Oracle® Enterprise Manager Ops Center

Create Oracle Solaris 11 Zones

12*c* Release 3 (12.3.2.0.0)

E60026-02

July 2016

This guide provides an end-to-end example for how to use Oracle Enterprise Manager Ops Center to create Oracle Solaris 11 zones.

Introduction

With Oracle Solaris Zones, you can create one or more virtualized operating systems on a single Oracle Solaris 11 operating system (OS). Each zone is an isolated OS environment that you can use to run applications. The applications and processes that run in one zone do not affect what runs in other zones.

When you create a zone in Oracle Solaris 11, it has the following characteristics:

- Uses a root file system that does not share components of the global zone's root file system (whole root zones.) The default root file system size is eight (8) GBytes.

- Uses exclusive IP addresses.

- Uses the ZFS file system.

You must provide storage for the zone and zone metadata. When you create a zone, you assign it to one of the storage libraries associated with its virtual host.

- Zone data: The zone's data that results from its operations. You can store zone data in a local library, iSCSI or SAN storage library. For zone migration, store the zone data in an iSCSI or SAN storage library.

- Metadata: The zone's metadata is the configuration of the zone's operating system, CPU, memory, and network. You can store metadata in a local library or in a NAS library. For zone migration, store the metadata in a NAS storage library.

In Oracle Solaris 11, root is not a regular account, it is a role. With the default Oracle Solaris 11 setup, where root is just a role, you cannot log in as root. Instead, you must create an account to log in. With Oracle Enterprise Manager Ops Center, you have the option to create a special user account or log in as root.

You can create Oracle Solaris 10 branded zones or Oracle Solaris 11 non-global zones on an Oracle Solaris 11 environment. You can create new zones from the Asset view or from the Plan Management view. This example describes how to create zones.

This example shows you how to create an Oracle Solaris 11 non-global zone from the Plan Management view. The zone is configured as follows:

- SAN storage for the zone and NAS storage for the zone metadata.

ORACLE®

- The zone is installed from the Oracle Solaris 11 Software Update library.

  When you install from the repository, the default software group (`solaris-small-server`) uses less space than when you install from an OS image.

With this configuration, you can add the zone to a server pool and use the zone migration feature. See Related Articles and Resources for links to related information about different zone configurations, including choosing the type of storage library, complex network configurations, and server pools that enable you to migrate zones within the pool.

Note:

You cannot create kernel zones in Oracle Enterprise Manager Ops Center 12*c* Release 3 (12.3.0.0.0).

What You Will Need

This example stores the zone data on a SAN storage device and the metadata in a NAS library.

You need the following before you can create an Oracle Solaris 11 zone:

- Oracle Enterprise Manager Ops Center installed on an Oracle Solaris 11 operating system.

- A discovered and agent-managed Oracle Solaris 11 operating system.

- Oracle Solaris 11 Software Update Library that is configured to synchronize with the Oracle Solaris 11 Package Repository.

- SAN storage for the zone data. You need at least 6 GB virtual disk for zone storage.

- NAS storage device for the zone metadata.

- A network that is associated with the global zone and is available for the zone. This example uses the default network that is created when you manage the operating system.

- IP address for the zone.

- A user name and password to log in to the zone. This is the user account that you will use to log in to the zone.

- The roles and permissions to complete the tasks. You need the following Oracle Enterprise Manager Ops Center roles:

  – Plan/Profile Admin to create and manage zone profiles and plans.

  – Virtualization Admin to create and manage the zones.

See Related Articles and Resources for links to related information and articles about how to set up and synchronize an Oracle Solaris 11 Software Update library, how to discover and manage an operating system, how to prepare your storage and network infrastructures, and how to modify user roles and permissions.

Create an Oracle Solaris 11 Zone

These are the steps needed to create an Oracle Solaris 11 zone:

1. Create an Oracle Solaris 11 Zone Profile and Plan

   The profile captures the zone configuration, including defining the storage and network details. The plan executes the configuration on selected targets. You can use and reuse the profile and plan to create zones with a consistent configuration.

2. Deploy the Plan to Create a New Zone

   When you deploy a plan, you identify the target operating systems and the number of zones to create. Before you submit the job to deploy the plan, you can modify some configuration details. In this example, the profile uses a default host name that you will modify when you deploy the plan.
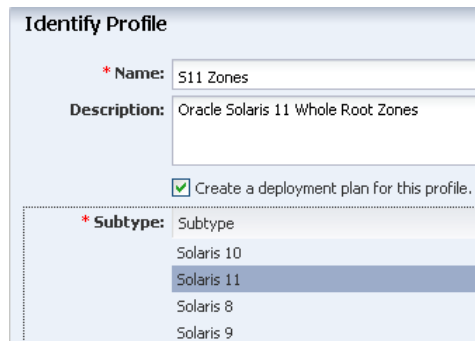
Create an Oracle Solaris 11 Zone Profile and Plan

Creating a zone profile defines the zone configuration details and creates a deployment plan.

1. Click **Plan Management**, then expand **Profiles and Policies**. Right-click **Oracle Solaris Zone**, then click **Create Profile**.
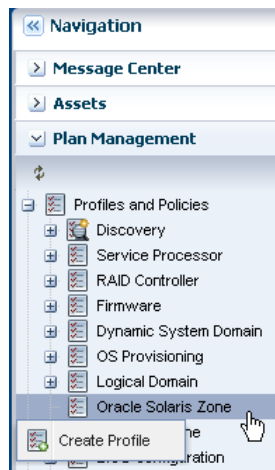
2. Enter a name and description for the profile, then select Oracle Solaris 11 from the Subtype list. The option to create a deployment plan for this profile is selected.

3. To identify the zones that are created with this profile, enter a zone prefix name, such as Myzone, and a number to start the series. The name of a new zone includes its number. Do not add any tags for the zone for this example.

4. Select **Install from IPS Repository**, then click **Next**.

5. Select the **Shared** CPU model and enter **1** (one) to define the number of CPU shares. Set the memory thresholds and verify that the locked memory threshold value is less than or equal to the physical memory threshold. For automatic recovery of the zone, and the priority level of the recovery, select the **Automatic Recovery** check box, then enter the priority level. In this example, recovery priority of this zone is 17. If there are only enough resources to recover three zones, only the zones with highest numbers are recovered. For example, if you have a global zone with five zones: z1, z2, z3, z4, z5 with respective priority 6, 30, 17, 66, 100. When there are only enough resources to recover three zones, only z5(100), z4(66) and z2(30) are recovered.

6. The default root file system appears. Do not define additional file systems. You define the SAN storage when you apply the deployment plan. Click **Next**.

7. Select **NAS Filesystem Storage** for the zone metadata in the drop-down menus. Select **Static Block Storage** as the SAN storage for the zone data. Select the library and size. This example uses 20 GB in SAN storage, the minimum required size is 8 GB.

Note:

It is possible to specify an NFS share for the zone data, but this is not an officially supported configuration.

Click **Next**.

Specify Zone Storage

Select the library and specify the virtual disks that will make up for the zone's storage.

Target: cacao-44

Storage for the metadata Library: `NAS Filesystem Storage` ▾ `metadata` ▾

Virtual Disk/Storage Specification for Zone zone1

⊕ ✕

Library Type	Library Name	Virtual Disk Name	Volume Group	Required Size(GB)
Static Block Storage	SANLib-iscsi	600144f0d54400f500004f7		20

8. The default network domain appears on the page. Enter a network for the zone and the number of connections. This example uses 1 network connection.

Specify Zone Networks

Select one or more networks to connect to the zone. For each selected network, enter the number of connections. The actual binding of the network occurs during profile execution.

Networks

⊕ ✕

Network Domain	Network Name	Number of Connections
default	203.0.113.0/24	1

9. Define the language, time zone, terminal-type, and root password for the zone, and for all zones that you create with this profile.

   - A naming service is not configured in the environment. For this example, accept the default value, `dynamic`, for the NFSv4 Domain Name.

   - Enter the root password.

   - Set the boot variables for the new zone. You can set the zone to boot after it is created or whenever the global zone boots. This example has both options selected: **automatically boot zone when the global zone is booted** and **automatically boot zone after creation**.

10. Enter a name, a user name, password and confirm password to create a user account. The name must begin with a letter and can only contain letters and numbers. Click **Next**.

Note:

You are not required to create a user account. If you do not create a user account, then you must still provide a root password. In this case, root is a regular user.

---

11. Click **Next** to skip the Zone Naming Service.

12. Click **Finish** to create the zone profile and deployment plan.

The zone profile and the corresponding deployment plan appear in the list of Oracle Solaris Zone Profiles and Oracle Solaris Zone Plans.

Deploy the Plan to Create a New Zone

Use the plan that you created in Create an Oracle Solaris 11 Zone Profile and Plan to create a zone, and then view the new zone in the UI. You have the opportunity to make changes in the plan before you submit the job to apply the plan. For example, you could edit the plan to create multiple zones.

1. Click **Plan Management**, expand **Deployment plans**, expand **Create Oracle Solaris Zones**, then click the plan that you created in the previous section.

2. Right click, then click **Apply Deployment Plan**. Or, you can click the plan and click **Apply Deployment Plan** in the Actions pane.

3. Select a global zone target from the list of Available Items. Click **Add to Target List**. Use the default setting for applying the plan with minimal interaction. Click **Next**.

4. Specify the Zone Identity. The Automatic Naming; Zone Prefix field and Starting Number field are populated with the information from the profile.

5. The zone storage is populated based on the profile. Click **Next**.

6. Select the **Exclusive** zone IP stack. Select a network from the list of available networks, then enter the IP address in the IP Range field. Click **Next**.

7. The Network Resource Assignments page shows the host name, shared network and IP address that you defined in the profile. In the Host Name field, change the name from the default name that you provided in the profile to a different name. In this example, change the host name from Myzone to My_vhost2.

   You can change the following parameters before you deploy the plan:

   - **Host name**: You can change the zone's host name to be different from the zone name, which might be useful when you are using a naming server.

   - **Network Connections**: You can add, modify, or delete network connections. For example, you can have Network1 and Network2. When you create two zones you can connect Myzone1 to Network1 and Network 2 and connect Myzone2 to Network1 and remove Network2.

   - **IP address**: The IP address for a set of zones appears in a range. You can enter the IP addresses in a comma delimited list.

8. Select **Now** to start the job when you finish the wizard and apply the plan. Click **Next** to display the Summary page.

9. Click **Apply** to run the job. When the job finishes successfully, the new zone appears in the Asset tree.

10. Click the operating system in the Assets section of the Navigation pane to display the dashboard with both zones.
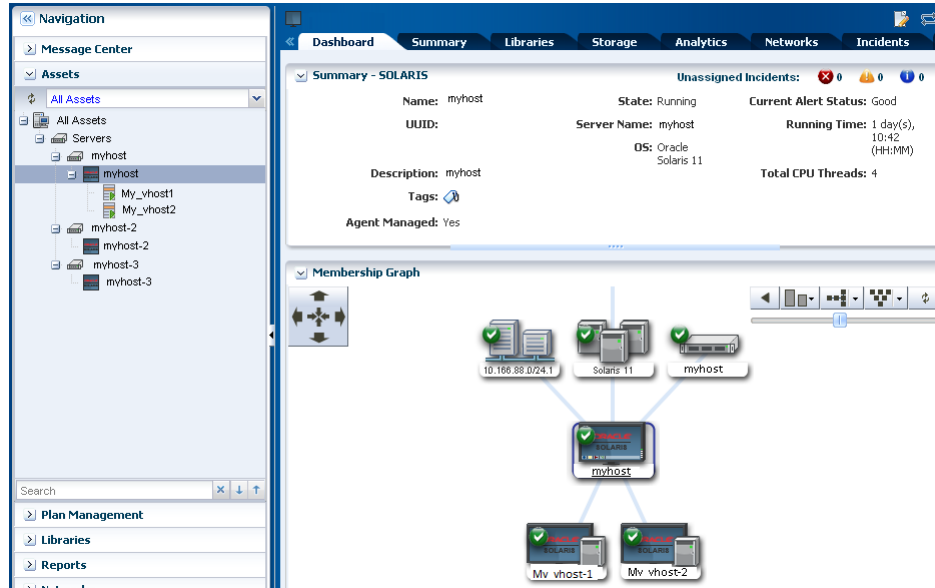
11. Click the zone in the Assets section of the Navigation pane to see the zone dashboard.
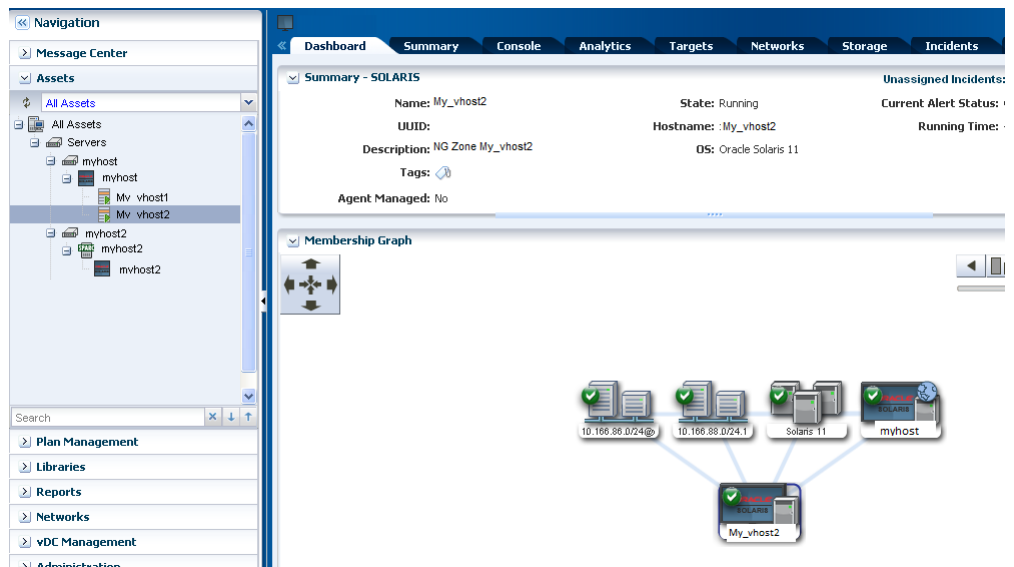
What's Next?

The zone is available for you to use as a separate operating system. Use the actions in the user interface to manage the zone and perform operations, such as rebooting and halting the operating system. Manage your zone's performance, including viewing the CPU utilization at the zone level, with the OS Analytics feature. You can reuse your

Oracle Solaris Zones deployment plan to quickly add zones when and where you need them.

To improve high availability, you can use the zone created here in a zone server pool. A zone server pool is a group of zones that use the same network and storage resources. You can share resources among the zone members, schedule load balancing, minimize power consumption, and move zones to different physical servers within the pool.

Related Articles and Resources

Refer to the following documentation resources for more information:

- Oracle Enterprise Manager Ops Center 12c documentation at `http://docs.oracle.com/cd/E59957_01/index.htm`.

- Deploy How To Library at `http://docs.oracle.com/cd/E59957_01/nav/deploy.htm`.

- Operate How To Library at `http://docs.oracle.com/cd/E59957_01/nav/operate.htm`.

- Product blog at `https://blogs.oracle.com/opscenter`.

Oracle Solaris 11 Information Library at `http://docs.oracle.com/en/operating-systems/`