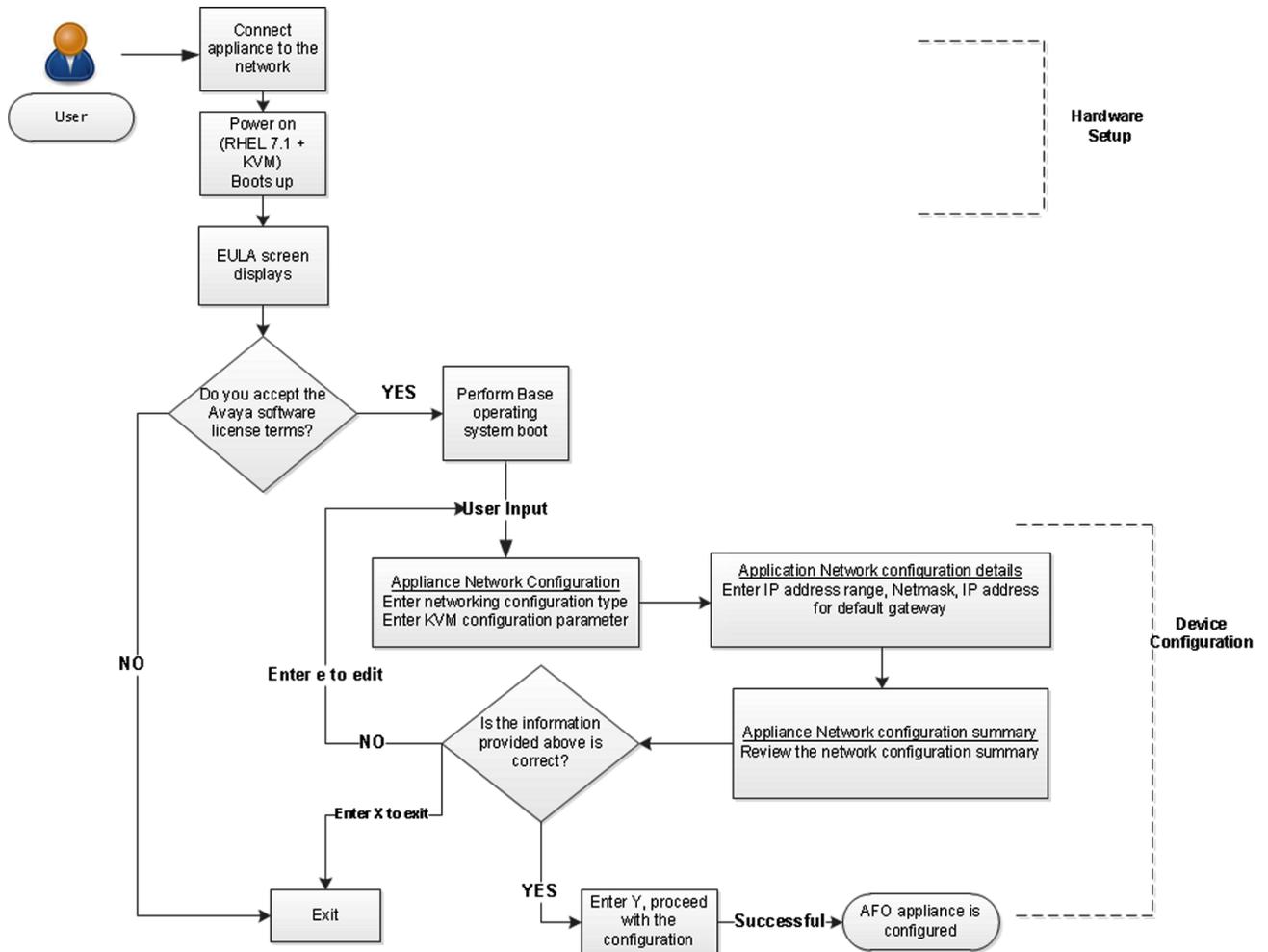


Figure 3: AFO Configuration Flowchart

Chapter 7: Post-deployment configuration

Licensing

Licensing in AFO uses the System Manager WebLM as the license server to add or remove licenses.

Each AFO appliance requires a license. The licenses are node locked to the appliance and the WebLM server, hence they cannot be transferred from one appliance to the other. There are three types of licenses: 250-Node, 1500-Node, and 5000-Node. The type of license you purchase determines the device count and features available for each application. The Advanced Monitoring license includes all the applications and features.

License activations in PLDS require the HostID of the WebLM server and Monitoring VM HostID for inclusion in the license file. The HostID of the WebLM server is displayed on the Server Properties page of the WebLM.

License Type

There are three types of licenses. The following list outlines the types of AFO licenses:

- 250-Node
- 1500-Node
- 5000-Node

The following table outlines the device count for each module.

Table 3: Device count for modules

Application	250-Node	1500-Node	5000-Node
AFO Configuration	250	1,500	5,000
AFO Monitoring	1,000	6,000	20,000
AFO Flow	10	10	10
AFO Virtualization	220	220	220

The following table outlines the device count for the AFO Monitoring module.

Table 4: Device counts for the AFO Monitoring

Managed Devices	250-Node	1500-Node	5000-Node
Networking Switches	250	1,500	5,000
UC, CC, phones, Avaya solution (EMC, HP), other Managed Objects	750	4,500	15,000
Total	1,000	6,000	20,000

Additional features

At the time of acquiring a license, you must select any additional features you wish to access along with the license type. These additional features include the Advanced Monitoring and Fabric Extend features.

The Advanced Monitoring feature is available for all three license types and can be enabled or disabled based on your requirement.

If you wish to purchase any additional features after you acquire a license, you can contact Avaya support to receive a new license for AFO from PLDS. You must replace the existing license with the new license on the WebLM server.

Trial version

AFO provides a trial version of 45 days which will be available soon after the configuration of AFO on the hardware appliance for the first time. You do not require any trial license file to run the trial version. The standard license will be active during the trial period.

Grace Period

A grace period of 30 days is available in case of any of the following scenarios :

- The absence of license after the trial period expires or at any given time.
- If after installing license there is any loss of connectivity to the license (WebLM) server.

For more information about licenses, see *Administration using Avaya Fabric Orchestrator*, NN48100–600.

PLDS support

Avaya Product Licensing and Distribution System (PLDS) enables you to perform licensing and entitlement management. Avaya Solution Software Director (SSD) uses PLDS's API to query for entitlement information and download required software bundles and other files automatically.

Note:

Internet connectivity is required to use PLDS.

SSD checks for the entitled software based on PLDS login information provided in Management Server Console (MSC) preferences. To download files automatically, ensure that your system

has connectivity to the Internet. Alternatively, you can use SSD to upgrade your system in Advanced mode when you do not have connectivity to the Internet.

For more information about how to generate a license file, see *Getting Started with Avaya PLDS for Avaya Networking Products*, NN46199-300. All licensing activities are performed through the Avaya PLDS Portal at <http://plds.avaya.com>.

License Procurement workflow

About this task

This work flow shows you the sequence of tasks you perform to generate a new license for Avaya Fabric Orchestrator (AFO).

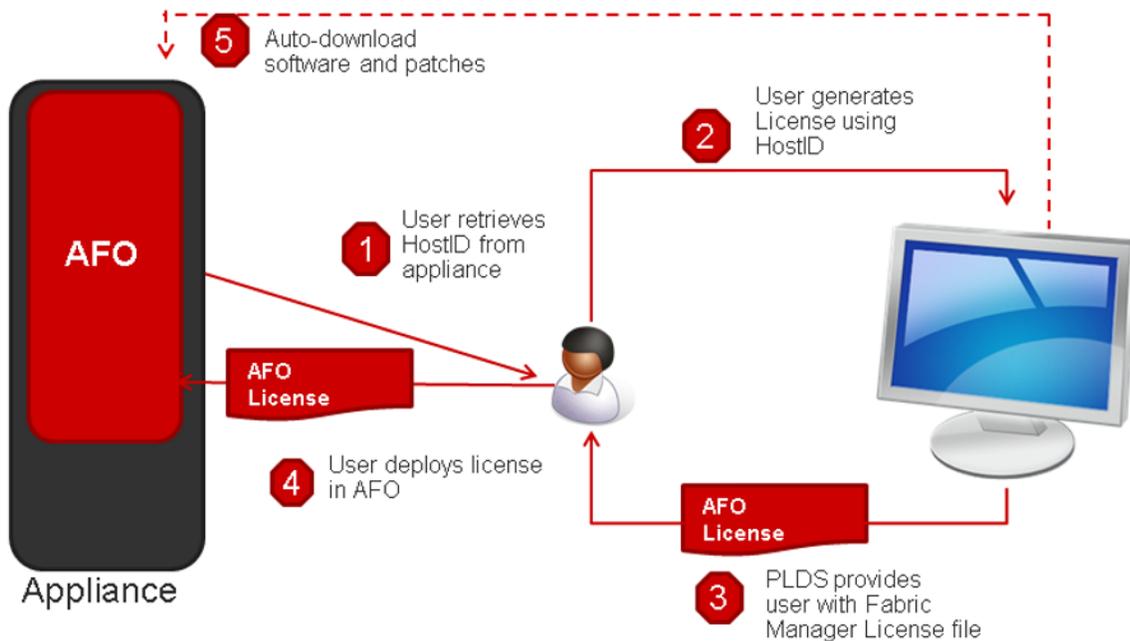


Figure 4: License Procurement workflow

Before you begin

- Login to Management Server Console (MSC) as a root user using the Command Line Interface (CLI).

Procedure

1. Run the `afo-hostid` command to generate the HostID for the WebLM server.
You can obtain the HostID from MSC CLI as well as from AFO's About dialog.
2. Using this HostID, generate a license in Avaya Product Licensing and Distribution System (PLDS).

For more information about how to generate a license file, see *Getting Started with Avaya PLDS for Avaya Networking Products*, NN46199-300. All licensing activities are performed through the Avaya PLDS Portal at <http://plds.avaya.com>.

3. PLDS provides a Fabric Manager License file.
4. Use this license file to install the licenses in AFO.
5. **(Optional)** You can auto-download entitlements from PLDS. You can also auto-download patches and new software from PLDS using Management Server Console (MSC).

Next steps

For more information about obtaining and installing a web-based license manager (WebLM) from Avaya Fabric Orchestrator (AFO), see *Administration using Avaya Fabric Orchestrator*, NN48100–600.

Chapter 8: Data Migration

Overview of Migration to AFO

Migration is the process of carrying over data from an older application to a newer version of Avaya Fabric Orchestrator (AFO). You can choose to migrate to AFO if you are currently using any legacy application as mentioned in the table below.

AFO enables you to migrate device credentials and other platform data such as users, roles from legacy applications.

Supported Migration Versions

AFO 1.0 supports migration from the following legacy application versions:

Table 5: Supported Migration

Applications	Version number
Configuration & Orchestration Manager (COM)	3.0, 3.0.1, 3.0.2, and 3.1.1
Virtualization Provisioning Service (VPS)	1.0.2, 1.0.3, and 1.1
IP Flow Manager (IPFM)	2.0.2 and 2.1
Visualization, Fault & Performance Manager (VPFM)	3.0.3.1, 3.0.3.2, and 3.0.3.3

Migration Process

1. Backing up the older applications (legacy cluster) data.
2. Migrating data from the older applications (legacy cluster) to AFO.

Backup Methods

Backup of legacy cluster to AFO is performed using the Manual Backup. For more information on manual backup, see [Performing manual backup](#) on page 28.

Performing manual backup

About this task

You can perform this task manually on the following Windows or Linux based legacy clusters:

- Unified Communications Manager (UCM)
- System Manager (SMGR)

Before you begin

- Ensure that you have the `Migration_From_Legacy_To_AFO.zip` file.

+ Tip:

Download the latest file from the Avaya support site.

- Extract and check for the following list of files in the `Migration_From_Legacy_To_AFO.zip` file:

- `LegacyDataCollector.pl`
- `Migration_From_32Bit_UCM_To_SMGR-CS.zip`
 - `ucm-to-smgr-migration-linux.zip`
 - `ucm-to-smgr-migration-windows.zip`
 - `README.txt`

Procedure

1. Login to the legacy cluster (UCM or SMGR) using the Command Line Interface (CLI).

*** Note:**

For more information about data migration, see `README.txt` file.

2. Run `LegacyDataCollector.pl` on your legacy cluster, to generate an archive of the legacy data.

The following table lists the files that are generated on the legacy cluster:

Legacy Cluster	Files
On UCM based system	<p>The archive of legacy cluster is available on <code>/opt/avaya/UCM/backups</code> and include the following list of files:</p> <ul style="list-style-type: none"> • <code>JbossQuantumMigration.zip</code> • a <code><date>_<time>.jar</code> file • <code>MetaData.properties</code> file
On SMGR based system	<p>The archive of legacy cluster is available on <code>/opt/avaya/smgr/backups</code> and include the following list of files:</p> <ul style="list-style-type: none"> • <code>MgmtBackup_6.3.8.tar.gz</code> <p>* Note:</p> <p>You cannot use this file for data migration.</p> <ul style="list-style-type: none"> • <code>JbossQuantumMigration.zip</code> • a <code><date>_<time>.jar</code> file • <code>MetaData.properties</code> file

*** Note:**

The properties file generated by the legacy cluster includes the legacy application details.

3. Copy the backup archives on the AFO MSC server to restore the data. For more information, see [Migrating and restoring data](#) on page 30.

Migrating and restoring data

About this task

After you back up the legacy cluster, perform this task to migrate and restore data. You can migrate the following data on the AFO cluster:

- Users

*** Note:**

The system migrates users associated with the system administrator, UCM system administrator, UCM operator, and Network administrator.

- Device credentials

*** Note:**

The system automatically does not restore the device credentials file from the backed up file. You need to perform a manual restore.

- Application data

Before you begin

- You must successfully complete the backup of the legacy cluster.
- Ensure that you login as a root user on the AFO Management Server Console (MSC).

Procedure

1. Create the backup archive directory path on the AFO MSC server.
 - a. Create sub-folders for the respective applications under the newly created backup archive directory for data migration.
 - b. Copy the archives from the legacy cluster to their respective sub-folders.
 - c. **(Optional)** Export device credentials set from the legacy cluster (UCM or SMGR) to a local XML file and copy that file to the respective sub-folder along with the archives.

*** Note:**

You need to rename the exported device credentials XML file in the format `ExportedCredentials.xml`.

2. Login as a root user on the MSC server.
3. Run the following command:

```
/opt/avaya/smgr/dataMigration/DataMigration.sh
```

4. Enter the AFO admin password to start the restore on AFO cluster.

*** Note:**

You can restore the cluster back to the previous stable point in case a failure occurs during data migration.

5. Enter the backup archive directory path that you have created for importing the archives.
The system displays the list of available applications to restore in an numbered list.
6. Enter the application number of the selected application to restore the data.
The system displays the data migration summary of the selected application.
7. Enter **Y** to restore the archives mentioned in step 6. Otherwise, enter **N** to exit data migration.

Example

The following example depicts the data migration restore process.

- Login as a root user on MSC:.

```
***** Starting data migration into AFO cluster *****
Enter the System manager login password:

Backup of the current AFO setup is in progress, please wait...
.....
Backup of the current AFO setup is complete
```

- Enter the backup archive directory path to copy the archive from the legacy cluster:

```
/opt/avaya/archives
```

Sample Output:

```
Found back up data from the below primary servers, Please choose one of the below to
restore session policies and jboss data.Users and roles information will be merged
and migrated.
```

```
1: flow-vm10.sv.avaya.com
1
```

```
Found back up data from the below flow servers, Please choose one of the below for
restore.
```

```
1: flow-vm10.sv.avaya.com
1
```

- The sample output displays the data migration summary of the selected application:

```
-----
-----
Data Migration Summary:

Module          Archive          Directory
-----
PLATFORM        2015-05-14_12.14.jar  /opt/avaya/smgr/dataMigration/manual/
archives/RestoreDirectory/PRIMARY-SERVERS/Instance1
```

Data Migration

```
FLOW          2015-05-14_12.14.jar          /opt/avaya/smgr/dataMigration/manual/  
archives/RestoreDirectory/MEMBER-SERVERS/IPFM-SERVERS/Instance1
```

```
CONFIG
```

```
MONITORING
```

Chapter 9: Getting started with AFO

Logging on to the AFO web interface

About this task

Use this procedure to log on to the Avaya Fabric Orchestrator (AFO) web interface for the first time.

Before you begin

Ensure that you have:

- Installed and configured the AFO appliance.
- A computer with a supported web browser and access to the network where the AFO appliance is installed.
- The MSC server Fully Qualified Domain Name (FQDN) details.

Procedure

1. On the web browser, enter the MSC server URL `https://<Fully Qualified Domain Name>`.
2. In the **User ID** field, enter the default user name `admin`.
3. In the **Password** field, enter the default password `admin123`.
4. Click **Log On**.

The system validates the user name and password with the AFO user account. Depending on the validity, the system displays one of the following screens:

- If the user name and password match, the system displays the AFO web interface with the *AFO version_number*. The AFO web interface displays the menu bar. The menu bar provides access to shared services to perform various operations that AFO supports. The tasks you can perform depends on your user role.
- If the user name and password does not match, AFO displays an error message and prompts you to re-enter the user name and password.

Next steps

- Change the default password.

Note:

You must change the password when you log on to the system using the default password for the first time.

The password must contain a combination of alphanumeric and special characters.

Changing the password

About this task

Use this procedure to change the default AFO web-interface password.

Important:

You must change the password when you log on to the system using the default password for the first time.

Before you begin

Ensure that you have:

- Installed and configured the AFO appliance.
- A computer with a supported web browser and access to the network where the AFO appliance is installed.
- The MSC server Fully Qualified Domain Name (FQDN) details.

Procedure

1. On the web browser, enter the MSC server URL `https://<Fully Qualified Domain Name>`.
2. On the AFO login page, click **Change Password**.
The Password change page is displayed.
3. In the **User ID** field, enter the user name.
4. In the **Current password** field, enter the current password.
5. In the **New password** field, enter the new password.
6. In the **Confirm new password** field, re-enter the new password.
7. Click **Save** to change the password.

Next steps

Install AFO certificates.

Installing AFO Certificates

About this task

Perform this procedure to install AFO certificates using the web interface.

Before you begin

Ensure that you are logged into the AFO web interface, using any one of the following supported browser:

- Internet Explorer, versions 10, 11
- Mozilla Firefox, versions 40, 41

Procedure

1. From the AFO menu bar, click the **I** icon from the quick access toolbar.

The system displays the About Avaya Fabric Orchestrator pop-up window.

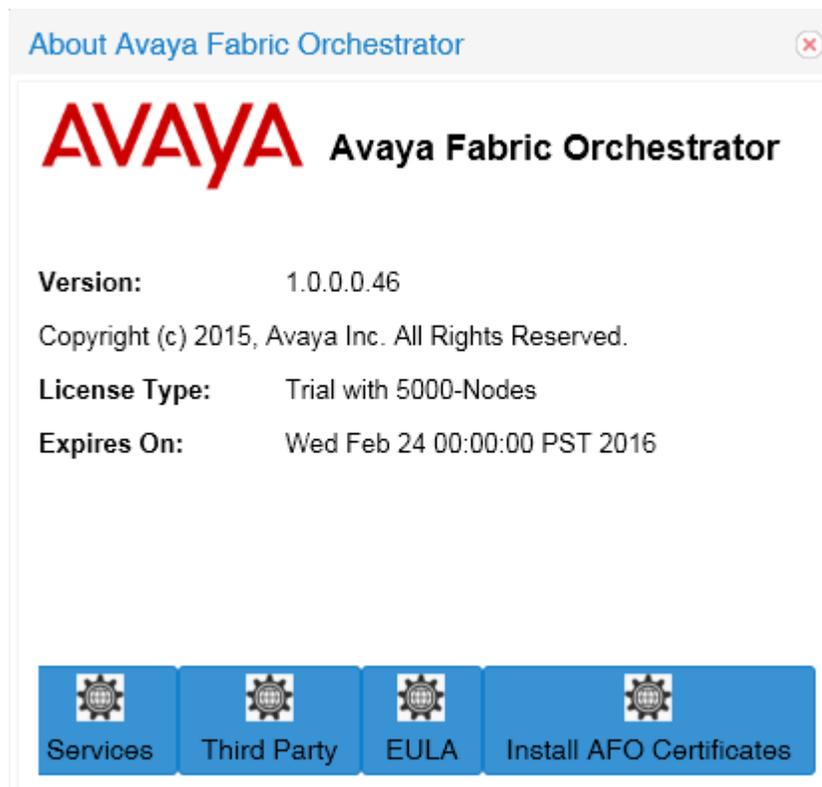


Figure 5: About Avaya Fabric Orchestrator window

2. Click **Install AFO Certificates** .

The system displays the Install AFO Certificates page.

- The following image shows a sample of the Install AFO Certificates page on an IE browser:

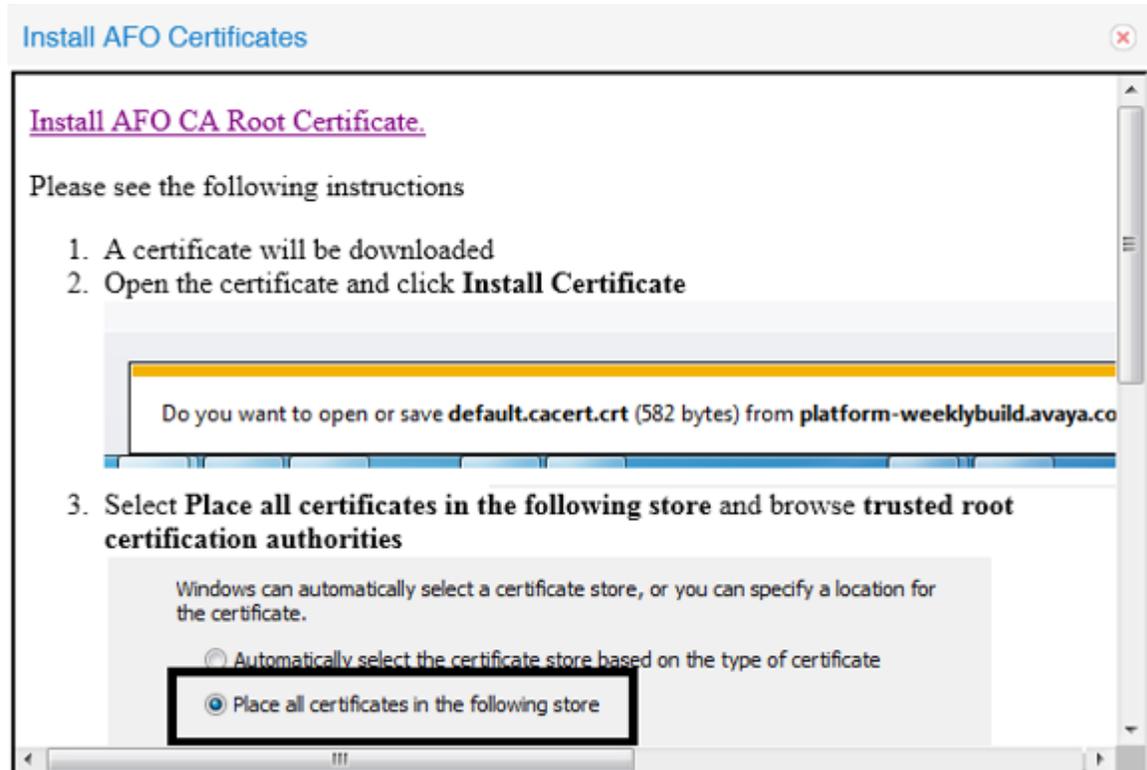


Figure 6: Sample IE browser : Install AFO Certificates

- The following image shows a sample of the Install AFO Certificates page on a Mozilla Firefox browser:

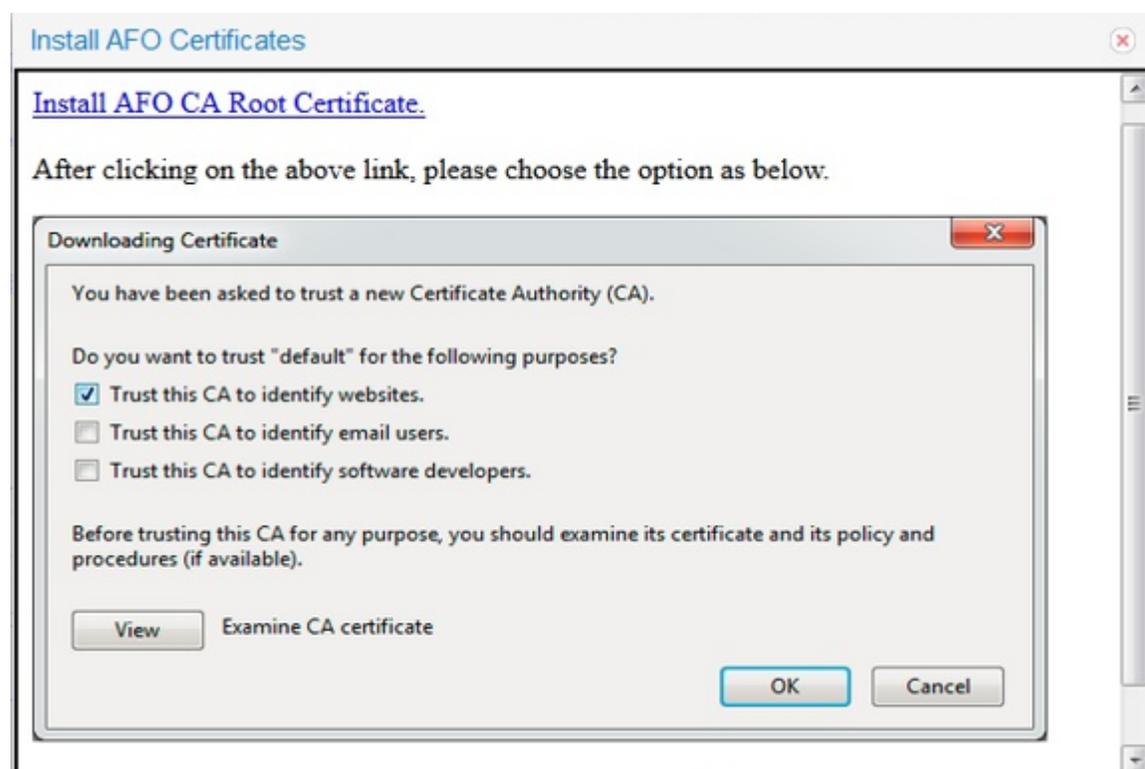


Figure 7: Sample Mozilla Firefox browser: Install AFO Certificates

3. Click **Install AFO CA Root Certificate** and follow the instructions as given on your screen to install the certificate.
4. **Refresh** the web page to view the updated information.

Network Discovery

You must configure Network Discovery to run network auto-discoveries. A discovery is a snapshot taken of a part or a complete network. Select **Network > Discovery** to access the Network Discovery options.

You must complete the following steps after you log on to AFO Monitoring for the first time, and before you can browse your network.

- Configure device credentials using the Device and Server Credentials Editor available from **Administration > Credentials**.
- Add a new discovery domain.
- Configure the discovery options for the discovery domain.
- Discover the domain.

! **Important:**

The only configuration required to manage a device is for it to respond to SNMP and to have the SNMP credentials for this device added to the Device and Server Credentials Editor. If a device is changed from Unmanaged to Managed by either adding credentials for it or by enabling SNMP on it after the discovery is completed, you must run rediscovery on the domain or create a new domain and discover it.

On the Network Discovery page, you can work with discovery domains, configure discovery options, perform discoveries, and view discovery status.

Default discovery policy

Avaya Fabric Orchestrator (AFO) ships with a default AFO domain. You cannot remove the domain or tab from Monitoring, but you can delete the content, seeds, and discovery data from this domain, and refine a new seed, and then run discovery. To access the options, go to **Network > Discovery**, and go to the options on the bottom left. The **Configuration** tab uses the domain information for network elements.

By default, the discovery has the following policy:

- Wide Area Network (WAN) Crawl (not selected)—AFO Monitoring discovers devices on the far side of every router interface, regardless of the interface type. If the WAN Crawl option is not selected then AFO Monitoring Discovery does not go beyond any interface that is considered to be a WAN interface.
- VPN Crawl (not selected)—AFO Monitoring discovers VPN clients even if this option is not selected. If this option is checked, then the discovery algorithm augments the discovered data with the information from vendor-specific VPN Tables.
- DNS Lookup (not selected)—AFO Monitoring performs DNS lookup on all devices.
- Service by Port Scan—AFO Monitoring discovery scans for well known service ports on servers. The option looks for services running on a server at the time of discovery.
- For All Devices—AFO Monitoring performs a service by PortScan for all devices.
- Avaya Only Discovery—AFO Monitoring ignores any devices that are not on the approved Avaya list.
- Storage Discovery—AFO Monitoring discovers file systems based on Linux log-in and scan of file systems on a server.

The Options above exist at the bottom left of the screen for **Network > Discovery**.

Appendix A: IP addresses and ranges reference

This section provides details about the valid IP addresses and IP ranges used for device credentials.

*** Note:**

The current release of AFO supports IPv4 only. IPv6 is not supported.

Valid IP addresses and ranges

- IPv4 addresses must be in the same subnet range. IP addresses must be in the following format

A.B.C.x-A.B.C.y (e.g, 192.168.100.21-192.168.100.30)

- Multiple IP Addresses must be separated by a comma (.). For example, the following are valid IPv4 addresses:

[192.168.100.21-192.168.100.30] or [192.168.100.21-192.168.100.23, 192.168.100.223])

Appendix B: AFO server specifications

The following table lists the AFO server specifications.

Table 6: AFO server specifications

Quantity	Description
1	HP DL360 Gen9 4LFF CTO Server
1	755259-B21 HP DL360 Gen9 4LFF CTO Server
1	Opt. ABA U.S. - English localization
1	755394-L21 HP DL360 Gen9 E5-2680v3 FIO Kit
8	726719-B21 HP 16GB 2Rx4 PC4-2133P-R Kit
4	765424-B21 HP 600GB 12G SAS 15K 3.5in ENT SCC HDD
1	726536-B21 HP 9.5mm SATA DVD-ROM Jb Gen9 Kit
1	766211-B21 HP DL360 Gen9 LFF P440ar/H240ar SAS Cbl
1	749974-B21 HP Smart Array P440ar/2G FIO Controller
1	663202-B21 HP 1U LFF Ball Bearing Rail Kit
2	720478-B21 HP 500W FS Plat Ht Plg Pwr Supply Kit
1	663203-B21 HP 1U CMA for Ball Bearing Rail Kit
1	339779-B21 HP Raid 5 Drive 1 FIO Setting
1	H4396B HP No Additional Support Required
1	TA850AAE HP iLO Adv E-LTU inc 1yr TS&SW

Appendix C: Compatibility matrix for AFO 1.0

The following tables lists the compatibility matrix for Avaya Fabric Orchestrator (AFO) 1.0.

Compatibility Matrix — Supported devices

Table 7: Supported devices

Device Type	Device Release
ERS 1424	2.1.6
ERS 3500	5.1.1, 4.0.4
ERS 1600	2.1.5
ERS 4800	5.9
ERS 5500/5600	6.6.1
ERS 5900	7.0
ERS 4500	5.7, 5.6.3
ERS 2500	4.4
ERS 8600	7.2.20
ERS 8800	7.2.20
ERS 8300	4.2, 4.0.0
VSP 4000	5.0
VSP 7000	10.4
VSP 7200	5.0
VSP 8200	5.0
VSP 8400	5.0
VSP 9000	4.1
SRA 5070 Firewall	1.0.1
Aura Communication Manager	6.3.4
Aura Session Manager	6.3.4
Aura System Manager	6.3.4
Aura Communication Manager	6.3.100

Table continues...

Compatibility matrix for AFO 1.0

Device Type	Device Release
G430/G450/G350/G250 Media Gateway	6.3
G860 Media Gateway	6.2
IP Phone 16xx	1.5
IP Phone 46xx	2.9
IP Phone 96xx — H.323	S3.1
IP Phone 96xx — SIP	2.6.1
IP Phone 96x1 — H.323	6.1
IP Phone 96x1 — SIP	6.0
Application Enablement Services	6.3.1
Agile Communication Environment	6.3, 6.2
Aura Presence Services	6.2
Aura Utility Services	6.3
Secure Access Link Gateway	2.2
Web Licensing Manager	6.3
Aura Messaging	6.3
Session Border Controller	6.2
Call Management System	17.0
Aura Experience Portal	6.0.2
Contact Center Elite Multi Channel	6.3
Contact Recorder	12.0
Contact Center Control Manager	7.0
Navigator	7.0
Meeting Exchange	6.2
Secure Router 1000	9.4
Secure Router 3120	9.4
Secure Router 4134	10.3
Secure Router 2330	10.3
Communication Server 1000	7.0
Business Communications Manager 50	3.0
Business Communications Manager 200/400	4.0
Business Communications Manager 450	1.0
WLAN 8180	1.1, 1.0
Wireless Bridge 7230	1.75, 1.51
Wireless Gateway	3.0.1
Wireless LAN AP 7215/7220	3.1.2, 3.0.1

Table continues...

Device Type	Device Release
WLAN SS 2350	7.0, 5.0
WLAN SS 2360/2361	7.0, 5.0
WLAN SS 2382	7.0, 5.0
AP 8120	—
SNAS 4050/4070	2.0.1.2, 1.0
HP ProLiant Gen8/Gen9 Servers with iLO	4.0
Lenovo/TMM	1.1
Sentry Smart CDU	7.0
Acme Packet Net-Net 4500 SBC	6.3
Belden switches	6.0.02
Sanyo UPS	—
Leibert UPS	11.3
APC UPS devices	—
Legacy devices	—
Ethernet Switch 325/425	3.6
Ethernet Switch 460/470	3.7
Ethernet Switch 450	4.5.5
Business Policy Switch	3.2
AG 2330 MCR	9.4
Application Switches	23.2
Switched Firewall	2.4.1
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VPN Router	7.0