

Oracle® Enterprise Manager

Monitoring an Oracle Private Cloud Appliance



13c Release 5

F37176-04

August 2023

The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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F37176-04

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Contents

Preface

Audience	v
Documentation Accessibility	v
Conventions	v

1 Introduction to the Private Cloud Appliance Plug-in

About the Private Cloud Appliance	1-1
About the Oracle Virtualization Plug-in	1-1
Private Cloud Appliance Features	1-2

2 Prepare to Use Private Cloud Appliance X8-2

Supported Software	2-1
Supported Hardware	2-1
Private Cloud Appliance Prerequisites	2-2
Prerequisites to Monitor the External ZFS Server Connected to Private Cloud Appliance	2-2

3 Prepare to Use Private Cloud Appliances X3-2, X4-2, and X5-2

Supported Software	3-1
Supported Hardware	3-1
Private Cloud Appliance Prerequisites X3-2	3-2
Prerequisites to Monitor the Fabric Interconnect in Private Cloud Appliance	3-3
Prerequisites to Monitor the External ZFS Server Connected to Private Cloud Appliance	3-5

4 Discover the Private Cloud Appliance

Installing the Management Agent on Private Cloud Appliance	4-1
Installing the Oracle Enterprise Manager Virtualization Plug-in on Private Cloud Appliance	4-4
Discovering the Private Cloud Appliance in Enterprise Manager	4-5
Discover Private Cloud Appliance X8-2	4-5
Discover Private Cloud Appliance X3-2	4-7

New Features in Oracle Fabric Interconnect Target	4-10
Registering Oracle VM Manager with Oracle Enterprise Manager 13c (Private Cloud Appliance v2.3.1 and above)	4-13
Enterprise Manager Agent Recovery After Private Cloud Appliance Upgrade	4-14
Removing the Private Cloud Appliance Target from Enterprise Manager	4-17

5 Monitoring the Private Cloud Appliance

About the Private Cloud Appliance Homepage	5-1
Using the Incident Manager	5-2
Viewing and Managing Private Cloud Appliance Consumption Tracking	5-2

6 Troubleshooting the Private Cloud Appliance

Oracle ZFS Storage Appliance Error Message	6-1
Targets Still Appear as Pending	6-2
Import Component Step Failed for New VM Request	6-2
Error in Kubernetes as a Service Cluster Creation for Private Cloud Appliance 2.4.4 and Above	6-2

Preface

This guide describes how to manage an Oracle Private Cloud Appliance using Oracle Enterprise Manager Cloud Control 13c. This document provides detailed steps required to install and configure an Enterprise Manager agent and its related artifacts to manage and monitor an Oracle Private Cloud Appliance.

Audience

This document is intended for Oracle Private Cloud Appliance customers, system administrators and data center administrators who are interested in managing their Private Cloud Appliance using Oracle Enterprise Manager Cloud Control 13c.

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Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Introduction to the Private Cloud Appliance Plug-in

This chapter provides a general overview of the Oracle Private Cloud Appliance plug-in, including supported hardware and software. The following topics are discussed:

- [About the Private Cloud Appliance](#)
- [About the Oracle Virtualization Plug-in](#)
- [Private Cloud Appliance Features](#)

About the Private Cloud Appliance

Oracle Private Cloud Appliance is an integrated, "wire once," software-defined converged infrastructure system designed for rapid deployment of private cloud at industry-leading price point.

The Oracle Private Cloud Appliance supports a large range of mixed workloads hosted in a converged server, network, and storage environment to enable general purpose, business-, and mission-critical application deployments in medium-to-large data centers.

With Oracle Enterprise Manager 13c, the Private Cloud Appliance is transformed into a powerful Cloud Services delivery platform and provides a simple path from on-premise to Oracle Cloud.

About the Oracle Virtualization Plug-in

The Enterprise Manager for Oracle Virtualization (VT) plug-in has been extended to support monitoring and management of the Oracle Private Cloud Appliance Racks by Enterprise Manager. Through Enterprise Manager Cloud Control, you can monitor the various hardware components of the Oracle Private Cloud Appliance rack (such as compute nodes, InfiniBand switches, and so forth).

Private Cloud Appliance Features

X3-2:



X8-2:



Oracle Private Cloud Appliance Features:

- "Turnkey" converged infrastructure solution automates hardware and software deployment with Oracle Private Cloud Appliance controller software.
- Easy private cloud deployment ranging from IaaS to DBaaS by adding Oracle Enterprise Manager 13c.
- Support for Oracle VM Templates enables deployment of ready-to-run VMs containing applications in minutes or hours, not days.
- Oracle SDN software reduces operational complexity by enabling software-defined infrastructure in a "wire-once" system.
- Saving hundreds of hours of installation and configuration time.
- Faster Time-to-Market at industry-leading price point.
- Reduced risks by running Microsoft Windows, Linux and Oracle Solaris workloads on one system.
- Efficient Oracle software licensing based on what you use, not on the system's total capacity.
- Lowered acquisition, deployment and operational costs.
- Innovative converged infrastructure solution from a single vendor allows for superior ease-of-purchase, product integration, simplified management and single point of contact for support.

2

Prepare to Use Private Cloud Appliance X8-2

Set up the environment to use Oracle Private Cloud Appliance X8-2 by performing these prerequisite configuration tasks.

Topics:

- [Supported Software](#)
- [Supported Hardware](#)
- [Private Cloud Appliance Prerequisites](#)
- [Prerequisites to Monitor the External ZFS Server Connected to Private Cloud Appliance](#)

Supported Software

The following software, included with the Oracle Private Cloud Appliance, enable scalability, software-defined virtual networking, and GUI-based management:

- **Oracle VM.** Oracle VM application-driven server virtualization is designed to be highly scalable and built to enable rapid application deployment. Oracle VM supports up to 128 vCPUs and a variety of guest OSes such as Linux, Oracle Solaris, and Microsoft Windows. Oracle VM is also optimized to accelerate applications deployments.
- **Oracle SDN software:** Oracle SDN dynamically connects servers to networks and storage. It eliminates the physical storage and networking cards found in every server and replaces them with virtual network interface cards (vNICs) and virtual host bus adapters (vHBAs) that can be deployed on the fly. Applications and operating systems see these virtual resources exactly as they would see their physical counterparts. Oracle Virtual Networking simplifies complex data center deployments with a wire-once solution and simple software-defined network configurations.
- **Oracle Private Cloud Appliance controller software:** The controller software allows users to manage and monitor the systems hardware, perform software upgrades, create and manage virtual resources (virtual servers, virtual networks, and storage), and monitor utilization of all system resources in real-time. The controller software runs on two dedicated management nodes that are configured for high availability with automatic failover in the event of a failure. It is accessible via a GUI dashboard

Supported Hardware

You can use the Oracle VT plug-in to monitor the performance of a wide variety of Oracle Private Cloud Appliance targets, including:

- **Base rack:** The Oracle Private Cloud Appliance is composed of the following components:
 - 2 to 25 compute nodes.
 - 2 management nodes.
 - 1 Cisco 9348 management switch.

- 4 Cisco 9336 data switches.
- 1 Oracle ZFS Storage Appliance ZS7-2.
- **Compute nodes:** The base rack can support a maximum of 25 compute nodes. The Base rack supports only Oracle Server X8-2 and Oracle Server X9-2, in the role of compute node.
- **Virtual networking:** Each Private Cloud Appliance hardware configuration contains the following components that serve as gateways to the data center's Ethernet network:
 - 1 Cisco 9348 Management switch.
 - 4 Cisco 9336 Data switches.
- **Integrated storage:** Oracle Private Cloud Appliance features a fully integrated, enterprise-grade Oracle ZFS Storage ZS7-2 for centrally storing the management environment as well as providing data storage for VMs.

The storage capacity of Private Cloud Appliance can be expanded beyond the internal, included storage, to external data center racks containing Oracle ZFS Storage Appliance or supported storage available from other storage vendors.

Private Cloud Appliance Prerequisites

Ensure that the following prerequisites are met:

- The Oracle Private Cloud Appliance controller software should be version 2.4.1 or later.
- The ILOM version of the management nodes, compute nodes, InfiniBand switches, and Oracle ZFS Storage Appliance should be version 3.1 or later.
- The agent needs to be installed on the management node on shared storage according to instructions, so that failover capability can be utilized. See [Installing the Management Agent on Private Cloud Appliance](#) for details.
- Linux x86-64 agent software.
- Oracle Enterprise Manager VT Plug-in.

Prerequisites to Monitor the External ZFS Server Connected to Private Cloud Appliance

Starting with Enterprise Manager for Virtualization 13.3.1.0, external ZFS servers connected to Private Cloud Appliance can be associated with the Private Cloud Appliance target in the Enterprise Manager. On successful association, the ZFS server will appear on the **Private Cloud Appliance** home page.

To Associate a ZFS server to Private Cloud Appliance, it must already be discovered in the Enterprise Manager using the **Systems Infrastructure ZFS Storage Server** guided discovery process. Then,

1. Go to the **Private Cloud Appliance Target** home page and click **Private Cloud Appliance** drop down menu.
2. Click **Manage External ZFS Storage**. The Manage External ZFS Storage Server window opens.

- Under **Associate External ZFS Storage Server**, specify the ZFS Storage Server target name and click **Associate**.

After successful association, the ZFS server appears in the **Private Cloud Appliance Home** page.

The screenshot displays the Oracle Enterprise Manager Cloud Control interface for a Private Cloud Appliance (PCA). The top navigation bar includes the Oracle logo, "Enterprise Manager Cloud Control 1", and user information "CLOUD_ADMIN". The main header shows "Private Cloud Appliance testpca.example.com" and "testpca.example.com".

The "Overview" section shows "Racks 1" and "Incidents 73 92 0 0". The "PCA Rack Schematic" section displays a 3D view of the rack with "Front", "Top", and "Rear" views. A notification states "3 out of 3 hardware related incident(s) not displayed in the view". The "View" options are "Schematic", "Photo-Realistic" (selected), and "Table". The "Zoom" options are "100%" and "50%" (selected).

On the left side, there are two summary cards: "PCA Rack testpca" with 0 incidents and 10 status indicators, and "ZFS Appliance" with 0 incidents and 0 status indicators.

3

Prepare to Use Private Cloud Appliances X3-2, X4-2, and X5-2

Set up the environment to use Oracle Private Cloud Appliances X3-2, X4-2, and X5-2 by performing these prerequisite configuration tasks.

Topics:

- [Supported Software](#)
- [Supported Hardware](#)
- [Private Cloud Appliance Prerequisites X3-2](#)
- [Prerequisites to Monitor the Fabric Interconnect in Private Cloud Appliance](#)
- [Prerequisites to Monitor the External ZFS Server Connected to Private Cloud Appliance](#)

Supported Software

The following software, included with the Private Cloud Appliance, enables scalability, software-defined virtual networking, and GUI-based management:

- **Oracle VM.** Oracle VM application-driven server virtualization is designed to be highly scalable and built to enable rapid application deployment. Oracle VM supports up to 128 vCPUs and a variety of guest OSes such as Linux, Oracle Solaris, and Microsoft Windows. Oracle VM is also optimized to accelerate applications deployments.
- **Oracle SDN software:** Oracle SDN dynamically connects servers to networks and storage. It eliminates the physical storage and networking cards found in every server and replaces them with virtual network interface cards (vNICs) and virtual host bus adapters (vHBAs) that can be deployed on the fly. Applications and operating systems see these virtual resources exactly as they would see their physical counterparts. Oracle Virtual Networking simplifies complex data center deployments with a wire-once solution and simple software-defined network configurations.
- **Oracle Private Cloud Appliance controller software:** The controller software allows users to manage and monitor the systems hardware, perform software upgrades, create and manage virtual resources (virtual servers, virtual networks, and storage), and monitor utilization of all system resources in real-time. The controller software runs on two dedicated management nodes that are configured for high availability with automatic failover in the event of a failure. It is accessible via a GUI dashboard

Supported Hardware

You can use the Oracle VT plug-in to monitor the performance of a wide variety of Oracle Private Cloud Appliance targets, including:

- **Base rack:** The Oracle Private Cloud Appliance is composed of the following components:

- 2 to 25 compute nodes.
- 2 management nodes.
- 2 NM2-36 Sun InfiniBand Switches.
- 2 ES1-24 Ethernet switches.

 **Note:**

These switches are part of the Opus Switches family. The factory ILOM version is not supported by the system infrastructure plug-in. Until it is updated to the most recent version, the Oracle Private Cloud Appliance Plug-in supports only Up/Down status monitoring.

- 2 Fabric Interconnect switches.
- 1 Oracle ZFS Storage Appliance ZS3-ES or ZS5-ES. See note.

 **Note:**

Existing Oracle Private Cloud Appliance racks include a ZS3-ES Clustered Storage Array, new models of the Oracle Private Cloud Appliance rack include a ZS5-ES Clustered Storage Array.

- **Compute nodes:** The base rack can support a maximum of 25 compute nodes. The base rack supports mixing of compute nodes from the following Oracle Servers:
 - X7-2
 - X6-2
 - X5-2
 - X4-2
 - X3-2
- **Virtual networking:** Each Private Cloud Appliance hardware configuration contains the following multiple redundant components that serve as gateways to the data center's Ethernet network:
 - QDR InfiniBand switches.
 - Oracle Fabric Interconnect systems.
- **Integrated storage:** Oracle Private Cloud Appliance features a fully integrated, enterprise-grade Oracle ZFS Storage ZS3-ES for centrally storing the management environment as well as providing data storage for VMs.

The storage capacity of Private Cloud Appliance can be expanded beyond the internal, included storage, to external data center racks containing Oracle ZFS Storage Appliance or supported storage available from other storage vendors.

Private Cloud Appliance Prerequisites X3-2

Ensure that the following prerequisites are met:

- The Oracle Private Cloud Appliance controller software should be version 2.1.1 or later.
- The ILOM version of the management nodes, compute nodes, InfiniBand switches, and Oracle ZFS Storage Appliance should be version 3.1 or later.
- The agent needs to be installed on the management node on shared storage according to instructions, so that failover capability can be utilized. See [Installing the Management Agent on Private Cloud Appliance](#) for details.
- Linux x86-64 agent software.
- Oracle Enterprise Manager VT Plug-in.

Prerequisites to Monitor the Fabric Interconnect in Private Cloud Appliance

Starting with Enterprise Manager for Virtualization 13.3.1.0, the Fabric Interconnect Target in the Private Cloud Appliance will be able to monitor the Fabric Interconnect in greater detail. You must ensure that following prerequisites are met to successfully monitor the Oracle Fabric Interconnects.

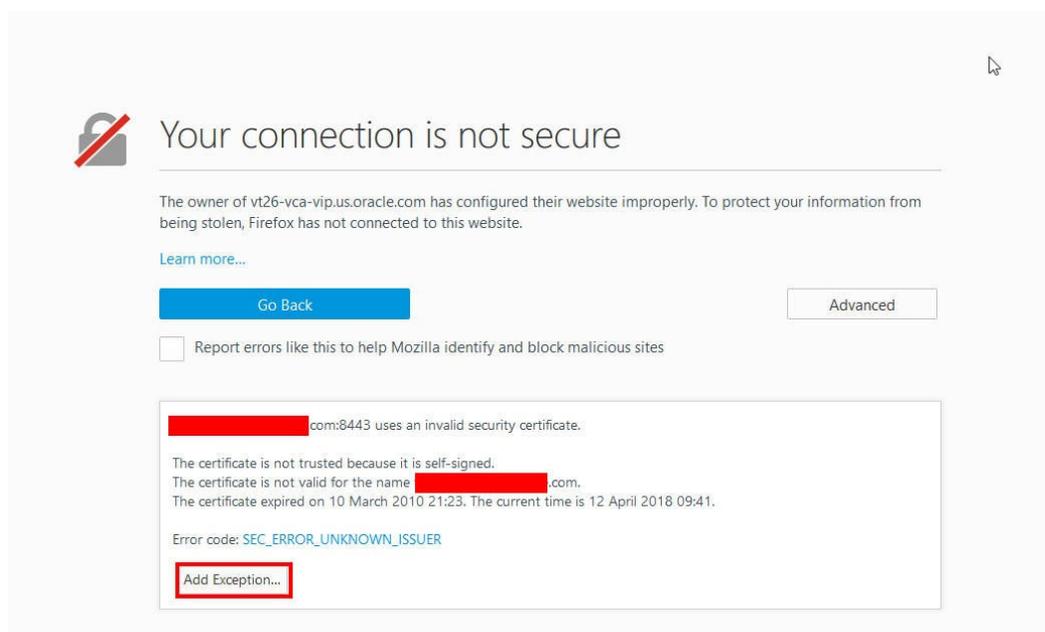
Import the Certificate

1. Log in to OFM UI at `https://<PCA_Management_Node>:8443/xms/Login.jsf` with root credentials for the Oracle Fabric Interconnect.

Where, the `PCA_Management_Node` is the VIP hostname.

Add the exception in your browser(if needed) and then export the certificate to a file from your browser's list of stored certificates.

When you access the OFM UI for the first time, you see the following screen for adding the exception.



Click **Add Exception**.

2. In the **Add Security Exception** dialog box, click **View** to see the certificate.
3. In the **Certificate Viewer** dialog box, click the **Details** tab, and click **Export** to export/download the certificate to your local host. After exporting the certificate, close the certificate viewer.
4. In the **Add Security Exception** dialog box, click **Confirm Security Exception**.
You are now redirected to the OFM UI login page.
5. Import the Oracle Fabric Manager certificate into the Enterprise Manager agent's keystore on the Private Cloud Appliance active management node, where, the agent is installed.
 - To import Oracle Fabric Interconnect's certificate file, it must be copied to the active Private Cloud Appliance management node. You can import the certificate file into the Enterprise Manager Agent using the above screenshots. Run the following command as an Enterprise Manager agent user:

```
#<agentHome>/bin/emctl secure add_trust_cert_to_jks -
trust_certs_loc <location_of_certificate_file> -alias ofm_cert
```

 **Note:**

Enter password **welcome** when prompted for a password.

For Oracle Private Cloud Appliance v2.3.3 and below, you must perform the following additional steps:

1. Obtain the Oracle Enterprise Manager OVN Plug-in from *Oracle Support*.
2. Install the EM OVN plug-in on the Private Cloud Appliance active management node performing the below steps:
 - a. Upload the downloaded OVM plugin zip file to the active management node in a temporary area.
 - b. Unzip the zip file, which will expose a *.rpm file.
 - c. Install the rpm file by running the following command:

```
rpm -ivh xsigo-xms-emovn-<version>.noarch.rpm
```

- d. Log in to OFM UI at https://<PCA_Management_Node>:8443/xms/Login.jsf with `root` credentials for the Oracle Fabric Interconnect.

Where, the `PCA_Management_Node` is the VIP hostname.

- e. Go to **Plugins>Plugin Manager** in the Left Panel.
- f. Click the green **+** icon to add the plugin.
- g. In the **Add Plugin** dialog box, enter **emovn** for the plugin name, and click **Submit**.

This will add the **emovn** plug-in to the list of installed plugins.

The above Installation of the EM OVN plug-in and import of the certificate must also be executed from the Standby management node while its Fabric Manager is running. This is so that in the event of a management node failover, the Oracle Fabric Interconnect monitoring can continue seamlessly.

 **Note:**

For Oracle Private Cloud Appliance v2.3.3 and below:

- The rpm can be installed remotely, but the user needs to manually failover to standby node and then install the plugin at Fabric manager running on that node.
- If failing over the management node is not an option at the time of this installation, this step may be delayed to when the management node actually fails over to the standby node.
- In the standby node's Fabric Manager instance, until this EM OVN plug-in is installed and its certificate imported is into the agent, the Fabric Interconnect metrics will show Metric Collection Errors.
- If certificate is not installed, user may also see SSL Handshake errors in Error logs while viewing Metrics and during discovery of Fabric Interconnect Target.

Prerequisites to Monitor the External ZFS Server Connected to Private Cloud Appliance

Starting with Enterprise Manager for Virtualization 13.3.1.0, external ZFS servers connected to Private Cloud Appliance can be associated with the Private Cloud Appliance target in the Enterprise Manager. On successful association, the ZFS server will appear on the **Private Cloud Appliance** home page.

To Associate a ZFS server to Private Cloud Appliance, it must already be discovered in the Enterprise Manager using the **Systems Infrastructure ZFS Storage Server** guided discovery process. Then,

1. Go to the **Private Cloud Appliance Target** home page and click **Private Cloud Appliance** drop down menu.
2. Click **Manage External ZFS Storage**. The Manage External ZFS Storage Server window opens.
3. Under **Associate External ZFS Storage Server**, specify the ZFS Storage Server target name and click **Associate**.

Go to **Manage External ZFS Storage** menu item to associate the ZFS server.

After successful association, the ZFS server appears in the **Private Cloud Appliance** Home page.

ORACLE Enterprise Manager Cloud Control 12.2.1

Private Cloud Appliance testpca.example.com

Private Cloud Appliance

Page Refreshed Oct 10, 2018 6:16:33 PM GMT

Overview

Racks 1

Incidents 73 92 0 0

Oracle VM Manager testpca

PCA Rack Schematic

3 out of 3 hardware related incident(s) not displayed in the view

View Schematic Photo-Realistic Table

Zoom 100% 50%

PCA Rack testpca: 0 critical, 10 warning

ZFS Appliance: 0 critical, 0 warning

4

Discover the Private Cloud Appliance

This chapter provides instructions for discovery of the Oracle Private Cloud Appliance through Enterprise Manager Cloud Control 13c.

Topics:

- [Installing the Management Agent on Private Cloud Appliance](#)
- [Installing the Oracle Enterprise Manager Virtualization Plug-in on Private Cloud Appliance](#)
- [Discovering the Private Cloud Appliance in Enterprise Manager](#)
 - [Discover Private Cloud Appliance X8-2](#)
 - [Discover Private Cloud Appliance X3-2](#)
- [Registering Oracle VM Manager with Oracle Enterprise Manager 13c \(Private Cloud Appliance v2.3.1 and above\)](#)
- [Enterprise Manager Agent Recovery After Private Cloud Appliance Upgrade](#)
- [Removing the Private Cloud Appliance Target from Enterprise Manager](#)

Installing the Management Agent on Private Cloud Appliance

Before discovering the Oracle Private Cloud Appliance in Enterprise Manager, you must first prepare the appliance and install a Management Agent. Follow the steps below to properly configure your Oracle Private Cloud Appliance:

1. Using the `root` account change the `oracle` user password to a known password on both management nodes of the Oracle Private Cloud Appliance Rack:

```
passwd oracle
```

2. Verify the VIP and public Enterprise Manager IP are in the `/etc/hosts` file on both management nodes and on the Enterprise Manager host:

```
YOUR.VIP vip-host1.example.com vcal-vip-vip  
YOUR.EMIP em-host1.example.com em01
```

3. On the active management node, using the `root` user, create an agent directory on the shared NFS directory. The shared `nfs` directory is required for both availability and failover purposes.

```
mkdir /nfs/shared_storage/oemagent  
chown oracle:dba /nfs/shared_storage/oemagent
```

 **Note:**

- By default, the Enterprise Manager agent port **3872** is pre-populated by Oracle Private Cloud Appliance software. If you use this default Enterprise Manager agent port 3872 for pushing the agent, then this step is not needed. If a non-default port is used for the Enterprise Manager agent, the steps do need to be executed on standby management node.
- If the agent port is different from the default port (3872), you must configure the firewall for that particular port, as **3872** is set by default in the Oracle Private Cloud Appliance management node setup.

4. Open an Enterprise Manager agent port in the firewall using the `root` user by running the following command. Make sure you choose the same port while pushing the agent in step 5:

For Oracle Private Cloud Appliance 2.4.4 and above:

```
firewall-cmd --add-port <agent_port>/tcp --permanent
firewall-cmd --reload
```

For Oracle Private Cloud Appliance 2.4.3 and below:

```
iptables -I INPUT <line_num> -m state --state NEW -m tcp -p tcp --
dport <agent_port> -j ACCEPT
```

Where `line_num` is any line number before the rule to block all traffic. To obtain the `line_num` value run the following commands using the `root` user:

```
service iptables save
service iptables reload
```

5. Push the Management Agent from the Oracle Management Server (OMS). From Enterprise Manager Cloud Control:
 - a. From the **Setup** menu, select **Add Target**, then select **Add Targets Manually**.
 - b. In the Add Host Targets area of the Add Targets Manually page, click **Install Agent on Host**. The Add Host wizard will begin.
 - c. Add a Host and Platform. On this page, click **Add** and select **Manually**. Enter a host name (fully qualified) in the Host field. This name should be the fully qualified virtual IP host name of the Oracle Private Cloud Appliance rack for deploying the agent. Select **Linux x86-64** from the **Platform** menu.
Click **Next**.
 - d. On the **Installation Details** page, enter the following information:
 - **Installation Base Directory:** `/nfs/shared_storage/oemagent`
 - **Instance Directory:** `/nfs/shared_storage/oemagent/agent_inst` (This value is automatically completed based on the Installation Base Directory input.)

- **Named Credential:** <agent_username>

 **Note:**

If this is the first time you are adding a credential, an add icon (+) appears. Click this icon for a dialogue box that prompts for the credentials of the agent user (oracle/password for example). Create a Named Credential for the oracle user with the password you set in step 1 above.

Once created, that credential and any other credentials that have already been added to Enterprise Manager will be available for selection. For an existing installation of an Enterprise Manager, a user may already have the necessary credentials available for selection for Oracle Private Cloud Appliance discovery.

This root privileges field is located in between Name credential and Privileged Delegation Setting in Enterprise Manager 13.5.

- **Privileged Delegation Setting:** Leave the default. By default, this field is populated with `/usr/bin/sudo -u %RUNAS% %COMMAND%`
- **Port:** By default, this field is populated with 3872. If you've not used the default port 3872, then ensure to specify the port number.
- **Preinstallation Script:** Leave this field blank.
- **Postinstallation Script:** Leave this field blank.
- **Additional Parameters:** Leave this field blank.

Once the fields are complete, click **Next**.

- e. On the Review page, review the details of the host information. Click **Deploy Agent**.

 **Note:**

During the agent install as a non privileged user, the user interface will display a warning and state that privilege scripts need to be run manually as the root user. Select **Continue All Hosts** and once the agent install has completed, run the following privileged scripts as the root user on the Oracle Private Cloud Appliance active management node:

```
/nfs/shared_storage/oemagent/agent_13.5.0.0.0/root.sh
/u01/app/oraInventory/orainstRoot.sh
```

For more information, see Meeting the Generic Prerequisites for Installing Standalone Management Agents Using Add Host Targets Wizard or EM CLI

6. On the active management node, set the emd property AgentListenOnAllNICs to **false** by running following command with the oracle user:

```
/nfs/shared_storage/oemagent/agent_inst/bin/emctl setproperty agent -name "AgentListenOnAllNICs" -value "false"
```

7. On the active management node, run the following command with the `oracle` user:

```
/nfs/shared_storage/oemagent/agent_inst/bin/emctl setproperty agent
-allow_new -name _disableLoadDPFfromCache -value true
```

8. On the active management node, run the following command with the `oracle` user:

```
/nfs/shared_storage/oemagent/agent_inst/bin/emctl setproperty agent
-name preferIPv6Addresses -value false
```

9. Using the `root` account copy the following agent installation files to the passive management node (`ovcamn06r1` is passive in this example):

```
scp /etc/init.d/gcstartup root@ovcamn06r1:/etc/init.d/
rsync -og /etc/oragchomelist root@ovcamn06r1:/etc/oragchomelist
rsync -rog /u01/app/oraInventory/ oracle@ovcamn06r1:/u01/app/
oraInventory/
```

10. On the active management node using the `root` account remove all `gc rc.d` links (no startup of agent on startup):

```
for x in `find /etc/rc.* /rc* | grep gcstart`; do rm $x; done
```

11. Restart the Enterprise Manager agent on the active management node as `oracle` from the agent's `emctl` command:

```
/nfs/shared_storage/oemagent/agent_inst/bin/emctl stop agent
/nfs/shared_storage/oemagent/agent_inst/bin/emctl start agent
```

Installing the Oracle Enterprise Manager Virtualization Plug-in on Private Cloud Appliance

The Oracle Enterprise Manager VT Plug-in must be installed on the Enterprise Manager 13c Management Server and on the agent that is installed on the Oracle Private Cloud Appliance active management node. It is recommended to use the latest version of the VT Plug-in on both the management server as well as the agent.

For more information, refer to *Downloading, Deploying, and Upgrading Plug-Ins in Enterprise Manager Cloud Control Administrator's Guide*.

Discovering the Private Cloud Appliance in Enterprise Manager

Once the prerequisites have been satisfied, the steps below provide the instructions to discover an Oracle Private Cloud Appliance target in Enterprise Manager Cloud Control:

Topics:

- [Discover Private Cloud Appliance X8-2](#)
- [Discover Private Cloud Appliance X3-2](#)

Discover Private Cloud Appliance X8-2

Follow the below steps if you are discovering the Oracle Private Cloud Appliance X8-2:

1. From the **Setup** menu, select **Add Targets**, and then select **Add Targets Manually**.
2. On the Add Targets Manually page, click **Add Targets Using Guided Process**.
3. On the Add Using Guided Process window, select **Private Cloud Appliance**. Click **Add** to begin the discovery wizard.
4. On the Discovery Inputs page, specify the Monitoring Agent host location.

Click **Search**. The Select Discovery Agent dialog box opens.

Select the URL from the available list. After you select the URL, the Management Agent field on the Discovery Input page will auto-populate with the required information.

Click **Next**.

5. On the Discovery Prerequisites page, a series of checks are conducted automatically. Any errors returned must be resolved before continuing.

Note:

If you get error severity messages, you must resolve the errors then click **Reload** to run the prerequisites check again.

Click **Next**.

A confirmation pop-up window will appear to show how many targets must be discovered.

Click **Close** to continue.

6. On the Discovered Targets page, select the targets you want included in the discovered Oracle Private Cloud Appliance rack. By default, all the available targets are preselected.

Click **Next**.

7. On the Monitoring Credentials page, the credentials must be set for each component in the Oracle Private Cloud Appliance rack. A red status flag is shown for all components where the credentials are not set.

For each component type, click the **Edit** icon. In the Monitoring Credentials pop-up, enter the user name and password for each component in the Oracle Private Cloud Appliance rack.

You can select **Use same credentials for all** in the credential's edit dialog to use the same credentials for all targets of the type. The images below show the examples of the Cisco Switch Credentials and the Monitoring Credentials pages with all credentials set:

Figure 4-1 Private Cloud Appliance Discovery Wizard: Cisco Switch Credentials

eth3/host1.example.com Monitoring Credentials

Use same credentials for all Systems Infrastructure Switch targets

Test and Save Save Cancel

Credential type Cisco Switch IOS Credentials

* Login User Name admin

* User Password

* Confirm User Password

* Privileged EXEC Password

* Confirm Privileged EXEC Password

Credential type SNMP V1/V2 Credentials

* Community String

* Confirm Community String

Click **Next**.

8. On the System Review page, click **Promote Targets** to promote all components of the Oracle Private Cloud Appliance rack. If any component fails the promotion process, click **Back** to update the inputs for that component. A pop-up window will appear to show the progress. Once complete, click **Close**.

The image below shows an example of the completed promotion of all components:

Figure 4-2 Private Cloud Appliance Discovery Wizard: System Review

Promotion of targets can be started by clicking 'Promote Targets' button. After promotion process is completed table is updated with the promotion results.

- ✓ TIP After promotion, you can directly navigate to targets by clicking links in the 'Name' column.
- ✓ TIP If promotion of target(s) failed, you can navigate back fixing inputs and proceeding with 'Promote Targets' again.

Private Cloud Appliance Discovery Wizard: System Review Back Step 5 of 5 Close

Private Cloud Appliance Engineered Systems

Managed	Name	Promoted	Target Promotion Status
✓	Private Cloud Appliance host1.example.com	✓	<ul style="list-style-type: none"> • Add target Private Cloud Appliance host1.example.com completed successfully. • Target Private Cloud Appliance host1.example.com association with PCA Rack host1.example.com completed successfully.

Racks

Managed	Name	Promoted	Target Promotion Status
✓	PCA Rack host1.example.com	✓	<ul style="list-style-type: none"> • Add target PCA Rack host1.example.com completed successfully.

Management Nodes

Managed	Rack Name	Name	Promoted	Target Promotion Status
✓	PCA Rack host1.example.com	ilom1/host1.example.com	✓	<ul style="list-style-type: none"> • Add target ilom1/host1.example.com completed successfully. • Target ilom1/host1.example.com is placed in rack PCA Rack host1.example.com on

Click **Close**.

Discover Private Cloud Appliance X3-2

Follow the below steps if you are discovering the Oracle Private Cloud Appliance X3-2:

1. From the **Setup** menu, select **Add Targets**, and then select **Add Targets Manually**.
2. On the Add Targets Manually page, click **Add Targets Using Guided Process**.
3. On the Add Using Guided Process window, select **Private Cloud Appliance**. Click **Add** to begin the discovery wizard.
4. On the Discovery Inputs page, you will need to enter the Monitoring Agent host location. Click **Search**. The Select Discovery Agent dialog box opens.

Select the URL from the available list. Once you select the URL, the Management Agent field on the Discovery Input page should auto-populate with the required information.

Click **Next**.

5. On the Discovery Prerequisites page, a series of checks are conducted automatically. Any errors returned must be resolved before continuing.

 **Note:**

If you get error severity messages, you must resolve the errors then click **Reload** to run the prerequisites check again.

Click **Next**.

A confirmation pop-up window will appear to show how many targets must be discovered.

Click **Close** to continue.

6. On the Discovered Targets page, select the targets you want included in the discovered Oracle Private Cloud Appliance rack. By default, all available targets are preselected.

Click **Next**.

7. On the Monitoring Credentials page, the credentials must be set for each component in the Oracle Private Cloud Appliance rack. A red status flag is shown for all components where the credentials are not set.

For each component type, click the **Edit** icon. In the Monitoring Credentials pop-up, enter the user name and password for each component in the Oracle Private Cloud Appliance rack:

 **Note:**

In a default case, for the InfiniBand Switch, enter **public** in the Community String mandatory field input.

You can select **Use same credentials for all** in the credential's edit dialog to use the same credentials for all targets of the type. The image below shows an example of the Monitoring Credentials page with all credentials set:

Figure 4-3 Private Cloud Appliance Discovery Wizard: Monitoring Credentials

Private Cloud Appliance Discovery Wizard: Monitoring Credentials

Provide monitoring credentials to enable monitoring of the targets.

TIP You can check 'Use for all...' option in the credentials edit dialog to use same credentials for all targets of the type.

Management Nodes

Managed	Rack Name	Name	Monitoring Credentials		
			Status	Edit	Configured Credentials
	PCA Rack host1.example.com	ilom1/host1.example.com	<input checked="" type="checkbox"/>		ILOM SSH Monitoring Credent...
	PCA Rack host1.example.com	ilom2/host1.example.com	<input checked="" type="checkbox"/>		ILOM SSH Monitoring Credent...

Compute Nodes

Managed	Rack Name	Name	Monitoring Credentials		
			Status	Edit	Configured Credentials
	PCA Rack host1.example.com	cn12/host1.example.com	<input checked="" type="checkbox"/>		ILOM SSH Monitoring Credent...
	PCA Rack host1.example.com	cn11/host1.example.com	<input checked="" type="checkbox"/>		ILOM SSH Monitoring Credent...
	PCA Rack host1.example.com	cn10/host1.example.com	<input checked="" type="checkbox"/>		ILOM SSH Monitoring Credent...
	PCA Rack host1.example.com	cn09/host1.example.com	<input checked="" type="checkbox"/>		ILOM SSH Monitoring Credent...
	PCA Rack host1.example.com	cn08/host1.example.com	<input checked="" type="checkbox"/>		ILOM SSH Monitoring Credent...
	PCA Rack host1.example.com	cn07/host1.example.com	<input checked="" type="checkbox"/>		ILOM SSH Monitoring Credent...

Ethernet Switches

Managed	Rack Name	Name	Monitoring Credentials		
			Status	Edit	Configured Credentials
	PCA Rack host1.example.com	ethernet1/host1.example.com	<input checked="" type="checkbox"/>		This Target does not require ...

Fabric Interconnect Switches

Managed	Rack Name	Name	Monitoring Credentials		
			Status	Edit	Configured Credentials
	PCA Rack host1.example.com	fabric1/host1.example.com	<input checked="" type="checkbox"/>		This Target does not require ...

Click **Next**.

- On the System Review page, click **Promote Targets** to promote all components of the Oracle Private Cloud Appliance rack. If any component fails the promotion process, click **Back** to update the inputs for that component. A pop-up window will appear to show the progress. Once complete, click **Close**.

The image below shows an example of completed promotion of all components:

Figure 4-4 Private Cloud Appliance Discovery Wizard: System Review

Promotion of targets can be started by clicking 'Promote Targets' button. After promotion process is completed table is updated with the promotion results.

- TIP After promotion, you can directly navigate to targets by clicking links in the 'Name' column.
- TIP If promotion of target(s) failed, you can navigate back fixing inputs and proceeding with 'Promote Targets' again.

Private Cloud Appliance Engineered Systems

Managed	Name	Promoted	Target Promotion Status
<input checked="" type="checkbox"/>	Private Cloud Appliance host1.example.com	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Add target Private Cloud Appliance host1.example.com completed successfully. Target Private Cloud Appliance host1.example.com association with PCARack host1.example.com completed successfully.

Racks

Managed	Name	Promoted	Target Promotion Status
<input checked="" type="checkbox"/>	PCARack host1.example.com	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Add target PCARack host1.example.com completed successfully.

Management Nodes

Managed	Rack Name	Name	Promoted	Target Promotion Status
<input checked="" type="checkbox"/>	PCARack host1.example.com	ilom1/host1.example.com	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Add target ilom1/host1.example.com completed successfully. Target ilom1/host1.example.com is placed in rack PCARack host1.example.com on

Click **Close**.

New Features in Oracle Fabric Interconnect Target

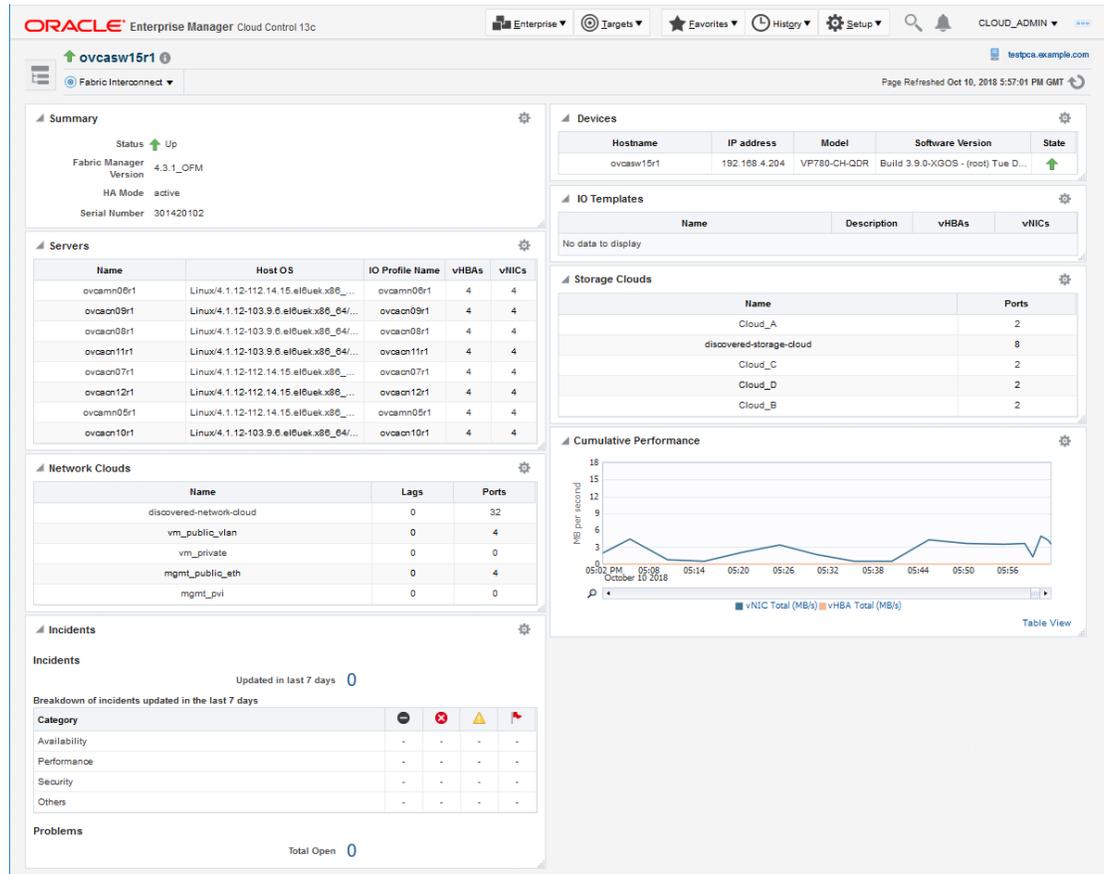
This section provides information about new features in Oracle Fabric Interconnect Target.

Enterprise Manager 13.3 introduces new features to the Oracle Fabric Interconnect Target. The following information can now be monitored:

- Cumulative performance
- The managed devices and their serial numbers
- The discovered servers
- The configured I/O templates
- Network and storage clouds
- The Alarms tracked by the Oracle Fabric Manager

To view this information, select the **Fabric Interconnect Target** from **All Targets** menu or click the **Fabric Interconnects** on the Private Cloud Appliance's Target Navigation Tree.

Figure 4-5 Oracle Fabric Interconnect Target Home Page



Summary

Oracle Fabric Manager supports high availability mode, in which multiple Fabric Manager servers are associated with each other to provide a system of Fabric Manager servers that operate in active or passive roles. The summary section of the Fabric Interconnect home page lists the current Oracle Fabric Manager's status and version, and the high availability mode.

Cumulative Performance

When vNICs and vHBAs are configured and deployed on the host server, it can be seen in the graph of the network and storage total throughput.

Devices

Information about the Oracle Fabric Interconnect chassis and the Oracle SDN that are managed through the Oracle Fabric Manager is displayed in the Fabric Interconnect home page. The Devices table displays the host name of each managed device, the device IP address, the software version currently installed on each managed device, the current state of the managed device and the model of the device.

Servers

Oracle Fabric Manager discovers servers that are connected through the devices and have Oracle Virtual Networking Drivers installed. This table lists the host name of each server that Oracle Fabric Manager has discovered, the operating system currently in use on the host server, the name of the I/O profile bound to each server, and the total number of vNICs and vHBAs that are configured on the server.

I/O Templates

When I/O templates are configured, they are listed in the Fabric Interconnect home page regardless of whether they are deployed to a host server or not. This table lists the name of each configured I/O template, the total number of vNICs and vHBAs configured in each I/O template, and the description that was applied to the I/O template.

Network Clouds

Information about the Private Virtual Interconnect (PVI) clouds is displayed. If Oracle Fabric Interconnect is attached, this table lists the name of each configured cloud, the number of Ethernet ports, and link aggregation groups (LAGs) in the cloud.

Storage Clouds (only for Oracle Fabric Interconnect)

Information about the configured storage clouds is displayed. This table lists the name of each configured cloud, and the number of Fiber Channel ports in the storage cloud.

Alarms

The Oracle Fabric Interconnect target monitors system events and network management alarms tracked by the Oracle Fabric Manager.

The alarms shown in the Fabric Interconnect home page are of one of the following severities:

- Critical
- Major
- Minor
- Warning

To view critical, major, minor, and warning alarms go to the Target's All Metrics page, and select the Alarms metric. Critical alarms are displayed in the Incidents and Problems section of the Fabric Interconnect home page. Major, warning and minor alarms can also appear on the Incidents and Problems section, if the user activates a rule for this purpose.

Figure 4-6 Alarms Shown in the All Metrics Page

The screenshot shows the Oracle Enterprise Manager Cloud Control 13c interface. The main content area is titled 'All Metrics' and displays a table of alarms. The table has the following columns: DN, Chassis Name, Description, Detailed, and Severity. The data in the table is as follows:

DN	Chassis Name	Description	Detailed	Severity
system-ovcasw...	ovcasw15r1	The process ha...	num-restarts is 1;	4
system-ovcasw...	ovcasw15r1	link lost	admin-state is ...	4
system-ovcasw...	ovcasw15r1	link lost	admin-state is ...	4
system-ovcasw...	ovcasw15r1	link lost	admin-state is ...	4
system-ovcasw...	ovcasw15r1	link lost	admin-state is ...	4
system-ovcasw...	ovcasw15r1	link lost	admin-state is ...	4
system-ovcasw...	ovcasw15r1	stateful active e...	oper-state is fail...	2

The interface also shows a search bar, a navigation menu on the left, and a top navigation bar with the Oracle logo and 'Enterprise Manager Cloud Control 13c'. The page is refreshed on Oct 10, 2018 6:03:37 PM GMT.

Registering Oracle VM Manager with Oracle Enterprise Manager 13c (Private Cloud Appliance v2.3.1 and above)

As the Oracle Private Cloud Appliance version 2.3.1 has Oracle VM Server 3.4.2, a tcps certificate is not required for registration with Oracle Enterprise Manager. Oracle VM Manager version 3.4 contains an internal Certificate Authority (CA) that is used to perform certificate-based authentication and to sign the SSL certificate that is used for the web-based user interface. Certificates are generated automatically upon the install of the Oracle Private Cloud Appliance 2.3.1 software. The export and import of the Oracle VM Manager Weblogic certificate is required and detailed below.

For a new install of Oracle Private Cloud Appliance software 2.3.1 and above, follow this procedure:

- As the root user, and on the Oracle Private Cloud Appliance active management node, export the Oracle VM Manager certificate

```
/u01/app/oracle/ovm-manager-3/ovm_upgrade/bin/ovmkeytool.sh exportca
> /u01/app/oracle/ovm-manager-3/ws
```

- As the agent user, and on the Oracle Private Cloud Appliance active management node, import the Oracle VM Manager certificate using password `welcome`:

```
/nfs/shared_storage/oemagent/agent_13.5.0.0.0/bin/emctl secure
add_trust_cert_to_jks -trust_certs_loc /u01/app/oracle/ovm-manager-3/ws -
alias ovmm
```

To register Oracle VM Server 3.4.2 and above from the Oracle Enterprise Manager UI, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. From the **Infrastructure Cloud** menu, select **Register OVM Manager**. The Add Oracle VM Manager page appears.
3. Enter the **Name** for the Oracle VM Manager instance to be registered.
4. Select the Management Agent to monitor and manage the Oracle VM Manager instance to be registered. Select the agent running on the management nodes.
5. Enter the Oracle VM Manager URL.

For Example: PCA-OVMM

For example:

- `tcps://` (As `tcps` specification is not required for Oracle VM Manager 3.4.2 and later, enter a dummy URL such as `tcps://here`)

Enter the Oracle VM Manager's Console URL. This is the URL to enable the VNC Console for the Guest VMs.

The URL must be in the following format:

`https://<pca-oracle-vm-manager-FQDN>:7002/`

By default, data from Oracle VM Manager is automatically synchronized with Enterprise Manager at fixed intervals of time. If you do not wish to enable this option, you must disable the Automatic Synchronization check box and manually synchronize the data. For more information on the automatic and manual synchronization options, refer to *Synchronizing the Oracle VM Manager Targets* for details.

6. Enter the administrator user name and password to connect to the Oracle VM Manager URL provided in **Step 5**. If you want to use separate credentials for managing Oracle VM Manager, check the **Use Administration Credentials** check box. If you do not specify separate credentials, the monitoring credentials are used by default.
7. Click **Submit** to register the Oracle VM Manager. You can now use the Oracle VM Manager to monitor and manage the virtualization targets in Enterprise Manager.

For more information, refer to *Registering the Oracle VM Manager* in the *Enterprise Manager Cloud Administration Guide*.

Enterprise Manager Agent Recovery After Private Cloud Appliance Upgrade

This procedure covers Enterprise Manager agent recovery for Oracle Private Cloud Appliance upgrades from version 2.3.1. If your Oracle Private Cloud Appliance is not 2.3.1 then refer to My Oracle Support note 2242177.1, which includes steps for Oracle Enterprise Manager.

 **Note:**

- For Private Cloud Appliance v2.3.3 and lower, the Enterprise Manager agent must be stopped before initiating the Private Cloud Appliance upgrade. To stop the agent run the following command: `/nfs/shared_storage/oemagent/agent_13.5.0.0.0/bin/emctl stop agent .`
- It is recommended to upgrade the OMS and Private Cloud Appliance management node agent to the latest version of the VT and supporting plug-ins.

1. With the `root` account backup the `oraInventory` agent to the NFS-shared location:

```
cd /u01/app
tar -cvf EMagent_oraInventory.tar oraInventory
cp EMagent_oraInventory.tar /nfs/shared_storage
```

2. Create the full blackout on Oracle Private Cloud Appliance rack.

To create full blackout on Oracle Private Cloud Appliance rack, login to the Enterprise Manager 13c UI as the Cloud Administrator and do the following:

- From the **Targets** menu, select **Private Cloud Appliance**.
- From the **Private Cloud Appliance** home page menu, select **Control**, and then select **Create Blackout** option.

Enter suitable information describing the reason for the blackout.

3. Update the Oracle Private Cloud Appliance rack.

For more information, refer to [Updating Oracle Private Cloud Appliance](#).

 **Note:**

If you are running or upgrading to Oracle Private Cloud Appliance Software v2.4.3 or lower, then **Steps 4 to 10** are not required.

4. The next step is to recover the Oracle Enterprise Manager agent installed on the NFS shared storage which is presented to both active and passive management nodes.

You should restore the `oraInventory` backup taken in the first step as the `root` user on the active management node:

```
pca-check-master
NODE: 192.168.4.4 MASTER: True"

cp /nfs/shared_storage/EMagent_oraInventory.tar /u01/app

tar -xvf EMagent_oraInventory.tar
```

5. Keep the same password you created in [Installing the Management Agent on Private Cloud Appliance](#) for the `oracle` user on both management nodes:

```
passwd oracle
```

6. Run the privileged agent scripts as `root` on the active management node:

```
/nfs/shared_storage/oemagent/agent_13.5.0.0.0/root.sh
/u01/app/oraInventory/orainstRoot.sh
```

- The Oracle Enterprise Manager agent needs to be under control of the Oracle Private Cloud Appliance software and not any local OS based startup scripts. Therefore, as the `root` user on the active management node, you should remove any OS based `rc.*` links to scripts.

```
for x in `find /etc/rc.* /rc* | grep gcstart`; do rm $x; done
```

- Copy the following agent installation files to the passive management node as the `root` user (ExampleUser1 is passive in this example):

```
scp /etc/init.d/gcstartup root@ExampleUser1:/etc/init.d/
rsync -og /etc/oragchomelist root@ExampleUser1:/etc/oragchomelist
```

```
rsync -rog /u01/app/oraInventory/ oracle@ExampleUser1:/u01/app/oraInventory
```

- Add the Enterprise Manager agent port to the number chosen during agent push (see [Installing the Management Agent on Private Cloud Appliance](#)) to the firewall settings on both management nodes (active and passive):

Note:

By default, the Enterprise Manager agent port **3872** is pre-populated by Private Cloud Appliance software. If you used this default Enterprise Manager agent port 3872 for pushing the agent, then this step is not needed.

For Private Cloud Appliance 2.4.4 and above using the `root` user:

```
firewall-cmd --add-port <agent_port>/tcp --permanent
firewall-cmd --reload
```

For Private Cloud Appliance 2.4.3 and below using the `root` user:

```
iptables -I INPUT <line_num> -m state --state NEW -m tcp -p tcp --dport
<agent_port> -j ACCEPT
```

`line_num` is the any line number before the `iptables` rule to block all traffic. `line_num` can be obtained using the following commands as `root` user:

```
service iptables status
service iptables save
service iptables reload
```

- If you are using Kubernetes, on the active management node run the following command as `oracle` user:

```
/nfs/shared_storage/oemagent/agent_inst/bin/emctl setproperty agent
-name preferIPv6Addresses
-value false
```

- Restart the Enterprise Manager agent on the active management node as `oracle` user from the agent's EMCTL command:

```
/nfs/shared_storage/oemagent/agent_inst/bin/emctl stop agent  
/nfs/shared_storage/oemagent/agent_inst/bin/emctl start agent
```

12. Remove the blackout on Oracle Private Cloud Appliance rack.

 **Note:**

On Oracle Private Cloud Appliance X3-2, after the upgrade of Private Cloud Appliance is complete and the agent is restored, you must ensure that [Prerequisites to Monitor the Fabric Interconnect in Private Cloud Appliance](#) are met to enable the new Fabric Interconnect Target features in Oracle Private Cloud Appliance.

Removing the Private Cloud Appliance Target from Enterprise Manager

To remove the Oracle Private Cloud Appliance target from Enterprise Manager monitoring:

 **Note:**

Removing the Oracle Private Cloud Appliance target from Enterprise Manager monitoring will also remove all Private Cloud Appliance components from monitoring (for example, the Compute and Management Nodes, InfiniBand switches, Ethernet and Fabric Interconnect switches, Storage Servers, and so forth).

1. From the **Targets** menu, select **Private Cloud Appliance**.
Then, on the Targets page, select Private Cloud Appliance and click **Remove**.
2. Alternatively, you can remove the target from the Private Cloud Appliance target home page. Click the **Private Cloud Appliance** menu, select **Target Setup**, and select **Remove Target**.
3. A confirmation pop-up window appears. Click **Yes**.
After the Private Cloud Appliance target is removed, the All Targets page will reload. A confirmation message will show that the Private Cloud Appliance target and all of its components have been removed.

5

Monitoring the Private Cloud Appliance

This chapter provides instructions for monitoring the Oracle Private Cloud Appliance through Enterprise Manager Cloud Control 13c.

The following topics are provided:

- [About the Private Cloud Appliance Homepage](#)
- [Using the Incident Manager](#)
- [Viewing and Managing Private Cloud Appliance Consumption Tracking](#)
- To monitor and administer an IaaS Cloud, see *Administering and Monitoring and IaaS Cloud* in *Oracle Enterprise Manager Cloud Administration Guide*.

About the Private Cloud Appliance Homepage

The Oracle Private Cloud Appliance homepage lets you keep track of all your Oracle Private Cloud Appliance components.

From the Private Cloud Appliance homepage you can view and search for the following:

- Name
- Type
- Members within the Private Cloud Appliance
- Member Status Summary

From the Member Status Summary you can drill down to:

- Down Alerts
- Up Alerts
- Maintenance Alerts
- Time-out Alerts
- N/A Alerts
- Metric availability error Alerts
- Critical Error Alerts
- Incidents

From the Incidents section you can drill down to:

- Fatal errors
- Critical errors
- Warnings
- Flagged incidents

From the Private Cloud Appliance Rack Schematic page, selecting a target with a red ring and clicking on the target's address will take you to the target's summary page. From the target's summary page, the menu on the right side of the screen will let you see the target's:

- Photorealistic or table view.
- Resource utilization graphs.
- Temperature and Fan speed graphs.
- Interface graphs.
- Firmware and configuration summary.

Using the Incident Manager

The incident summary page is a tool to check the incident status of your selected system.

From the Oracle Private Cloud Appliance homepage, click on a system to view the Oracle Private Cloud Appliance Rack Schematic page. From this page, you can:

- See the Overview summary for this system.
- View the Oracle Private Cloud Appliance Rack Schematic.

From the Rack Schematic you can:

- See the rack in Schematic, Photo-Realistic, or Table views.
- Click on a component to check the current status
- Targets with a red box around it have critical errors and require your attention.

Incident Overview Page

From the Incident Overview page, clicking on an incident will take you to the Incident Manager page of the selected incident in which you will see:

- The Incident Details section will give you more information such as incident ID, incident creation date, reported state of the target, and event type.
- The Tracking section will show who was assigned this incident, the incident's priority, the incident's status, and last comment.
- The Guided Resolution section will offer more insight with recommended links to visit in order to proceed with a corrective action.

Viewing and Managing Private Cloud Appliance Consumption Tracking

You can use resource utilization features in Enterprise Manager to view consumption tracking for targets of Private Cloud Appliance such as the virtual machines that have Enterprise Manager Agent installed on them. To view consumption tracking information, follow these steps:

1. From the **Targets** menu, select **Private Cloud Appliance**.
2. From the list of Private Cloud Appliance targets, click the Private Cloud Appliance target for which you want to view consumption information.

3. From the **Private Cloud Appliance** menu, choose **Resource Utilization**, and then select **Consumption Tracking**.

Cloud Control displays the vCPU Consumption page where you can perform the following tasks:

- View the resource consumption trend for the previous 24 hours by choosing **View Trends**.
- Export the data on the vCPU Consumption page for the selected Time Period and Product by clicking **Export**.
- View the details for the selected product in the Details table. The table displays the Collection Time/Host, vCPUs, Target Name, Target Type, Version, Cost Center, and Owner.
 - a. On the vCPU Consumption page, select one of the time periods in the **Time Period** drop-down list.
 - b. From the Product list, select the product or the products for which you want to view the consumption report. By default all the products are selected.
 - c. From the Product table, select a **Product** for which you want to view the consumption report.
 - d. The Details table displays the consumption details for the product or products that you have selected.

You can add more details as columns to the Details table by clicking **View**, selecting **Columns**, and then selecting the items you want to be displayed. You can select which columns you want to be visible and which columns to hide by clicking **Manage Columns**.

By default, the Details table displays the collection time and the number of total vCPUs consumed. Expand the collection time and host name to view all the following details:

- Collection time of the point when vCPU was collected
- Host name of the host on which software is running
- The number of total vCPUs consumed by the software/target running at that time
- The target name
- The target type
- The owner of the target (If configured)
- Version
- Cost Center (If configured)

6

Troubleshooting the Private Cloud Appliance

This chapter describes some common problems you may encounter with your Oracle Private Cloud Appliance.

The following troubleshooting topics are covered:

- [Oracle ZFS Storage Appliance Error Message](#)
- [Targets Still Appear as Pending](#)
- [Import Component Step Failed for New VM Request](#)
- [Error in Kubernetes as a Service Cluster Creation for Private Cloud Appliance 2.4.4 and Above](#)

Oracle ZFS Storage Appliance Error Message

Problem: You may encounter a warning message in the agent log file about the Oracle ZFS Storage Appliance.

Resolution: This is a known issue. The warning message can be ignored. Typically, the message will look like this:

```
2015-05-15 13:06:04,896 [87:75FBA055] WARN - Can not evaluate push
properties for target
oracle_si_zfssa_diskshelf_server_akcli.zfsl.example.com/akcli/1/diskshelf/
chassis-001_akcli
for metric ComponentFaults - skipping this metric
oracle.sysman.emSDK.agent.fetchlet.exception.FetchletException:
Can't resolve a non-optional query descriptor property [MatchAgentAddr]
(StorageServerIpAddress) at
oracle.sysman.gcagent.metadata.impl.PropertiesEvaluatorImpl$QueryPropsCompute
r.compute(PropertiesEvaluatorImpl.java:1013) at
oracle.sysman.gcagent.metadata.impl.PropertiesEvaluatorImpl$QueryPropsCompute
r.<init>(PropertiesEvaluatorImpl.java:859) at
oracle.sysman.gcagent.metadata.impl.PropertiesEvaluatorImpl.init(PropertiesEv
aluatorImpl.java:346) at
oracle.sysman.gcagent.metadata.impl.PropertiesEvaluatorImpl.<init>(Properties
EvaluatorImpl.java:210) at
oracle.sysman.gcagent.metadata.impl.TargetInstanceImpl.getPropertiesEvaluato
r(TargetInstanceImpl.java:1255) at
oracle.sysman.gcagent.target.interaction.execution.ReceiveletManager.addMetri
c(ReceiveletManager.java:344) at
oracle.sysman.gcagent.target.interaction.execution.ReceiveletInteractionMgr.a
ddMetric(ReceiveletInteractionMgr.java:1446)
```

Targets Still Appear as Pending

Problem: After discovering the Oracle Private Cloud Appliance Rack, you may still see all SI targets are in *Pending* state.

Resolution: You must kill the stuck availability job in the OMS:

```
$ sqlplus sysman/sysman
SQL> SELECT job_subname, elapsed_time, cpu_used FROM
dba_scheduler_running_jobs WHERE job_name = 'EM_REPOS_SEV_EVAL';
SQL> BEGIN dbms_scheduler.stop_job('EM_REPOS_SEV_EVAL'); COMMIT; END;
```

Import Component Step Failed for New VM Request

Problem: Import Component step failed for new VM request.

Resolution: In the OMS setup, determine the upload port, and update `/etc/tinyproxy/tinyproxy.conf` file on both management nodes.

1. Get the "HTTPS Upload Port" for the OMS
 - On OMS host, login using the OMS install user. Example: `oracle`
 - `$ emctl status oms -details -sysman_pwd <Sysman Password> | grep "HTTPS Upload Port"`
2. Below the existing block of `ConnectPort` lines, add the following line by replacing the `<yyyy>` with actual "HTTPS Upload Port" to `/etc/tinyproxy/tinyproxy.conf` file.

```
===
ConnectPort <yyyy>
===
```

3. Restart `tinyproxy` (service `tinyproxy` restarts).
4. If you have a firewall enabled, add this port to the list of ports enabled using `iptables` and restart `iptables` service.

Error in Kubernetes as a Service Cluster Creation for Private Cloud Appliance 2.4.4 and Above

Problem: When creating a Kubernetes as a Service cluster the following error message appears: `Error occurred while submitting your request. Contact your System Administrator for help.`

Resolution: To clear the error and create the cluster follow the workaround below:

1. On the active management node enter the following command using the `oracle` user:

```
/nfs/shared_storage/oemagent/agent_inst/bin/emctl setproperty agent -name  
preferIPv6Addresses -value false
```

2. Restart the Agent.