Oracle® ZFS Storage Appliance Simulator Quick Start Guide

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About This Guide

This document provides instructions on how to configure the Oracle ZFS Storage Appliance Simulator. The Simulator introduces you to the power and simplicity of the Oracle ZFS Storage Appliance software using VirtualBox or VMware Workstation and is identical in every way to the appliance version, with the exception of clustering.

Simulator Configuration

Use the following procedures to configure the Simulator:

1. "First Steps" on page 2 - Complete all prerequisites before beginning configuration.
2. Set up the Simulator virtual machine using one of the following procedures:
   - "VirtualBox Setup" on page 4
   - "VMware Workstation Setup" on page 6
3. "Configuring the Simulator" on page 8 - Complete basic configuration in your browser.
4. As needed, refer to these additional procedures:
   - "Configuring Bridged Networking and Services" on page 13 - Enable access to the Simulator from other machines on your network.
   - "Sharing a SMB Filesystem" on page 15 - Set up a simple filesystem share over SMB.

First Steps

Before you begin the setup and configuration procedures, complete the following prerequisite steps.

1. **Ensure that your host system (laptop, desktop, server) has sufficient resources to support the Simulator's configuration of 2560 megabytes of memory and 125 gigabytes of dynamically allocated disk space.**

2. **Check that your CPU has 64-bit capability and supports hardware virtualization; to do so, refer to your system information or the documentation for your hardware manufacturer.**

3. **Check that either Intel Virtualization Technology (VT-x) or Advanced Micro Devices Virtualization (AMD-V) is enabled on your system.**

   Often these settings are within the BIOS, sometimes under chipset, processor, security, power, or advanced settings. The BIOS menu is usually accessible during reboot by pressing specific keys. Your system may require a BIOS update for these settings to be available. For Intel-based Apple products, you might need to install the latest EFI firmware update. For details, refer to your system information or the documentation for your hardware manufacturer.

4. **Download and decompress the latest Oracle ZFS Storage Simulator for your virtual machine from the Oracle Technical Network (`http://www.oracle.com/technetwork/server-storage/sun-unified-storage/downloads/sun-simulator-1368816.html`).**

5. **Download and install the latest VirtualBox or VMware Workstation package that is compatible with your operating system:**

   - VirtualBox package and extension pack (minimum version 4.2.12): `https://www.virtualbox.org/`.

- VMware Workstation package (minimum version 10): `https://www.vmware.com`.

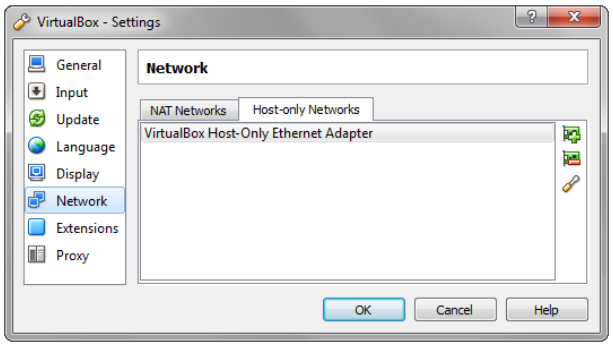
Read any warnings and accept any messages to complete installation.

6. **Verify that a host-only adapter is defined.**

   After you install VirtualBox or VMware Workstation, a host-only adapter is defined by default. You can use this adapter for the host-only network used during initial Simulator configuration. For details about host-only networks, refer to the VirtualBox documentation (`https://www.virtualbox.org/manual`) or the VMware Workstation documentation (`http://pubs.vmware.com/workstation-12/index.jsp`).

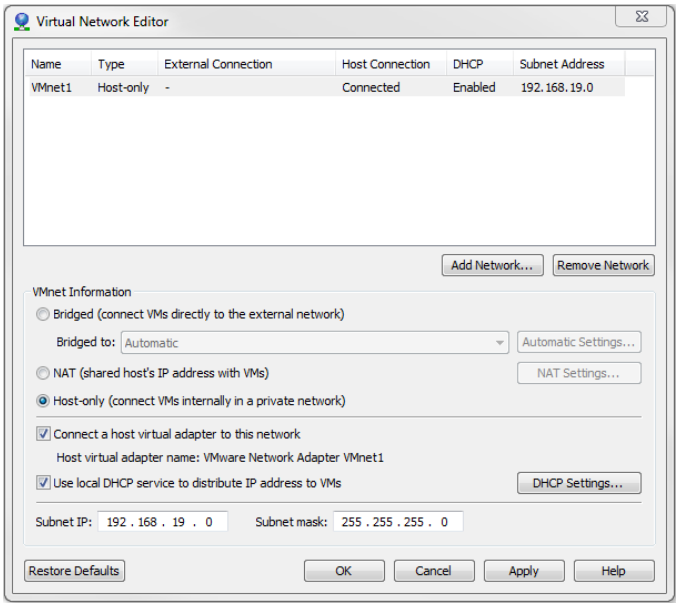
   a. **Virtual Box: Navigate to `File > Preferences > Network > Host-only Networks`.**

      If there is no host-only adapter, click the add item icon to add one as shown below.



   b. **VMware Workstation: Navigate to `Edit > Virtual Network Editor` and select `Host-only`.**

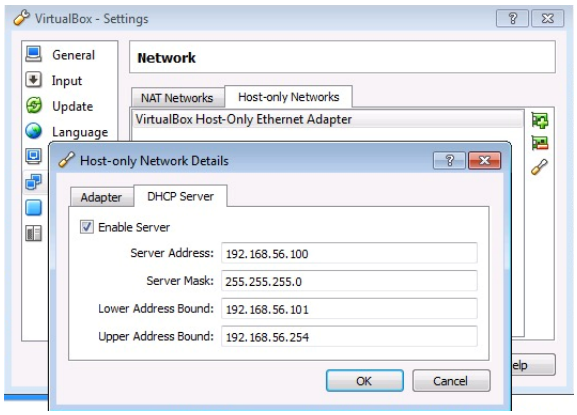
      If there is no host-only adapter, click `Add Network` to add one.



7. **In the current window, ensure that the DHCP server is set up and enabled:**

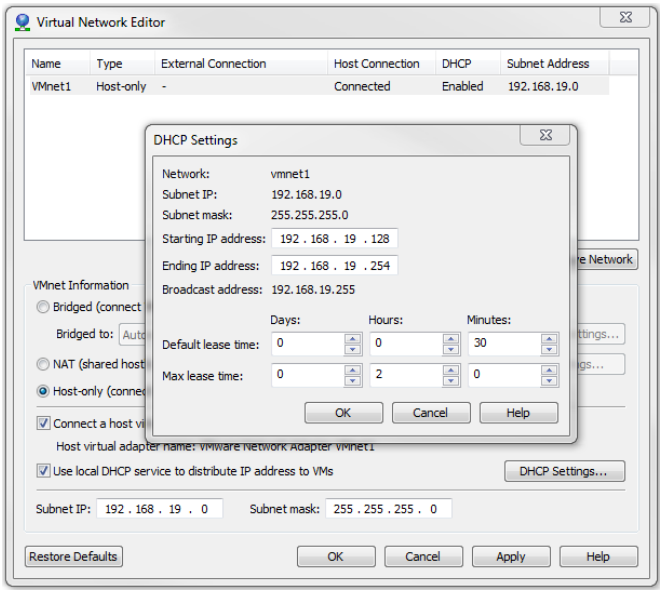
   - **VirtualBox:** Click the tool icon .

     Enable the DHCP server after making changes to the configuration information displayed in the dialog box.



- **VMware Workstation:** Click `DHCP Settings`.

  Make changes as needed to the configuration information provided in the dialog box.



8. **If you are on a virtual private network (VPN), ensure that it allows access to the local host network. If it does not, you may not be able to access the Simulator while on the VPN.**

9. **Set up your virtual machine by completing one of the following tasks:**

   - “VirtualBox Setup” on page 4
   - “VMware Workstation Setup” on page 6

▼ VirtualBox Setup

Complete the following steps to set up the Oracle ZFS Storage Appliance Simulator in VirtualBox.

1. **Start VirtualBox and navigate to `File > Import Appliance`.**

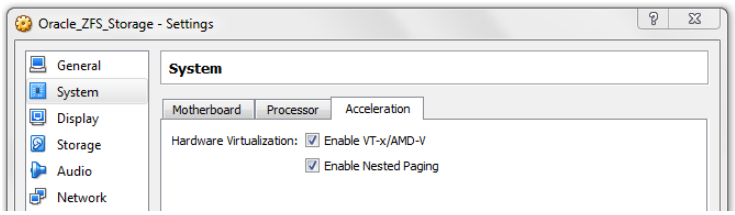
2. **Navigate to and choose the Simulator OVF file and click `Next`.**

3. **If desired, change any of the default settings, including the name. The RAM setting must be at least 2560 megabytes, which is the default.**

4. **Click `Import`.**

5. **Select the `Simulator in VirtualBox` and go to `Settings > System > Acceleration`. Verify that "Enable VT-x/AMD-V" is checked.**

   If hardware virtualization is not enabled on your system, you will not be able to access the Acceleration tab; see "First Steps" on page 2.

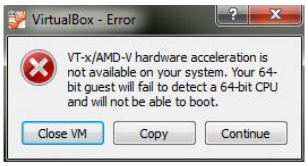


6. **To start the virtual machine, click `Start`. The boot screen appears.**

```
Configuring devices.
Configuring network devices.

Checking hardware configuration ... done.
Starting appliance configuration ............................... done.
Press any key to begin configuring appliance: [*] _
```

   If you get the following error message, click `Close VM`, and enable VT-x/AMD-V as described in "First Steps" on page 2. Then restart this step.



7. **Press any key to begin configuration. The Configuration screen appears.**

```
  NET-0 <=>

  Host Name: fishworks
  DNS Domain: localdomain
  IP Address: 192.168.56.101
  IP Netmask: 255.255.255.0
  Default Router: 192.168.56.1
  DNS Server: 192.168.56.1
* Password: _
* Re-enter Password:



  Please enter the required (*) configuration data

  ESC-1: Done   ESC-2: Help   ESC-3: Halt   ESC-4: Reboot   ESC-5: Info

  For help, see http://www.oracle.com/zfsstorage/
```

8. **Use the arrow keys on your keyboard to navigate among the fields on this screen.**

   Verify that the IP address and IP netmask match the default host-only network. If you modified any values in the host-only configuration settings in VirtualBox, you may see different values entered on this screen.

   Complete the remaining fields:

   - `Host Name`: Any name you want
   - `DNS Domain`: `localdomain`
   - `Default Router`: Copy the IP address, but use `1` as the final octet (example: 192.168.56.1)
   - `DNS Server`: Copy the IP address, but use `1` as the final octet (example: 192.168.56.1)
   - `Password`: Any password you want

9. **Press the `ESC` key followed by the `1` key to confirm these settings.**

10. **Wait until the screen provides you with two URLs to use for subsequent configuration and administration: one with the hostname you specified and one with an IP address.**

```
Your new appliance is now ready for configuration.  To configure your
appliance, use a web browser to visit the following link:

        https://fishworks.localdomain:215/

If your network administrator has not yet assigned the network name you chose
for the appliance, you can also configure your appliance using the link:

        https://192.168.56.101:215/

If you are unable to connect to the appliance through your web browser, you
can begin text-mode configuration by logging in as "root" and entering the
administrator password you specified on the previous screen.

For help, see http://www.oracle.com/zfsstorage/
```

You will use the IP address URL to configure the Simulator in the next section. You cannot access the Simulator using the hostname URL without more advanced configuration, as described in "Configuring Bridged Networking and Services" on page 13. You must configure the Domain Name Server (DNS) to map the hostname to its corresponding IP address.

▼ VMware Workstation Setup

Complete the following steps to set up the Oracle ZFS Storage Appliance Simulator in VMware Workstation.

1. **Start VMware Workstation and navigate to `File > Open`.**

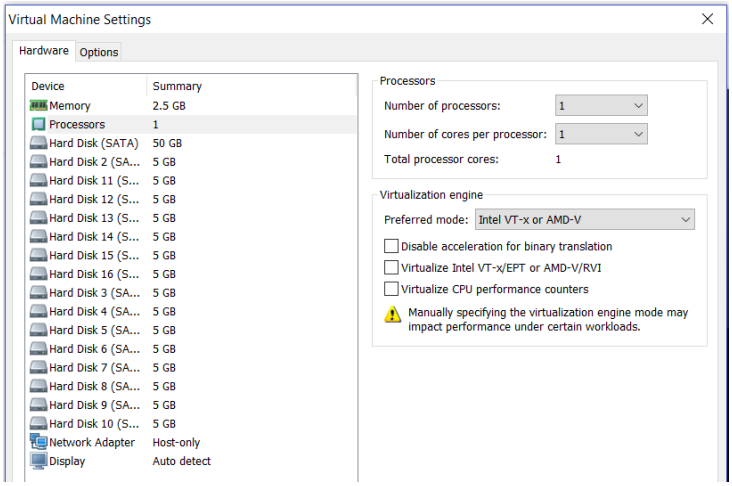
2. **Enter a name for the virtual machine, then navigate to and select the Simulator OVA file and click `Import`.**

3. **If desired, change any of the default settings, including the name. The RAM setting must be at least 2560 megabytes, which is the default.**

4. **Right-click the virtual machine name, and select `Settings`.**

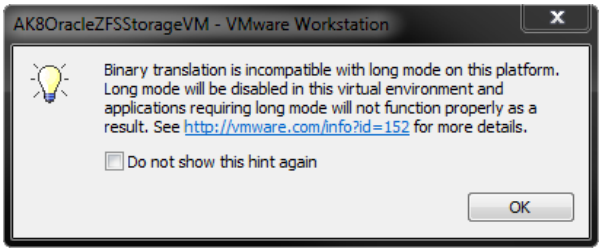
5. **Select the `Hardware` tab, then click `Processors`. Under `Virtualization engine`, select `Intel VT-x or AMD-V` as the preferred mode.**

   If hardware virtualization is not enabled on your system, see "First Steps" on page 2.



6. **To start the virtual machine, click `Power on this virtual machine`. The boot screen appears.**

If you get the following error message, click `OK`, and enable VT-x/AMD as described in "First Steps" on page 2. Then restart this step.



7. **Press any key to begin configuration. The Configuration screen appears.**

8. **Use the arrow keys on your keyboard to navigate among the fields on this screen.**

   Verify that the IP address and IP netmask match the default host-only network. If you modified any values in the host-only configuration settings in VMware Workstation, you may see different values entered on this screen.

   Complete the remaining fields:

   - `Host Name`: Any name you want
   - `DNS Domain`: `localdomain`
   - `Default Router`: Copy the IP address, but use `1` as the final octet (example: 192.168.19.1)
   - `DNS Server`: Copy the IP address, but use `1` as the final octet (example: 192.168.19.1)
   - `Password`: Any password you want

9. **Press the `ESC` key followed by the `1` key to confirm these settings.**

10. **Wait until the screen provides you with two URLs to use for subsequent configuration and administration: one with an IP address and one with the hostname you specified.**

```
Your new appliance is now ready for configuration.  To configure your
appliance, use a web browser to visit the following link:

        https://zfssa.localdomain:215/

If your network administrator has not yet assigned the network name you chose
for the appliance, you can also configure your appliance using the link:

        https://192.168.19.128:215/

If you are unable to connect to the appliance through your web browser, you
can begin text-mode configuration by logging in as "root" and entering the
administrator password you specified on the previous screen.

For help, see http://oracle.com/zfsstorage/
```

You will use the IP address URL to configure the Simulator in the next section. You cannot access the Simulator using the hostname URL without more advanced configuration, as described in "Configuring Bridged Networking and Services" on page 13. You must configure the Domain Name Server (DNS) to map the hostname to its corresponding IP address.

▼ Configuring the Simulator

Complete basic Simulator configuration in the Browser User Interface (BUI) using the following steps.

Note - The Simulator's default configuration, described here, uses a host-only network, meaning that the Simulator can only be accessed from the computer on which it is running. You can later enable access to the Simulator from other machines on your network, as described in "Configuring Bridged Networking and Services" on page 13.

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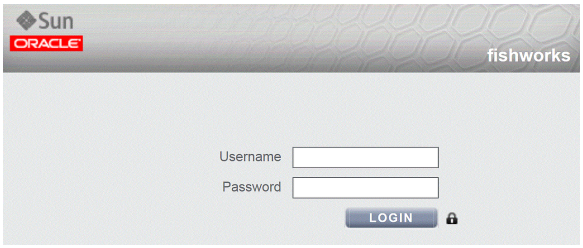
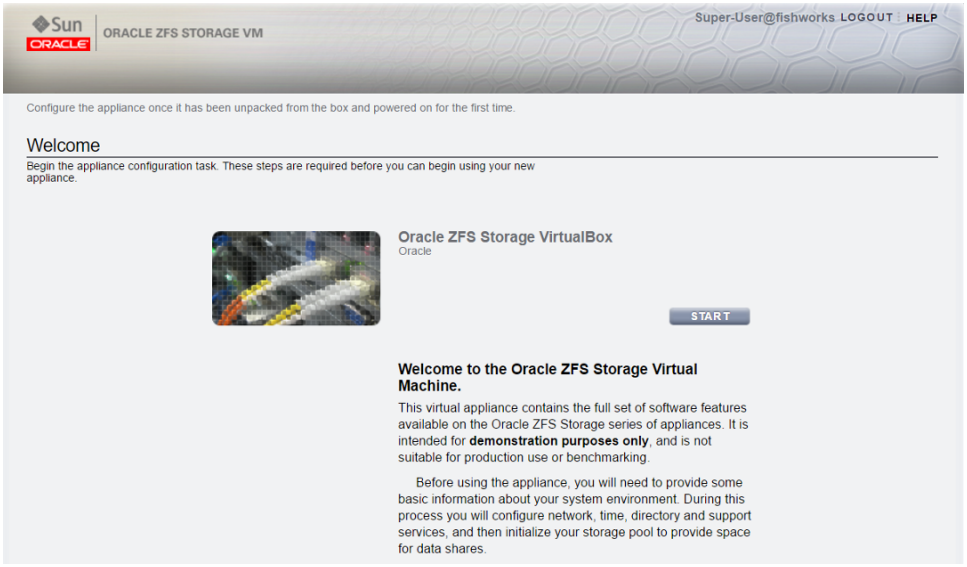
1. **Open a web browser and navigate to the URL with the IP address provided in the last step of "VirtualBox Setup" on page 4 or "VMware Workstation Setup" on page 6.**

   Accept the web browser security warning. Then the login screen appears.



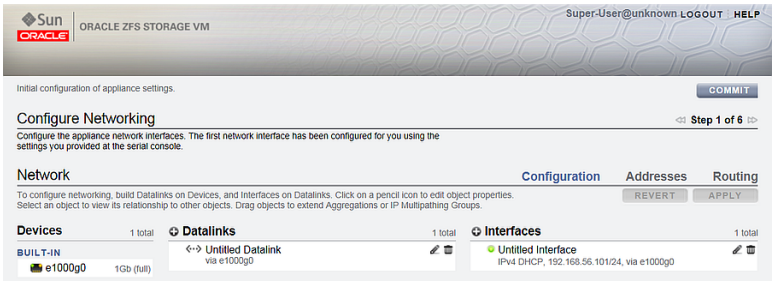
2. **Type the username `root` and the password you created in the configuration screen, then click `LOGIN`. The `Welcome` screen appears.**



Note - At the top right of every BUI page is a `HELP` link to the Simulator online help, which is context-sensitive and provides detailed information about each configuration step.

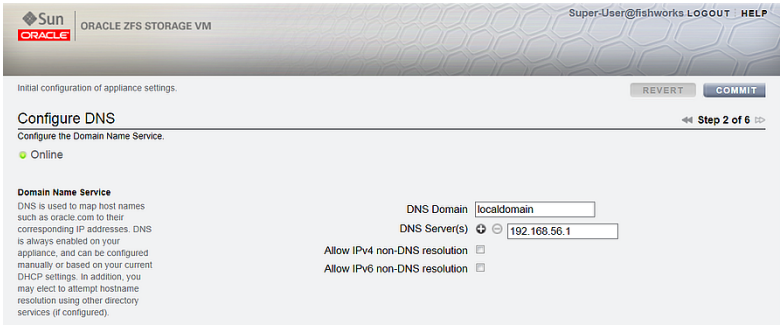
3. **Click `START` to begin setup.**

4. **On the `Configure Networking` screen, click `COMMIT` to continue.**



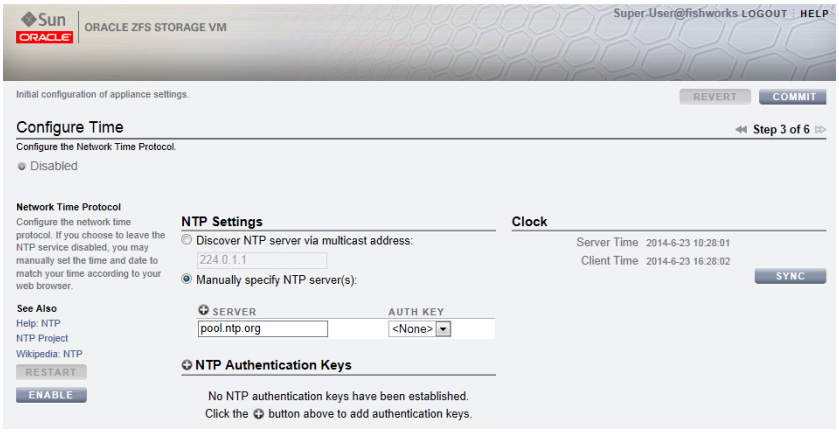
5. **On the `Configure DNS` screen, either configure DNS, or click `COMMIT` to skip this screen.**

   If needed, later you can set these parameters to map the hostname to its corresponding IP address as described in "Configuring Bridged Networking and Services" on page 13.



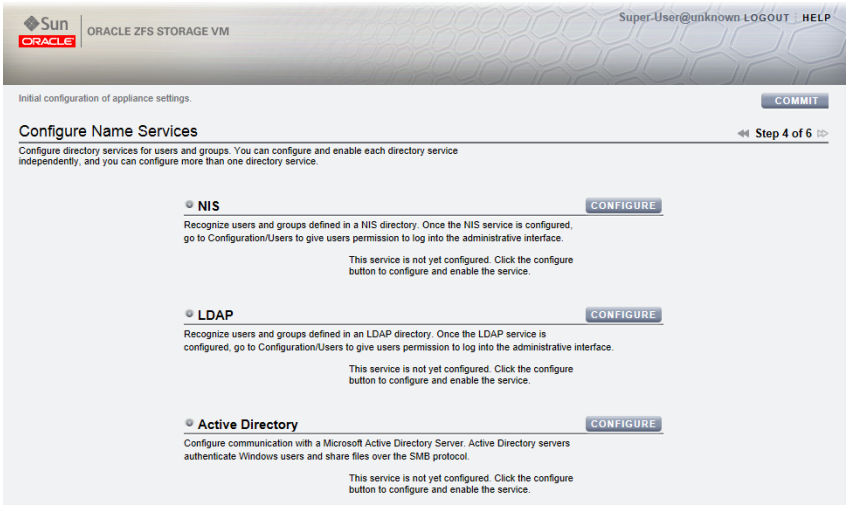
6. **On the `Configure Time` screen, either configure the Network Time Protocol (NTP), or click `COMMIT` to skip this screen.**

   If needed, later you can synchronize the appliance time with a NTP server, as described in "Configuring Bridged Networking and Services" on page 13.

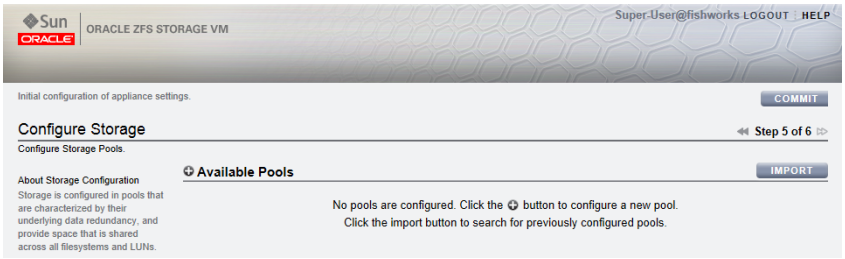


7. **Click `COMMIT` to skip the `Configure Name Services` screen.**

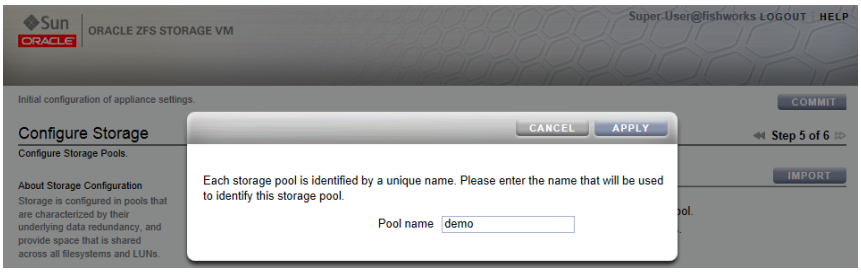
   Later, you can configure NIS, LDAP, and Active Directory for user access control, as described in "Configuring Bridged Networking and Services" on page 13.



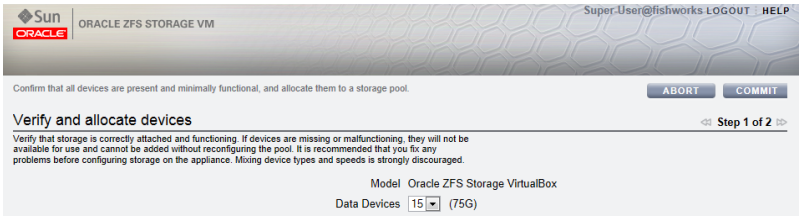
8. **Create a storage pool by clicking the add item icon ⊕ next to `Available Pools`.**



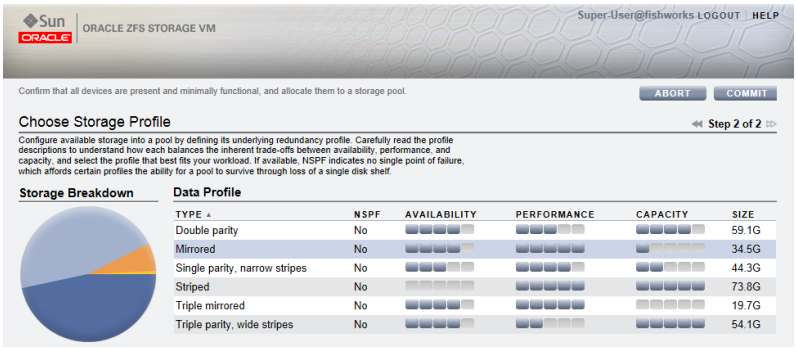
   a. **Name the new storage pool and click `APPLY`.**



b. **Use the drop-down list next to `Data Devices` to allocate storage to the pool, then click `COMMIT`.**



c. **Select a data profile based on your business needs. Click `COMMIT` to configure the pool.**

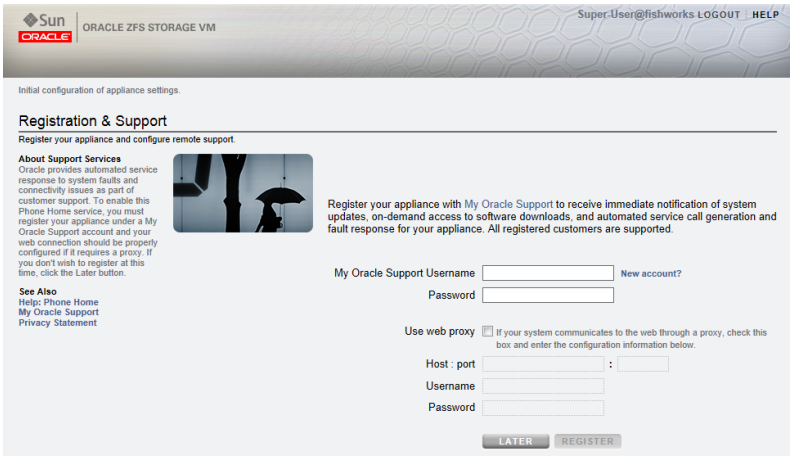


d. **The `Configure Storage` page is redisplayed with a description of the new pool.**

Click `COMMIT` to continue.

9. On the `Registration & Support` screen, select `LATER` and click `OK` to confirm.

When setting up a real Oracle ZFS Storage Appliance, you use this screen to register the appliance, enable Phone Home support, and configure web proxies required to connect to the Oracle support site.



10. The final configuration screen appears with links to further documentation.

You can return to the configuration wizard at any time by navigating to `Maintenance > System` and clicking `INITIAL SETUP`. Current settings are not changed unless you explicitly change them. User data on the storage pool (including projects and shares) is not affected.

11. **To close the Simulator, click `LOGOUT` near the top of the screen and close the VM command window.**

12. **Next, power off the Simulator using the appropriate instructions:**

    a. **VirtualBox: Navigate to `Machine > Close`.**

    For details about save and power-off options, refer to the VirtualBox documentation (`http://www.virtualbox.org/wiki/Documentation`).

    b. **VMware Workstation: Navigate to `VM > Power > Shut Down Guest`.**

    For details about save and power-off options. refer to the VMware Workstation documentation (`http://pubs.vmware.com/workstation-12/index.jsp`).

▼ Configuring Bridged Networking and Services

When first installed, the Oracle ZFS Storage Appliance Simulator can only be accessed from the computer on which it is running. When needed, you can enable access to the Simulator from other machines on your network by setting up bridged networking using the following steps.

For detailed information about bridged networking and limitations for your operating system, refer to the VirtualBox documentation (`http://www.virtualbox.org/wiki/Documentation`) or VMware Workstation documentation (`http://pubs.vmware.com/workstation-12/index.jsp`).

1. **Collect the following information for the network you want to use:**

   - IP address and netmask
   - Host name
   - DNS domain name
   - DNS server IP address
   - Default router (gateway) IP address

   You may need to contact your network administrator for this information.

2. **Open VirtualBox or VMware Workstation and start the Simulator virtual machine.**

3. **Log in to the virtual machine.**

   When the console login prompt appears, log in to the CLI by entering username **`root`** and the password you created during setup. Wait until the hostname prompt appears.

4. **Set the network gateway.**

   When the hostname prompt appears, navigate to `configuration net routing` and use the `show` command to list the routing properties. Select the appropriate route and set the gateway value.

```
hostname:> configuration net routing
hostname:configuration net routing> show

ROUTE      DESTINATION   GATEWAY        INTERFACE TYPE    STATUS
route-000  0.0.0.0/0     192.168.56.1   e1000g0   static  active

hostname:configuration net routing> select route-000
hostname:configuration net route-000> set gateway="GATEWAY"
hostname:configuration net route-000> commit
```

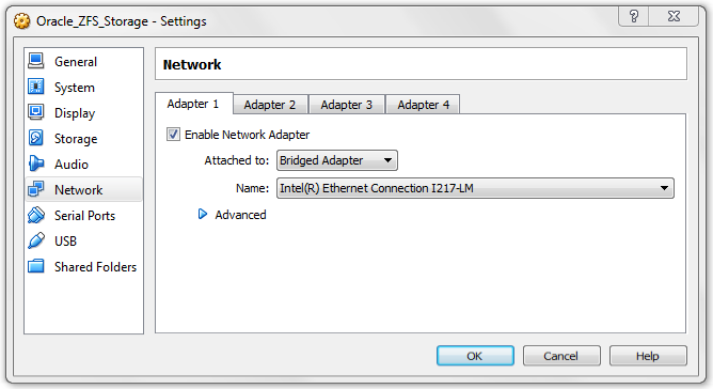
5. **Set the IP address and netmask values.**

   Navigate to `configuration net interfaces` and use the `show` command to list the interface properties. Select the appropriate interface and set the IP address and netmask values appropriate for your network.

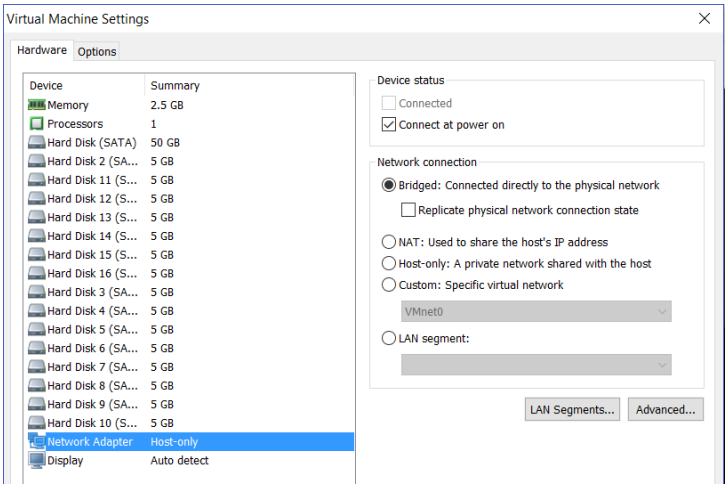
```
hostname:configuration net routing> cd ..
hostname:configuration net> interfaces
hostname:configuration net interfaces> show

Interfaces:
INTERFACE   STATE  CLASS LINKS     ADDRS                LABEL
e1000g0     up     ip    e1000g0   192.168.56.101/24    Untitled Interface

hostname:configuration net interfaces> select e1000g0
hostname:configuration net interfaces e1000g0> set v4addrs="IP/NETMASK"
hostname:configuration net interfaces e1000g0> set v4adhcp=false
hostname:configuration net interfaces e1000g0> commit
```

6. **Configure the bridged network settings.**

   a. **VirtualBox: Select the Simulator virtual machine, and click `Settings`. Select `Network` and in the `Adapter 1` tab, select `Bridged Adapter` to attach it. Then click `OK`.**



   b. **VMware Workstation: Right-click the Simulator virtual machine and click `Settings`. In the Hardware tab, select `Network Adapter` and select the `Bridged` network connection.**



7. **(Optional) If needed, configure services in the Simulator BUI by navigating to `Configuration > Services` and clicking the name of the service you want to configure:**

- **DNS** - Set parameters to map the hostname to its corresponding IP address.
- **NTP** - Synchronize appliance time with an NTP server by completing the fields under `NTP Settings`, or set the appliance time to match the time and date according to your web browser by clicking **SYNC** under `Clock`.

Note - The NTP service can take several minutes to complete startup due to the nature of NTP and the adjustment of the system clock.

- **NIS** - Configure this name service to authenticate users and groups using the Network Information Service (NIS).
- **LDAP** - Configure this name service to authenticate users and groups using the Lightweight Directory Access Protocol (LDAP).
- **Active Directory** - Configure this name service to authenticate users and groups using a Microsoft Active Directory Server.

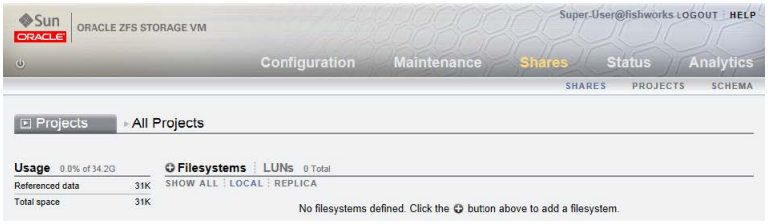
Refer to the Simulator online help for detailed information about working with services.

Sharing a SMB Filesystem

Complete the following steps to set up a simple filesystem share over Server Message Block (SMB) with Windows user access.

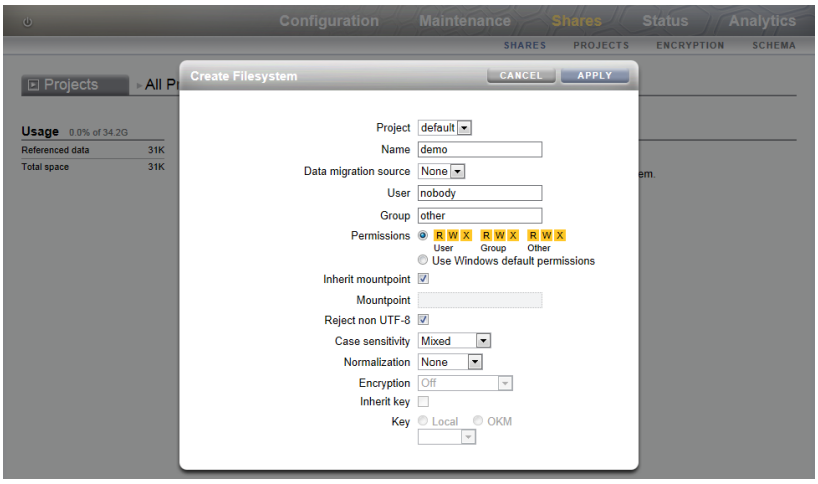
1. **Navigate to the `Shares` screen.**

   Click the add item icon ⊕ next to `Filesystems` to create a new filesystem.

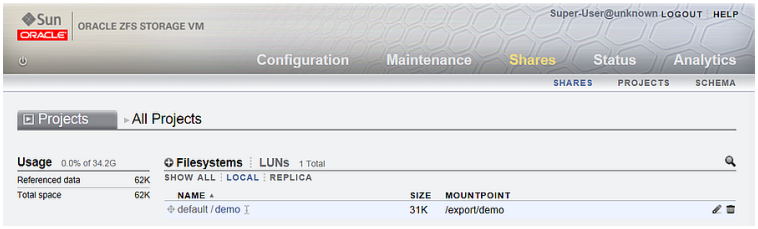


2. **Name the filesystem and change the permissions for `Group` and `Other` to allow anyone to read, write, and execute on the filesystem.**

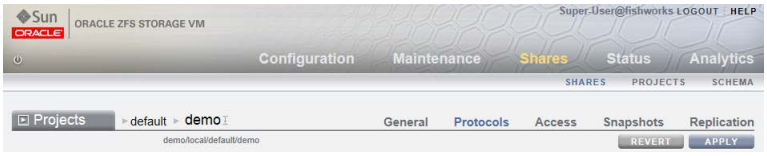
   In this example, the filesystem is named `demo`. The filesystem is part of the `default` project. Click `APPLY` to save the changes.



3. **In the `Shares` screen, mouse over the entry for the new filesystem and click the edit icon to edit the filesystem attributes.**

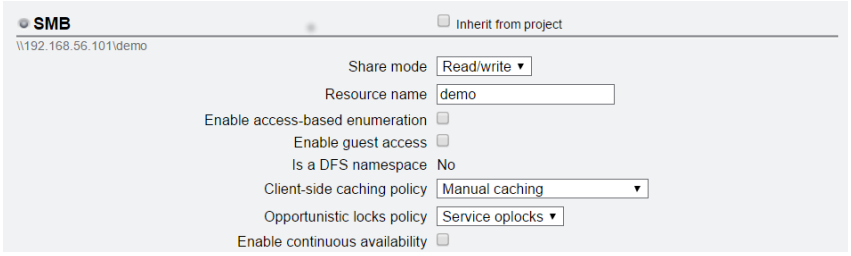


4. **Click `Protocols`.**



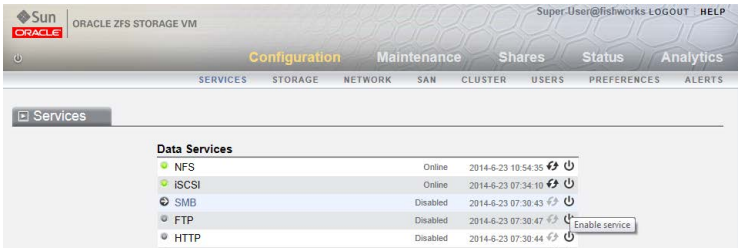
5. **In the SMB section, clear the checkbox for `Inherit from project`, select `Read/Write` in the `Share mode` drop-down list, and set the `Resource Name`.**

   In this example, the `Resource Name` is `demo`. Click `APPLY` to save the changes.



6. **Click `Configuration` to access the `Configuration Services` screen.**

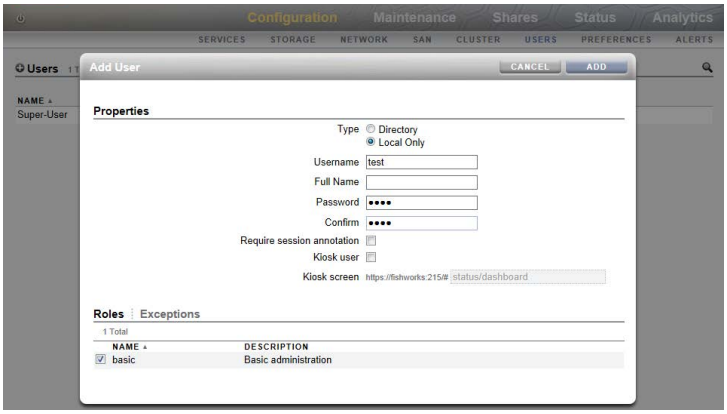
7. **Enable the SMB service by clicking the power icon ⏻.**



The state will change from `Disabled` to `Online`.

8. **Configure a user with access to the filesystem share.**

   a. **Click `USERS` in the navigation bar, and click the add item icon ⊕ next to `Users` to create a new user.**



   b. **Select `Local Only`, set the `Username` and `Password`, and click `ADD`.**

9. **Log out of the Simulator by clicking `LOGOUT` near the top of the screen.**

10. **From a Windows client, connect to the IP address of your Simulator, and log in with the credentials you set in step 8 to access the shared filesystem.**

Oracle ZFS Storage Appliance Simulator Quick Start Guide

Part No: E39468-06

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