



Intel Device Manager for VMware vCenter Server

User Guide

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Contents

Contents	2
1.0 Overview	3
1.1 Deployment Architecture.....	3
2.0 Setup	5
2.1 Prerequisites.....	5
2.2 Install the Plug-in.....	5
2.2.1 Install the Daemon on the Host.....	5
2.2.2 Set up a User Account.....	5
2.2.3 Install the Plug-in.....	6
2.2.4 Sign in to the Daemon Account.....	8
2.3 Uninstall the Plug-in.....	8
2.3.1 Uninstall the Daemon on the Host.....	8
2.3.2 Uninstall the Plug-in and Remove the VM.....	8
3.0 Procedures	9
3.1 Discover Devices.....	9
3.2 View Device Information.....	9
3.3 Change Device Configuration.....	10
3.4 Manage Recipes.....	12
3.5 Use Recipes.....	13
3.6 Monitor a Device.....	14
3.7 View Alerts.....	15
3.8 Refresh Devices.....	15
3.9 Add a New Device or Host.....	15
4.0 Troubleshooting	16
4.1 Invalid Credentials.....	16
4.2 Daemon Status.....	16
4.3 Configuration Wizard Is Empty, or Configuration Fails.....	16
4.4 No Healthy Upstream.....	16
4.5 General Errors.....	17
Appendix A Version Compatibility	18
Appendix B Driver Compatibility	18
Notices and Disclaimers	19

1.0 Overview

Intel® Device Manager for VMware* vCenter* Server is a user-friendly way to manage Intel devices on VMware's vCenter platform. It is deployed as a plug-in to vCenter.

The plug-in lets you manage and configure devices right from the interface of VMware vCenter. You can:

- View information on supported devices.
- Monitor device counters and sensors.
- Customize device configuration.
- Save configurations as recipes for future reuse and apply these recipes to all your devices with a single click.

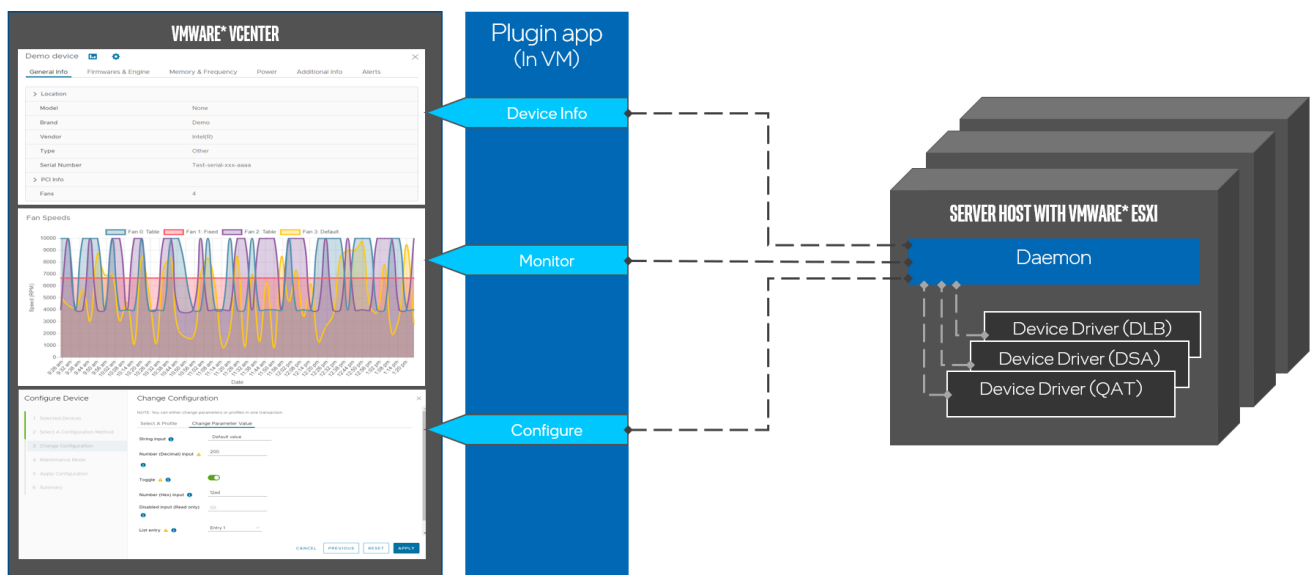
The plug-in requires the Intel® Accelerator Management Daemon for VMware ESXi* on each host to discover and allow device management.

This document covers:

- Installation
- Setup and configuration
- Recipe creation
- Device monitoring and management
- Troubleshooting

1.1 Deployment Architecture

This diagram illustrates the relationship between the plug-in and other system components.





The plug-in is packaged into the VMware Photon* OS (4.0 Rev2) to enable ease of setup. The Photon OS has its own source and security dispositions, which can be found on the Photon [Security Advisories](#) page. Intel recommends that you follow these steps to keep the OS and its packages updated.

2.0 Setup

2.1 Prerequisites

- VMware vCenter (See Appendix A for a list of compatible versions.)
- VMware (See Appendix A for a list of compatible versions.)
- Supported Intel device on a host with driver installed (See Appendix B for a compatibility guide.)

2.2 Install the Plug-in

2.2.1 Install the Daemon on the Host

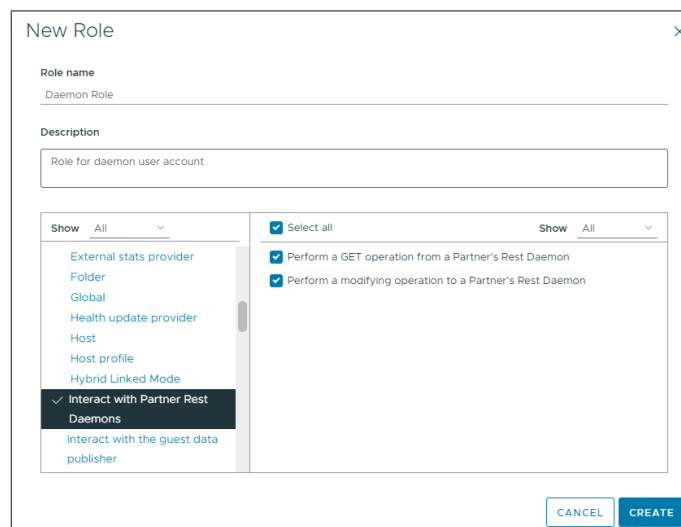
The Intel Accelerator Management Daemon for VMware ESXi provides an interface for the plug-in to communicate directly with device drivers to enable configuration and monitoring capabilities.

1. Sign in to the ESXi host via SSH or access the web console.
2. Install the daemon bundle using the software install command.

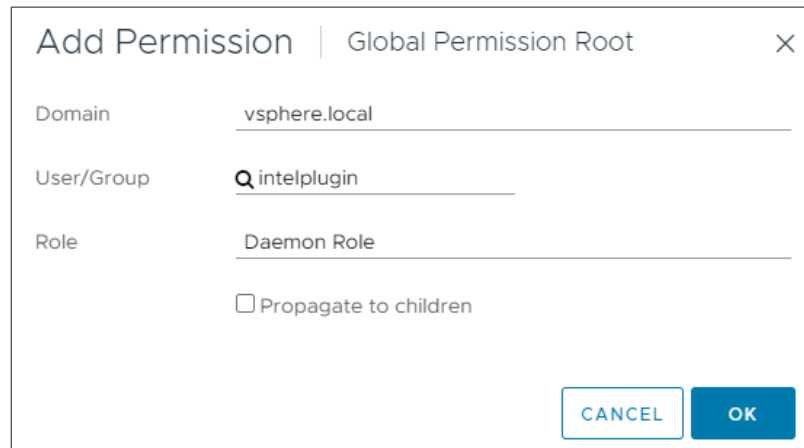
2.2.2 Set up a User Account

A user account is needed for the plug-in to communicate with the Intel Accelerator Management Daemon to enable management of devices from the plug-in interface.

1. Navigate to the Administration page in vCenter.
2. Create a role for the daemon account to use:
 - a. Under Access Control, select **Roles**, then select **New**.
 - b. In the New Role window, enter a suitable name in the Role Name field.
 - c. In the left menu, select **Interact with Partner Rest Daemons**.
 - d. From the drop-down menu at the right, select **All** and check **Select All**.
 - e. Select **Create**.

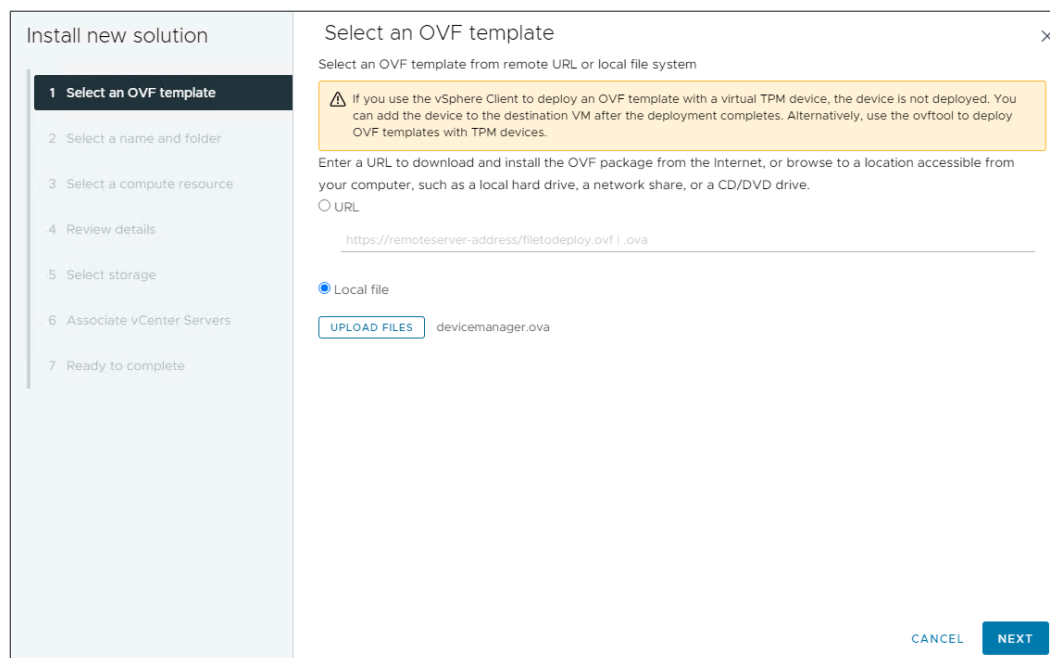


3. Set up a daemon user account:
 - a. Under Single Sign On, select **Users and Groups**, and select your domain. This example uses the `vsphere.local` domain.
 - b. Select **Add**.
 - c. In the Add User window, enter the username `intelplugin` and a password of your choice, and then select **Add**.
4. Add the role to the account:
 - a. Under Access Control, select **Global Permissions**, and then select **Add**.
 - b. Select the domain and account created in the previous step, assign the previously created role to this account, and then select **OK**.

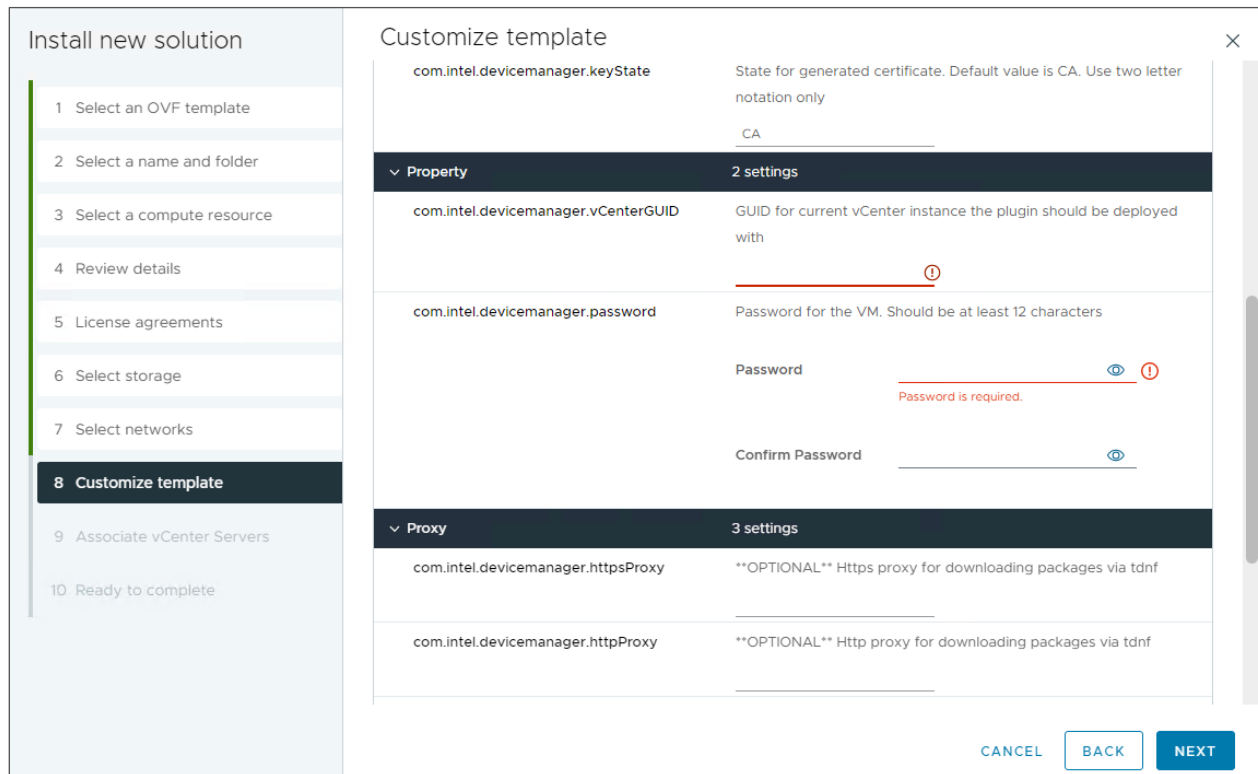


2.2.3 Install the Plug-in

1. Navigate to the Administration page in vCenter.
2. Select **Add**. Upload a local OVF template file, or enter the URL for an online template file.



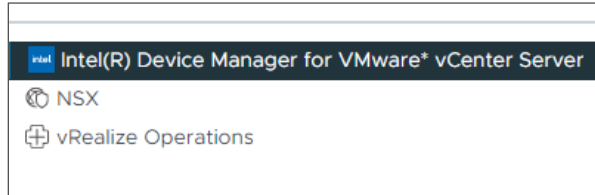
3. Select the location for the plug-in: Select a data center, the compute resource, and storage and network options.
4. Customize the template: Enter the details needed to set up the plug-in VM. The following properties are available:



- **Certificate properties:** Properties to set for the self-generated certificate.
 - **vCenterGUID (required):** The GUID from vCenter that is required to authenticate a user session with the plug-in.
 - **Password (required):** Password for the VM, which will be set on first boot. Must be at least 12 characters long. Recommended not to use common dictionary words.
 - **Proxy:** Proxy for installing Java into the VM. Only sets the proxy for tdnf.
 - **Static IP:** Skip this section if you have DHCP. Set static IP for VM in this section. IP is in CIDR notation, which includes a mask. For example, an IP of aa.bb.cc.dd with a mask of 255.255.255.0 will be represented by aa.bb.cc.dd/24.
 - **MAC:** Specify a MAC for the VM's network adapter to spoof. This is not recommended unless you have a MAC restriction.
 - **Solution Information:** Values that are not editable. Default values required for registering the plug-in with vCenter.
5. Associate vCenter: Select a vCenter for the plug-in to associate with. Currently, the plug-in supports only a single vCenter per VM.

2.2.4 Sign in to the Daemon Account

1. In the overflow menu, select **Intel Device Manager for VMware vCenter Server**.



2. When prompted, enter the username and password for the daemon user account you created in the previous section.

2.3 Uninstall the Plug-in

2.3.1 Uninstall the Daemon on the Host

1. Sign in to the ESXi host via SSH or access the web console.
2. Uninstall the daemon bundle using the software remove command.

2.3.2 Uninstall the Plug-in and Remove the VM

1. Navigate to the Administration page in vCenter.
2. Select **Client Plug-in** and select **Intel Device Manager for VMware vCenter Server**.
3. Select **Remove**.
4. Navigate to the VM in your inventory. You can now safely delete it.

3.0 Procedures

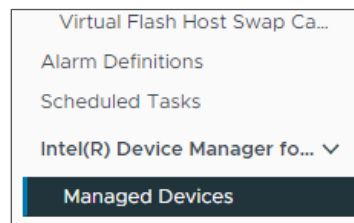
3.1 Discover Devices

1. A card on the Summary page for the host, cluster, or datacenter shows the available devices:

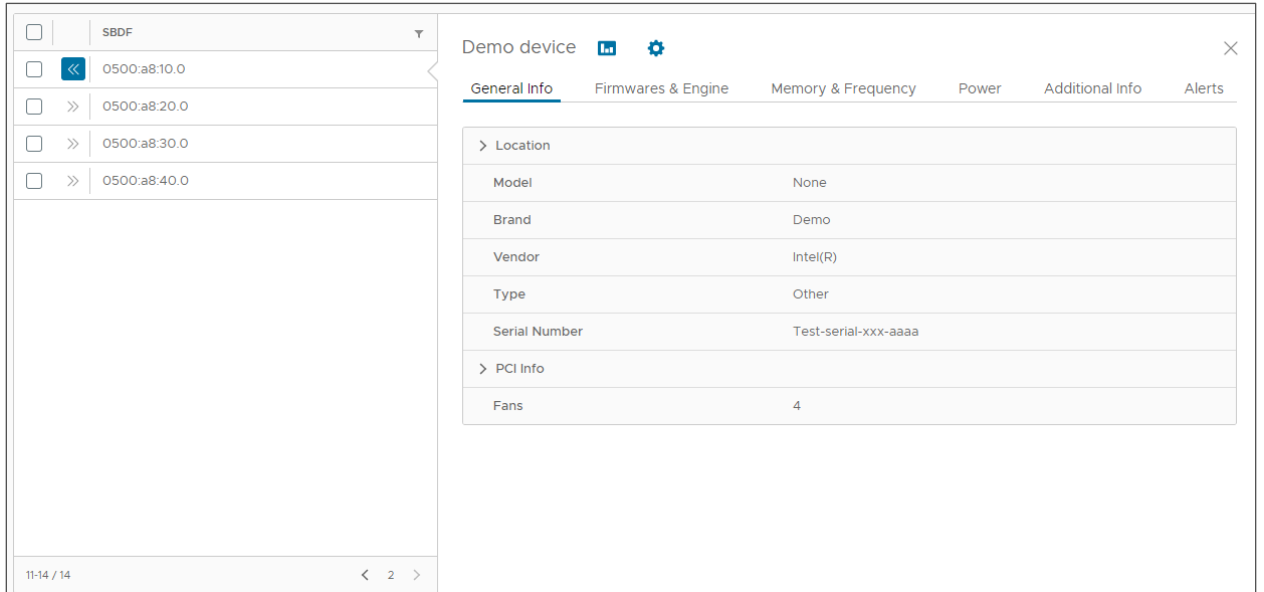


3.2 View Device Information

1. On the Configure tab for a host, cluster, or data center, under the plug-in name, select **Managed Devices**. Alternatively, on the summary card, select **Configure**.



2. Select the double chevron (>>) to show the following information for this device:

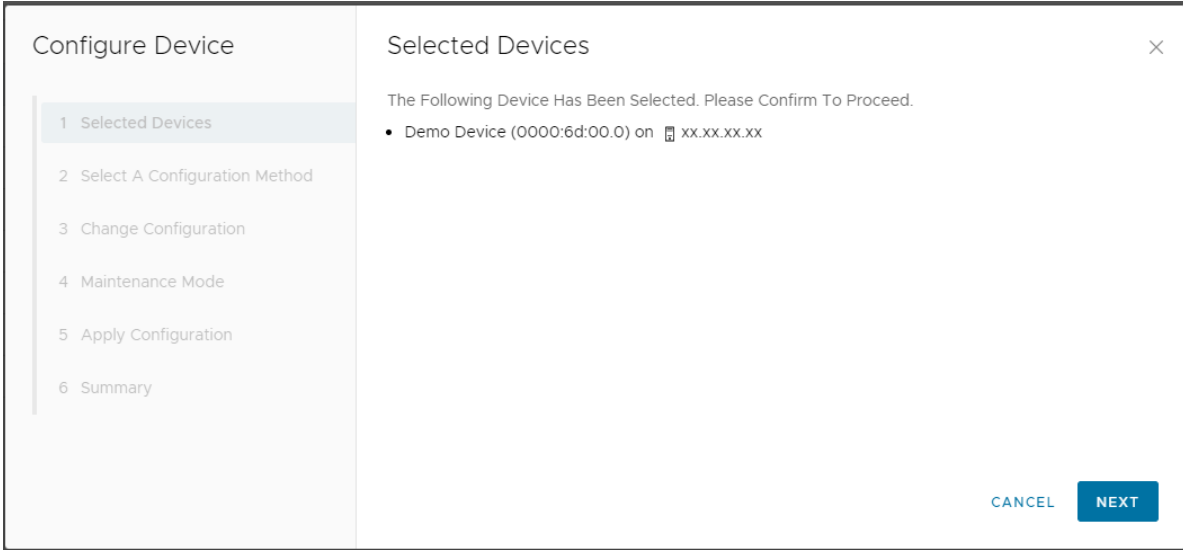


Demo device	
General Info Firmwares & Engine Memory & Frequency Power Additional Info Alerts	
> Location	
Model	None
Brand	Demo
Vendor	Intel(R)
Type	Other
Serial Number	Test-serial-xxx-aaaa
> PCI Info	
Fans	4

- **General Info:** Information regarding location of device, PCI information, type, and number of fans.
- **Firmware & Engine:** List of available firmware and engines.
- **Memory & Frequency:** Memory modules and their information along with frequency domains and their types.
- **Power:** Power supply units present along with power domains.
- **Additional Info:** Additional information defined by driver specific to the device.
- **Alerts:** Recent alerts that have been raised for this device.
- **Monitor this device:** Select the chart icon to monitor this device.
- **Configure this device:** Select the gear icon to configure this device.

3.3 Change Device Configuration

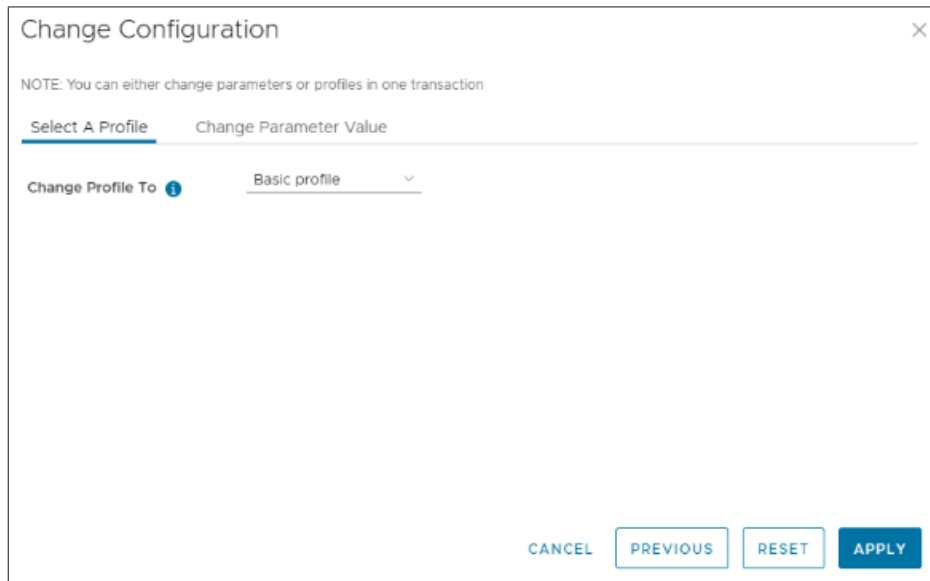
1. On the Configure tab for a host, cluster, or data center, under the plug-in name, select **Managed Devices**. Alternatively, on the summary card, select **Configure**.
2. Select the checkbox for a device and select **Configure**.



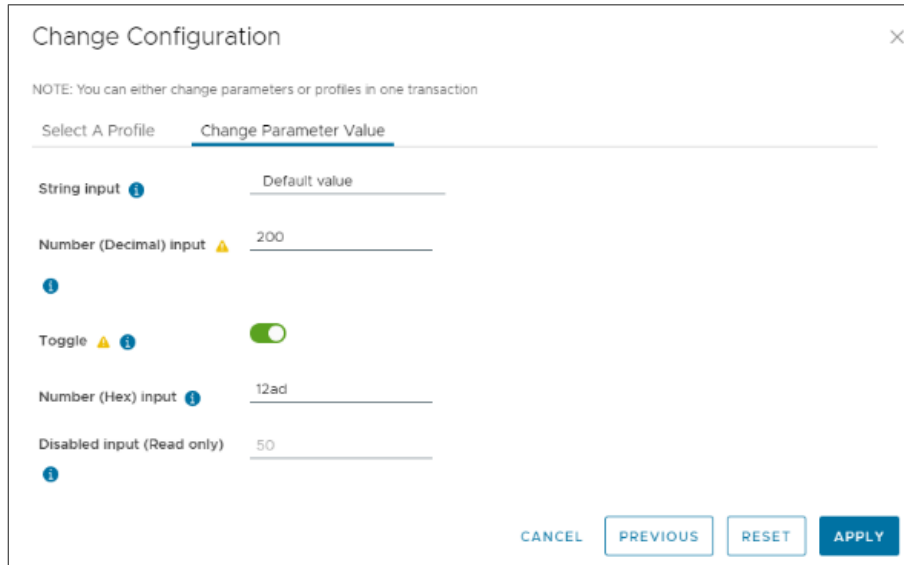
3. Select **Next** to start the configuration wizard.
4. On the Select a Configuration page, select a configuration method.
 - **Recipes:** Refer to the next section, "[Manage Recipes.](#)"
 - **Profiles and parameters:** Refer to the following steps.

Note: Configuring a device using parameters is only available when selecting a single device.

5. **Configure with a profile:** In the Change Configuration window, choose the **Select A Profile** tab, select an existing profile, and then select **Apply**.



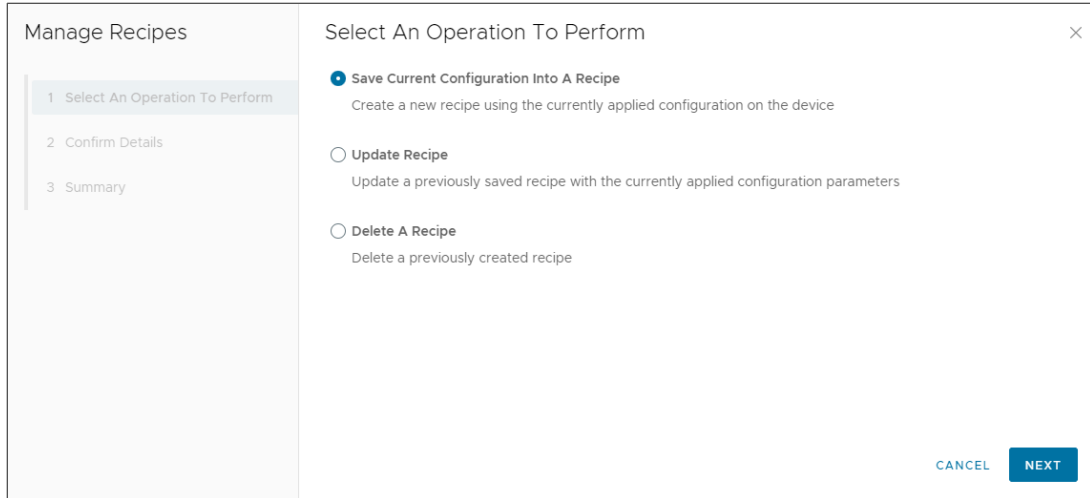
6. **Configure parameter values:** In the Change Configuration window, choose the **Change Parameter Value** tab, modify the parameters, and then select **Apply**.



- **Maintenance mode:** Configuration changes that require maintenance mode to run are denoted by a yellow caution symbol. If this icon appears on any of the configuration parameters or profiles selected, the plug-in asks to proceed with setting the host on maintenance mode. This will fail if the host has running VMs that need to be shut down manually.
- **Apply configuration:** This page shows the status of configuration changes and the results of the operation. For a single device, it shows the configuration results. For multi-device operation, it shows the results per device.
- **Summary:** Summary of this operation. This also provides shortcuts to access the Recipes or Monitoring page.

3.4 Manage Recipes

1. On the Configure tab for a host, cluster, or datacenter, under the plug-in name, select **Managed Devices**. Alternatively, on the summary card, select **Configure**.
2. Select a device using the check box and select **Manage Recipes**. This opens the wizard.



3. You have three options:
 - **Save current configuration into a recipe:** Save the currently applied device configuration to a recipe and set its name.
 - **Update recipe:** Update an existing recipe with the current configuration on a device.
 - **Delete a recipe:** Delete an existing recipe.

3.5 Use Recipes

1. On the Configure tab for a host, cluster, or data center, under the plug-in name, select **Managed Devices**. Alternatively, on the summary card, select **Configure**.
2. Select the checkbox for a device and select **Configure**. This opens the configuration wizard.
3. On the Select a Configuration page, choose **Select A Recipe**.
4. When only a single device is selected, the wizard will show the change between the device's current configuration and the selected recipe. When multiple devices are selected, only the recipe values are shown.

RECIPE PARAMETER	VALUE ON DEVICE	IN RECIPE
Profile *	Advanced profile	Basic profile
String input	Default value	Default value
Number (Decimal) input ⚠	200	200
Toggle ⚠	1	1
Number (Hex) input	12ad	12ad
Disabled input (Read only) *	50	50
List entry ⚠	Entry 1	Entry 1

- In some cases, the recipe may not be compatible with the selected device. If this happens, you get an error when selecting the recipe (with single device selected) or when applying the recipe (if applying to multiple devices at once).

❗ Failed To Apply Configuration: 0500:a8:30.0 on 📱 xx.xx.xx.xx Error with parameter change

Select A Recipe ⚠️ Custom Demo device ▾

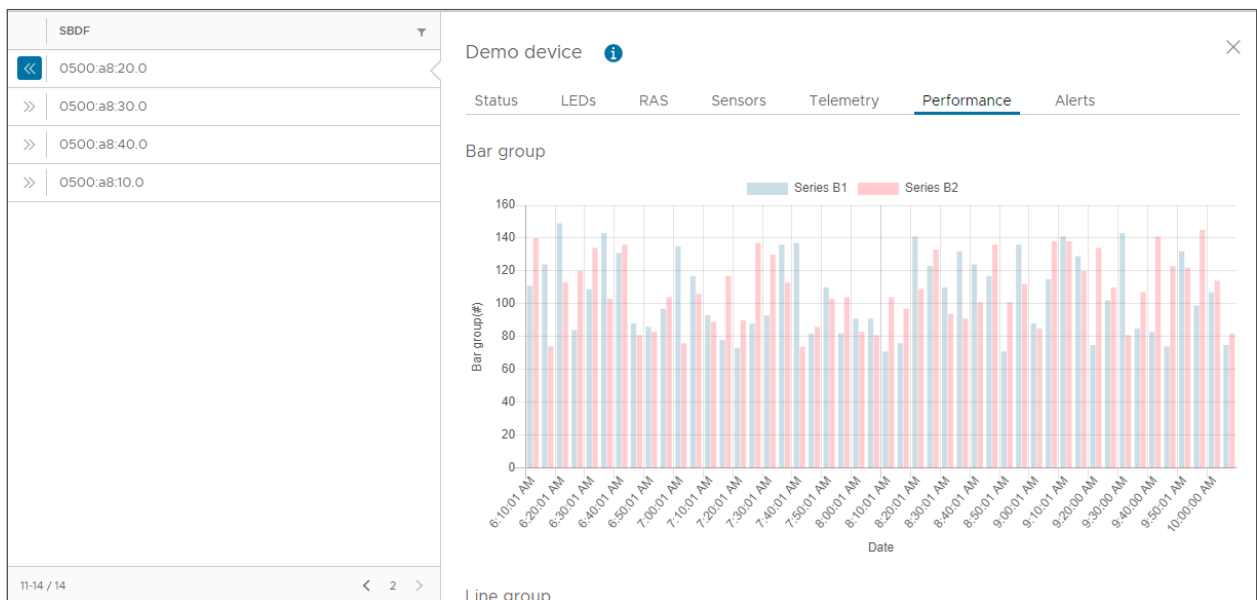
⚠️ Currently selected recipe does not match device spec

RECIPE PARAMETER	AVAILABLE IN RECIPE	ALLOWED ON DEVICE
Profile	✔️	✔️
Disabled input (Read only)	✔️	✔️
List entry	✔️	✔️
Number (Decimal) input	✔️	✔️
Number (Hex) input	✔️	❌

- Follow the rest of the configuration steps to apply the recipe.

3.6 Monitor a Device

- On the Monitor tab for a host, cluster, or datacenter, under the plug-in name, select **Managed Devices**. Alternatively, on the summary card, select **Monitor**.
- To see the device status, select the double chevron (>>) to the left of the device address.

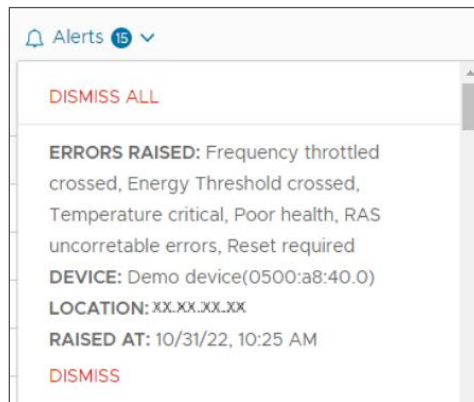


The following options are available:

- **Status:** General status of the device and PCI bus. This lets you select a refresh interval and export data as a JSON file.
- **LEDs:** LEDs on the device.
- **RAS:** RAS counters for the device.
- **Sensors:** Sensors for the device such as temperature, voltage, and fan speed.
- **Telemetry:** Device-defined telemetry data with visualization.
- **Performance:** Device-defined performance data with visualization. To switch to the Configure page and view device information, select the information icon at the top of the page.
- **Alerts:** View alerts for the device (see the following section).

3.7 View Alerts

1. On the Monitor or Configure tab for a host, cluster, or data center, under the plug-in name, select **Managed Devices**.
2. Select the **Alerts** drop-down option.
 - **Dismiss** dismisses an alert.
 - **Dismiss All** dismisses all alerts in the dropdown.
 - **Older Alerts** gives you a table of all older alerts.



3.8 Refresh Devices

1. On the Monitor or Configure tab for a host, cluster, or data center, under the plug-in name, select **Managed Devices**.
2. Select **Refresh**.

3.9 Add a New Device or Host

1. Follow the steps to install the daemon on the host, if not available.
2. On the Monitor or Configure tab for the host, under the plug-in name, select **Managed Devices**.
3. Select **Refresh**.

4.0 Troubleshooting

4.1 Invalid Credentials

Connection Error To Daemon : Check user credentials for daemon user

- Verify that the correct credentials are set for the daemon account. If the account has not been set up yet, follow the setup process to create and sign in to the account.
- Verify that time is synchronized between the host, plug-in VM, and vCenter.

4.2 Daemon Status

Daemon Error : Check status of daemon on host

- Verify that the host has the daemon installed.
- Verify that the host has the daemon running. You can use the following command to check the status of daemon on the host:

```
esxcli daemon info get -s acceleratormanagementd
```

4.3 Configuration Wizard Is Empty, or Configuration Fails

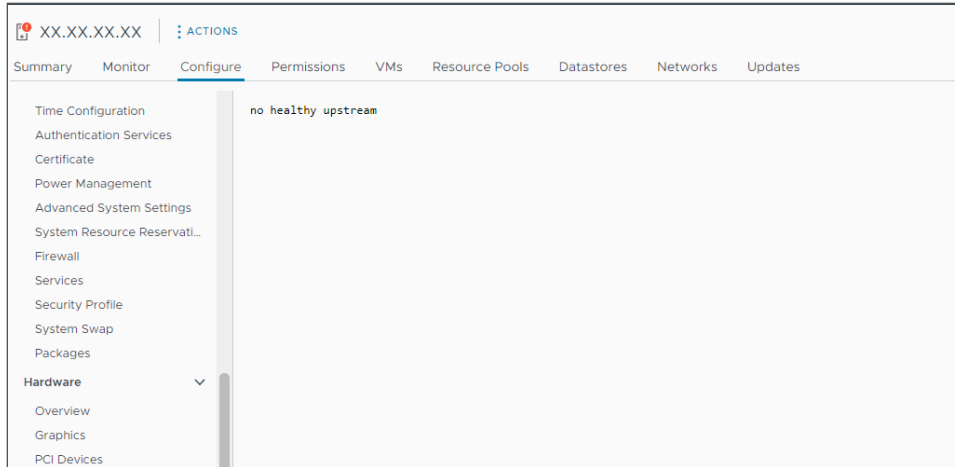
- Verify that the device is in SR-IOV mode. For version 1.0.0, the plug-in and drivers support only SR-IOV mode configuration. To enable SR-IOV mode, refer to the driver documentation.

Result Recieved - No Configuration Options Are Provided For This Device

- Verify that virtual functions (VFs) are enabled for the device. To enable VFs for any device:
 1. Sign in to the ESXi Host Client by typing the IP address in the browser.
 2. Go to **Manage > PCI Devices**.
 3. Search for the device, select the device, configure for SR-IOV, and save the settings.

4.4 No Healthy Upstream

- Verify that the plug-in VM is up and running.
- Verify that the plug-in server is running on the VM.



4.5 General Errors

- Check the log file, located at `/var/log/solutioninstall`
- Contact [Intel Support](#).

5.0 Resources

Intel Device Manager for VMware vCenter

- [Plugin download page](#)
- [Article: Manage Intel Accelerators with Intel Device Manager for VMware vCenter Server](#)

Intel QuickAssist Technology (Intel QAT)

- [Learn more about Intel QAT](#)
- [Download supported Intel QAT drivers](#)

Intel Dynamic Load Balancer (Intel DLB)

- [Learn more about Intel DLB](#)
- [Download supported Intel DLB drivers](#)

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Appendix A Version Compatibility

Intel Device Manager for VMware vCenter Server - Version	Supported VMware vCenter Version(s)	Intel Accelerator Management Daemon for VMware ESXi - Version	Supported VMware ESXi Version(s)
1.x.x	8.0	1.x.x	8.0

Appendix B Driver Compatibility

Driver Name	Driver Version	Intel Device Manager for VMware vCenter Server - Version	Intel Accelerator Management Daemon for VMware ESXi - Version
Intel® QuickAssist Technology Driver for VMware ESXi (Intel QAT Driver for VMware ESXi)	2.4.0.x	1.x.x	1.x.x
Intel® Dynamic Load Balancer Driver for VMware ESXi (Intel DLB Driver for VMware ESXi)	1.0.0.x	1.x.x	1.x.x

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