Oracle® Enterprise Manager Ops Center

Configuring NAS 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 a global zone or a control domain relies on a storage library to store the metadata for the virtualization host's virtual hosts, as well as the data that is the output of their operations. The metadata and data is stored on disks that are managed by the storage libraries. In most cases, a virtualization host is in a server pool so the virtualization host uses the storage library associated with the server pool.

A storage library can use block storage or file system storage. Filesystem storage is provided either on the host's own file system (`file:///guests`) or on a shared NFS location.

For virtualization hosts to support migration of virtual hosts from one virtualization host to another virtualization host, all participating hosts must have access to the filesystem that stores the virtual hosts' metadata and data. If the metadata of a virtual host is saved locally, it cannot be migrated. To enable migration, use a Network Attached Storage (NAS) storage server to back an NFS share that can be accessed by the systems that support the virtualization hosts.

This document describes how to set up a NAS storage library. When you complete these procedures, the storage library is ready to be associated with a server pool.

See Related Articles and Resources for links to related information and articles about other types of storage libraries.

What You Will Need

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

- An managed NAS storage device
- The IP address of the storage appliance
- The `root` user account to log into the storage appliance
- The role of Storage Admin

Tasks for Setting Up a NAS Storage Library

From the Storage Server's User Interface

- Creating the NFS Share

Oracle Enterprise Manager Ops Center

1. Identify the NAS Share
2. Create a NAS Storage Library

Creating the NFS Share

Because the Enterprise Controller does not mount the NFS share, use an NFS server on a system that is close to the systems on which the virtualization hosts reside. The systems on which the Enterprise Controller and virtualization hosts reside must be able to write to the NAS shares as `root` and the files must be owned by `root`.

The procedure for setting up an NFS share depends on several site-specific factors such as the version of NFS protocol and name service management. The example in this section describes one method of configuring the share on an NFS server running on the Oracle Solaris 10 operating system. For Oracle Solaris 11, see *Oracle Solaris Administration: Network Services* for the information about the `sharectl(1M)` function.

Setting Up a Share on an NFS Server on Oracle Solaris 10

1. Identify the file system you want to share and add the file system to the `/etc/vfstab` file so it mounts automatically.
2. Edit the `/etc/dfs/dfstab` file.
3. Add an entry to share the file system with options that enable the NFS clients to have read and write root-level access to the share, such as:

   ```
   share -F nfs -o rw,root=<access_list> -d "<description>" /<directory>
   ```

   where <*access_list*> specifies the clients that can access the share as the root user, <*description*> is text to identify the purpose of the share, and <*/directory*> identifies the directory that you want to share on the NFS server. For example, to allow root access to the `/export/lib/libX` directory for all systems on the 192.168.1 subnet, add the following entry:

   ```
   share -F nfs -o rw,root=@192.168.1 -d "Share 0" /export/lib/libX
   ```

   See the `share_nfs(1M)` man page for information about NFS share options, and how to specify the access list.
4. Share the directory and verify that the directory is shared. For example:

   ```
   # share export/lib/libX
   # share
   -               /export/lib/libX   rw,root=@192.168.1 "Share 0"
   ```

Setting Up an NFS Client

1. On each NFS client, edit the `/etc/default/nfs` file.
2. Locate the `NFSMAPID_DOMAIN` variable and change the variable value to the domain name.

3. Verify the NFS share is visible on the client.

```
# showmount -e <server-name>
export list for <server-name>:
/export/virtlib/lib0 (everyone)
```

Creating a NAS Library

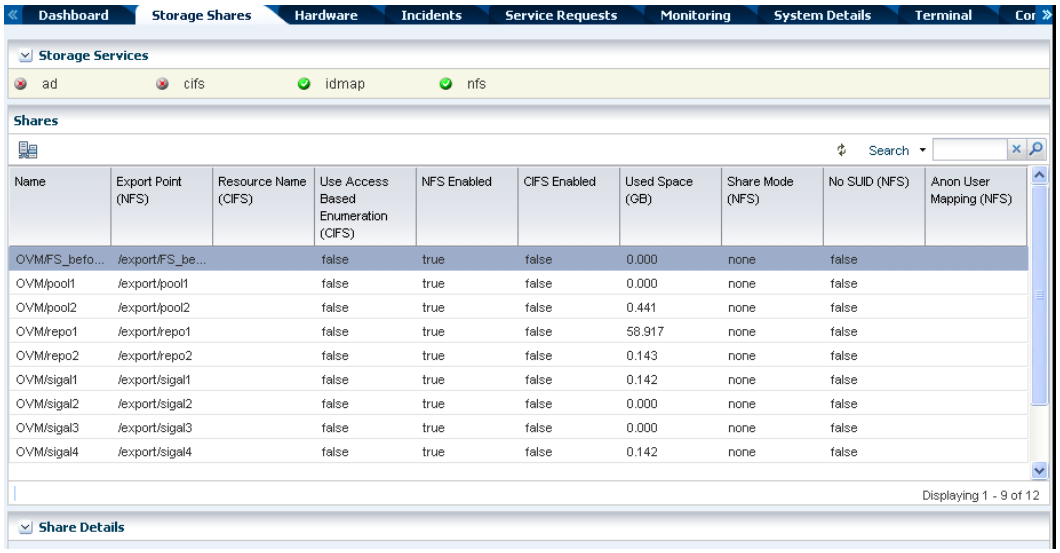
These are the tasks for setting up a NAS storage library:

1. Identify the NAS Share
2. Create a NAS Storage Library

Identify the NAS Share

The NFS share is a file system on a NAS storage device. You can view the shares on managed storage servers from the Oracle Enterprise Manager Ops Center user interface.

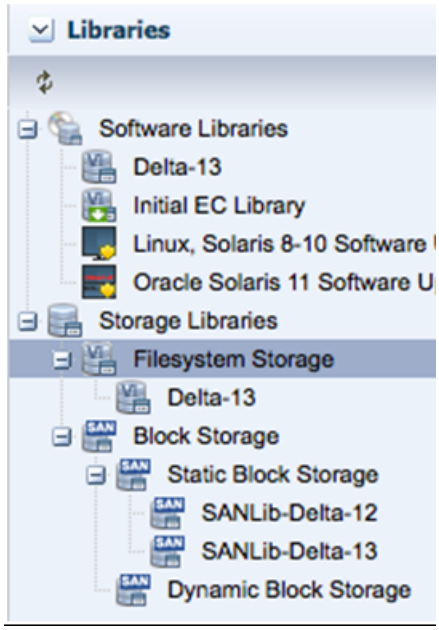
1. Expand **Assets** in the Navigation pane and click
2. Click **All Assets** to expand the section.
3. Click on the NAS storage server in the Storage section.
4. In the center pane, click the **Storage Shares** tab.



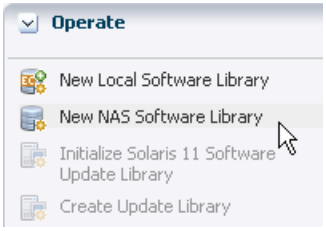
5. View the shares and choose one with capacity to support a server pool. You will use this share in the following procedure.

Create a NAS Storage Library

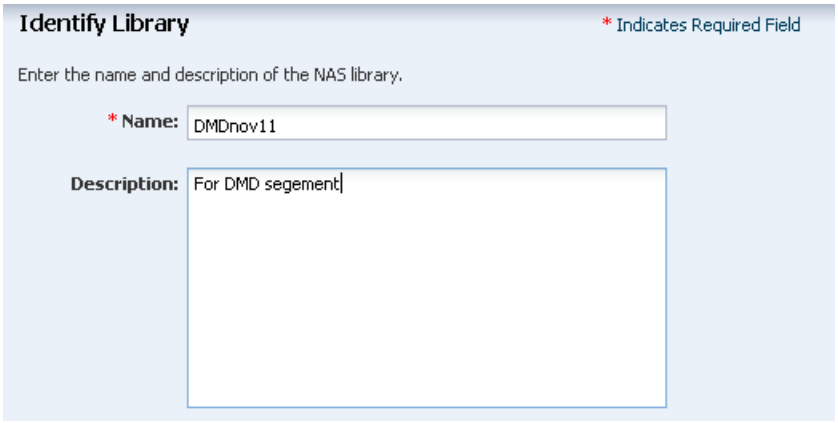
1. Expand **Libraries** in the Navigation pane. The new library will be created in the Filesystem Storage section.



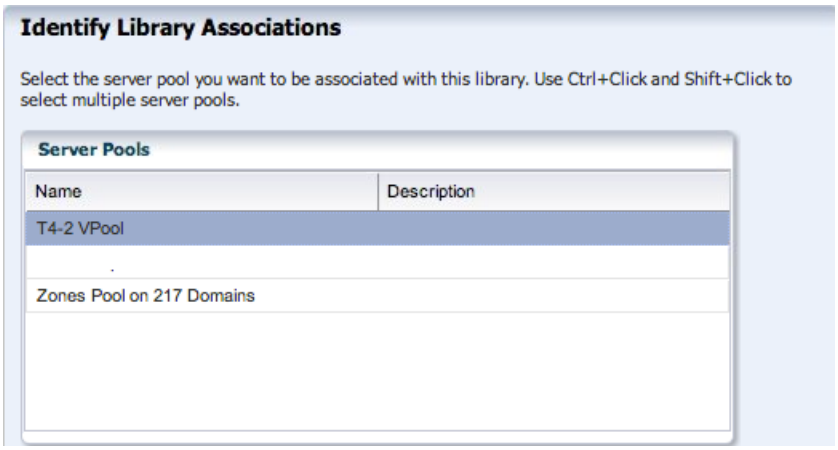
2. Click **New NAS Software Library** in the Actions pane.



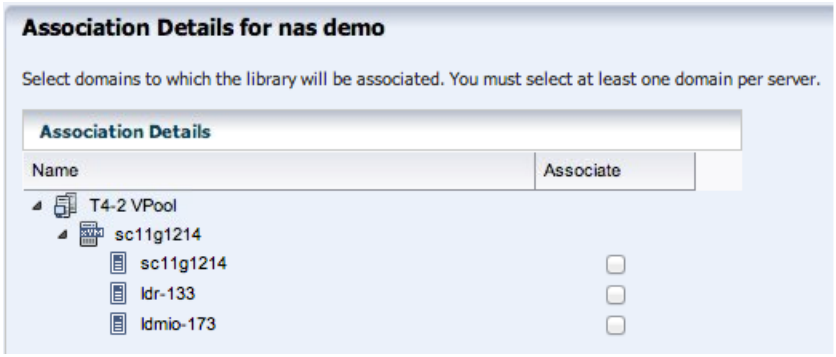
3. Enter a name for the library and a description. For example, identify how the new library will be used.



4. Associate one or more server pools with the new storage library. Click **Next**.

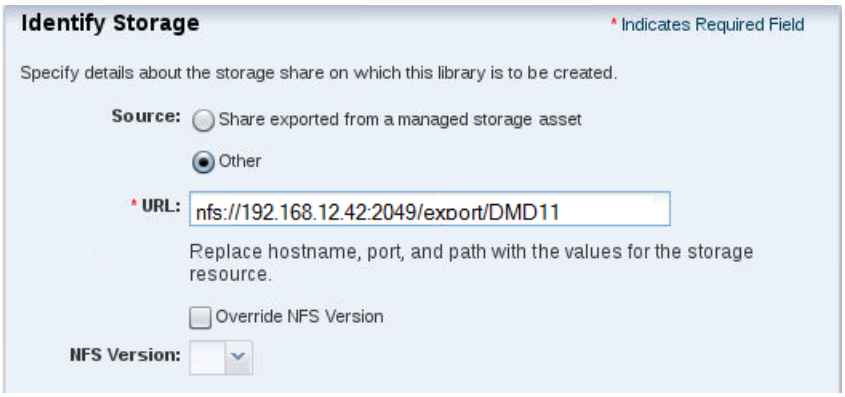


5. In this example, the selected server pool includes a control domain, an I/O domain, and a root domain. To refine the association between the server pool and the new library, identify which domains provide access to the storage library. New guests will get access through the specified domain. You must choose at least one domain by clicking the check box.



6. By default, the wizard displays the option for using an exported share of a storage device. Because this procedure has set up an NFS share, click the **Other** option.

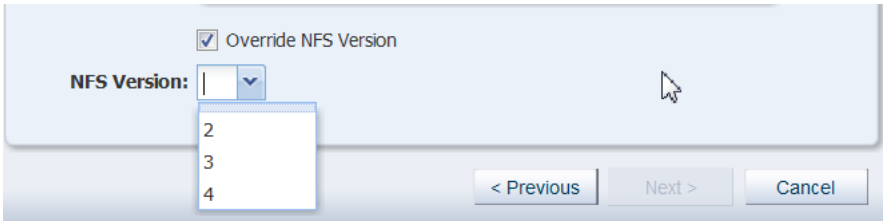
7. Enter the URL or IP address for the NFS server.



8. (Optional) You can specify the version of NFS that this storage uses. By default, Oracle Enterprise Manager Ops Center uses the operating system's default NFS version. To specify a different version, allow the version to be changed.

   a. Click the **Override NFS Version** option.

   b. Click the drop-down list of NFS versions. Select a version.



9. Click the **Next** button to review a summary of the storage library.

10. Click the **Finish** button to submit the job.

When the job is completed, you can see the new storage library in the Libraries section of the Navigation pane.

What's Next

The new storage library is available to be associated with a server pool.

Related Articles and Resources

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

- Hardware
- Storage
- Storage Libraries for Virtualization

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