



# Pulse One Virtual Machine on an ESX Server

Supporting Pulse One Appliance 2.0.1901

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*Pulse One Virtual Machine on an ESX Server Deployment Guide*

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# Preface

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## Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Pulse Secure technical documentation.

### Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used in the flow of the text to highlight specific words or phrases.

Format	Description
<b>bold text</b>	Identifies command names
	Identifies keywords and operands
	Identifies the names of user-manipulated GUI elements
	Identifies text to enter at the GUI
<i>italic text</i>	Identifies emphasis
	Identifies variables
	Identifies document titles
Courier Font	Identifies command output
	Identifies command syntax examples

### Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
<b>bold text</b>	Identifies command names, keywords, and command options.
<i>italic text</i>	Identifies a variable.
[ ]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.

Convention	Description
{ x   y   z }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
x   y	A vertical bar separates mutually exclusive elements.
< >	Non-printing characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, member[member...].
\	Indicates a “soft” line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

## Notes and Warnings

Note, Attention, and Caution statements might be used in this document.

**Note:** A Note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

### ATTENTION

An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.

### CAUTION

A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

## Requesting Technical Support

Technical product support is available through the Pulse Secure Global Support Center (PSGSC). If you have a support contract, file a ticket with PSGSC.

- Product warranties—For product warranty information, visit <https://support.pulsesecure.net/product-service-policies/>

## Self-Help Online Tools and Resources

For quick and easy problem resolution, Pulse Secure provides an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <https://support.pulsesecure.net>
- Search for known bugs: <https://support.pulsesecure.net>
- Find product documentation: <https://www.pulsesecure.net/techpubs>
- Download the latest versions of software and review release notes: <https://support.pulsesecure.net>

- Open a case online in the CSC Case Management tool: <https://support.pulsesecure.net>
- To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://support.pulsesecure.net>

For important product notices, technical articles, and to ask advice:

- Search the Pulse Secure Knowledge Center for technical bulletins and security advisories: <https://kb.pulsesecure.net>
- Ask questions and find solutions at the Pulse Community online forum: <https://community.pulsesecure.net>

## Opening a Case with PSGSC

You can open a case with PSGSC on the Web or by telephone.

- Use the Case Management tool in the PSGSC at <https://support.pulsesecure.net>.
- Call 1-844 751 7629 (Toll Free, US).

For international or direct-dial options in countries without toll-free numbers, see <https://support.pulsesecure.net/support/support-contacts/>





# Creating a Pulse One VM on an ESX Server

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## Introduction

This document describes the deployment of Pulse One on an ESX server as a virtual image.

## Prerequisites

Ensure prerequisites are available, which include:

- Using vSphere client version 6.0.0 or 6.5.0.
- VMware vCenter server version 6.0.0 or 6.5.0.
- ESXi version 6.0 or 6.5 standard.
- Knowledge of how to upload an OVF file.
- Basic knowledge of ESX hypervisor.
- Level of permissions on ESX to deploy via OVF and add/delete/edit of VMs.
- One Terabyte of ESX accessible storage space is recommended. Minimal required storage space dedicated to this server is 100GB with thin provisioning.

## Hardware Requirements

Pulse Secure recommends the following hardware:

- CPU: 8 CPU Cores
- RAM: 16GB
- HDD: 1TB

## Installation Process

The following steps outline the installation process:

1. Download the Pulse One 2.0.1901 VM release package file (for example `pulseone-2.0.1901-xxxx.tgz` that is supplied by the Pulse Secure support team.
2. Extract the contents either using 7-Zip (Windows) or using `tar -zxvf` (Linux/macOS). If you are using 7-Zip, the first extraction results in a `.tar` file. Use 7-Zip to extract that tar file as well. The following four files will be extracted:
  - `pulseone-2.0.1901-xxxx-disk1.vmdk`
  - `pulseone-2.01901-xxxx.mf`
  - `pulseone-2.0.1901-xxxx.ovf`
  - `version.json`
3. Access the ESX server either using vSphere client (running on a Windows endpoint) or using web client.
4. Import the extracted OVF file onto the ESX server.

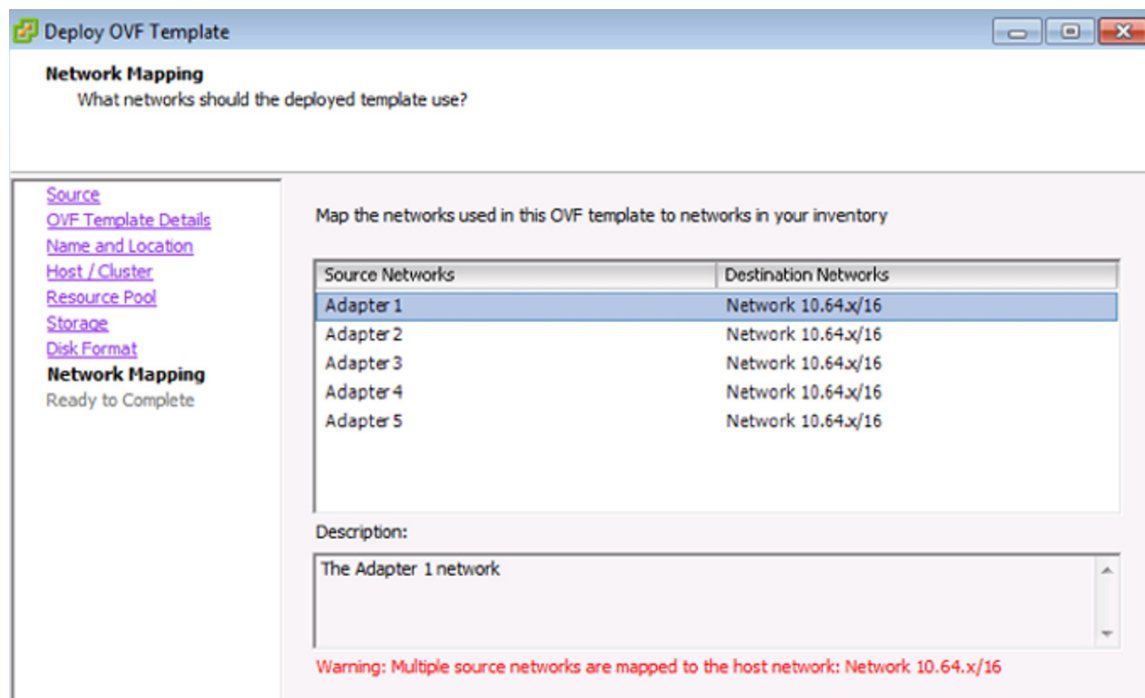
The VM requires approximately 1TB disk size. Pulse Secure recommends that the VM is stored using thin-provisioning.

Please note the following networking requirements:

- You must ensure that each of the three Pulse One interfaces (internal, external and management) are set to different subnets.
- The management network should be accessible to system admin for Pulse One CLI setup and configuration.
- The external network should be accessible to Pulse One admin users and should also have access to various other resources, such as DNS, NTP, and SMTP servers (either internal or external).
- The internal network, which is used for clustering, can be an isolated network.

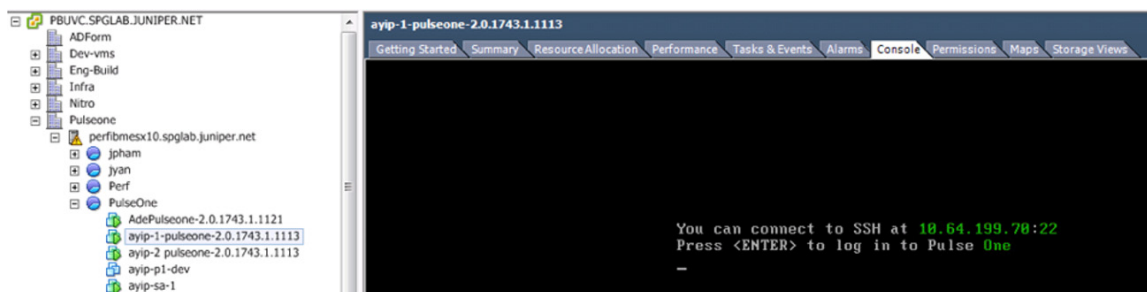
- During the installation process, leave the various adapters in the network mapping set to default (there will be exactly five network adapters).

FIGURE 1 Network Mapping



- Once the installation is completed, navigate to the built-in VM console.
  - If DHCP server exists on the default VLAN set, an IP address SSH message is displayed.

FIGURE 2 IP Address SSH Message



- If an IP address SSH message is not displayed, additional configuration is needed. For configuration details, see Determining Pulse One VM's Interface Association with the VM's Physical Interfaces.
- Create an admin user when prompted and be sure to save/remember the password.

## Determining Interface Associations

You can determine Pulse One VM's Interface Association with the VM's Physical Interfaces.

1. Log in to the Pulse One CLI as an admin user and run the network show command to display the current network information. For example:

FIGURE 3 Network Show

```

Logged in as admin@db
Pulse One > network show
management:
  dhcp: true
  enabled: true
  ip_address: 10.64.199.70
  mac_address: 00:50:56:a6:1c:49
  netmask: 255.255.0.0

Pulse One > _
  
```

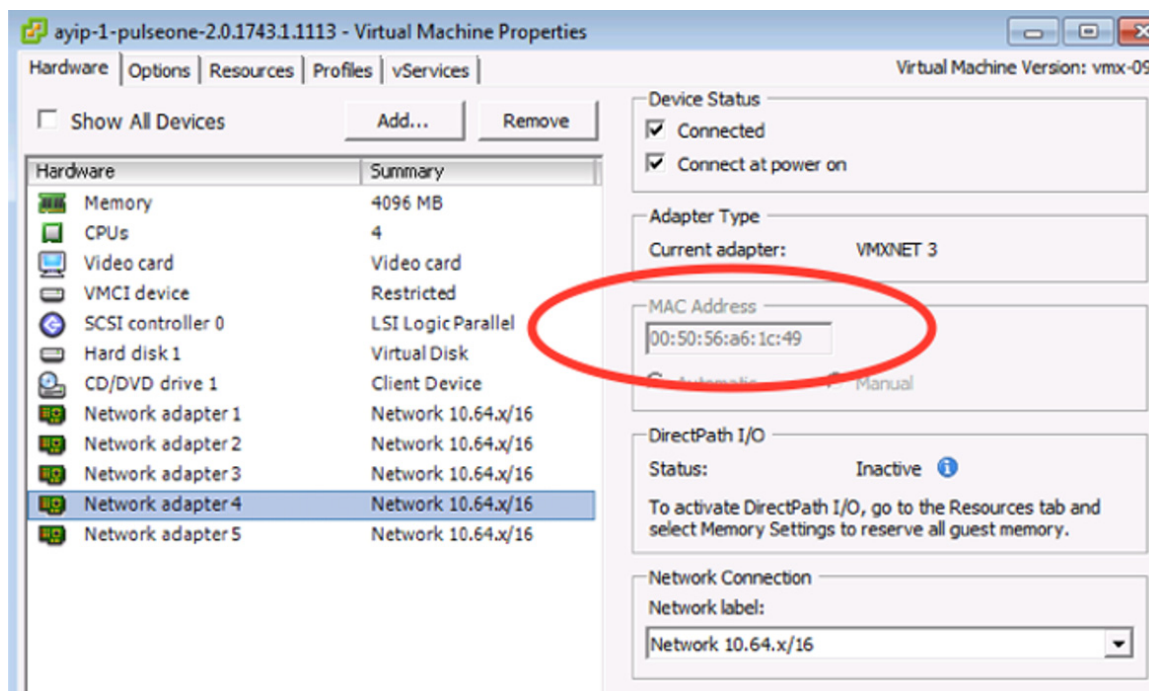
The management port is the only port initially configured on the system with DHCP enabled by default. If there is an attached active DHCP server on the previously configured network, an IP address will be displayed when the network show command is run.

**Note:** An associated MAC address is always displayed. Make a note of the management port's associated MAC address.

**Note:** The VM's networking settings need to be modified so that the desired VM interface (management in this case) is associated with the correct physical VM interface.

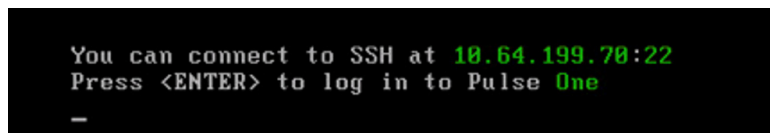
2. Edit the configuration of the VM in the hypervisor and determine which network adapter is associated with the VM interface by comparing the MAC addresses.

FIGURE 4 Edit VM Configuration



3. Set the Network Connection to the desired VLAN/network.
4. Reboot the box with this new configuration.
5. Now an SSH prompt is displayed that shows which IP (management) should be available if DHCP server is available on the attached network or VLAN. You should be able to SSH into the box now.
6. Use SSH when configuring the VM as it has cut/paste capabilities for the certificates, as well as the command history (pressing the Up key to go to past command).

FIGURE 5 SSH Message



**Note:** The “Management” interface allows static IP configuration as well. This is useful when DHCP server is not available or not desired. Once a static IP is configured, it disables DHCP client mode.

**Note:** When configuring a static IP address, a gateway IP needs to be provided in addition to the desired static IP address and associated netmask. This gateway will be a default gateway for traffic destined to and originating from the “Management” interface only.

**Note:** You must ensure that each of the three Pulse One interfaces (internal, external and management) are set to different subnets.

7. Repeat the steps explained in this section for the external port and the internal port if you plan on clustering two VMs. Note that you will not see any information for an interface in the network show command before it has been configured using network interface command.

Next, refer to the *Pulse One 2.0.1901 Getting Starting Guide* to complete setting up the VM.

## References

The *Pulse One v2.0.1901 Getting Starting Guide* is available in Pulse Secure Techpubs site.

