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## Using VMware vSphere Web Client to Install Policy Manager on a Virtual Machine

This section assumes that the VMware vSphere Web Client has been installed. For information about installing and starting the vSphere Web Client, go to [VMware Documentation](#).

### Meeting the Recommended ESX/ESXi Server Specifications

Carefully review all virtual appliance requirements, including functional IOP ratings, and verify that your system meets these requirements. These recommendations supersede earlier requirements that were published for Policy Manager 6.x installations. Virtual appliance recommendations are adjusted to align with the requirements for Policy Manager hardware appliances. If you do not have the virtual appliance resources to support a full workload, you should consider ordering the Policy Manager hardware appliance. Be sure that your system meets the recommended specifications required for the Policy Manager virtual appliance.

### Supplemental Storage/Hard Disk Requirement

All VMware ESXi virtual machines use hardware version 8. Policy Manager VMware ships with a 20 GB hard disk volume. This must be supplemented with additional storage/hard disk by adding a virtual hard disk (see [Adding a Virtual Hard Disk](#) for details). The additional space required depends on the Policy Manager virtual appliance version.

### Processing and Memory Requirements

To ensure scalability, dedicate or reserve the processing and memory to the Policy Manager [VM](#) instance. You must also ensure that the disk subsystem can maintain the IOPs (I/O operations per second) throughput as detailed below.

### Policy Manager Server I/O Rate

Most virtualized environments use a shared disk subsystem, assuming that each application will have bursts of I/O without a sustained high I/O throughput. Policy Manager requires a continuous sustained high data I/O rate.

### Supported Hypervisors

Policy Manager supports the following following hypervisors. Hypervisors that run on a client computer such as VMware Player are not supported.

- VMware vSphere Hypervisor (ESXi) 6.0, 6.5, 6.5 U1, 6.5 U2, 6.7, 6.7 U1, 6.7 U2, 6.7 U3, and 7.0.
- Microsoft Hyper-V Server 2012 R2, Microsoft Hyper-V Server 2016, Windows Server 2012 R2 with Hyper-V, Windows Server 2016 with Hyper-V, or Windows Server 2019 with Hyper-V.
- KVM on CentOS 8 and Ubuntu 18.04 LTS.

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For the latest information on the supported hypervisors and virtual hardware requirements, refer to [ClearPass 6.9 Release Notes](#).

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### Before Starting the Policy Manager Installation

Before starting the Policy Manager installation and configuration procedures for the virtual appliance, determine the following Policy Manager server information on your network, note the corresponding values for the parameters listed in [Table 1](#), and keep it for your records.

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Policy Manager now supports Classless Inter-Domain Routing ([CIDR](#)) notation to configure IPv4 and IPv6 addresses on the management and data ports when the system is bootstrapped during installation or upgrade. As part of this change, the prefix length of

the address is required as part of the input, and the input prompt displays an example of this address format. [Netmask](#) format is no longer used to acquire IP addresses.

`/*]]>*/`

**Table 1: Policy Manager Server Configuration Information**

Required Information	Value for Your Installation
Host name (Policy Manager server)	
Management interface IP address	
Management interface <a href="#">subnet</a> mask	
Management interface <a href="#">gateway</a>	
Data port IP address (optional)	<b>NOTE:</b> Make sure that the Data interface IP address is <i>not</i> in the same <a href="#">subnet</a> as the Management interface IP address.
Data interface <a href="#">subnet</a> mask (optional)	
Data interface <a href="#">gateway</a> (optional)	
Primary <a href="#">DNS</a>	
Secondary <a href="#">DNS</a>	
<a href="#">NTP</a> server (optional)	

### vSphere Web Client Policy Manager Installation Overview

Policy Manager 6.x VMware software packages are distributed as Zip files.

The process of installing the Policy Manager virtual appliance on a host that runs VMware vSphere Web Client consists of four stages:

1. Download the VMware ESXi package from the from the **Policy Manager Support Center > Download Software > Policy Manager > Policy Manager > Current Release > ESXi** folder to a folder accessible by your VMware ESXi server.
2. To extract the files, unzip the files to a folder on your server.
3. Follow the steps in the [OVF](#) wizard to deploy the [OVF](#) file, **but do not power on yet**.

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There is only one [OVF](#) file with all the variant types and sizes selectable when the virtual appliance boots.

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4. Add a new hard disk, based on the requirements for your type of virtual machine.
5. Power on and configure the virtual appliance.

### Policy Manager VMware Virtual Appliance Installation Setup

To set up the Policy Manager virtual appliance installation on a host that runs VMware vSphere Web Client consists of four stages:

1. Download the Release Notes for the version of Policy Manager that you want to install as a virtual appliance.
2. Then check the recommended virtual hardware specifications and verify that your system meets those requirements.

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Release Notes are available in the appropriate version folders under **Policy Manager Support Center > Documentation > Software User & Reference Guides > ClearPass > Release Notes**.

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3. Start the VMware vSphere Web Client.
4. Extract the files into a folder on your desktop.
5. Using either the VMware vSphere Web Client or the standard vSphere Client, deploy the Open Virtualization Format ([OVF](#)) template that was downloaded and extracted in **Steps 2** and **Step 3**.

The Deploy [OVF](#) Template appears.

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If you are not using the vSphere Web Client or the standard vSphere Client, follow the instructions for your method of deploying the [OVF](#) file.

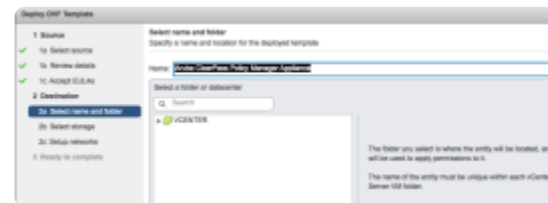
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**Figure 1** Deploy OVF Template: Selecting the Source Location



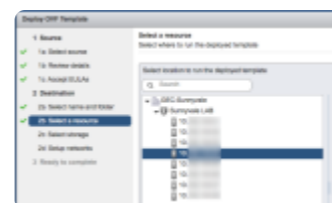
6. Select **Local File**, then click **Browse**.
7. Navigate to the folder where you extracted the files, then click **Next**. The **Review Details** screen opens.
8. Review the information presented, then click **Next**. The **Accept EULAs** screen opens.
9. Read the End User License Agreements ([EULA](#)) and click **Accept**, then click **Next**. The **Select Name and Folder** screen opens.

**Figure 2** Selecting the Name and Location for the Deployed Template



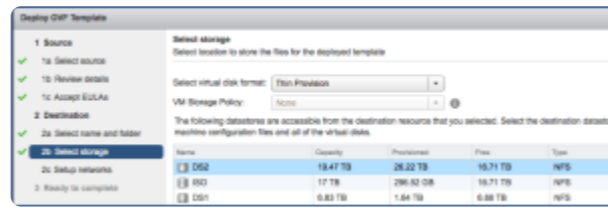
10. In the **Select Name and Folder** dialog:
  - a. Change the name to the desired virtual appliance name.
  - b. Select the virtual appliance folder or data center where you want to deploy the Policy Manager [OVF](#) file, then click **Next**. The **Select a Resource** screen opens.

**Figure 3** Selecting a Resource



11. If required, choose the VMware host where Policy Manager will be deployed, then click **Next**. The **Select Storage** screen opens.

**Figure 4** Selecting the Location to Store the Files

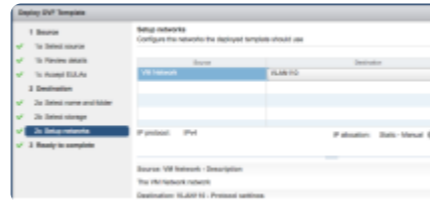


12. Choose the virtual disk format and data store for the Policy Manager virtual appliance, then click **Next**.

The virtual disk format specified in [Figure 4](#) is **Thin Provision**. In a production environment, to ensure that the virtual appliance will not run out of disk space, Aruba recommends using the **Thick Lazy Zeroed** virtual disk format.

The **Setup Networks** screen opens.

**Figure 5** Configuring the Networks for VM Deployment



13. Specify the virtual network where Policy Manager will reside, then click **Next**. The **Ready to Complete** screen appears, which displays all the settings you chose for this [OVF](#) file deployment.

14. Review the settings for accuracy, and make any changes if necessary, then click **Finish**. The [OVF](#) file is deployed in the selected network.

### Adding a Virtual Hard Disk

After the [OVF](#) file has been deployed and before you power on, you must add a virtual hard disk to the [VM](#) hardware and make sure that the network adapters are assigned correctly.

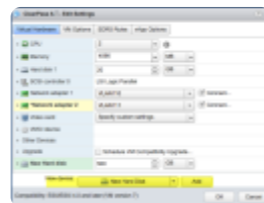
1. From the Policy Manager appliance, select the **Summary** tab.

**Figure 6** Virtual Appliance Summary Tab



2. Click **Edit Settings**. The **Edit Settings** dialog opens.

**Figure 7** Editing the Virtual Machine Settings



3. Add a new virtual hard disk:

a. Consult the ClearPass Release Notes to determine the correct size of the virtual hard disk to add to your Policy Manager virtual appliance.

b. From the **New Device** drop-down, select **New Hard Disk**.

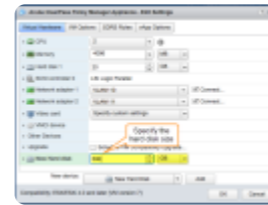
c. Click **Add**. The **Virtual Hardware** dialog opens. Contact Pavalli RE /CP-36621 for re-org info.

d. Configure your network adapters using the **Network Adapter 1** and **Network adapter 2** drop-down lists. You must configure two network adapters, and both should have the **Connect** option enabled so the interface connects when powered

on. Note that although data port configuration is optional, Policy Manager still requires the configuration of two network adapters. Typically, network adapter 1 is the management port, and network adapter two is the data port.

e. Specify the size of the new hard disk (as shown in [Figure 8](#)), then click **OK**.

**Figure 8** Specifying the Size of the New Hard Disk



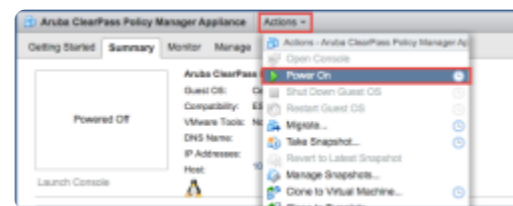
For the latest information on the recommended disk sizes for a virtual hard disk, refer to the Release Notes in the appropriate version folders at the [Aruba Support Center > Documentation > Software User & Reference Guides > ClearPass > Release Notes](#).

## Launching the Policy Manager Virtual Appliance

To launch the Policy Manager virtual appliance:

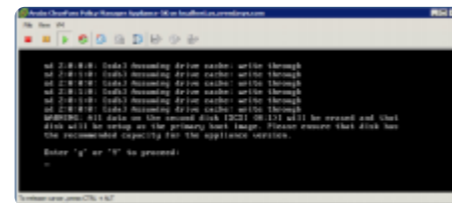
1. To power on the virtual appliance, from the Policy Manager virtual appliance, choose **Actions > Power On**.

**Figure 9** Powering on the Virtual Appliance



2. To launch the [VM](#) console, choose **Actions > Launch Console**. The initial [VM](#) console screen is displayed.

**Figure 10** Initial Virtual Machine Console Screen



3. To proceed, enter **y**. Policy Manager setup and installation begins. The following console screen appears:

**Figure 11** Specifying the Appliance Type



4. Enter the number for the appropriate appliance type (do not enter the appliance model itself). Options include:
  - o **Enter 1 for CLABV**
  - o **Enter 2 for C1000V**
  - o **Enter 3 for C2000V**
  - o **Enter 4 for C3000V**

So, for example, to install a C2000V, you would enter the number **3**.

The system requirements are displayed for the appliance model you entered, along with your current system configuration.

5. Compare these to make sure your system meets the new system requirements.

6. When you have verified that your system meets the new requirements, press **y**. Policy Manager will reboot at least once. Two console screens appear sequentially—the first screen indicates that the Policy Manager Installer is rebooting, and the second screen indicates that the virtual appliance is rebooting. When the rebooting process is complete, the Policy Manager virtual appliance is configured, and the virtual appliance will power on and boot up within a couple of minutes. The whole installation process typically takes between 30 and 40 minutes.

7. After the Policy Manager virtual appliance launches correctly, the following banner is displayed:

**Figure 12** *Virtual Machine Login Banner*



8. Proceed to the next section, [Completing the Virtual Appliance Setup](#).

### Completing the Virtual Appliance Setup

To complete the virtual appliance setup:

1. Refer to and note the required Policy Manager server configuration information listed in [Table 1](#).
2. **Log in to the virtual appliance** using the following preconfigured credentials:

- login: **appadmin**
- password: **eTIPS123**

This initiates the Policy Manager Configuration wizard.

3. **Configure the Policy Manager virtual appliance.**

Follow the prompts, replacing the placeholder entries in the following illustration with the information you entered in [Table 1](#).

- Enter hostname:
- Enter Management Port IP Address:
- Enter Management Port Subnet Mask:
- Enter Management Port Gateway:
- Enter Data Port IP Address:
- Enter Data Port Subnet Mask:
- Enter Data Port Gateway:
- Enter Primary DNS:
- Enter Secondary DNS:

4. **Specify the cluster password.**

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Setting the cluster password also changes the password for the [CLI](#) user **appadmin**, as well as the Administrative user **admin**. If you want the **admin** password to be unique, see [Changing the Administration Password](#).

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- a. Enter any string with a minimum of six characters, then you are prompted to confirm the cluster password.
- b. After this configuration is applied, use this new password for cluster administration and management of the Policy Manager virtual appliance.

5. **Configure the system date and time.**

- a. Follow the prompts to configure the system date and time.
- b. To set the date and time by configuring the [NTP](#) server, use the primary and secondary [NTP](#) server information you entered in [Table 1](#).

6. **Apply the configuration.**

Follow the prompts and do one of the following:

- a. To apply the configuration, press **Y**.
- To restart the configuration procedure, press **N**.

- To quit the setup process, press **Q**.

Configuration on the virtual appliance console is now complete. The next task is to activate the Policy Manager license.

## Applying and Activating the Policy Manager License

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Activating the Policy Manager license is necessary for the virtual appliance only, not the hardware appliance, because the Policy Manager license is included with the hardware appliance.

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To activate and apply the Policy Manager license:

1. After the configuration has been applied at the virtual appliance console, open a web browser and go to the Policy Manager management interface:

**https://x.x.x.x/tips/**, where **x.x.x.x** is the IP address of the management interface defined for the Policy Manager server in [Table 1](#).

2. Accept any security warnings from your browser regarding the self-signed [SSL](#) certificate, which comes installed in Policy Manager by default.

The Enter License Key screen is displayed.

**Figure 13** Entering the License Key

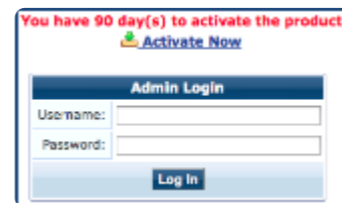


3. Do the following:

- a. In the **Select Application** drop-down, make sure the application is set to **Policy Manager**.
- b. Make sure the **I agree to the above terms and conditions** check box is enabled.
- c. In the **Enter license key** text box, enter your Policy Manager license key.
- d. Click **Add License**.

Upon successfully entering the license key, the **Admin Login** screen appears with a message indicating that you have 90 days to activate the product and a link to activate the product.

**Figure 14** Activating Policy Manager



4. To activate Policy Manager on this virtual appliance, click **Activate Now**.

Policy Manager attempts to activate the license over the Internet with ClearPass License Activation servers.

If the Policy Manager virtual appliance does not have Internet access, you can perform the license activation offline by following the steps for offline activation presented in the **Offline Activation** section shown in [Figure 15](#).

**Figure 15** Performing Offline Activation

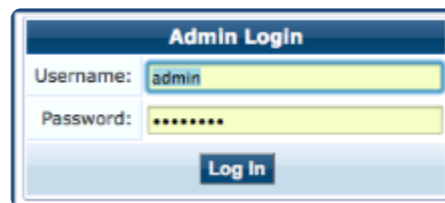


After successfully activating Policy Manager online, you will see a message above the **Admin Login** screen indicating that the product has been successfully activated.

## Logging in to the Policy Manager Virtual Appliance

After a successful activation, the **Admin Login** dialog opens.

**Figure 16** Logging in to the Policy Manager Virtual Appliance

A screenshot of the 'Admin Login' dialog box. It has a blue header with the text 'Admin Login'. Below the header, there are two input fields: 'Username:' with the text 'admin' and 'Password:' with a masked password of seven asterisks. At the bottom of the dialog is a blue button labeled 'Log In'.

1. Log in to the Policy Manager virtual appliance with the following credentials:
  - **Username:** admin
  - **Password:** Enter the cluster password defined in [Completing the Virtual Appliance Setup](#).
2. Click **Log In**.

The Policy Manager Landing Page opens.

**Figure 17** Policy Manager Policy Manager Landing Page

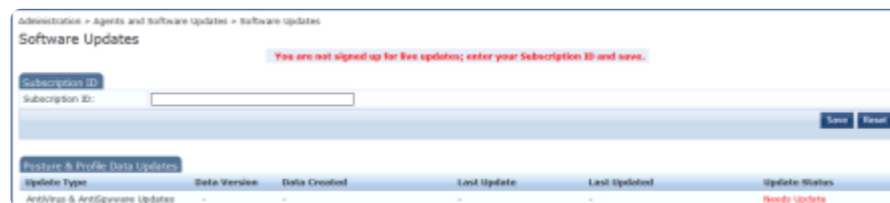


## Signing Up for Live Software Updates

Upon your initial log-in to Policy Manager, you should register for software updates.

1. Navigate to the **Administration > Agents and Software Updates > Software Updates** page. A message is displayed indicating that the Policy Manager virtual appliance is not signed up for live updates and that you must enter your **subscription ID**.

**Figure 18** Entering the Subscription ID for Live Updates

A screenshot of the 'Software Updates' page in the Policy Manager interface. At the top, there is a red message: 'You are not signed up for live updates; enter your Subscription ID and save.' Below this message is a text input field labeled 'Subscription ID:'. To the right of the input field are 'Save' and 'Cancel' buttons. Below the input field is a table with columns for 'Update Type', 'Data Version', 'Data Created', 'Last Update', 'Last Updated', and 'Update Status'. The first row shows 'Antivirus & AntiSpam Updates' with a 'Needs Update' status.

2. If the Policy Manager server has Internet access, enter your [subscription ID](#), then click **Save**. After successfully applying the [subscription ID](#), you will see a message indicating that the [subscription ID](#) was updated successfully and Policy Manager is processing updates from the Policy Manager Webservice. Note that **Posture & Profile Data Updates** are downloaded and installed automatically, while **Firmware & Patch Updates** are merely displayed.

## Changing the Administration Password

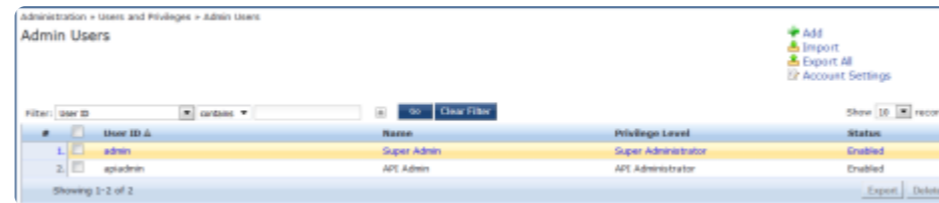
When the cluster password for this Policy Manager server is set upon initial configuration (see [Completing the Virtual Appliance Setup](#)), the administration password is also set to the same password. If you wish to assign a unique **admin** password, use this procedure to change it.

To change the administration password:

1. In Policy Manager, navigate to **Administration > Users and Privileges > Admin Users**. The **Admin Users** page opens.

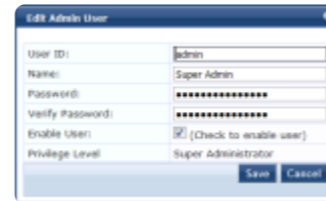
**Figure 19** Admin Users Page





2. Select the appropriate **admin** user. The **Edit Admin User** dialog opens.

**Figure 20** Changing the Administration Password



3. Change the administration password, verify the new password, then click **Save**.

### Powering Off the Policy Manager Virtual Appliance

This procedure gracefully shuts down the virtual appliance without having to log in.

To power off the Policy Manager virtual appliance:

1. Connect to the command-line interface by choosing **Action > Open Console**.
2. Enter the following commands:
  - login: poweroff
  - password: poweroff

The Policy Manager virtual appliance shuts down.

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