Oracle® Enterprise Manager Ops Center

Lifecycle Management of Zones

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This guide provides an end-to-end example for how to use Oracle Enterprise Manager Ops Center.

Introduction

You can use Oracle Enterprise Manager Ops Center for creating Oracle Solaris Zones to virtualize operating systems and provide an isolated and secure environment for running software applications.

A zone environment includes a global zone and one or more non-global zones. A global zone is the default operating system and has control over all of the processes and has system-wide administrative control. A global zone always exists, even when no other zones are configured.A non-global zone, or simply zone, is a virtualized operating system created within a single instance of the Oracle Solaris OS. A zone provides an isolated and secure environment to run applications.

This example describes the actions of booting, halting, shutting down, rebooting, and deleting zones using the Oracle Enterprise Manager Ops Center user interface (UI). You can also interchangeably use the native command-line interface to perform these actions and the Oracle Enterprise Manager Ops Center UI reflects the actions performed on the zone.

The set of basic actions described in this guide will enable you to perform other zone management operations, such as adding storage, modifying the configuration, or connecting networks among other actions.

See Related Articles and Resources for links to related information and articles.

What You Will Need

You will need the following to perform the actions on the zone:

- A user with the Virtualization Admin role.
- A non-global zone installed and configured in an Oracle Solaris Zones server pool. The type of zone can vary but the actions remain the same.

Hardware and Software Configuration

In this guide, you use a non-global zone created in an Oracle Solaris Zones server pool. The zone has the following characteristics:

- It is a whole root zone, it contains a read/write copy of the entire file system that exists on the global zone.

- Oracle Solaris 11 as the operating system.
- Storage size of 19 GB.
- Network interface is connected to a network.
- CPU model is shared, and memory is not capped.

Lifecycle Management of Zones

A set of actions for managing the lifecycle a zone are described in the following sections:

- Identifying the State of a Zone - this section describes the available states for a zone, and how to verify its current state.
- Basic Zone Operations - this section describes how to reboot, shut down, halt, boot, and delete a zone.

In this example, you use the Oracle Enterprise Manager Ops Center user interface (UI) to perform actions to manage the lifecycle of a zone.You use the Assets section of the Navigation pane to execute these actions.

Zone lifecycle management can be done under All Assets view, or the Server Pools view in case it applies. As the zone used in this guide is part of a server pool, you use the Server Pool view in this guide.

In this example, you use a zone named *xvm-vhost84* created under the global zone *sm4170-9*, in an Oracle Solaris Zone server pool called *Zones Pool*.

Identifying the State of a Zone

In the Oracle Enterprise Manager Ops Center UI, you can see a zone in one of the following states:

- **Running**– In this state, the virtual platform for the zone is established. The network interfaces are available to the zone, file systems are mounted, and devices are configured. A unique zone ID is assigned by the system. At this stage, processes associated with the zone have been also started.
- **Shutdown** – In this state, the zone is stopped in a graceful manner so that it is in a state that it can be restarted. At this stage, the zone has no associated virtual platform.
- **Unreachable** – In this state, the zone or global zone cannot be contacted for information. This state indicates a network problem or a problem with the zone or global zone.

You can verify the state of a zone directly in the Navigation pane, or in the Dashboard page of the zone.

In the Navigation pane, one of the following icons is placed next to the zone to show its current state:

Icon	Status
	Running
	Shutdown

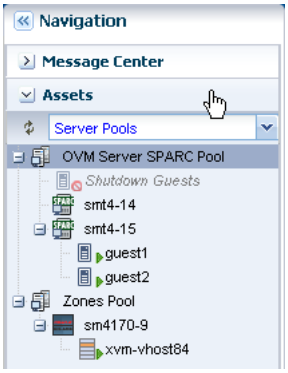
Icon	Status
	Unreachable

In the zone Dashboard page you can verify its current state along with other information of the zone such as operating system, tags, running time, or incidents.

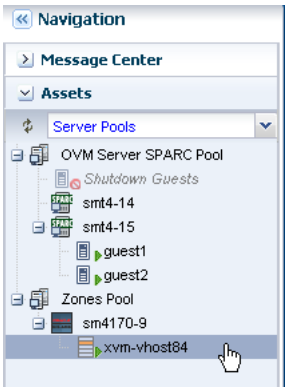
To verify the state of a zone in the Dashboard page:

1. Expand Assets in the Navigation pane. Then select Server Pools from the list.

   In this example, two server pools are listed.

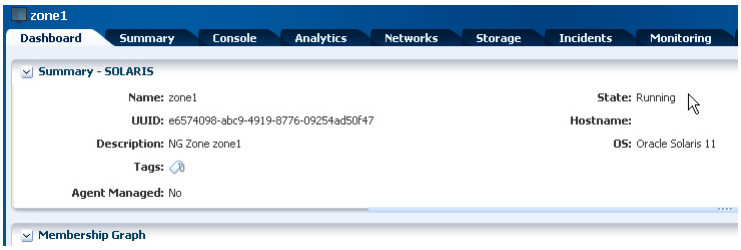


2. Select the zone listed under the *Zones Pool* server pool in the Navigation pane.



3. Verify that the state of the zone is running.

   The state appears as part of the information displayed in the Dashboard page of the zone.



Basic Zone Operations

This guide covers the following basic operations:

- Rebooting a Zone
- Shutting Down a Zone
- Booting a Zone
- Halting a Zone
- Deleting a Zone

Rebooting a Zone

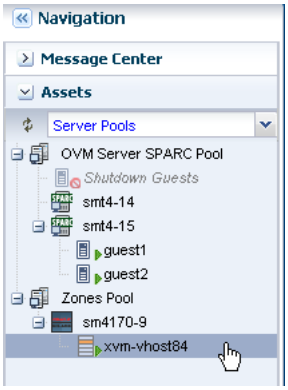
You can reboot a zone that is in the running state. You might want to perform a reboot after a system configuration change or any particular need for your applications. As part of the reboot process, the zone is shut down and then booted.

This example shows you how to reboot a zone.

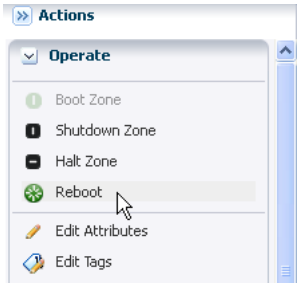
1. Expand Assets in the Navigation pane. Then select Server Pools from the list.

2. Select the zone listed under the *Zones Pool* server pool in the Navigation pane.

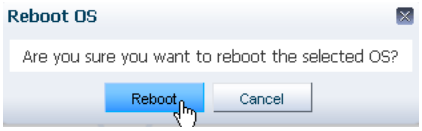
   You can verify that the zone is in the running state.



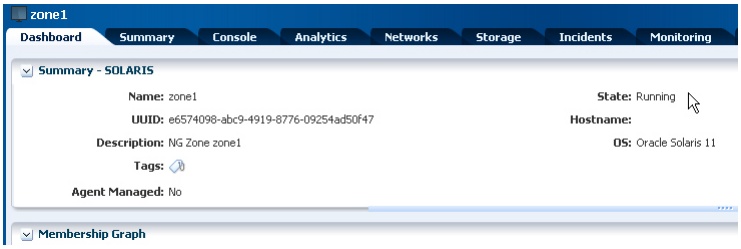
3. Click **Reboot** in the Actions pane.



4. Click **Reboot** to confirm the reboot of the zone.



5. After the reboot job completes, verify that the zone is in a running state.



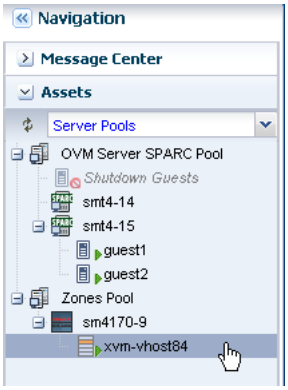
Shutting Down a Zone

You can shut down a zone in a graceful manner so that the zone is in a state that can be restarted. This is the preferred method to move a zone to shutdown state. You might need to shut down a zone before performing some actions such as adding a file system or connecting a network to a zone.

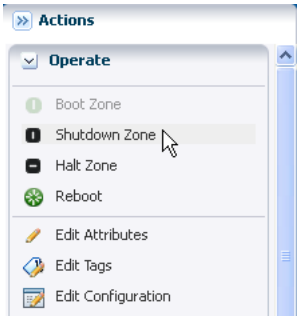
This example shows you how to shut down a zone in the running state.

1. Select the zone listed under the *Zones Pool* server pool in the Navigation pane.

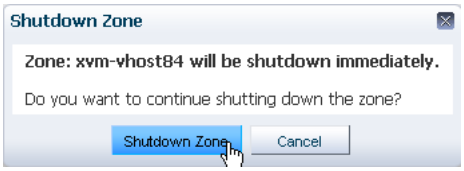
   You can verify that the zone is in the running state.



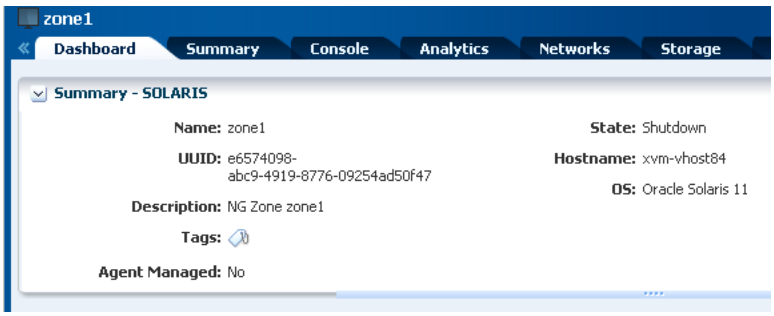
2. Click **Shutdown Zone** in the Actions pane.



3. Click **Shutdown Zone** to confirm.



4. Verify that the state of the zone changes to shutdown after the job completes.



Booting a Zone

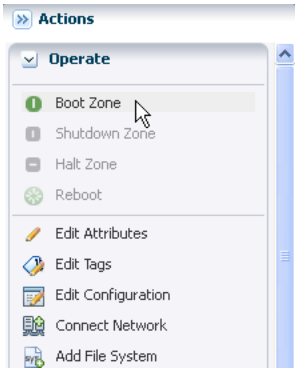
You can boot a shutdown zone. Booting a zone changes the zone to running. The zone boots whenever the global zone boots depending on the autoboot properties set during zone creation.

This example shows you how to boot a zone in shutdown state.

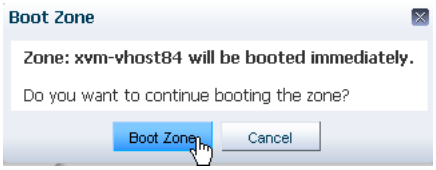
1. Select the zone listed under the *Zones Pool* server pool in the Navigation pane.

   You can verify that the state of the zone is shutdown.

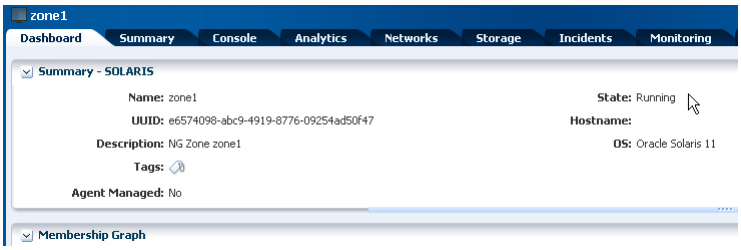
2. Click **Boot Zone** in the Actions pane.



3. Click **Boot Zone** to confirm.



4. Verify that the state of the zone changes to running after the job completes.



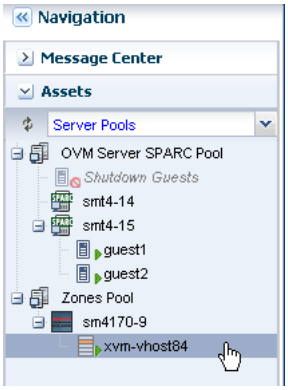
Halting a Zone

You can halt a running zone. Halting a zone performs an abrupt shutdown of the zone, the zone is moved to a shutdown state nearly immediately, while the graceful shutdown can take time depending on how much time applications running on the zone take to shut down. Even though the action to shut down a zone is the preferred method, you can halt a zone if the graceful shutdown failed or when a service in the zone is hanging.

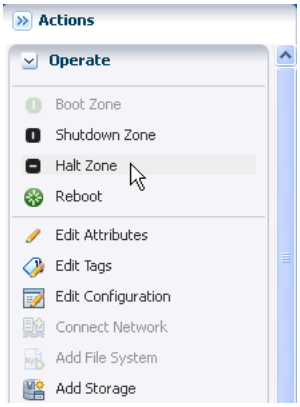
This example shows you how to halt a running zone.

1. Select the zone listed under the *Zones Pool* server pool in the Navigation pane.

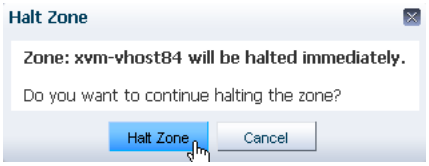
   You can verify that the state of the zone is running.



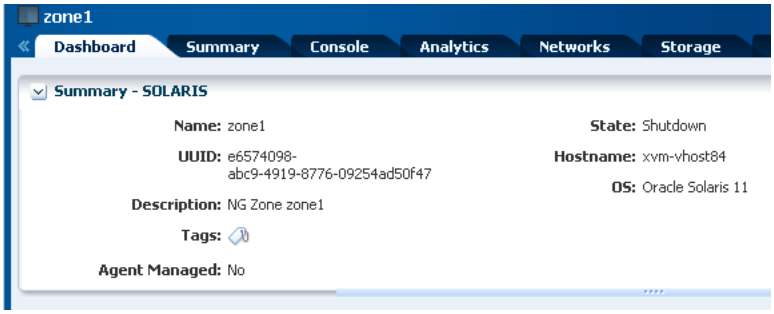
2. Click **Halt Zone** in the Actions pane.



3. Click **Halt Zone** to confirm.



4. Verify that the state of the zone changes to shutdown after the job completes.



Deleting a Zone

You can delete a zone that is in running or shutdown state. If you need to delete a zone, you must consider the following changes that are also made when deleting a zone:

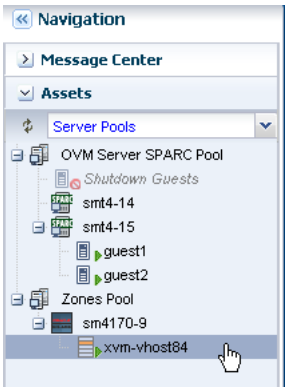
- Zone root file system is deleted.

- Other file systems that were added to the zone are deleted.
- Zone metadata is deleted from the storage library.
- The zpool for the zone is deleted and the storage is made available.
- Exclusive IP addresses that were assigned to the zone are made available for reuse.

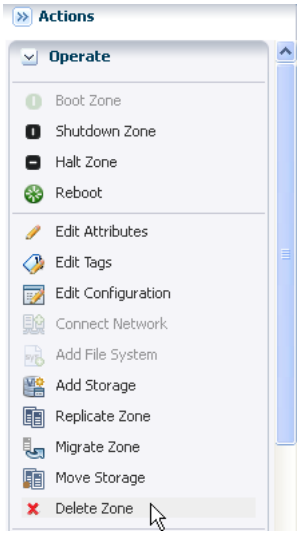
This example shows you how to delete a zone in the running state. As part of the deletion process, the zone is shut down first, then uninstalled, and finally deleted from the global zone.

1. Select the zone listed under the *Zones Pool* server pool in the Navigation pane.

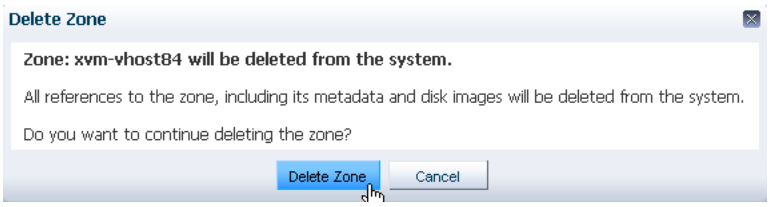
   You can verify that the state of the zone is running.



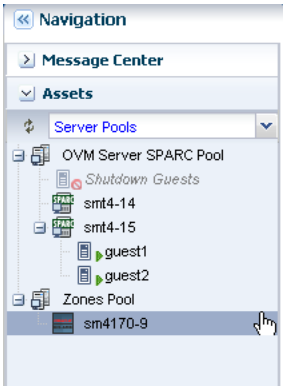
2. Click **Delete Zone** in the Actions pane.



3. Click **Delete Zone** to confirm.



4. Verify that the zone is no longer listed under the server pool in the Navigation pane after the job completes.



What's Next?

You can perform zone configuration actions such as add storage, modify CPU and memory allocation, or connect networks.

Related Articles and Resources

Refer to *System Administration Guide: Oracle Solaris Containers-Resource Management and Oracle Solaris Zones* for more information about the consequence of these actions on the zone.

The following chapters in the *Oracle Enterprise Manager Ops Center Feature Reference Guide* contain more information:

- See Oracle Solaris Zones for more information about how to manage Oracle Solaris Zones.
- See Server Pools for information about how server pools can help you to balance and share resources and provide high availability capabilities.

For in-depth information about zones, see the Oracle Solaris Zones documentation at http://docs.oracle.com/cd/E23824_01/html/821-1460/index.html.

For more end-to-end examples, see the workflows and how to documentation in the Operate How To library at http://docs.oracle.com/cd/E40871_01/nav/operatehowto.htm. For more information, see the Oracle Enterprise Manager Ops Center Documentation Library at http://docs.oracle.com/cd/E40871_01/index.htm.

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