Oracle I/O Domain Administration Guide

Part No: E53172-13
August 2019

Oracle I/O Domain Administration Guide

Part No: E53172-13

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info` or visit `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs` if you are hearing impaired.

Référence: E53172-13

Accès aux services de support Oracle

Les clients Oracle qui ont souscrit un contrat de support ont accès au support électronique via My Oracle Support. Pour plus d'informations, visitez le site `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info` ou le site `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs` si vous êtes malentendant.

Contents

Using This Documentation

- **Overview** – Describes how to administer Oracle SuperCluster I/O Domains using the Oracle SuperCluster Virtual Assistant.
- **Audience** – I/O Domain administrators and users.
- **Required knowledge** – Experience configuring SuperCluster domains and resources.

Product Documentation Library

Documentation and resources for this product and related products are available at:

- SuperCluster M8 and SuperCluster M7 library – `https://docs.oracle.com/cd/E58626_01`
- SuperCluster M6-32 library – `https://docs.oracle.com/cd/E41531_01`
- SuperCluster T5-8 library – `https://docs.oracle.com/cd/E40166_01`

Feedback

Provide feedback about this documentation at `http://www.oracle.com/goto/docfeedback`.

Understanding the SuperCluster Virtual Assistant

These topics provide an overview of the assistant:

SuperCluster Virtual Assistant Overview

This guide is updated to cover the version of the SuperCluster Virtual Assistant that is included with SuperCluster software version 3.0. However, this guide also provides information on previous versions. When a particular topic is version specific, it is noted. To learn how to check your installed version, see "Check the SuperCluster Virtual Assistant Version" on page 18.

Note - The SuperCluster Virtual Assistant was formerly called the I/O Domain Creation tool.

The SuperCluster Virtual Assistant enables you to manage the life cycle of I/O domains on SuperCluster systems. You create and delete domains on demand, allocating CPU, memory, and network resources as needed. The assistant automatically calculates a predefined amount of storage, then calculates additional resources for swap and dump based on the allocated CPU and memory resources.

From an administrator account, you can create additional user accounts that have full or limited privileges, and unlimited or limited resources. The users can then create their own domains.

Administrators and users can create resource and network recipes that are used to automatically assign a certain amount of resources to domains.

The assistant enables administrators and users to create I/O Domains that run Oracle Solaris plus applications (Application Domains), or Oracle Database (Database Domains or Database Zone Domains). For further details about domains, see "SuperCluster Domain Overview" on page 23.

When you use the assistant to deploy a domain, the assistant performs a number of complex activities in the background to configure the domain and install the OS.

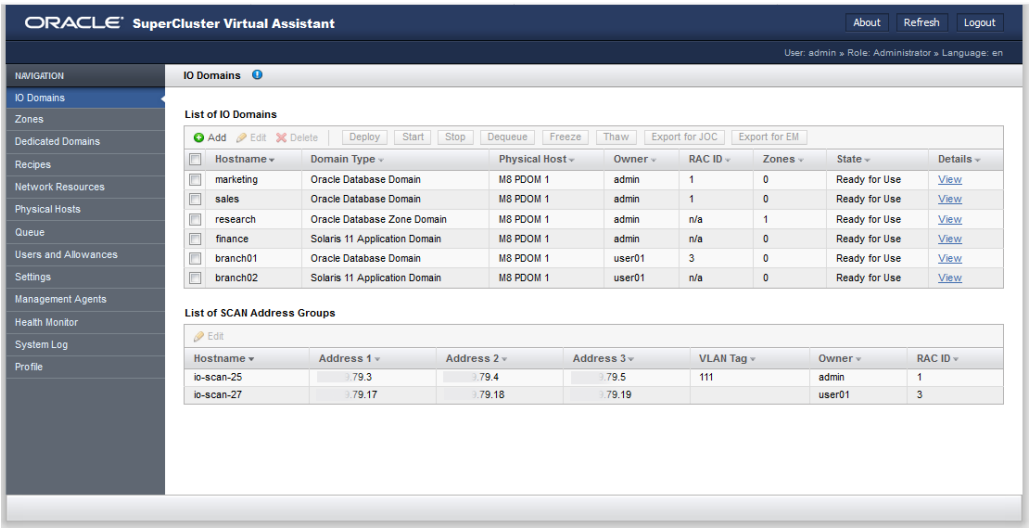
Administrators can use the assistant to monitor deployment activity, tool activity, and to obtain a status of the health of domains.

Administrator Navigation Panel

The assistant runs in a browser. The left navigation panel provides access to various features, and these features differ based on the role of the user.

Users without the administrator role only have access to a subset of options. For more information, see "User Navigation Panel" on page 16.

This example shows that all domains are displayed (regardless of who created the domain) for users with the administrator role.



The navigation panel provides access to these features:

- **I/O Domains** – Displays configured domains and SCAN address groups. You can add, edit, delete, deploy, and dequeue domains, and start or stop a domain. You can also export configuration files that are used to create a database domain, or for Oracle Enterprise Manager.
- **Zones** – Configure a new zone or remove an existing zone configuration from the SuperCluster Virtual Assistant. SuperCluster 2.5 (or later) lets you configure database zones in a Database Domain. Provisioning these zones is not automated with the SuperCluster Virtual Assistant, but you can generate an import file for the Oracle Exadata Deployment Assistant (OEDA) with the Export for JOC button.
- **Dedicated Domains** – Available as of SuperCluster version 3.0. Displays the dedicated domains, root domains, and Oracle Database zone domains that were created when SuperCluster was installed. You can also access additional details about the CPU and memory allocations, networking details, and I/O Domain dependencies (root domains).
- **Recipes** – Displays preset resource allocations for cores, memory, and network configurations that can be used multiple times to configure resources for I/O domains. You can use the default provided recipes, or create your own recipes.
- **OVM Templates (not shown)** – This option is only available on SuperCluster version 2.6 and earlier. Upload OVM templates that provide a combined OS and application configuration that can then be used to create domains that are automatically configured for the application.
- **Network Resources** – View and manage network resources that are used by the domains.
- **Physical Hosts** – View all the resources on the system and the amount of allocated and available resources.

- **Queue** – View the status of deploying domains and pending changed resource allocations. You can also access the process queue. Prior to SuperCluster version 3.0, this was called the Deployment Queue.
- **Users and Allowances** – View and manage users and allocate their resources.
- **Settings** – Configure how IP addresses are assigned. Configure security settings for passwords. Enable or disable root domain groups. Specify the type of storage servers that are added to the system.
- **Management Agents** – Displays real-time information on the state of each I/O domain. You can start or stop a management agent on each physical host. Running management agents provides the ability to start and stop I/O Domains.
- **Health Monitor** – Monitor the status of the assistant and manage any failures that might be detected.
- **System Log** – View timestamped tool activities.
- **Profile** – Change the password or email address of a user.

For more information about the I/O Domains screen, see "View I/O Domains" on page 95.

Related Information

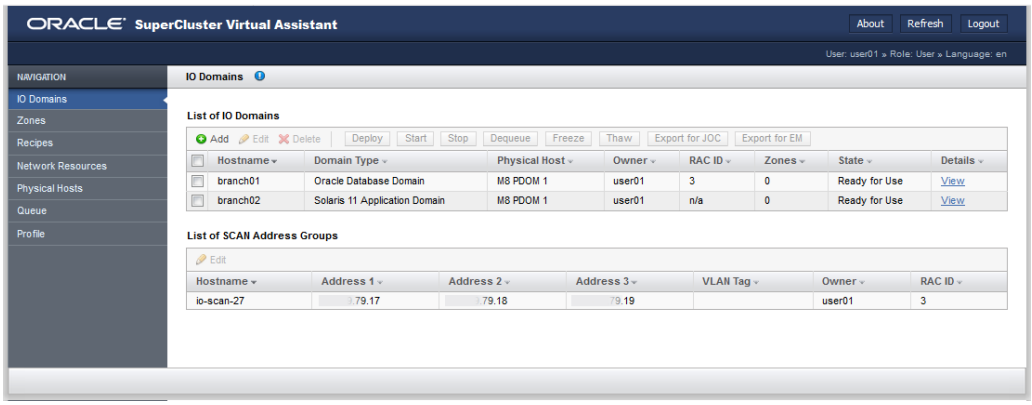
- "User Navigation Panel" on page 16
- "User Roles and Privileges" on page 61

User Navigation Panel

Non-administrator users are restricted to a subset of tool functions. The navigation panel has fewer options. In some cases, additional detailed views are not available. Additionally, the user navigation panel only shows I/O Domains that are owned by the user.

For more information about the differences between administrators and users, see "User Roles and Privileges" on page 61.

This example shows what is displayed for regular users without the administrator role.



The navigation panel provides access to these features:

- **I/O Domains** – Displays the I/O Domains and SCAN address groups that are configured on the system. This screen also provides access to add, edit, delete, deploy, and dequeue I/O Domains. You can also export configuration files that are used to create a database domain, or for Oracle Enterprise Manager.
- **Zones** – Configure a new zone or remove an existing zone configuration from the SuperCluster Virtual Assistant. SuperCluster 2.5 (or later) lets you configure database zones in a Database Domain. Provisioning these zones is not automated with the SuperCluster Virtual Assistant, but you can generate an import file for the Oracle Exadata Deployment Assistant (OEDA) with the Export for JOC button.
- **Recipes** – Displays preset resource allocations for cores, memory, and network configurations that can be used multiple times to configure resources for I/O domains. You can use the default provided recipes, or create your own recipes.
- **Network Resources** – View and manage network resources that are used by the I/O Domains.
- **Physical Hosts** – View all the resources on the system and the amount of allocated and available resources.
- **Queue** – View the status of deploying I/O Domains and pending changed resource allocations. Prior to SuperCluster version 3.0, this was called the Deployment Queue.
- **Profile** – Change the password or email address of a user.

Note - In this example, the I/O Domains screen is displayed, listing the domains. Because this is a non-administrator user, only the domains owned by the user are displayed.

Related Information

- "Administrator Navigation Panel" on page 14

- "User Roles and Privileges" on page 61

Check the SuperCluster Virtual Assistant Version

The SuperCluster Virtual Assistant is available on SuperClusters with the latest versions of software enhancements. The assistant is part of the `osc-domcreate` package.

Perform this task to see if the assistant is available on SuperCluster and to identify the version of the assistant.

1. **On the management network, log into the control domain on the first compute server.**

2. **Use the `pkg info` command to display the version of the assistant.**

   In the output, the value for `Branch` indicates the version of the assistant. For example:

```
# pkg info osc-domcreate
          Name: system/platform/supercluster/osc-domcreate
       Summary: Oracle SuperCluster IO Domain creation tool
   Description: Oracle SuperCluster IO Domain creation tool
         State: Installed
     Publisher: exa-family
       Version: 0.5.11
        Branch: 3.0.0.1803
Packaging Date: April 24, 2019 at 11:36:58 PM
          Size: 7.41 MB
          FMRI: pkg://exa-family/system/platform/supercluster/osc-domcreate@0.5.11-
3.0.0.1803:20190325T233658Z
```

Note - If the `pkg info` command does not return any package information, the assistant is not installed on your system.

Related Information

- "SuperCluster Virtual Assistant Overview" on page 13
- "Minimum Number of IP and Alt MAC Addresses" on page 19
- "Domain Storage Resources" on page 58

Domain Requirements

Before creating a domain, the system administrator must ensure that these requirements are met:

- Oracle personnel completed the initial software installation, configuration, and created Root Domains as specified in your configuration worksheets.

  Refer to the *Oracle SuperCluster T5-8 Owner's Guide*, the Overview Guide for your model (for example, *Oracle SuperCluster M8 and SuperCluster M7 Overview Guide*), and your configuration worksheets.
- (Only applicable for SuperCluster version 2.6 or earlier) The CPU and memory resources for a dedicated domain are configured as needed using the `osc-setcoremem` tool. After the domains are created, you cannot change resources using the `osc-setcoremem` tool.
- The Oracle SuperCluster Virtual Assistant must be available on SuperCluster. See "Check the SuperCluster Virtual Assistant Version" on page 18.
- To initialize the assistant, you must have access to the XML file that describes the configuration of your system. Obtain the name and location of this file from your Oracle representative.
- You must provide additional IP addresses for the domains. See "Minimum Number of IP and Alt MAC Addresses" on page 19.
- Your browser must support secure SSL protocols (TLS version 1.2. or higher). Ensure that you are using the latest version of your browser.

Additional required information is needed for each I/O Domain that is created. For those details, see "Required Information for Configuring I/O Domains" on page 92.

Related Information

- "SuperCluster Virtual Assistant Overview" on page 13
- "Minimum Number of IP and Alt MAC Addresses" on page 19
- "Domain Storage Resources" on page 58

Minimum Number of IP and Alt MAC Addresses

This table lists the minimum number of IP addresses you need for each I/O Domain. You can configure more than the minimum. You or your network administrator provide the IP addresses, and the assistant enables you to add and remove networks as needed. See "Managing Resources and Networks" on page 45.

	Database I/O Domain	Application I/O Domain
Management network IP addresses	1	1
10GbE Client network IP addresses	1	1
10GbE SCAN IP addresses **Note -** If you create a RAC, no additional SCAN IPs are required.	3	
10GbE VIP IP addresses	1	
Storage IB network IP addresses	1	1
Exadata IB network IP addresses	1	
Versaboot network IP addresses	2	2

The utility automatically assigns two alternate MAC addresses per core in each domain. If you plan to create zones in the domain, multiply the number of cores by two to determine the number of MAC addresses available for zones. If you increase the number of cores in a domain, you can increase the number of alternate MAC addresses. For details, refer to the My Oracle Support knowledge article ID 2198060.1 at `http://support.oracle.com`.

Related Information

- "SuperCluster Virtual Assistant Overview" on page 13
- "Domain Requirements" on page 19
- "Domain Storage Resources" on page 58

Administrative Task Overview

This table provides a summary of the tasks that administrators perform to configure and manage the SuperCluster Virtual Assistant. These steps are performed by the assistant administrator.

Steps	Links
1. (One time only) Initialize the assistant and add network resources.	
1. Ensure that the assistant is available and determine the version of the assistant. 2. Initialize the assistant so that the assistant is configured specifically for your SuperCluster configuration. 3. Set up network resources to support the creation of domains. 4. Configure security parameters.	"Initializing and Configuring the SuperCluster Virtual Assistant" on page 27

Steps	Links
2. Create domain users.	
1. Learn about the different types of user roles. 2. Determine which users will have access to the assistant. 3. Identify the available resources. 4. Create the user accounts. 5. (Optional) Allocate resources to users. 6. Provide the users with their login credentials and tool URL.	"Managing User Accounts" on page 61
3. Review the resource and network recipes, and create new recipes if needed.	
1. The use of recipes is optional, but they simplify the creation of domain resources and network parameters. Review the default recipes. If the recipes do not provide the amount of resources and network configurations for the domains you plan to create,you can create your own recipes. 2. (Only applicable for SuperCluster version 2.6 or earlier) If you plan to configure domains with preconfigured OVM templates, upload the templates into the assistant.	"Managing Recipes and Templates" on page 79
4. Monitor domain activity, resources, deployments, and health.	
1. Monitor available resources. 2. Check the queue to see the state of the domain deployments. 3. Check the health status of domains by viewing the Health Monitor screen. 4. View the log to see tool activity.	"Managing Resources and Networks" on page 45 "Monitoring Activity, Resource Alterations, and Health" on page 161

Domain Configuration Task Overview

This table provides a summary of the steps you perform to configure and deploy domains.

These tasks can be performed by administrators or non-administrators.

Steps	Links
1. Review the resource and network recipes, and if needed create new recipes.	
1. The use of recipes is optional, but they simplify the creation of I/O Domain resources and network parameters. Review the default recipes. If the recipes do not provide the amount of resources and network configurations for the domains you plan to create,you can create your own recipes.	"Managing Recipes and Templates" on page 79
2. Configure and deploy domains and database zones.	
1. Choose a method for creating domains. 2. Gather required information. 3. Create the domain.	"Creating and Deploying I/O Domains" on page 91 "Configuring Zones" on page 137

Steps	Links
4. Deploy the domain. 5. For Database zones, configure the zones.	
3. (Only for Database Domains and Zones) Install and configure Oracle Databases.	
1. Plan and prepare to install Oracle Database. 2. Create configuration files using OEDA. 3. Install the database.	"Preparing to Configure a Database on a Database Domain or Database Zone" on page 231 "Creating Database Configuration Files (OEDA)" on page 237 "Installing Databases on a Database Domain" on page 261
4. Monitor domain deployments and resources.	
1. Check the queue to see the state of the domain deployments. 2. Monitor available resources by viewing the Physical Host screen.	"Monitoring Activity, Resource Alterations, and Health" on page 161

Understanding SuperCluster Domains

These topics provide an overview of SuperCluster domains:

- "SuperCluster Domain Overview" on page 23
- "Domain Resources" on page 24

SuperCluster Domain Overview

Oracle personnel customize each SuperCluster with domain (LDom) configurations according to site requirements. Each domain operates on its own set of compute resources, including CPU, memory, and I/O devices. As of SuperCluster version 3.0, you can view the domain configurations in the SuperCluster Virtual Assistant Dedicated Domains page (see "View System Resources" on page 45)

Note - The exact domain configuration for a given SuperCluster varies depending on the SuperCluster model and site requirements. For details about supported domain configurations, refer to the *Oracle SuperCluster T5-8 Owner's Guide*, the *Overview Guide* for other SuperCluster models (for example, *Oracle SuperCluster M8 and SuperCluster M7 Overview Guide*), or your configuration worksheets.

This table lists SuperCluster-specific domain types and describes how CPU, memory, and networking resources are managed.

I/O Domain	Domain Type	Description
Application Domains and Database Domains	Dedicated	Provide these services: ■ **Application Domain** – Boots and runs on Oracle Solaris 11, and hosts application services. ■ **Database Domain** – Domains where you install and run the Oracle Database software. An Oracle Database software installation benefits from the performance of Exadata technology. These domains can not run any OS release prior to Oracle Solaris 11. ■ **Database Zone Domain** – Domains where you can install multiple Database Zones. These domains can not run any OS release prior to Oracle Solaris 11.

I/O Domain	Domain Type	Description
		You can use these domains as-is, or use the `osc-setcoremem` utility to set aside a certain amount of their CPU and memory resources. The resources that are set aside are *parked*, and available for use in I/O Domains. For more information on the `osc-setcoremem` utility, refer to the *Oracle SuperCluster T5-8 Owner's Guide* or the *Oracle SuperCluster Administration Guide* for your model (for example, *Oracle SuperCluster M8 and SuperCluster M7 Administration Guide*). As of SuperCluster version 3.0 (and later), you can view the dedicated domains in the SuperCluster Virtual Assistant's Dedicated Domains tab. See "View System Resources" on page 45.
Root Domain	Dedicated	Supports SR-IOV functionality by hosting I/O devices. Root domains reserve a small set of resources for I/O hosting functionality. The remaining resources are parked, creating a pool of resources that you can further dynamically virtualize into *I/O Domains*. As of SuperCluster version 3.0 (and later), you can view the root domains in the SuperCluster Virtual Assistant's Dedicated Domains tab. See "View System Resources" on page 45.
I/O Domain	SR-IOV	You create, delete, and deploy I/O Domains using the SuperCluster Virtual Assistant. The assistant enables you to assign resources from the CPU and memory repositories, and from virtual functions hosted by Root Domains. When you configure an I/O Domain, you assign it as an Application Domain, a Database Domain, or a Database Zone Domain. These I/O Domains provide the same functionality as dedicated Application and Database domains, with the added flexibility of being able to delete and add domains as needed (limited by available resources). I/O Domains cannot run any OS releases prior to Oracle Solaris 11. A Database Zone Domain supports multiple Database Zones. You can view the I/O domains in the SuperCluster Virtual Assistant's I/O Domain tab. See "View I/O Domains" on page 95.

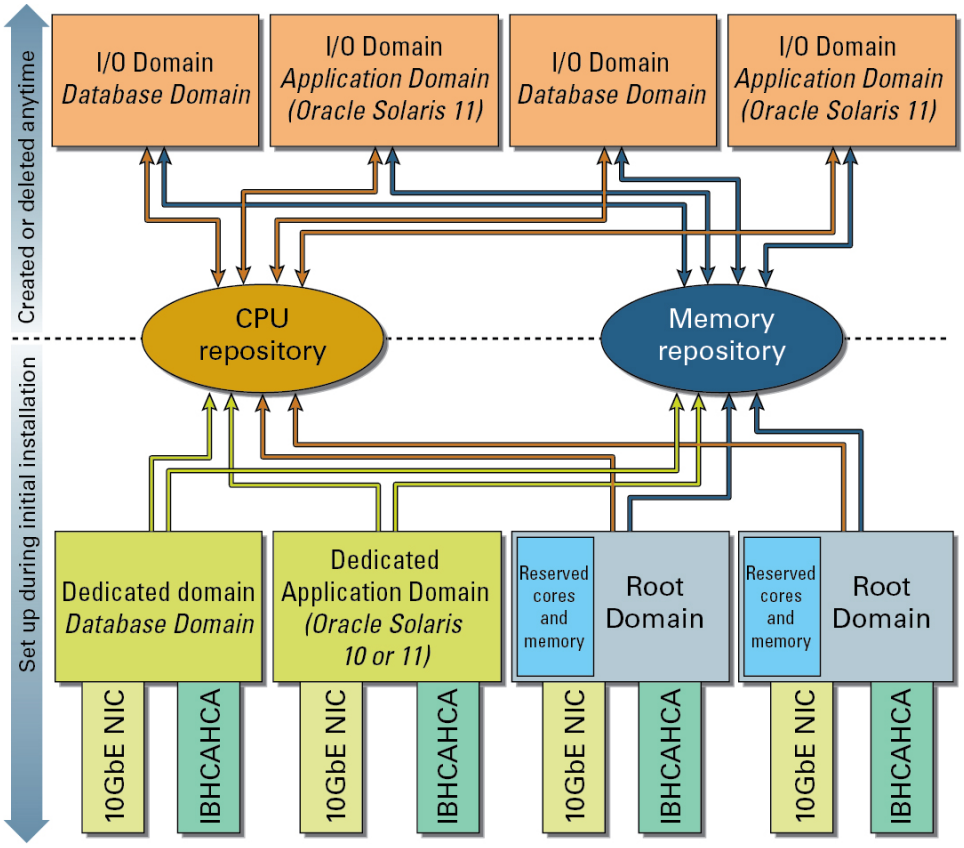
Related Information

- "Domain Resources" on page 24
- "SuperCluster Virtual Assistant Overview" on page 13

Domain Resources

The amount of CPU, memory, and network resources available for domains depends on the SuperCluster model and the domain configuration that is set up during the initial installation.

This figure depicts how the CPU and memory resources are made available for the creation of domains. The figure represents one compute node on a SuperCluster T5-8 or one PDomain on a SuperCluster M6-32.



Domains are assigned resources from repositories. This enables domains to be configured with more CPU and memory than what is available from a single Root Domain, as long as there are adequate CPU and memory resources available from the repositories of the compute node.

If a domain is deleted, the resources are returned to the repositories.

The resources in the repositories are dictated by these activities:

- **During installation** – If Root Domains are configured, the majority of the Root Domain CPU and memory resources are automatically parked in the CPU and memory repositories.

  A small number of CPU and memory resources are reserved for the Root Domain itself.

  IB and 10GbE interfaces are made available to domains in the form of a virtual function (VF) created from the physical devices in each Root Domain. These physical devices— IB HCAs and 10GbE NICs— are referred to as physical functions (PFs). Multiple VFs are created from each PF for use by domains, and each VF operates in the same way as the underlying physical device from which it is created.

- **During subsequent configuration** – You can use the `osc-setcoremem` utility to park CPU and memory resources from dedicated domains. The parked resources are placed in the CPU and memory repositories, making them available for domains. Depending on the version of SuperCluster software, parked resources have these conditions:
  - SuperCluster version 2.6 (or earlier) – After you create I/O Domains, any parked dedicated domain resources cannot be returned to the dedicated domains.
  - SuperCluster version 3.0 (or later) – After you create I/O Domains, you can use `osc-setcoremem` to unpark resources, returning the resources to dedicated domains.

Related Information

- "SuperCluster Domain Overview" on page 23
- "SuperCluster Virtual Assistant Overview" on page 13

Initializing and Configuring the SuperCluster Virtual Assistant

These topics describe how to initialize and configure the Oracle SuperCluster Virtual Assistant:

Initialize the Assistant

You must perform this procedure the first time that the assistant is accessed. In most cases, your Oracle representative performed this task during the initial configuration of SuperCluster.

1. **Open a browser on a system that has network access to SuperCluster.**

2. **In a browser, enter this URL in the address field and press Return.**

   `https://`*compute_server_1-Control_dom*`:8000`

   Replace *compute_server_1-Control_dom* with the first compute server's control domain name or IP address.

3. **(Optional) Bookmark the login page.**

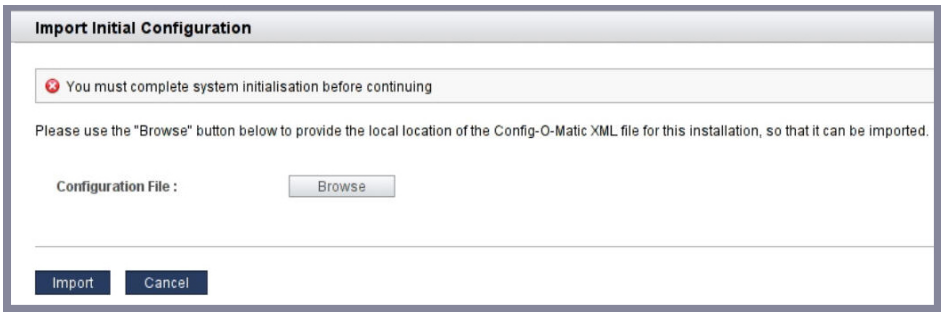
4. **Log in using these initial credentials.**

   - User name – **`admin`**
   - Password – **`welcome1`**

5. **In the left navigation panel, select Import Initial Config.**

   The Initialization and Import Initial Config tabs are only displayed when the assistant requires initialization (usually the first time you access the assistant).

   If these tabs are not displayed, it is possible that Oracle personnel performed the initialization. If this is the case, go to "Set Up Networks" on page 29.



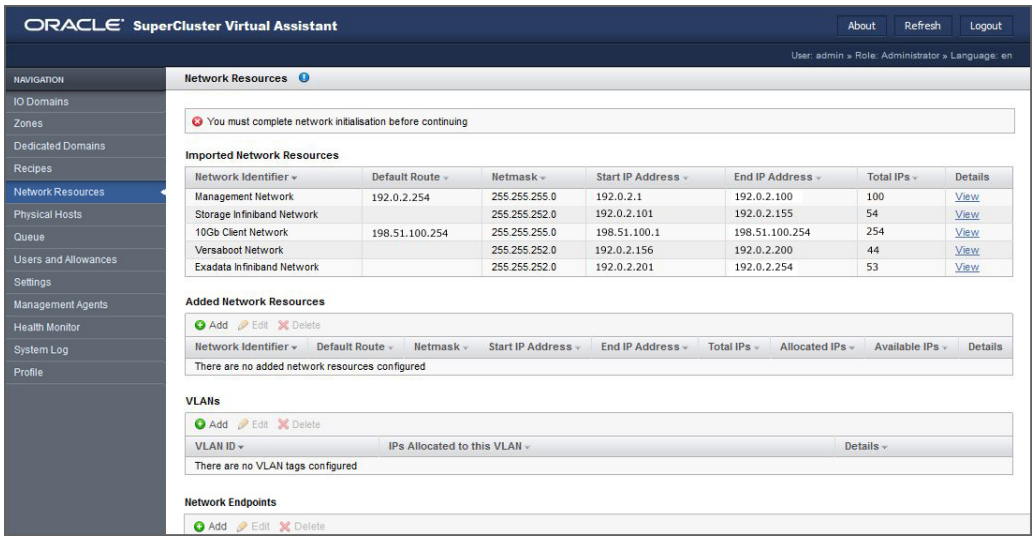
6. **Click Browse and locate the XML configuration file that was created by Oracle personnel.**

   The XML configuration file changed in SuperCluster software version 2.3:

   - Prior to version 2.3 – The name and location of the XML file is determined by Oracle personnel when they installed SuperCluster software. The file name is usually *system_name*`.c-o-m_config.xml`.
   - Version 2.3 or later – The file name is usually *system_name*`-iodct.xml`. This file is located on the control domain of the first PDomain in the `/var/tmp/sscdata/config` directory.

7. **Click Import.**

The assistant is initialized with the SuperCluster configuration and the Network Resources screen is displayed.



8. **Add networks to the assistant.**

   See "Set Up Networks" on page 29.

Set Up Networks

After the assistant is initialized (see "Initialize the Assistant" on page 27) you add additional networks that are used by domains. In some cases, your Oracle representative performed this task during the initial configuration of SuperCluster.

You can use IP addresses that fall within the range of the preconfigured addressees as long as they do not overlap with addresses that are already allocated. For the minimum required IP addresses for each domain, see "Minimum Number of IP and Alt MAC Addresses" on page 19.

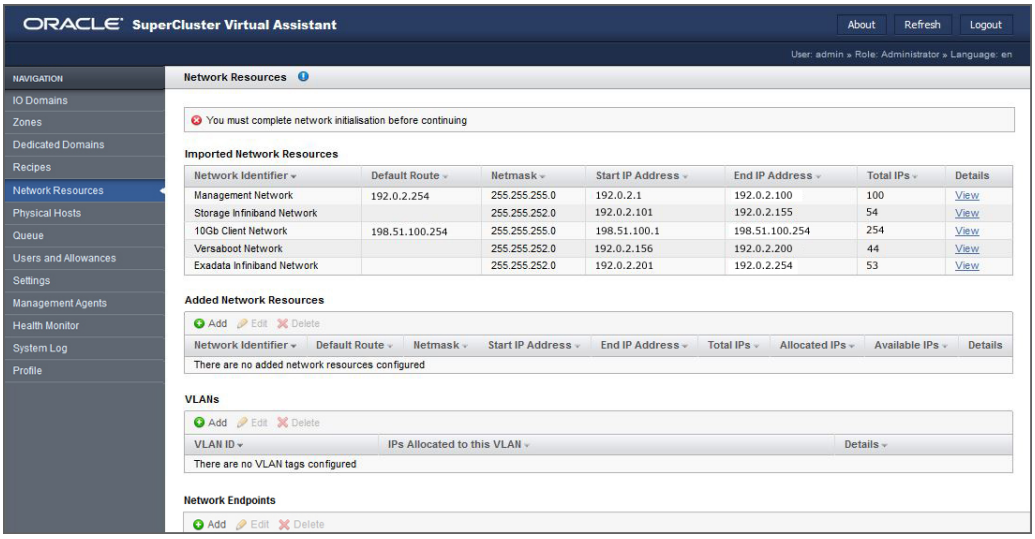
After this task is complete, you can edit network parameters or additional network addresses. See "Add or Edit a Network (Administrators)" on page 51.

Caution - Incorrect network parameters can result in problems that negatively affect your network environment. You might need to consult with your network administrator to obtain IP address information.

1. **In the Network Resources screen, review the network parameters assigned to each network.**

   The networks in the top table are the SuperCluster networks that were created when SuperCluster was installed. You cannot modify these network parameters.

   The networks in the bottom table are additional networks that you add with the assistant, and are used by domains.



SuperCluster supports these network types:

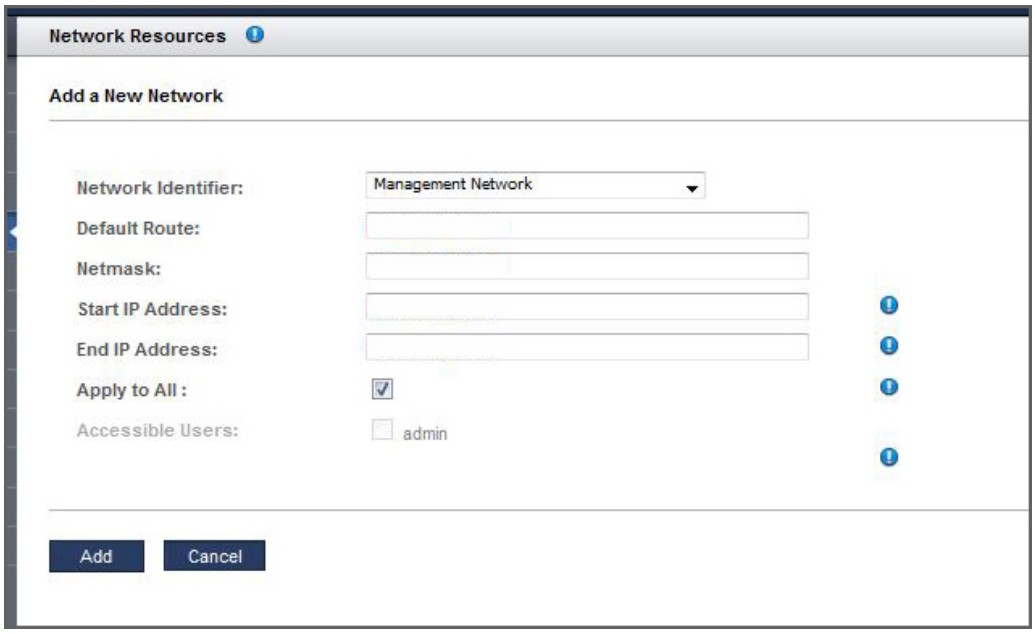
- Management network (for ease of network administration, configure all management networks on the same subnet.)
- 10Gb client network.
- Storage IB network.
- Exadata IB network.
- Versaboot network (supports iSCSI devices using IPoIB on systems such as SuperCluster M7). Each domain requires one Versaboot IP address.

- Standalone Exadata client network (on some SuperClusters).

You must create additional IP ranges for each network type. The additional networks you create provide the network resources to domains.

You can add multiple networks of the same type. For example, you can add multiple management networks, each with its own set of network parameters.

2. **Under Added Network Resources, click Add.**



3. **Define the parameters.**

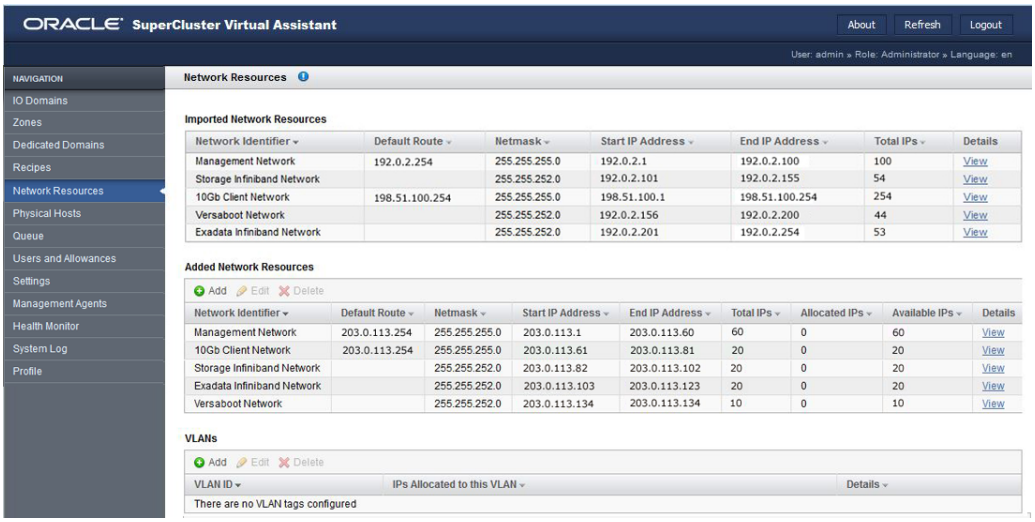
- **Network Identifier** – Choose a network type.
- **Default Route** – Type the default route for this network. This parameter is not applicable to Storage IB, Exadata IB, or Versaboot network types.
- **Netmask** – Choose the netmask for this network.
- **Start IP Address** – Type the starting IP address.
- **End IP Address** – (Optional) Type the ending IP address. If you leave this blank, a full compliment of IP addresses are configured for this network.
- **Apply to All** – (Optional) Select the Apply to All check box if you want to associate all current and future SuperCluster users with this network. If you want to associate specific

users or groups with this network, do not select the Apply to All check box. Instead, select the specific user names.

4. **Click Add.**

5. **Repeat Step 2 through Step 4 until you have added IP addresses to all of the networks.**

   For example:



6. **To view all the IP addresses for a network, click View under Details.**

7. **To confirm that resources are available, select Physical Hosts in the navigation panel.**

   See "View System Resources" on page 45.

8. **Consider your next action.**

   - Assign Fibre Channel addresses (Mandatory for some SuperClusters with Fibre Channel interfaces) – See "Assign Fibre Channel Addresses" on page 33.
   - Add VLAN tags – See "Add VLAN Tags (Administrators)" on page 56.
   - Configure security settings – See "Configure Security Settings (Administrators)" on page 34.
   - Go to the Administration Task Overview – See "Administrative Task Overview" on page 20.

- Log out of the SuperCluster Virtual Assistant – See "Log Out of the SuperCluster Virtual Assistant" on page 43.

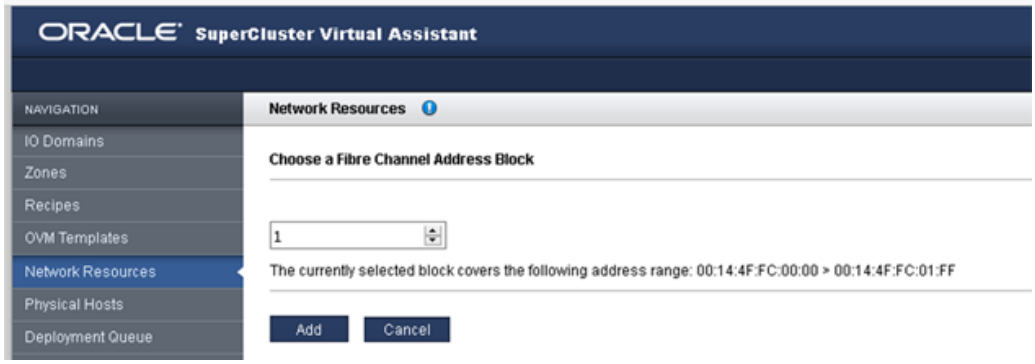
Assign Fibre Channel Addresses

As of SuperCluster software version 2.5, if SuperCluster includes Fibre Channel interfaces in Root Domains, you must assign a block of addresses to each interface. Prior to version 2.5, Fibre Channel addresses were automatically assigned by the Oracle Solaris OS.

If you have more than one SuperCluster connected to the same SAN, this feature enables you to assign each SuperCluster to a different block of Fibre Channel addresses. It also enables the same Fibre Channel addresses to remain assigned to I/O Domains throughout operations such as freeze and thaw (see "Relocating Domains with Freeze and Thaw" on page 147).

1. **If you see this message, you must perform this task.**

2. **In the Network Resource page, at the top of the Added Network Resources table, click Add.**
   The Fibre Channel address block assignment page is displayed.



3. **From the pull-down menu, select the block of addresses that you want to use for the Fibre Channel Node and port WWNs.**

   You can select from 1-9 and the corresponding addresses are displayed.

4. **Click Add.**

5. **To view the Fibre Channel network details, click Details.**

6. **Consider your next action.**

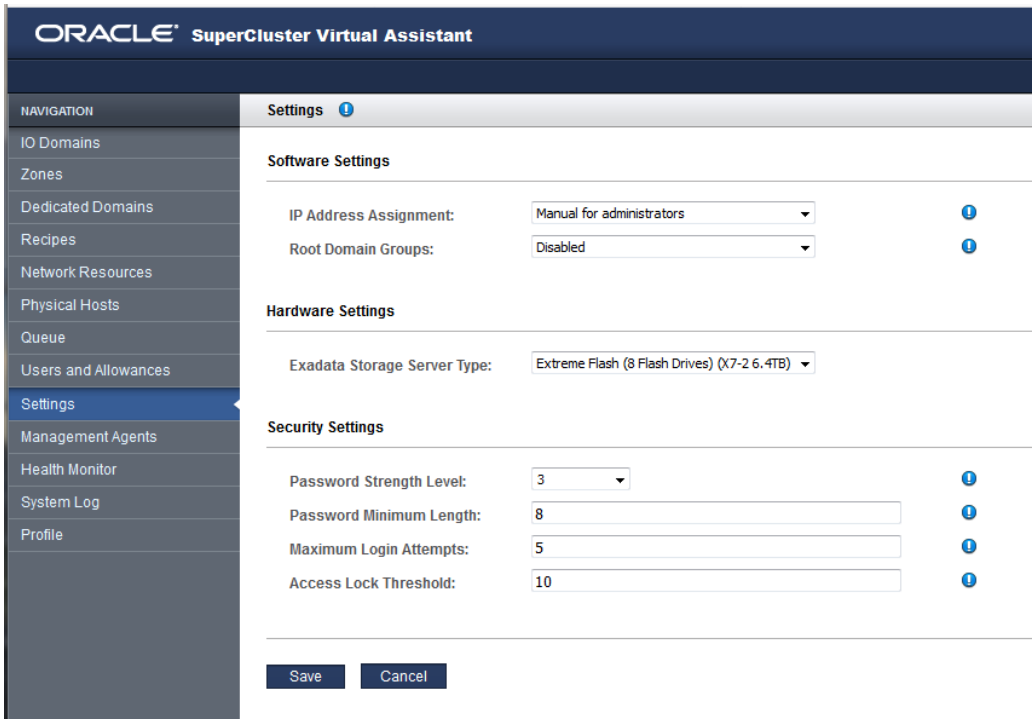
   - Configure security settings – See "Configure Security Settings (Administrators)" on page 34.
   - Go to the Administration Task Overview – See "Administrative Task Overview" on page 20.
   - Log out of the SuperCluster Virtual Assistant – See "Log Out of the SuperCluster Virtual Assistant" on page 43.

▼ Configure Security Settings (Administrators)

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Settings.**



3. **Configure the security settings as required by your security policies.**

Note - For details about the IP address settings, see "Configure How IP Addresses are Assigned (Administrators)" on page 36. For details about hardware settings, see "Export an XML Configuration File" on page 238.

Change any of these parameters:

- **Password Strength Level** – Choose one of the these values:
  - **1** – Requires users to specify passwords that meet the minimum password length.
  - **2** – Requires users to specify level 1 passwords, plus at least one uppercase and one lowercase letter.
  - **3** – Requires users to specify level 2 passwords, plus at least one number or special character.
- **Password Minimum Length** – Defines the minimum length of a password.

- **Maximum Login Attempts** – Maximum number of failed login attempts before access is temporarily restricted.
- **Access Lock Threshold** – Time in minutes that access is restricted when the maximum login attempt threshold is exceeded.

4. **Click Save.**

   The changes take effect immediately.

Note - If you change the password rules later, the new rules are enforced on future password creations.

---

5. **Consider your next action.**

   - Change the default admin password – See "Change a User's Password (Administrators)" on page 71.
   - Go to the Administration Task Overview – See "Administrative Task Overview" on page 20.
   - Log out of the SuperCluster Virtual Assistant – See "Log Out of the SuperCluster Virtual Assistant" on page 43.

Configure How IP Addresses are Assigned (Administrators)

This feature is available in the SuperCluster Virtual Assistant version 2.2.0.862 (or later). To check your version, see "Check the SuperCluster Virtual Assistant Version" on page 18. This feature is supported on SuperCluster M8 and SuperCluster M7.

When a domain is created, the assistant automatically assigns IP addresses to the management, 10GbE client, IB, and Versaboot (if applicable) networks. You can configure the assistant to allow the person creating the domain to select specific IP addresses from a specific subnet for the management and client networks:

- **Automatic** – (Default) The assistant automatically assigns IP addresses to all domain networks. The IP addresses assigned are the next available addresses from the IP addresses pool. See "Set Up Networks" on page 29 and "Add or Edit a Network (Administrators)" on page 51.
- **Manual for administrators** – During domain creation, administrators choose specific IP addresses. For non-administrators, the IP addresses are automatically assigned.
- **Manual for all users** – During domain creation, all users choose specific IP addresses.

1. **Access the SuperCluster Virtual Assistant.**

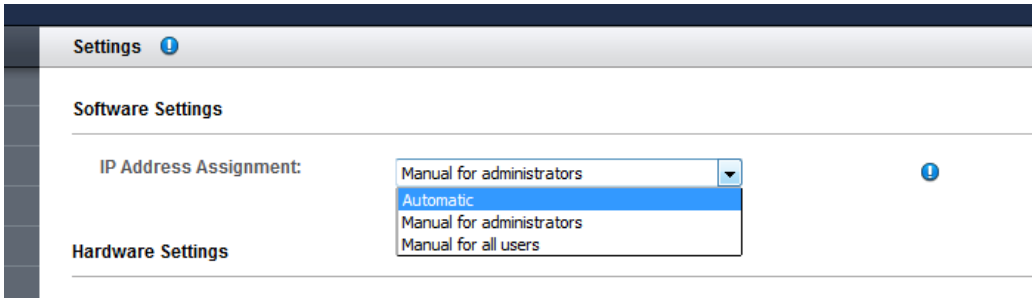
   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Settings.**

Note - For details about the hardware settings, see "Export an XML Configuration File" on page 238. For details about security settings, see "Configure Security Settings (Administrators)" on page 34.

---

3. **Under IP Address Assignment, select one of these options.**



4. **Click Save.**

   The new IP address assignment configuration applies to future domains.

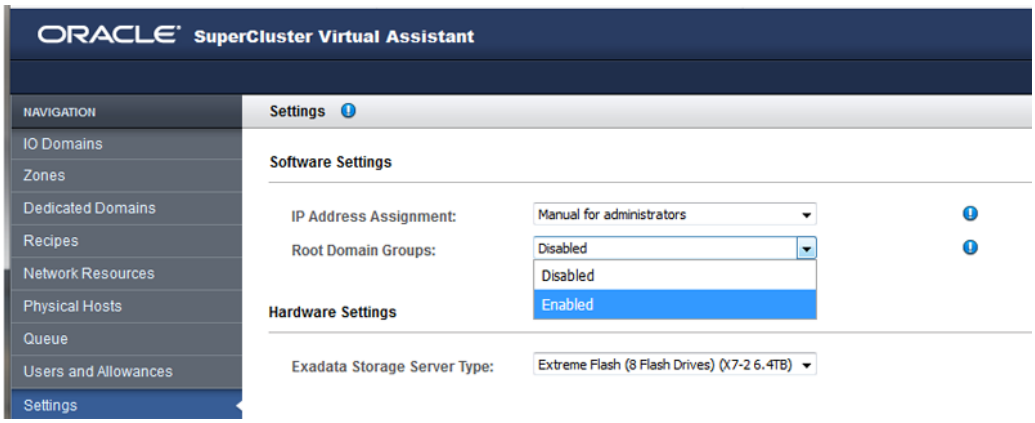
▼ Enable or Disable Root Domain Groups (Administrators)

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Settings.**

3. **In the Root Domain Groups drop-down menu, select enable or disable.**



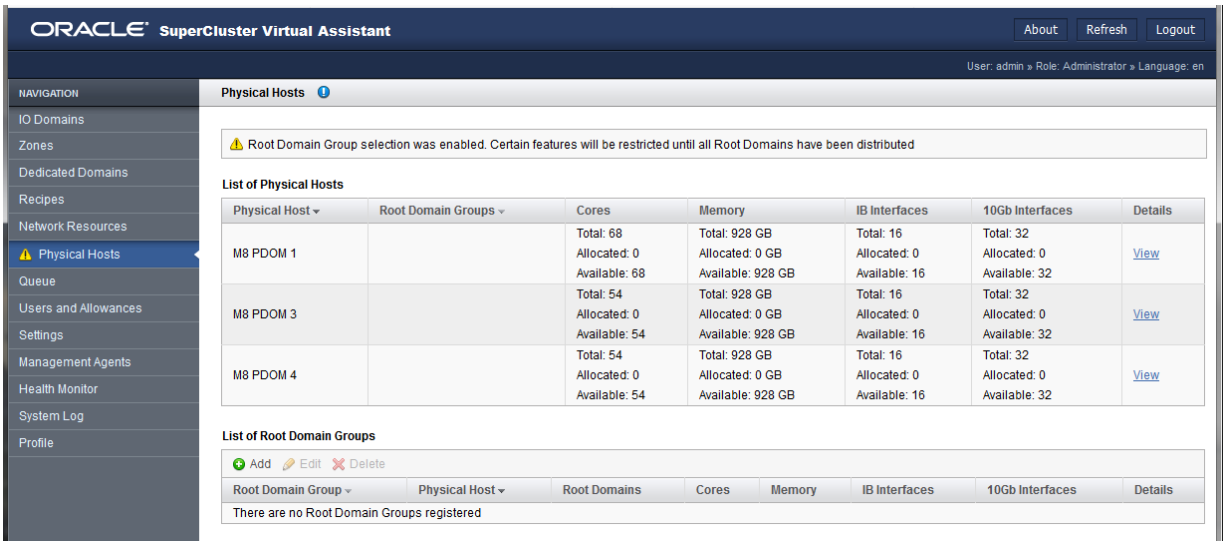
4. **Click Save.**

   If you enabled root domain groups, the SuperCluster Virtual Assistant displays the Physical Hosts page, prompting you to create at least one root domain group per physical host. In this case, go to "Create Root Domain Groups (Administrators)" on page 38.

▼ Create Root Domain Groups (Administrators)

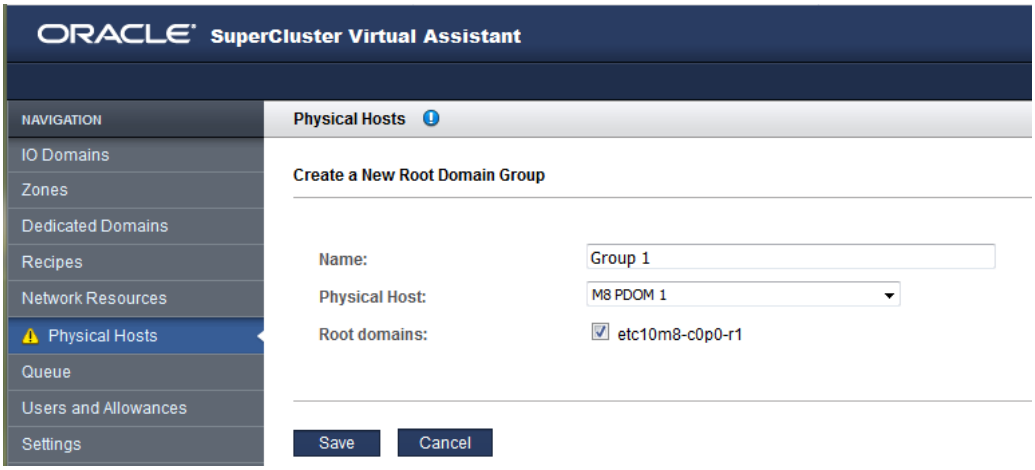
1. **If not already displayed, access the SuperCluster Virtual Assistant → Physical Hosts page.**

The List of Physical Hosts only lists the PDomains that have root domains. If you want more details about the root domains on your system, display the Dedicated Domains page.



2. **Under List of Root Domain Groups, click Add.**

3. **Configure the root domain group.**



Configure these parameters:

- **Name** – Specify a descriptive name for this group.
- **Physical Host** – Select the physical host that has the network resources that you want associated with this group.
- **Root domains** – Select one or more root domains.

4. **Click Save.**

   The new root domain group is displayed in the Physical Hosts page.

5. **Repeat this procedure for until the warning symbol is no longer displayed in the side panel.**

   Once all the root domains are grouped, the SuperCluster Virtual Assistant allows you to create I/O Domains.

Accessing the SuperCluster Virtual Assistant

These topics describe how to access the Oracle SuperCluster Virtual Assistant.

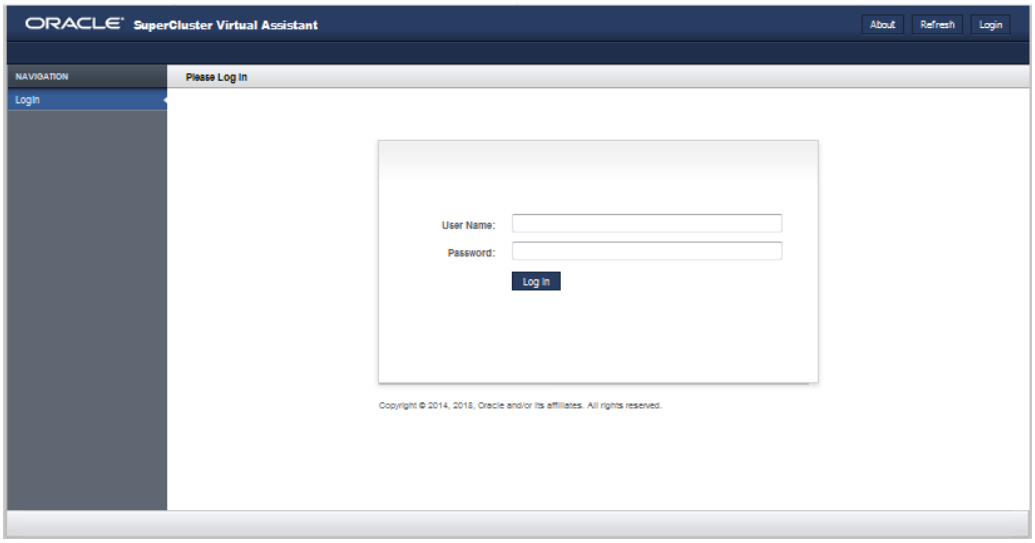
▼ Log In to the SuperCluster Virtual Assistant

1. **Open a browser on a system that has network access to SuperCluster.**

2. **Enter this URL in the address field and press Return.**

   `https://`*compute_node_1-Control_dom*`:8000`

Replace *compute_node_1-Control_dom* with the first compute node's control domain name or IP address.



3. **Log in as admin or as a user.**

   If you are accessing the assistant for the first time, use these initial credentials:

   - User name – **`admin`**
   - Password – **`welcome1`**

   If this is the first time that the assistant is accessed, you must initialize the assistant. See "Initialize the Assistant" on page 27.

   Note - If you forgot your password, and you have administrator privileges, you can reset it. See "Reset a User's Password (Administrators)" on page 73. If you do not have administrator privileges, request a reset. See "Request a Password Reset" on page 70.

   ---

4. **(Optional) Bookmark the login page.**

5. **Consider your next action.**

   - Review tool tips. – See "Assistant Tool Tips" on page 43.
   - Change user passwords – See "Change a User's Password (Administrators)" on page 71.

- Log out of the SuperCluster Virtual Assistant – See "Log Out of the SuperCluster Virtual Assistant" on page 43.

Log Out of the SuperCluster Virtual Assistant

- **From any screen, click Logout (upper right corner).**

Assistant Tool Tips

Goal	Action
Access contextual online help.	Click the blue information icon: 
Exit a screen.	Perform one of these actions: ■ Click any tab under Navigation. ■ Click Logout.
Refresh data on the screen.	Click Refresh.
Sort table rows based on data in a column.	Click the small arrow next to the column heading.
View notices.	Click About.

Managing Resources and Networks

Use these topics to view and manage CPU, memory, network, and storage resources.

For more information about planning I/O Domains that will use these resources, see "Creating and Deploying I/O Domains" on page 91.

View System Resources

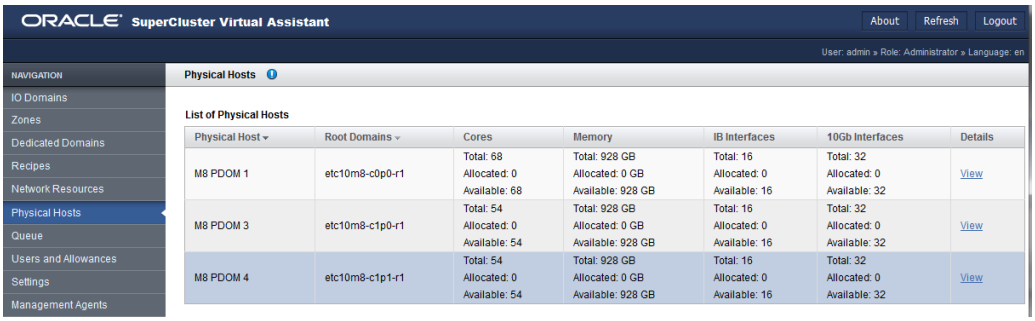
Use this procedure to view the resources that are available for domains. Both administrators and users can perform this task.

The Physical Hosts screen provides an overview of resources and two levels of additional resource details (administrators only): one at the compute node level, and one at the Root Domain level.

1. **Access the SuperCluster Virtual Assistant.**
   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Physical Hosts.**
   An overview of resources is displayed, including the total, allocated, and available amount of cores, memory, IB interfaces, and 10GbE interfaces.

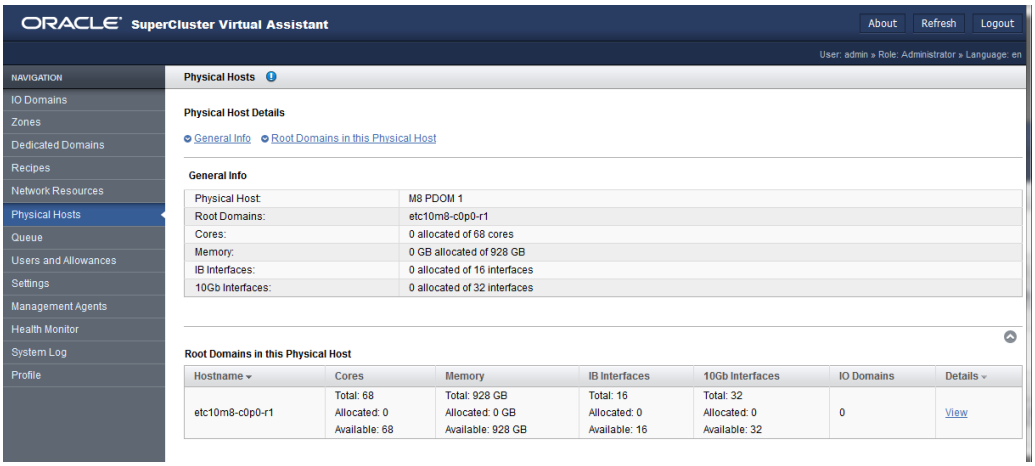
Note - Non-administrators do not have access the physical host details view.



3. **(Administrators only) View resource details for a node by clicking View in the Details column.**

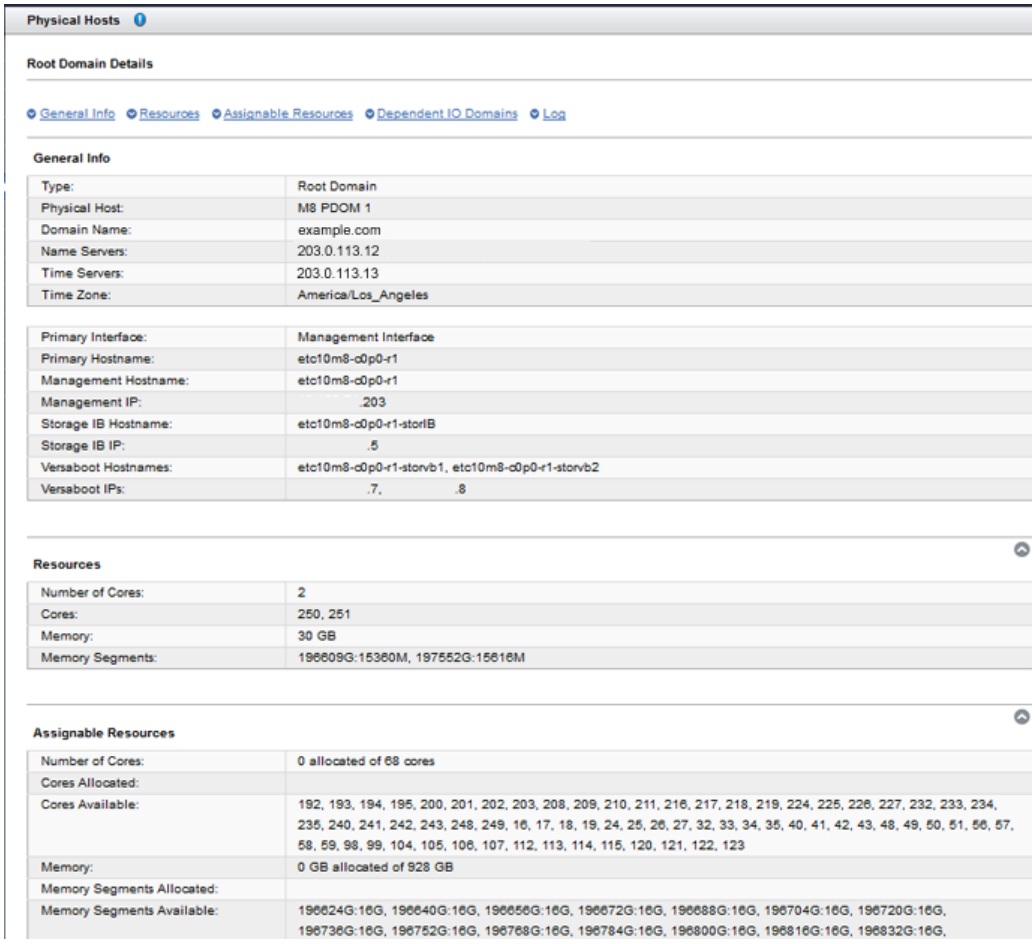
   Nodes with multiple Root Domains pool together all of the CPU and memory resources, making them available to domains. A domain can use more CPU and memory resources than are available from a single Root Domain. The network resources (IB and 10GbE interfaces) are not pooled together. A domain receives all of its network resources from a single Root Domain.

   You can see the resources on a per Root Domain basis. This is helpful for planning network resource allocations.



4. **(Administrators only) View resource details for a Root Domain by clicking View in the Details column.**

   The assistant displays details such as the exact cores and memory segments that are associated with this Root Domain. The Dependent I/O Domains table lists the domains that use resources from this Root Domain. The log at the bottom of the screen displays details such as which VFs are associated with PFs.



Physical Hosts

Root Domain Details

General Info | Resources | Assignable Resources | Dependent IO Domains | Log

General Info

Type:	Root Domain
Physical Host:	M8 PDOM 1
Domain Name:	example.com
Name Servers:	203.0.113.12
Time Servers:	203.0.113.13
Time Zone:	America/Los_Angeles

Primary Interface:	Management Interface
Primary Hostname:	etc10m8-c0p0-r1
Management Hostname:	etc10m8-c0p0-r1
Management IP:	.203
Storage IB Hostname:	etc10m8-c0p0-r1-storIB
Storage IB IP:	.5
Versaboot Hostnames:	etc10m8-c0p0-r1-storvb1, etc10m8-c0p0-r1-storvb2
Versaboot IPs:	.7, .8

Resources

Number of Cores:	2
Cores:	250, 251
Memory:	30 GB
Memory Segments:	196609G:15360M, 197552G:15616M

Assignable Resources

Number of Cores:	0 allocated of 68 cores
Cores Allocated:	
Cores Available:	192, 193, 194, 195, 200, 201, 202, 203, 208, 209, 210, 211, 216, 217, 218, 219, 224, 225, 226, 227, 232, 233, 234, 235, 240, 241, 242, 243, 248, 249, 16, 17, 18, 19, 24, 25, 26, 27, 32, 33, 34, 35, 40, 41, 42, 43, 48, 49, 50, 51, 56, 57, 58, 59, 98, 99, 104, 105, 106, 107, 112, 113, 114, 115, 120, 121, 122, 123
Memory:	0 GB allocated of 928 GB
Memory Segments Allocated:	
Memory Segments Available:	196624G:16G, 196640G:16G, 196656G:16G, 196672G:16G, 196688G:16G, 196704G:16G, 196720G:16G, 196736G:16G, 196752G:16G, 196768G:16G, 196784G:16G, 196800G:16G, 196816G:16G, 196832G:16G,

5. **Consider your next action.**

   - View dedicated domain resources – See ."View Dedicated Domain Resources (Administrators)" on page 48.

- View network resources – See "View Network Resources" on page 48.
- Go to the Administration Task Overview – See "Administrative Task Overview" on page 20.

View Dedicated Domain Resources (Administrators)

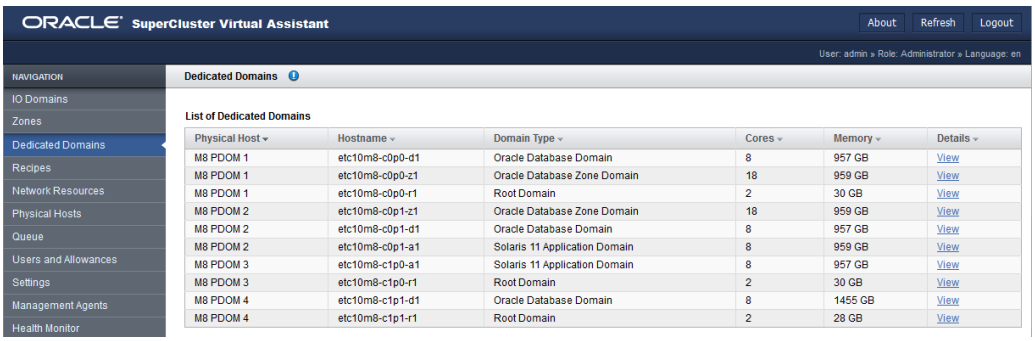
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Dedicated Domains.**

   An overview of the dedicated domains and root domains is displayed.

   Click on a View link to see additional details about a particular domain. Details for a root domain include information about any dependent I/O Domains and activity logs.



Physical Host	Hostname	Domain Type	Cores	Memory	Details
M8 PDOM 1	etc10m8-c0p0-d1	Oracle Database Domain	8	957 GB	View
M8 PDOM 1	etc10m8-c0p0-z1	Oracle Database Zone Domain	18	959 GB	View
M8 PDOM 1	etc10m8-c0p0-r1	Root Domain	2	30 GB	View
M8 PDOM 2	etc10m8-c0p1-z1	Oracle Database Zone Domain	18	959 GB	View
M8 PDOM 2	etc10m8-c0p1-d1	Oracle Database Domain	8	957 GB	View
M8 PDOM 2	etc10m8-c0p1-a1	Solaris 11 Application Domain	8	959 GB	View
M8 PDOM 3	etc10m8-c1p0-a1	Solaris 11 Application Domain	8	957 GB	View
M8 PDOM 3	etc10m8-c1p0-r1	Root Domain	2	30 GB	View
M8 PDOM 4	etc10m8-c1p1-d1	Oracle Database Domain	8	1455 GB	View
M8 PDOM 4	etc10m8-c1p1-r1	Root Domain	2	28 GB	View

3. **Consider your next action.**

   - View network resources – See "View Network Resources" on page 48.
   - Go to the Administration Task Overview – See "Administrative Task Overview" on page 20.

View Network Resources

Use this procedure to identify the network resources and VLAN tags for each network. Both administrators and users can perform this task.

Note - Fibre channel interfaces are supported starting with Super Cluster Virtual Assistant version 2.2.0.873. See "Check the SuperCluster Virtual Assistant Version" on page 18, "Assign Fibre Channel Addresses" on page 33and "Support for Fibre Channel Interfaces in Domains" on page 58.

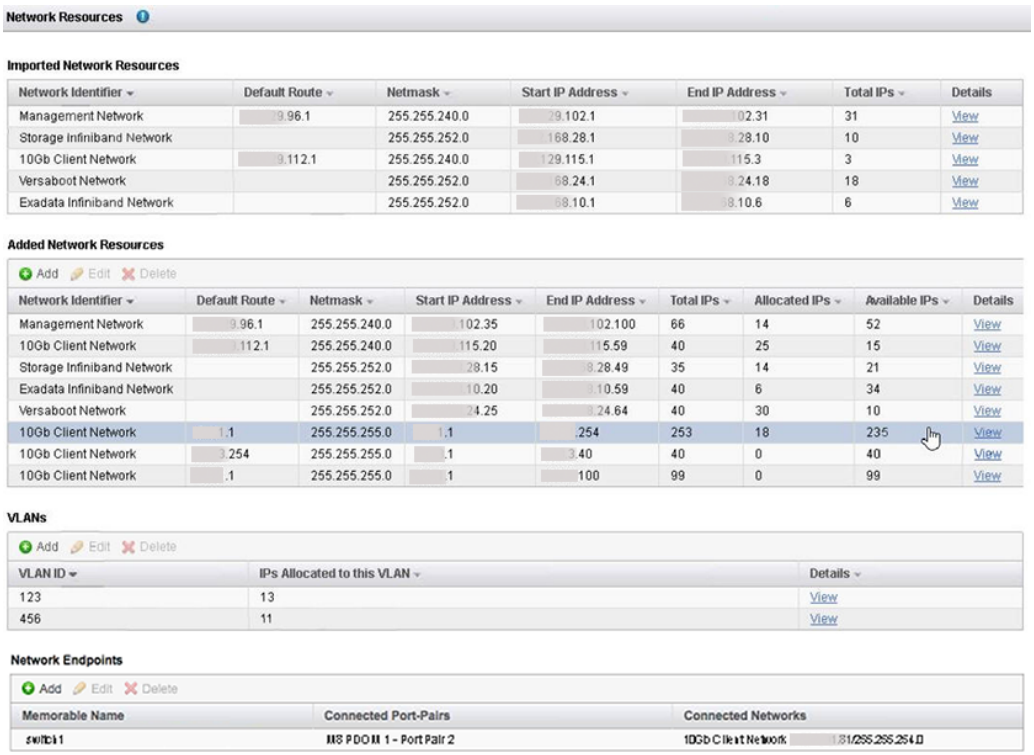
---

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Network Resources.**

Tip - Only administrators have access to the Add and Edit buttons.



Network Resources

Imported Network Resources

Network Identifier	Default Route	Netmask	Start IP Address	End IP Address	Total IPs	Details
Management Network	9.96.1	255.255.240.0	29.102.1	102.31	31	View
Storage Infiniband Network		255.255.252.0	168.28.1	3.28.10	10	View
10Gb Client Network	3.112.1	255.255.240.0	129.115.1	115.3	3	View
Versaboot Network		255.255.252.0	68.24.1	3.24.18	18	View
Exadata Infiniband Network		255.255.252.0	68.10.1	8.10.6	6	View

Added Network Resources

Add Edit Delete

Network Identifier	Default Route	Netmask	Start IP Address	End IP Address	Total IPs	Allocated IPs	Available IPs	Details
Management Network	9.96.1	255.255.240.0	102.35	102.100	66	14	52	View
10Gb Client Network	112.1	255.255.240.0	115.20	115.59	40	25	15	View
Storage Infiniband Network		255.255.252.0	28.15	3.28.49	35	14	21	View
Exadata Infiniband Network		255.255.252.0	10.20	3.10.59	40	6	34	View
Versaboot Network		255.255.252.0	24.25	3.24.64	40	30	10	View
10Gb Client Network	1.1	255.255.255.0	1.1	.254	253	18	235	View
10Gb Client Network	3.254	255.255.255.0	.1	3.40	40	0	40	View
10Gb Client Network	.1	255.255.255.0	.1	100	99	0	99	View

VLANs

Add Edit Delete

VLAN ID	IPs Allocated to this VLAN	Details
123	13	View
456	11	View

Network Endpoints

Add Edit Delete

Memorable Name	Connected Port-Pairs	Connected Networks
switch1	IB8 PDOM 1 - Port Pair 2	10Gb Client Network 131/255.255.254.0

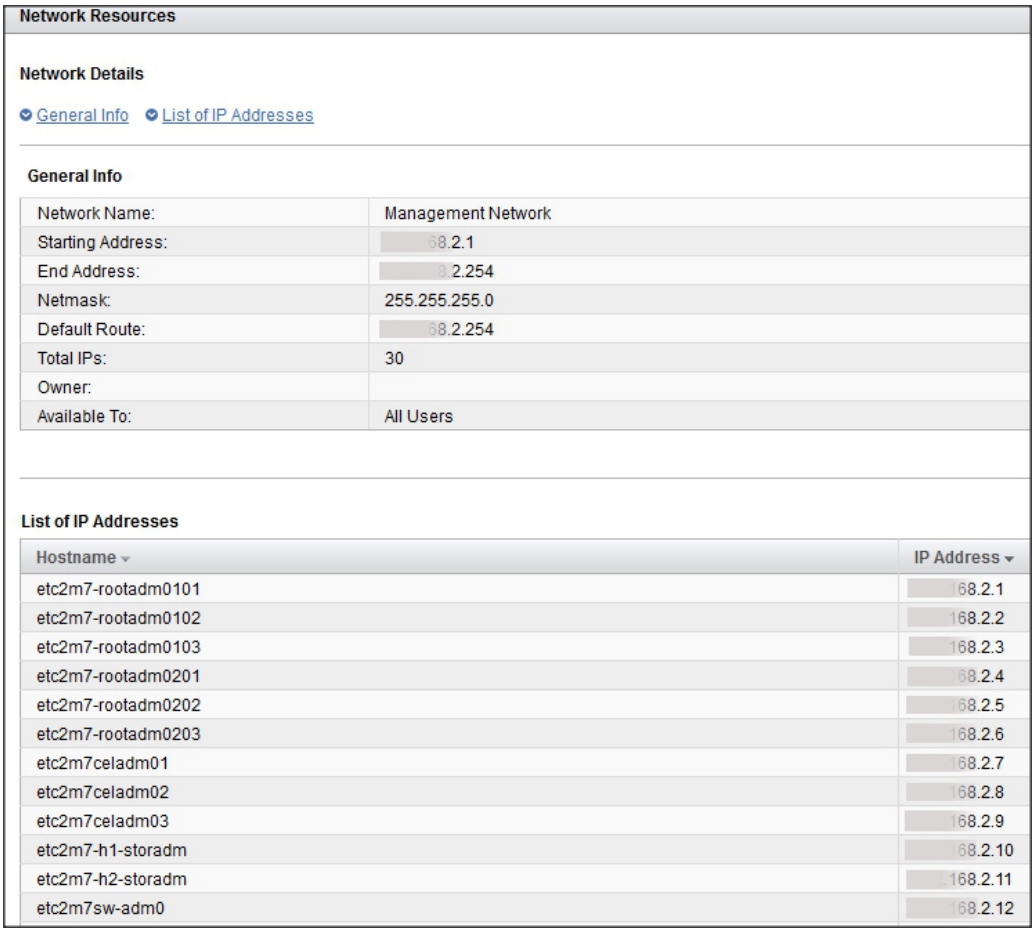
3. **Review the network parameters assigned to each network.**

The networks listed in the top table are the initial networks that were created when SuperCluster was installed. You cannot change these networks.

The second table displays the additional networks that were added to provide network resources for I/O Domains. Users with the administrator role can add to and edit these networks. See "Add or Edit a Network (Administrators)" on page 51.

Multiple networks can exist for a given network type. For example, you can configure two management and two client networks.

4. **To view all the IP addresses for a network, click View in the Details column.**



Network Resources

Network Details

General Info List of IP Addresses

General Info

Network Name:	Management Network
Starting Address:	68.2.1
End Address:	2.254
Netmask:	255.255.255.0
Default Route:	68.2.254
Total IPs:	30
Owner:	
Available To:	All Users

List of IP Addresses

Hostname	IP Address
etc2m7-rootadm0101	68.2.1
etc2m7-rootadm0102	68.2.2
etc2m7-rootadm0103	68.2.3
etc2m7-rootadm0201	68.2.4
etc2m7-rootadm0202	68.2.5
etc2m7-rootadm0203	68.2.6
etc2m7celadm01	68.2.7
etc2m7celadm02	68.2.8
etc2m7celadm03	68.2.9
etc2m7-h1-storadm	68.2.10
etc2m7-h2-storadm	68.2.11
etc2m7sw-adm0	68.2.12

5. **Consider your next action.**

   - Add or edit a network – See "Add or Edit a Network (Administrators)" on page 51.
   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
   - Add users – See "Managing User Accounts" on page 61.

Add or Edit a Network (Administrators)

Use this procedure to add a network or edit a network. Only users with the administrator role can add or edit networks.

You might need to add networks and IP addresses to support future domains. Refer to your configuration worksheets for network planning details.

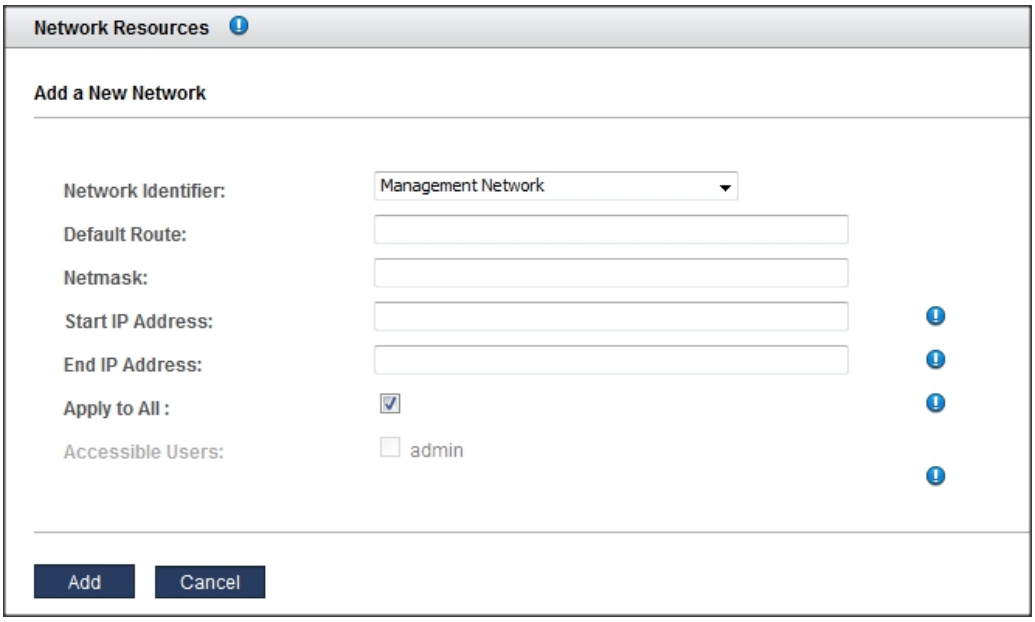
Caution - Incorrect network parameters can result in problems that affect your network environment.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Network Resources.**

3. **Click Add.**



4. **Define the parameters and click Add.**

- **Network identifier** – Choose a network type.
- **Default Route** – Type the default route for this network. This parameter is not applicable to Storage IB, Exadata IB, or Versaboot network types.
- **Netmask** – Type the netmask for this network.
- **Start IP Address** – Type the staring IP address.
- **End IP Address** – (Optional) Type the ending IP address. If you leave this blank, a full compliment of IP addresses are configured for this network.
- **Apply to All** – (Optional) Select the Apply to All check box if you want to associate all current and future SuperCluster users with this network. If you want to associate specific users or groups with this network, do not select the Apply to All check box. Instead, select the specific user names.

5. **If you need to change parameters for an existing network, select the network and click Edit.**

6. **In the Edit Network screen, change parameters as needed, and click Save.**

7. **Consider your next action.**
   - Create and deploy I/O Domains – See "Creating and Deploying I/O Domains" on page 91.
   - Add users – See "Managing User Accounts" on page 61.
   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.

Configure Port-Paired Networks (Administrators)

This procedure describes how to configure quad-port 10 GbE NIC port pairs to specific network endpoints.

Note - Alternatively for SuperCluster version 3.0 (or later), you can control which network endpoints are assigned to I/O Domains by creating root domain groups (see "Enable or Disable Root Domain Groups (Administrators)" on page 37).

Each quad-port NIC provides four 10 GbE ports through a spitter cable. The ports are paired together, meaning that the first two ports are port pair 1, the second two ports are port pair 2.

Port pair 1 is usually used as the default client access network.

Port pair 2 is not enabled by default, but it can be added as an additional network resource, providing another interface to the same network, or be configured as a different network, providing network isolation.

For every quad-port NIC, two port pairs can be enabled by Oracle personnel. You can choose exactly which client access facility network each port pair connects to. Then, in the assistant, you configure the port pair's network endpoints so that you can assign the port pair network resources to I/O Domains.

After you configure the second port for use, port pair 2 is displayed as a selectable interface when you create I/O Domains.

Prerequisites

- Port pairs can only be configured on SuperClusters that have the quad-port 10GbE NIC installed.

  Note - SuperCluster M8 ships with this NIC by default. SuperCluster M7, by default, ships with the dual-port 10GbE NIC which does not support the port-pair feature.

- Oracle personnel must enable the port pairing feature on SuperCluster. This usually happens during the SuperCluster installation, but Oracle personnel can enable the feature later on qualifying SuperClusters with software v2.5 or later.
- A physical connection must be made, connecting the port pair connectors to the appropriate facility network switch.
- You must have the administrator role to perform this task.

Caution - Incorrect network parameters can result in problems that affect your network environment.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

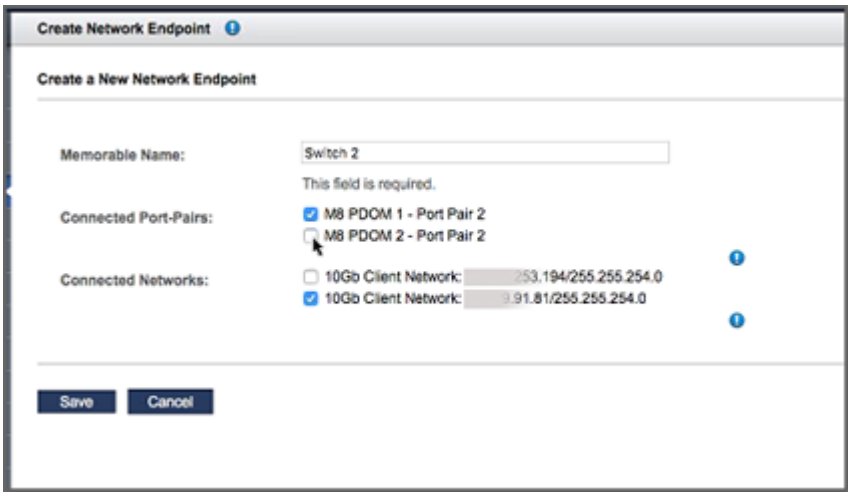
2. **In the navigation panel, select Network Resources.**

3. **Check if the system is ready to configure port pairs.**

   If you see a table titled **Network Endpoints**, port pair configuration is enabled, and you can continue to configure port pairs. If you do not see this table, Oracle personnel have not enabled this feature. Contact your Oracle representative.

4. **In the Network Endpoints Table, click Add.**

The Create Network Endpoint menu is displayed.



5. **Define the parameters and click Add.**

Note - Complete this menu for one connected network at a time. Select one or more port pairs for the one network. If you want to configure other networks to port pairs, repeat this procedure.

- **Memorable Name** – Assign a name for this network configuration. The name is later displayed as a network resource that can be assigned to I/O Domains. Specify a name that identifies the network to which the port pairs will be associated.
- **Connected Port-Pairs** – Select the port pairs that you want associated with a given 10 GbE network endpoint. You can select one or more port pairs.
- **Connected Networks** – Select the network you want associated with the port pairs. Only select one network.

6. **Click Save.**

The port pairs and associated network endpoints are displayed in the Network Resources → Network Endpoints table.

The new port pair network resource is available to be assigned to I/O Domains.

7. **If you want to assign other port pairs to a network endpoint, repeat Step 4 through Step 6.**

8. **Consider your next action.**

   - Create and deploy I/O Domains – See "Creating and Deploying I/O Domains" on page 91.
   - Add a VLAN tag – See "Add VLAN Tags (Administrators)" on page 56.
   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.

▼ Add VLAN Tags (Administrators)

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Network Resources.**

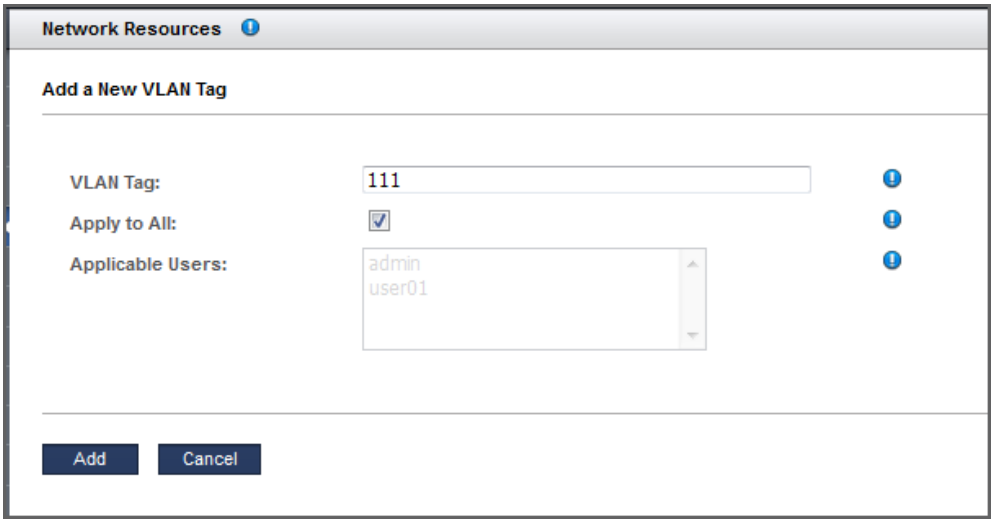
   The VLANs section displays existing VLAN tags.

3. **In the VLANs section, click Add.**

4. **Enter a VLAN tag number between 1 and 4095.**

5. **Determine if you want all SuperCluster users or just a group of users to have access to this virtual network.**

   - If you want to associate all current and future SuperCluster users with this network, select the Apply to All check box.
   - If you want to associate specific users or groups with this network, do not select the Apply to All check box. Instead, select the specific user names or roles.

- 

6. **Click Add (or Save).**

   The new VLAN tag now appears in the VLANs section.

7. **Consider your next action.**

   - View network resources – See "View Network Resources" on page 48.
   - Delete a VLAN tag – See "Delete a VLAN Tag (Administrators)" on page 57.

Delete a VLAN Tag (Administrators)

The ability to delete a VLAN tag is available starting with SuperCluster version 2.4.

When you remove a VLAN tag, you are removing this network resource. Only VLAN tags with no I/O Domains associated with them can be deleted.

Users with the administrator role can add and remove VLAN tags.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Network Resources.**

3. **In the VLANs section, select the row with the VLAN tag you want to delete.**

4. **Click Delete.**

5. **Consider your next action.**

   - View network resources – See "View Network Resources" on page 48.
   - Add a VLAN tag – See "Add VLAN Tags (Administrators)" on page 56.

Support for Fibre Channel Interfaces in Domains

Fibre channel interfaces are supported in domains that use at least SuperCluster Virtual Assistant version 2.2.0.873. See "Check the SuperCluster Virtual Assistant Version" on page 18.

As of SuperCluster software version 2.5, if SuperCluster includes Fibre Channel interfaces in Root Domains, you must assign a block of addresses to each interface. See "Assign Fibre Channel Addresses" on page 33.

There are additional requirements for the root domain OS levels, system firmware versions, and fibre channel firmware versions. These details are available in MOS Doc ID 2180265.1, which is available at My Oracle Support (`https://support.oracle.com`).

Domain Storage Resources

When you configure an domain, iSCSI LUN resources are automatically allocated. The assistant starts with a predefined amount of storage, then calculates additional resources for swap and dump based on the chosen CPU and memory resources.

If you deploy a domain using an OVM template, the template determines the amount of allocated iSCSI LUN resources.

For non OVM template-based Domains, the assistant approximately allocates these rpool resources, based on the type of domain and the version of the assistant:

Assistant Version	Database Domains	Application Domains
Branch 2.1.0.813 (or later)	150 GB	100 GB
Branches prior to 2.1.0.813	70 GB	50 GB

Tip - To determine the assistant version, see "Check the SuperCluster Virtual Assistant Version" on page 18.

Related Information

- "Domain Requirements" on page 19
- "Configure the Assistant With Added Storage Servers (Administrators)" on page 59

▼ Configure the Assistant With Added Storage Servers (Administrators)

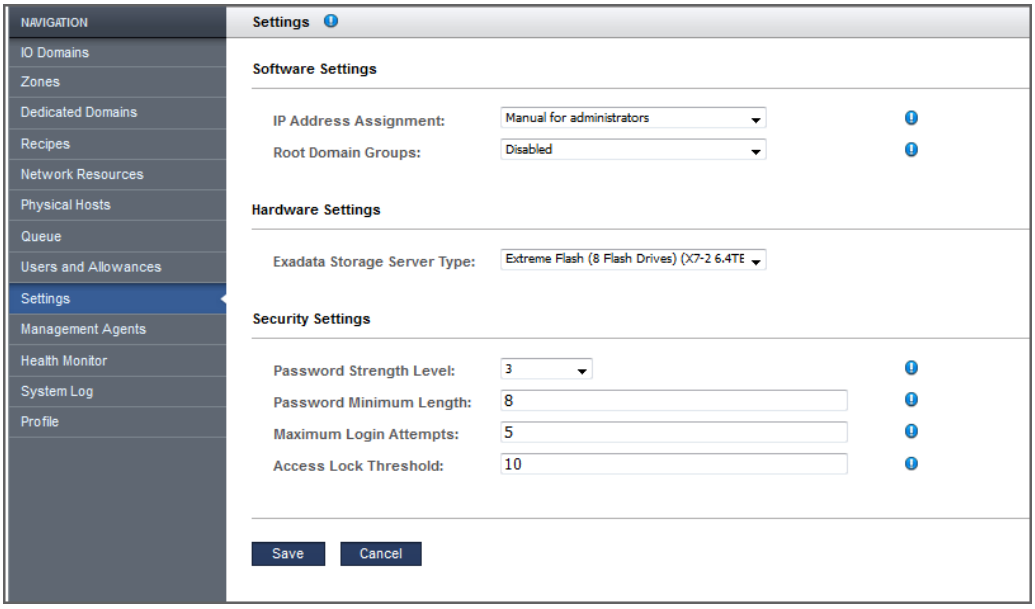
If additional storage servers were added to the system, perform these steps before you export an XML Configuration File for JOC (used to create Database I/O Domains). For further details, see "Export an XML Configuration File" on page 238.

Only users with the administrator role can perform this task.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Settings.**



3. **Under Hardware Settings, select the storage server type.**

Note - For details about IP address settings, see "Configure How IP Addresses are Assigned (Administrators)" on page 36. For more information about security settings, see "Configure Security Settings (Administrators)" on page 34.

---

4. **Click Save.**

   The new storage server type appears in the SuperCluster system.

5. **Consider your next action.**

   - Add users – See "Add a User (Administrators)" on page 64.

Managing User Accounts

You must have administrator privileges to perform most of these procedures. Use these topics to manage I/O Domain user accounts.

Description	Links
Learn about user roles.	“User Roles and Privileges” on page 61
Plan users and the amount of resources available for each user.	“Plan Domain Users and Resource Allocations” on page 62
	“Domain Users Worksheet” on page 63
	“View Users” on page 64
Add a user.	“Add a User (Administrators)” on page 64
	“Allocate Resources to a User (Administrators)” on page 66
View resource allowances,	“View Resource Allowances” on page 68
Manage user passwords.	“Change Your Password” on page 69
	“Request a Password Reset” on page 70
	“Change a User's Password (Administrators)” on page 71
	“Reset a User's Password (Administrators)” on page 73
Change a user's email or role.	“Edit a User's Email Address or Role (Administrators)” on page 75
Delete a user.	“Delete a User (Administrators)” on page 76

User Roles and Privileges

By default, the SuperCluster Virtual Assistant provides an `admin` user account with administrator privileges.

If you choose to create additional users, you assign each user with either a *user* or *administrator* role. See “Add a User (Administrators)” on page 64.

- **User role** – Can perform these actions within the resources assigned to the user:
  - Create, edit, and delete their own domains.
  - Create, edit, and delete their own resource and network recipes.
  - Use any recipes for which the user has permissions to use.
  - View physical hosts, network information, and the queue.
  - Change their password and email address.
- **Administrator role** – Can perform all user actions and these additional actions:
  - Create, edit, and delete users and their passwords.
  - Allocate resources to users and manage user allowances.
  - Create, edit, and delete all recipes.
  - Edit and add network resources.
  - Create, edit, and delete all domains.
  - Reset any user's password.

Plan Domain Users and Resource Allocations

By default, the SuperCluster Virtual Assistant is configured with one user called `admin` with administrative privileges.

If you choose, you can add additional users assigned with either a regular user role or the administrator role.

Regular users have access to the assistant and can manage their own recipes and domains. Users with the administrator role have full administrative privileges. See "User Roles and Privileges" on page 61.

Use this procedure with the user configuration worksheet. See "Domain Users Worksheet" on page 63.

1. **Determine I/O Domain users and roles.**

   Assign each new user these attributes:

   - Unique name and password.
   - Either administrator or user role.

2. **Determine the resource allocation for each user.**

   When you configure users, you can allocate resource limits in these ways:

- **Unconstrained** – Do not specify a specific resource allocation. The user can use whatever resources are available.
- **Constrained** – Specify upper resource limits. The user can use any available resources up to their specified resource allocation. These are the limits you can set:
  - 10 Gb interfaces
  - Cores
  - Memory

The resources are not reserved for each user, nor is the limit a quota. Collectively, it is possible to allocate more resources than the system provides.

Users then use the assistant to manage their virtualized resources.

For planning purposes, you can use the I/O Domain User's Worksheet. See "Domain Users Worksheet" on page 63. Or go directly to the instructions for adding users. See "Managing User Accounts" on page 61.

Domain Users Worksheet

Use this worksheet to plan the users and the resources allocated to them.

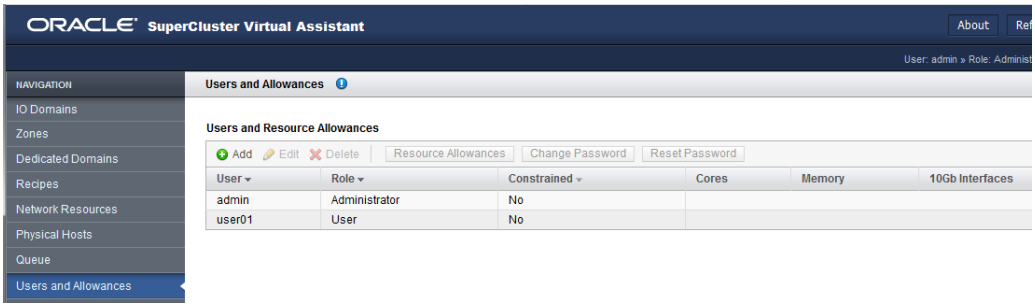
			(Optional) Constrained Resource Allocations			
User Name	**Email Address**	**Role:** **Administrator or User**	**Max.** **cores**	**Max. Memory (GB)**	**Max.** **10 Gb interfaces**	**Max. FC VFs**

View Users

You must have administrator privileges to perform this task.

1. **Access the SuperCluster Virtual Assistant.**
   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Users and Allowances.**



3. **Consider your next action.**
   - Go to the next configuration task – See "Add a User (Administrators)" on page 64.
   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.

Add a User (Administrators)

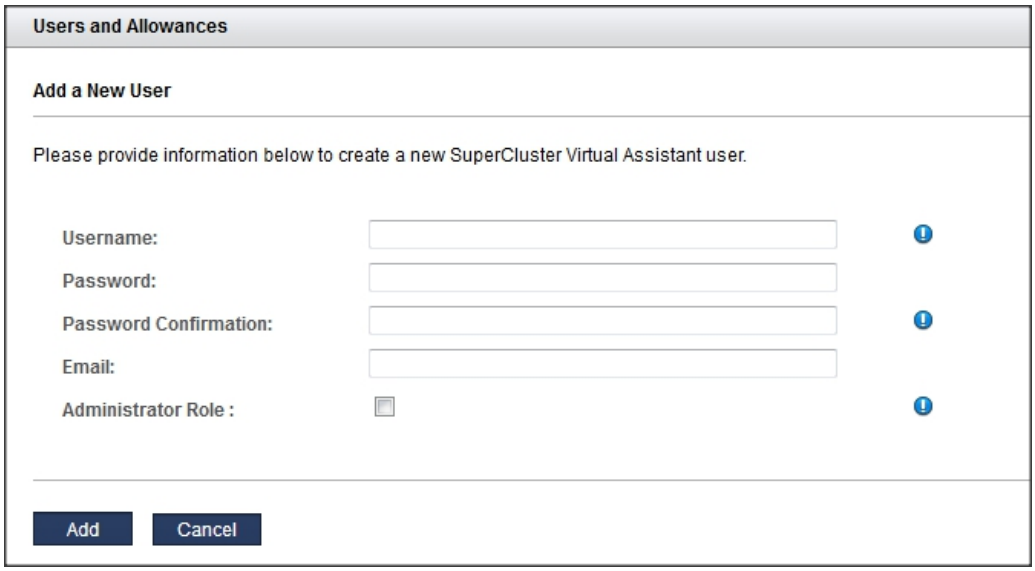
Use this procedure to add SuperCluster Virtual Assistant users.

You must have administrator privileges to perform this task. For information on planning users see "Plan Domain Users and Resource Allocations" on page 62. If you completed the I/O Domain Users Worksheet, use the information in the worksheet to complete this procedure. See "Domain Users Worksheet" on page 63.

1. **Access the SuperCluster Virtual Assistant.**
   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Users and Allowances.**

3. **Click Add User.**



4. **Enter this information:**

- **User name** – The name for this new user.
- **Password** – The password the user uses to log into the assistant.
- **Password confirmation** – The password the user uses to log into the assistant.
- **Email** – Email address for the new user.
- **Administration role** – Select if you want this user to have administrator privileges. See "User Roles and Privileges" on page 61.

5. **Click Add.**

6. **Consider your next action.**

- Go to the next configuration task – See "Allocate Resources to a User (Administrators)" on page 66.
- Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.

Allocate Resources to a User (Administrators)

You must have administrator privileges to perform this task.

Use this procedure to assign upper limit resources to users. This is an upper limit, and not a set of reserved resources or quota. If you don't assign upper limits, the user is categorized as *unconstrained*, meaning the user is only limited by the amount of available resources.

For information on planning users see "Plan Domain Users and Resource Allocations" on page 62. If you completed the I/O Domain Users Worksheet, use the information in the worksheet to complete this procedure. See "Domain Users Worksheet" on page 63.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

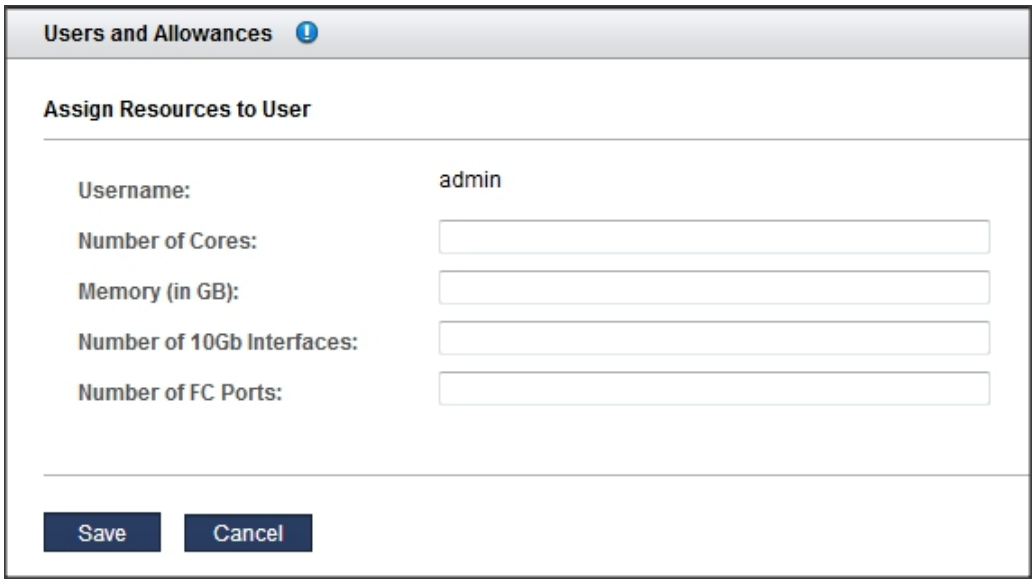
2. **(Optional) Create the user account.**

   See "Add a User (Administrators)" on page 64.

3. **In the navigation panel, select Users and Allowances.**

4. **Select the user for which you want to allocate resources.**

5. **Click Resource Allowances.**



6. **Enter this information.**

   Allocate resources carefully. The more 10GbE interfaces the user configures, the more IP addresses are required.

   - **Number of CPU cores** – The maximum number of cores that you want to allocate to this user.
   - **Amount of Memory in GB** – The maximum amount of memory, in GB, that you want to allocate to this user.
   - **Number of 10Gb Interfaces** – The maximum number of 10GbE interfaces that you want to allocate to this user.
   - **Number of FC VFs** – (If present) The maximum number of fibre channel VFs that this user can consume.

   Note - If resources were previously assigned, you can click Clear to remove all of the resource limitations.

7. **Click Save.**

   The user's resource allowances are displayed in the Users and Allowances screen.

8. **Consider your next action.**

   - Go to the next configuration section – See "Managing Recipes and Templates" on page 79.
   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
   - Change user passwords – See "Change a User's Password (Administrators)" on page 71.

View Resource Allowances

The assistant administrators can assign an upper limit of resources for each user. Use this procedure to view information about allocated, used, and remaining resources.

Administrators can view resource allowances for any user. Non-administrator users can only view their own allowances.

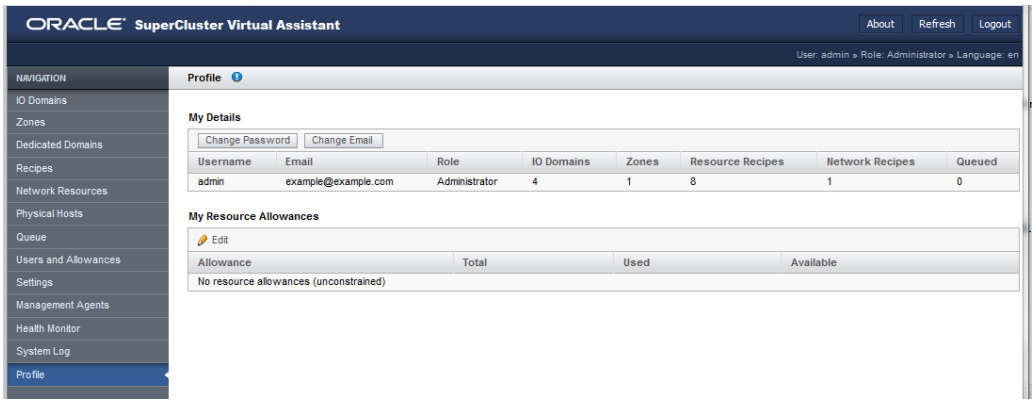
Note - If your user account is configured without resource constraints, you can use any of the available resources.

---

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Profile.**



3. **Consider your next action.**

- View system resources. – See "View System Resources" on page 45.
- Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.

Change Your Password

User passwords are initially set when the user account is created. The assistant administrator provides you with your initial password. You can use this procedure to change your password anytime after you receive your initial password.

Note - If you forgot your password, the assistant administrator can initiate a password reset. See "Request a Password Reset" on page 70.

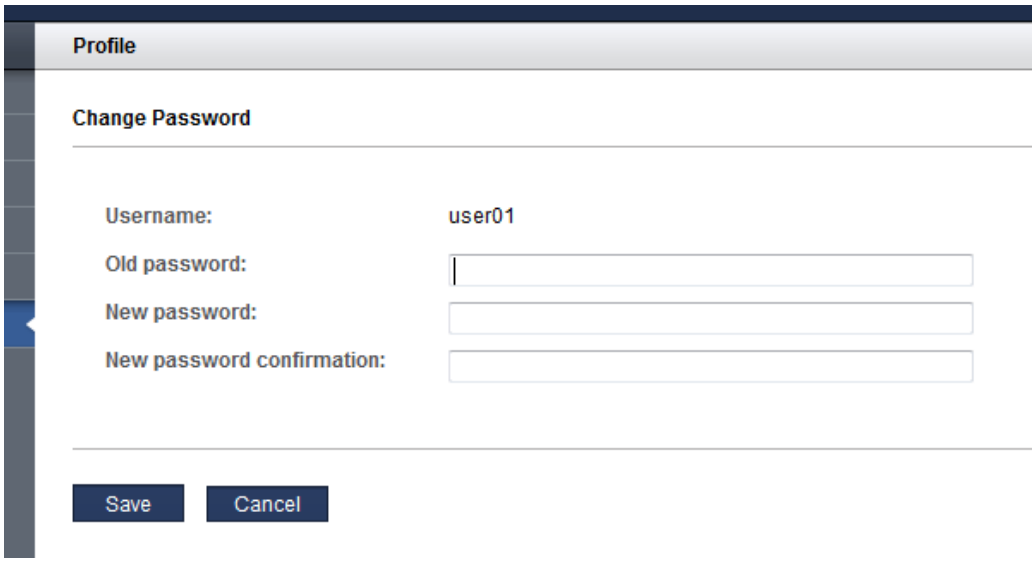
---

1. **Log in as the user for which the password change is required.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Profile.**

3. **Click Change Password.**



4. **Enter the old password, new password, and password confirmation.**

5. **Click Save.**

6. **Consider your next action.**

   - Reset your password – See "Request a Password Reset" on page 70.

Request a Password Reset

If you forget your password, the SuperCluster Virtual Assistant administrator can initiate a password reset for you. The assistant sends you email with a link that enables you to reset your password. The link is only valid for 24 hours.

Only the administrator can initiate a password reset or change your email address in the assistant.

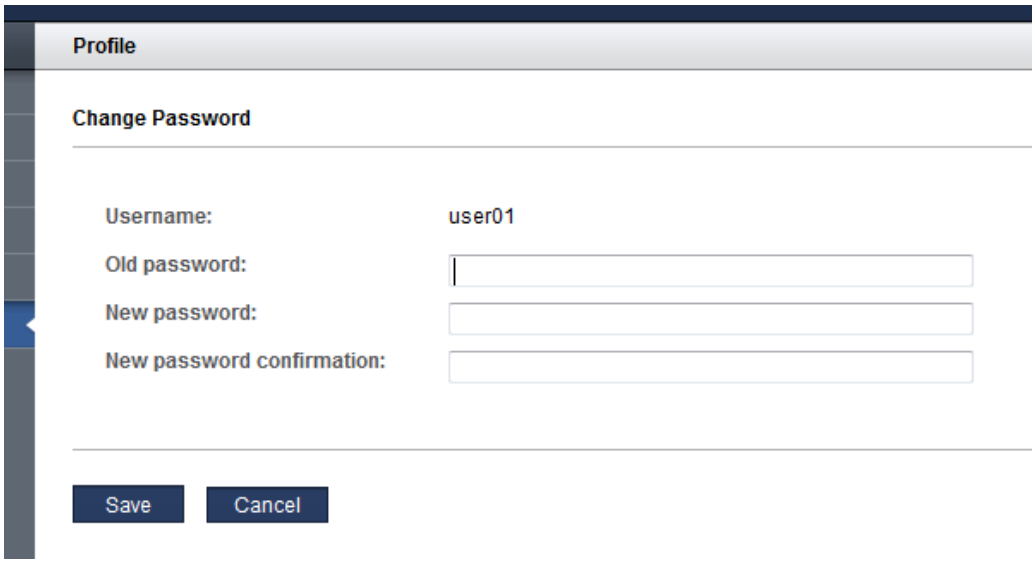
Note - The assistant must have a valid email address before a password reset can be performed.

---

1. **Contact the SuperCluster Virtual Assistant administrator to request a password reset.**

2. **When you receive the `do_not_reply` email, click the link in the email.**

The Password Reset screen is displayed in the browser.



3. **Enter the original password, the new password, and the confirmation password, and click Save.**

4. **Log out of the software or log back in.**

   - **Logout** – Click to log out of the assistant.
   - **Back** – Click to log in to the assistant.

5. **Consider your next action.**

   - Change the password – See "Change Your Password" on page 69.

Change a User's Password (Administrators)

Users with the administrator role can change any user's password.

Users without the administrator role can only change their own password (see "Change Your Password" on page 69)

Password parameters such as strength, are governed by the assistant's security settings. See "Configure Security Settings (Administrators)" on page 34

If a user forgets the password, a user with the administrator role can either initiate a password reset (see "Reset a User's Password (Administrators)" on page 73) or change the user's password as described in this procedure.

Note - User passwords are initially set when the user account is created. See "Add a User (Administrators)" on page 64.

---

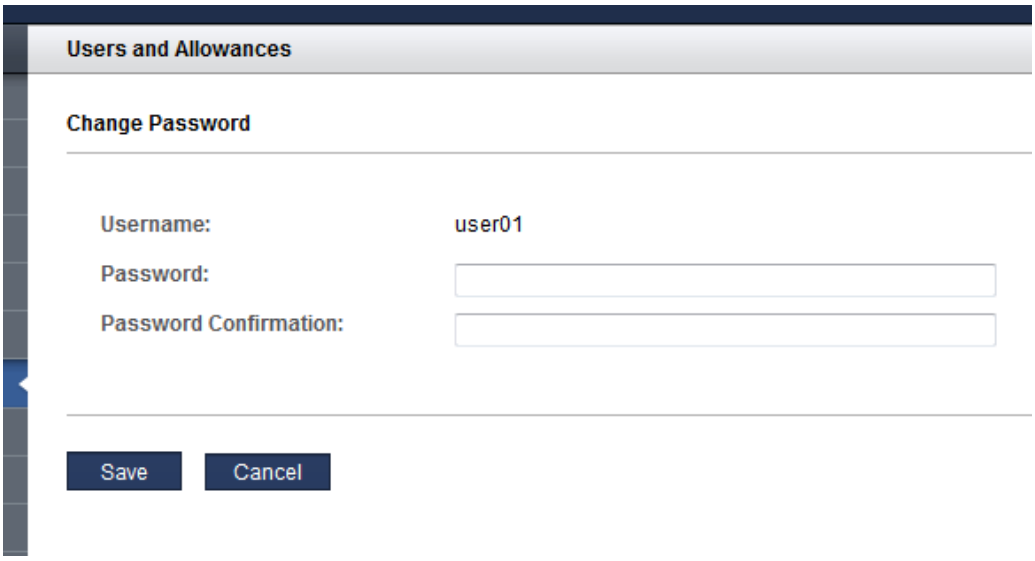
1. **Log in to the assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Users and Allowances.**

3. **Select the user whose password you want to change.**

4. **Click Change Password.**



5. **Type the new password and password confirmation.**

6. **Click Save.**

7. **Consider your next action.**

   - Edit User attributes – See “Edit a User's Email Address or Role (Administrators)” on page 75.
   - Go to the next configuration section – See “Managing Recipes and Templates” on page 79.

Reset a User's Password (Administrators)

If a user (including the admin user) requires a password reset, any user with the administrator role can initiate the reset request. The assistant sends the user an email with a link to a form that enables the user to reset the password. The reset link is only valid for 24 hours. You must have administrator privileges to perform this task.

Sendmail must be enabled for a successful reset.

Note - For the procedure on changing (not resetting) a password, see “Change a User's Password (Administrators)” on page 71.

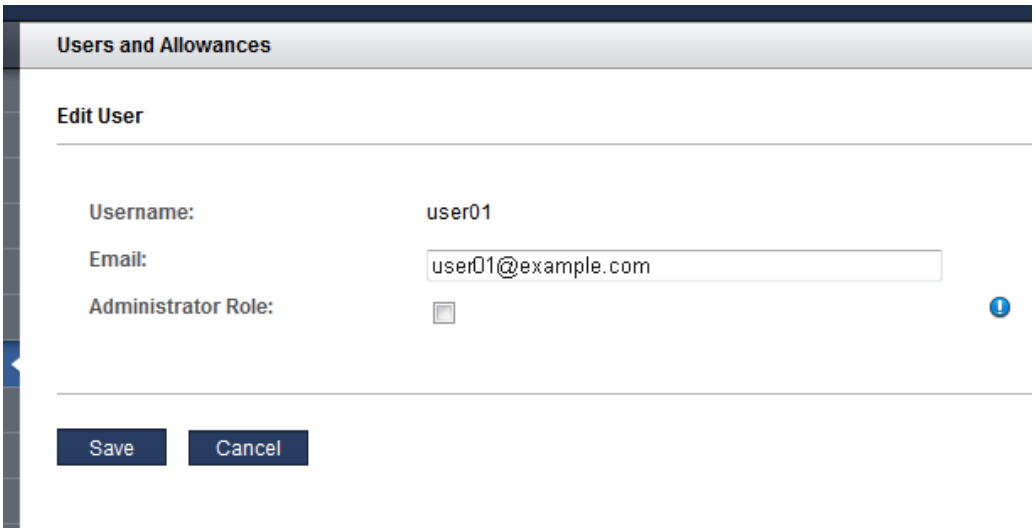
---

1. **Access the SuperCluster Virtual Assistant.**

   See “Log In to the SuperCluster Virtual Assistant” on page 41.

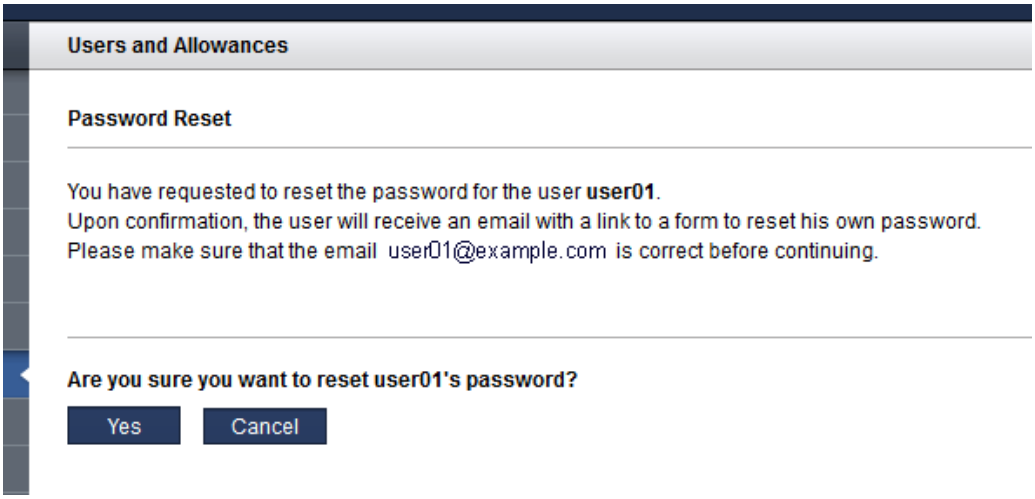
2. **In the navigation panel, select Users and Allowances.**

3. **Select the user and click Edit to check the user's email address.**



4. **Click Save.**

5. **Select the user and click Reset Password.**



6. **Click Yes.**

   The assistant sends the user an email with a link to reset their password. For example:

```
Subject: ACTION REQUIRED: Password Reset for SuperCluster Virtual Assistant
     Date: Mon, 01 Aug 2017 17:03:14 -0000
     From: do_not_reply@company.com
     To: user01@company.com

Please do not reply to this email!

A SuperCluster Virtual Assistant Administrator has requested a password reset for username user01,
which is associated with this email address.

Please use the following link to reset your password for the SuperCluster Virtual Assistant.
The link is valid for the next 24 hours:
http://company.com/iodct/accounts/password/reset/confirm/5/3uo-bea87f739d4dfd78acbd/

If you have any further questions please contact your SuperCluster Virtual Assistant Administrator.
```

7. **Consider your next action.**

   - Edit User attributes – See “Edit a User's Email Address or Role (Administrators)” on page 75.
   - Go to the next configuration section – See “Managing Recipes and Templates” on page 79.

Edit a User's Email Address or Role (Administrators)

Users with the administrator role can edit these user attributes for any user:

- Email address
- Role (Administrator Role)

Note - To change user resource allocation, see “Allocate Resources to a User (Administrators)” on page 66. To change a user password, see “Change a User's Password (Administrators)” on page 71.

---

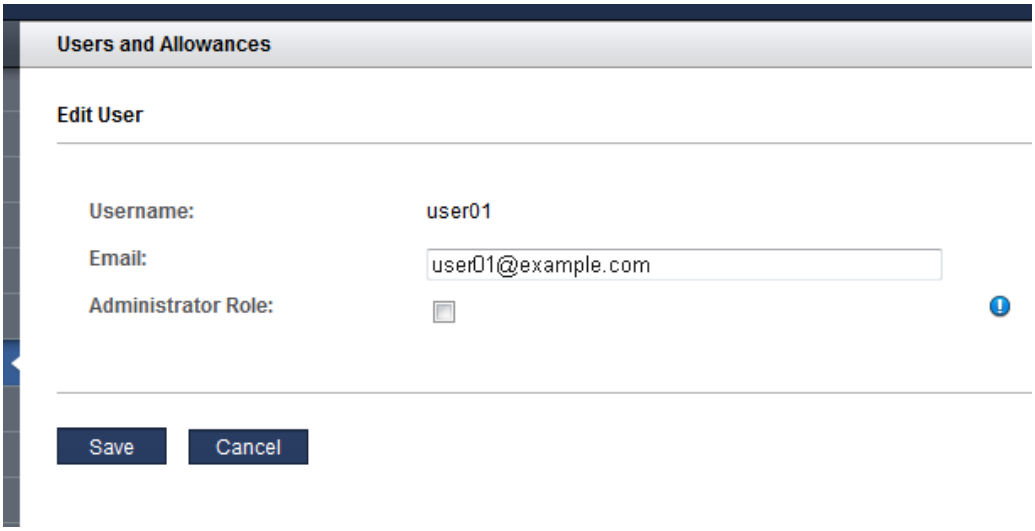
1. **Access the SuperCluster Virtual Assistant.**

   See “Log In to the SuperCluster Virtual Assistant” on page 41.

2. **In the navigation panel, select Users and Allowances.**

3. **Select the user.**

4. **Click Edit.**



5. **Change any of the user attributes.**

6. **Click Save.**

7. **Consider your next action.**

   - Delete a user – See "Delete a User (Administrators)" on page 76.
   - Go to the next configuration section – See "Managing Recipes and Templates" on page 79.

Delete a User (Administrators)

A user with the administrator role can remove any user except for the `admin` user.

When the user account is deleted, the user's I/O Domains and recipes are automatically deleted. The user's resources are returned to the pool of available resources.

Caution - After you delete a user, you cannot reinstate the user account. All of the user's I/O Domains and recipes are deleted. Any data associated with that account is no longer available.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Users and Allowances.**

3. **Select the user.**

4. **Click Delete User.**

5. **Click Yes.**

6. **Consider your next action.**

   - Add a user – See "Add a User (Administrators)" on page 64.
   - Go to the next configuration section – See "Managing Recipes and Templates" on page 79.

Managing Recipes and Templates

Recipes are preset resource configurations that you use to create domains. There are two types of recipes:

- **Resource recipe** – Enables you to define the amount of cores, memory, and network resources that can be applied to domains that are created with the resource recipe.
- **Network recipe** – Enables you to define network parameters that are applied to domains that are created with the network recipe.

You can use the default recipes or create your own. Alternatively, you can define resources in a one-time-use custom recipe while you are creating domains. See "Choose an I/O Domain Creation Method" on page 91.

These topics are covered in this section:

Default Resource Recipes

The SuperCluster Virtual Assistant provides these default recipes with these resources:

Size	Type	Owner	Cores	Mem. (GB)	10 GbE	FC Interfaces	Users
Large	Application Domain	admin	8	128	1	0	All

Size	Type	Owner	Cores	Mem. (GB)	10 GbE	FC Interfaces	Users
Large	Database Domain	admin	8	128	1	0	All
Medium	Application Domain	admin	4	64	1	0	All
Medium	Database Domain	admin	4	64	1	0	All
Small	Application Domain	admin	2	32	1	0	All
Small	Database Domain	admin	2	32	1	0	All

An administrator can edit a default recipe. You cannot delete a default recipe. To create your own recipes, see "Create a Resource Recipe" on page 82.

To view recipes, see "View Recipes" on page 80.

View Recipes

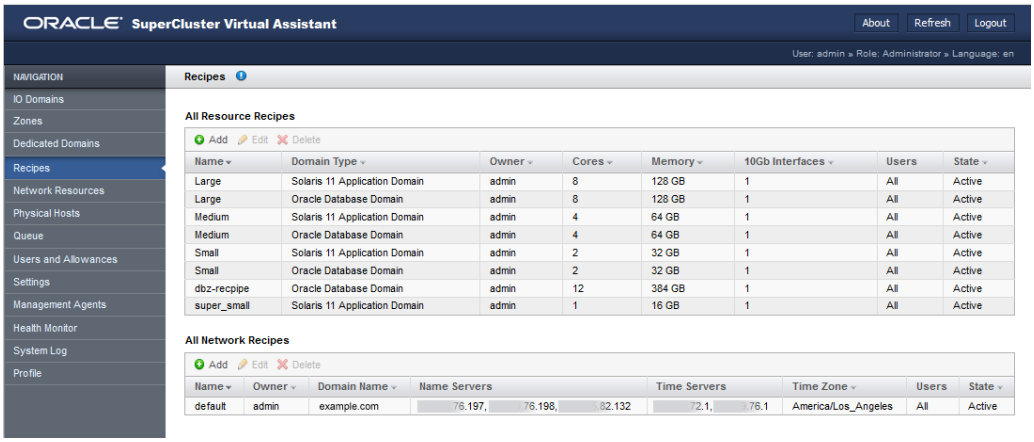
Use this procedure to view resource and network recipes.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Recipes.**

This is an example of a screen for an administrator. The non-administrator user screen is similar except that users only see recipes that are configured for the user.



The Available Resource Recipes table provides this information:

- **Name** – The name of the recipe.
- **Domain Type** – The type of I/O Domain (Application, Database, or Database Zone) that the recipe creates. The SuperCluster Virtual Assistant provides default recipes for small, medium, and large application and database domains. I/O Domains that are deployed using OVM templates use *Application Domain* recipes, while Database Zone I/O Domains use *Database Domain* recipes.
- **Owner** – The user that created and owns the recipe.
- **Cores** – The number of cores allocated to domains with this recipe.
- **Memory** – The amount of memory, in GB, allocated to domains with this recipe. Memory is always allocated in 16 GB blocks.
- **10Gb Interfaces** – The number of 10GbE interfaces allocated to domains with this recipe.
- **FC Interfaces** – The number of fibre channel interfaces allocated to domains with this recipe.
- **Users** – All users that have access to this recipe.
- **State** – (Only available to administrators) Either Active (available for use), or Inactive (not available for use).

The Network Recipes table provides this information:

- **Name** – The name of the network recipe.

- **Owner** – The user that created and owns the network recipe.
- **Domain Name** – The domain name that is assigned to networks that are created by this recipe.
- **Name Servers** – A list of the name server IP addresses that are assigned to networks that are created by this recipe.
- **Time Servers** – A list of the time server IP addresses that are assigned to networks that are created by this recipe.
- **Time Zone** – The time zone that for networks that are created by this recipe.
- **Users** – The users that can use this recipe to create domains.
- **State** – (Only available to administrators) Either Active (available for use), or Inactive (not available for use).

3. **Consider your next action.**

   - Go to the next task – See "Create a Resource Recipe" on page 82.
   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
   - Go to the next configuration chapter – See "Creating and Deploying I/O Domains" on page 91.

▼ Create a Resource Recipe

Use this procedure to create a new resource recipe.

The SuperCluster Virtual Assistant does not prevent you from creating a recipe that exceeds the total resources. To view resources, see "View System Resources" on page 45.

Alternatively, you can define resources in a one-time-use custom recipe while you are creating domains. See "Creating and Deploying I/O Domains" on page 91.

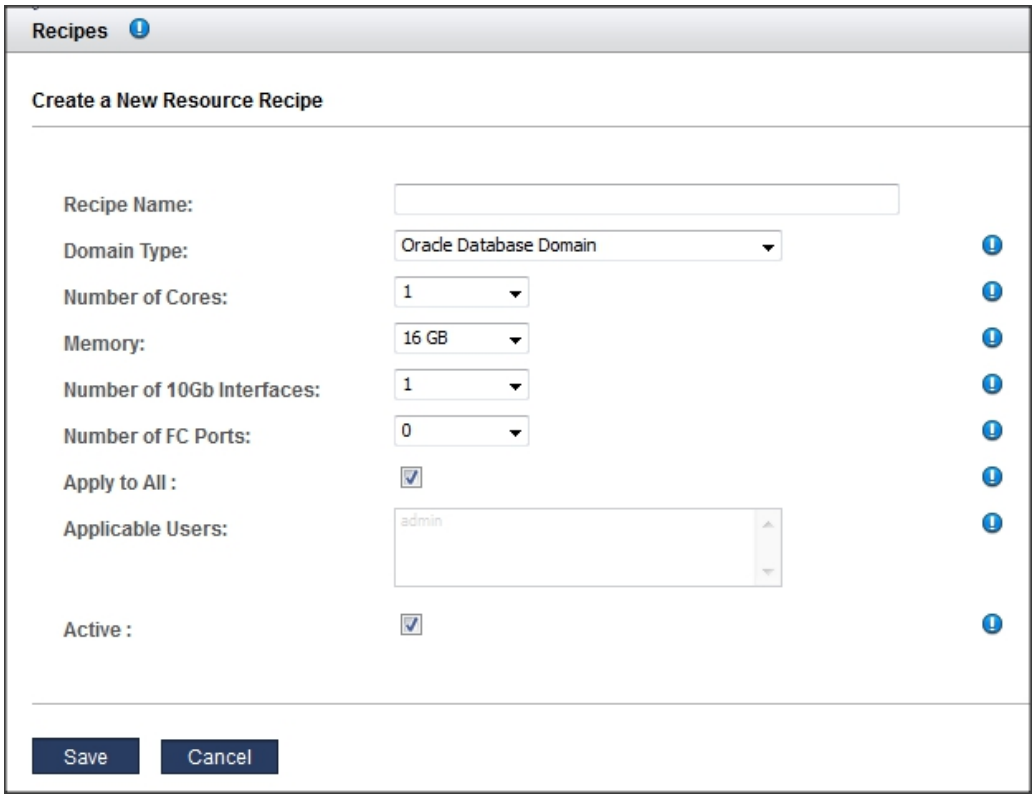
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Recipes.**

3. **Under All Resource Recipes, click Add.**

This example shows the screen for an administrator. The non-administrator user screen is similar except as noted below.



4. **Enter this information.**

Allocate resources carefully. The more 10GbE interfaces you configure, the more IP addresses are required. The assistant imposes limits on cores and memory based on the type of domain.

- **Recipe Name** – The name of this recipe.
- **Domain Type** – Specifies the type of domain that this recipes creates. Your choices are Application Domain, Database Domain, or Database Zone Domain. If you plan to configure the domain with an OVM template, select Application domain (see "Upload an OVM Template (Deprecated)" on page 87).
- **Number of cores** – The number of cores allocated to domains with this recipe.
- **Memory** – The amount of memory, in GB, allocated to domains with this recipe.

- **Number of 10Gb Ethernet Interfaces** – The number of 10GbE interfaces allocated to domains with this recipe. The minimum is 1.
- **Number of FC Ports** – (If installed and configured in the assistant. See "Support for Fibre Channel Interfaces in Domains" on page 58) The number of FC interfaces allocated to domains with this recipe. The minimum is 0.
- **Apply to All** – (Only available to administrators) Select this check box if you want all users listed in the Applicable Users list to have access to this recipe.
- **Applicable Users** – (Only available to administrators) If you did not select the Apply to All check box, you can select individual users. Use the Control key (or the Command key on a Macintosh) to select more than one user.
- **Active** – (Only available to administrators) Select this check box to make this recipe available to use.

5. **Click Save.**

6. **Consider your next action.**

   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
   - Go to the next task – "Edit a Recipe" on page 86.

Create a Network Recipe

Network recipes enable you to define network parameters that are automatically applied to domains that are created with the network recipe.

Note - Alternatively, you can define resources in a one-time-use custom network recipe while you are creating domains. See "Creating and Deploying I/O Domains" on page 91.

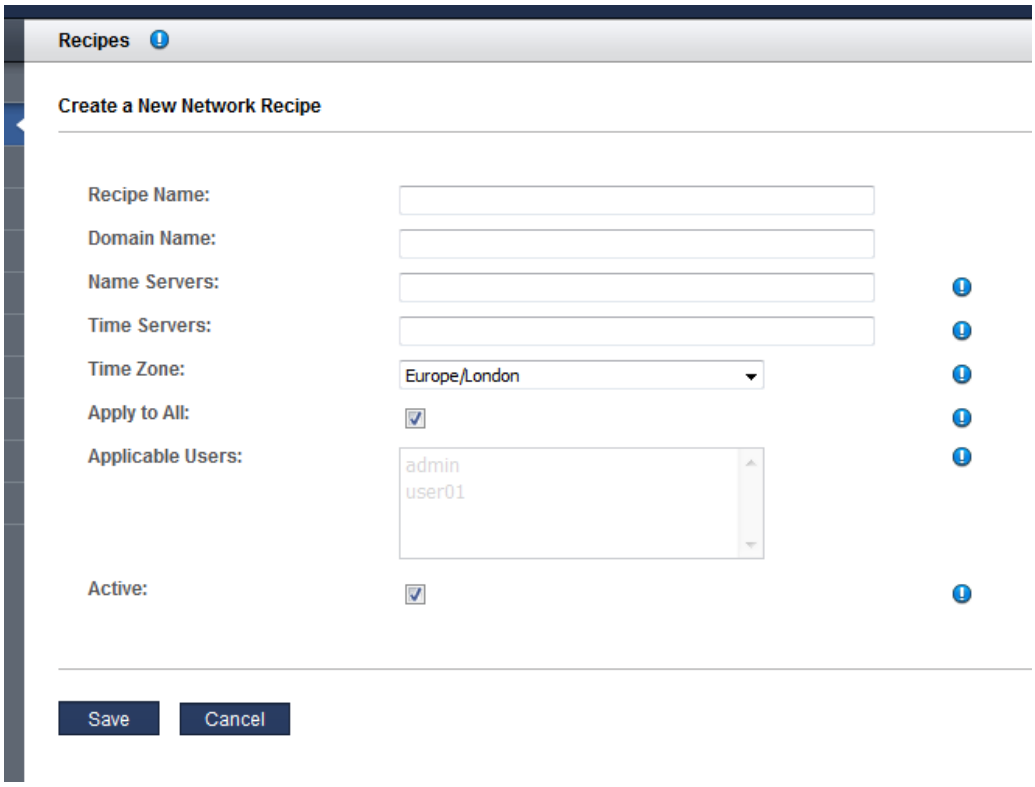
---

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Recipes.**

3. **Under All Network Recipes, click Add.**



4. **Enter this information.**

- **Recipe Name** – Type a unique name to identify this recipe.
- **Domain Name** – Type the domain name, such as `company.com`, that is applied to domains that are created with this recipe.
- **Name Servers** – Provide a list of comma or space separated IP addresses of name servers that are applied to domains that are created with this recipe.
- **Time Servers** – Provide a list of comma or space separated IP addresses of time servers that are applied to domains that are created with this recipe.
- **Time Zone** – Select an time zone. The time zone selected is applied to domains that are that are created with this recipe.
- **Apply to All** – (Only available to administrators) Select this check box if you want all users listed in the Applicable Users list to have access to this recipe.

- **Applicable Users** – (Only available to administrators) Select the individual users if you did not select the Apply to All selection. Use the Control key (or the Command key on a Mac) to select more than one user.
- **Active** – (Only available to administrators) Select this check box to make this recipe available for use.

5. **Click Save.**

6. **Consider your next action.**

   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
   - Go to the next task "Edit a Recipe" on page 86.

Edit a Recipe

Use this procedure to edit a resource or network recipe. Any changes you make to a recipe are only reflected in future domains that are created using this recipe. The changes are not reflected in domains that are previously created based on the recipe.

Note - The SuperCluster Virtual Assistant does not prevent you from creating a recipe that exceeds the total available resources. To view resources, see "View System Resources" on page 45.

---

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Recipes.**

3. **Select the recipe you want to edit and click Edit.**

4. **Change any of the displayed parameters.**

5. **Click Save.**

6. **Consider your next action.**

   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
   - Go to the next task – See "Delete a Recipe" on page 87.

Delete a Recipe

Use this procedure to delete a recipe. Any domains that were created with the deleted recipe are unaffected.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Recipes.**

3. **Select the recipe you want to delete and click Delete.**

4. **Click Yes.**

5. **Consider your next action.**

   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.

Upload an OVM Template (Deprecated)

As of SuperCluster version 3.0, this feature is no longer available. The following procedure applies to SuperCluster version 2.6 or earlier.

Oracle VM (OVM) templates enable you to deploy a fully configured software stack using preinstalled and preconfigured software images.

Before you can create domains using an OVM template, you must upload the template into the assistant. After the template is available, users can select the template during the domain creation process, which results in domains with a preconfigured OS and application. The templates in the assistant can be used repeatedly to create domains.

Only users with the administrator role can perform this procedure.

This table provides additional OVM template resources.

Resource	Link
Procedure in this guide	"Create an I/O Domain With an OVM Template (Deprecated)" on page 120

Resource	Link
MOS article: Using OVM Templates in IO Domains on SuperCluster (Doc ID 2065199.1)	https://support.oracle.com

1. **Obtain an OVM template that is supported by the assistant.**

   For more information about OVM templates, go to: http://www.oracle.com/technetwork/server-storage/vm/templates-101937.html

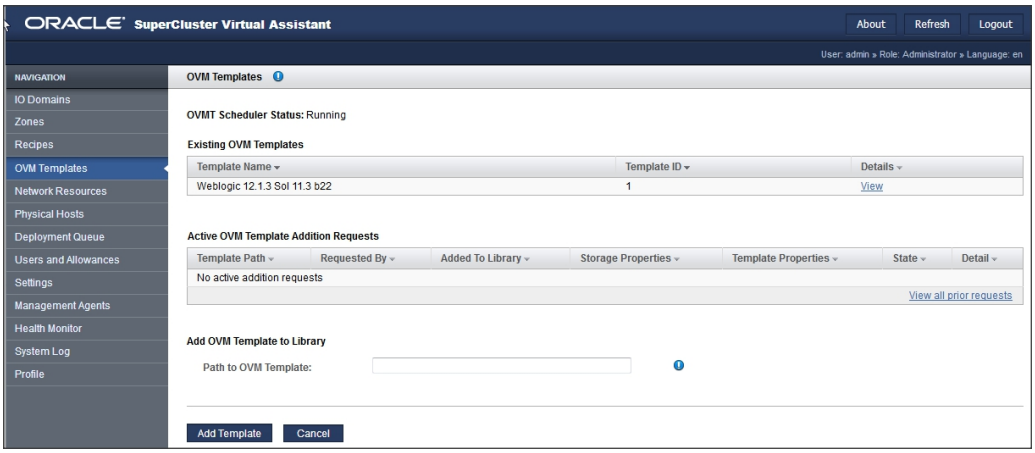
   Note - Not all OVM templates are supported by the SuperCluster Virtual Assistant.

   Save the template in a location that is accessible as a file from the master control domain of SuperCluster.

2. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

3. **In the navigation panel, select OVM Templates.**



4. **In the Path to OVM Template, type the path to the OVM template that you downloaded from Oracle Support.**

5. **Click Add Template.**

   The template requires several minutes to upload. After the template is uploaded, you can create domains using the template.

6. **To monitor the upload progress, perform these activities:**

   - In the assistant, watch for a message similar to this example:

```
The template from file file:///var/tmp/ovmt/OVM_S11.3_WLS12.1.3_SPARC_SCRIPT_B4.ova is being added. This
 may take several minutes.
```

   - In the master control domain, type:

```
root@etc4m-appadm0101:~# ps -ef | grep ovm | grep -v grep
root 47826 47825   0 19:15:36 ?   0:00 ksh /opt/oracle.supercluster/osc-ovmt/osc-ovmt -i file:///var/tmp/
ovmt/OVM_S11.
root 47822   646   0 19:15:36 ?   0:00 /usr/bin/python /opt/oracle.supercluster/osc-domcreate/iodine/
iodine/ovmt.py -a
root 47914 47826   0 19:15:38 ?   0:00 /opt/oracle.supercluster/osc-ovmtutils/ovmtlibrary -c store -o
 file:///var/tmp
```

7. **Consider your next action.**

   - Configure a domain with an OVM template – See "Create an I/O Domain With an OVM Template (Deprecated)" on page 120.
   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
   - Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.
   - View domains – See "View I/O Domains" on page 95.

Creating and Deploying I/O Domains

These topics describe how to use the Oracle SuperCluster Virtual Assistant to configure and manage I/O Domains.

Description	Links
Choose a method for creating an I/O Domain.	"Choose an I/O Domain Creation Method" on page 91
Gather required information.	"Required Information for Configuring I/O Domains" on page 92
View I/O Domains.	"View I/O Domains" on page 95
Create an I/O Domain.	"Create a Database I/O Domain" on page 97
	"Create a Database Zone Domain" on page 105
	"Create an Application I/O Domain" on page 113
	"Create an I/O Domain With an OVM Template (Deprecated)" on page 120
(Optional) Configure or delete a zone.	"Configure a Database Zone" on page 137
	"Delete Zone Configuration Information" on page 145
(Optional) Change the SCAN name for Database Domains.	"Change the Name of a SCAN Network" on page 113
(Optional) Increase or decrease the cores and memory in a domain.	"Increase or Decrease I/O Domain Resources" on page 127
(Optional) Transform a Database I/O Domain into a Database Zone Domain	"Transform a Database Domain Into a Database Zone Domain" on page 131
Deploy an I/O Domain.	"Deploy an I/O Domain" on page 133
(Optional) Export text for Oracle Enterprise Manager.	"Export an I/O Domains Text File to Oracle Enterprise Manager" on page 135

▼ Choose an I/O Domain Creation Method

1. **Choose how you want the domain resources to be sized.**

   There are several ways to assign the number of cores, memory, and network resources to an I/O Domain.

Use one of these approaches:

- **Use a default resource recipe** – Use one of the provided large, medium, or small default recipes. To see the resources associated with default recipes, see "Default Resource Recipes" on page 79.
- **Use your own reusable recipe** – Create your recipe. See "Create a Resource Recipe" on page 82.
- **Define the resources individually for each domain** – During the domain creation process, you specify the amount of cores, memory, and 10GbE interfaces. There is no need to create a recipe prior to creating the I/O Domain. **Note** – If you want to assign a 10GbE NIC port pair to the I/O Domain, you must use this method. See "Configure Port-Paired Networks (Administrators)" on page 53.

2. **Choose how you want network parameters applied to the domain.**

   There are several ways to assign the network parameters such as name servers, time servers, and time zones..

   Use one of these approaches:

   - **Use the default network recipe** – Use one provided. See "View Recipes" on page 80.
   - **Use your own reusable network recipe** – Create a network recipe. See "Create a Network Recipe" on page 84.
   - **Define the network parameters individually for each domain** – During the domain creation process, you specify the network parameters. There is no need to create or use a network recipe prior to creating the I/O Domain.

3. **Choose the type of I/O Domain you want to create.**

   - **Database Domain** – Perform the steps in "Create a Database I/O Domain" on page 97.

     Database Zone Domain – Perform the steps in "Create a Database Zone Domain" on page 105.
   - **Application Domain** – Perform the steps in "Create an Application I/O Domain" on page 113.

Required Information for Configuring I/O Domains

You can use one of these worksheets to gather the information you need when you configure a domain. Use the table that corresponds with the type of domain you plan to create.

TABLE 1 Database and Database Zone Domain Worksheet

Database I/O Domains	Your Value
Know what resources are available. See "View System Resources" on page 45.	
One of these items: ■ A resource recipe with the desired set of resources. ■ The number or cores, memory, 10GbE interfaces, and FC interfaces. **Note -** Ensure that the resources do not exceed available resources.	

One of these items:
■ A network recipe with the desired set of resources.
■ These network parameters:
  ■ Domain name.
  ■ IP addresses of name servers.
  ■ IP addresses of time servers.
  ■ Time zone.	

(Optional) VLAN Tags for client networks (must already exist in Network Resources. See "Add VLAN Tags (Administrators)" on page 56)	
RAC ID number (DB I/O and DB Zone Domains only).	
Physical host	
Management network hostname	
Client network hostname	
Storage IB network hostname	
Exadata IB network hostname	
VIP network hostname (Database Domain only).	

TABLE 2 Application I/O Domain Worksheet

Application Domains	Your Value
Know what resources are available. See "View System Resources" on page 45.	
One of these items:	

Application Domains	Your Value
■ A resource recipe with the desired set of resources. ■ The number or cores, memory, 10GbE interfaces, and FC interfaces. **Note -** Ensure that the resources do not exceed available resources.	

One of these items:
 	
■ A network recipe with the desired set of resources.
■ These network parameters:
  ■ Domain name.
  ■ IP addresses of name servers.
  ■ IP addresses of time servers.
  ■ Time zone.	

(Optional) VLAN Tags for client networks (must already exist in Network Resources. See "Add VLAN Tags (Administrators)" on page 56)	
Physical host.	
Management network hostname	
Client network hostname	
Storage IB network hostname	

TABLE 3 OVM Template-Based I/O Domain Worksheet (Deprecated)

OVM Template-Based I/O Domain	Your Value
Note: This feature is not available in SuperCluster version 3.0 or later.	
Know what resources are available. See "View System Resources" on page 45.	
An OVM template uploaded to the assistant.	
One of these items: ■ A resource recipe with the desired set of resources. ■ The number or cores, memory, 10GbE interfaces, and FC interfaces.	

OVM Template-Based I/O Domain	Your Value
Note: This feature is not available in SuperCluster version 3.0 or later. **Note -** Ensure that the resources do not exceed available resources.	

One of these items:
■ A network recipe with the desired set of resources.
■ These network parameters:
  ■ Domain name.
  ■ IP addresses of name servers.
  ■ IP addresses of time servers.
  ■ Time zone.	

VLAN Tags	
Physical host.	
Management network hostname.	
Client network hostname.	
Storage IB network hostname.	
(template dependent) Possible additional configuration information.	

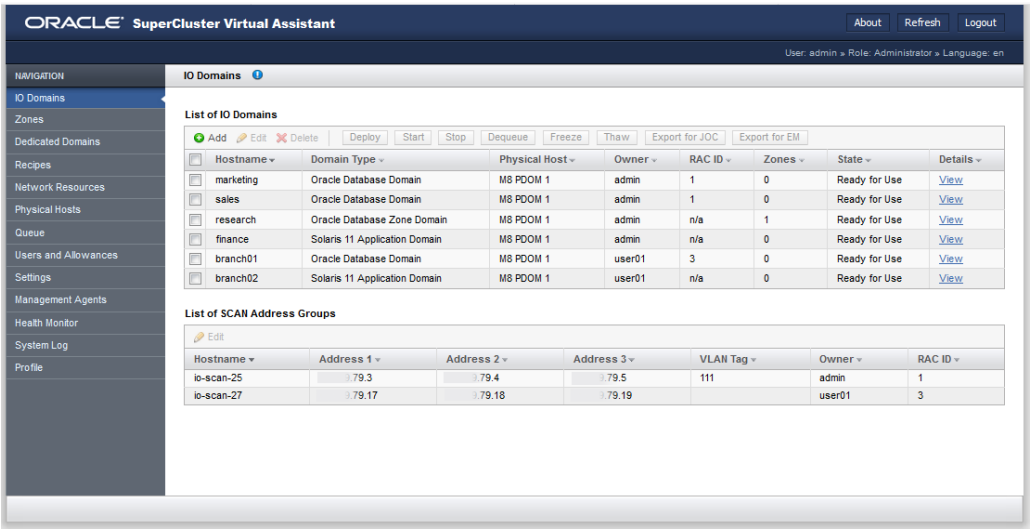
View I/O Domains

Use this procedure to view domains, domain resources, and their state.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**



- **Hostname** – The name of the domain.
- **Domain Type** – Either Database, Database Zone, Application, or a template-based domain that was added during the domain creation.
- **Physical Host** – The compute node that provides the resources for this domain.
- **Owner** – The user that created the domain.
- **RAC ID** – (Database Domain only) Identifies which RAC the Database Domain uses. Each user has a private set of RAC IDs.
- **Zones** – The number of zones configured for a Database Zone Domain. The ability to create and manage zones is available starting with SuperCluster version 2.4.
- **State** – The state of the domain. Following are examples of some of the states:
  - **Creating LDom** – The logical domain for the domain is being created.
  - **Deleting/Deleted Domain** – The domain is deleted.
  - **Domain Deletion Failed** – The deletion operation failed.
  - **Error** – An error occurred.
  - **Installing OS** – The OS is being installed.
  - **Queued for Deployment** – The domain is in the queue awaiting for deployment to begin.
  - **Queued for Deletion** – The domain is in the queue to be deleted.

- **Ready for Use** – The domain is in service.
- **Resources Allocated** – The domain is configured. The resources are allocated, but the domain is not yet deployed for use.

This information is provided under SCAN Address Groups:

- **Hostname** – The Oracle RAC single client access name (SCAN).
- **Address 1** – The first SCAN IP address.
- **Address 2** – The second SCAN IP address.
- **Address 3** – The third SCAN IP address.
- **VLAN** – The VLAN tag assigned to the interface.
- **Owner** – The user who created the domain.
- **RAC ID** – (Database Domain only) The RAC identification number for a Database Domain.

3. **For additional details about a domain, click View.**

4. **Consider your next action.**

   - Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.
   - Go to the next task – See "Create a Database I/O Domain" on page 97.
   - Delete a Domain – See "Delete a Domain" on page 159.

Create a Database I/O Domain

Creating a Database I/O Domain reserves the specified amount of resources for the domain. The domain is not installed and available until you deploy it. See "Deploy an I/O Domain" on page 133.

You can use a recipe to assign the amount of resources to the Database Domain and configure the network parameters, or you can define the resources and network parameters on the fly. If you plan to use a recipe, it must exist before you perform this procedure. See "Choose an I/O Domain Creation Method" on page 91.

You can use a network recipe to assign the network resources to the domain, or you can define the resources on the fly. If you plan to use a recipe, it must exist before you perform this procedure. See "Choose an I/O Domain Creation Method" on page 91. If you plan to assign VLAN tags to the domain, they must exist in Network Resources before you perform this procedure. See "Add VLAN Tags (Administrators)" on page 56.

The assistant does not allow you to assign more resources than are available.

Note - (Only applies to SuperCluster version 2.6 or earlier) If you plan to change CPU and memory allocations for dedicated domains with the `osc-setcoremem` tool, do so before you configure any domains. Refer to the Administration Guide for your SuperCluster model (for example, "Configuring CPU and Memory Resources (osc-setcoremem)" in *Oracle SuperCluster M8 and SuperCluster M7 Administration Guide*).

This note does not apply to SuperCluster 3.0 (or later).

---

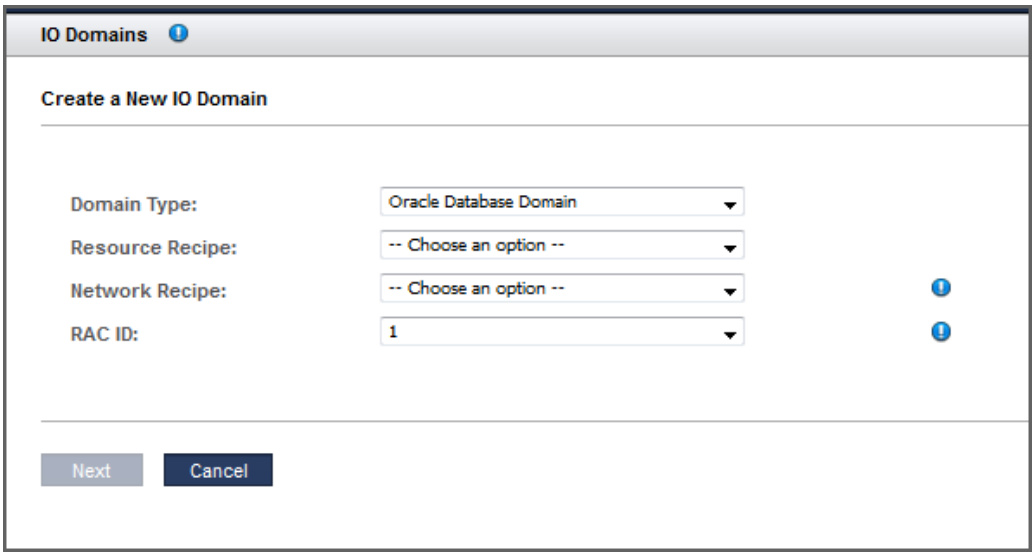
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

3. **Click Add.**

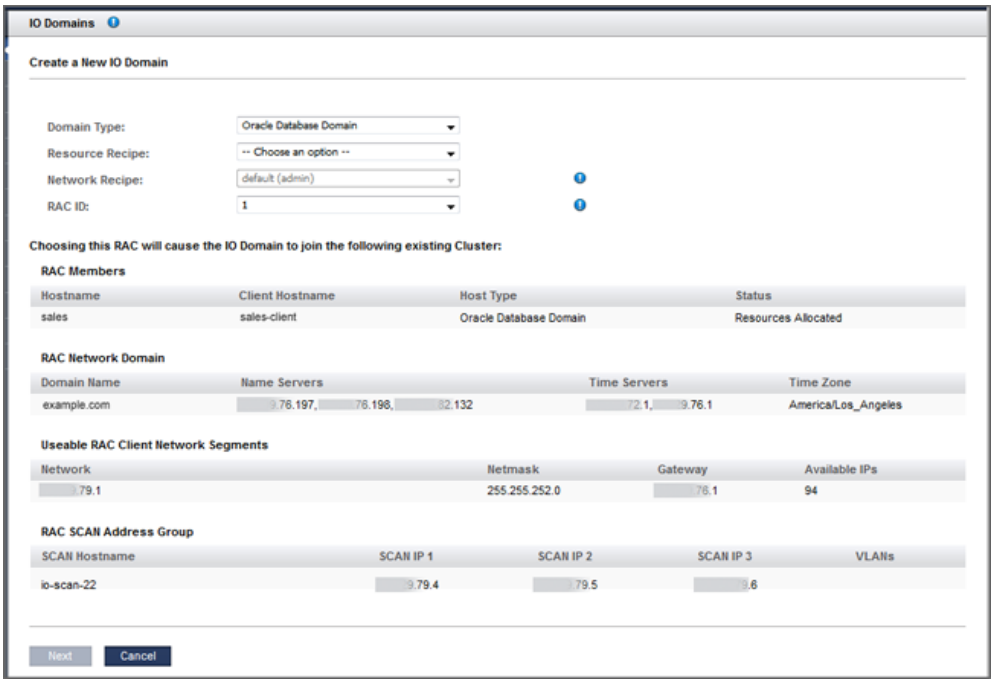
4. **Define these parameters to create an I/O Database Domain.**



- **Domain Type** – Choose Oracle Database Domain.
- **Resource Recipe** – Choose one of these options:
  - A Small, Medium, Large, or any other recipe – See "Managing Recipes and Templates" on page 79.

  - Custom Recipe – Enter resource allocations for cores, memory, and 10GbE interfaces. Go to Step 5. **Note** – If you want to assign a 10GbE NIC port pair to the I/O Domain, you must use this method. For information about port pairs, see "Configure Port-Paired Networks (Administrators)" on page 53.
- **Network Recipe** – Choose one of these options:
  - One of the network recipes – See "Create a Network Recipe" on page 84.
  - Custom Recipe – Enter the network parameters.
- **RAC ID** – When you choose Database Domain as the domain type, an additional RAC ID selection becomes available. Choose the RAC ID that the domain uses. If the domain is joining an existing RAC, the network recipe is inherited from the RAC and the network recipe cannot be changed. The RAC ID already has items set from the initial installation (client networks, network recipes, and VLAN tags). Everything in the RAC, including this new Database Domain, will have those same items assigned to it. Oracle SuperCluster supports up to eight RAC clusters.

  This is an example of the screen that is displayed when the second member of an Oracle Database RAC is being created.



5. **If you selected Custom Resource Recipe for resources, define these resources and click Next.**

   - **Number of Cores** – Choose a minimum of two cores for a Database Domain.
   - **Memory** – Choose a minimum of 32 GB Memory for a Database Domain.
   - **Number of 10GbE Interfaces** – Choose up to two 10GbE Interfaces for a Database Domain.
   - **Number of FC ports** – Choose up to two assignable fibre channel ports for a Database Domain.

6. **If you selected Custom Network Recipe for the network, define these resources and click Next.**

   - **Domain Name** – Type the domain name, such as `company.com`, that is applied to this Database Domain.
   - **Name Servers** – Type a list of comma or space-separated IP addresses of name servers that are applied to this Database Domain.
   - **Time Servers** – Type a list of comma or space-separated IP addresses of time servers that are applied to this Database Domain.
   - **Time Zone** – Choose a time zone for this Database Domain.

7. **Review the resources and click Next.**

   Note - If you requested more resources than are available, the assistant highlights the resource on each physical host that does not meet the requirements.

8. **Choose the physical host and add network information.**

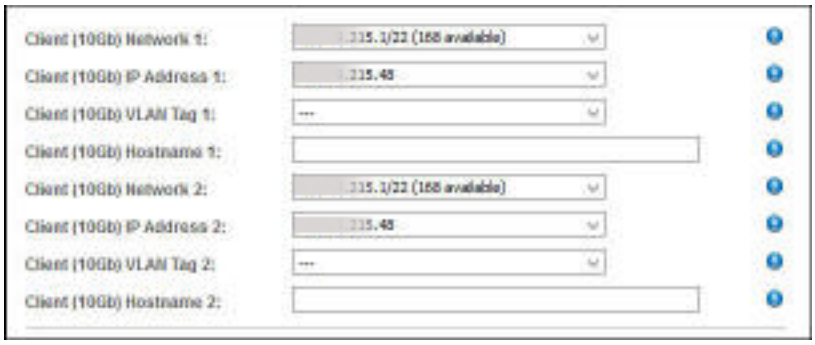
   - If you are creating a Database Domain with a Custom Resource Recipe and a Custom Network Recipe, configure these parameters. Depending on your choices, you might see fewer fields.
     - **Maximum Number of Zones** – (as of SuperCluster 3.0) From the drop-down list, choose the maximum number of zones that can be created in this I/O Domain. This value defines the number of alt-mac-addresses that can be allocated to the I/O Domain. Prior to version 3.0, the maximum number of zones was set to 2 times the number of cores and could not be changed.
     - **Physical Host** – Choose the compute node where the Database Domain will reside. If you are creating a RAC, select different compute nodes for each Database Domain for redundancy.
     - **Management Network** – You can select the Management Network from which to assign an IP Address. All Management Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be

selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Management Interfaces, you will see two sets of inputs in order to provide two entries for the Management Network, IP Address, VLAN Tag, and Hostname. In this case, two Management interfaces will be configured in the I/O Domain after it has been deployed. If the I/O Domain has two Management Interfaces, then each of those Management Interfaces can use any Management Network with sufficient available IP Addresses.

- **Management Hostname** – Type a unique name for this Database Domain.
- **Network Endpoint** – This option is only displayed when port pairs are configured (see "Configure Port-Paired Networks (Administrators)" on page 53).

  If port pairs are configured, select the network endpoint that you want the I/O Domain to use.

- **Client (10Gb) Network** – You can select the Client Network from which to assign an IP Address. All Client Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Client (10Gb) Interfaces, you will see two sets of inputs in order to provide two entries for the Client Network, IP Address, VLAN Tag, and Hostname. In this case, two Client (10Gb) interfaces will be configured in the I/O Domain after it has been deployed. If an I/O Domain has two Client Interfaces, then each of those Client Interfaces can use any Client Network with sufficient available IP Addresses. domain created with an OVM template



- **Client (10Gb) IP Address** – Displayed only if the IP Address assignment is set to manual. See "Configure How IP Addresses are Assigned (Administrators)" on page 36. When this setting is enabled, you see a drop-down list of IP Addresses from the selected Client (10Gb) Network and you can select the desired IP Address.

- **Client (10Gb) VLAN Tag** – This field is always present on the I/O Domain configuration page, even if you did not define any VLAN tags in the Network Resources section. The default is no VLAN tag, which is indicated by `---`.
- **Client (10Gb) Primary VLAN Tag** – If VLAN tags were added to the Network Resources (see "Add VLAN Tags (Administrators)" on page 56) you can select a VLAN tag from the drop-down list to assign to this I/O Domain. For DB Domains, the selected VLAN tag is also used for the VIP and SCAN networks. Note - the VLAN tag cannot be changed if this I/O Domain is joining an existing RAC that has a pre-defined VLAN.

  This field is always present on the I/O Domain configuration page, even if you did not define any VLAN tags in the Network Resources section. The default is no VLAN tag, which is indicated by `------`. VLAN tags are only configured on the 10 GbE client network. Primary VLAN tags are applied to the network interface and to the VF.
- **Client (10Gb) Aux VLAN Tag** – As of SuperCluster version 3.0, if VLAN tags were added to the Network Resources (see "Add VLAN Tags (Administrators)" on page 56) you can select one or more VLAN tags from the auxiliary list, otherwise the list is empty. auxiliary VLAN tags only apply to VFs. A typical use of auxiliary VLAN tags is to assign them to zones that are later created in the I/O Domain.
- **Client (10Gb) Hostname** – Use the default, or type a unique name to the client network for this Database Domain.
- **Storage IB Network** – Depending how the assistant is configured, the IP address might be automatically assigned or you might be able to choose an available IP address for the ZFS Storage Network. See "Configure How IP Addresses are Assigned (Administrators)" on page 36.
- **Storage IB Hostname** – Use the default, or type a unique name for the ZFS Storage Hostname.
- **Exadata IB Network** – Depending how the assistant is configured (see "Configure How IP Addresses are Assigned (Administrators)" on page 36), the IP address might be automatically assigned, or you might be able to choose an available IP address in the Exadata IB network.
- **Exadata IB Hostname** – Use the default, or type a unique name for the Exadata IB network for this Database Domain.

For example:

9. **Click Allocate to create the Database Domain.**

   The SuperCluster Virtual Assistant reserves the system resources but does not deploy the configuration. You can deploy the Database Domain at your convenience. See "Deploy an I/O Domain" on page 133.

   Note - Resources are only reserved for 120 hours (five days). If the domain is not deployed within that time frame, the resources are returned to the free pool.

   Additional SCAN hostname and IP addresses are assigned during the allocation process. You can rename the SCAN networks later if you desire.

   If a configuration issue is detected, the assistant displays a message:

   - Insufficient resources. For example:

     ```
     Insufficient Unallocated Cores available on the chosen Compute Node. 10 Requested,
     8 Remaining.
     ```

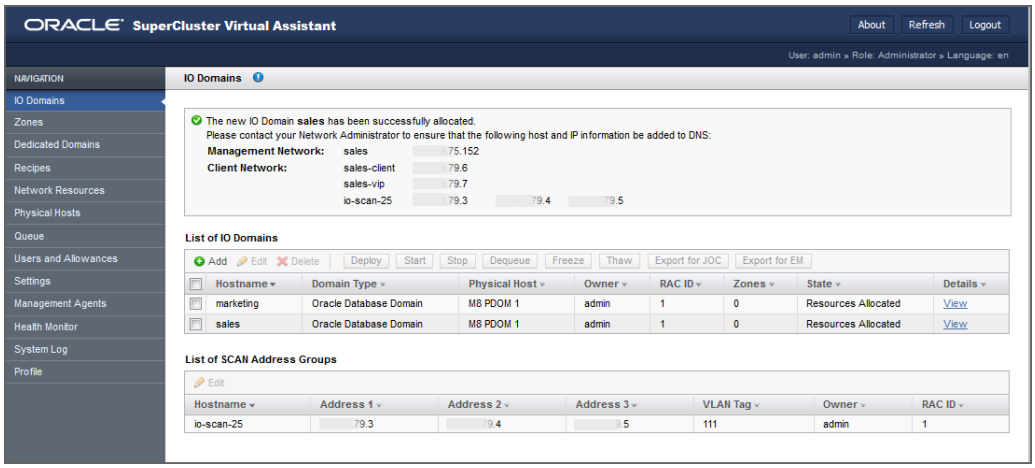
   - Configurations that might have performance issues. For example:

     ```
     Error: VF allocation requires dedicated core in the same locality group for
      performance
     reasons
     requested core count: 1
     optimal core count based on number of requested VFs: 2
     ```

   If you receive one of these messages, click Cancel and configure a new Database Domain using a recipe that requests fewer or different resources.

10. **Verify that the Database Domain allocation completed.**

A confirmation panel is displayed at the top of the I/O Domains screen. The State column displays the status of the allocation.



11. Add the management and client networks to DNS.

The network host names and IP addresses are displayed in the confirmation panel in the I/O Domains screen, and are available when you view the domain's details.

12. Consider your next action.

- Deploy the Domain – See "Deploy an I/O Domain" on page 133.
- Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.
- Monitor activity – See "Monitoring Activity, Resource Alterations, and Health" on page 161.
- Change the name of a SCAN network for Database Domains – See "Change the Name of a SCAN Network" on page 113.

▼ Create a Database Zone Domain

The ability to create and configure a Database Zone Domain is available starting with SuperCluster version 2.4.

Creating a Database Zone Domain reserves the specified amount of resources for the domain. The domain is not installed and available until you deploy it. See "Deploy an I/O Domain" on page 133.

You can use a recipe to assign the amount of resources to the Database Zone Domain and configure the network parameters, or you can define the resources and network parameters on the fly. If you plan to use a recipe, it must exist before you perform this procedure. See "Choose an I/O Domain Creation Method" on page 91.

You can use a network recipe to assign the network resources to the domain, or you can define the resources on the fly. If you plan to use a recipe, it must exist before you perform this procedure. See "Choose an I/O Domain Creation Method" on page 91. If you plan to assign VLAN tags to the domain, they must exist in Network Resources before you perform this procedure. See "Add VLAN Tags (Administrators)" on page 56.

The assistant does not allow you to assign more resources than are available.

Note - (Only applies to SuperCluster version 2.6 or earlier) If you plan to change CPU and memory allocations for dedicated domains with the `osc-setcoremem` tool, do so before you configure any domains. Refer to the Administration Guide for your SuperCluster model (for example, "Configuring CPU and Memory Resources (osc-setcoremem)" in *Oracle SuperCluster M8 and SuperCluster M7 Administration Guide*).

This note does not apply to SuperCluster 3.0 (or later).

---

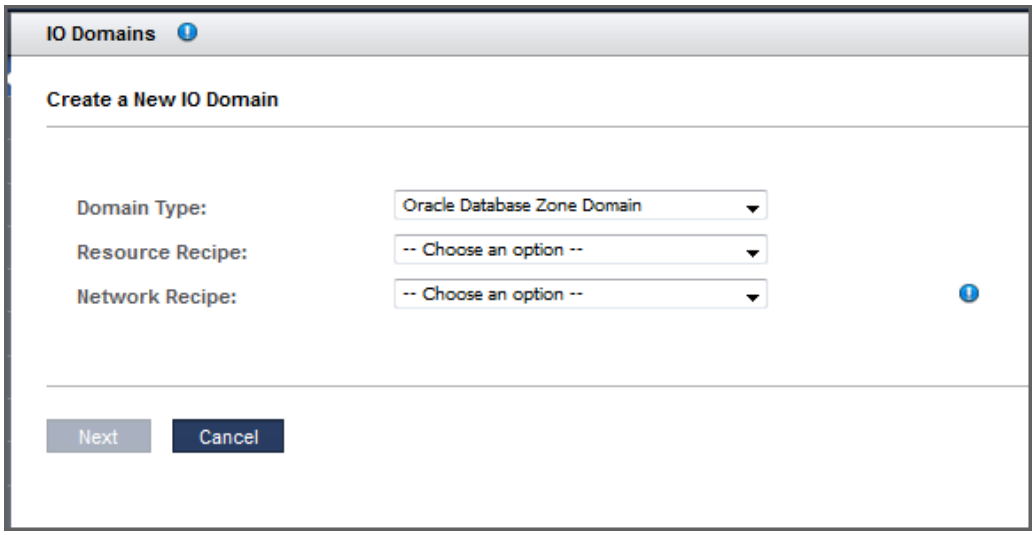
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

3. **Click Add.**

4. **Define these parameters.**



- **Domain Type** – Choose Oracle Database Zone Domain.
- **Resource Recipe** – Choose one of these options:
  - A Small, Medium, Large, or any other recipe – See "Managing Recipes and Templates" on page 79.
  - Custom Recipe – Enter resource allocations for cores, memory, and 10GbE interfaces. Go to Step 5. **Note** – If you want to assign a 10GbE NIC port pair to the I/O Domain, you must use this method. For information about port pairs, see "Configure Port-Paired Networks (Administrators)" on page 53.
- **Network Recipe** – Choose one of these options:
  - One of the network recipes – See "Create a Network Recipe" on page 84.
  - Custom Recipe – Enter the network parameters.

5. **If you selected Custom Resource Recipe for resources, define these resources and click Next:**

- **Number of Cores** – Choose a minimum of two cores for a Database Zone Domain.
- **Memory** – Choose a minimum of 32 GB Memory for a Database Zone Domain.
- **Number of 10GbE Interfaces** – Choose up to two 10GbE Interfaces for a Database Zone Domain.

- **Number of FC ports** – Choose up to two assignable fibre channel ports for a Database Zone Domain.

6. **If you selected Custom Network Recipe for the network, define these resources and click Next.**

   - **Domain Name** – Type the domain name, such as `company.com`, for this Database Zone Domain.
   - **Name Servers** – Type a list of comma or space-separated IP addresses of name servers for this Database Zone Domain.
   - **Time Servers** – Type a list of comma or space-separated IP addresses of time servers for this Database Zone Domain.
   - **Time Zone** – Choose a time zone for this Database Zone Domain.

   Note - When you select Database Zone Domain as the domain type, the RAC ID field is not available. You will assign RAC IDs to the zones within the Database Zone Domain, not to the Database Zone Domain itself.

7. **Review the resources and click Next.**

   Note - If you requested more resources than are available, the assistant highlights the resource on each physical host that does not meet requirements.

8. **Choose the physical host and add network information.**

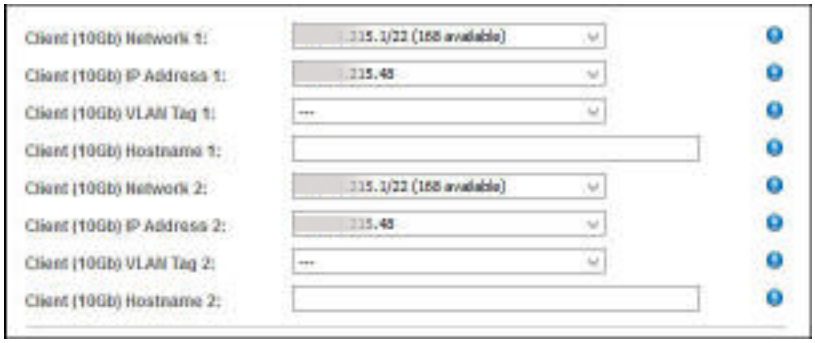
   - If you are creating a Database Zone Domain with a Custom Resource Recipe and a Custom Network Recipe, configure these parameters. Depending on your choices, you may see fewer fields.
     - **Maximum Number of Zones** – (as of SuperCluster 3.0) From the drop-down list, choose the maximum number of zones that can be created in this I/O Domain. The maximum number that you are able to select is two times the number of cores that are allocated to the I/O Domain.
     - **Physical Host** – Choose the compute node where the Database Zone Domain will reside.
     - **Install Group** – Depending how the assistant is configured, the Install Groups might be automatically assigned or you might be able to choose a different Install Group.
     - **Management Network** – You can select the Management Network from which to assign an IP Address. All Management Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Management Interfaces, you will see two sets of inputs in order to provide two

entries for the Management Network, IP Address, VLAN Tag, and Hostname. In this case, two Management interfaces will be configured in the I/O Domain after it has been deployed. If the I/O Domain has two Management Interfaces, then each of those Management Interfaces can use any Management Network with sufficient available IP Addresses.

- **Management IP Address** – If administrative privileges were set, you can select the management or client IP addresses directly.
- **Management Hostname** – Type a unique name for this Database Zone Domain.
- **Network Endpoint** – This option is only displayed when port pairs are configured (see "Configure Port-Paired Networks (Administrators)" on page 53).

  If port pairs are configured, select the network endpoint that you want the I/O Domain to use.

- **Client (10Gb) Network** – You can select the Client Network from which to assign an IP Address. All Client Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Client (10Gb) Interfaces, you will see two sets of inputs in order to provide two entries for the Client Network, IP Address, VLAN Tag, and Hostname. In this case, two Client (10Gb) interfaces will be configured in the I/O Domain after it has been deployed. If an I/O Domain has two Client Interfaces, then each of those Client Interfaces can use any Client Network with sufficient available IP Addresses.



- **Client (10Gb) IP Address** – Displayed only if the IP Address assignment is set to manual. See "Configure How IP Addresses are Assigned (Administrators)" on page 36. When this setting is enabled, you see a drop-down list of IP Addresses from the selected Client (10Gb) Network and you can select the desired IP Address.

- **Client (10Gb) Primary VLAN Tag** – If VLAN tags were added to the Network Resources (see "Add VLAN Tags (Administrators)" on page 56) you can select a VLAN tag from the drop-down list to assign to this I/O Domain. This field is always displayed on the I/O Domain configuration page, even if you did not define any VLAN tags in the Network Resources section. The default is no VLAN tag, which is indicated by `---`. VLAN tags are only configured on the 10 GbE client network. Primary VLAN tags are applied to the network interface and to the VF.
- **Client (10Gb) Aux VLAN Tag** – As of SuperCluster version 3.0, if VLAN tags were added to the Network Resources (see "Add VLAN Tags (Administrators)" on page 56) you can select one or more VLAN tags from the auxiliary list, otherwise the list is empty. auxiliary VLAN tags only apply to VFs. A typical use of auxiliary VLAN tags is to assign them to zones that are later created in the I/O Domain.
- **Client (10Gb) Hostname** – Use the default, or type a unique name for the Client Hostname for this Database Zone Domain.
- **Storage IB Network** – Choose an available network subnet.
- **Storage IB Hostname** – Use the default, or type a unique name for the ZFS Storage Hostname for this Database Zone Domain.
- **Exadata IB Network** – Choose an available network subnet.
- **Exadata IB Hostname** – Use the default, or type a unique name for the first Exadata IB Network for this Database Zone Domain.

For example:

9. **Click Allocate to create the Database Zone Domain.**

   The SuperCluster Virtual Assistant reserves the system resources but does not deploy the configuration. You can deploy the Database Zone Domain at your convenience. See "Deploy an I/O Domain" on page 133.

   Note - Resources are reserved for 120 hours (five days). If the domain is not deployed within that time frame, the resources are returned to the free pool.

   If the assistant detects a configuration issue, a message appears:

   - Insufficient resources. For example:

     ```
     Insufficient Unallocated Cores available on the chosen Compute Node. 10 Requested,
     8 Remaining.
     ```

   - Configurations that might have performance issues. For example:

     ```
     Error: VF allocation requires dedicated core in the same locality group for
     performance reasons.
     requested core count: 1  optimal core count based on number of requested VFs: 2
     ```

   If you receive one of these messages, click Cancel and configure a new domain using a recipe that requests fewer or different resources.

10. **Verify that the Database Zone Domain allocation completed.**

    A confirmation panel is displayed at the top of the I/O Domains screen. The State column displays the status of the allocation.

11. **Add the management and client networks to DNS.**

    The network host names and IP addresses are displayed in the confirmation panel in the I/O Domains screen, and are available when you view the Database Zone Domain's details.

12. **Consider your next action.**

    - Deploy the domain – See "Deploy an I/O Domain" on page 133
    - Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.
    - Monitor activity – See "Monitoring Activity, Resource Alterations, and Health" on page 161.
    - Change the name of a SCAN network for Database Zone Domains – See "Change the Name of a SCAN Network" on page 113.

Change the Name of a SCAN Network

Perform this procedure if you want to change the name of the SCAN networks for a Database Domain or a Database Zone.

Note - The SCAN hostname can only be changed before the first I/O Domain or zone with the same associated RAC ID is deployed. After an I/O Domain is deployed, the SCAN hostname can no longer be changed.

---

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains or Zones.**

3. **In the SCAN Address Groups table, select a row that contains the network.**

4. **Click Edit.**

5. **Type the new name and click Save.**

6. **Consider your next action.**

   - Install the Oracle Database on a Database Domain – See "Preparing to Configure a Database on a Database Domain or Database Zone" on page 231.
   - Monitor deployment activity – See "Monitoring Activity, Resource Alterations, and Health" on page 161.
   - Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.

Create an Application I/O Domain

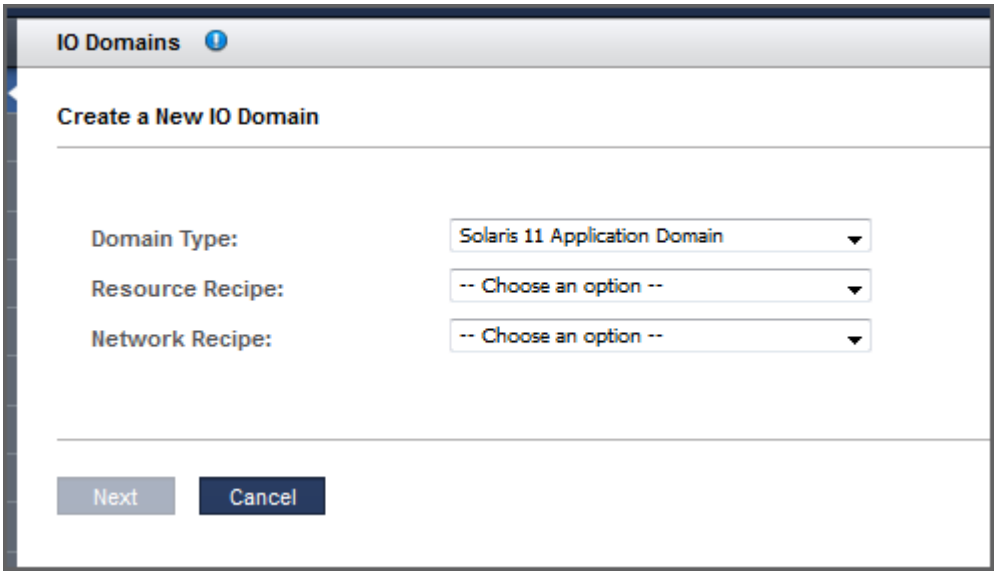
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

3. **Click Add.**

4. **Define these parameters to create an Application Domain.**



- **Domain Type** – Select Solaris 11 Application Domain.
- **Resource Recipe** – Select one of these options:
  - A Small, Medium, Large, or any other recipe – See "Managing Recipes and Templates" on page 79.
  - Custom Resource Recipe – Enter resource allocations for cores, memory, and 10GbE interfaces. See Step 5. **Note** – If you want to assign a 10GbE NIC port pair to the I/O Domain, you must use this method. For information about port pairs, see "Configure Port-Paired Networks (Administrators)" on page 53.
- **Network Recipe** – Select one of these options:
  - One of the network recipes – See "Create a Network Recipe" on page 84.
  - Custom Recipe – Enter the network parameters.

5. **If you selected Custom Recipe, define the amount of these resources, then click Next.**

- **Number of Cores** – Choose a minimum of one core for an Application Domain.
- **Memory** – Choose a minimum of 16 GB Memory for an Application Domain.
- **Number of 10GbE Interfaces** – Choose up to two 10GbE interfaces for an Application Domain.

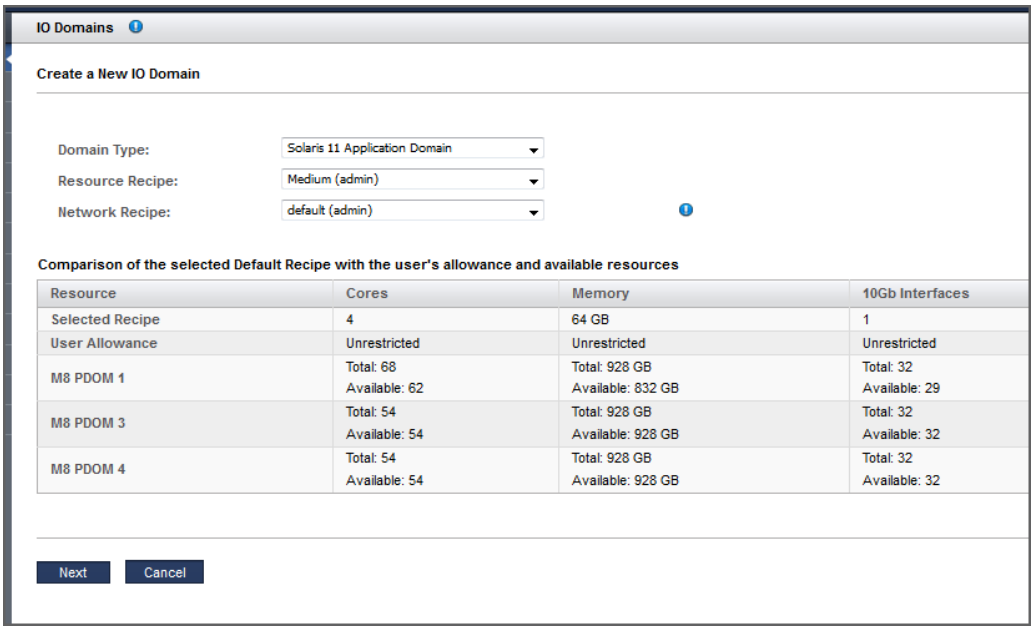
- **Number of FC ports** – Choose up to two assignable fibre channel ports for an Application Domain.

6. **If you selected Custom Recipe for the network, define these resources and click Next.**

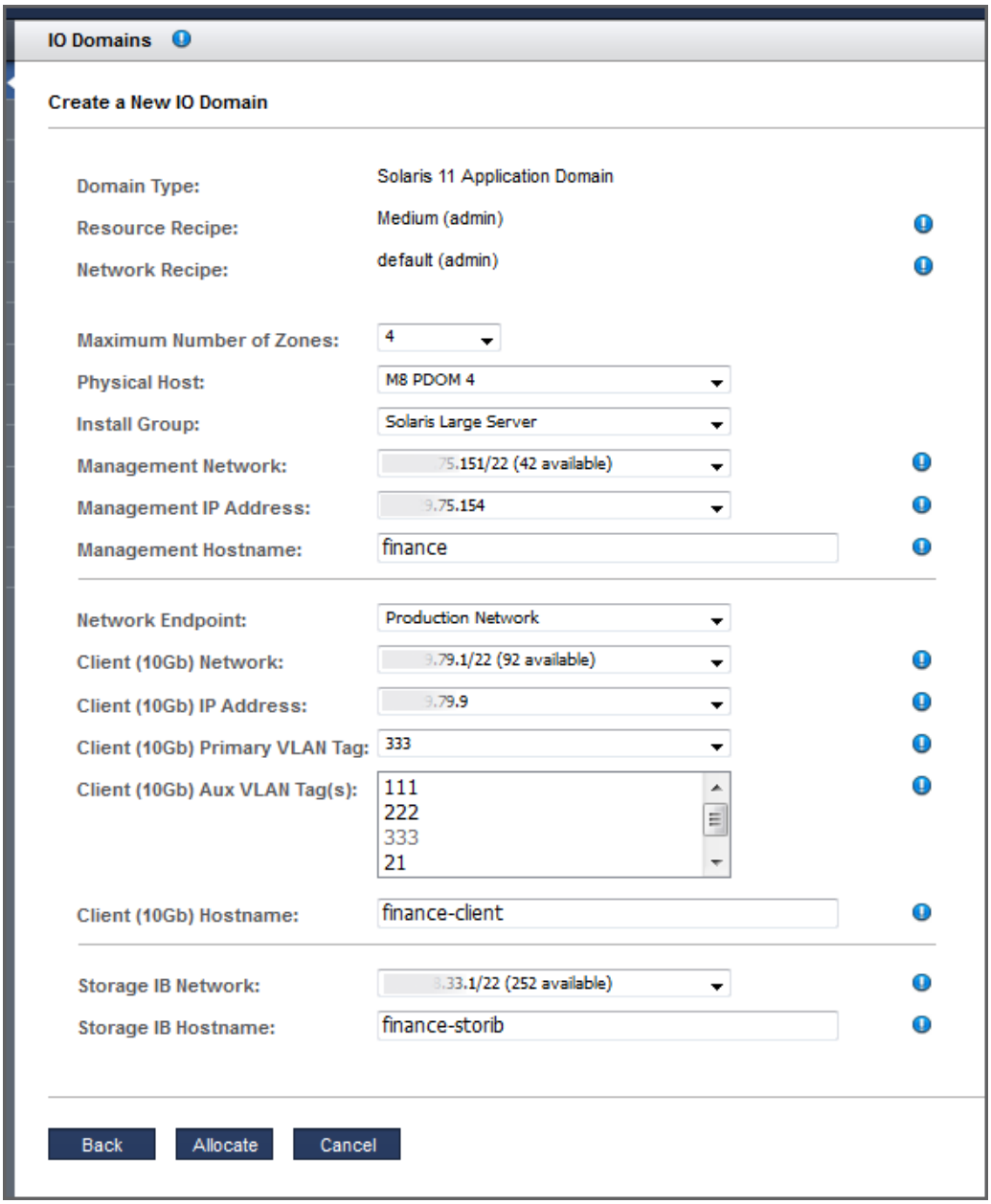
   - **Domain Name** – Type the domain name, such as `company.com`, for this Application Domain.
   - **Name Servers** – Provide a list of comma or space-separated IP addresses of name servers for this Application Domain.
   - **Time Servers** – Provide a list of comma or space-separated IP addresses of time servers for this Application Domain.
   - **Time Zone** – Choose a time zone for this Application Domain.

7. **Review the resources and click Next.**

Note - If you requested more resources than are available, the assistant highlights the resources that are not available.



8. **Provide additional configuration information.**

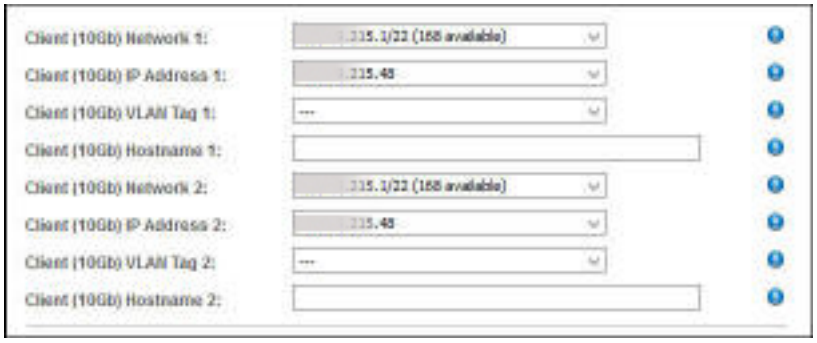


Configure these parameters:

- **Maximum Number of Zones** – (as of SuperCluster 3.0) From the drop-down list, choose the maximum number of zones that can be created in this I/O Domain. The maximum number that you are able to select is two times the number of cores.
- **Physical Host** – The compute node where the Application Domain will reside.
- **Install Group** – Depending on your configuration, choose one of these options:
  - **Solaris Minimal Server** – Installs the minimum set of packages that are required to boot the OS, log in, and manually add additional packages as required.
  - **Solaris Large Server** – Installs all of the common network services and drivers that an enterprise server typically provides.
- **Management Network** – You can select the Management Network from which to assign an IP Address. All Management Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Management Interfaces, you will see two sets of inputs in order to provide two entries for the Management Network, IP Address, VLAN Tag, and Hostname. In this case, two Management interfaces will be configured in the I/O Domain after it has been deployed. If the I/O Domain has two Management Interfaces, then each of those Management Interfaces can use any Management Network with sufficient available IP Addresses.
- **Management Hostname** – Enter a unique name for this Application Domain.
- **Network Endpoint** – This option is only displayed when port pairs are configured (see "Configure Port-Paired Networks (Administrators)" on page 53).

  If port pairs are configured, select the network endpoint that you want the I/O Domain to use.

- **Client (10Gb) Network** – You can select the Client Network from which to assign an IP Address. All Client Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Client (10Gb) Interfaces, you will see two sets of inputs in order to provide two entries for the Client Network, IP Address, VLAN Tag, and Hostname. In this case, two Client (10Gb) interfaces will be configured in the I/O Domain after it has been deployed. If an I/O Domain has two Client Interfaces, then each of those Client Interfaces can use any Client Network with sufficient available IP Addresses.



- **Client (10Gb) IP Address** – Displayed only if the IP Address assignment is set to manual. See "Configure How IP Addresses are Assigned (Administrators)" on page 36. When this setting is enabled, you see a drop-down list of IP Addresses from the selected Client (10Gb) Network and you can select the desired IP Address.
- **Client (10Gb) Primary VLAN Tag** – If VLAN tags were added to the Network Resources (see "Add VLAN Tags (Administrators)" on page 56) you can select a VLAN tag from the drop-down list to assign to this I/O Domain. This field is always displayed on the I/O Domain configuration page, even if you did not define any VLAN tags in the Network Resources section. The default is no VLAN tag, which is indicated by `---`. VLAN tags are only configured on the 10 GbE client network. Primary VLAN tags are applied to the network interface and to the VF.
- **Client (10Gb) Aux VLAN Tag** – As of SuperCluster version 3.0, if VLAN tags were added to the Network Resources (see "Add VLAN Tags (Administrators)" on page 56) you can select one or more VLAN tags from the auxiliary list, otherwise the list is empty. auxiliary VLAN tags only apply to VFs. A typical use of auxiliary VLAN tags is to assign them to zones that are later created in the I/O Domain.
- **Client (10Gb) Hostname** – Use the default, or type a unique name for the client network for this Application Domain.
- **Storage IB Network** – Depending how the assistant is configured, the IP address might be automatically assigned or you might be able to choose an available IP address for the ZFS Storage Network. See "Configure How IP Addresses are Assigned (Administrators)" on page 36.
- **Storage IB Hostname** – Use the default, or type a unique name for the ZFS Storage Hostname for this Application Domain.

9. **Click Allocate to create the Application Domain.**

   The SuperCluster Virtual Assistant reserves the system resources but does not deploy the configuration. You can deploy the Application Domain at your convenience. See "Deploy an I/O Domain" on page 133.

Note - Resources are only reserved for 120 hours (five days). If the domain is not deployed within that time frame, the resources are returned to the free pool.

If the assistant detects a configuration issue, the assistant displays a message:

- Insufficient resources. For example:

  ```
  Insufficient Unallocated Cores available on the chosen Compute Node. 10 Requested,
  8 Remaining
  ```

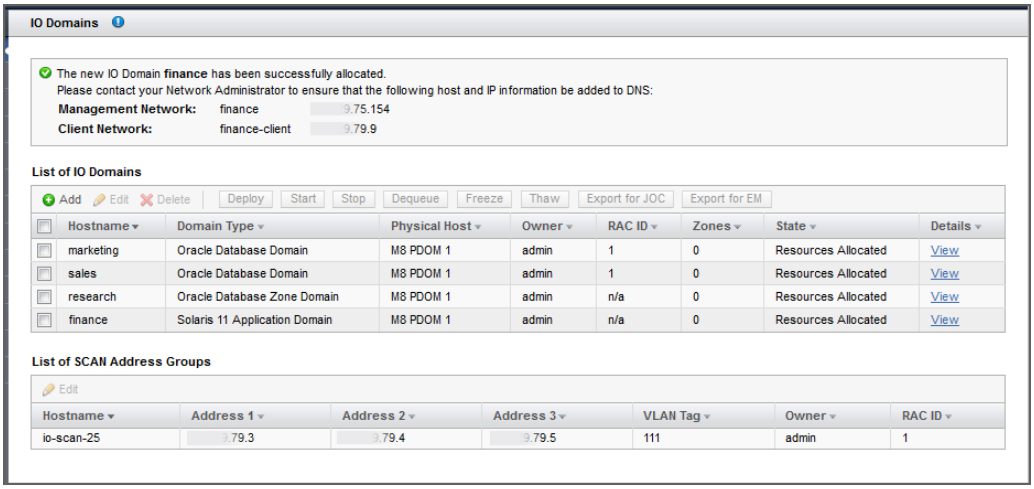
- Configurations that might have performance issues. For example:

  ```
  Error: VF allocation requires dedicated core in the same locality group for
  performance reasons.
  requested core count: 1  optimal core count based on number of requested VFs: 2
  ```

If you receive one of these messages, click Cancel and configure a new domain using a recipe that requests fewer or different resources.

10. **Verify that the Application Domain allocation completed.**

    A confirmation panel is displayed at the top of the I/O Domains screen. The State column displays the status of the allocation.



11. **Add the management and client networks to DNS.**

The network host names and IP addresses are displayed in the confirmation panel in the I/O Domains screen, and are available when you view the domain's details.

12. **Consider your next action.**

- Deploy the Domain – See "Deploy an I/O Domain" on page 133.
- Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.
- Monitor activity – See "Monitoring Activity, Resource Alterations, and Health" on page 161.

Create an I/O Domain With an OVM Template (Deprecated)

This feature is no longer available as of SuperCluster version 3.0 (or later). The following procedure applies to SuperCluster version 2.6 or earlier.

Note - This procedure assumes that an administrator has added an OVM Template to the assistant. See "Upload an OVM Template (Deprecated)" on page 87.

You can use a recipe to assign the amount of resources to the domain, or you can define the resources on the fly. If you plan to use a recipe, it must exist before you perform this procedure. See "Choose an I/O Domain Creation Method" on page 91.

The domain is not installed and available until you deploy it. When you deploy the domain, the OS and the application associated with the template are installed and configured. See "Deploy an I/O Domain" on page 133.

The assistant does not allow you to assign more resources than are available.

Note - If you plan to change CPU and memory allocations for dedicated domains with the `osc-setcoremem` tool, do so before you configure any domains. Refer to the Administration Guide for your SuperCluster model (for example, "Configuring CPU and Memory Resources (osc-setcoremem)" in *Oracle SuperCluster M8 and SuperCluster M7 Administration Guide*).

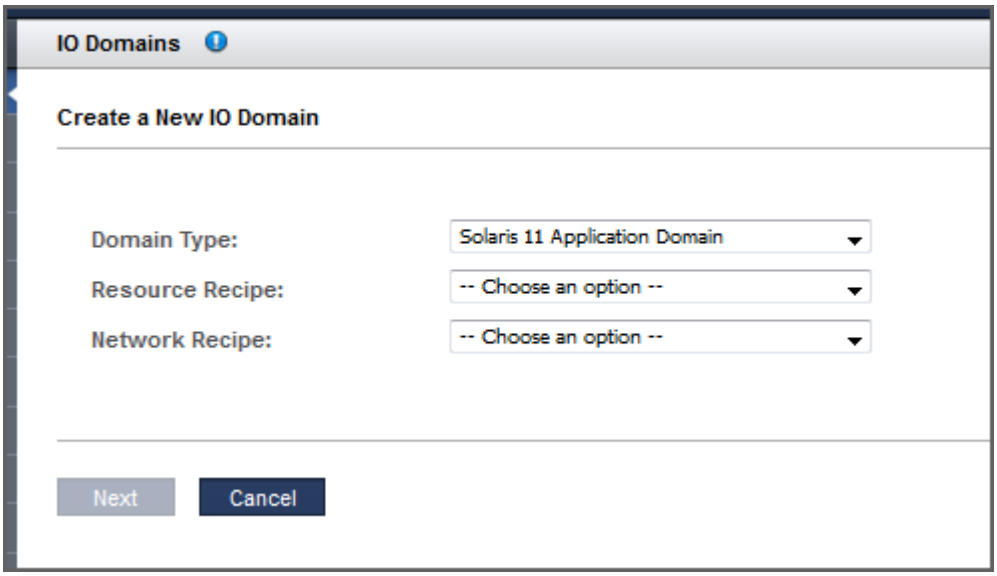
---

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

3. **Click Add.**



4. **Define these parameters to create a domain with an OVM template.**

   - **Domain Type** – Choose an OVM template. If templates are available, they are listed under the OVM Template Domains separator.
   - **Resource Recipe** – Choose one of these options:
     - A Small, Medium, Large, or any other recipe – See "Managing Recipes and Templates" on page 79.
     - Custom – Enter resource allocations for cores, memory, and 10GbE interfaces. See Step 5.

       Note – If you want to assign a 10GbE NIC port pair to the I/O Domain, you must use this method. For information about port pairs, see "Configure Port-Paired Networks (Administrators)" on page 53.
   - **Network Recipe** – Choose one of these options:
     - One of the network recipes – See "Create a Network Recipe" on page 84.
     - Custom Recipe – Enter the network parameters.

5. **If you selected Custom Resource Recipe, define these resources and click Next.**

   - **Number of Cores** – Choose a minimum of one core for domain.

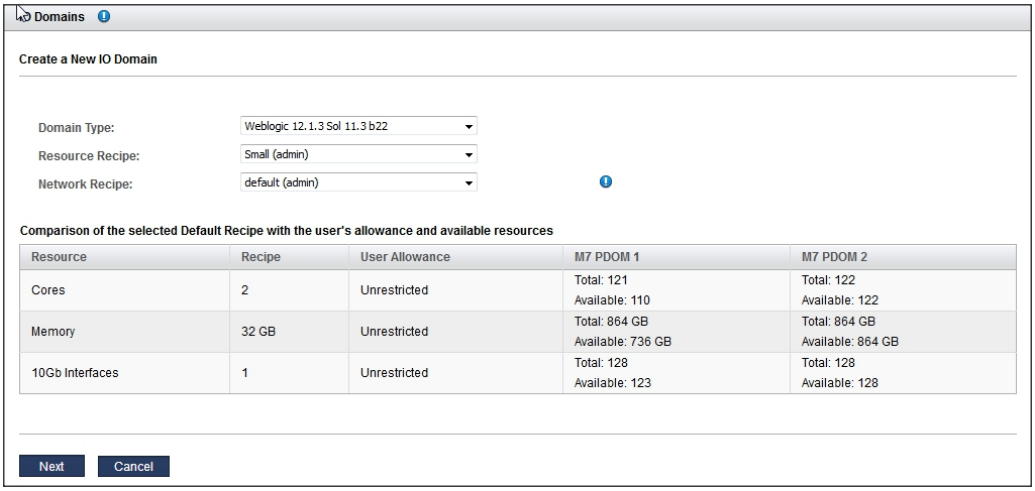
- **Memory** – Choose a minimum of 16 GB Memory for this domain.
- **Number of 10GbE Interfaces** – Choose up to two 10GbE interfaces for this Domain.
- **Number of FC ports** – Choose up to two assignable fibre channel ports for this domain.

6. **If you selected Custom Network Recipe for the network, define these resources and click Next.**

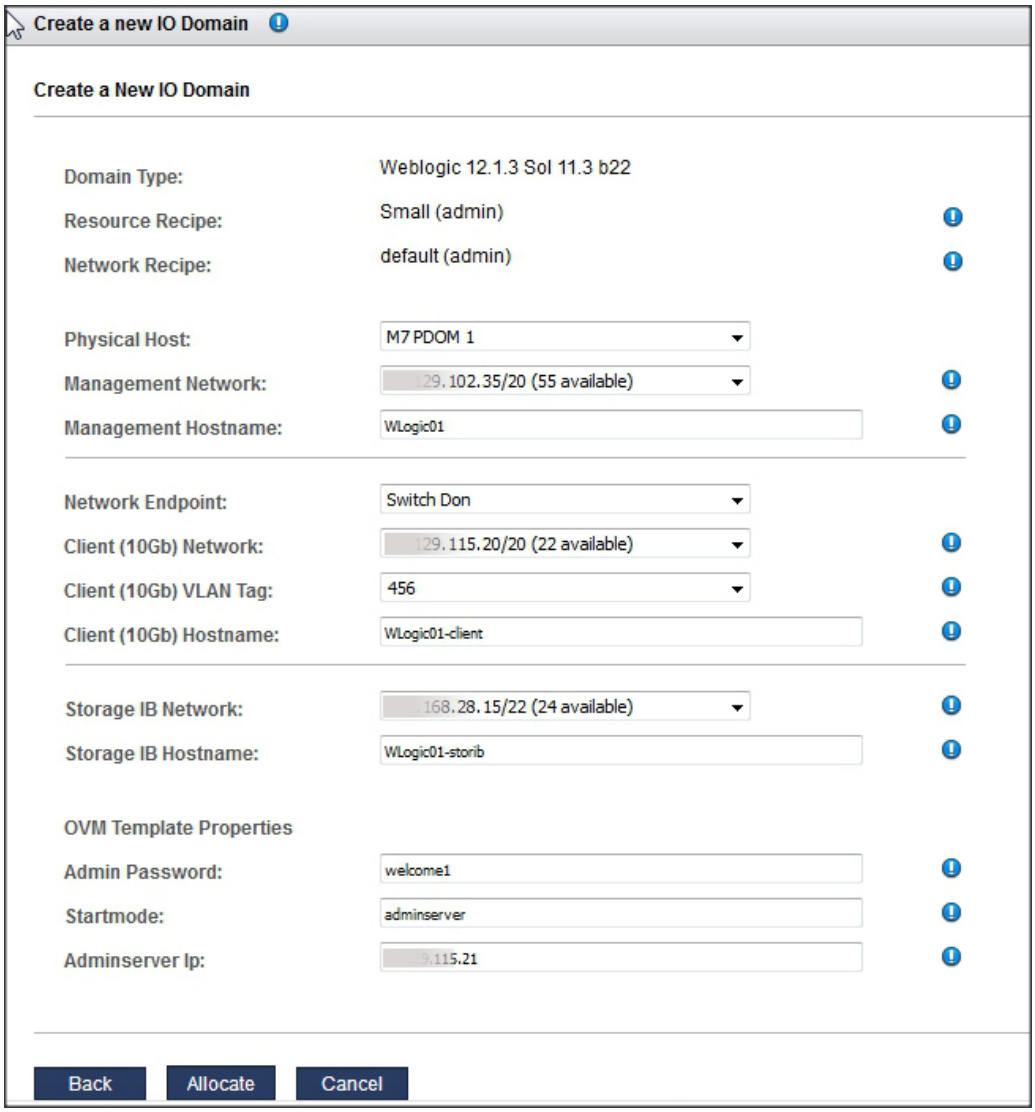
   - **Domain Name** – Type domain name, such as `company.com`, for this domain.
   - **Name Servers** – Type a list of comma or space-separated IP addresses of name servers for this domain.
   - **Time Servers** – Type a list of comma or space-separated IP addresses of time servers for this domain.
   - **Time Zone** – Choose a time zone for this domain.

7. **Review the resources and click Next.**

Note - If you requested more resources than are available, the assistant highlights the resources that are not available.



8. **Choose a physical host and add network information.**



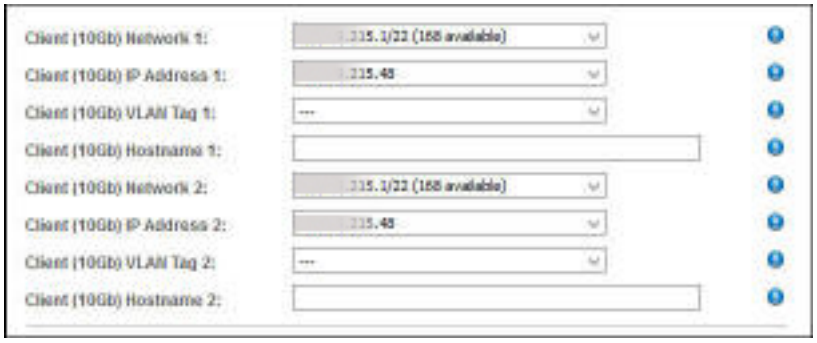
Configure these parameters:

- **Physical Host** – Choose the compute node where this domain will reside.

- **Management Network** – You can select the Management Network from which to assign an IP Address. All Management Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Management Interfaces, you will see two sets of inputs in order to provide two entries for the Management Network, IP Address, VLAN Tag, and Hostname. In this case, two Management interfaces will be configured in the I/O Domain after it has been deployed. If the I/O Domain has two Management Interfaces, then each of those Management Interfaces can use any Management Network with sufficient available IP Addresses.
- **Management Hostname** – Type a unique name for this domain.
- **Network Endpoint** – This option is only displayed when port pairs are configured (see "Configure Port-Paired Networks (Administrators)" on page 53).

  If port pairs are configured, select the network endpoint that you want the I/O Domain to use.

- **Client (10Gb) Network** – You can select the Client Network from which to assign an IP Address. All Client Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Client (10Gb) Interfaces, you will see two sets of inputs in order to provide two entries for the Client Network, IP Address, VLAN Tag, and Hostname. In this case, two Client (10Gb) interfaces will be configured in the I/O Domain after it has been deployed. If an I/O Domain has two Client Interfaces, then each of those Client Interfaces can use any Client Network with sufficient available IP Addresses.



- **Client (10Gb) Hostname** – Use the default, or type a unique name for the client network for this domain.

- **Client (10Gb) IP Address** – Displayed only if the IP Address assignment is set to manual. See "Configure How IP Addresses are Assigned (Administrators)" on page 36. When this setting is enabled, you see a drop-down list of IP Addresses from the selected Client (10Gb) Network and you can select the desired IP Address.
- **Client (10Gb) VLAN Tag** – This field is always present on the I/O Domain configuration page, even if you did not define any VLAN tags in the Network Resources section. The default is no VLAN tag, which is indicated by `---`.
- **Storage IB Network** – Depending how the assistant is configured, the IP address might be automatically assigned or you might be able to choose an available IP address for the ZFS Storage Network. See "Configure How IP Addresses are Assigned (Administrators)" on page 36.
- **OVM Template Properties** – Parameters that might be displayed here are based on information specified in the OVM template. For more information, see "Upload an OVM Template (Deprecated)" on page 87.

9. **Click Allocate to create the domain using an OVN template.**

   The SuperCluster Virtual Assistant reserves the system resources but does not deploy the configuration. You can deploy the domain at your convenience. See "Deploy an I/O Domain" on page 133.

   This process takes time. Watch the status in the I/O Domain screen and check the queue for progress.

   If the assistant detects a resource configuration issue, the assistant displays a message:

   - Insufficient resources. For example:

     ```
     Insufficient Unallocated Cores available on the chosen Compute Node. 10 Requested,
     8 Remaining
     ```

   - Configurations that might have performance issues. For example:

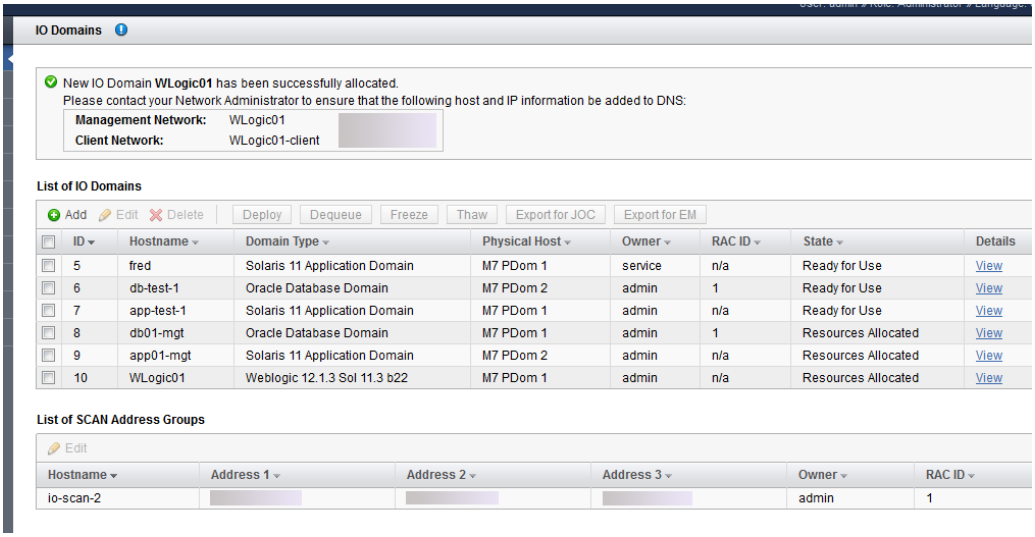
     ```
     Error: VF allocation requires dedicated core in the same locality group for
     performance reasons.
     requested core count: 1  optimal core count based on number of requested VFs: 2
     ```

   If you receive one of these messages, click Cancel and configure a new domain using a recipe that requests fewer or different resources.

10. **Verify that the domain allocation completed.**

    A confirmation panel is displayed at the top of the I/O Domains screen. The State column displays the status of the allocation.

Note - Domains that are created from an OVM template might take extra time to reach the *Resources Allocated* state because additional application installation and configuration activities are performed.



11. **Add the management and client networks to DNS.**

    The network host names and IP addresses are displayed in the confirmation panel in the I/O Domains screen, and available when you view the domain's details.

12. **Consider your next action.**

    - Deploy the domain – See "Deploy an I/O Domain" on page 133.
    - Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.
    - Monitor activity – See "Monitoring Activity, Resource Alterations, and Health" on page 161.

Increase or Decrease I/O Domain Resources

Note - This feature is only available in the version of the assistant that is provided in branch 2.1.0.813 or later. See "Check the SuperCluster Virtual Assistant Version" on page 18. The feature is also available if you have installed the April 2016 (or later) quarterly full stack download patch.

You can increase or decrease the cores and memory in a domain by editing the domain resources. You can edit a domain that is deployed, or not yet deployed. Based on the state of the domain and the type of changes you make, the assistant provides you the option of making the changes immediately or later.

Users with the administrator role can edit any domain. Users with the user role can only edit domains they own.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **If you plan to apply changes immediately, determine if you need to prepare the domain for a shut down.**

   Based on what you plan to do, you might need to shutdown applications and the OS because the assistant might shut down domain to complete the resource change.

   - **Increase resources** – these domain shutdown requirements apply according to the version of the SuperCluster software:
     - As of SuperCluster v2.5 or later, in most cases you can increase domain resources without stopping the domain. However, if the domain has a resource constraint and the domain is already assigned the maximum amount of resources, then the domain is shutdown.
     - Prior to SuperCluster v2.5, You must gracefully stop any applications that are running, shut down the OS. By confirming the action to add cores or memory in the SuperCluster Virtual Assistant, the domain is stopped (if running) from the Control Domain.
   - **Decrease resources** – You must gracefully stop any applications that are running, shut down the OS. By confirming the action to add cores or memory in the SuperCluster Virtual Assistant, the domain is stopped (if running) from the Control Domain.

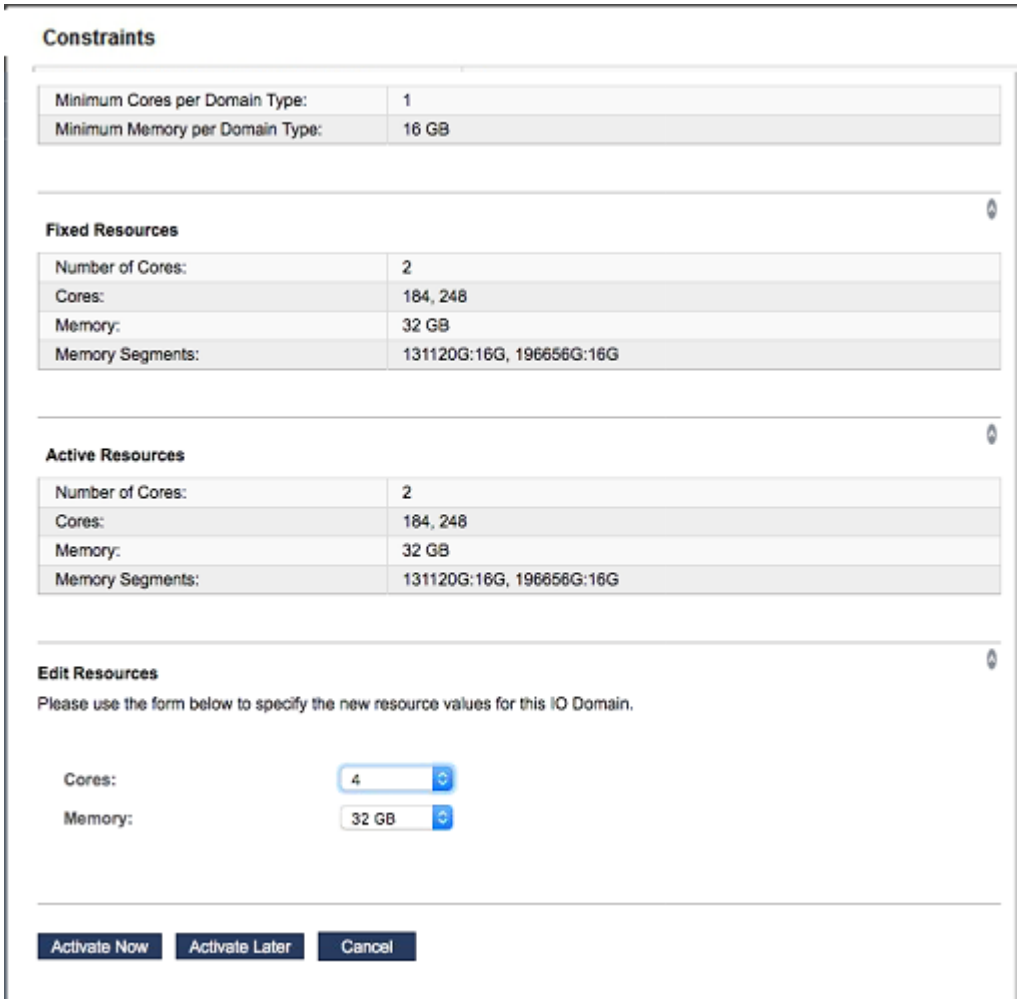
3. **In the navigation panel, select I/O Domains.**

4. **Select the domain and click Edit.**

   - **Domain Details** – Lists the host name, state, and type.

- **Constraints** – Shows the minimum resource requirements for the domain type. If the active user has a resource allowance, then that user's allowed and available core and memory totals are also displayed.
- **Fixed Resources** – Displays the total resources (including the exact core identifiers and memory segments) that are fixed for this domain. Fixed resources cannot be removed.
- **Active Resources** – Shows the total cores and memory (including exact core identifiers and memory segments) that are currently allocated to this domain.

5. **Under Edit Resources, change the number or cores and memory allocated to this domain.**



- **Increasing resources** – Additional resources must be available on the compute node and within your resource allowance (if you have a resource allowance).
- **Decreasing resources** – Can only be done if the domain currently has more resources than the minimum required for the domain type.

6. **Save your changes according to the instructions in the following table.**

Choose one of the displayed buttons, which varies based on the state of the domain and the type of changes you made. This table lists the possibilities.

Note - If the domain is not shut down before you make changes to the resources, the assistant warns you and performs the shutdown. The domain is automatically restarted after the reallocation.

On Undeployed Domains	On Deployed Domains (v2.5 or later)	On Deployed Domains (Prior to v2.5)
■ **Alter Reservation** – Changes take effect immediately. The updated I/O Domain Details screen is displayed. ■ **Cancel** – Cancels the changes and returns to the I/O Domains screen.	■ **Activate Now** – If decreasing resources, a shutdown warning is displayed. The changes are placed in a queue while the assistant performs the necessary operations to increase or decrease resources. The I/O Domain Details screen is displayed, showing the pending resource alterations. To check the progress, on the details screen, under General Info, watch the State value. After a few minutes, the state indicates *Ready for Use*. You can also check the queue. ■ **Activate Later** – An alteration record is created that contains the details of the changes. The I/O Domain Details screen is displayed showing the pending alterations. When you are ready to active the changes, see Step 7. **Note -** The alteration record remains in the pending state up to 120 hours (five days). After that time, the record is deleted and cannot be activated. ■ **Cancel** – Cancels the changes and returns to the main I/O Domains screen.	■ **Activate Now** – After a shutdown warning, the changes are placed in a queue while the assistant performs the necessary operations to increase or decrease resources. The I/O Domain Details screen is displayed, showing the pending resource alterations. To check the progress, on the details screen, under General Info, watch the State value. After a few minutes, the state indicates *Ready for Use*. You can also check the queue. ■ **Activate Later** – An alteration record is created that contains the details of the changes. The I/O Domain Details screen is displayed showing the pending alterations. When you are ready to active the changes, see Step 7. **Note -** The alteration record remains in the pending state up to 120 hours (five days). After that time, the record is deleted and cannot be activated. ■ **Cancel** – Cancels the changes and returns to the main I/O Domains screen.

7. **If you chose to activate the changes later, initiate the resource changes at a convenient time.**

   In the I/O Domain Details screen, click Perform, Edit, or Cancel in the Pending Resource Alterations section.

8. **Consider your next action.**

   - Monitor deployment activity – See "Monitoring Activity, Resource Alterations, and Health" on page 161.

- Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.

Transform a Database Domain Into a Database Zone Domain

You can transform an existing Database I/O Domain into a Database Zone I/O Domain. You might perform this action if you created a Database Domain and decide that rather than installing and running Oracle Database software in the global zone, you want to create non-global Database Zones, and install and run Oracle Database software in the Database Zones.

Caution - Transforming a Database I/O Domain to a Database Zone I/O Domain should only be performed if there is no Oracle Database software installed the global zone. The process of transforming the I/O Domain removes the RAC association of the former Database Domain, and also removes the Exadata VIP (Client) IP Address.

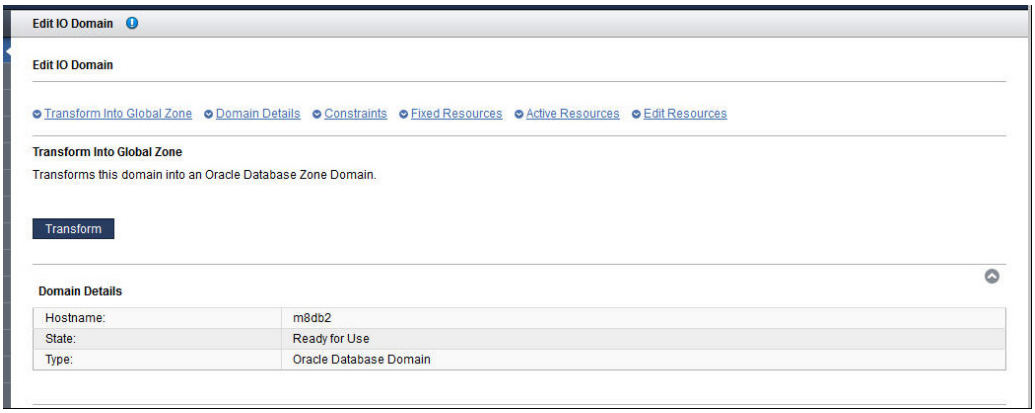
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

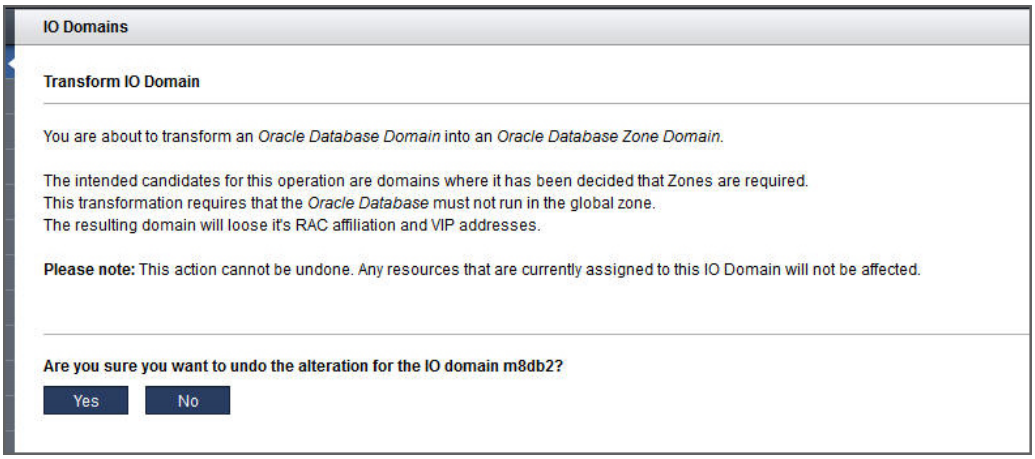
3. **Select the check box next to the Database Domain you want to transform and click Edit.**

4. **Click Transform to change the domain you selected into a Database Zone Domain.**



5. **Click Yes.**

The transformation removes the RAC association, as well as the Exadata VIP address from the I/O Domains. After you click Yes, the original Database I/O Domain cannot be restored.



Deploy an I/O Domain

After you configure a domain, deploy it so that the OS is installed and the domain is available to use.

Note - If the assistant fails to permit you to deploy a domain, check for possible issues. See "Monitor SuperCluster Virtual Assistant Health (Administrators Only)" on page 163.

---

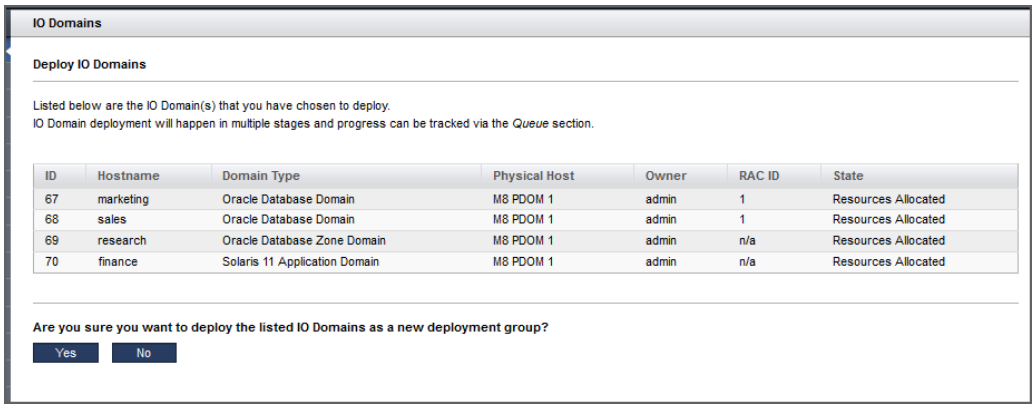
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

3. **Select the domain you want to deploy and click Deploy.**

   You can select one or more domains to deploy.



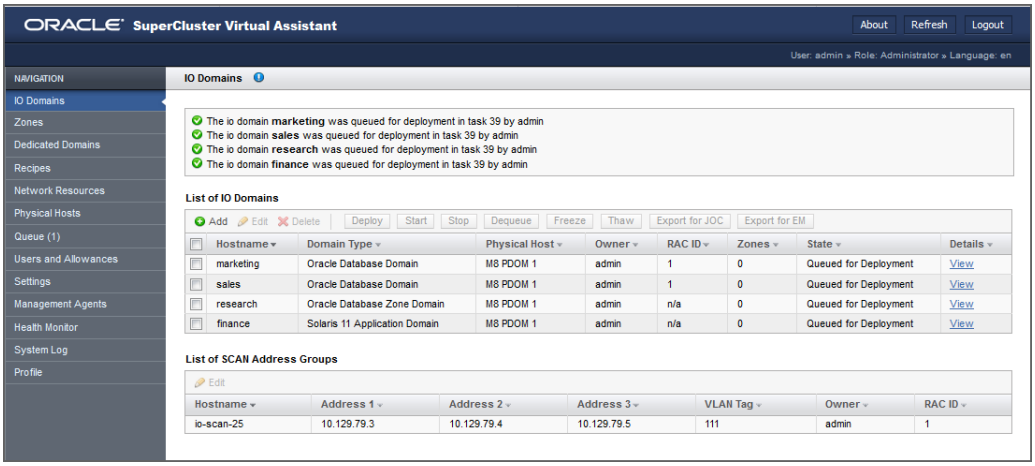
4. **Click Yes to deploy the domain.**

   Deployments can take time. The length of time depends on the size and configuration of the domain. You can see the progress in the State column. See "View I/O Domains" on page 95.

   Click Refresh to watch the progress of the deployment. You can also monitor the deployment in the queue. See "Monitor Current Activity" on page 161.

5. **Verify that the I/O Domain is deployed.**

Check the state in the IO Domains page. This example shows that the deployed domain called west is Ready for Use.



6. **Ensure that the software is up to date with the latest SRUs and CIs.**

   The assistant installs the OS, but might not install required SRU or Solaris CI software. For details about SRU and CI installation, log into My Oracle Support at `https://support.oracle.com`, and refer to these knowledge articles:

   - *Oracle SuperCluster Supported Software Versions - All Hardware Types (Doc ID 1567979.1)*
   - *SuperCluster Critical Issues (Doc ID 1452277.1)*
   - *SuperCluster- Solaris 11 Support Repository Updates (SRU) and SuperCluster specific IDR Support Matrix (Doc ID 2086278.1).*

7. **(Platinum Monitored Systems) Create platinum infrastructure services for each new domain you create.**

   For instructions, log into `https://support.oracle.com`, and follow the instructions in the MOS knowledge article called *How to Create Platinum Infrastructure Services SR (Doc ID 2086278.1)*. For the Engineered System and Target, choose SuperCluster. For problem type, choose Agent Management.

8. **Consider your next action.**

   - Configure one or more zones on a Database Zone Domain – See "Configuring Zones" on page 137.

- Install the Oracle Database on a Database Domain or a Database Zone – See "Preparing to Configure a Database on a Database Domain or Database Zone" on page 231.
- Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.

Export an I/O Domains Text File to Oracle Enterprise Manager

Use this procedure to generate a text file that can be imported into Oracle Enterprise Manager.

This action is helpful when you want Oracle Enterprise Manager to discover your domains and zone information. For more information on zones, see "Configure a Database Zone" on page 137 and "Export a Zones Text File to Oracle Enterprise Manager" on page 142.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

3. **Select the check box next to one or more domains.**

4. **Click Export for EM.**

5. **If your browser asks you how to handle the file, choose Save File and save it to the directory of your choice.**

   By default, the file is named `em-agent-bulk-load.txt`.

   Example of file contents:

   `DB01.`*zzz.yyy*

6. **Consider your next action.**

   - Install Oracle Database on a Domain – See "Preparing to Configure a Database on a Database Domain or Database Zone" on page 231.
   - Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.
   - View domains – See "View I/O Domains" on page 95.
   - View resources – See "View System Resources" on page 45.

- Monitor activity – See "Monitoring Activity, Resource Alterations, and Health" on page 161.
- Create zones – See "Configuring Zones" on page 137.

Configuring Zones

The Oracle Solaris Zones feature is available starting with SuperCluster version 2.4.

The zones software provides a method to virtualize OS services to create an isolated environment for running applications. This isolation prevents processes that are running in one zone from monitoring or affecting processes running in other zones. Database Zones are currently the only type of zones that can be configured with the assistant in a Database Zone Domain.

Creating multiple zones on different Database Zone Domains allows you to cluster the zones for redundancy and failover.

Database Zones reside on the Database Zone Domain. You configure Database Zones one at a time, but you can add multiple Database Zones to a single Database Zone Domain. Use the Oracle SuperCluster Virtual Assistant to configure a zone. After the zone configuration, use OEDA to install the Oracle Database in the zone (see "Preparing to Configure a Database on a Database Domain or Database Zone" on page 231, "Creating Database Configuration Files (OEDA)" on page 237, and "Installing Databases on a Database Domain" on page 261.)

Tip - Adding a Database Zone to an Application Domain is not supported.

▼ Configure a Database Zone

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Zones.**

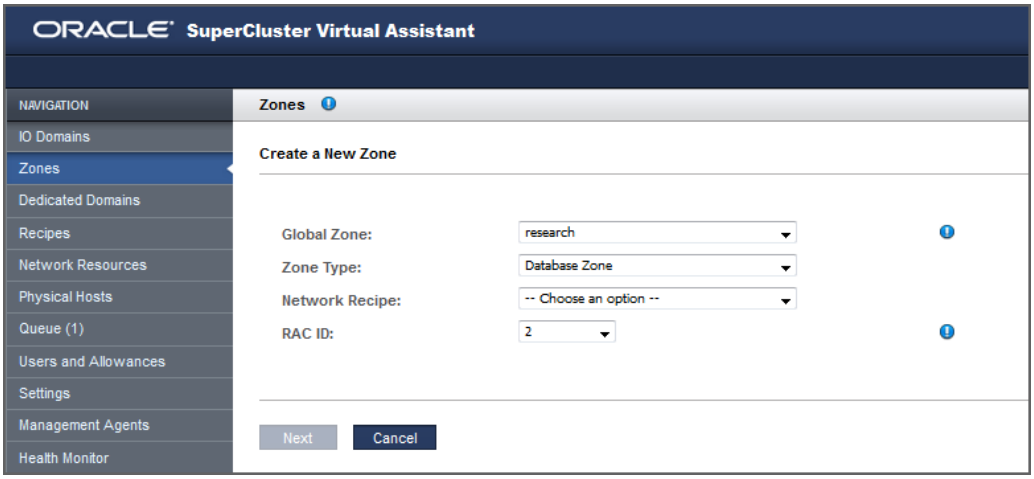
A list of configured zones and configured SCAN Address Groups appears. These configured zones originate from the I/O Domains tab.

3. **Click Add to configure a new zone.**

4. **Define these parameters.**

   - **Global Zone** – Choose the domain name from the list of Global Zones.
   - **Zone Type** – Choose Database Zone.
   - **Network Recipe** – Select a network recipe:
     - One of the network recipes. See "Create a Network Recipe" on page 84.
     - Custom Network Recipe – Define these parameters:
       - **Domain Name** – Type the domain name, such as `company.com`, for this zone.
       - **Name Servers** – Type a list of comma or space-separated IP addresses of name servers for this zone.
       - **Time Servers** – Type a list of comma or space-separated IP addresses of time servers for this zone.
       - **Time Zone** – Choose a time zone for this zone.
   - **RAC ID** – If you chose Database Zone as the Zone Type, choose the RAC ID where this zone will belong. An existing RAC ID contains the settings from the initial installation (client networks, network recipes and VLAN tags). Oracle SuperCluster supports a maximum of eight RAC databases.

Caution - If you are configuring an additional zone that will be part of an existing RAC, you must choose the same RAC ID that you used for the other zone.

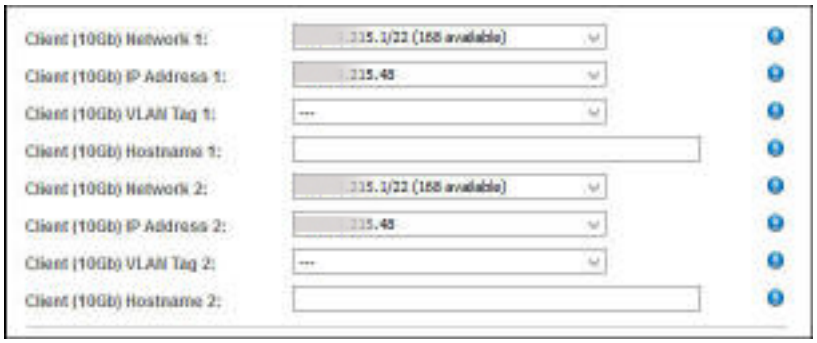


5. **Click Next.**

6. **Define these parameters.**

   - **Management Network** – You can select the Management Network from which to assign an IP Address. All Management Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Management Interfaces, you will see two sets of inputs in order to provide two entries for the Management Network, IP Address, VLAN Tag, and Hostname. In this case, two Management interfaces will be configured in the I/O Domain after it has been deployed. If the I/O Domain has two Management Interfaces, then each of those Management Interfaces can use any Management Network with sufficient available IP Addresses.
   - **Management Hostname** – Type a unique name for this zone.
   - **Client (10Gb) Network** – You can select the Client Network from which to assign an IP Address. All Client Networks defined in the Added Network Resources table of the Network Resources page with sufficient free IP Addresses can be selected. If the Resource Recipe for the I/O Domain that you are configuring contains two Client (10Gb) Interfaces, you will see two sets of inputs in order to provide two entries for the Client Network, IP Address, VLAN Tag, and Hostname. In this case, two Client (10Gb) interfaces will be

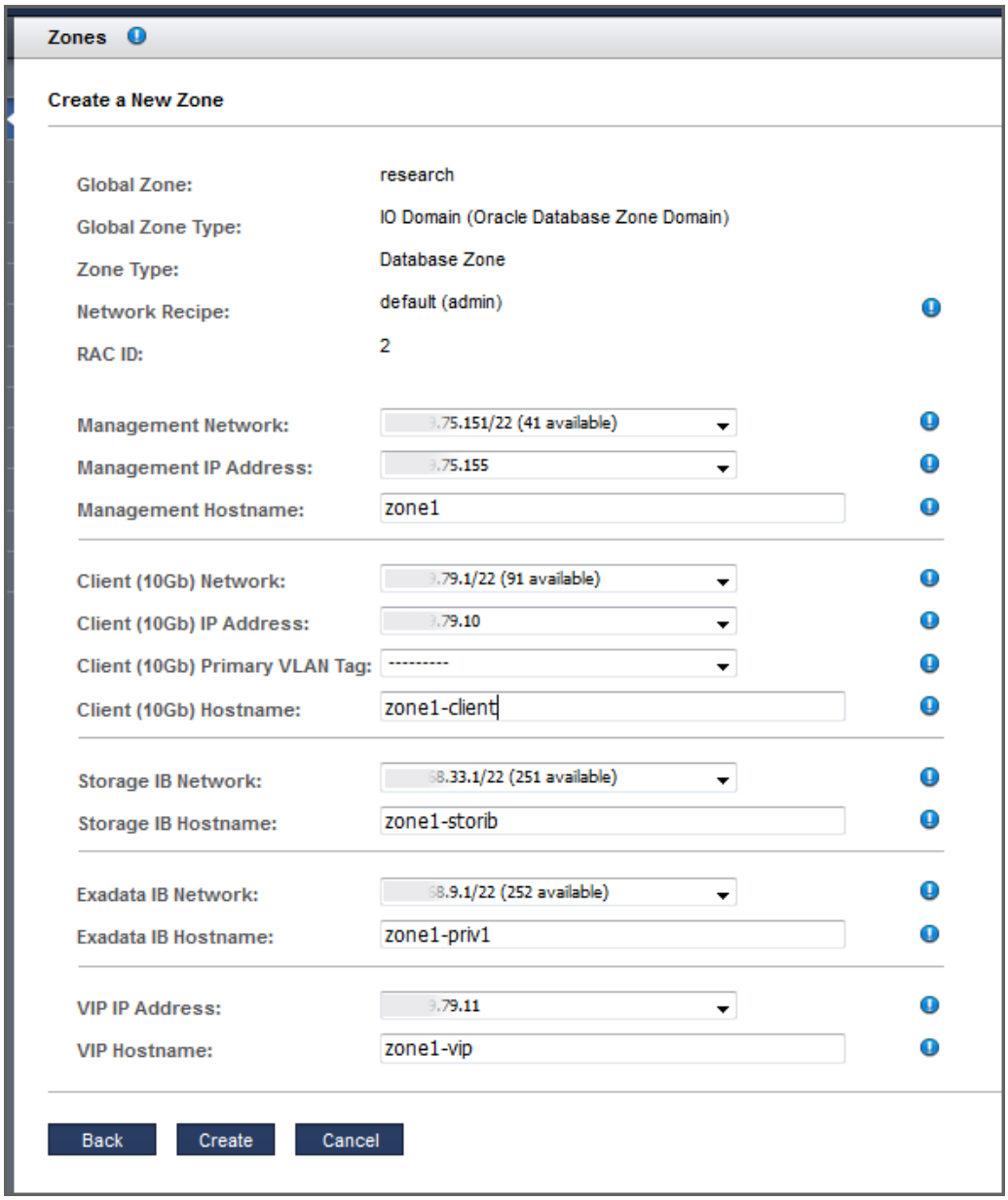
configured in the I/O Domain after it has been deployed. If an I/O Domain has two Client Interfaces, then each of those Client Interfaces can use any Client Network with sufficient available IP Addresses.



For more information, see "Add VLAN Tags (Administrators)" on page 56.

- **Client (10Gb) IP Address** – Displayed only if the IP Address assignment is set to manual. See "Configure How IP Addresses are Assigned (Administrators)" on page 36. When this setting is enabled, you see a drop-down list of IP Addresses from the selected Client (10Gb) Network and you can select the desired IP Address.
- **Client (10Gb) VLAN Tag** – This field is always present on the I/O Domain configuration page, even if you did not define any VLAN tags in the Network Resources section. The default is no VLAN tag, which is indicated by `---`.
- **Client (10Gb) Hostname** – Use the default, or type a unique name for the client network for this zone.
- **Storage IB Network** – Depending how the assistant is configured, the IP address might be automatically assigned or you might be able to choose an available IP address for the ZFS Storage Network for this zone. See "Configure How IP Addresses are Assigned (Administrators)" on page 36.
- **Storage IB Hostname** – Use the default, or type a unique name for the ZFS storage hostname for this zone.
- **Exadata IB Network** – Depending how the assistant is configured (see "Configure How IP Addresses are Assigned (Administrators)" on page 36), the IP address might be automatically assigned or you might be able to choose an available IP address for the Exadata network for this zone.
- **Exadata IB Hostname** – Use the default, or type a unique name to the Exadata host name for this zone.
- **VIP Hostname** – Use the default, or type a unique name for the virtual IP network hostname for this zone.

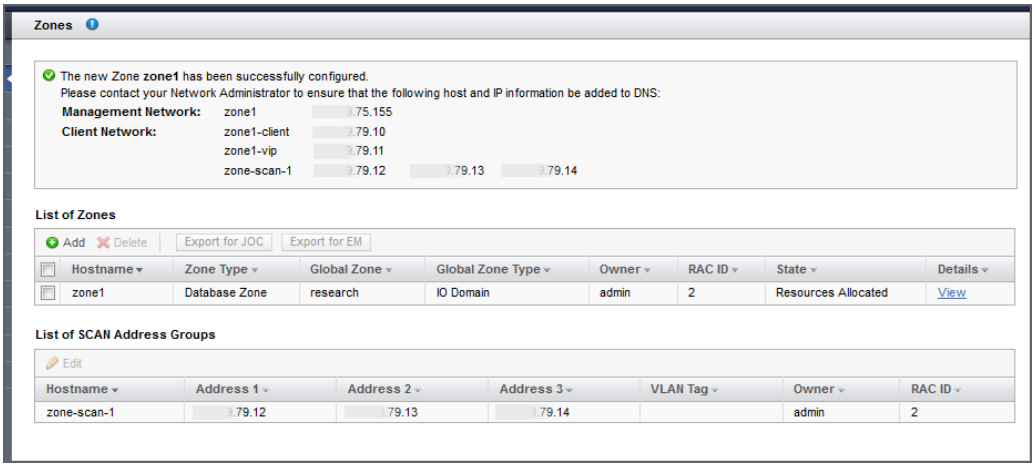
For example:


Zones
Create a New Zone
Global Zone:
research
Global Zone Type:
IO Domain (Oracle Database Zone Domain)
Zone Type:
Database Zone
Network Recipe:
default (admin)
RAC ID:
2
Management Network:
.75.151/22 (41 available)
Management IP Address:
.75.155
Management Hostname:
zone1
Client (10Gb) Network:
.79.1/22 (91 available)
Client (10Gb) IP Address:
.79.10
Client (10Gb) Primary VLAN Tag:

Client (10Gb) Hostname:
zone1-client
Storage IB Network:
8.33.1/22 (251 available)
Storage IB Hostname:
zone1-storib
Exadata IB Network:
8.9.1/22 (252 available)
Exadata IB Hostname:
zone1-priv1
VIP IP Address:
.79.11
VIP Hostname:
zone1-vip
Back
Create
Cancel

7. **Click Create to configure a new zone.**

   The Zones screen appears again, with a list of configured zones and configured SCAN Address Groups. A note at the top of this screen provides DNS information for the new zone that you just configured. This example shows two Database Zones that are part of a single RAC.



8. **Add the management and client networks to DNS.**

   The network host names and IP addresses are displayed in the confirmation panel in the Zones screen, and available when you view the zone's details.

9. **Consider your next action.**

   - Configure additional zones for RAC – See "Configure a Database Zone" on page 137.
   - Install the Oracle Database on the database zones that you just configured – See "Preparing to Configure a Database on a Database Domain or Database Zone" on page 231.
   - Export zone information to Oracle Enterprise Manager – See "Export a Zones Text File to Oracle Enterprise Manager" on page 142.
   - Remove a zone's configuration information – See "Delete Zone Configuration Information" on page 145.

▼ Export a Zones Text File to Oracle Enterprise Manager

Use this procedure to generate a text file that can be imported into Oracle Enterprise Manager.

This action is helpful when you want Oracle Enterprise Manager to discover your zones and domains. For more information on domains, see "Creating and Deploying I/O Domains" on page 91 and "Export an I/O Domains Text File to Oracle Enterprise Manager" on page 135.

1. **Access the SuperCluster Virtual Assistant.**

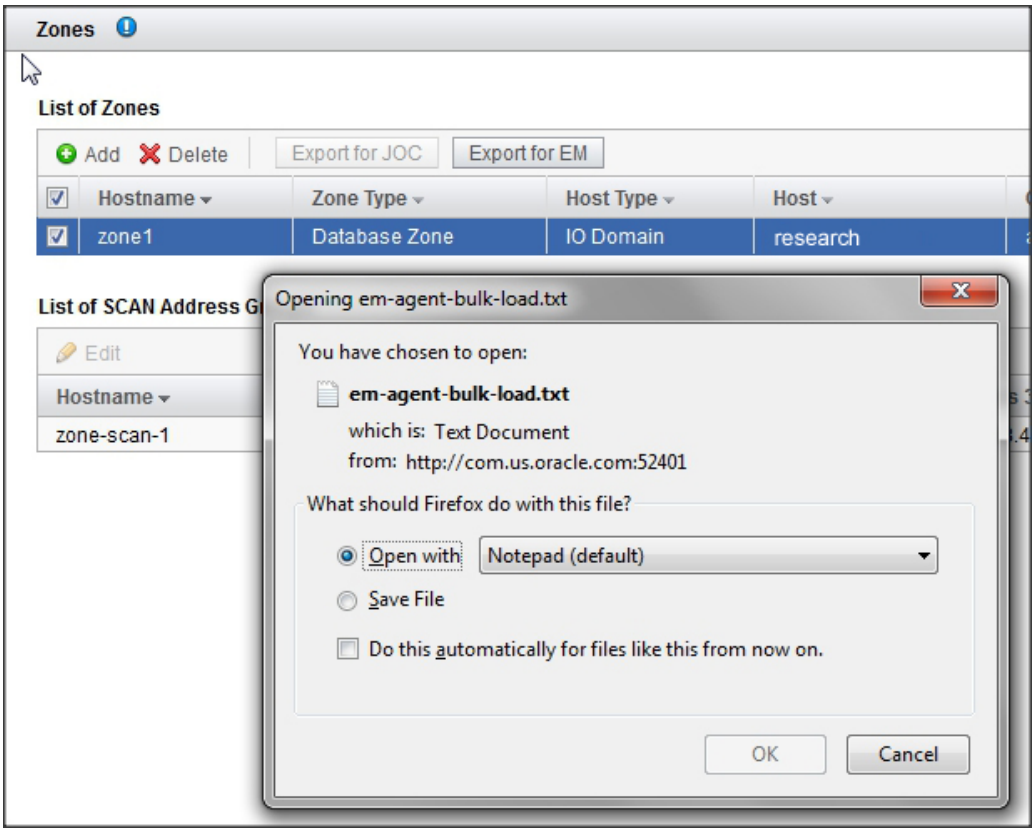
   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Zones.**

3. **Select the check box next to one or more zones.**

4. **Click Export for EM.**

5. **If your browser asks you how to handle the file, choose Save File and save it to the directory of your choice.**



By default, the file is named `em-agent-bulk-load.txt`.

Example of file contents:

`DB01.`*zzz.yyy*

6. **Consider your next action.**

- Move a Domain – See "Relocating Domains with Freeze and Thaw" on page 147.
- Remove a zone's configuration from the assistant – See "Delete Zone Configuration Information" on page 145.

- Export an XML file to provide database configuration information – See "Export an XML Configuration File" on page 238.

Delete Zone Configuration Information

Removing a zone from a Database Zone Domain removes the zone configuration information from the assistant.

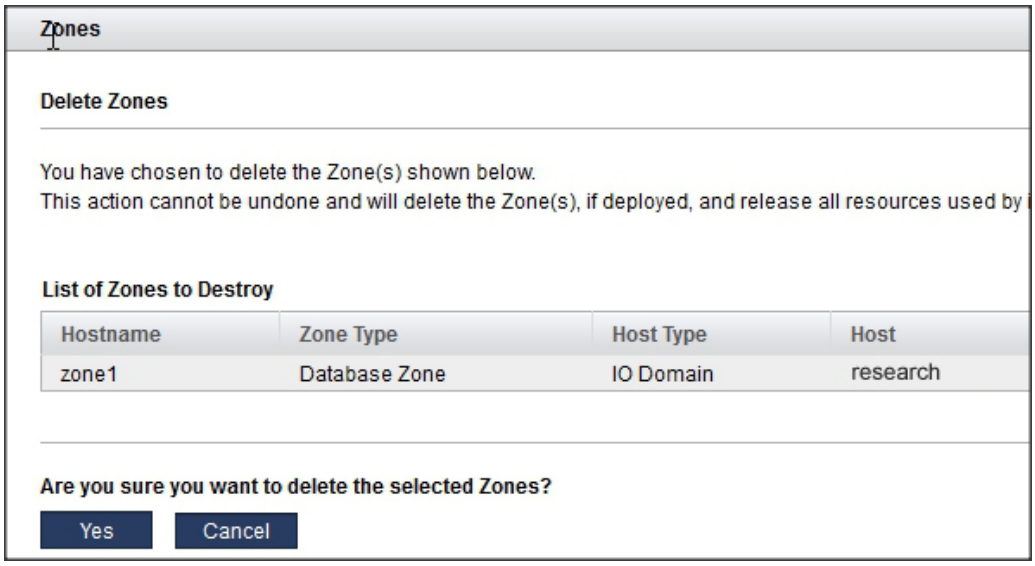
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Zones.**

3. **Select the check box next to the zone whose configuration you want to remove and click Delete.**

4. **Click Yes to remove the configuration information for this zone.**



Tip - After you remove the zone's configuration from its I/O Domain, you should remove the deleted zone's host and IP information from DNS.

5. **Consider your next action.**

   - Relocate a domain – See "Relocating Domains with Freeze and Thaw" on page 147.
   - View resources – See "Monitoring Activity, Resource Alterations, and Health" on page 161.

Relocating Domains with Freeze and Thaw

This feature is available starting with SuperCluster version 2.3.

You can move Database and Application I/O Domains from one physical host to another with the freeze and thaw feature. You can also use the feature if you want to temporarily suspend an I/O Domain and have the CPU, memory, and network resources that were being used by that I/O Domain made available to other I/O Domains:

- **Freeze** – Saves the I/O Domain configuration information, suspends (freezes) the I/O Domain, and returns CPU, memory, and network resources to the pool and can be used to deploy other domains . The storage and data associated with the I/O Domain are preserved, and are returned to the I/O Domain when the I/O Domain is thawed. At any time, the frozen I/O Domain can be thawed, at which point resources are reassigned to the I/O Domain, and it is brought back to the Ready for Use state.

  In some cases, additional auxiliary iSCSI LUNs might be associated with an I/O Domain, for example to provide cluster quorum devices or file systems for zones in I/O Domains. The freeze function preserves the auxiliary iSCSI LUNs, but the assistant only enables you to thaw such I/O Domains on physical hosts that can access the auxiliary iSCSI LUNs.
- **Thaw** – Reconfigures the I/O Domain on the physical host that you specify, reassigns the same number of resources, re-establishes connectivity to the original storage resources, and brings the I/O Domain back to the Ready for Use state.

  The assistant only enables you to thaw a frozen I/O Domain on physical hosts that have sufficient resources to host the I/O Domain.

  In the case where a frozen I/O Domain has additional auxiliary iSCSI LUNs, there might be additional restrictions placed on the physical host on which the frozen I/O Domain can be thawed. Auxiliary iSCSI LUNs used to provide file systems for zones in I/O Domains are also thawed as part of this process, and any non-global zones hosted on auxiliary iSCSI LUNs return to the same state that they were in prior to the freeze action. Auxiliary iSCSI LUNs used to provide cluster quorum devices are also thawed, but might need some manual interaction to return them to the state they were in prior to the freeze action.

Users with the administrator role can freeze and thaw any I/O Domain. Users with the user role can only freeze and thaw I/O Domains they own.

These topics describe how to freeze and thaw an I/O Domain.

Determine Resource Availability Before Relocation

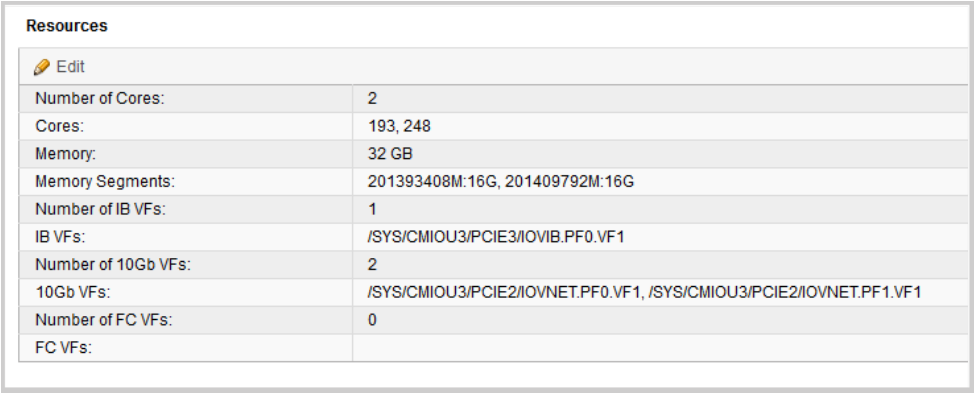
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **Identify the resources used by the I/O Domain in its current location.**

   a. **In the navigation panel, select I/O Domains.**

   b. **For the I/O Domain you plan to move, under Details, click View.**



Resources

Edit

Number of Cores:	2
Cores:	193, 248
Memory:	32 GB
Memory Segments:	201393408M:16G, 201409792M:16G
Number of IB VFs:	1
IB VFs:	/SYS/CMIOU3/PCIE3/IOVIB.PF0.VF1
Number of 10Gb VFs:	2
10Gb VFs:	/SYS/CMIOU3/PCIE2/IOVNET.PF0.VF1, /SYS/CMIOU3/PCIE2/IOVNET.PF1.VF1
Number of FC VFs:	0
FC VFs:	

   c. **In the Resources table, identify the amount of resources assigned to this I/O Domain.**

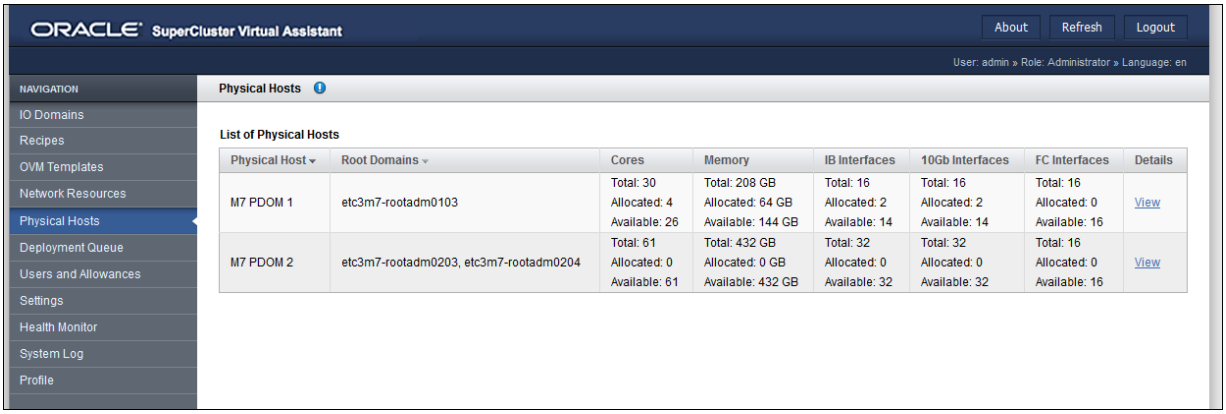
   To move an I/O Domain, the new location must have at least the corresponding amount of resources available. Note these values:

   - Number of cores
   - Memory
   - Number of IB VFs

- Number of 10Gb VFs
- Number of FC VFs

3. **Ensure that enough resources are available on the other physical host.**

   a. **In the navigation panel, select Physical Hosts.**



   b. **In the Physical Hosts page, ensure that the intended physical host has enough available resources to support the I/O Domain.**

4. **Consider your next action.**

   - Freeze an I/O Domain – See "Freeze a Domain" on page 149.
   - Change the resources used by an I/O Domain – See "Increase or Decrease I/O Domain Resources" on page 127.

Freeze a Domain

Use this procedure to freeze an I/O Domain. This is typically performed when you want to move and I/O Domain from one physical host to another.

Note - When an I/O Domain is frozen, it is unavailable for use.

---

1. **Shut down the domain that you plan to move.**

To freeze a domain, the domain must be stopped. It is highly recommended that all applications running in the domain are gracefully stopped and that the OS running in the domain is shut down prior to freezing the domain. The freeze action will attempt to shutdown the OS gracefully initially. If that action does not work, a forced shutdown of the OS is performed.

2. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

3. **In the navigation panel, select I/O Domains.**

4. **Select the I/O Domain you plan to Freeze.**

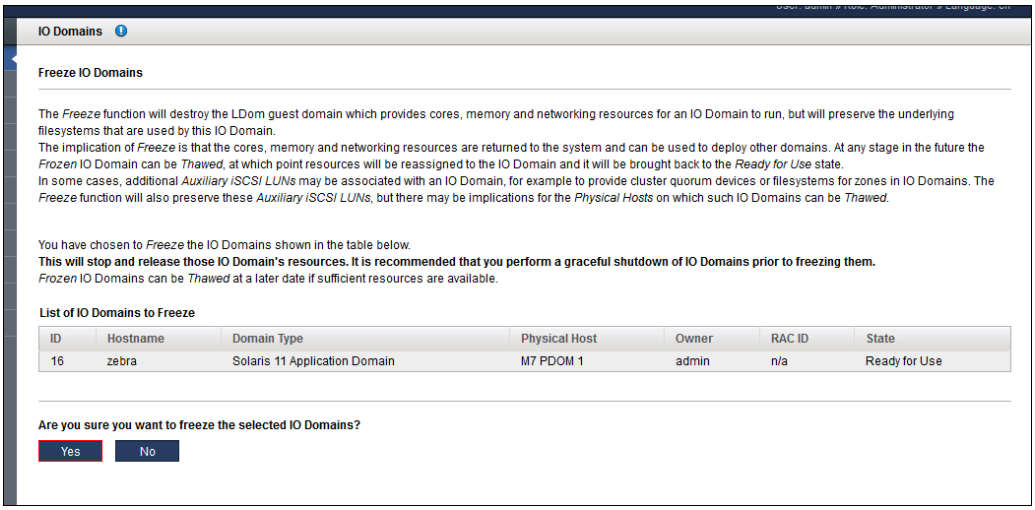
5. **If you want to tie the domain you are freezing to the physical host, select the Pin this Domain check box.**

   The ability to pin a domain is available starting with SuperCluster version 2.4.

   Pinning a domain ensures that the domain can only be thawed on that specific host. If you have domains that run the Oracle Solaris Cluster software, always select this check box.

6. **Click Yes to freeze the domain.**

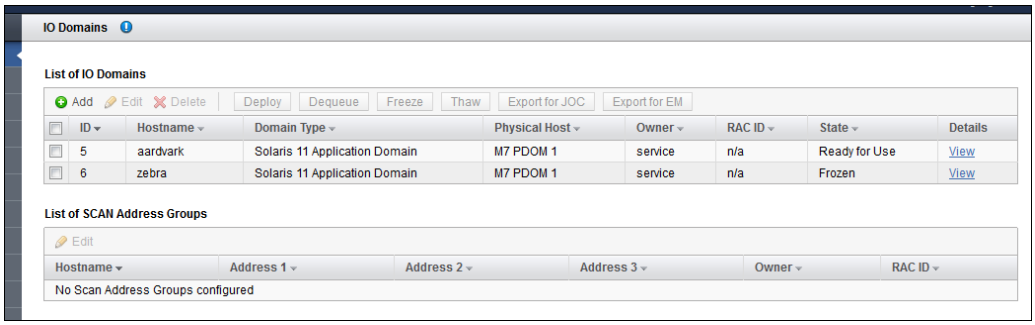
   This example shows the confirmation screen with the tool tip expanded.



7. **Click Yes to confirm the freeze operation.**

The process takes a few minutes to complete. After the process completes, *Frozen* is displayed in the State column.

Tip - Click Refresh to ensure that the page reflects the most current state.



8. **Consider your next action.**

   - Thaw a domain – See "Thaw a Domain" on page 151.
   - Verify the freeze operation – See "Monitor Past Activity (Administrators Only)" on page 162.

Thaw a Domain

Use this procedure to thaw an I/O Domain that is frozen. This is performed when you want to take a domain from the Frozen state back to the Ready for Use state (with OS running).

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

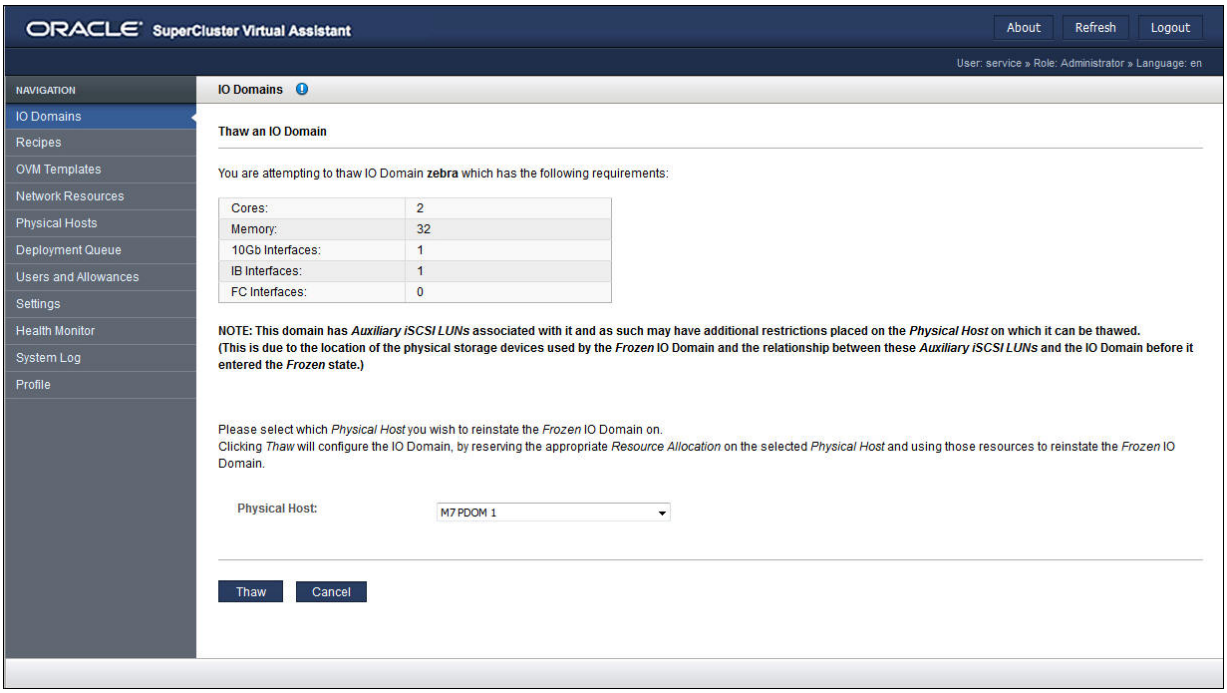
2. **In the navigation panel, select I/O Domains.**

3. **Select the frozen I/O Domain.**

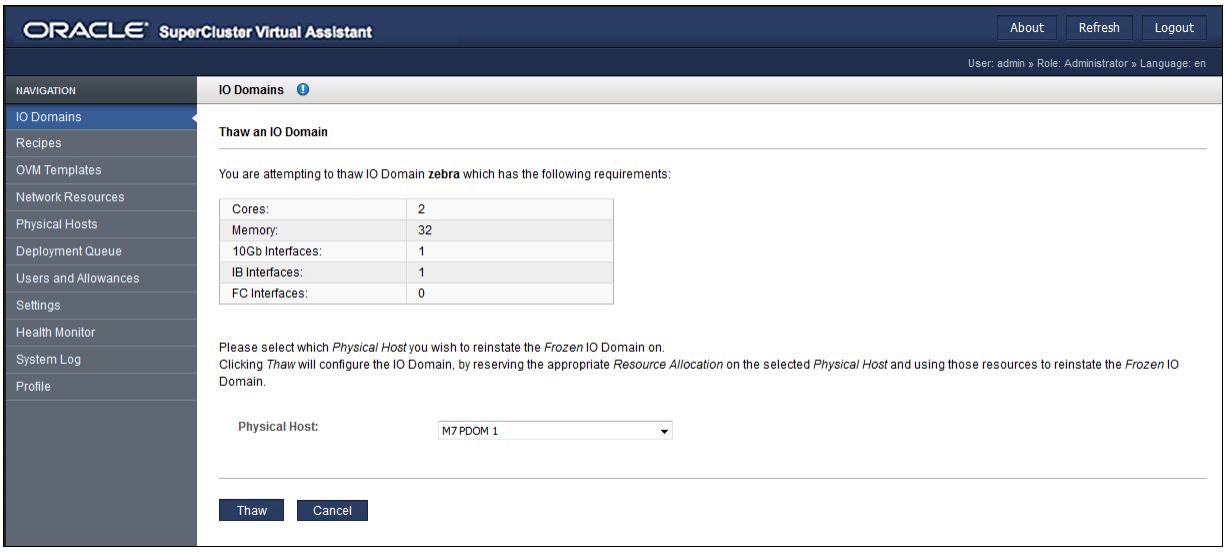
4. **Click Thaw.**

   The next screen enables you to choose a physical host for this I/O Domain. If you pinned an I/O domain to a host, the domain can only be thawed on that specific host. For more information, see "Freeze a Domain" on page 149.

If the assistant detects that any auxiliary ISCSI LUNs are associated with the I/O Domain, the assistant includes that information in the screen, as shown below:



This example shows the screen that is displayed when there are no auxiliary iSCSI LUNs associated with the I/O Domain.



5. **Select a physical host from the drop-down menu.**

   Not all I/O domains can be thawed on all physical hosts for these reasons:

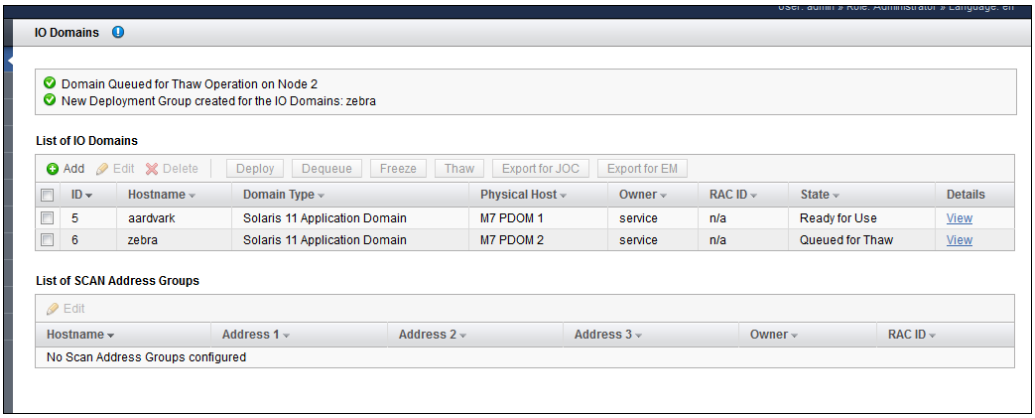
   - If you pinned an I/O Domain to a physical host, that domain can only be thawed on that specific physical host. For more information, see "Freeze a Domain" on page 149.
   - You can only thaw an I/O Domain on a physical host that has sufficient available resources to accommodate the frozen I/O Domain.
   - Some I/O Domains have auxiliary LUNs associated with them (for example, for zone file systems). These I/O Domains can only be thawed on physical hosts that have access to all auxiliary LUNS.

6. **Click Thaw.**

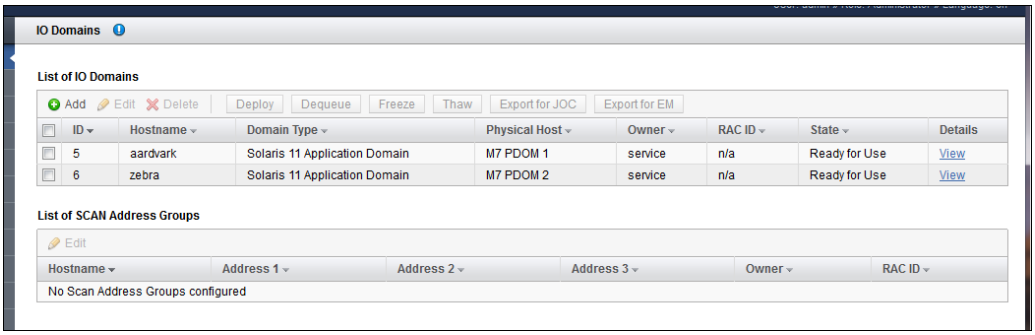
   The process takes a few minutes to complete. Once complete, Ready for Use is displayed in the State column.

Tip - Click the Refresh button to ensure that the page reflects the most current state.

This example shows the state of the I/O Domain during the thaw process.



This example shows the state of the I/O Domain when the thaw is complete.



7. **Consider your next action.**

- Verify the freeze and thaw operation. See "Verify the Relocation" on page 155.
- Change the resources used by an I/O Domain. See "Increase or Decrease I/O Domain Resources" on page 127.

Verify the Relocation

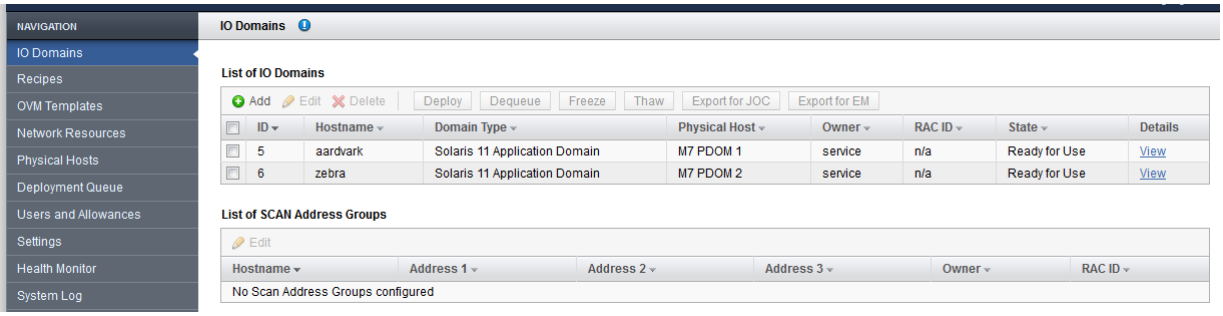
1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

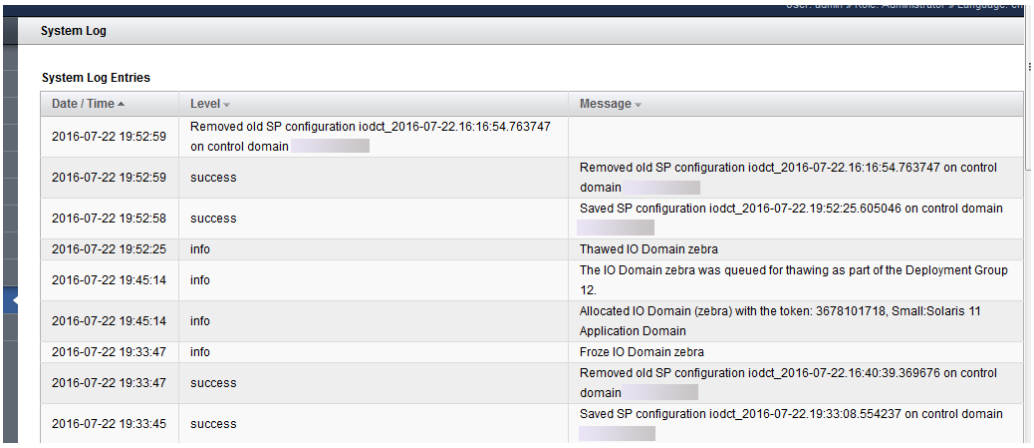
   The Physical Host column shows the physical host of each I/O Domain.

   The State column shows the state of the I/O Domain.



3. **In the navigation panel, select System Log.**

   Review the log for the status of the freeze and thaw processes.



4. **Consider your next action.**

   - Manage I/O Domains. See "Creating and Deploying I/O Domains" on page 91.
   - Log out of the assistant. See "Log Out of the SuperCluster Virtual Assistant" on page 43.

Deleting Domains

Caution - Deleting a domain is permanent and cannot be undone. This action deletes the domain and releases all resources used by that domain. Any software on the domain is lost.

Caution - Ensure that you back up all existing data before performing the tasks in this section.

Users with the administrator role can delete any domain. Users with the user role can only delete domains they own.

Note - If the assistant fails to permit you to delete a domain, check for possible issues. See "Monitor SuperCluster Virtual Assistant Health (Administrators Only)" on page 163.

The procedures you perform to delete a domain differ based on the type of domain you plan to delete.

Description	Links
Delete an Application Domain	"Delete a Domain" on page 159
Delete one node of a Cluster and its associated domain.	"Delete a Single Node From a Cluster" on page 157 "Delete a Domain" on page 159
Delete all cluster nodes and the associated domains.	"Delete All Nodes in a Cluster" on page 158 "Delete a Domain" on page 159

▼ Delete a Single Node From a Cluster

Use this procedure to delete an individual node from a cluster before you delete the associated Database Domain.

1. **Delete the database instance from the clustered database.**

For instructions, refer to the Oracle Database 2 Day + Real Application Clusters Guide.

2. **Delete the node from the Oracle Grid infrastructure.**

   For instructions, refer to the Clusterware Administration and Deployment Guide.

3. **Delete the Database Domain.**

   See "Delete a Domain" on page 159.

Related Information

- "Delete All Nodes in a Cluster" on page 158
- "Delete a Domain" on page 159

Delete All Nodes in a Cluster

Use this procedure to delete all the nodes in a cluster before you delete the associated Database I/O Domains.

In this scenario, you will delete all active members of a grid infrastructure resulting in the destruction of the whole cluster.

1. **Identify the diskgroups and associated griddisks.**

   For example, identify the griddisk prefix in the output (`DATAJNGZ` and `RECOJNGZ`).

```
oracle@etc5mzdbadm030201:~$ asmcmd lsdsk
Path
o/192.0.2.1;192.0.2.2/DATAJNGZ_FD_00_etc5mceladm01
o/192.0.2.1;192.0.2.2/DATAJNGZ_FD_01_etc5mceladm01
o/192.0.2.1;192.0.2.2/DATAJNGZ_FD_02_etc5mceladm01
o/192.0.2.1;192.0.2.2/DATAJNGZ_FD_03_etc5mceladm01
o/192.0.2.1;192.0.2.2/RECOJNGZ_FD_00_etc5mceladm01
o/192.0.2.1;192.0.2.2/RECOJNGZ_FD_01_etc5mceladm01
o/192.0.2.1;192.0.2.2/RECOJNGZ_FD_02_etc5mceladm01
o/192.0.2.1;192.0.2.2/RECOJNGZ_FD_03_etc5mceladm01
o/192.0.2.3;192.0.2.4/DATAJNGZ_FD_00_etc5mceladm02
o/192.0.2.3;192.0.2.4/DATAJNGZ_FD_01_etc5mceladm02
o/192.0.2.3;192.0.2.4/DATAJNGZ_FD_02_etc5mceladm02
o/192.0.2.3;192.0.2.4/DATAJNGZ_FD_03_etc5mceladm02
o/192.0.2.3;192.0.2.4/RECOJNGZ_FD_00_etc5mceladm02
o/192.0.2.3;192.0.2.4/RECOJNGZ_FD_01_etc5mceladm02
o/192.0.2.3;192.0.2.4/RECOJNGZ_FD_02_etc5mceladm02
o/192.0.2.3;192.0.2.4/RECOJNGZ_FD_03_etc5mceladm02
```

```
o/192.0.2.5;192.0.2.6/DATAJNGZ_FD_00_etc5mceladm03
o/192.0.2.5;192.0.2.6/DATAJNGZ_FD_01_etc5mceladm03
o/192.0.2.5;192.0.2.6/DATAJNGZ_FD_02_etc5mceladm03
o/192.0.2.5;192.0.2.6/DATAJNGZ_FD_03_etc5mceladm03
o/192.0.2.5;192.0.2.6/RECOJNGZ_FD_00_etc5mceladm03
o/192.0.2.5;192.0.2.6/RECOJNGZ_FD_01_etc5mceladm03
o/192.0.2.5;192.0.2.6/RECOJNGZ_FD_02_etc5mceladm03
o/192.0.2.5;192.0.2.6/RECOJNGZ_FD_03_etc5mceladm03
oracle@etc5mzdbadm030201:~$
```

2. **Delete the associated Database Domains, then return to Step 3 in this procedure.**

   See "Delete a Domain" on page 159.

3. **Delete the griddisks from the storage cells.**

   Log in to each cell and drop the griddisks. For example:

```
CellCLI> drop griddisk all prefix=RECOJNGZ force
```

Related Information

- "Delete a Single Node From a Cluster" on page 157
- "Delete a Domain" on page 159

Delete a Domain

You might want to delete an domain in order to free up the resources that the domain uses. When a domain is deleted, the resources are returned to the resource pool.

Caution - If you delete an I/O domain, the deletion cannot be undone. This action deletes the domain and releases all resources used by that domain. Any software on the domain is lost.

If you are deleting a Database Domain, you must first delete the cluster nodes that are associated with the domain. See one of these procedures:

- "Delete a Single Node From a Cluster" on page 157
- "Delete All Nodes in a Cluster" on page 158

Caution - If the Database Domain or the Database Zone Domain contains zones, the zones are removed when you delete the domain. The zone's configuration information will also be removed from the assistant. You should remove the deleted zone's host and IP information from DNS.

1. **(Platinum Monitored Systems) Remove the I/O Domain from platinum infrastructure services.**

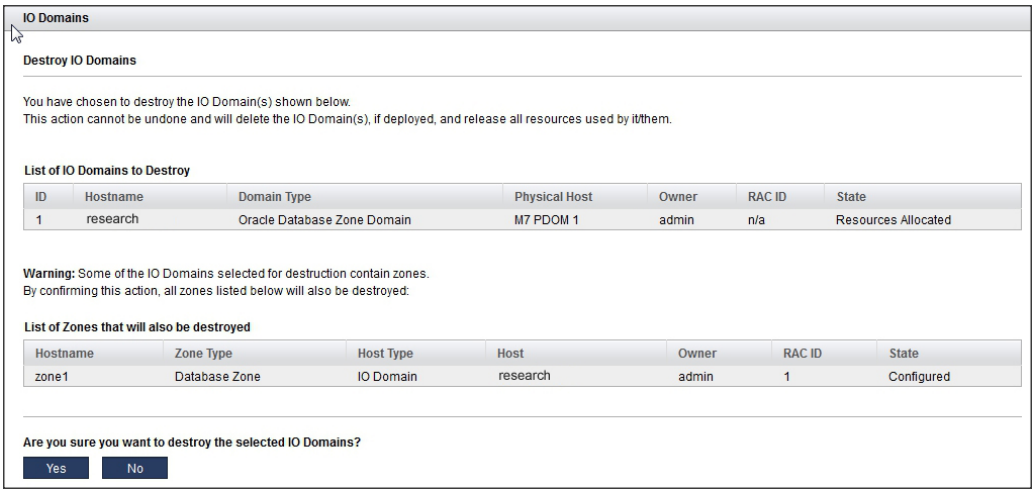
   For instructions, log in to `https://support.oracle.com`, and read the MOS knowledge article called *How to Create Platinum Infrastructure Services SR (Doc ID 1958476.1)*.

2. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

3. **In the navigation panel, select I/O Domains.**

4. **Select the check box next to the domain you want to remove and click Delete.**



5. **Click Yes to remove the domain and any zones attached to the domain.**

   After you remove the zone's configuration from its I/O Domain, you should remove the deleted zone's host and IP information from DNS.

6. **Consider your next action.**

   - View Domains – See "View I/O Domains" on page 95.
   - View resources – See "View System Resources" on page 45.
   - Monitor activity – See "Monitoring Activity, Resource Alterations, and Health" on page 161.
   - Go to the Domain Configuration Task Overview – See "Domain Configuration Task Overview" on page 21.

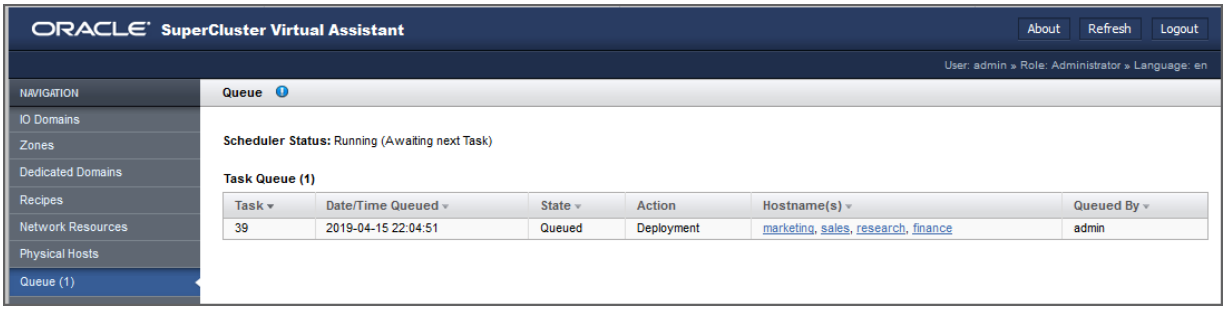
Monitoring Activity, Resource Alterations, and Health

Use these topics to monitor the activity, resource allocations, and health of the SuperCluster:

Monitor Current Activity

1. **Access the SuperCluster Virtual Assistant.**
   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Queue (or Deployment Queue for earlier assistant versions).**



In this screen you can view the I/O Domains that are in the queue for deployment and the state of the deployment:

- Currently Deploying
- Deployment Complete
- Reread
- Queued for Deployment
- Saving LDom Configuration
- (Version 3.0) I/O Domain deletions
- (Version 3.0) Freeze and thaw operations

If multiple I/O Domains were deployed at the same time, they are grouped into one batch ID.

The Resource Alteration Queue displays the state and owner of I/O Domains that in the process of resource changes, or have pending changes (see "Increase or Decrease I/O Domain Resources" on page 127).

3. **Click I/O Domain name to view the I/O Domain details.**

4. **Consider your next action.**

   - Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
   - Go to the next task – See "Monitor Past Activity (Administrators Only)" on page 162.
   - Deploy or Dequeue an I/O Domain – See "Deploy an I/O Domain" on page 133.
   - Log out – See "Log Out of the SuperCluster Virtual Assistant" on page 43.

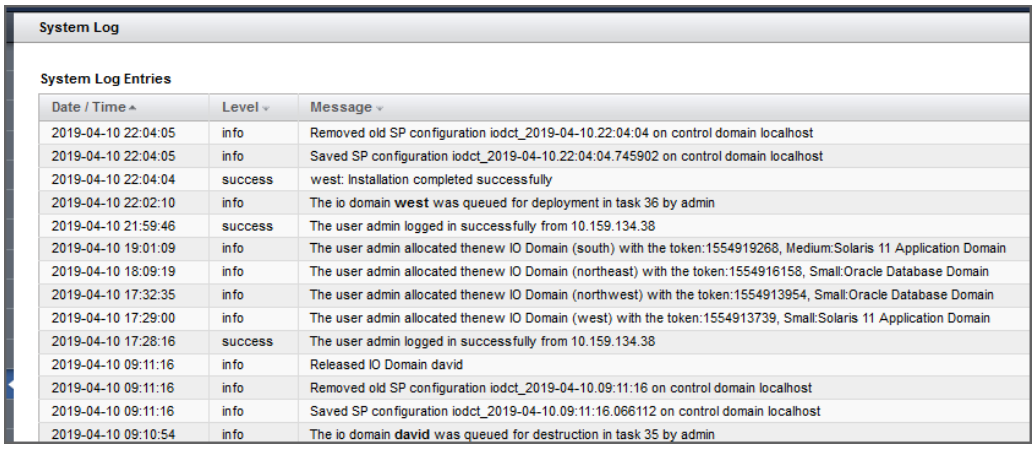
▼ Monitor Past Activity (Administrators Only)

You must have the administrator role to perform this procedure.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select System Log.**



System Log

System Log Entries

Date / Time	Level	Message
2019-04-10 22:04:05	info	Removed old SP configuration iodct_2019-04-10.22:04:04 on control domain localhost
2019-04-10 22:04:05	info	Saved SP configuration iodct_2019-04-10.22:04:04.745902 on control domain localhost
2019-04-10 22:04:04	success	west: Installation completed successfully
2019-04-10 22:02:10	info	The io domain **west** was queued for deployment in task 36 by admin
2019-04-10 21:59:46	success	The user admin logged in successfully from 10.159.134.38
2019-04-10 19:01:09	info	The user admin allocated thenew IO Domain (south) with the token:1554919268, Medium:Solaris 11 Application Domain
2019-04-10 18:09:19	info	The user admin allocated thenew IO Domain (northeast) with the token:1554916158, Small:Oracle Database Domain
2019-04-10 17:32:35	info	The user admin allocated thenew IO Domain (northwest) with the token:1554913954, Small:Oracle Database Domain
2019-04-10 17:29:00	info	The user admin allocated thenew IO Domain (west) with the token:1554913739, Small:Solaris 11 Application Domain
2019-04-10 17:28:16	success	The user admin logged in successfully from 10.159.134.38
2019-04-10 09:11:16	info	Released IO Domain david
2019-04-10 09:11:16	info	Removed old SP configuration iodct_2019-04-10.09:11:16 on control domain localhost
2019-04-10 09:11:16	info	Saved SP configuration iodct_2019-04-10.09:11:16.066112 on control domain localhost
2019-04-10 09:10:54	info	The io domain **david** was queued for destruction in task 35 by admin

In this screen you can view timestamped SuperCluster Virtual Assistant log entries.

3. **Consider your next action.**

- Go to the Administrative Task Overview – See "Administrative Task Overview" on page 20.
- Monitor deployment activity – See "Monitor Current Activity" on page 161.
- Log out – See "Log Out of the SuperCluster Virtual Assistant" on page 43.

▼ Monitor SuperCluster Virtual Assistant Health (Administrators Only)

Use the health monitor to monitor the status of the assistant and to manage any failures that might be detected. You must have the administrator role to perform this procedure.

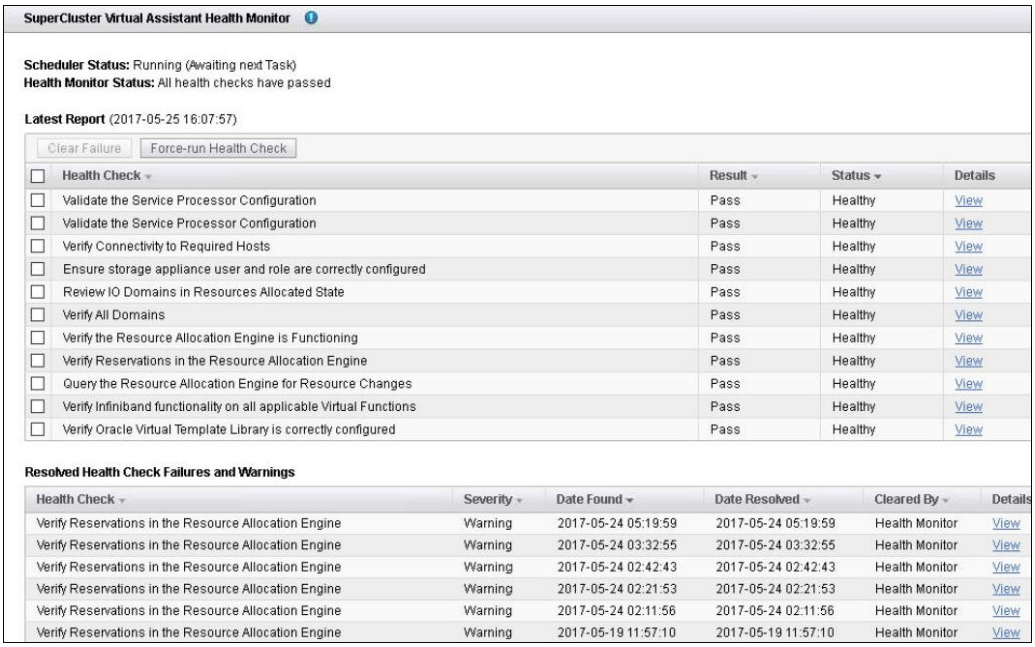
The health monitor ensures that the SuperCluster Virtual Assistant remains in sync with SuperCluster subsystems and that the assistant has connectivity to applicable hosts.

If a failure is encountered, future I/O Domain deployment and destruction activities are disabled until all failures are cleared.

1. **Access the SuperCluster Virtual Assistant.**

See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Health Monitor.**



The first table lists the latest report. The second table is a summary of the prior 20 warnings and failures. For a full list, click the link at the bottom of this screen.

A single Heath Monitor report includes several individual health checks, with further details available for each health check.

Possible results:

- **Pass** – No issues detected.
- **Warning** – An issue was detected that was automatically resolved by the SuperCluster Virtual Assistant.
- **Fail** – As issue was detected that requires human intervention. Look at the details, perform the provided actions to resolve the issue. Once resolved, clear the failure.

Note - Future I/O Domain deployment and destruction activities are disabled until all failures are cleared.

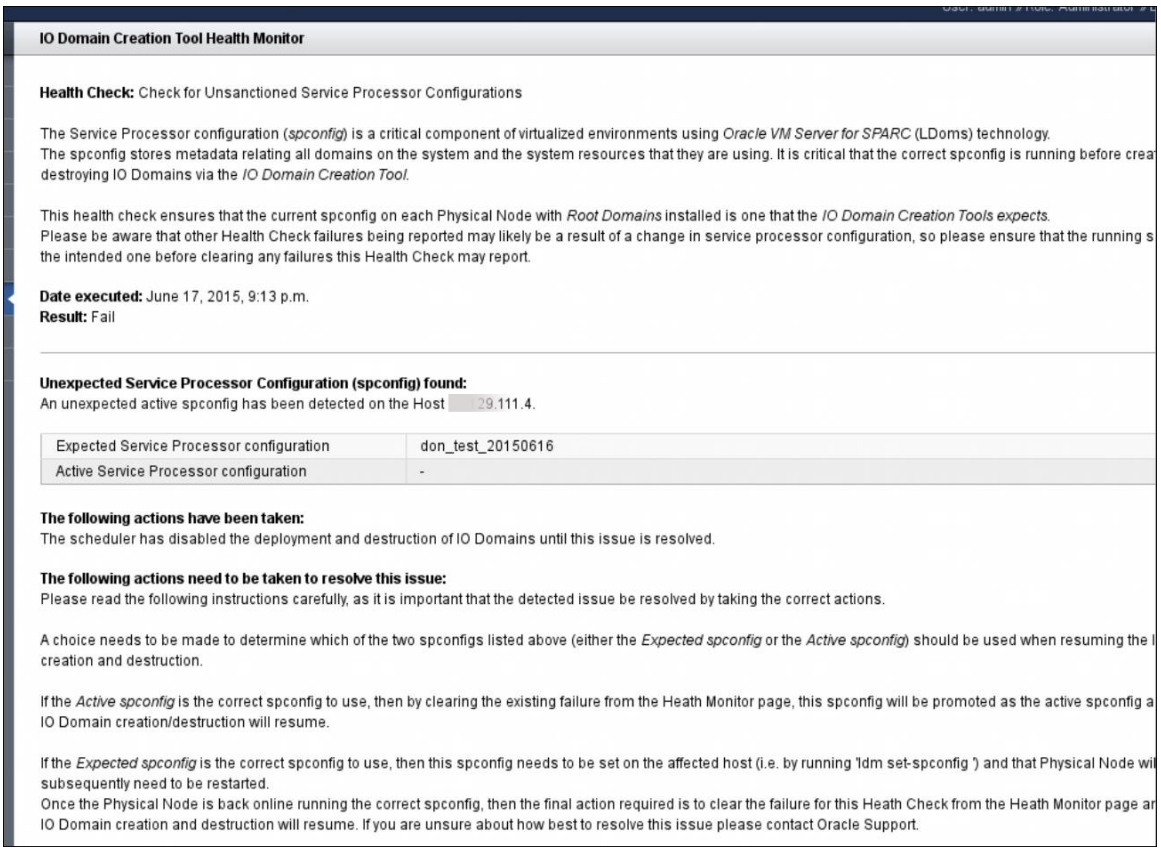
---

3. **Run a health check by clicking Force-run Health Check.**

   Health checks are run at the next opportunity.

4. **View health check details by clicking Details.**

   Example of details for a health check failure:



IO Domain Creation Tool Health Monitor

Health Check: Check for Unsanctioned Service Processor Configurations

The Service Processor configuration (*spconfig*) is a critical component of virtualized environments using *Oracle VM Server for SPARC* (LDoms) technology.
The spconfig stores metadata relating all domains on the system and the system resources that they are using. It is critical that the correct spconfig is running before crea
destroying IO Domains via the *IO Domain Creation Tool*.

This health check ensures that the current spconfig on each Physical Node with *Root Domains* installed is one that the *IO Domain Creation Tools expects*.
Please be aware that other Health Check failures being reported may likely be a result of a change in service processor configuration, so please ensure that the running s
the intended one before clearing any failures this Health Check may report.

Date executed: June 17, 2015, 9:13 p.m.
Result: Fail

Unexpected Service Processor Configuration (spconfig) found:
An unexpected active spconfig has been detected on the Host 29.111.4.

Expected Service Processor configuration	don_test_20150616
Active Service Processor configuration	-

The following actions have been taken:
The scheduler has disabled the deployment and destruction of IO Domains until this issue is resolved.

The following actions need to be taken to resolve this issue:
Please read the following instructions carefully, as it is important that the detected issue be resolved by taking the correct actions.

A choice needs to be made to determine which of the two spconfigs listed above (either the *Expected spconfig* or the *Active spconfig*) should be used when resuming the I
creation and destruction.

If the *Active spconfig* is the correct spconfig to use, then by clearing the existing failure from the Heath Monitor page, this spconfig will be promoted as the active spconfig a
IO Domain creation/destruction will resume.

If the *Expected spconfig* is the correct spconfig to use, then this spconfig needs to be set on the affected host (i.e. by running 'ldm set-spconfig ') and that Physical Node wil
subsequently need to be restarted.
Once the Physical Node is back online running the correct spconfig, then the final action required is to clear the failure for this Heath Check from the Heath Monitor page ar
IO Domain creation and destruction will resume. If you are unsure about how best to resolve this issue please contact Oracle Support.

5. **If failures are reported, take corrective action, then clear the failure.**

a. **Perform the actions described in the details screen for each failure.**

b. **Return to the Heath Monitor main screen.**

   In the left navigation panel, click Health Monitor.

c. **Select the check box for each failure you want to clear.**

d. **Click Clear Failure.**

6. **Consider your next action.**

   - Monitor assistant activity – See "Monitor Past Activity (Administrators Only)" on page 162.
   - Monitor deployment activity – See "Monitor Current Activity" on page 161.
   - Log out – See "Log Out of the SuperCluster Virtual Assistant" on page 43.

Start or Stop a Management Agent

Management Agents are a new feature available starting with SuperCluster version 2.4.

Management Agent software runs on each control domain and monitors the state of each I/O Domain. The Management Agent provides real-time notification of the state of each domain (Ready for Use, Stopping, Starting, and so on). To be able to start or stop and I/O Domain with the SuperCluster Virtual Assistant, you must have the Management Agent enabled for the Physical Host where that I/O Domain resides.

Tip - An I/O Domain might move in or out of the Solaris Open Boot Prompt, and the I/O Domain's state is subsequently not accurately reflected in the I/O Domains page. If this occurs, stop and restart the Management Agent for the physical host where that I/O Domain resides to re-sync the state of all I/O Domains on that host.

---

1. **Access the SuperCluster Virtual Assistant.**

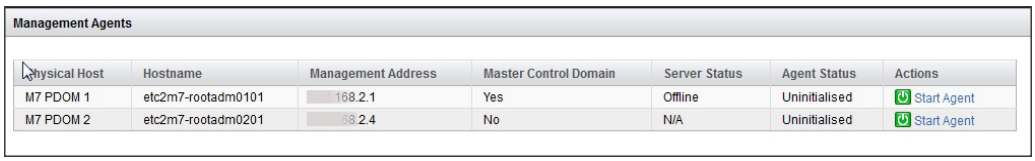
   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select Management Agents.**

3. **Determine the physical host where you want to start or stop the Management Agents.**

4. **Click Start Agent or Stop Agent.**

   - Click Start Agent to enable the Management Agent on that physical host. The Agent Status changes to *Online*.
   - Click Stop Agent to disable the Management Agent on that physical host. The Agent Status changes to *Offline*.



A confirmation page appears, confirming that the Management Agent is being started or stopped.

5. **Verify the state of the agent.**

   In the navigation panel, select the Management Agents to view the status of the Management Agents for each physical host. If the management agent is stopped, its state in the Agent Status column on the Management Agents page is *Offline*.

6. **Consider your next action.**

   - Start a domain – See "Start or Stop an I/O Domain" on page 168.

Start or Stop an I/O Domain

The state of I/O Domains on a given physical host are monitored by the Management Agent for that physic\al host. When the Management Agent for a given host is online, it also provides the ability to stop and start an I/O Domain from the SuperCluster Virtual Assistant. For instructions on starting a Management Agent, see "Start or Stop a Management Agent" on page 166.

1. **Access the SuperCluster Virtual Assistant.**

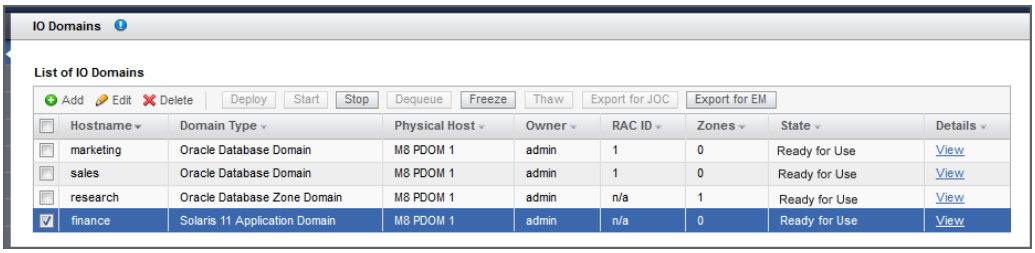
   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **In the navigation panel, select I/O Domains.**

3. **Select the check box next to the domain and click Start or Stop.**

   - Click Start to start that I/O domain.
   - Click Stop to stop that I/O domain.

   If the Start or Stop buttons are not enabled (as shown below) you have not started or stopped the Management Agent for that physical host. See "Start or Stop a Management Agent" on page 166.



4. **Click Yes to start or stop the domain.**

   The domain state changes to *Ready for Use* or *Stopped*.

5. **Consider your next action.**

   - Start a Management Agent – See "Start or Stop a Management Agent" on page 166.
   - Deploy a domain – See "Deploy an I/O Domain" on page 133.

Using SuperCluster Virtual Assistant REST APIs

You can administer SuperCluster I/O Domains using the SuperCluster Virtual Assistant REST API. The REST API functionality was introduced in SuperCluster software version 2.6.

These topics describe how to use the SuperCluster REST APIs:

Get an Authentication Token

You can use any HTTPS capable communications interface to obtain a token and interface with the SuperCluster Virtual Assistant REST API. This can be: cURL, a browser, programming languages such as Python, Java, C, and so forth.

Access the REST API resources over HTTPS. Use your SuperCluster user name and password for authentication.

An authentication token is valid for 30 minutes.

1. **Get an authentication token.**

   For example:

```
$ echo $(curl -kX POST --header 'Content-Type: application/json' \
--header 'Accept: application/json' \
-d '{
```

```
"username":"user1",
"password":"password"
    }' \
'https://myhost.us.example.com:13000/api/api-token-auth/')

{"token":"cccccccc99bdc004f51338e6c38e636233333333"}
```

2. **Use the token for requests.**

   For example:

```
curl -X GET --header 'Accept: application/json' \
--header 'Authorization: Token cccccccc99bdc004f51338e6c38e636233333333' \
'https://myhost.uk.example.com:13000/api/deploymentgroup/'
```

Access the REST API Catalog (BUI)

You can use the SuperCluster Virtual Assistant REST APIs to manage I/O Domains on SuperCluster.

This task describes how to access the REST API catalog from a browser. From the browser, you can authorize API keys and users, and perform API calls from the catalog.

Only the admin account and authorized users can log into the REST API catalog.

Note - The `PUT /api/iodomain/(id)/thaw` exit code in the catalog might be `200`, which is incorrect. The correct exit code is `201`.

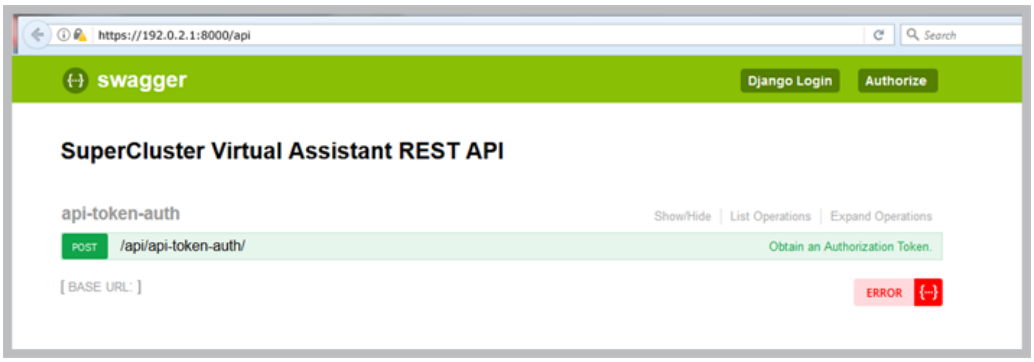
---

1. **Open a browser on a system that has network access to SuperCluster.**

2. **Enter this URL in the address field and press Return.**

   `https://`*compute_node_1-Control_dom*`:8000/api`

Replace *compute_node_1-Control_dom* with the first compute node's control domain name or IP address.



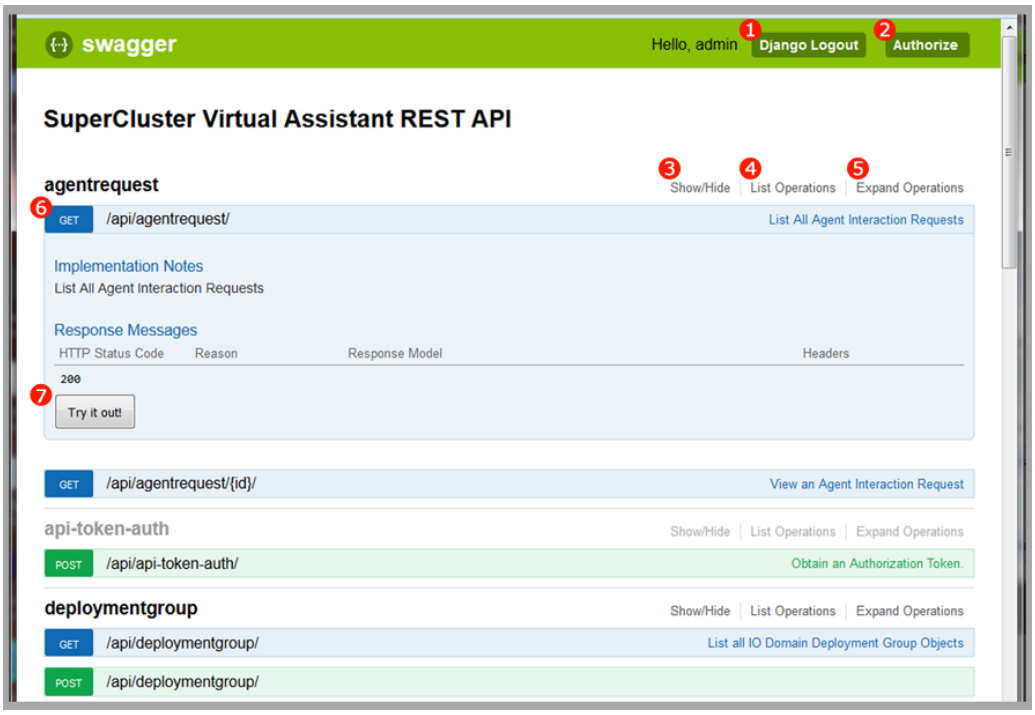
3. **(Optional) Bookmark the page.**

4. **Click Django Login.**

5. **Enter a valid SuperCluster Virtual Assistant REST API user name and password, and click Log in.**

6. **Become familiar with the REST API page.**

The SuperCluster Virtual Assistant REST API page lists all the REST API endpoints that you can use, and provides access to authorize keys and users.



- **1** – REST API page log out button.
- **2** – Authorize button. Opens a dialog box that enables you to authorize these items:
  - API Key – Provide a key (token) that is obtained by issuing `POST /api/api-token-auth` (see "Get an Authentication Token" on page 169). The authorize and authentication token that can be used in place of a user name and password. Authorization tokens are valid for 30 minutes.
  - REST API users – Provide the user name and password to authorize the user to use the SuperCluster Virtual Assistant REST API. The user must be a valid user in the SuperCluster Virtual Assistant.
- **3** – Show or hide the endpoints for a particular category.
- **4** – Show the endpoints for a particular category.

- **5** – Expand the endpoint operations for a particular category. Expanding operations displays applicable notes, parameters, response messages.
- **6** – GET, POST, PUT, and DELETE operations. Click on the endpoint to expand or collapse operation details.
- **7** – Try it out button. Performs the action and displays the Curl command, request URLs and headers, and response bodies, codes, and headers.

7. **Consider your next action.**

- Learn about the network identifiers for each SuperCluster network– See "REST API Network Identifiers" on page 173.
- Log out of the REST API – Click Django Logout.

REST API Network Identifiers

The SuperCluster Virtual Assistant REST API does not provide an API that retrieves network identifiers. Use these network identifiers for network creation APIs.

Network	Identifier
Management	1
Client	2
ZFS storage appliance IB	3
Exadata storage server IB	4
Versaboot	5

This example uses a network identifier of 1 to create a new management network.

```
{
    "start_address": "192.0.2.14",
    "end_address": "192.0.2.254",
    "netmask": "255.255.255.0",
    "default_route": "192.0.2.1",
    "network_identifier": 1,
    "applies_to_all": true
}
```

Example: I/O Domain Group JSON File

The following JSON payload demonstrates one possible use of the I/O Domain deployment API. The example creates two Application Domains and two Oracle Database Domains. The Oracle Database Domains use the specified SCAN addresses (optional). Only a minimal number of fields are required to describe an I/O Domain, but optional available fields exist to manually set properties of the I/O Domain which would, if left out, be automatically assigned by the SuperCluster Virtual Assistant.

This example data can be sent to either of the `/api/iodomain/create/` or `/api/iodomain/create_and_deploy/` interfaces. The former allocates the I/O Domain for later deployment, and the latter deploys the I/O Domain onto the system.

```
{
    "domains": [
        {
            "compute_node": 1,
            "exa_priv_hostname": "mysys-priv1",
            "exa_priv_ipaddr": "203.0.113.61",
            "flavour_token": "db",
            "rac_cluster_id": 10,
            "install_bundle_name": "solaris-minimal-server",
            "mgmt_hostname": "myssc45",
            "mgmt_ipaddr": "198.51.100.187",
            "network_recipe": {
                "domain_name": "us.example.com",
                "gateway": "198.51.100.1",
                "name_servers": "192.0.2.197 192.0.2.198",
                "time_servers": "192.0.2..11 192.0.2.12 192.0.2.13",
                "time_zone": "America/Los_Angeles"
            },
            "primary_hostname": "myssc45.us.example.com",
            "recipe_id": 4,
            "teng_hostname": "myssc45-client",
            "teng_ipaddr": "198.51.100.85",
            "vip_hostname": "myssc45-vip",
            "vip_ipaddr": "198.51.100.86"
        },
        {
            "compute_node": 1,
            "exa_priv_hostname": "myssc45-priv1-app",
            "exa_priv_ipaddr": "203.0.113.61",
            "flavour_token": "11",
            "install_bundle_name": "solaris-minimal-server",
            "mgmt_hostname": "myssc45-app",
```

```
        "mgmt_ipaddr": "192.0.2.187",
        "network_recipe": {
            "domain_name": "us.example.com",
            "gateway": "192.0.2.1",
            "name_servers": "192.0.2.197 192.0.2.198",
            "time_servers": "192.0.2.11 192.0.2.12 192.0.2.13",
            "time_zone": "America/Los_Angeles"
        },
        "primary_hostname": "myssc45-app.us.example.com",
        "recipe_id": 1,
        "teng_hostname": "myssc45-client-app",
        "teng_ipaddr": "198.51.100.85",
        "vip_hostname": "myssc45-vip",
        "vip_ipaddr": "198.51.100.86"
    },
    {
        "compute_node": 2,
        "exa_priv_hostname": "myssc46-priv1",
        "exa_priv_ipaddr": "203.0.113.62",
        "flavour_token": "db",
"rac_cluster_id": 10,
        "install_bundle_name": "solaris-minimal-server",
        "mgmt_hostname": "myssc46",
        "mgmt_ipaddr": "192.0.2.180",
        "network_recipe": {
            "domain_name": "us.example.com",
            "gateway": "192.0.2.1",
            "name_servers": "192.0.2.197 192.0.2.198",
            "time_servers": "192.0.2.11 192.0.2.12 192.0.2.13",
            "time_zone": "America/Los_Angeles"
        },
        "primary_hostname": "myssc46.us.example.com",
        "recipe_id": 4,
        "teng_hostname": "myssc46-client",
        "teng_ipaddr": "198.51.100.90",
        "vip_hostname": "myssc46-vip",
        "vip_ipaddr": "198.51.100.91"
    },
    {
        "compute_node": 2,
        "exa_priv_hostname": "myssc46-priv1-app",
        "exa_priv_ipaddr": "201.0.113.62",
        "flavour_token": "11",
        "install_bundle_name": "solaris-minimal-server",
        "mgmt_hostname": "myssc46-app",
        "mgmt_ipaddr": "192.0.2.180",
        "network_recipe": {
            "domain_name": "us.example.com",
```

```
                "gateway": "192.0.2.1",
                "name_servers": "192.0.2.197 192.0.2.198",
                "time_servers": "192.0.2.11 192.0.2.12 192.0.2.13",
                "time_zone": "America/Los_Angeles"
            },
            "primary_hostname": "myssc46-app.us.example.com",
            "recipe_id": 1,
            "teng_hostname": "myssc46-client-app",
            "teng_ipaddr": "198.51.100.90",
            "vip_hostname": "myssc46-vip",
            "vip_ipaddr": "198.51.100.91"
        }
    ],
    "scan_address_groups": [
        {
            "scan_addresses": [
                {
                    "ip_address": "198.51.100.89"
                },
                {
                    "ip_address": "198.51.100.88"
                },
                {
                    "ip_address": "198.51.100.87"
                }
            ],
            "scan_hostname": "myssc-io-scan-3",
     "rac_cluster_id": 10
        }
    ]
}
```

The following screen shows the full set of required and optional arguments.

These fields are equivalent and mutually exclusive:

- `flavour_id & flavour_token`
- `install_bundle_id & install_bundle_name`
- `network_recipe_id & network_recipe`
- `recipe_id & recipe`

```
SCCSDomainSerializer():
    id = IntegerField(read_only=True)
    compute_node = IntegerField(required=True)
    mgmt_network_id = IntegerField(required=False)
    mgmt_hostname = CharField(allow_blank=False, max_length=67, required=True)
    mgmt_ipaddr = IPAddressField(required=False)
    teng_network_id = IntegerField(required=False)
```

```
   teng_hostname = CharField(allow_blank=False, max_length=67, required=False)
   teng_ipaddr = IPAddressField(required=False)
   teng_vlanid = IntegerField(required=False)
   stor_ib_network_id = IntegerField(required=False)
   stor_ib_hostname = CharField(allow_blank=False, max_length=67, required=False)
   stor_ib_ipaddr = IPAddressField(required=False)
   exa_priv_network_id = IntegerField(required=False)
   exa_priv_hostname = CharField(allow_blank=False, max_length=67, required=False)
   exa_priv_ipaddr = IPAddressField(required=False)
   vip_hostname = CharField(allow_blank=False, max_length=67, required=False)
   vip_ipaddr = IPAddressField(required=False)
   primary_hostname = CharField(max_length=32, required=False)
   flavour_id = IntegerField(required=False)
   flavour_token = CharField(allow_blank=False, max_length=32, required=False)
   install_bundle_id = IntegerField(required=False)
   install_bundle_name = CharField(allow_blank=False, max_length=64, required=False)
   rac_cluster_id = IntegerField(required=False)
   network_recipe_id = IntegerField(required=False)
   network_recipe = CustomNetworkRecipeModelSerializer(required=False):
       id = IntegerField(label='ID', read_only=True)
       domain_name = CharField(max_length=128, validators=[<function validate_domain>])
       name_servers = CharField(help_text='List of the IP addresses of the name
resolution servers.
                      Valid delimiters are commas or spaces', max_length=128,
validators=[<function validate_sever_list>])
       time_servers = CharField(help_text='List of the IP addresses of the time
servers. Valid delimiters are commas or spaces',
                      max_length=128, validators=[<function validate_sever_list>])
       time_zone = CharField(max_length=128)
   recipe_id = IntegerField(required=False)
   recipe = CustomIODomainRecipeModelSerializer(required=False):
       core_max = IntegerField(help_text='Maximum number of cores assignable.',
label='Maximum Number of Cores', max_value=2147483647,
                  min_value=-2147483648, validators=[<function validate_positive>])
       memory_max = IntegerField(help_text='Maximum assignablememory in gigabytes',
label='Maximum Memory', max_value=2147483647,
                    min_value=-2147483648, validators=[<function validate_positive>])
       ib_vf_max = IntegerField(help_text='Maximum number of assignable IB Virtual
Functions', label='Maximum IB VFs', max_value=2147483647,
                   min_value=-2147483648, validators=[<function validate_positive>])
       xgb_vf_max = IntegerField(help_text='Maximum number of assignable 10GB Virtual
Functions', label='Maximum 10GB VFs', max_value=2147483647,
                    min_value=-2147483648, validators=[<function validate_positive>])
```

REST API Reference

This section provides examples of SuperCluster Virtual Assistant REST APIs that are available at the time of publication. To see the specific APIs available on your SuperCluster, view the REST API catalog on SuperCluster. See "Access the REST API Catalog (BUI)" on page 170.

Agent Request APIs – `/api/agentrequest`

```
/api/agentrequest/
 GET: List all pending Agent Requests (Agent requests encapsulate
      Start/Stop Domain requests.)

 RETURNS: Multiple Serialized Agent Request Objects

/api/agentrequest/{id}
 GET: Returns Agent Request matching supplied ID
 RETURNS: Serialized Agent Request Object
```

Deployment Group APIs – `/api/deploymentgroup`

```
/api/deploymentgroup/
 POST Data:
 {
     "io_domains": []
 }

 io_domains: List of Integer IODomain IDs to be queued for deployment
 note: Domains must be in applicable state, as per BUI rules.
 RETURNS: Serialized IODomain and Deployment Group Object

 HTTP 200 OK
 Allow: GET, POST, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 [
     {
  "id": 16,
  "io_domains": [
      {
   "id": 17,
   "state": 1,
   "state_str": "Queued for Deployment",
   "mgmt_hostname": "test"
      }
  ],
  "state_str": "Queued for Deployment",
  "state": 0,
  "created": "2018-05-12T13:18:20.965024Z",
  "owner": 2
     }
 ]

/api/deploymentgroup/
 GET: List All Deployment Groups
 RETURNS: Multiple Deployment Group Objects

 HTTP 200 OK
 Allow: GET, POST, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 [
     {
```

```
  "id": 16,
  "io_domains": [
      {
   "id": 17,
   "state": 1,
   "state_str": "Queued for Deployment",
   "mgmt_hostname": "test"
      }
  ],
  "state_str": "Queued for Deployment",
  "state": 0,
  "created": "2018-05-12T13:18:20.965024Z",
  "owner": 2
     },
     {
        ...
     }
 ]

/api/deploymentgroup/{id}/
 GET: Returns Deployment Group with supplied ID.
 RETURNS: Deployment Group Object

 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
     "id": 16,
     "io_domains": [
  {
      "id": 17,
      "state": 1,
      "state_str": "Queued for Deployment",
      "mgmt_hostname": "test"
  }
     ],
     "state_str": "Queued for Deployment",
     "state": 0,
     "created": "2018-05-12T13:18:20.965024Z",
     "owner": 2
 }
```

Domain Type APIs – `/api/flavour`

```
/api/flavour/
 GET: Returns all IO Domain Flavours (Domain Types)
 RETURNS: Multiple Serialized Flavour Objects

 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 [
     {
  "id": 1,
  "description": "My Database Domain",
  "disk_size": 150,
  "token": "db",
  "recipes": [
      {
   "id": 4,
   "name": "Small",
   "core_max": 2,
   "memory_max": 32,
   "ib_vf_max": 1,
   "xgb_vf_max": 2,
   "applies_to_all": true,
   "owner": 2,
   "active": true
      },
      {
   "id": 5,
   "name": "Medium",
   "core_max": 4,
   "memory_max": 64,
   "ib_vf_max": 1,
   "xgb_vf_max": 2,
   "applies_to_all": true,
   "owner": 2,
   "active": true
      },
      {
   "id": 6,
   "name": "Large",
   "core_max": 8,
   "memory_max": 128,
   "ib_vf_max": 1,
   "xgb_vf_max": 2,
   "applies_to_all": true,
   "owner": 2,
   "active": true
```

```
    }
]
   },
   {
"id": 3,
"description": "Solaris 11 Application Domain",
"disk_size": 100,
"token": "11",
"recipes": [
    {
 "id": 1,
 "name": "Small",
 "core_max": 2,
 "memory_max": 32,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    },
    {
 "id": 2,
 "name": "Medium",
 "core_max": 4,
 "memory_max": 64,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    },
    {
 "id": 3,
 "name": "Large",
 "core_max": 8,
 "memory_max": 128,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    }
]
   },
   {
"id": 4,
"description": "My Database Zone Domain",
"disk_size": 100,
```

```
  "token": "dbz",
  "recipes": []
     }
 ]

/api/flavour/{id}/
 GET: Returns IO Domain Flavour which matches supplied ID
 RETURNS: Serialized Flavour Object

 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
     "id": 1,
     "description": "My Database Domain",
     "disk_size": 150,
     "token": "db",
     "recipes": [
  {
      "id": 4,
      "name": "Small",
      "core_max": 2,
      "memory_max": 32,
      "ib_vf_max": 1,
      "xgb_vf_max": 2,
      "applies_to_all": true,
      "owner": 2,
      "active": true
  },
  {
      "id": 5,
      "name": "Medium",
      "core_max": 4,
      "memory_max": 64,
      "ib_vf_max": 1,
      "xgb_vf_max": 2,
      "applies_to_all": true,
      "owner": 2,
      "active": true
  },
  {
      "id": 6,
      "name": "Large",
      "core_max": 8,
      "memory_max": 128,
      "ib_vf_max": 1,
```

```
      "xgb_vf_max": 2,
      "applies_to_all": true,
      "owner": 2,
      "active": true
  }
     ]
 }
```

Health Report APIs – `/api/health/reports/`

```
/api/health/reports/
 GET: Returns all Health Monitor Reports
 RETURNS: Multiple Serialized Health Monitor Objects (can take a while)

 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 [
     {
  "id": 1,
  "records": [
      {
   "id": 2,
   "state_str": "Pass",
   "state": 0,
   "date_run": "2018-04-29T14:09:50.390554Z",
   "result_text": "{\"results\": []}",
   "resolved": true,
   "date_resolved": "2018-04-29T14:09:50.390142Z",
   "sanity_check": 3,
   "resolved_by": null
      },
      {
   "id": 3,
   "state_str": "Pass",
   "state": 0,
   "date_run": "2018-04-29T14:10:04.898457Z",
   "result_text": "{\"results\": []}",
   "resolved": true,
   "date_resolved": "2018-04-29T14:10:04.897516Z",
   "sanity_check": 13,
   "resolved_by": null
      }
```

```
    }
 ]

/api/health/latest/
 GET: Returns the latest Health Monitor Report
 RETURNS: Serialized Health Monitor Object

 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
 "id": 1,
 "records": [
     {
  "id": 2,
  "state_str": "Pass",
  "state": 0,
  "date_run": "2018-04-29T14:09:50.390554Z",
  "result_text": "{\"results\": []}",
  "resolved": true,
  "date_resolved": "2018-04-29T14:09:50.390142Z",
  "sanity_check": 3,
  "resolved_by": null
     },
     {
  "id": 3,
  "state_str": "Pass",
  "state": 0,
  "date_run": "2018-04-29T14:10:04.898457Z",
  "result_text": "{\"results\": []}",
  "resolved": true,
  "date_resolved": "2018-04-29T14:10:04.897516Z",
  "sanity_check": 13,
  "resolved_by": null
     }
 }
```

Install Bundle APIs – `/api/install_bundle/`

```
/api/install_bundle/
 GET: Return All Install Bundles (Solaris Large Server/Solaris Minimal Server)
 RETURNS: Multiple Serialized Install Bundle Objects
```

```
 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
     "id": 1,
     "description": "Solaris Minimal Server",
     "identifier": "solaris-minimal-server",
     "active": true
 }

/api/install_bundle/{id}/
 GET: Return the Bundle which matches supplied ID
 RETURNS: Serialized Install Bundle Object

 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 [
     {
  "id": 1,
  "description": "Solaris Minimal Server",
  "identifier": "solaris-minimal-server",
  "active": true
     },
     {
  "id": 2,
  "description": "Solaris Large Server",
  "identifier": "solaris-large-server",
  "active": true
     }
 ]
```

I/O Domain APIs – `/api/iodomain/`

```
/api/iodomain/
 GET: Return all IODomains which the user has permission to see
 RETURNS: Multiple Serialized IO Domain Objects

 HTTP 200 OK
 Allow: GET, DELETE, HEAD, OPTIONS
 Content-Type: application/json
```

```
 Vary: Accept
[
 {
     "id": 1,
     "mgmt_ips": [],
     "ten_g_ips": [],
     "zfs_ib_ips": [],
     "exa_ib_ips": [],
     "vip_ips": [],
     "resource_allocation": {
  "id": 1,
  "cores": [],
  "memory": [],
  "virtual_functions": [],
  "iodrae_token": "-3406869841"
     },
     "flavour": {
  "id": 1,
  "description": "My Database Domain",
  "disk_size": 150,
  "token": "db",
  "recipes": [
      {
   "id": 4,
   "name": "Small",
   "core_max": 2,
   "memory_max": 32,
   "ib_vf_max": 1,
   "xgb_vf_max": 2,
   "applies_to_all": true,
   "owner": 2,
   "active": true
      },
      {
   "id": 5,
   "name": "Medium",
   "core_max": 4,
   "memory_max": 64,
   "ib_vf_max": 1,
   "xgb_vf_max": 2,
   "applies_to_all": true,
   "owner": 2,
   "active": true
      },
      {
   "id": 6,
   "name": "Large",
   "core_max": 8,
```

```
 "memory_max": 128,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    }
]
   },
   "state_str": "Destroyed Domain",
   "recipe": {
"id": 4,
"name": "Small",
"core_max": 2,
"memory_max": 32,
"ib_vf_max": 1,
"xgb_vf_max": 2,
"applies_to_all": true,
"owner": 2,
"active": true
   },
   "root_domains": [
{
    "mgmt_hostname": "mysys"
}
   ],
   "iodomainlog_set": [
{
    "id": 1,
    "level": "info",
    "message": "Creation of IO Domain Started.",
    "created": "2018-04-29T15:44:52.708954Z",
    "io_domain": 1
},
{
    "id": 2,
    "level": "info",
    "message": "Resources Allocated. Domain is ready for deployment.",
    "created": "2018-04-29T15:44:52.709522Z",
    "io_domain": 1
},
{
    "id": 3,
    "level": "info",
    "message": "IO Domain Released",
    "created": "2018-04-29T16:02:46.719994Z",
    "io_domain": 1
}
```

```
    ],
    "rac_cluster_id": -1,
    "state": -7,
    "root_domain_num": 1,
    "owner": 2
 },
 ...
 ...
]

/api/iodomain/by_hostname/{hostname}/
 GET: Return the IODomain whose Management Hostname matches the supplied Hostname
 RETURNS: Serialized IO Domain Object

 HTTP 200 OK
 Allow: GET, DELETE, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
    "id": 1,
    "mgmt_ips": [],
    "ten_g_ips": [],
    "zfs_ib_ips": [],
    "exa_ib_ips": [],
    "vip_ips": [],
    "resource_allocation": {
  "id": 1,
  "cores": [],
  "memory": [],
  "virtual_functions": [],
  "iodrae_token": "-3406869841"
    },
    "flavour": {
  "id": 1,
  "description": "My Database Domain",
  "disk_size": 150,
  "token": "db",
  "recipes": [
     {
   "id": 4,
   "name": "Small",
   "core_max": 2,
   "memory_max": 32,
   "ib_vf_max": 1,
   "xgb_vf_max": 2,
   "applies_to_all": true,
   "owner": 2,
```

```
 "active": true
    },
    {
 "id": 5,
 "name": "Medium",
 "core_max": 4,
 "memory_max": 64,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    },
    {
 "id": 6,
 "name": "Large",
 "core_max": 8,
 "memory_max": 128,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    }
]
   },
   "state_str": "Destroyed Domain",
   "recipe": {
"id": 4,
"name": "Small",
"core_max": 2,
"memory_max": 32,
"ib_vf_max": 1,
"xgb_vf_max": 2,
"applies_to_all": true,
"owner": 2,
"active": true
   },
   "root_domains": [
{
    "mgmt_hostname": "mysysmgt"
}
   ],
   "iodomainlog_set": [
{
    "id": 1,
    "level": "info",
    "message": "Creation of IO Domain Started.",
```

```
        "created": "2018-04-29T15:44:52.708954Z",
        "io_domain": 1
    },
    {
        "id": 2,
        "level": "info",
        "message": "Resources Allocated. Domain is ready for deployment.",
        "created": "2018-04-29T15:44:52.709522Z",
        "io_domain": 1
    },
    {
        "id": 3,
        "level": "info",
        "message": "IO Domain Released",
        "created": "2018-04-29T16:02:46.719994Z",
        "io_domain": 1
    }
       ],
       "rac_cluster_id": -1,
       "state": -7,
       "root_domain_num": 1,
       "owner": 2
}
```

I/O Domain Deletion APIs – `/api/iodomain/`*id*`/`

```
/api/iodomain/{id}/
 DELETE: Queue the IODomain with supplied ID for destruction.
 RETURNS: Serialized Deletion Queue Object

 HTTP 200 OK
 Allow: GET, DELETE, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
     "id": 1,
     "mgmt_ips": [],
     "ten_g_ips": [],
     "zfs_ib_ips": [],
     "exa_ib_ips": [],
     "vip_ips": [],
     "resource_allocation": {
  "id": 1,
```

```
"cores": [],
"memory": [],
"virtual_functions": [],
"iodrae_token": "-3406869841"
   },
   "flavour": {
"id": 1,
"description": "My Database Domain",
"disk_size": 150,
"token": "db",
"recipes": [
    {
 "id": 4,
 "name": "Small",
 "core_max": 2,
 "memory_max": 32,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    },
    {
 "id": 5,
 "name": "Medium",
 "core_max": 4,
 "memory_max": 64,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    },
    {
 "id": 6,
 "name": "Large",
 "core_max": 8,
 "memory_max": 128,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    }
]
   },
   "state_str": "Destroyed Domain",
   "recipe": {
```

```
  "id": 4,
  "name": "Small",
  "core_max": 2,
  "memory_max": 32,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     },
     "root_domains": [
  {
      "mgmt_hostname": "mysysmgt"
  }
     ],
     "iodomainlog_set": [
  {
      "id": 1,
      "level": "info",
      "message": "Creation of IO Domain Started.",
      "created": "2018-04-29T15:44:52.708954Z",
      "io_domain": 1
  },
  {
      "id": 2,
      "level": "info",
      "message": "Resources Allocated. Domain is ready for deployment.",
      "created": "2018-04-29T15:44:52.709522Z",
      "io_domain": 1
  },
  {
      "id": 3,
      "level": "info",
      "message": "IO Domain Released",
      "created": "2018-04-29T16:02:46.719994Z",
      "io_domain": 1
  }
     ],
     "rac_cluster_id": -1,
     "state": -7,
     "root_domain_num": 1,
     "owner": 2
 }
```


```
/api/iodomain/{id}
 GET: Return the IODomain which matches supplied ID
 RETURNS: Serialized IODomain Object
```

```
HTTP 200 OK
Allow: GET, DELETE, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept

{
    "id": 1,
    "mgmt_ips": [],
    "ten_g_ips": [],
    "zfs_ib_ips": [],
    "exa_ib_ips": [],
    "vip_ips": [],
    "resource_allocation": {
 "id": 1,
 "cores": [],
 "memory": [],
 "virtual_functions": [],
 "iodrae_token": "-3406869841"
    },
    "flavour": {
 "id": 1,
 "description": "My Database Domain",
 "disk_size": 150,
 "token": "db",
 "recipes": [
     {
  "id": 4,
  "name": "Small",
  "core_max": 2,
  "memory_max": 32,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     },
     {
  "id": 5,
  "name": "Medium",
  "core_max": 4,
  "memory_max": 64,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     },
```

```
    {
 "id": 6,
 "name": "Large",
 "core_max": 8,
 "memory_max": 128,
 "ib_vf_max": 1,
 "xgb_vf_max": 2,
 "applies_to_all": true,
 "owner": 2,
 "active": true
    }
]
   },
   "state_str": "Destroyed Domain",
   "recipe": {
"id": 4,
"name": "Small",
"core_max": 2,
"memory_max": 32,
"ib_vf_max": 1,
"xgb_vf_max": 2,
"applies_to_all": true,
"owner": 2,
"active": true
   },
   "root_domains": [
{
    "mgmt_hostname": "mysysmgt"
}
   ],
   "iodomainlog_set": [
{
    "id": 1,
    "level": "info",
    "message": "Creation of IO Domain Started.",
    "created": "2018-04-29T15:44:52.708954Z",
    "io_domain": 1
},
{
    "id": 2,
    "level": "info",
    "message": "Resources Allocated. Domain is ready for deployment.",
    "created": "2018-04-29T15:44:52.709522Z",
    "io_domain": 1
},
{
    "id": 3,
    "level": "info",
```

```
      "message": "IO Domain Released",
      "created": "2018-04-29T16:02:46.719994Z",
      "io_domain": 1
  }
     ],
     "rac_cluster_id": -1,
     "state": -7,
     "root_domain_num": 1,
     "owner": 2
 }


/api/iodomain/{id}/action/{action}/
 GET: Start/Stop an Iodomain which matches the supplied ID
 Args: action = 'start' or 'stop'
 RETURNS: Serialized AgentRequest object

/api/iodomain/{id}/freeze/
 POST: Freeze IODomain which matches the supplied ID
 RETURNS: Serialized IODomain Freeze Queue Entry/Deployment Group

/api/iodomain/{id}/thaw/
 PUT: Thaw IODomain which matches the supplied ID
 INPUT: physical_domain: <id> #PDOM On which to thaw
 RETURNS: Serialized IODomain Thaw Queue Entry

/api/iodomain/create/
 POST: Allocate one or many IODomains and their ScanAddressGroups
 INPUT: Expanded in Auxilliary file
 EXAMPLE INPUT:
 {
     "domains": [
  {
      "compute_node": 1,
      "flavour_token": "db",
      "rac_cluster_id": 10,
      "mgmt_hostname": "mysysmgt",
      "network_recipe_id": 1,
      "recipe_id": 4
  }
     ]
 }

 RETURNS: Complex Serializer containing IODomains and Scan Address Group Objects

 HTTP 201 Created
 Allow: POST, OPTIONS
 Content-Type: application/json
```

```
Vary: Accept

{
    "domains": [
 {
     "id": 1,
     "compute_node": 1,
     "mgmt_network_id": 6,
     "mgmt_hostname": "mysysmgt",
     "mgmt_ipaddr": "nnn.nnn.nnn.35",
     "teng_network_id": 7,
     "teng_hostname": "mysys-client",
     "teng_ipaddr": "nnn.nnn.nnn.4",
     "stor_ib_network_id": 8,
     "stor_ib_hostname": "mysys-storib",
     "stor_ib_ipaddr": "nnn.nnn.nnnnnn.nnn.nnn.9",
     "exa_priv_network_id": 9,
     "exa_priv_hostname": "mysys-priv1",
     "exa_priv_ipaddr": "nnn.nnn.nnn.7",
     "vip_hostname": "mysys-vip",
     "vip_ipaddr": "nnn.nnn.nnn.5",
     "primary_hostname": "mysys",
     "flavour_id": 1,
     "flavour_token": "db",
     "install_bundle_id": 2,
     "install_bundle_name": "solaris-large-server",
     "rac_cluster_id": 10,
     "network_recipe": {
  "domain_name": "us.example.com",
  "name_servers": "nnn.nnn.nnn.197 nnn.nnn.nnn.198",
  "time_servers": "nnn.nnn.nnn.1 nnn.nnn.nnn.nnn.nnn.nnn.1",
  "time_zone": "America/Los_Angeles"
     },
     "recipe": {
  "core_max": 2,
  "memory_max": 32,
  "ib_vf_max": 1,
  "xgb_vf_max": 2
     }
 }
    ],
    "scan_address_groups": [
 {
     "id": 1,
     "scan_addresses": [
  {
      "ip_address": "nnn.nnn.nnn.6"
  },
```

```
    {
        "ip_address": "nnn.nnn.nnn.7"
    },
    {
        "ip_address": "nnn.nnn.nnn.8"
    }
       ],
       "scan_hostname": "io-scan-1",
       "rac_cluster_id": 10
  }
      ],
      "deployment_group": null
 }

/api/iodomain/create_and_deploy/
 POST: Create one or many IODomains and their ScanAddressGroups and
       return their Deployment Queue Objects
 INPUT: Expanded in attached file
 EXAMPLE INPUT:
  {
      "domains": [
    {
        "compute_node": 1,
        "exa_priv_hostname": "mysys-priv1",
        "flavour_token": "db",
        "rac_cluster_id": 10,
        "install_bundle_name": "solaris-minimal-server",
        "mgmt_hostname": "mysysmgt",
        "network_recipe": {
     "domain_name": "us.example.com",
     "gateway": "nnn.nnn.nnn.1",
     "name_servers": "nnn.nnn.nnn.197 nnn.nnn.nnn.198",
     "time_servers": "nnn.nnn.nnn.1 nnn.nnn.nnn.nnn.nnn.nnn.1",
     "time_zone": "America/Los_Angeles"
        },
        "primary_hostname": "mysys.us.example.com",
        "recipe_id": 4,
        "teng_hostname": "mysys-client",
        "vip_hostname": "mysys-vip"
    }
       ]
  }


 RETURNS: Complex Serializer containing IODomains and Scan Address Group Objects and
   created IODomain Deployment Group objects

 HTTP 201 Created
```

```
Allow: POST, OPTIONS
Content-Type: application/json
Vary: Accept

{
    "domains": [
 {
     "id": 2,
     "compute_node": 1,
     "mgmt_network_id": 6,
     "mgmt_hostname": "mysys46",
     "mgmt_ipaddr": "nnn.nnn.nnn.36",
     "teng_network_id": 7,
     "teng_hostname": "mysys-client",
     "teng_ipaddr": "nnn.nnn.nnn.9",
     "stor_ib_network_id": 8,
     "stor_ib_hostname": "mysys-storib",
     "stor_ib_ipaddr": "nnn.nnn.nnn.10",
     "exa_priv_network_id": 9,
     "exa_priv_hostname": "mysys-priv1",
     "exa_priv_ipaddr": "nnn.nnn.nnn.8",
     "vip_hostname": "mysys-vip",
     "vip_ipaddr": "nnn.nnn.nnn.10",
     "primary_hostname": "mysys",
     "flavour_id": 1,
     "flavour_token": "db",
     "install_bundle_id": 2,
     "install_bundle_name": "solaris-large-server",
     "rac_cluster_id": 10,
     "network_recipe": {
  "domain_name": "us.example.com",
  "name_servers": "nnn.nnn.nnn.nnn.nnn.nnn.198",
  "time_servers": "nnn.nnn.nnn.1 nnn.nnn.nnn.nnn.nnn.nnn.1",
  "time_zone": "America/Los_Angeles"
     },
     "recipe": {
  "core_max": 2,
  "memory_max": 32,
  "ib_vf_max": 1,
  "xgb_vf_max": 2
     }
 }
    ],
    "scan_address_groups": [
 {
     "id": 1,
     "scan_addresses": [
  {
```

```
        "ip_address": "nnn.nnn.nnn.6"
    },
    {
        "ip_address": "nnn.nnn.nnn.7"
    },
    {
        "ip_address": "nnn.nnn.nnn.8"
    }
       ],
       "scan_hostname": "io-scan-1",
       "rac_cluster_id": 10
  }
     ],
     "deployment_group": {
  "id": 1,
  "io_domains": [
      {
   "id": 2,
   "state": 1,
   "state_str": "Queued for Deployment",
   "mgmt_hostname": "mysys46"
      }
  ],
  "state_str": "Queued for Deployment",
  "state": 0,
  "created": "2018-05-12T13:31:13.217440Z",
  "owner": 2
     }
 }
```

IP Address APIs – `/api/ip_address/`*id*`/`

```
/api/ip_address/{id}/
 GET: Return IP Address object whose ID matches supplied ID
 RETURNS: Multiple Serialized IPAddress Objects

 {
   "id": 1,
   "ip_address": "nnn.nnn.nnn.26",
   "hostname": "mysys-sp0",
   "allocated": true,
   "allocated_at_setup": true,
   "is_scan": false,
   "is_gateway": false,
   "order_weight": 1,
```

```
  "network": 1,
  "tag": null
}
```

Network APIs – `/api/network/`

```
/api/network/
 GET: Returns All Networks
 RETURNS: Multiple Serialized Network Objects

 [
   {
     "id": 6,
     "start_address": "nnn.nnn.nnn.35",
     "end_address": "nnn.nnn.nnn.64",
     "netmask": "255.255.255.0",
     "default_route": "nnn.nnn.nnn.254",
     "network_identifier": {
       "id": 1,
       "display_name": "Management Network",
       "internal_name": "management",
       "description": "The Management (1Gb) Network",
       "routable": true
     },
     "applies_to_all": true,
     "accessible_users": [],
     "accessible_groups": [
       6
     ],
     "ipaddress_set": [
       {
  "ip_address": "nnn.nnn.nnn.35",
  "hostname": null,
  "is_scan": false,
  "allocated": false
       },
     ...
 ]

/api/network/
 POST Data:
 {
     "start_address": "nnn.nnn.nnn.1",
     "end_address": "nnn.nnn.nnn.120", #optional
     "netmask": "255.255.255.0",
```

```
    "default_route": "nnn.nnn.nnn.1", #optional for non-routable nets
    "network_identifier": 1,
    "applies_to_all": false,
    "accessible_users": [],
    "accessible_groups": []
}

network_identifier: Id of a Network Identifier
 - Note NetworkIdentifier Retrieval REST Interface not
  yet available. Use manual mapping

accessible_users: List of User ID's
       accessible_groups: Ignored currently

RETURNS: Serialized Network Object

  {
    "id": 6,
    "start_address": "nnn.nnn.nnn.35",
    "end_address": "nnn.nnn.nnn.64",
    "netmask": "255.255.255.0",
    "default_route": "nnn.nnn.nnn.254",
    "network_identifier": {
      "id": 1,
      "display_name": "Management Network",
      "internal_name": "management",
      "description": "The Management (1Gb) Network",
      "routable": true
    },
    "applies_to_all": true,
    "accessible_users": [],
    "accessible_groups": [
      6
    ],
    "ipaddress_set": [
      {
 "ip_address": "nnn.nnn.nnn.35",
 "hostname": null,
 "is_scan": false,
 "allocated": false
      },
    ...
  }

/api/network/{id}/
 GET: Returns a serialized network instance which matches supplied ID
 Not Found: Should return 404
```

```
RETURNS: Serialized Network Object
{
    "id": 6,
    "start_address": "nnn.nnn.nnn.35",
    "end_address": "nnn.nnn.nnn.64",
    "netmask": "255.255.255.0",
    "default_route": "nnn.nnn.nnn.254",
    "network_identifier": {
      "id": 1,
      "display_name": "Management Network",
      "internal_name": "management",
      "description": "The Management (1Gb) Network",
      "routable": true
    },
    "applies_to_all": true,
    "accessible_users": [],
    "accessible_groups": [
      6
    ],
    "ipaddress_set": [
      {
 "ip_address": "nnn.nnn.nnn.35",
 "hostname": null,
 "is_scan": false,
 "allocated": false
      },
    ...
  }
```

Network Recipe APIs – `/api/network/recipe/`

```
/api/network/recipe/
 GET: Return all Network Recipe Objects
 RETURNS: Serialized Network Recipe Object

 HTTP 200 OK
    Allow: GET, POST, HEAD, OPTIONS
    Content-Type: application/json
    Vary: Accept
    [
    {
        "id": 1,
        "name": "default",
        "domain_name": "us.example.com",
        "name_servers": "nnn.nnn.nnn.197 nnn.nnn.nnn.198 nnn.nnn.nnn.132",
```

```
        "time_servers": "nnn.nnn.nnn.1",
        "time_zone": "America/Los_Angeles",
        "applies_to_all": true,
        "active": true,
        "owner": 2
    },
    ...
    ...
    ]


/api/network/recipe/
 POST: Create a new Network Recipe
 POST Data:
 {
     "name": "",
     "domain_name": "",
     "name_servers": "",
     "time_servers": "",
     "time_zone": "",
     "applies_to_all": false, # default
     "active": false,
     "users": []
 }
 users: list of user id's who may access this network
 RETURNS: Serialized New Network Recipe Object

/api/network/recipe/{id}/
 DELETE: Delete a Network Recipe with supplied ID

/api/network/recipe/{id}/
 GET: Get a Network Recipe with supplied ID
 RETURNS: Serialized Network Recipe Object
 {
   "id": 1,
   "name": "Small",
   "core_max": 2,
   "memory_max": 32,
   "ib_vf_max": 1,
   "xgb_vf_max": 2,
   "applies_to_all": true,
   "owner": 2,
   "active": true
 }

/api/network/recipe/{id}/
 PUT: Modify a network recipe with the supplied ID
 POST Data:
```

```
{
    "id": "",
    "name": "",
    "domain_name": "",
    "name_servers": "",
    "time_servers": "",
    "time_zone": "",
    "applies_to_all": false, # default
    "active": false,
    "users": []
}
users: list of user id's who may access this network
RETURNS: Serialized Modified Network Recipe
{
  "id": 1,
  "name": "Small",
  "core_max": 2,
  "memory_max": 32,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
}
```

Physical Domain APIs – `/api/physicaldomain/`

```
/api/physicaldomain/
 GET: Return all PhysicalDomain (PDOM) Objects
 RETURNS: Multiple Serialized Physical Domain Objects
 [
   {
     "id": 1,
     "internal_name": "ssccn1",
     "guests": [
       {
  "id": 1,
  "internal_name": "primary",
  "host_os": "s11",
  "host_type": "root",
  "physical_type": "guest",
  "virtual_type": "ldom",
  "state": 400,
  "primary_interface": "mgmt",
  "is_control_domain": true,
```

```
"is_master_control_domain": true,
"is_service_domain": false,
"rac_id": null,
"active": true,
"sanity_target": true,
"physical_position_index": null,
"timing": null,
"net_config": 1,
"mgmt_interfaces": [
  6
],
"client_interfaces": [
  8
],
"zfs_ib_interfaces": [
  7
],
"exa_ib_interfaces": [],
"vip_interfaces": [],
"versaboot_interfaces": [
  9,
  10
],
"ilom_interfaces": [],
"memory": [],
"cores": [],
"physical_functions": [],
"root_complexes": [
  1,
  2,
  3,
  4,
  5,
  6
],
"variables": [],
"accessible_groups": [],
"accessible_users": [],
"io_domains": [],
"vms": []
     },
     {
"id": 2,
"internal_name": "ssccn1-dom1",
"host_os": "s11",
"host_type": "root",
"physical_type": "guest",
"virtual_type": "ldom",
```

```
"state": 400,
"primary_interface": "mgmt",
"is_control_domain": false,
"is_master_control_domain": false,
"is_service_domain": true,
"rac_id": null,
"active": true,
"sanity_target": true,
"physical_position_index": null,
"timing": null,
"net_config": 2,
"mgmt_interfaces": [
  11
],
"client_interfaces": [],
"zfs_ib_interfaces": [
  12
],
"exa_ib_interfaces": [],
"vip_interfaces": [],
"versaboot_interfaces": [
  13,
  14
],
"ilom_interfaces": [],
"memory": [],
"cores": [],
"physical_functions": [],
"root_complexes": [
  8,
  9,
  10,
  7
],
"variables": [],
"accessible_groups": [],
"accessible_users": [],
"io_domains": [],
"vms": []
     }
   ]
 },
 {
   "id": 2,
   "internal_name": "ssccn3",
   "guests": [
     {
"id": 3,
```

```
"internal_name": "primary",
"host_os": "s11",
"host_type": "root",
"physical_type": "guest",
"virtual_type": "ldom",
"state": 400,
"primary_interface": "mgmt",
"is_control_domain": true,
"is_master_control_domain": false,
"is_service_domain": false,
"rac_id": null,
"active": true,
"sanity_target": true,
"physical_position_index": null,
"timing": null,
"net_config": 3,
"mgmt_interfaces": [
  19
],
"client_interfaces": [],
"zfs_ib_interfaces": [
  20
],
"exa_ib_interfaces": [],
"vip_interfaces": [],
"versaboot_interfaces": [
  21,
  22
],
"ilom_interfaces": [],
"memory": [],
"cores": [],
"physical_functions": [],
"root_complexes": [
  1,
  2,
  3,
  4,
  5,
  6
],
"variables": [],
"accessible_groups": [],
"accessible_users": [],
"io_domains": [],
"vms": []
     },
     {
```

```
"id": 4,
"internal_name": "ssccn3-dom1",
"host_os": "s11",
"host_type": "root",
"physical_type": "guest",
"virtual_type": "ldom",
"state": 400,
"primary_interface": "mgmt",
"is_control_domain": false,
"is_master_control_domain": false,
"is_service_domain": true,
"rac_id": null,
"active": true,
"sanity_target": true,
"physical_position_index": null,
"timing": null,
"net_config": 4,
"mgmt_interfaces": [
  23
],
"client_interfaces": [],
"zfs_ib_interfaces": [
  24
],
"exa_ib_interfaces": [],
"vip_interfaces": [],
"versaboot_interfaces": [
  25,
  26
],
"ilom_interfaces": [],
"memory": [],
"cores": [],
"physical_functions": [],
"root_complexes": [
  8,
  9,
  10,
  7
],
"variables": [],
"accessible_groups": [],
"accessible_users": [],
"io_domains": [],
"vms": []
     }
   ]
 },
```

```
 {
   "id": 3,
   "internal_name": "ssccn4",
   "guests": [
     {
"id": 5,
"internal_name": "primary",
"host_os": "s11",
"host_type": "root",
"physical_type": "guest",
"virtual_type": "ldom",
"state": 400,
"primary_interface": "mgmt",
"is_control_domain": true,
"is_master_control_domain": false,
"is_service_domain": false,
"rac_id": null,
"active": true,
"sanity_target": true,
"physical_position_index": null,
"timing": null,
"net_config": 5,
"mgmt_interfaces": [
  28
],
"client_interfaces": [],
"zfs_ib_interfaces": [
  29
],
"exa_ib_interfaces": [],
"vip_interfaces": [],
"versaboot_interfaces": [
  30,
  31
],
"ilom_interfaces": [],
"memory": [],
"cores": [],
"physical_functions": [],
"root_complexes": [
  11,
  12,
  13,
  14,
  15,
  16
],
"variables": [],
```

```
"accessible_groups": [],
"accessible_users": [],
"io_domains": [],
"vms": []
     },
     {
"id": 6,
"internal_name": "ssccn4-dom1",
"host_os": "s11",
"host_type": "root",
"physical_type": "guest",
"virtual_type": "ldom",
"state": 400,
"primary_interface": "mgmt",
"is_control_domain": false,
"is_master_control_domain": false,
"is_service_domain": true,
"rac_id": null,
"active": true,
"sanity_target": true,
"physical_position_index": null,
"timing": null,
"net_config": 6,
"mgmt_interfaces": [
  32
],
"client_interfaces": [],
"zfs_ib_interfaces": [
  33
],
"exa_ib_interfaces": [],
"vip_interfaces": [],
"versaboot_interfaces": [
  34,
  35
],
"ilom_interfaces": [],
"memory": [],
"cores": [],
"physical_functions": [],
"root_complexes": [
  17,
  18,
  19,
  20
],
"variables": [],
"accessible_groups": [],
```

```
  "accessible_users": [],
  "io_domains": [],
  "vms": []
       }
     ]
   }
 ]
```


I/O Domain Recipe APIs – `/api/recipe/`


```
/api/recipe/
 GET: Return All IODomain Recipe Objects
 RETURNS: Multiple Serialized Recipe Objects

 HTTP 200 OK
 Allow: GET, POST, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 [
     {
  "id": 1,
  "name": "Small",
  "core_max": 2,
  "memory_max": 32,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     },
     {
  "id": 2,
  "name": "Medium",
  "core_max": 4,
  "memory_max": 64,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     },
     {
  "id": 3,
  "name": "Large",
```

```
  "core_max": 8,
  "memory_max": 128,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     },
     {
  "id": 4,
  "name": "Small",
  "core_max": 2,
  "memory_max": 32,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     },
     {
  "id": 5,
  "name": "Medium",
  "core_max": 4,
  "memory_max": 64,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     },
     {
  "id": 6,
  "name": "Large",
  "core_max": 8,
  "memory_max": 128,
  "ib_vf_max": 1,
  "xgb_vf_max": 2,
  "applies_to_all": true,
  "owner": 2,
  "active": true
     }
 ]
/api/recipe/
 POST: Create a new recipe
 DATA: {
     "name": "",
     "core_max": null,
     "memory_max": null,
```

```
        "ib_vf_max": null,
        "xgb_vf_max": null,
        "applies_to_all": false,
        "owner": null,
        "active": false
    }
    owner: ID of user who will own this recipe. Defaults to current user.
    RETURNS: Serialized Recipe Object

    HTTP 200 OK
    Allow: GET, PUT, DELETE, HEAD, OPTIONS
    Content-Type: application/json
    Vary: Accept

    {
        "id": 1,
        "name": "Small",
        "core_max": 2,
        "memory_max": 32,
        "ib_vf_max": 1,
        "xgb_vf_max": 2,
        "applies_to_all": true,
        "owner": 2,
        "active": true
    }

   /api/recipe/{id}/
    DELETE: Deletes the Recipe whose ID matches supplied ID

   /api/recipe/{id}/
    GET: Get the Recipe whose ID matches Supplied ID
    RETURNS: Serialized Recipe Object
    HTTP 200 OK
    Allow: GET, PUT, DELETE, HEAD, OPTIONS
    Content-Type: application/json
    Vary: Accept

    {
        "id": 1,
        "name": "Small",
        "core_max": 2,
        "memory_max": 32,
        "ib_vf_max": 1,
        "xgb_vf_max": 2,
        "applies_to_all": true,
        "owner": 2,
        "active": true
    }
```

```
/api/recipe/{id}/
 PUT: Update the Recipe whose ID matches Supplied ID
 DATA: {
     "id":"",
     "name": "",
     "core_max": null,
     "memory_max": null,
     "ib_vf_max": null,
     "xgb_vf_max": null,
     "applies_to_all": false,
     "owner": null,
     "active": false
 }
 RETURNS: Serialized Recipe Object
 HTTP 200 OK
 Allow: GET, PUT, DELETE, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
     "id": 1,
     "name": "Small",
     "core_max": 2,
     "memory_max": 32,
     "ib_vf_max": 1,
     "xgb_vf_max": 2,
     "applies_to_all": true,
     "owner": 2,
     "active": true
 }
```

Resource Allowance APIs –`/api/resourceallowance/`

```
/api/resourceallowance/
 GET: List all User Resource Allowances
 HTTP 200 OK
 Allow: GET, PUT, DELETE, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
     "id": "",
     "num_ib_vfs": null,
```

```
    "num_xgb_vfs": null,
    "num_fc_vfs": null,
    "num_cores": null,
    "mem_in_gb": null,
    "user": null
 }

/api/resourceallowance/
 POST: Create a User Resource Allowance
 DATA: {
    "num_ib_vfs": null,
    "num_xgb_vfs": null,
    "num_fc_vfs": null,
    "num_cores": null,
    "mem_in_gb": null,
    "user": null
 }

 user: id of the user to whom this allowance corresponds
 RETURNS: Serialized Resource Allowance Object

 HTTP 200 OK
 Allow: GET, PUT, DELETE, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 {
    "id": "",
    "num_ib_vfs": null,
    "num_xgb_vfs": null,
    "num_fc_vfs": null,
    "num_cores": null,
    "mem_in_gb": null,
    "user": null
 }
```

SCAN Address Group APIs – `/api/scan_address_group/`

```
/api/scan_address_group/
 GET: List All Scan Address Groups
 RETURNS: Multiple Serialized Scan Address Group Objects

/api/scan_address/group/{id}
 GET: Return ScanAddressGroup whose ID matches the supplied ID
```

```
 RETURNS: Serialized Scan Address Group Objects
```

System Log APIs – `/api/systemlog/`

```
/api/systemlog/
 GET: Return All SystemLog Entries (can take a while)
 RETURNS: Multiple Serialized System Log Objects

 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
 Content-Type: application/json
 Vary: Accept

 [
     {
  "id": 50,
  "level": "success",
  "message": "The user admin logged in successfully from nnn.nnn.nnn.99",
  "created": "2018-05-12T10:51:30.514744Z"
     },
     {
  "id": 49,
  "level": "success",
  "message": "System Configuration Import Complete.",
  "created": "2018-05-12T10:48:56.996620Z"
     },
     {
  "id": 48,
  "level": "info",
  "message": "Resource Discovery Complete.",
  "created": "2018-05-12T10:48:56.970266Z"
     }
     ...
 ]
```

User APIs – `/api/user/`

```
/api/user/
 GET: Return all Users
 RETURNS: Multiple Serialized Resource Allowance Objects

 HTTP 200 OK
 Allow: GET, HEAD, OPTIONS
```

```
Content-Type: application/json
Vary: Accept

[
    {
 "id": 2,
 "groups": [
     {
  "id": 1,
  "name": "network_1_owners"
     },
     {
  "id": 2,
  "name": "network_2_owners"
     },
     {
  "id": 3,
  "name": "network_3_owners"
     },
     {
  "id": 4,
  "name": "network_4_owners"
     },
     {
  "id": 5,
  "name": "network_5_owners"
     },
     {
  "id": 6,
  "name": "network_6_owners"
     },
     {
  "id": 7,
  "name": "network_7_owners"
     },
     {
  "id": 8,
  "name": "network_8_owners"
     },
     {
  "id": 9,
  "name": "network_9_owners"
     },
     {
  "id": 10,
  "name": "network_10_owners"
     }
 ],
```

```
  "username": "admin",
  "first_name": "Administrator",
  "last_name": "",
  "email": "example@example.com",
  "is_staff": true,
  "is_active": true,
  "user_permissions": []
     }
 ]

/api/user/{id}/resourceallowance/
 GET: Return the User Allowance for the User whose ID matches the supplied ID
 RETURNS: Serialized Resource Allowance Object

/api/user/{id}/resourceallowance/
 PUT: Update the Resource Allowance for the User whose ID matches the supplied ID
 DATA: {
     "num_ib_vfs": null,
     "num_xgb_vfs": null,
     "num_fc_vfs": null,
     "num_cores": null,
     "mem_in_gb": null
 }
 RETURNS: Serialized Resource Allowance Object
```

Zone List API – `/api/zone`

```
/api/zone/

 HTTP 200 OK
 Allow: GET
 Content-Type: application/json\
[
  {
    "id": 2,
    "mgmt_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.31",
        "hostname": "z1",
        "is_scan": false,
        "allocated": true
      }
    ],
    "client_interfaces": [
      {
```

```
    "ip_address": "nnn.nnn.nnn.215",
    "hostname": "z1-client1",
    "is_scan": false,
    "allocated": true
  },
  {
    "ip_address": "nnn.nnn.nnn.216",
    "hostname": "z1-client2",
    "is_scan": false,
    "allocated": true
  }
],
"zfs_ib_interfaces": [
  {
    "ip_address": "nnn.nnn.nnn.10",
    "hostname": "z1-storib",
    "is_scan": false,
    "allocated": true
  }
],
"exa_ib_interfaces": [
  {
    "ip_address": "nnn.nnn.nnn.13",
    "hostname": "z1-priv1",
    "is_scan": false,
    "allocated": true
  }
],
"vip_interfaces": [
  {
    "ip_address": "nnn.nnn.nnn.217",
    "hostname": "z1-vip",
    "is_scan": false,
    "allocated": true
  }
],
"versaboot_interfaces": [],
"state_str": "Configured",
"accessible_groups": [
  {
    "id": 27,
    "name": "vm_2_owners"
  }
],
"internal_name": "zone",
"host_os": "s11",
"host_type": "zone",
"physical_type": "guest",
```

```
    "virtual_type": "zone",
    "state": 350,
    "primary_interface": "mgmt",
    "is_control_domain": false,
    "is_master_control_domain": false,
    "is_service_domain": false,
    "rac_id": 10,
    "active": true,
    "sanity_target": false,
    "physical_position_index": null,
    "timing": null,
    "net_config": 7,
    "ilom_interfaces": [],
    "memory": [],
    "cores": [],
    "physical_functions": [],
    "root_complexes": [],
    "variables": [],
    "accessible_users": [],
    "io_domains": [
      22
    ]
  },
  {
    "id": 4,
    "mgmt_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.32",
        "hostname": "z2",
        "is_scan": false,
        "allocated": true
      }
    ],
    "client_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.225",
        "hostname": "z2-client",
        "is_scan": false,
        "allocated": true
      }
    ],
    "zfs_ib_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.11",
        "hostname": "z2-storib",
        "is_scan": false,
        "allocated": true
      }
```

```
  ],
  "exa_ib_interfaces": [
    {
      "ip_address": "nnn.nnn.nnn.15",
      "hostname": "z2-priv1",
      "is_scan": false,
      "allocated": true
    }
  ],
  "vip_interfaces": [
    {
      "ip_address": "nnn.nnn.nnn.226",
      "hostname": "z2-vip",
      "is_scan": false,
      "allocated": true
    }
  ],
  "versaboot_interfaces": [],
  "state_str": "Configured",
  "accessible_groups": [
    {
      "id": 29,
      "name": "vm_4_owners"
    }
  ],
  "internal_name": "zone",
  "host_os": "s11",
  "host_type": "zone",
  "physical_type": "guest",
  "virtual_type": "zone",
  "state": 350,
  "primary_interface": "mgmt",
  "is_control_domain": false,
  "is_master_control_domain": false,
  "is_service_domain": false,
  "rac_id": 10,
  "active": true,
  "sanity_target": false,
  "physical_position_index": null,
  "timing": null,
  "net_config": 9,
  "ilom_interfaces": [],
  "memory": [],
  "cores": [],
  "physical_functions": [],
  "root_complexes": [],
  "variables": [],
  "accessible_users": [],
```

```
    "io_domains": [
      31
    ]
  },
  {
    "id": 5,
    "mgmt_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.34",
        "hostname": "z3",
        "is_scan": false,
        "allocated": true
      }
    ],
    "client_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.227",
        "hostname": "z3-client1",
        "is_scan": false,
        "allocated": true
      },
      {
        "ip_address": "nnn.nnn.nnn.230",
        "hostname": "z3-client2",
        "is_scan": false,
        "allocated": true
      }
    ],
    "zfs_ib_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.13",
        "hostname": "z3-storib",
        "is_scan": false,
        "allocated": true
      }
    ],
    "exa_ib_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.17",
        "hostname": "z3-priv1",
        "is_scan": false,
        "allocated": true
      }
    ],
    "vip_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.231",
        "hostname": "z3-vip",
```

```
      "is_scan": false,
      "allocated": true
    }
  ],
  "versaboot_interfaces": [],
  "state_str": "Configured",
  "accessible_groups": [
    {
      "id": 30,
      "name": "vm_5_owners"
    }
  ],
  "internal_name": "zone",
  "host_os": "s11",
  "host_type": "zone",
  "physical_type": "guest",
  "virtual_type": "zone",
  "state": 350,
  "primary_interface": "mgmt",
  "is_control_domain": false,
  "is_master_control_domain": false,
  "is_service_domain": false,
  "rac_id": 5,
  "active": true,
  "sanity_target": false,
  "physical_position_index": null,
  "timing": null,
  "net_config": 10,
  "ilom_interfaces": [],
  "memory": [],
  "cores": [],
  "physical_functions": [],
  "root_complexes": [],
  "variables": [],
  "accessible_users": [],
  "io_domains": [
    22
  ]
},
{
  "id": 6,
  "mgmt_interfaces": [
    {
      "ip_address": "nnn.nnn.nnn.36",
      "hostname": "z4",
      "is_scan": false,
      "allocated": true
    }
```

```
],
"client_interfaces": [
  {
    "ip_address": "nnn.nnn.nnn.235",
    "hostname": "z4-client",
    "is_scan": false,
    "allocated": true
  }
],
"zfs_ib_interfaces": [
  {
    "ip_address": "nnn.nnn.nnn.15",
    "hostname": "z4-storib",
    "is_scan": false,
    "allocated": true
  }
],
"exa_ib_interfaces": [
  {
    "ip_address": "nnn.nnn.nnn.18",
    "hostname": "z4-priv1",
    "is_scan": false,
    "allocated": true
  }
],
"vip_interfaces": [
  {
    "ip_address": "nnn.nnn.nnn.236",
    "hostname": "z4-vip",
    "is_scan": false,
    "allocated": true
  }
],
"versaboot_interfaces": [],
"state_str": "Configured",
"accessible_groups": [
  {
    "id": 31,
    "name": "vm_6_owners"
  }
],
"internal_name": "zone",
"host_os": "s11",
"host_type": "zone",
"physical_type": "guest",
"virtual_type": "zone",
"state": 350,
"primary_interface": "mgmt",
```

```
    "is_control_domain": false,
    "is_master_control_domain": false,
    "is_service_domain": false,
    "rac_id": 5,
    "active": true,
    "sanity_target": false,
    "physical_position_index": null,
    "timing": null,
    "net_config": 11,
    "ilom_interfaces": [],
    "memory": [],
    "cores": [],
    "physical_functions": [],
    "root_complexes": [],
    "variables": [],
    "accessible_users": [],
    "io_domains": [
      31
    ]
  },
  {
    "id": 7,
    "mgmt_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.42",
        "hostname": "z22",
        "is_scan": false,
        "allocated": true
      }
    ],
    "client_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.241",
        "hostname": "z22-client",
        "is_scan": false,
        "allocated": true
      }
    ],
    "zfs_ib_interfaces": [
      {
        "ip_address": "nnn.nnn.nnn.22",
        "hostname": "z22-storib",
        "is_scan": false,
        "allocated": true
      }
    ],
    "exa_ib_interfaces": [
      {
```

```
    "ip_address": "nnn.nnn.nnn.19",
    "hostname": "z22-priv1",
    "is_scan": false,
    "allocated": true
  }
],
"vip_interfaces": [
  {
    "ip_address": "nnn.nnn.nnn.242",
    "hostname": "z22-vip",
    "is_scan": false,
    "allocated": true
  }
],
"versaboot_interfaces": [],
"state_str": "Configured",
"accessible_groups": [
  {
    "id": 33,
    "name": "vm_7_owners"
  }
],
"internal_name": "zone",
"host_os": "s11",
"host_type": "zone",
"physical_type": "guest",
"virtual_type": "zone",
"state": 350,
"primary_interface": "mgmt",
"is_control_domain": false,
"is_master_control_domain": false,
"is_service_domain": false,
"rac_id": 1,
"active": true,
"sanity_target": false,
"physical_position_index": null,
"timing": null,
"net_config": 12,
"ilom_interfaces": [],
"memory": [],
"cores": [],
"physical_functions": [],
"root_complexes": [],
"variables": [],
"accessible_users": [],
"io_domains": [
  31
]
```

```
},
{
  "id": 8,
  "mgmt_interfaces": [
    {
      "ip_address": "nnn.nnn.nnn.46",
      "hostname": "z33-dbz",
      "is_scan": false,
      "allocated": true
    }
  ],
  "client_interfaces": [
    {
      "ip_address": "nnn.nnn.nnnnnn.nnn.nnn.248",
      "hostname": "z33-dbz-client",
      "is_scan": false,
      "allocated": true
    }
  ],
  "zfs_ib_interfaces": [
    {
      "ip_address": "nnn.nnn.nnn.25",
      "hostname": "z33-dbz-storib",
      "is_scan": false,
      "allocated": true
    }
  ],
  "exa_ib_interfaces": [
    {
      "ip_address": "nnn.nnn.nnn.21",
      "hostname": "z33-dbz-priv1",
      "is_scan": false,
      "allocated": true
    }
  ],
  "vip_interfaces": [
    {
      "ip_address": "nnn.nnn.nnn.249",
      "hostname": "z33-dbz-vip",
      "is_scan": false,
      "allocated": true
    }
  ],
  "versaboot_interfaces": [],
  "state_str": "Configured",
  "accessible_groups": [
    {
      "id": 34,
```

```
        "name": "vm_8_owners"
      }
    ],
    "internal_name": "zone",
    "host_os": "s11",
    "host_type": "zone",
    "physical_type": "guest",
    "virtual_type": "zone",
    "state": 350,
    "primary_interface": "mgmt",
    "is_control_domain": false,
    "is_master_control_domain": false,
    "is_service_domain": false,
    "rac_id": 10,
    "active": true,
    "sanity_target": false,
    "physical_position_index": null,
    "timing": null,
    "net_config": 13,
    "ilom_interfaces": [],
    "memory": [],
    "cores": [],
    "physical_functions": [],
    "root_complexes": [],
    "variables": [],
    "accessible_users": [],
    "io_domains": [
      55
    ]
  }
]
```

Preparing to Configure a Database on a Database Domain or Database Zone

These topics describe how to prepare to configure a database on Database Domains or Database Zones:

Prepare to Configure Databases

Complete these tasks before setting up a database on a Database I/O Domain or a Database Zone.

1. **Back up the data on your storage servers.**

2. **Plan the database and cluster layout.**

   You must make the following decisions before you begin to configure databases on Database Domains or Database Zones:

   - The number of clusters that you want to create, and the number of Database Domains or Database Zones that you want to have as members of each cluster.
   - The starting IP addresses for the following networks for each cluster that you are creating:
     - 1GbE administration (management) network
     - 10GbE client access network
     - Private IB network
     - Backup/Data Guard network (optional)
   - These IP addresses should be available in DNS and also through the `nslookup` tool for the host name listed in the `joc_import` file.

3. **Plan the storage server layout.**

   You must make the following decisions on the storage server layout before beginning the processes in this document:

   - The number of storage servers and the amount of disk space available for the Database Domains and clusters that you will be configuring.
   - The size of the following disk groups for each cluster:
     - DATA
     - RECO
     - DBFS

Verify Storage Server Disk Space

Before you set up Database I/O Domains or Database Zones, perform this procedure if SuperCluster contains existing databases.

Verify that the appropriate amount of disk space is available on the storage servers:

- If you are not sharing storage servers across clusters and you have entire storage servers available for the Database Domains or Database Zones, then you do not have to do anything more here. You can assign the entire storage servers to the new Database Domains or Database Zones as part of this procedure.
- If you are sharing storage servers across clusters, you must determine how much free space is available on the storage servers that you are using for these Database Domains or Database Zones before proceeding.

Caution - If you are sharing storage servers across clusters, you must follow the procedures in this section so that you have the correct information before deciding on the size of the disk groups for the new clusters that you plan to create. Failure to do so could result in your existing disk groups being overwritten.

1. **Determine the amount of free space available on the storage servers.**

```
CellCLI> list celldisk attributes name,freespace,freespacemap
```

For example:

```
CD_00_etc25celadm01  366.6875G  ((offset=162.046875G,size=366.6875G))
CD_01_etc25celadm01  366.6875G  ((offset=162.046875G,size=366.6875G))
CD_02_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
CD_03_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
CD_04_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
```

```
CD_05_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
CD_06_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
CD_07_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
CD_08_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
CD_09_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
CD_10_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
CD_11_etc25celadm01  393.8125G  ((offset=164.046875G,size=393.8125G))
FD_00_etc25celadm01  0
FD_01_etc25celadm01  0
FD_02_etc25celadm01  0
FD_03_etc25celadm01  0
FD_04_etc25celadm01  0
FD_05_etc25celadm01  0
FD_06_etc25celadm01  0
FD_07_etc25celadm01  0
FD_08_etc25celadm01  0
FD_09_etc25celadm01  0
FD_10_etc25celadm01  0
FD_11_etc25celadm01  0
FD_12_etc25celadm01  0
FD_13_etc25celadm01  0
FD_14_etc25celadm01  0
FD_15_etc25celadm01  0
```

2. **Examine the CD_*number* entries to determine the amount of available space on each of the storage servers.**

3. **Use the information on the amount of available space on each of the storage servers to determine how much space you can use for the disk groups for each new cluster you are creating.**

   You need enough space for these disk groups for each new cluster that you are creating:

   - DATA
   - RECO
   - DBFS (if necessary)

Obtain the Latest Version of OEDA

1. **Log in to the Database Domain or the Database Zone Domain.**

2. **Download the latest version of OEDA:**

   a. **Locate the My Oracle Support note that provides information on and access to the latest version of the OneCommand patch.**

The OneCommand patch provides two OEDA commands:

- `config.sh` – Starts the OEDA GUI that is used to create the database configuration file that is used by `install.sh`.
- `install.sh` – Provides a CLI set of scripts you run to install the database.

Access this My Oracle Support note:

https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=888828.1

Note - Keep this support note available. Later in "Obtain the Latest Database Binary Files" on page 235, you obtain additional patches from this support note.

---

b. Select the most recent OneCommand patch that corresponds to the version of Oracle Database that you want.

Use the table shown under the heading title: Oracle Exadata Deployment Assistant (OEDA).

Caution - You must download patch 19766190 or later.

Typically, the most recent patch is shown at the top of the table, and will have a higher number than other patches. For example, Patch 18339988 would be a more recent version of the patch than Patch 18222644.

c. Select the appropriate option from the Platform (Language) field for the operating system on the machine that you are using for OEDA.

The options include:

- Apple Mac OS X (Intel) (64-bit)
- Microsoft screens (32-bit)
- Linux x86-64
- Oracle Solaris on x86-64 (64-bit)
- Oracle Solaris on SPARC (64-bit)

Note - The OEDA `config.sh` script (used in subsequent tasks) can be run on any system that is running one of the supported OSs. However, the OEDA `install.sh` script (also used in subsequent tasks) must be run on the first I/O Domain, which requires the Solaris (SPARC) version of OEDA. Later in "Install Databases (`install.sh`)" on page 261 The files created by the `config.sh` script can be used by the `install.sh` on the I/O Domain.

---

d. **Click the Download button to download the patch.**

e. **Unzip the OneCommand patch zip file.**

3. **Repeat this task if necessary.**

   You only need to install OEDA on one domain within a RAC:

   - If you installed OEDA on a Database Domain, and you have other Database Domains in your SuperCluster that are on a separate RAC, repeat this task for one Database Domain in each RAC in your system.
   - If you installed OEDA on a Database Zone Domain, repeat this task for each Database Zone Domain in your system.

4. **For each domain where you installed OEDA, obtain and install the latest database binary files.**

   Go to "Obtain the Latest Database Binary Files" on page 235.

Obtain the Latest Database Binary Files

This task is similar to the previous task, but instead directs you to obtain the latest database binary files. Perform this procedure for every domain where you installed OEDA.

1. **Ensure that the system running the OEDA has Oracle JRE 1.6 or later.**

2. **Locate the `WorkDir` directory.**

   By default, the `WorkDir` directory is located in the directory where you downloaded the OneCommand patch, as described in "Obtain the Latest Version of OEDA" on page 233.

3. **Obtain and place all the necessary Oracle Database binary zip files into the `WorkDir` directory.**

   a. **Go to this knowledge article:**

      `https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=888828.1`

   b. **Using that knowledge article, obtain the binary zip files for the Database versions you want installed on Database I/O Domains. Obtain zip files for these items:**

      - Oracle Database software

- Patches

c. **Place the binary zip files into the `WorkDir` directory.**

   These are examples of the binaries and patch zip files to place in the `WorkDir` directory:

   - `p13390677_112040_SOLARIS64_1of7.zip`
   - `p13390677_112040_SOLARIS64_2of7.zip`
   - `p13390677_112040_SOLARIS64_3of7.zip`
   - `p17628025_112040_SOLARIS64.zip`
   - `p6880880_112000_SOLARIS64.zip`

4. **Consider your next step.**

   Go to "Creating Database Configuration Files (OEDA)" on page 237.

Creating Database Configuration Files (OEDA)

These topics describe how to create configuration files using OEDA (the `config.sh` tool).

Note - The instructions in this section describe how to set up Database I/O Domains and Database Zones. Do not use these instructions for Application I/O Domains.

Important Cautions

Caution - Ensure that you back up all existing databases before performing the tasks in this section.

Caution - You must use the latest version of OEDA and the Java OneCommand patch (patch 19766190 or later). Refer to the Oracle Exadata Deployment Assistant (OEDA) section in MOS Note 888828.1 for details.

Export an XML Configuration File

Use this procedure to generate an XML file that will be used to provide database configuration information during the database installation.

These instructions assume that you have already performed these activities using the SuperCluster Virtual Assistant:

- Created two or more Database I/O Domains (for more information, see "Create a Database I/O Domain" on page 97).
- Deployed two or more Database I/O Domains (for more information, see "Create a Database I/O Domain" on page 97).
- Created two or more zones on Database Zone Domains (for more information, see "Configuring Zones" on page 137).

At this point, you have created and deployed Database I/O Domains or Database Zones, but have not set up the storage servers or the database software on the Database I/O Domains or Database Zones.

1. **Access the SuperCluster Virtual Assistant.**

   See "Log In to the SuperCluster Virtual Assistant" on page 41.

2. **If additional storage servers were added to the system, configure the assistant with the appropriate type of storage server.**

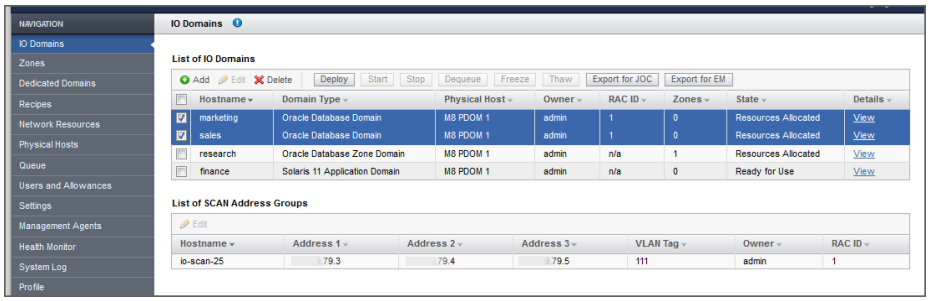
   See "Configure the Assistant With Added Storage Servers (Administrators)" on page 59.

3. **Determine if you are configuring a Database Domain or a Database Zone.**

   - **If you are configuring a Database Domain:**

     a. **In the navigation panel, select I/O Domain.**

b. **Select the check box next to each Database Domain that you want to configure.**



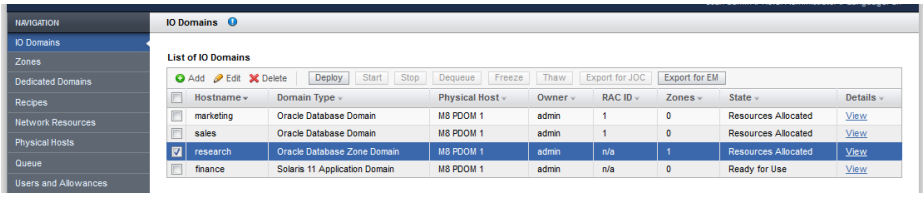
c. **Go to Step 4.**

- **If you are configuring a Database Zone:**

a. **In the navigation panel, select Zones.**

b. **Select the check box next to each Database Zone that you want to configure.**

If you have multiple database zones that are part of a single RAC, select those zones as shown below.



c. **Go to Step 4.**

4. **Click Export for JOC.**

A screen appears, asking where you want to save this configuration file. This action creates a configuration file that is later used by the `config.sh` command to install the database.

5. **Navigate to a directory where you want to save the configuration file.**

   By default, the configuration file is named `joc_import.xml`. Rename this configuration file with a unique name to distinguish it from other configuration files.

6. **Click Save.**

7. **Start OEDA.**

   Go to "Start OEDA" on page 240.

Start OEDA

1. **Change to the directory that was created after you unzipped the OneCommand (`0cmd`) ZIP file.**

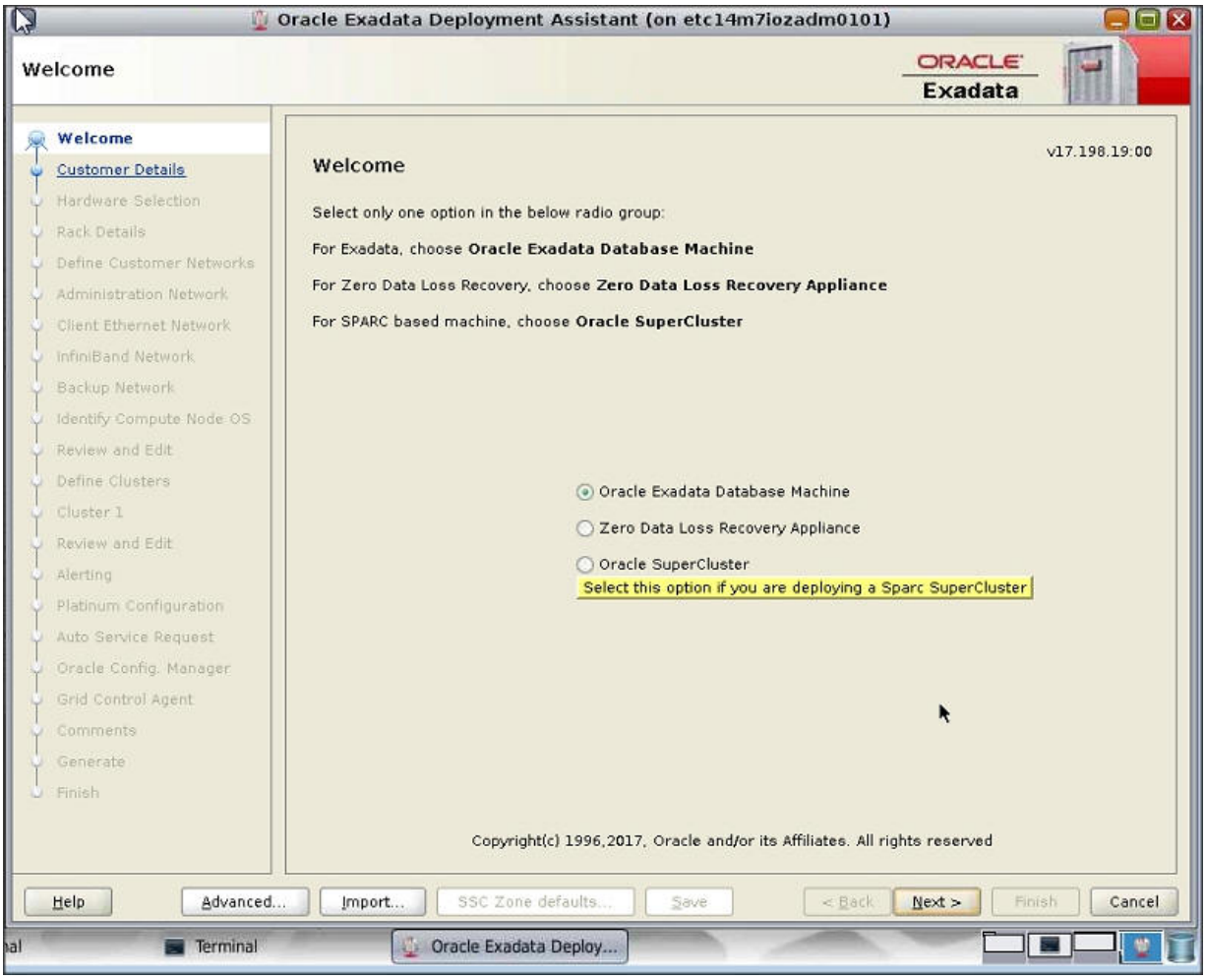
2. **Start OEDA.**

   - On Linux, MacOS, or the Oracle Solaris OS:

     ```
     config.sh
     ```

   - On Microsoft Windows:

```
config.cmd
```



3. **Import the OEDA XML input file.**

   Go to "Import the Most Recent Configuration File" on page 242.

Import the Most Recent Configuration File

1. **At the bottom of the Welcome page, click Import.**

   A pop-up window is displayed, with the default location at the OneCommand directory.

2. **Navigate to the folder that contains the configuration files for the Database Domains or Database Zones that you are configuring.**

   See "Export an XML Configuration File" on page 238.

   Tip - If you ran the assistant on a remote system and saved the XML configuration file using Export for JOC onto that system, you might have to manually move that XML configuration file from the remote system to the system where you are currently running OEDA so that you can easily import the file into OEDA.

3. **Within that folder, import the configuration file.**

   Verify that the configuration file is the correct file for the appropriate Database Domains or Database Zones that you are configuring, and not an older configuration file for any Database I/O Domains that you configured previously.

4. **Click Next.**

5. **Verify the configuration information.**

   Go to "Review Existing Configuration Information" on page 242.

Review Existing Configuration Information

After importing the configuration file for the Database I/O Domains or Database Zones that you created, the fields in each of the pages in OEDA are populated with information that you provided for that configuration. That information includes the IP addresses and host names for each network for all of the components and domains in your Oracle SuperCluster. If you are setting up Database Domains on a system that was correctly configured, do not modify any of the information in the first set of screens in OEDA. If you selected Database Zones in the configuration, OEDA will create those zones as part of the deployment process.

1. **Review the existing configuration information.**

   Note - Do not change any of the information in the following pages.

Go through the following pages in OEDA, reviewing the configuration information and clicking Next at the bottom of each page.

- Customer Details page
- Hardware Selection page
- Define Customer Networks page
- Administration Network page
- Client Ethernet Network page
- IB Network page
- Backup/Data Guard page

Stop when the Identify Compute Node Operating System page is displayed.

2. **Review the information in the Identify Compute Node Operating System page.**

   Go to "Review the Identify Compute Node Operating System Page" on page 243.

Review the Identify Compute Node Operating System Page

1. **Review the information in the Identify Compute Node Operating System page.**

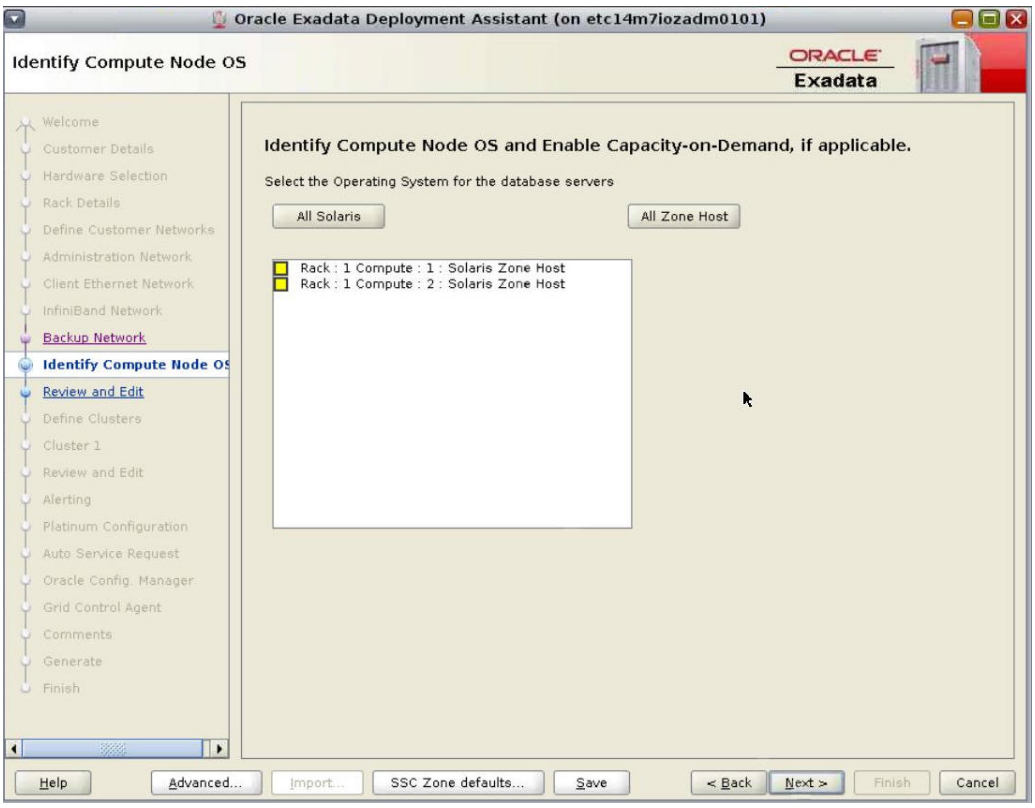
   Note - Do not change any of the information in the Identify Compute Node Operating System page.

   The Identify Compute Node OS page displays the Database I/O Domains and Database Zone Domains that contain the database zones that you want to configure when you selected specific Database I/O Domains or database zones in the procedure in "Export an XML Configuration File" on page 238.

   In this screen, these domains are displayed in this manner:

   - Database Zone Domains – Shown as Solaris Zone Host
   - Database I/O Domains – Shown as Physical Solaris

Note - The database zones within the Database Zone Domains will not be displayed on this page. Only the Database Zone Domains that house the database zones are displayed.



2. **Click Next.**

3. **Review the information in the Management and Private Networks page.**

   Go to "Review the Management and Private Networks Page" on page 244.

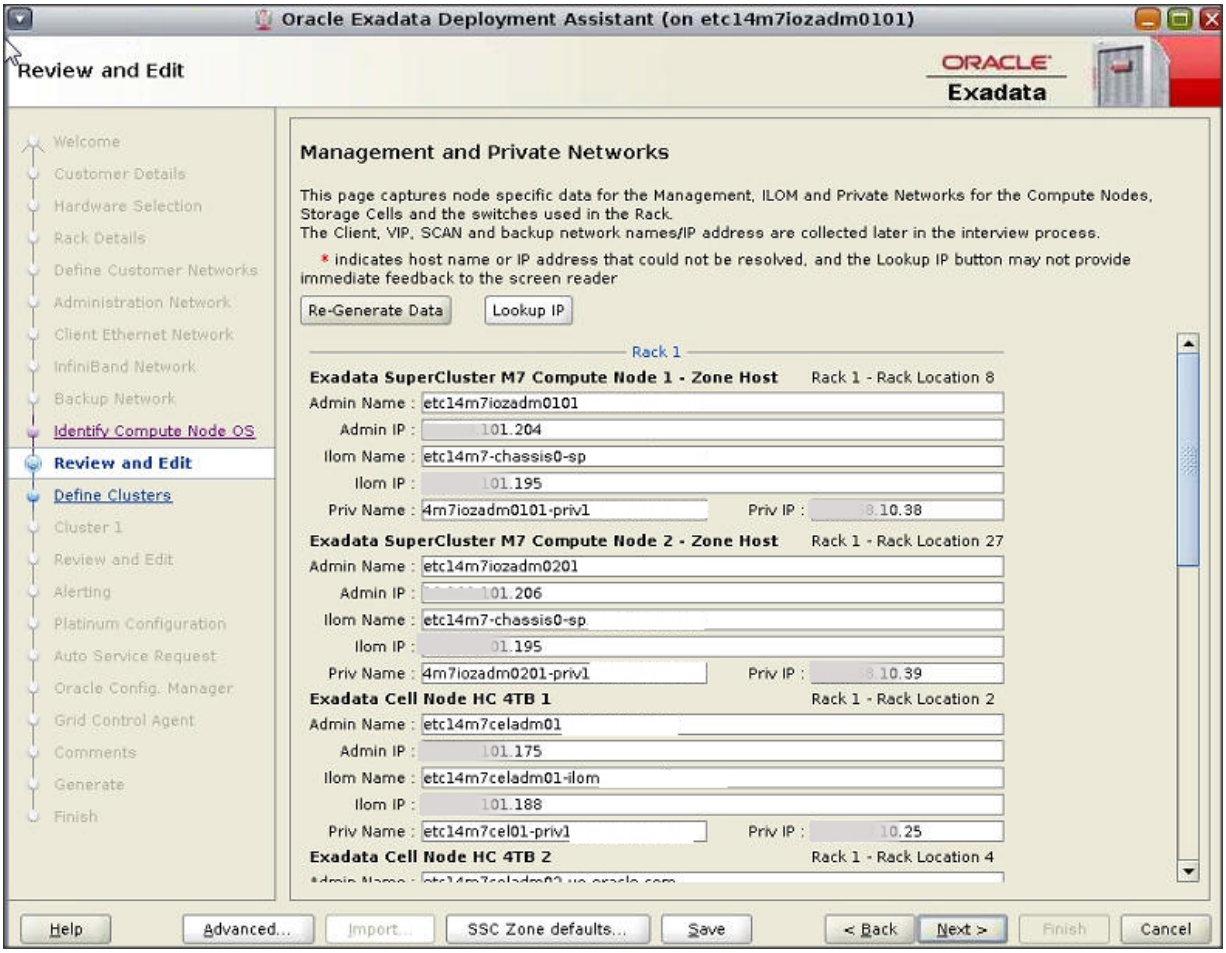
▼ Review the Management and Private Networks Page

1. **Review the information in the Management and Private Networks page.**

Note - Do not change any of the information in the Management and Private Networks page.

The Management and Private Networks page displays management and IB network address and host name information for these components:

- Database Domains
- Database Zones
- Storage servers
- Switches and PDU



2. **Ensure that the management and private network names here match the ones in the SuperCluster Virtual Assistant.**

   If the management and private network names do not match the ones in the assistant, update them here.

   If your IP addresses are available in DNS or you used the `nslookup` tool to verify the host names listed in the `joc_import` file, go to Step 3.

   If the management and private network names do not match the ones in the assistant, update them here.

3. **Click Next.**

4. **Complete the Define Clusters page.**

   Go to "Complete the Define Clusters Page" on page 246.

Complete the Define Clusters Page

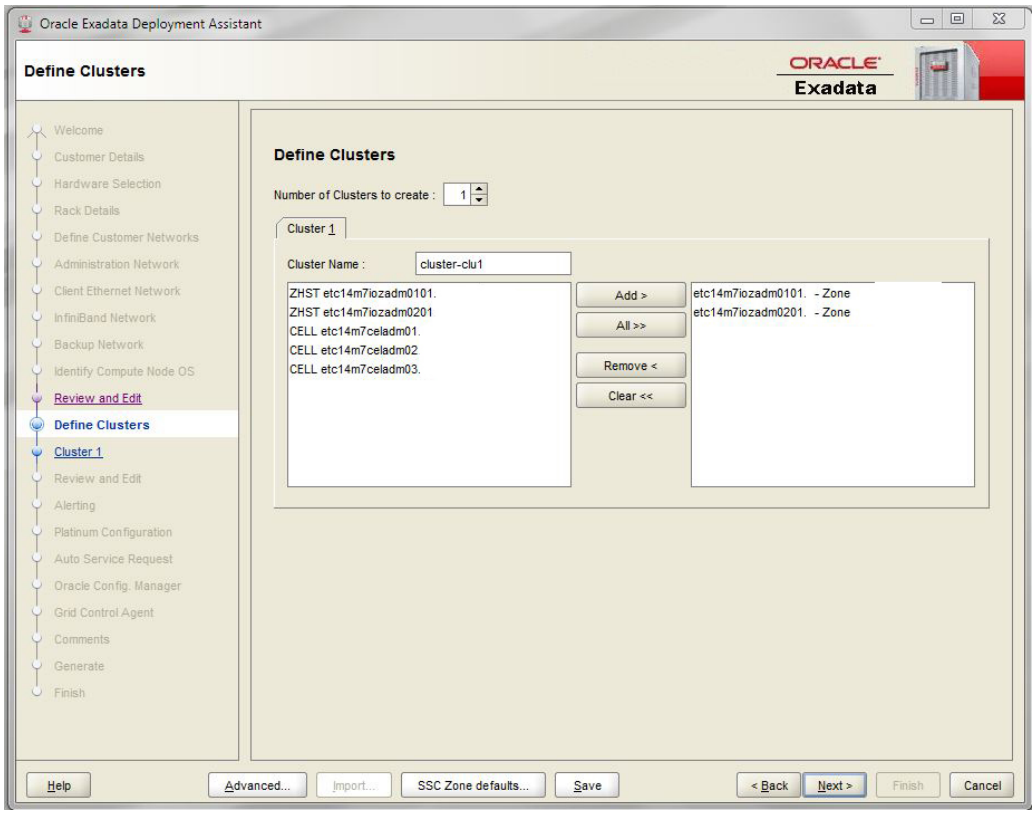
1. **Review the information in the Define Clusters page.**

   The Define Clusters page should show the Database I/O Domains or the Database Zone Domains that contain the database zones that you are configuring and the storage servers that are installed in your Oracle SuperCluster.

   For example, assume you have the following configuration:

   - Oracle SuperCluster M8 and SuperCluster M7, with three storage servers

- Two Database Zone Domains that contain the database zones that you are currently configuring



This configuration also assumes this information:

- The two Database Zone Domains that contain the database zones that you are configuring are shown with the `ZHST` prefix.
- The three storage servers in your Oracle SuperCluster are shown with the `CELL` prefix.
- If you were configuring a Database Domain, it will have the `PHY` prefix.

2. **Determine how you want to configure the Database Domains or the database zones within the Database Zone Domains.**

   Make these configuration decisions before proceeding.

a. **Determine which Database Domains will be part of the cluster, or which Database Zone Domains contain the database zones that will be part of the cluster.**

b. **Determine which storage servers are to be used with each cluster.**

3. **Ensure that the number of clusters to create is set to 1.**

4. **Enter these changes:**

   a. **Click the tab for the cluster that you want to create.**

      In this example, click Cluster 1.

   b. **Enter a unique name within your organization for the cluster.**

      By default, a cluster name of `cluster-clu`*number* is assigned to the cluster (such as `cluster-clu1`). You might experience problems with Enterprise Manager if multiple systems have the same cluster names across systems, so you must change the default cluster name to a unique name within your organization (for example, *systemname-clusternumber*, such as `scM701-clu1`). The name cannot be longer than 15 characters.

   c. **Determine if the right pane is already populated with the Database I/O Domains or Database Zone Domains that contain the database zones that will be part of the cluster.**

      The Database I/O Domains are identified as `PHY` and the Database Zone Domains are identified as `ZHST` in the left pane.

      - **If the right pane is already populated with the Database I/O Domains or Database Zone Domains that contain the database zones that will be part of the cluster, go to Step 4d.**

        For example, using the example configuration shown in the preceding figure, you would see that the right pane is already populated with the two Database Zone Domains (`etc14m7iozadm0101.us.oracle.com` and `etc14m7iozadm0201.us.oracle.com`).

      - **If the right pane is not already populated with the correct domains, select the Database I/O Domains or the Database Zone Domains that contain the database zones that you want to add and click Add.**

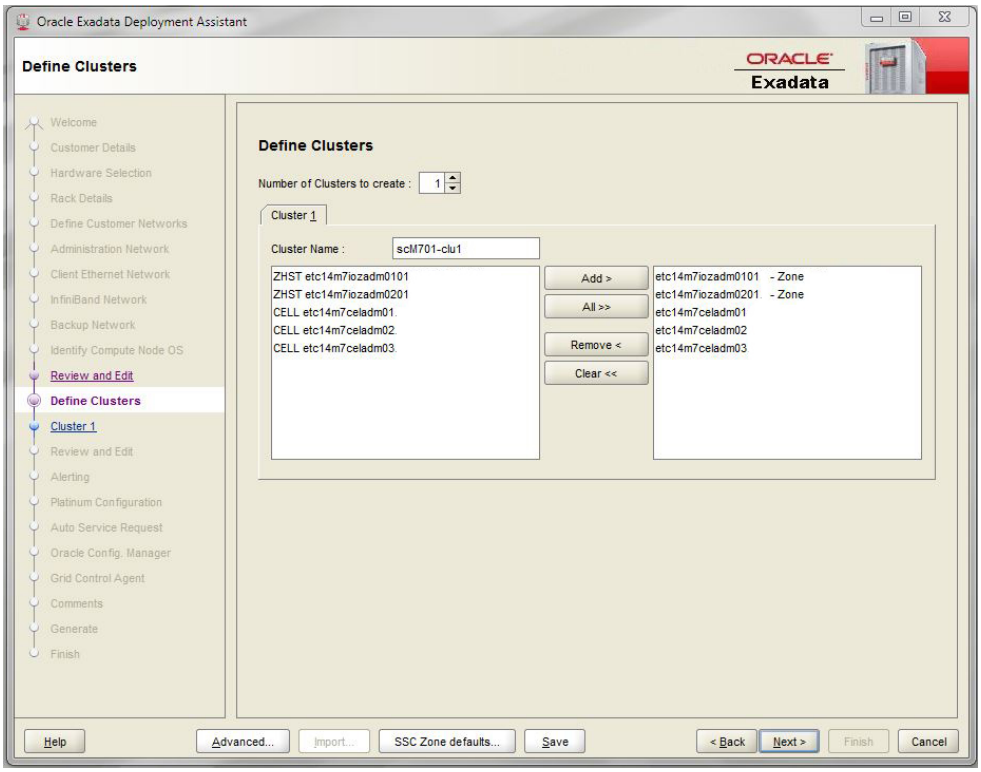
   d. **Select the storage servers that are part of this cluster and click Add.**

Note - Oracle Support Best Practices dictate that you assign all storage servers to each cluster rather than split the storage servers between the clusters.

Note - If you are sharing storage servers across clusters, confirm that the storage servers that you are adding to this cluster have enough available space to use for these new clusters. See "Verify Storage Server Disk Space" on page 232 for more information.

This figure shows an example of a new cluster, where these components are assigned to the cluster:

- The two Database Zone Domains
- All three storage servers



5. **After you have assigned Database Domains and storage servers to the cluster, click Next.**

6. **Complete the Cluster page for each cluster that you want to create.**

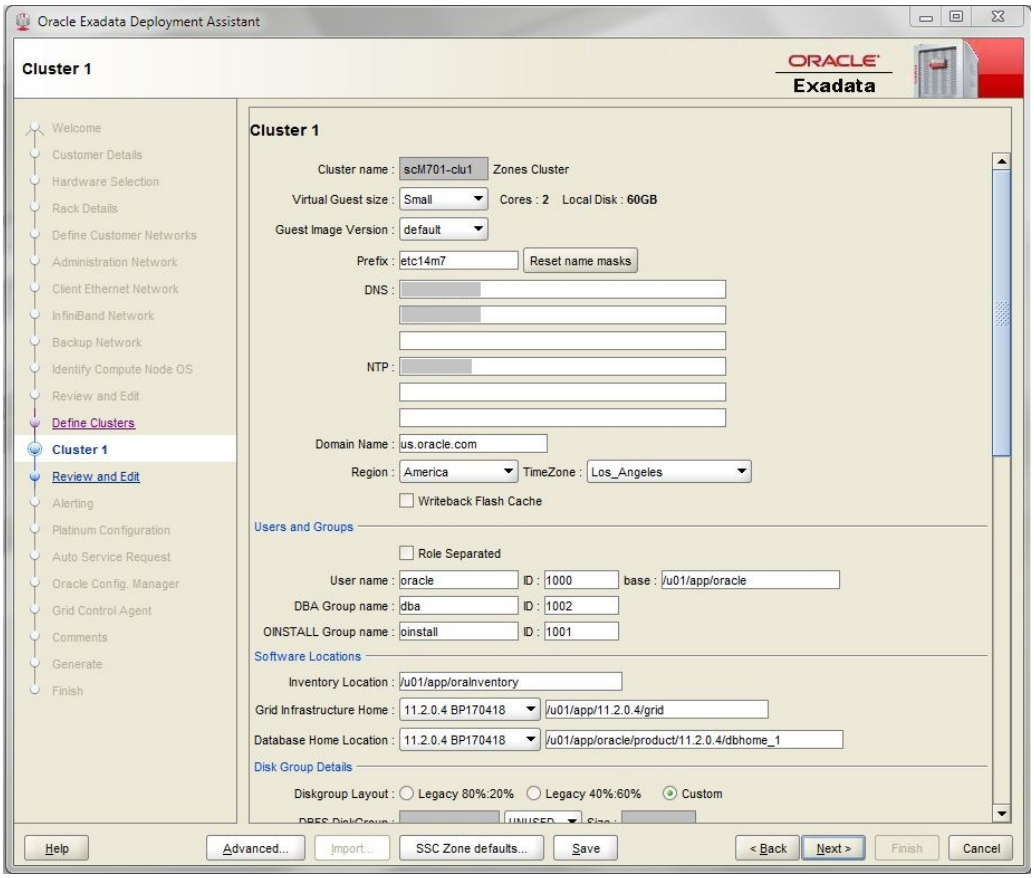
   Go to "Complete the Cluster Page" on page 250.

Complete the Cluster Page

Caution - Take extreme care when specifying the DATA and RECO disk group names. The names must be unique for the cluster you are defining. Check existing grid disks on the storage cells and ensure that they are not already in use. If an existing grid disk is specified for a new cluster, the griddisk is dropped and recreated by older versions of Java OneCommand (prior to patch 19766190), possibly resulting in loss of production data.

The left pane displays a cluster configuration page for each new cluster that you are creating.

1. **Review the cluster configuration page for the first new cluster that you are creating.**



2. **Under Software Locations, define the database versions for these items:**

   - Grid Infrastructure Home
   - Database Home Location

3. **Under Disk Group Details, provide this information:**

   - In the Diskgroup Layout, chose one of these options:
     - Legacy 80%:20% – Assigns the following sizes to the disk groups:

    - DBFS Diskgroup: Default size (the default size for the DBFS disk group in this selection is the size of the operating system disk slice on disks 0 and 1, which is usually between 29 GB and 31 GB)
    - DATA Diskgroup: 80% size
    - RECO Diskgroup: 20% size

Caution - Choose Legacy only if you have dedicated storage cells per cluster and no storage cell sharing.

  - Legacy 40%:60% – Assigns the following sizes to the disk groups:
    - DBFS Diskgroup: Default size (the default size for the DBFS disk group in this selection is the size of the OS disk slice on disks 0 and 1, which is usually between 29 GB and 31 GB.)
    - DATA Diskgroup: 40% size
    - RECO Diskgroup: 60% size

Caution - Choose Legacy only if you have dedicated storage cells per cluster and no storage cell sharing.

  - Custom – Allows you to assign your own sizes to the disk groups
- Specify a unique name for the disk groups for this cluster. For this example, these names are specified.

  Note - Diskgroup names have a maximum of eight characters.

    - DBFS Diskgroup: `DBFS_DG`
    - DATA Diskgroup: `DATAC1`
    - RECO Diskgroup: `RECOC1`
- Select the level of redundancy for the disk groups (DBFS, DATA, and RECO):
  - UNUSED (DBFS disk group only)
  - NORMAL
  - HIGH
- Configure the size of the disk groups (DBFS, DATA, and RECO) for this cluster.

Note - If you are sharing storage servers across clusters, follow the instructions in "Verify Storage Server Disk Space" on page 232 to determine the amount of free space that you have in the storage servers for each disk group. In this case, use a custom sizing for the disk groups.

---

4. **Make cluster-specific changes to the Database Name field, if necessary.**

5. **Verify that the host name (name mask), SCAN name and VLAN information is correct in the networks area at the bottom of the page (Admin Network, Client Network and Private Network).**

   a. **In the assistant window for your SuperCluster, select Zones in the navigation panel, then click View in the Details column for each of the database zones that are part of this cluster.**

   b. **Note the following entries for each database zone in the Zone Details screens through the assistant:**

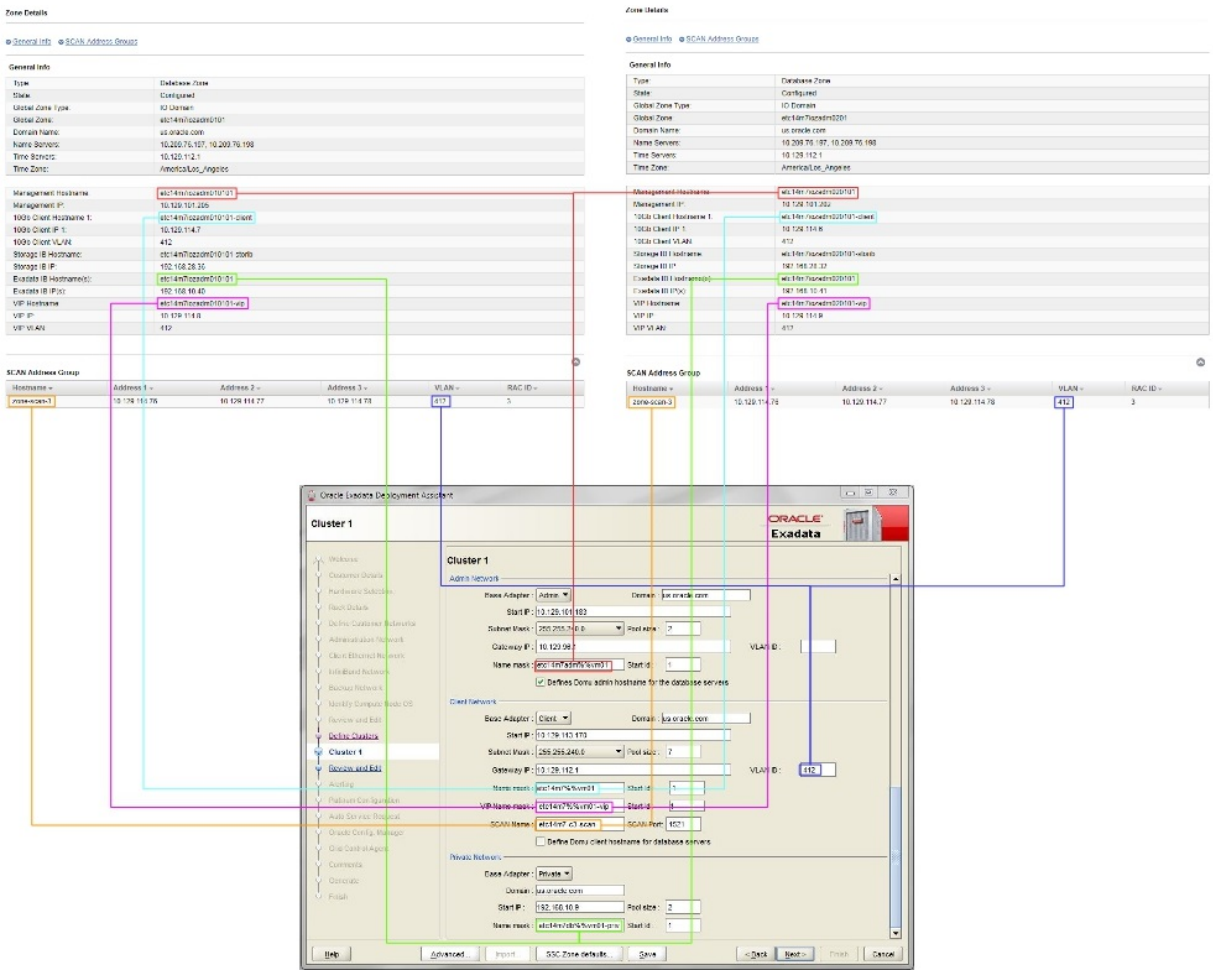
      - Management Hostname
      - 10Gb Client Hostname 1
      - Exadata IB Hostname
      - VIP Hostname
      - Hostname and VLAN tag for SCAN Address Group

   c. **Locate the following entries in the networks area at the bottom of the Cluster 1 page in OEDA:**

      - Admin Network:
        - Name mask
      - Client Network:
        - Name mask
        - VIP Name mask
        - SCAN Name
        - VLAN ID
      - Private Network:
        - Name mask

   d. **Compare the entries between the Zone Details screens in the assistant and the Cluster 1 page in OEDA.**

This figure shows how the entries from the two database zones in the Zone Details screens in the SuperCluster Virtual Assistant map to the entries in the networks area at the bottom of the Cluster 1 page in OEDA.



e. Make the appropriate edits in the Cluster 1 page in OEDA to match the entries from the Zone Details pages in the assistant for each database zone that is part of this cluster.

Note the following:

- Certain entries in the Cluster 1 page in OEDA have a single field that would be populated using multiple entries from the individual Zone Details screens in the assistant. For example, there is a single Admin Network: Name mask field in OEDA that is populated using the Management Hostname entries from the Zone Details screens in the assistant for each database zone that is part of the cluster, such as `etc14m7iozadm010101` for the first database zone and `etc14m7iozadm020101` for the second database zone in the assistant. OEDA will use the percentage sign (%) as a wildcard in these cases (in this example, using `etc14m7iozadm0%0101` in the Admin Network Name mask field in OEDA).
- The following suffixes should be appended at the end of the following entries in the Cluster 1 page in OEDA, even if these suffixes don't appear in the Zone Details pages in the assistant:
  - `-client` at the end of the entry used in the Client Network: Name mask field.
  - `-vip` at the end of the entry used in the Client Network: VIP Name mask field.

This table shows example entries that might be found in the individual Zone Details pages in the assistant for each database zone and the entries that should be used in the Cluster 1 page in OEDA.

Example Entry in the Assistant for Database Zone 1	Example Entry in the Assistant for Database Zone 2	Example Entry in Cluster 1 page in OEDA
Management Hostname: etc14m7iozadm010101	Management Hostname: etc14m7iozadm020101	Admin Network: Name mask: etc14m7iozadm0%0101
10Gb Client Hostname 1: etc14m7iozadm010101-client	10Gb Client Hostname 1: etc14m7iozadm020101-client	Client Network: Name mask: etc14m7iozadm0%0101-client
Exadata IB Hostname: etc14m7iozadm010101	Exadata IB Hostname: etc14m7iozadm020101	Private Network: Name mask: etc14m7iozadm0%0101-priv1
VIP Hostname: etc14m7iozadm010101-vip	VIP Hostname: etc14m7iozadm020101-vip	Client Network: VIP Name mask: etc14m7iozadm0%0101-vip
SCAN Address Group: Hostname: zone-scan-3	SCAN Address Group: Hostname: zone-scan-3	Client Network: SCAN Name: zone-scan-3
SCAN Address Group: VLAN: 412	SCAN Address Group: VLAN: 412	Client Network: VLAN ID: 412

6. **Review the rest of the information in this page and make changes as necessary.**

7. **After you have completed the page for this cluster, click Next.**

8. **Complete the cluster Review and Edit SCAN, Client, VIP, and Optional Backup Networks page.**

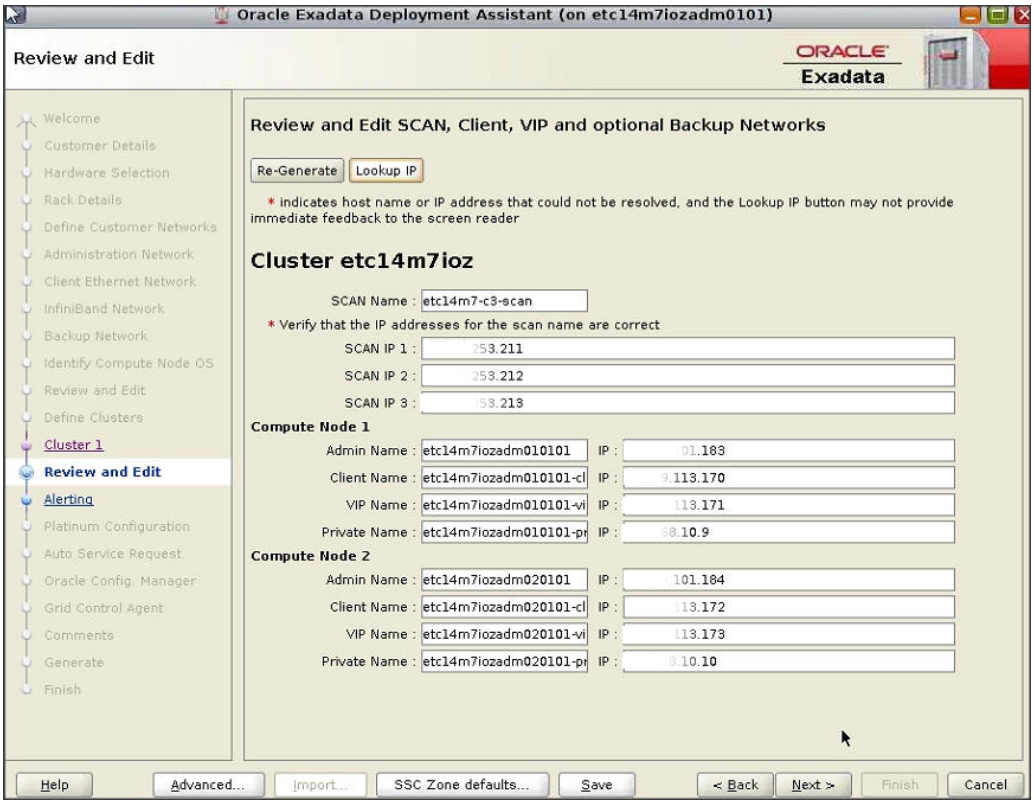
   Go to "Complete the Cluster Review and Edit SCAN, Client, VIP, and Optional Backup Networks Page" on page 256.

Complete the Cluster Review and Edit SCAN, Client, VIP, and Optional Backup Networks Page

1. **Review the information in the cluster Review and Edit SCAN, Client, VIP, and Optional Backup Networks page, and make any necessary changes.**

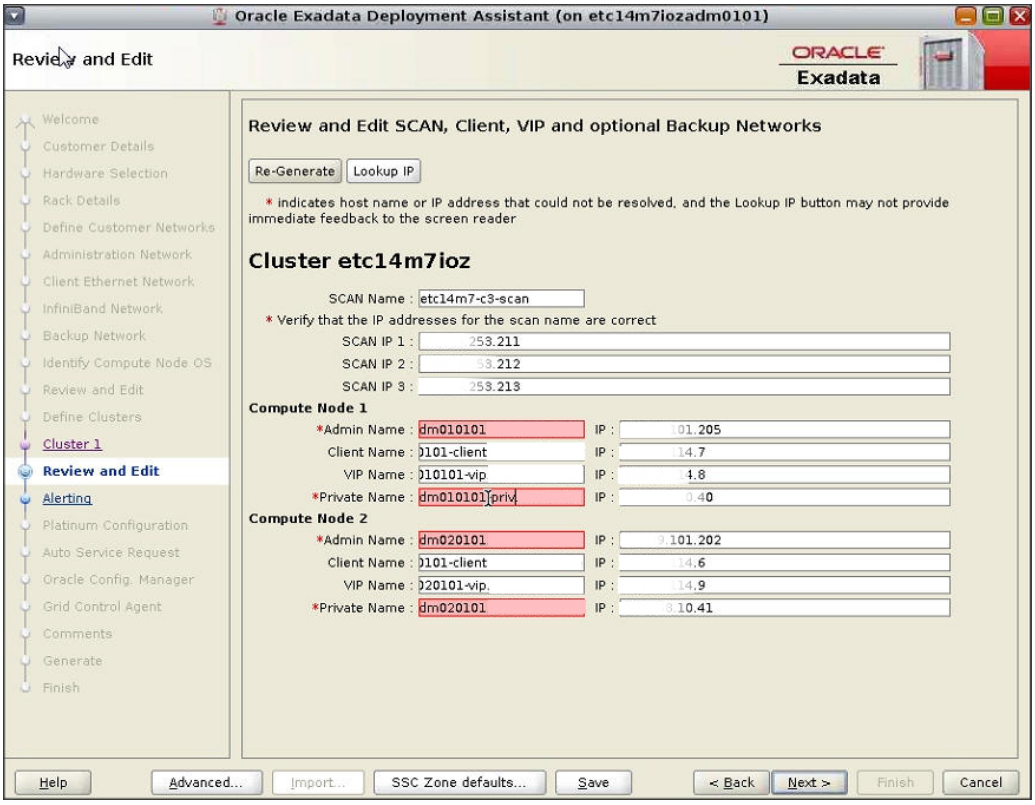
   The new clusters are displayed with the Database I/O Domains as part of those clusters.

2. **Click Re-Generate to populate updated information from the SuperCluster Virtual Assistant.**



3. **Click Lookup IP to resolve the host name or IP addresses.**

Highlighted red fields indicate host names that could not be resolved. Click Re-Generate to automatically populate this screen with the correct private host names or edit the host names on this screen. You can also manually edit the XML configuration file.



4. **Click Next.**

5. **Verify that the remaining configuration information is correct.**

   Go to "Verify Remaining Configuration Information" on page 258.

Verify Remaining Configuration Information

1. **Verify that the configuration information in the following screens is correct:**

   - Cell Alerting page

- Oracle Configuration Manager page
- Auto Service Request
- Grid Control Agent

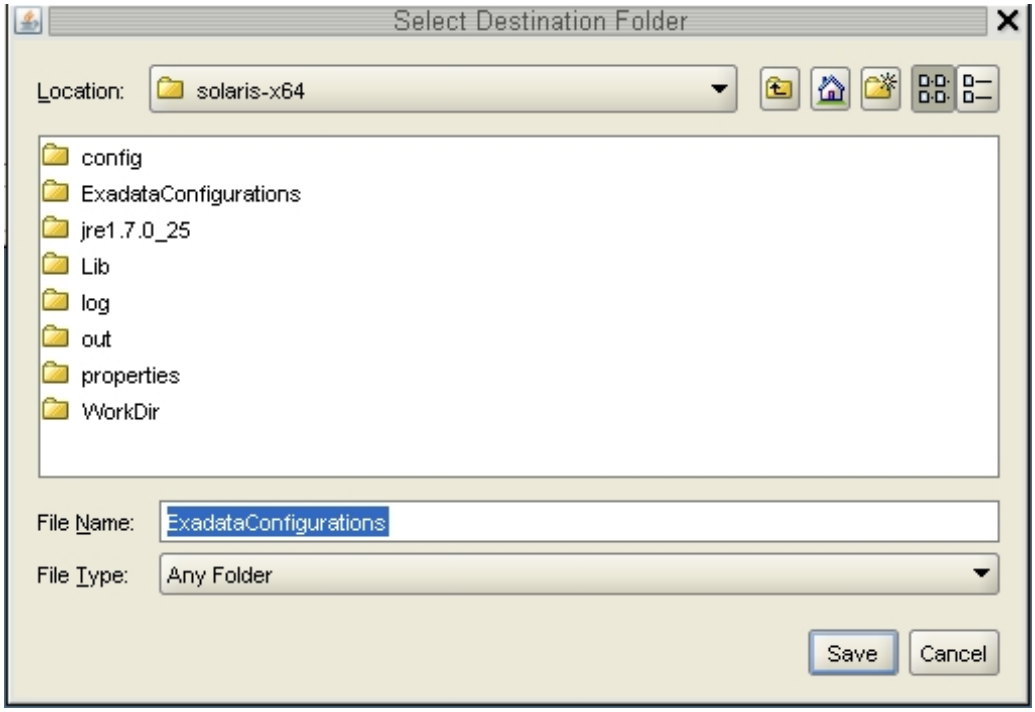
2. **In the Comments page, provide additional information that might be useful for this deployment, then click Next.**

3. **Generate the configuration files.**

   Go to "Generate the Configuration Files" on page 259.

Generate the Configuration Files

1. **In the Generate page, click Next.**



2. **Navigate to the appropriate directory, enter the name for the configuration folder for this deployment, and click Save.**

3. **Click Finish.**

4. **Verify that the Database I/O Domain and cluster configuration files are in the configuration folder for this deployment.**

   If you navigate to the configuration folder with the new configuration files for this deployment, you will see these files:

   - Two new individual configuration files for the two clusters that you added (shown as *customer-name*`-`*name-prefix*`-cluster-clu`*cluster-number*`.xml`)
   - A single updated master file that contains the configuration information for the Database I/O Domains and clusters that you set up on your system (shown as *customer-name*`-`*name-prefix*`.xml`)

5. **Install databases on Database I/O Domains.**

   Go to "Installing Databases on a Database Domain" on page 261.

Installing Databases on a Database Domain

These topics describe how to install Oracle Databases on Database I/O Domains.

Important Cautions

Caution - Ensure that you back up all existing databases before running the `install.sh` script.

Caution - You must use the latest version of OEDA and the Java OneCommand patch (patch 19766190 or later). Refer to the Oracle Exadata Deployment Assistant (OEDA) section in MOS Note 888828.1 for details.

Caution - Any version of Java OneCommand prior to patch 19766190 can destroy the storage cell disks and griddisk if an undo option is performed on certain steps (Create Cell disk, for example). This can cause complete destruction of all the griddisks on the storage cells. In addition, rerunning the griddisk creation step or mistakenly specifying a non-unique diskgroup in OEDA results in the destruction of existing griddisks. Be aware that older versions of Java OneCommand also destroy cell disks and griddisks with the Create Cell Disks step.

▼ Install Databases (`install.sh`)

Before You Begin

Before you perform this procedure, you must set up passwordless SSH for the `root` user to the ZFS storage appliance. OEDA calls the `ssc_exavm` file, which calls the `iscsi-zpoo.sh` script to create an iSCSI LUN for the zone root filesystem/rpool.

1. **Verify that you added passwordless SSH for the `root` user to the ZFS storage appliance.**

2. **Locate the configuration files that were generated at the end of the OEDA process when you set up the Database I/O Domains and clusters.**

   The configuration files for the new clusters that you created should be named *customer-name*`-`*name-prefix*`-cluster-clu`*cluster-number*`.xml`.

3. **Locate the database installation script called `install.sh`.**

   By default, the `Jinstall.sh` script is located in the directory where you downloaded the OneCommand patch, as described in "Obtain the Latest Version of OEDA" on page 233.

4. **Using a new cluster configuration file, display the list of functions that can be performed by the `install.sh` script.**

   `./install.sh -cf` */path-to-config-file/customer-name.name-prefix***`.xml -l`**

   For example:

   `./install.sh -cf` */path-to-config-file/***`example-osc01-cluster-clu1.xml -l`**

   Information similar to the following is displayed:

```
1. Validate Configuration File
2. Create Virtual Machine
3. Setup Required Files
4. Create Users
5. Setup Cell Connectivity
6. Verify InfiniBand
7. Calibrate Cells
8. Create Cell Disks
9. Create Grid Disks
10. Install Cluster Software
11. Initialize Cluster Software
12. Install Database Software
13. Relink Database with RDS
14. Create ASM Diskgroups
15. Create Databases
16. Apply Security Fixes
17. Create Installation Summary
18. Resecure Machine
```

   The output that you see, and the number assigned to each step varies depending on the configuration choices you made in OEDA.

Tip - For a Database Zone deployment, an additional step called *Create Virtual Machines* is performed between Steps 1 and 2 in the list above. This step creates the zones.

---

5. **Important – Do not run any of the steps listed below.**

   - Verify InfiniBand (Step 6 in the example output above)
   - Create cell disks (Step 8 in the example output above)
   - Resecure machine (Step 19 in the example output above)
   - Configure cell alerting (not shown in the example output above)

6. **Run the appropriate steps, using the cluster configuration file that was generated at the end of the OEDA process as input.**

   `./install.sh -cf` *customer-name.name-prefix***`.xml -s`** *step-number*

   where *step-number* is the number of each step that you are running, in order. For example:

   ```
   ./install.sh -cf example-osc01-cluster-clu6.xml -s 1
   ```

Caution - Run all of the steps **except for the following**:

- Verify InfiniBand
- Create cell disks
- Resecure machine
- Configure cell alerting

You can also run a series of steps by using the `-r` option. For example, if you wanted to run steps 1 through 4, type:

```
./install.sh -cf example-osc01-cluster-clu6.xml -r 1-4
```

7. **Repeat Step 4 through Step 6 for each new cluster configuration file that you generated at the end of the `config.sh` process.**

8. **(Platinum Monitored Systems) Create platinum infrastructure services for each new I/O Domain you create.**

   For instructions, log in to `https://support.oracle.com`, and read the MOS knowledge article called *How to Create Platinum Infrastructure Services SR (Doc ID 1958476.1)*.. Follow the instructions. For the Engineered System and Target, select SuperCluster. For problem type, select Agent Management.

Glossary

A

Application Domain An I/O domain that runs Oracle Solaris and client applications.

C

CI Solaris Custom Incorporations. Starting with the Oct 2016 QFSDP, IDRs have been replaced with Solaris CIs.

compute server Shortened name for the SPARC server, a major component of SuperCluster.

D

Database Domain The I/O domain that contains the SuperCluster database.

DB Oracle Database.

dedicated domain A SuperCluster LDom category that includes the domains configured at installation time as either a Database Domain or an Application Domain (running the Oracle Solaris 11 OS). Dedicated domains have direct access to the 10GbE NICs and IB HCAs (and Fibre Channel cards, if present). See also Database Domain and Application Domain.

G

GB Gigabyte. 1 gigabyte = 1024 megabytes.

GbE Gigabit Ethernet.

I

I/O Domain If you have Root Domains, you create I/O Domains with your choice of resources at the time. The SuperCluster Virtual Assistant lets you assign resources to I/O Domains from the CPU and memory repositories, and from virtual functions hosted by Root Domains. When you create an I/O Domain, you assign it as a Database Domain or Application Domain running the Oracle Solaris 11 OS. See also Root Domains.

I/O Domain Creation Tool The original name of the SuperCluster Virtual Assistant. See SuperCluster Virtual Assistant.

L

LDom Logical domain. A virtual machine comprising a discrete logical grouping of resources that has its own OS and identity within a single computer system. LDoms are created using Oracle VM Server for SPARC software.

M

MOS My Oracle Support.

O

OEDA Oracle Exadata Deployment Assistant.

Oracle Solaris OS Oracle Solaris operating system.

P

parked resources CPU and memory resources that are set aside in the CPU and memory repositories. You assign parked resources to I/O Domains with the SuperCluster Virtual Assistant.

PDomain Physical domain. Each PDomain on the compute server is an independently configurable and bootable entity with full hardware domain isolation for fault isolation and security.

PDU Power distribution unit.

PF Physical function. Functions provided by physical I/O devices, such as the IB HCAs, 10GbE NICs, and any Fibre Channel cards installed in the PCIe slots. Logical devices, or virtual functions (VFs), are created from PFs, with each PF hosting 32 VFs.

R

RAC Real Application Cluster.

Root Domains A logical domain that is configured at installation time. Root Domains are required if you plan to configure I/O Domains. Root Domains host PFs from which I/O Domains derive VFs. The majority of Root Domain CPU and memory resources are parked for later use by I/O Domains.

S

SCAN Single Client Access Name. A feature used in RAC environments that provides a single name for clients to access any Oracle Database running in a cluster. See also RAC.

SPARC M7 or M8 server A major component of SuperCluster that provides the main compute resources. Referred to in this documentation using the shortened name “compute server.” See also compute server.

SRU Support Repository Update. For example, Oracle Solaris 11 SRU22.

SuperCluster Virtual Assistant Enables you to manage the life cycle of I/O domains on SuperCluster systems. Formerly called the I/O Domain Creation Tool.

V

VF Virtual function. Logical I/O devices that are created from PFs.

VIP Virtual IP.

VLAN tag Segregates traffic between network interfaces, so that you see only the traffic on your virtual network.

Z

ZFS A file system with added volume management capabilities. ZFS is the default file system in Oracle Solaris 11.

ZFS storage appliance Shortened name for Oracle ZFS Storage Appliance.

Index

I

J

K

L

M

N

O

P

Q

R

S

T