

Oracle® Enterprise Manager Ops Center

Configuring SAN Libraries

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

Introduction

A virtualization host, such as Oracle VM Server for SPARC, Oracle VM Server for x86, or Oracle Solaris Zones, relies on its associated storage library to store the metadata for itself and its virtual hosts, as well as the data that is the output of operations. The metadata and data is stored on LUNs that are managed by the SAN storage libraries.

SAN LUNs are associated with Fibre Channel or iSCSI target groups. Fibre Channel targets use a dedicated optical network and iSCSI targets use the IP network, but in both protocols, the targets in a target group expose one or more LUNs as a storage resource for the target's initiators.

For both protocols, Oracle Enterprise Manager Ops Center acts as the initiator. To allow the target group and Oracle Enterprise Manager Ops Center to identify each other as eligible initiators and targets, each one's Fibre Channel World Wide Number (WWN) or iSCSI IQN must be registered with the other one. Oracle Enterprise Manager Ops Center recognizes the targets because the WWNs or IQNs of the storage server are recorded when the storage server is discovered. Any LUNs that have been assigned to that WWN or IQN are eligible to be used in a storage library.

For LUNs backed by Fibre Channel disks, the block storage is static. From the user interface of Oracle Enterprise Manager Ops Center, you cannot change the size of the LUNs, delete them, or create new LUNs. However, you can add more LUNs to the library or remove LUNs if they are not in use. The number of LUNs in the storage library determines the number of virtual hosts that the library can support.

This document describes how to set up a static block storage library for an existing server pool, backed by Fibre Channel LUNs.

See [Related Articles and Resources](#) for links to information about storage management.

What You Will Need

You will need the following to set up and use a block storage library:

- LUNs backed by a managed SAN server using the Fibre Channel protocol
- A server pool
- The role of Storage Admin

If you must create LUNs on the storage server, you must have the user account and password to log into the storage server and create the LUNs as targets.

Configure the Storage Server

These instructions use the LUNs available in an existing server pool, but if you need to create LUNs and make them available to Oracle Enterprise Manager Ops Center, see the storage server's documentation for instructions in how to perform the following:

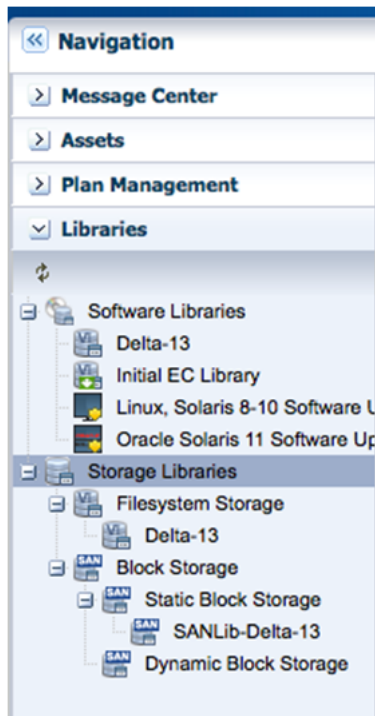
- **Configure the initiator and the targets.** The initiator (Oracle Enterprise Manager Ops Center) must be able to recognize the targets (LUNs) and the targets must be able to recognize the initiator. Oracle Enterprise Manager Ops Center recognizes the targets because the WWNs of the storage server are recorded when the storage server is discovered. Any LUNs that have been assigned to that WWN are eligible to be used in a storage library. On the storage server, you must specify Oracle Enterprise Manager Ops Center's WWN as an initiator and assign LUNs to that initiator.
- **Enable multipathing on the Fibre Channel ports.** Multipathing is enabled by default on Oracle Solaris x86-based systems, but is disabled by default on Oracle Solaris SPARC-based systems. Use the `stmsboot -e` command to enable multipathing.
- **Create new LUNs.** It can take several hours for a new LUN to be displayed in Oracle Enterprise Manager Ops Center's user interface. To verify iSCSI LUNs are available to the virtualization host, use the following command:

```
# prtconf -vc /devices/scsi_hci | grep dev_link.*s2
```

Create a Static Block Storage SAN Library

To specify the LUNs in a storage library, you specify the server pool that will use the storage library and then select LUNs from among the LUNs available to the server pool.

1. Expand **Libraries** in the Navigation pane.



2. Click **New SAN Storage Library** in the Actions pane.



3. Enter the name and description of the library. Click **Next**.

Identify Library * Indicates Required Field

Enter the name and description of the SAN storage library.

* Name:

Description:

- In this example, we are creating a storage library for an existing server pool so we can make the association between the server pool and the new library at this time. Click the **Associate the new library with the selected items** option.

Identify Library Associations

The new library can be used by any virtualization host or server pool. You can associate the new library now or at a later time. If you associate the new library now, the following steps will provide an option to select logical units (storage volumes) that should be contained in this library. Select at least one object from the table to associate with the new library.

Create the library associations later

Associate the new library with the selected items

LUNs sharing to LDOMs

- The Identify Library Associations window is populated with existing server pools and virtualization hosts.

Select at least one server pool. The LUNs that are available to the virtualization hosts in the server pool will be available for selection in the next step.

If you select more than one server pool or virtualization host, the LUNs that are common to all selections will be available for selection in the next step.

Identify Library Associations

library now or at a later time. If you associate the new library now, the following steps will provide an option to select logical units (storage volumes) that should be contained in this library. Select at least one object from the table to associate with the new library.

Create the library associations later

Associate the new library with the selected items

LUNs sharing to LDOMs

Name	Description	Type
ocbrm-occtest	Global Zone	zone
ocbrm-occtest2	Global Zone	zone

- You have the option to enable multipathed storage for guests of Oracle VM Servers. When you click the **LUNs sharing to LDOMs** option, each logical domain can get access to its storage through any of the domains in the server pool. If you do not enable multipath storage, the logical domain gets access to storage through its primary domain. Click **Next**.
- In the Identify LUNs step, select at least one LUN from the list of available LUNs. Because this is a static block storage library, the number of LUNs you select determines the number of virtual hosts that the library can support. For example, if you select eight LUNs, eight virtual hosts can use the storage library. Click **Next**.

Identify LUNs

Add one or more LUNs to the library. Use Ctrl+Click and Shift+Click to select multiple LUNs

Available LUNs

Search

LUN GUID	Hostname-Controller Number-LUN Number	Size (GB)
600144f0fa0d3a97000052840af10024	oc-test-lz-3-0-0, oc-test-lz-14-0-0	10
600144f0eeb26fc90000523179090003	oc-test-lz-3-0-0, oc-test-lz-14-0-0	4.999...
600144f0fa0d3a9700005283a1bf001d	oc-test-lz-3-0-0, oc-test-lz-14-0-0	10
600144f0fa0d3a9700005283ef910022	oc-test-lz-3-0-0, oc-test-lz-14-0-0	10
600144f0fa0d3a97000052836f320016	oc-test-lz-3-0-0, oc-test-lz-14-0-0	25

- Review the details of the storage library in the Summary pane.

Summary

Click Finish to create the new SAN storage library.

Name: SANLib-Delta-12

Description: LUNs for the Delta 12 LDOM server pool

Name	Description
delta-1-primary	Oracle VM Server for SPARC

LUN GUID	Hostname-Controller Number-LUN Number	Size (GB)
600144f0ddf790cd000052551ce30003	delta-1-primary-0-0	20
600144f0ddf790cd000052551cd00002	delta-1-primary-0-0	20

- Click **Finish** to submit the job.

When the job is completed, the new storage library is displayed in the Libraries section of the Navigation pane in the Static Block Storage section. The center pane shows the library's Summary tab.

The screenshot shows the Oracle VM Server for SPARC interface. On the left is the Navigation pane with the Libraries section expanded to show SANLib-Delta-12. The main pane displays the Summary tab for this library. The library name is SANLib-Delta-12, created on 10/10/2013 3:57:43 pm WET. The description is 'LUNs for the Delta 12 LDOM server pool'. The target is 'delta-1-primary'. Total storage size is 0 GB and allocated storage is 0 GB. Below this is a table of LUNs:

LUN Name	Allocated To	LUN GUID	Size (GB)	Type
600144f0ddf790cd000052551ce30003		600144f0ddf790cd000052551ce30003	20	FC
600144f0ddf790cd000052551cd00002		600144f0ddf790cd000052551cd00002	20	FC

Below the LUN table is the LUN Details section for the selected LUN:

Name: 600144f0ddf790cd000052551ce30003 Vendor: SUN Status Description: -
 GUID: 600144f0ddf790cd000052551ce30003 Product: ZFS Storage 7120
 Status: OK Revision: 1.0

What's Next

The new storage library is ready to be used by the members of the server pool you selected.

Related Articles and Resources

For information about managing LUNs and multipathing see the Oracle Solaris documentation library. For Oracle Solaris 11, see *Oracle Solaris 11.1 Administration: SAN Configuration and Multipathing*.

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

- Storage
- Storage Libraries for Virtualization

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