Dell Cloud Solution
for Web Applications
User Guide

Notes

NOTE: A NOTE indicates important information that helps you make better use of your computer.

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Introduction

The Dell Cloud Solution for Web Applications (DCSWA) is an optimized private cloud solution for running virtualized web applications, databases, and other compute nodes efficiently. The solution includes hardware, software, and services and is highly scalable from the lab to massive data centers.

The solution is offered as a turnkey package containing software, hardware, and core services (i.e., installation and support).

Cloud Definition

In DCSWA, a cloud is defined as a collection of interconnected pods, racks, and nodes. A pod is a collection of up to 12 racks, with each rack containing up to 15 compute nodes to handle a variety of web applications.

Each pod has an administration/provisioning server (PS) that manages the compute nodes. In DCSWA, the Joyent Cloud Control (CC) software component is housed in the PS of one of the pods in the cloud. Performance and redundancy are handled by scaling out the application to multiple nodes in the cloud.

Joyent SmartMachine

A SmartMachine, formerly called Accelerator, is a zone running on Joyent's SmartOS. It is a UNIX para-virtualized virtual machine (VM) that uses dedicated server virtualization to manage fluctuating loads by bursting onto additional CPUs that have available resources.

In addition to SmartMachines, the solution provides the virtual Zeus Load Balancer to enable scaling of the web application across multiple SmartMachines. With a traditional multi-tiered web application, load balancers can be inserted between all three tiers (web, applications, and database layers) to provide performance and redundancy. An additional MySQL optimized SmartMachine is provided to facilitate rapid deployment of database components for applications. This set of SmartMachines represents the basis of the platform as a service (PaaS) environment.

Cloud Management

The cloud is managed, maintained, secured, and backed up through software components. The management components provide reporting, monitoring, operating, and diagnostic functions at both the cloud administrator and cloud user levels. The solution defines a maintenance and backup/disaster recovery methodology for both the SmartMachines and the infrastructure components.

Wrapped around all of these features are security features and methodologies that allow for secure multi-tenant operations.

Solution Components

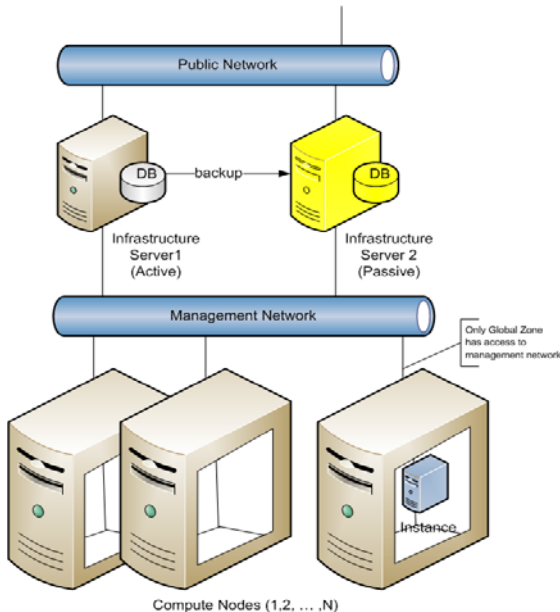The solution comprises hardware and software components, outlined below.

Figure 1. High-Level Solution Architecture

Hardware Components

The hardware components include:

- Administration/Provisioning Server
- Compute Nodes
- Network Infrastructure.

Administration/Provisioning Server

The administration/provisioning server provides the multiple cloud control, user portal, and provisioning functions for the solution.

Compute Nodes

The compute nodes are a collection of client services that run on each physical server except the infrastructure server. The services implement the components of the stack that provision and monitor SmartMachines running on the nodes.

Network Infrastructure

The network infrastructure consists of the collection of top-of-rack (ToR) switches and core switches that facilitate the connectivity between the administration/provisioning server and respective compute nodes, and the networking infrastructure.

Software Components

The software components include:

- Cloud Control
- Cloud Management API
- User Portal
- Telemeter
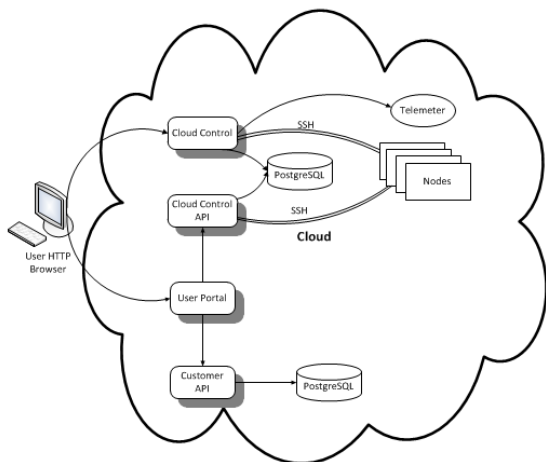
Figure 2. Software Components

Cloud Control

In DCSWA, the administration portal is referred to as Cloud Control. Cloud Control manages cloud operations, including locations (datacenters), pods, racks, rack-mountable devices (load balancers, servers, console servers, storage devices, switches, appliances and routers), the network (IPs, subnets, and virtual IPs), SmartMachines (zones), and customers.

Cloud Control also includes reporting for various objects in the cloud infrastructure. Most Cloud Control functions focus on inventory management, IP assignment, and associations to other objects in the datacenter, that is, managing servers and zones.

Figure 3. Cloud Control

Cloud Management API

This programmatic interface enables system integrators to access Cloud Control's functionality via a RESTful API.

Figure 4. Main Cloud Control Screen

User Portal

With the self-service user portal, you can perform certain tasks:

- Create SmartMachines (up to your quota).

- Reboot a SmartMachine.

- Shutdown a SmartMachine.

- Delete a SmartMachine.

NOTE: Capacity can be added to an existing SmartMachine by an administrator using Cloud Control, provided that there is available quota.
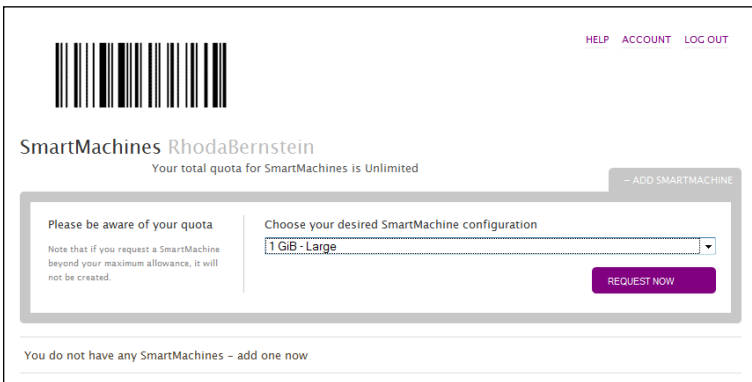

Figure 5. Sample User Portal Screen

Telemeter

The telemeter measures consumption. All telemeter information is provided in graphical form for each zone in Cloud Control.
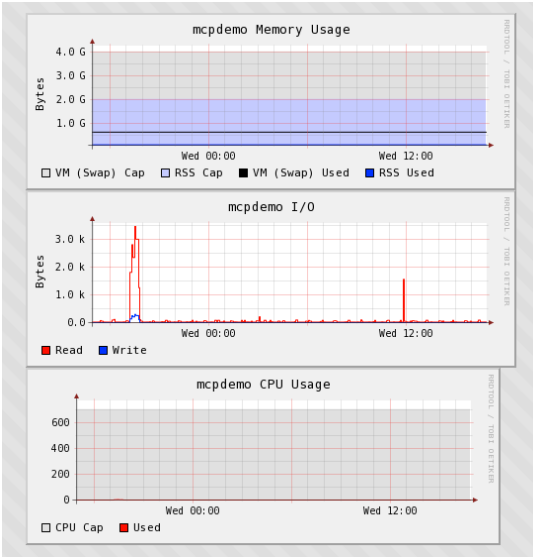
Figure 6. Sample Telemeter Graphs

Measuring Consumption

Measuring consumption is important in both private and public clouds. In private clouds, consumption measurement supports departmental charge-backs. In public clouds, consumption measurement supports both the pay in advance (subscriptions) and pay afterwards (invoicing) models.

Because consumption requirements can change over time, initially allocated resources may no longer match needs. Therefore, it is critical to meter resource allocations on an ongoing basis so that invoices and reports reflect actual use.

Consumption measurement is also valuable for tracking the amount of resources actually consumed (subset) versus the amount allocated. Comparing the subset to the full allocation can enable greater efficiencies. This is especially important for service providers in capacity planning. The system provides measures of consumption for both customers and service providers.

Cloud Provisioning

Clouds must be created. This process, called *cloud provisioning,* requires several steps.

1 Install the software.
2 Provision the network.
3 Execute the JumpStart.
4 Configure the head node.
5 Set up the global zone.
6 Set up compute node(s).

Cloud Control uses the Ubuntu Linux operating system because it is fast and secure. Ubuntu is integrated into the software and is installed automatically.

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SmartMachines

Accessing a New SmartMachine

When you provision a SmartMachine, Cloud Control creates several accounts your client can use to access it. The client can choose to receive this login information in a welcome email or access it through the user portal.

Both the user portal and Cloud Control display the username, but not the password. If the client changes the passwords, the passwords displayed in the user portal or in Cloud Control will no longer be valid.

SmartMachine details

Name	**Status**
ffc2vjab	⟳ running
RAM	**DNS**
¼ GiB	ffc2vjab.example.com
Public IP Address	**Private IP Address**
192.168.3.21	192.168.2.21

Default login credentials

📒 Please note that the passwords shown are no longer valid if you change them.

SYSTEMS	USERNAME	PASSWORD
Root User Access (no direct ssh permitted)	root	t236f2qd66
Webmin Access (https://192.168.3.21:10000)	admin	zy2p6zz2w5
MySQL Access (accessible via localhost:3306)	root	sqrvrtd597
Shell/SFTP Access (sudo to root as this user)	jill	tgnx4m7ee7

Figure 7. Credentials Display in Departmental Operations Portal

Figure 8. Credentials Display in Cloud Control

System/Username Descriptions

System	Username	Description
root	Root	The system root user. You cannot log in as root through SSH. Instead, access the SmartMachine through another account, and use **su** to log in as root:
shell	admin	The system administrator. Use this account to access the SmartMachine through SSH: `ssh admin@<smart-machine-name>`
mysql	root	The root MySQL user. This is not the same as the system root user.
vs	jill	The user that controls the default virtual server (the server you reach when you access http://<smart-machine-name>).

Starting and Stopping SmartMachines

Use the user portal to start or stop SmartMachines.

The **Reboot** button reboots a SmartMachine. The **Shutdown** button shuts down the machine. This button displays as the **Startup** button when shutdown is successful.

SmartMachine details

Name ffc2vjab	**Status** ↻ running	**Available actions**
RAM ¼ GiB	**DNS** ffc2vjab.example.com	REBOOT
Public IP Address 192.168.3.21	**Private IP Address** 192.168.2.21	SHUTDOWN
		DELETE

Figure 9. Available Actions

Running Services

SmartMachines use Solaris Service Management Facility (SMF) to run services such as the Apache web server and the MySQL server.

Common SMF commands:

To do this…	Use this command…
List running services	`svcs -a`
List services that should be running but are not	`svcs -vx`
Start a service	`svcadm enable <service>`
Stop a service	`svcadm disable <service>`
Restart a service	`svcadm restart <service>`

Managing Users

Every SmartMachine user needs a unique name and must belong to at least one group. To use the sudo command, the user must be a member of the staff group.

To manage users and groups, log into your SmartMachine as admin or use su to become the root user. If you log in as admin, run the commands described in this section with sudo.

Creating Groups

Solaris users are always members of one or more groups. Create groups so that a set of users can share the same permissions across different files. For example, create a web group for all files relating to a website.

To create a new group:

```
sudo groupadd <groupname>
```

You are asked for the password to the admin account. Once the password is accepted, the group is created and there is no output to the console.

Verify that the group has been created by looking at /etc/group:

```
grep <groupname> /etc/group
```

where <groupname> is the name you used in the initial groupadd command.

Creating Users

To add new users:

```
sudo useradd -d /home/<username> -m -g <group> -s
/usr/bin/bash <username>
```

Set the password for the new user with the following command:

```
sudo passwd <username>
```

Adding Users to Groups

To change a user's primary group:

```
sudo usermod -g <groupname> <username>
```

To add a user to a supplemental group:

```
sudo usermod -G <groupname> <username>
```

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Cloud Control

Cloud Control manages all resources relating to a cloud. These include:

- Data centers (locations)
- Pods (sets of racks)
- Racks
- Rack-mountable devices (load balancers, servers, console servers, storage devices, switches, appliances and routers)
- Network (IPs, subnets, and virtual IPs)
- SmartMachines (ZFS datasets and zone configurations)
- Customers (users).

Select Cloud Control Functions

Feature	Description
User Access Control	Define user access
Account Administration	Manage user access
Resource Management	Manage disk and system allocation
Virtual Appliance Management	SmartMachines
Automated Resource Deployment and Reclamation	Capability to allocate system resources to mission-critical workloads
Reporting	Capacity, utilization and health monitoring

Feature	Description	
RESTful API	Joyent Cloud Control includes a RESTful private API that connects private clouds with third party services.	
	The private API provides access to the following:	
	Customers:	Company or department and their associated zones.
	Containers:	Zones
	Templates:	Predefined templates used to create a new container.
	Servers:	Physical servers where the containers are created.
	All API calls must use HTTP basic authentication over SSL. All requests must include a shared username and password. For information about Cloud Control API, refer to the *Dell Cloud Solution for Web Applications Administrator Guide*.	
Telemeter	Telemeter provides static graphs at the server level. For information about granular data at the zone level, refer to the Collector Agent information in the *Dell Cloud Solution for Web Applications Administrators Guide*.	

Cloud Control Interface

Login

To access Cloud Control, navigate to
http://<*ipaddressofadminnode*>:8080/admin/customers> .

Field	Description	Format
Username	The login name assigned to a customer.	Text

Field	Description	Format
Password	The login password associated with the username.	Text Minimum length=6 characters

> ✎ **NOTE:** The administrator username is admin, and the default password is joyadmin. The ports are assigned as follows:
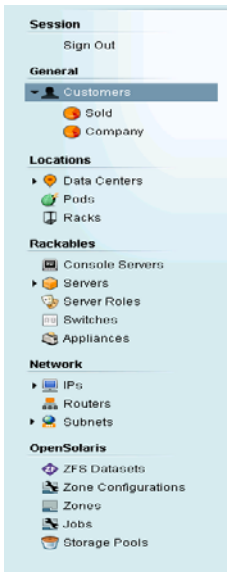>
> Port 8080 = Cloud Control
>
> Port 8081 = Cloud Control API
>
> Port 8082 = Customer's API
>
> Port 8083 = User Portal.

Side Menu

Use the Side Menu to access the different elements of Cloud Control. Menu options are discussed in the following pages.

General

Customers

The **Listing Customers** page provides a list of all customers.

> 📝 **NOTE:** Customers will likely have multiple entries — one for each department within their company. Using a common company name enables Cloud Control to logically group information on reports.

Buttons

Button	Action
Search	Enter a customer or company name in the field and click to display a subset of names matching the search string.
New Customer	Open the **New Customer** page.
Download as CSV	Initiate a file download of the customers listed. Open the file by browsing to an application such as Microsoft Excel or save the file to disk.

Fields

Field	Description	Link Delivers
Customer Name	Customer's name	Detailed information about the customer
Email	Customer's email address	An email client addressed to the customer
Zone Count/Active	Total and active counts of customer's SmartMachines	Detailed information about the customer's SmartMachines

Field	Description	Link Delivers
Action	Edit customer data	Customer details page in edit mode
	Delete the customer	Delete confirmation dialogue box

Customers➜New Customer

Use the **New Customer** page to create customers. **Bold** field labels indicate required input.

NOTE: You cannot create a customer with the same e-mail address or username as an existing or deleted customer.

Fields

Field	Description	Format
First Name	Customer's first name	Text
Last Name	Customer's last name	Text
Email Address	Customer's email address	Text
Alt. Email Address	Customer's alternate email address	Text

Field	Description	Format
Automatic Provisioning	Enables automatic provisioning of the new customer	Checkbox (recommended)
RAM Quota in MB	Quota of RAM allocated for all of a customer's provisioned SmartMachines The customer can portion the quota as needed, e.g., a 512MB quota can be allocated to one 512MB SmartMachine or two 256MB SmartMachines. A quota of zero indicates unlimited quota. Quotas apply only to zones created through the User Portal. Zones created through Cloud Control do not observe quotas.	Number
Company Name	Customer's company name	Text
Street 1	Customer's street address—first line	Text
Street 2	Customer's street address—second line	Text
City	Customer's city	Text
State	Customer's state	Text
Postal Code	Customer's postal code	Text
Country	Customer's country	Text
Phone Number	Customer's phone number	Text
Comments	Notes about the customer	Text
Login	Customer's login username	Text

Field	Description	Format
Password	Customer's password	Text Minimum length is 6 characters.
Password Confirmation	Customer's password confirmation	Text Minimum length is 6 characters, and must match the **Password** field entry.
Role	Customer's role on the system	Drop-down list Only Admin account can configure.

NOTE: When a customer is successfully created, a green box displays at the top of the page.

> Customer was successfully created.

When there is a problem with customer data, a red box displays at the top of the page.

> There were problems with the following fields:
> CAPI: Password must be at least 6 characters long

Buttons

Button	Action
Create	Create a customer record.
Cancel	Cancel the creation of a customer record.

Customers➜New Customer: Cloud Control Record

After a customer is successfully created, the **Customer** page displays.
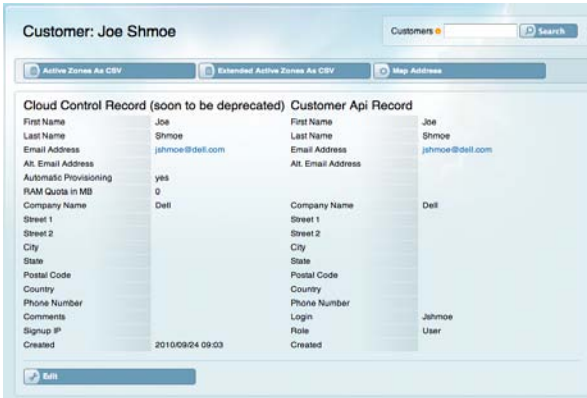
Buttons

Button	Action
Search	Enter a customer or company name in the field and click to display a subset of names matching the search string.
Active Zones as CSV	Download a comma-separated value file of all active zones for the customer.
Extended Active Zones as CSV	Download a comma-separated value file of all extended active zones for the customer.
Map Address	Display a Google map of the customer's physical location based on the input derived from the address field.
Edit	Display the customer details page so that changes can be made.
Update	Commit the updates. If the update is successful, a green success message displays. If the update fails, a red message displays.

Button	Action
Cancel	Cancel the changes to the customer record.

Customers➔New Customer⬇Zone Information

The **Zone Information** section of the **New Customer** page provides detailed zone information.
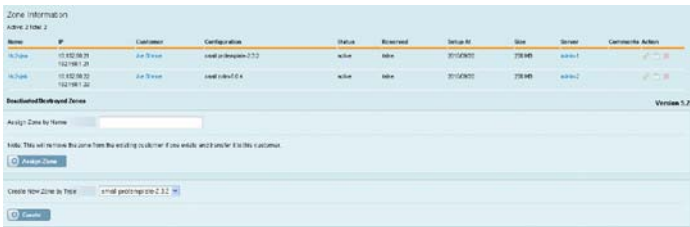
Columns

Column	Description	Link Delivers
Name	Zone name	Zone details page
IP	Zone IP address	NA
Customer	Customer name	Customer details page.
Configuration	Template associated with the zone	NA
Status	Zone status (deactivated, assigned, etc.)	NA
Reserved	**True** = Zone is reserved **False** = Zone is not reserved	NA
Setup At	Date stamp when zone was set up	NA
Size	Size in MB	NA
Server	Hostname	Hostname details page.

Column	Description	Link Delivers
Comments	Comments relating to the zone	NA
Action	Edit zone information	Zone details page in edit mode
	Send Welcome email to zone owner	Confirmation message
	Delete zone	Removes zone from display without prompting for confirmation

Buttons

Button	Action
Assign Zone	Remove the zone from the current customer and transfer it to the customer listed in the **Assign Zone by Name** box.
Create	Create a new zone for the customer using the template selected in the **Create New Zone by Type** drop-down list.

Customers➔New Customer: Zone Usage

The **Zone Usage** section of the **New Customer** page provides detailed information about zone usage.

Columns

Column	Description	Link Delivers
Period	Usage time period	NA
Average Active Zones	Average number of active zones during the time period	NA
Average Inactive Zones	Average number of inactive zones during the time period	NA
Average Active RAM in MB	Average amount of active RAM (in MB) during the time period	NA
Average Inactive RAM in MB	Average amount of inactive RAM (in MB) during the time period	NA

Customers➔New Customer: Virtual IP's

Columns

Column	Description	Link Delivers
Public IP	Public IP address	NA
Created At	Date and time the virtual IP was created.	NA
Updated At	Date and time the virtual IP was last updated.	NA
Setup At	Date and time the virtual IP was set up.	NA

Buttons

Button	Action
Create	Create a virtual IP with the address entered in the **Public IP** address field.

Customers➜Sold

Click **Sold** in the side menu to display the **Sales Report for All Customers** page.
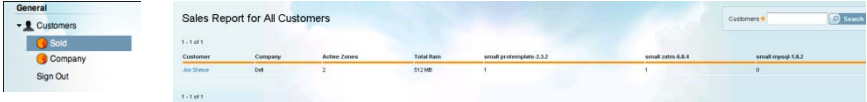
Buttons

Button	Action
Search	Enter a customer or company name in the field and click to display a subset of names matching the search string.

Columns

Column	Description	Link Delivers
Customer	Customer's first and last name	Customer details page
Company	Customer's company name	NA
Active Zones	Number of active zones for the customer	NA
Total RAM	Total RAM for the customer	NA
Small Protemplate	Number of this type of template in use by the customer	NA

Customers➔Company

Click **Company** in the side menu to display the **Report by Company** page.
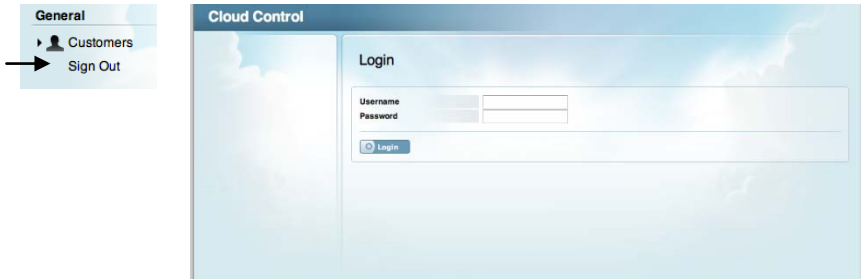

Buttons

Button	Action
Search	Enter a customer or company name in the field and click to display a subset of names matching the search string.
Show RAM Greater Than	Select one of the RAM options from this drop-down list to limit the resulting display to those customers meeting the criteria.

Columns

Column	Description	Link Delivers
Company	Customer's company name	NA
Total RAM	Total RAM for all SmartMachines in use by the company	NA
Active Zones	Total number of active zones in use by the company	NA
Customer	Name of each customer from the company	Customer details page.
Total RAM	Total RAM for each customer from the company	NA
Active Zones	Number of active zones for each customer from the company	NA

Customers➔Sign Out

Click **Sign Out** in the side menu to log out of **Cloud Control** and display the **Login** page.

Locations

The **Locations** section contains the details relating to all data centers, pods, and racks in the cloud.

Data Centers

Click **Data Centers** in the side menu to display the **Listing Data Centers** page.

Buttons

Button	Action
Search	Enter data center information in the field and click to display a subset of data centers matching the search string.
New Data Center	Display the page to create a data center.

Columns

Column	Description	Link Delivers
Company Name	Name of the company responsible for the data center	Data center details page
City	City where the data center is located	NA
State	State where the data center is located	NA
Phone Number	Contact phone number for the company responsible for the data center	NA
Contact Person	Contact person for the company responsible for the data center	NA
Actions	Edit data center information.	Data center details page in edit mode
	Delete the data center.	Delete confirmation dialog box

Locations➜New Data Center

Use the **New Data Center** page to create a data center. **Bold** field labels indicate required input.

Fields

Field	Description	Format
Company Name	Name of the company responsible for the data center	Text
City	City where the data center is located	Text
State	State where the data center is located	Text
Phone Number	Contact phone number for the company responsible for the data center	Text
Contact Person	Contact person for the company responsible for the data center	Text

NOTE: When a data center is successfully created, a green box displays at the top of the page.

DataCenter was successfully created.

When there is a problem with data center data, a red box displays at the top of the page.

There were problems with the following fields:

State can't be blank

Buttons

Button	Action

Button	Action
Create	Create a data center.
Cancel	Cancel the creation of a data center.

Data Centers➜Sold

The **Sales Report for Data Centers** lists all of the data centers within the cloud.
Any servers requiring rack assignment are listed first.

Buttons

Button	Action
Search	Enter data center information in the field and click to display a subset of data centers matching the search string.

Columns

Column	Description	Link Delivers
Hostname (#)	Server name	Hostname details page.
IP	Server IP address	IP details page.
Sold	Percentage of the server that has been sold	NA
Available RAM	Amount of RAM available on the server	NA
Sold RAM	Amount of RAM that has been sold	NA
Active RAM	Amount of active RAM	NA
Target RAM	Maximum sellable RAM for the data center.	NA
Operating System	Server OS	NA

Column	Description	Link Delivers
Setup?	**True** = Server is set up. **False** = Server is not set up.	NA
API?	**True** = API is available for use on the server. **False** = API is not available for use on the server.	NA
Active Zones	Number of active SmartMachines on the server	NA

> **NOTE:** Totals are provided for each data center. A grand total is provided for all data centers displayed. If the display is delimited by a search, the grand total will reflect only those data centers meeting the search criteria.

Pods

Click **Pods** in the side menu to display the **Listing Pods** page.

Buttons

Button	Action
Search	Enter pod information in the field and click to display a subset of pods matching the search string.
New Pod	Display the **New Pod** page.

Columns

Column	Description	Link Delivers
Name	Pod name	Pod details page.
Location	Pod location in the data center (e.g., Row 4, Aisle 3)	NA
Actions	Edit pod information.	Pod details page in edit mode.
	Delete the pod.	Delete confirmation dialog box.

Pods➜New Pod

Click the **New Pod** button to display the **New Pod** entry page.

Fields

Field	Description	Format
Name	Pod name	Text
Location	Physical location of the pod	Text (e.g., Row 3, Aisle 2)
Data Center	Name of the data center where the pod is located	Text

Field	Description	Format
Pkgsrc URL	URL for an alternate pkgsrc. Overrides the default pkgsrc. If an alternate pkgsrc is used, an alternate nameserver must also be specified.	URL or IP address
Nameservers	Alternate nameserver. Overrides the default DNS nameserver. If an alternate nameserver is used, an alternate pkgsrc must also be specified.	URL or IP address

Buttons

Button	Action
Create	Create a new pod using the information entered on the **New Pod** page.
Cancel	Cancel the creation of a new pod.

Pods➔Pod Details

Click on the pod name link to display the **Pod** details page.
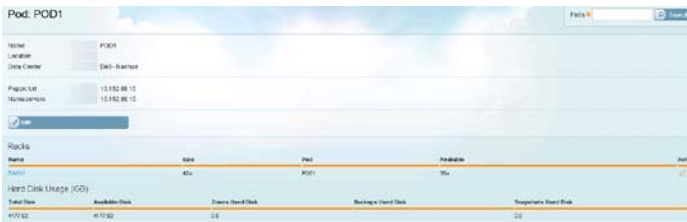
Buttons

Button	Action

Button	Action
Search	Enter pod information in the field and click to display a subset of pods matching the search string.
Edit	Display the details page in edit mode.

Pods➜Pod Details⬇Racks

The **Racks** table within the **Pod** details page lists all racks associated with the pod.

Columns

Column	Description	Link Delivers
Name	Rack name	Rack details page
Size	Number of units (slots) in the rack	NA
Pod	Pod where the rack is housed	NA
Available	Number of open units in the rack "Empty" indicates that there are no rackable devices in the rack.	NA
Actions	Edit rack information	Rack details page in edit mode
	Delete the rack	Delete confirmation dialog box

Pods➜Pod Details⬇Hard Disk Usage (GB)

The **Hard Disk Usage** table on the **Pod** details page provides data about each hard disk within the pod. This information provides insight into disk resource consumption and helps ensure that sufficient disk space is available over time.

Columns

Column	Description	Link Delivers
Total Disk	Total disk space in the pod.	NA
Available Disk	Available disk space in the pod	NA
Zones Used Disk	Disk space used by zones	NA
Backups Used Disk	Disk space used by backups	NA
Snapshots Used Disk	Disk space used by ZFS snapshots	NA

Pods➜Editing Pod

Click the **Edit** button to display the **Editing Pod** page. **Bold** field labels indicate required input.

Buttons

Button	Action
Search	Enter pod information in the field and click to display a subset of pods matching the search string.
Update	Commit the changes entered in the fields on the **Editing Pod** page.
Cancel	Cancel the changes entered in the fields on the **Editing Pod** page and return to the **Pod** details page.

⊘   **NOTE:**   When a pod is successfully updated, a green box is displayed at the top of the page.

Pod was successfully updated.

When there is a problem with pod data, a red box is displayed at the top of the page.

There were problems with the following fields:

Name can't be blank

Fields

Field	Description	Format
Name	Pod name	Text
Location	Pod physical location	Text (e.g., Row 3, Aisle 2)
Data Center	Name of the data center where the pod is located	Text
Pkgsrc	URL for an alternate pkgsrc. Overrides the default pkgsrc. If an alternate pkgsrc is used, an alternate nameserver must also be specified.	URL or IP address
Nameservers	Alternate nameserver. Overrides the default DNS nameserver. If an alternate nameserver is used, an alternate pkgsrc must also be specified.	URL or IP address

Racks

The **Listing Racks** page contains information about each rack.

Buttons
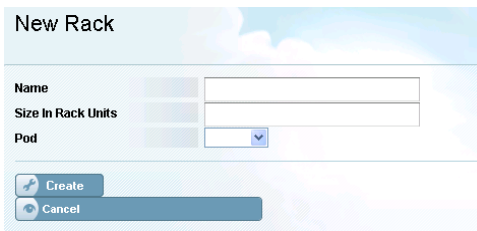
Button	Action
Search	Enter rack information in the field and click to display a subset of racks matching the search string.
New Rack	Click the **New Rack** button to display the **New Rack** entry page.

Columns

Column	Description	Link Delivers
Name	Rack name	Rack details page
Size	Number of units (slots) in the rack	NA
Pod	Name of the pod where the rack is physically located	NA
Available	Number of open units in the rack. "Empty" indicates that there are no rackable devices in the rack.	NA
Actions	Edit rack information.	Rack details page in edit mode
	Delete the rack.	Delete confirmation dialog box

Racks➔New Rack

Use the **New Rack** page to create an entry about each rack in the Cloud Control database.

Fields

Field	Description	Format
Name	Rack name	Text
Size in Rack Units	Number of units in the rack	Integer
Pod	Pod where the rack is physically located	Drop-down list

Buttons

Button	Action
Create	Commit the data and create a new rack.
Cancel	Cancel the creation of the new rack.

Racks➜Rack Details

The **Rack** details page displays information specific to a given rack.
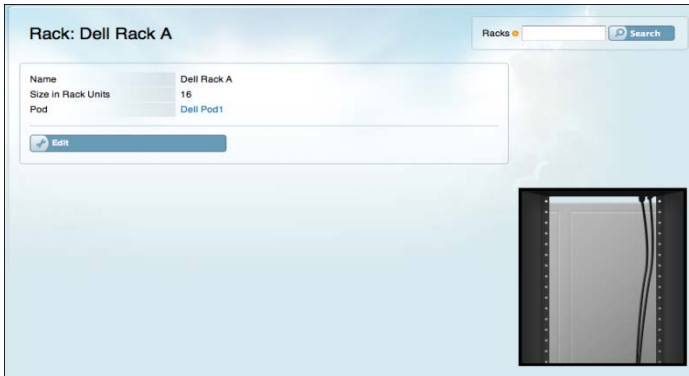
Buttons

Button	Action
Search	Enter rack information in the field and click to display a subset of racks matching the search string.
Edit	Display the **Edit Rack** page.

The **Rack** details page includes an image representing the actual size of the rack. If components are contained within the rack and entered into the Cloud Control database, the image is modified to represent the amount of physical space occupied by the components and the amount of available space remaining in the rack.

Three servers are mounted in this rack. The image reflects the number of rack units each server occupies.
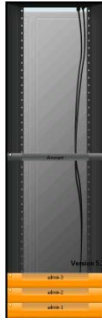
Rackables

Console Servers

Console servers are both the serial consoles and the IP KVMs used to hop onto a console.

NOTE: KVM is a device that supports Keyboard-Video-Mouse swapping for a series of server console usually in a rack configuration.

Click **Console Servers** in the side menu to display the **Listing Console Servers** page.
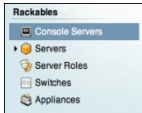
Buttons

Button	Action
Search	Enter console server information in the field and click to display a subset of console servers matching the search string.
New Console Server	Display the **New Console Server** page.

Columns

Column	Description	Link Delivers
Name	Console server name	Console server details page
Public IP	Console server public IP address	NA
Rack Position	Console server position in the rack (e.g., 1 is the bottom position)	NA
Rack Height	Number of units needed to fit the console server in the rack	NA
Actions	Edit console server information.	Console server details page in edit mode
	Delete the console server.	Delete confirmation dialog box.

Console Servers➜New Console Server

Click the **New Console Server** button to display the **New Console Server** page.

Buttons

Button	Action
Search	Enter console server information in the field and click to display a subset of console servers matching the search string.
Create	Create the new console server using the information on the **New Console Server** page.
Cancel	Cancel the creation of the console server.

Fields

Field	Description	Format
Name	Console server name	Text
Manufacturer	Console server manufacturer	Text
Model	Console server model number	Text
Vendor Number	Manufacturer vendor number	Text
Interface	Either Console Server or IP KVM	Drop-down list

Field	Description	Format
Rack	Rack where the console server is physically located	Drop-down list
Rack Position	Position in the rack where the console server is located.	Number
Rack Height	Number of rack units the console server occupies.	Drop-down list

Servers

Click **Servers** in the side menu to display the **Listing Servers All** page.

Servers➜Listing Servers All

The **Listing Servers All** page provides details about each of the servers in the cloud.

Buttons

Button	Action
Search	Enter server information in the field and click to display a subset of servers matching the search string.
New Server	Create a new server using the information on the **New Server** page.
Download as CSV	Initiate a download of a comma-separated value file containing information about the servers displayed.
Filter by Server Role	Enable the filtering of the display by server roles.

Columns

Column	Description	Link Delivers
Hostname	Server hostname	Hostname details page
Rack/Pod/Data Center	Rack, pod and data center where the server is located	Rack details page
Public IP	Server public IP	NA
Sold	Percentage of the server that has been sold.	NA
Server Role	Server role.	Server role details page
Reserved?	**True** = Server is reserved. **False** = Server is not reserved.	NA
Setup?	**True** = Server is set up **False** = Server is not set up.	NA
Action	Edit server information.	Server details page in edit mode
	Delete the server.	Delete confirmation dialog box

Servers➔Hostname Details

Click the hostname to display the **Hostname** details page.

Buttons

Button	Action
Search	Enter server information in the field and click to display a subset of servers matching the search string.
Mark as Setup	After the server is physically set up, click to mark the server as ready for use and change the date stamp for the **Setup At** field. Note that the server must be assigned to a pod and a rack before it can be marked as set up.
Mark as Reserved	Click to prevent the server from having new zones auto-assigned to it.
Deploy Joyprovision Tools	Click to deploy the Joyprovision Tools to the server over SSH.
Queue for Provisioning in Solaris	After the server is physically set up, click to schedule provisioning for all zones still requiring setup and add a record to the provisioning queue.

Button	Action
Send Welcome Email to All Zones	Click to send a Welcome email to all zones on the server.
Release Server Reserved Zones	Click to release all reserved zones on the server. When the dialog box displays, click **OK** to confirm the action.
Download Zones as CSV	Click to initiate a file download containing a list of all zones on the server in comma-separated value (CSV) format.
Telemeter	Click to display telemeter data for the server (a username and password are required).
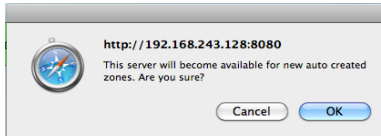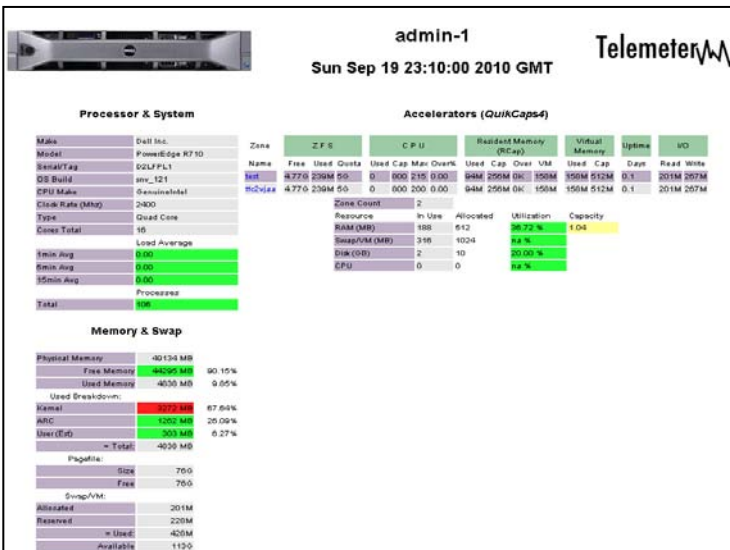
Figure 10. Sample Telemeter Data Display
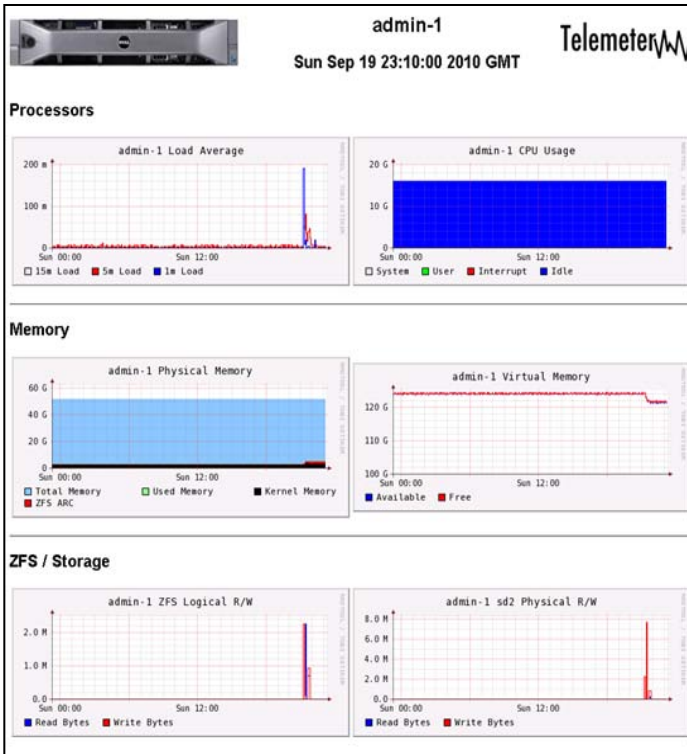
Figure 11. Sample Telemeter Graphical Display

Fields

Field	Description	Format
Setup At	Date and time server was set up	YYYY/MM/DD HH:MM
Interface for External Network	Physical interface for external network	Text

Field	Description	Format
Interface for Internal Network	Physical interface for internal network	Text
Reserved	If server is reserved	**True** = Reserved **False** = Not reserved
API Provisionable	If server is set up for access using the API	**True** = API **False** = No API
Crossbow Enabled	If server is enabled for Crossbow (network virtualization and resource control)	**True** = Crossbow enabled **False** = Crossbow not enabled
Admin IP SSH Access Preferred	Admin access IP	**True** = Allowed False = Not Allowed
Server Role	Server role assigned to the server	Text
Manufacturer	Server manufacturer	Text
Model	Server model	Text
Vendor Number	Manufacturer number	Text
CPU Cores	Number of CPU cores in the server	Integer
Default CPU Cap for Zones	Amount of CPU that is eligible to be committed to a zone	Integer
RAM	Amount of server RAM	Integer (typically measured in GBs)
RAM Used	Amount of RAM used by the server	Integer (typically measured in MBs)
Sold	Percentage of the server that has been sold	Percentage
Target to Sell	Size of the server to be sold	Integer (typically measured in GBs)

Field	Description	Format
Full	If the server is full	**True** = Server is full **False** = Server is not full
Rack	Rack where the server physically resides	Text from rack list
Rack Position	Position of the server within the rack	Integer
Rack Height	Number of rack units the server occupies	Integer
SSH Access	If the server supports or requires SSH access	**True** = SSH Access False = No SSH Access
Operating System	Server OS	Text
Comments	Special notes about the server	Text

Servers➔Hostname Details⬇IPs

This section of the **Hostname** page lists information relating to IPs associated with the server.

Buttons

Button	Action
Assign	Assign the IP address to the server entered in the **IP Address** field.

Columns

Column	Description	Link Delivers
IP Address	Server IP address	IP address details page
Addressable	IP of corresponding server	Hostname details page
Pingable?	**Pingable** = Server is pingable **Not Pingable!** = Server is not pingable	NA
Reserved?	**Reserved** = Server is reserved **Not Reserved** = Server is not reserved	NA
Comments	Special notes about the server	NA
Role	Server role	NA
Actions	Edit server information	Server details page in edit mode
	Delete the server	Delete confirmation dialog box

Servers➜Hostname Details⬇Zones

This section of the **Hostname** page displays information about zones related to the server.

Columns

Column	Description	Link Delivers
Name	Zone name	Zones details page
IP	IP Address(es) related to each zone on the server	NA
Customer	Owner name for each zone on the server	Customer details page
Configuration	Template associated with zones on the server	NA
Status	Status of each zone on the server	NA
Reserved	**True** = Zone is reserved **False** = Zone is not reserved	NA
Setup At	Date the zone was set up	NA
Size	Total size of all zones for each customer on the server	NA
Server	Hostname of each zone	Hostname details page
Comments	Special notes relating to each zone	NA
Action	Edit zone information	Zones details page in edit mode

Column	Description	Link Delivers
	Send Welcome email to the zone owner	Zones details page

Servers➔Hostname Details⬇Deactivated/Destroyed Zones

This section of the **Hostname** page displays deactivated or destroyed zones.

 Note: The columns in this section are the same as those for active zones.

Servers➔Hostname Details⬇Jobs

This section of the **Hostname** page lists jobs associated with the server.

Columns

Column	Description	Link Delivers
Name	Job name	Job details page
Method Name	Method name Example: provision_in_solaris!	NA
State	State of the job	NA
Priority	Priority level of the job	NA
Queue Name	Name of the queue where the job is pending	NA
Queued At	Date and time the job entered the queue	NA
Actions	🚫 Delete an individual job.	Dialog box asking for the delete confirmation

Column	Description	Link Delivers
Actions	(Delete) Delete jobs that are checked from the queue	Delete confirmation dialog box

Servers➜Hostname Details⬇ZFS Storage Pools

This section of the **Hostname** details page concerns ZFS storage pools.
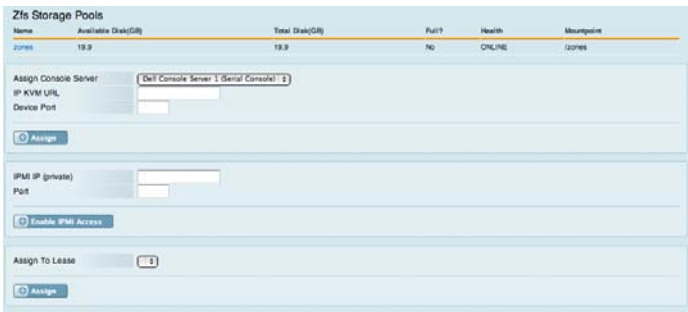
Columns

Column	Description	Link Delivers
Name	ZFS storage pool name	ZFS storage pool details page
Available Disk (GB)	Amount of disk space available in the pool	NA
Total Disk (GB)	Total disk space in the pool	NA
Full?	**Yes** = Pool is full **No** = Pool is not full	NA
Health	Pool health (e.g., ONLINE)	NA
Mountpoint	Directory location	NA

Fields

Field	Description	Format
Assign Console Server	Console server assigned to the pool	Drop-down list
IP KVM URL	IP KVM address associated with the pool	URL
Device Port	Device port associated with the IP KVM address	Port Number

Buttons

Button	Action
Assign	Assign the values from the three fields to the ZFS storage pool.

Fields

Field	Description	Format
IPMI IP (private)	IP address of IPMI interface	IP Address
Port	Port associated with the IPMI IP	Port Number

Buttons

Button	Action
Enable IPMI Access	Enable IPMI access with the values from the two fields.

Buttons

Button	Action
Assign	Assign the pool to a lease

Servers➜Requiring Setup

Click **Requiring Setup** in the side menu to display a list of servers that require setup.

Buttons

Button	Action
Search	Enter server information in the field and click to display a subset of servers matching the search string.
New Server	Create a new server using the information on the **New Server** page.
Download as CSV	Initiate a download of a comma-separated value file containing information about the servers displayed.
Filter by Server Role	Filter the display by the server role selected.

Columns

Column	Description	Link Delivers
Hostname	Server hostname	Hostname details page
Rack/Pod/Data Center	Rack, pod, and data center where the server is located	Rack details page
Public IP	Server public IP	NA
Sold	Percentage of the server that has been sold	NA
Server Role	Server role	Server role details page

Column	Description	Link Delivers
Reserved?	**True** = Server is reserved. **False** = Server is not reserved.	NA
Setup?	**True** = Server is set up. **False** = Server is not set up.	NA
Action	✏️ Edit server information	Server details page in edit mode
	⛔ Delete the server	Delete confirmation dialog box

Servers➔Sold

The **Utilization Report for All Servers** displays usage data for each server and provides a grand total for all servers in the list.

Buttons

Button	Action
Search	Enter server information in the field and click to display a subset of servers matching the search string.
Download as CSV	Initiate a download of a comma-separated value file containing information about the servers displayed.

Columns

Column	Description	Link Delivers
Hostname	Server hostname	Hostname details page
IP	Server IP address	IP details page
Sold	Percentage of the server that has been sold	NA
Available RAM	Amount of RAM available on the server	NA
Sold RAM	Amount of RAM that has been sold	NA
Active RAM	Amount of active RAM	NA
Target RAM	Maximum sellable RAM	NA
Operating System	Server OS	NA
Setup?	**True** = Server is set up **False** = Server is not set up	NA
API?	**True** = API is available for use on the server **False** = API is not available for use on the server	NA
Active Zones	Number of active SmartMachines on the server	NA

Servers➜Audit IPs

Click **Audit IPs** in the side menu to display the **Servers Missing IP(s)** page.
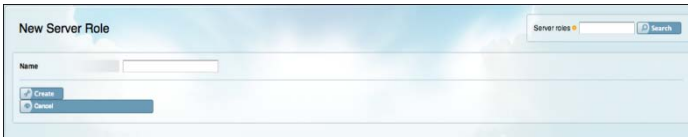

Buttons

Button	Action
Search	Enter server information in the field and click to display a subset of servers matching the search string.
Download as CSV	Initiate a download of a comma-separated value file containing information about the servers displayed.
Filter by Server Role	Filter the display by the server role selected.

Columns

Column	Description	Link Delivers
Hostname	Server hostname	Hostname details page
Rack/Pod/Data Center	Rack, pod, and data center where the server is located	Rack details page
Public IP	Server public IP	NA
Private IP	Server private IP	NA
Admin IP	Server admin IP	NA
Server Role	Server role	Server role details page
Reserved?	**True** = Server is reserved **False** = Server is not reserved	NA

Column	Description	Link Delivers
Setup?	**True** = Server is set up **False** = Server is not set up	NA
Action	Edit server information.	Server details page in edit mode
	Delete the server.	Delete confirmation dialog box

Server Roles

Server roles define and restrict which templates can be used for a compute node. For example, Pro is the server role used by Joyent to provision all SmartMachines. Some customers choose to use custom roles. Click **Server Roles** in the side menu to display the **Listing Server Roles** page.

Buttons

Button	Action
Search	Enter server role information in the field and click to display a subset of server roles matching the search string.
New Server Role	Display the **New Server Role** page.

Columns

Column	Description	Link Delivers
Name	Server role name	Server role details page

Column	Description	Link Delivers
Supported Zone Configurations	Name of the template associated with the server role	NA
Actions	Edit server role information	Server role details page in edit mode
	Delete the server role	Delete confirmation dialog box

Server Roles➜New Server Role

Buttons

Button	Action
Search	Enter server role information in the field and click to display a subset of server roles matching the search string.
Create	Create a new server role using the data on the input form.
Cancel	Cancel the creation of the new server role.

Fields

Field	Description	Format
Name	Name of the new server role	Text

Server Roles➔Server Role Detail

Click the name of the server role to display a details page.

Buttons

Button	Action
Search	Enter server role information in the field and click to display a subset of server roles matching the search string.
Make Un-provisionable	Server role will become un-provisionable and any existing provision jobs will not be handled automatically for zones of this type.
Disallow Non-provision Jobs	Server role will not process any non-provision jobs.
Edit	Display the server role details page in edit mode.
Destroy	Delete the server role.

Fields

Field	Description	Format
Created	Date and time server role was created	YYYY/MM/DD HH:MM
Provisionable?	If the server role is provisionable	**True** = Provisionable **False** = Not Provisionable

Field	Description	Format
Allow Non-Provision Jobs?	Allow provision jobs	**True** = Allow non-provision jobs **False** = Do not allow non-provision jobs

Server Roles➜Server Role Detail⬇ Supported Zone Configurations

Columns

Column	Description	Link Delivers
Name	Supported zone configuration name	NA
RAM in MB	Amount of RAM in the zone configuration	NA
Load Balancing Available?	**Yes** = Load balancing is available in the zone configuration **No** = Load balancing is not available in the zone configuration	NA
Action	⛔ Delete the zone configuration	Delete confirmation dialog box

Buttons

Button	Action
Zone Configuration	Identify the zone configuration.
Assign	Assign the selected zone configuration to the server role.

Server Roles➔Server Role Detail⬇Pro Servers

This part of the details page lists the servers using the specified server role.

Columns

Column	Description	Link Delivers
Hostname	Server hostname	Hostname details page
Rack/Pod/Data Center	Rack, pod, and data center where the server is located	Rack details page
Public IP	Server public IP address	NA
Sold	Percentage of memory sold on the node	NA
Role	Server role name	Server role details page
Reserved?	True = Server is reserved **False** = Server is not reserved	NA
Setup?	**True** = Server is set up **False** = Server is not set up	NA

Switches

Click **Switches** in the side menu to display the **Listing Switches** page.
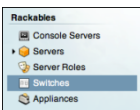
Buttons

Button	Action
Search	Enter switch information in the field and click to display a subset of switches matching the search string.
New Switch	Display the **New Switch** page.

Columns

Column	Description	Link Delivers
Name	Switch name	Switch details page
Public IP	Switch public IP	NA
Rack Position	Position of the switch within the rack	NA
Rack Height	Number of rack units the switch occupies	NA
Comments	Notes relating to the switch	NA
Actions	Edit switch information	Switch details page in edit mode
	Delete the switch	Delete confirmation dialog box

Switches➔New Switch

Click the **New Switch** button to display the **New Switch** page.

Buttons

Button	Action
Search	Enter switch information in the field and click to display a subset of switches matching the search string.
Create	Create a new switch based on the data on the **New Switch** page.
Cancel	Cancel the creation of the new switch.

Fields

Field	Description	Format
Name	Switch name	Text
Manufacturer	Switch manufacturer	Text
Model	Switch model number	Text
Vendor Number	Manufacturer vendor number	Text
Comments	Notes relating to the switch	Text
Rack	Name of the rack where the switch resides	Drop-down list
Rack Position	Position of the switch in the rack	Integer
Rack Height	Number of rack units the switch occupies	Drop-down list

Appliances

Click **Appliances** in the side menu to display the **Listing Appliances** page.

Buttons

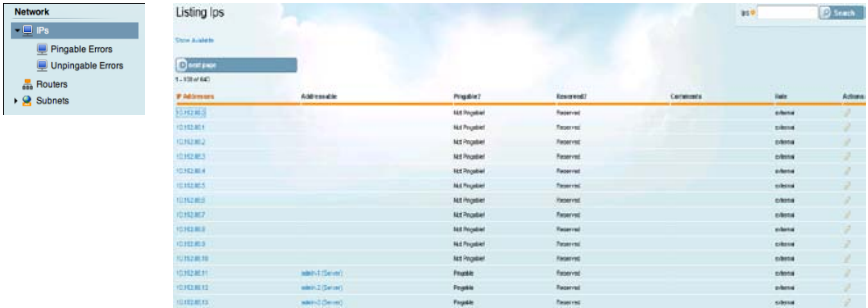| Button	Action
Search	Enter appliance information in the field and click to display a subset of appliances matching the search string.
New Appliances	Display the **New Appliance** page.

Columns

Column	Description	Link Delivers
Name	Appliance name	Appliance details page
Type	Appliance type	NA
Public IP	Appliance public IP address	NA
Rack Position	Position of the appliance in the rack	NA
Rack Height	Number of rack units the appliance occupies	NA
Comments	Notes relating to the appliance	NA
Actions	Edit appliance information	Appliance details page in edit mode
	Delete the appliance	Delete confirmation dialog box

Appliances➜New Appliance

Use the **New Appliance** page to create appliances in the cloud.

Fields

Field	Description	Format
Name	Appliance name	Text
Appliance Type	Appliance type	Drop-down list
Manufacturer	Appliance manufacturer	Text
Model	Appliance model number	Text
Vendor Number	Manufacturer vendor number	Text
Comments	Notes relating to the specific appliance	Text
Rack	Name of the rack where the appliance is physically located	Drop-down list
Rack Position	Position of the appliance in the rack	Integer
Rack Height	Number of rack units the appliance occupies	Drop-down list

Buttons

Button	Action

Button	Action
Search	Enter appliance information in the field and click to display a subset of appliances matching the search string.
Create	Create a new appliance based on the data on the **New Applianc**e page.
Cancel	Cancel the creation of the new appliance.

Network

The Network functions involve IPs, routers and subnets.

IPs

Internet protocol addresses (IPs or IP addresses) are numerical labels assigned to devices participating in a network. Multiple IP addresses make up the subnet. Click **IPs** in the side menu to display the **Listing IPs** page.
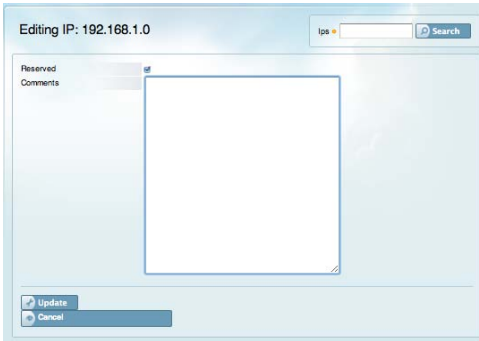

Buttons

Button	Action
Search	Enter IP information in the field and click to display a subset of IPs matching the search string.
Next Page	Display next page of IP addresses.

 NOTE: Click the **Show Available** link at the upper left corner to display all available IPs.

Columns

Column	Description	Link Delivers
IP Address	Server IP address	IP details page for the server
Addressable	If the IP is addressable	Hostname details page

Column	Description	Link Delivers
Pingable?	**Pingable** = Server is pingable **Not Pingable!** = Server is not pingable	NA
Reserved?	**Reserved** = Server is reserved **Not Reserved** = Server is not reserved	NA
Comments	Notes about the server	NA
Role	Server role	NA
Actions	Edit server information	Server details page in edit mode

IPs➔IP Detail

Click an IP address to display the **IP** details page.

Buttons

Button	Action
Search	Enter IP information in the field and click to display a subset of IPs matching the search string.
Edit	Display the **IP** details page in edit mode.

Fields

Field	Description	Format
Reserved	If the IP is reserved	**True** = IP is reserved **False** = IP is not reserved
Addressable	If the IP has been assigned to a device	Link to corresponding node.
Subnet	Range of IP addresses to which the IP belongs	IP address range. E.g., 192.168.1.0 – 192.168.1.255
Role	IP address role	Choice: admin internal external
Description	IP address description	Text
Router	Router associated with the IP	Text from drop-down list
Pingable	If the IP is pingable (physically reachable)	**True** = Pingable **False** = Not Pingable
Last Ping Attempt At	Date and time of the last ping attempt	YYYY/MM/DD HH:MM
Comments	Notes relating to the IP	Text

IPs➔Editing IP

Click the **Edit** button to display the **Editing IP** page.

Buttons

Button	Action
Search	Enter IP information in the field and click to display a subset of IPs matching the search string.
Update	Commit the changes entered in the fields on the **Editing IP** page.
Cancel	Cancel the changes entered in the fields on the **Editing IP** page and return to the **IP** page.

Fields

Field	Description	Format
Reserved?	If the IP is reserved	**Checked** = Reserved **Not Checked** = Not Reserved
Comments	Notes about the IP	Text

Routers

The routers area of Cloud Control is used to define which switches act as routers for a given subnet. Click **Routers** in the side menu to display the **Listing Routers** page.
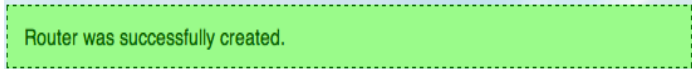

Buttons

Button	Action
Search	Enter router information in the field and click to display a subset of routers matching the search string.
New Router	Display the **New Router** page.

Columns

Column	Description	Link Delivers
Name	Routers name	Router details page
Description	Router description	NA
IP	Router IP address	NA
Actions	Edit router information.	Router details page in edit mode
	Delete the router.	Delete confirmation dialog box

Routers➜New Router

Click the **New Router** button to display the **New Router** page. **Bold** field labels indicate required input.

Buttons

Button	Action
Search	Enter router information in the field and click to display a subset of routers matching the search string.
Create	Create the router record.
Cancel	Cancel the creation of the router record.

Fields

Field	Description	Format
Name	Router name	Text
Pod	Pod where the router (switch) physically resides	Drop-down list
Description	Router description	Text

NOTES: When a router is successfully created, a green box is displayed at the top of the page.

Router was successfully created.

When there is a problem with a piece of router data, a red box is displayed at the top of the page.

There were problems with the following fields:

Name can't be blank
Location can't be blank

Routers➜ Router Detail

Click the router name to display the **Router** details page.

Name: Router1   Routers ● [   ] [🔍 Search]

Pod	Dell Pod 2
Description	Test router.
Number of Subnets	0

[✎ Edit]

Buttons

Button	Action
Search	Enter router information in the field and click to display a subset of routers matching the search string.
Edit	Display the **Router** details page in edit mode.

Fields

Field	Description	Format
Pod	Pod where the router physically resides	Text from drop-down list
Description	Router description	Text

Field	Description	Format
Number of Subnets	Number of subnets associated with the router	Integer

Routers➔ Router Detail⬇Subnets

The **Subnets** section of the **Router** detail page lists subnets associated with the router.

Columns

Column	Description	Link Delivers
Start	IP address that starts the subnet	Subnet details page
End	IP address that ends the subnet	NA
Description	Subnet description	NA
Actions	Edit subnet information	Subnet details page in edit mode.
	Delete the subnet	Delete confirmation dialog box

Routers➜ Router Detail⬇IPs

Click the router name to display the **IPs** detail page.

Columns

Column	Description	Link Delivers
IP Address	IP address associated with the router	IP details page
Addressable	Router name	Displays the top of the router details page
Pingable?	**Pingable** = Server is pingable. **Not Pingable!** = Server is not pingable.	NA
Reserved?	Reserved = Server is reserved. Not Reserved = Server is not reserved.	NA
Comments	Notes associated with the IP	NA
Role	IP role	NA
Actions	Edit IP information	IP details page in edit mode
	Delete the IP	Delete confirmation dialog box.

Buttons

Button	Action
Assign	Assign the IP address to the router in the **IP Address** field.

Subnets

Subnets define the IP ranges assigned to public, private, and admin servers.

> **NOTE:** Typically, admin servers are used for Intelligent Platform Management Interface (IPMI), which monitors system health as well as manages the system. Admin servers are also used for jumpstarting (i.e., PXE booting).

Click **Subnets** in the side menu to display the **Listing Subnets** page.
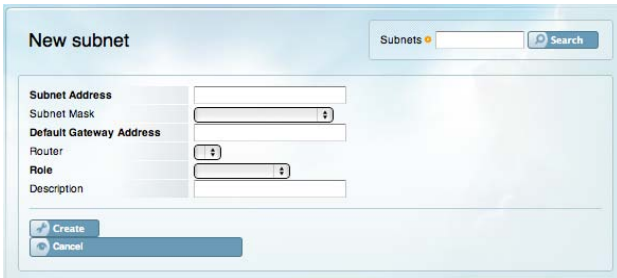

Buttons

Button	Action
Search	Enter subnet information in the field and click to display a subset of subnets matching the search string.
New Subnet	Display the **New Subnet** page.
Filter by Role	Filter the display by role.

Columns

Column	Description	Link Delivers
CIDR	Subnet Classic Inter-Domain Routing (CIDR) IP address	Subnet details page
Address Range	Subnet IP range	NA
Size	Number of IP addresses in the subnet	NA
Free/No Ping	Number of free and non-pingable IP addresses	NA

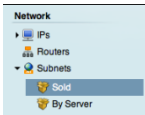| Column	Description	Link Delivers
Sold	Percentage of the subnet that has been sold	NA
Mask	Subnet mask	NA
Router	Router associated with the subnet	NA
Role	Subnet role	NA
Description	Subnet description	NA
Actions	Edit subnet information.	Subnet details page in edit mode
	Delete the subnet.	Delete confirmation dialog box

Subnets➜New Subnet

Buttons

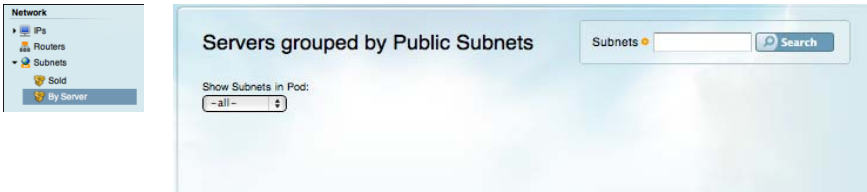| Button	Action
Search	Enter subnet information in the field and click to display a subset of subnets matching the search string.
Create	Create the subnet record.
Cancel	Cancel the creation of the subnet record.

Fields

Field	Description	Format
Subnet Address	Subnet address	x.y.z.0
Subnet Mask	Subnet mask	Drop-down list
Default Gateway Address	Address used when an IP address does not match any entries in the routing table	IP address format
Router	Router used by the subnet	Text
Role	Subnet role	Drop-down list
Description	Subnet description	Text

Subnets➜Sold

Buttons

Button	Action
Search	Enter subnet information in the field and click to display a subset of subnets matching the search string.

Columns

Column	Description	Link Delivers
Name	IP address network and subnet mask	IPs in subnet
Sold	Percentage of allocated IP addresses in subnet	NA

Column	Description	Link Delivers
Total IPs	IP addresses in subnet mask	NA
Sold/Ping	Number of IP addresses used	NA
Unsold/No-ping	Number of IP addresses not used or un-pingable	NA
Free	Number of available IP addresses	NA
Total Memory	Total memory available from provisioned systems	NA
Total Sold	Total memory sold	NA
Total Unsold	Total memory available	NA
Num Servers	Number of provisioned servers	NA
Description	Description of network/IPs	NA

Subnets➜By Server

Click **By Server** under **Subnets** in the **Network** section of the side menu to display the **Servers Grouped by Public Subnets** page.

Buttons

Button	Action
Search	Enter subnet information and click this button to display a subset of subnets matching the search string.

Button	Action
Show Subnets in Pod	Filters by a given pod.

Columns

Column	Description	Link Delivers
Hostname	Node hostname	NA
Operating System	Node OS	NA
Pubic IP	Node public IP	NA
Sold	Memory sold on node	NA
Role	Category of approved SmartMachine	NA
Reserved?	Currently being used	NA
Setup?	Provisioned and available for use	NA

OpenSolaris

OpenSolaris is the operating system used by Cloud Control. The following OpenSolaris components, which enable SmartMachines, are embedded within Cloud Control:

- ZFS Datasets
- Zone Configurations
- Zones
- Jobs
- Storage Pools

ZFS Datasets

ZFS Datasets are the underlying templates used to create SmartMachines or zones. Three templates are included in Cloud Control:

- Pro Template (`protemplate-2.3.2zfs.gz`)
- MySQL (`mysql-1.0.2.zfs.gz`)
- Zeus Load Balancer (`zxtm-6.0.4.zfs.gz`)

Click **ZFS Datasets** in the side menu to display the **Listing ZFS Datasets** page.

Buttons
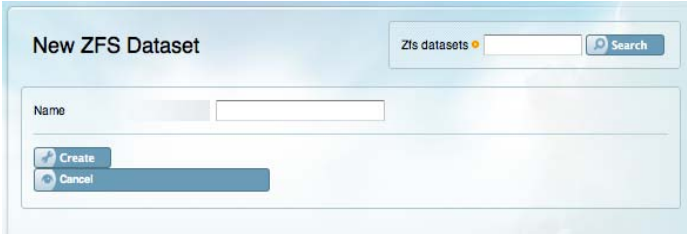
Button	Action
Search	Enter ZFS dataset information in the field and click to display a subset of ZFS datasets matching the search string.
New ZFS Dataset	Displays the **New ZFS Dataset** page.

Columns

Column	Description	Link Delivers
Name	ZFS dataset name	ZFS dataset details page
Action	Edit ZFS dataset information.	ZFS dataset details page in edit mode
	Delete the ZFS dataset.	Delete confirmation dialog box

ZFS Datasets➜New ZFS Dataset

Use the **New ZFS Dataset** page to create new ZFS datasets.

Buttons

Button	Action
Search	Enter ZFS dataset information in the field and click to display a subset of ZFS datasets matching the search string.
Create	Create the ZFS dataset record.
Cancel	Cancel the creation of the ZFS dataset record.

Fields

Field	Description	Format
Name	ZFS dataset name	Text

ZFS Datasets➔ ZFS Dataset Details

Click the name link to display the dataset details page.

Buttons

Button	Action
Search	Enter ZFS dataset information in the field and click to display a subset of ZFS datasets matching the search string.
Edit	Displays the detail page in edit mode.

ZFS Datasets➔ ZFS Dataset Detail⬇Zones

The **Zones** section of the detail page lists those SmartMachines (zones) built using the ZFS dataset.

Columns

Column	Description	Link Delivers
Name	Zone name	Zones details page
IP	Zone IP address	NA
Customer	Customer who owns the zone	Customer details page
Configuration	Zone configuration	NA
Status	Zone status	NA
Reserved	If zone is reserved	NA
Setup At	Date zone was set up	NA

Column	Description	Link Delivers
Size	Zone size	NA
Server	Server name	Server details page
Comments	Notes relating to the zone	NA
Action	Edit zone information.	Zones details page in edit mode
Action	Send Welcome email to the zone owner.	Zones details page

ZFS Datasets➔ZFS Dataset Detail➔Editing ZFS Dataset

Buttons

Button	Action
Search	Enter ZFS dataset information in the field and click to display a subset of ZFS datasets matching the search string.
Update	Commit the changes entered on the **Editing ZFS Dataset** page.
Cancel	Cancel the changes entered on the **Editing ZFS Dataset** page and returns to the detail page.

Zone Configurations

Click **Zone Configuration** in the side menu to display the **Listing Zone Configurations** page.

Buttons

Button	Action
Search	Enter zone configuration information in the field and click to display a subset of configurations matching the search string.
New Zone Configuration	Display the **New Zone Configuration** page.

Columns

Column	Description	Link Delivers
Name	Zone configuration name.	Zone configuration details page
RAM in MB	Amount of RAM in the zone configuration	Zone configuration details page
ZFS Dataset	ZFS dataset used by the zone configuration	NA
Load Balancing Available?	If load balancing is used in the zone configuration	Zone configuration details page
Action	Edit zone configuration information.	Zone configuration details page in edit mode

Column	Description	Link Delivers
	Delete the zone configuration.	Delete confirmation dialog box

Zone Configurations➔New Zone Configuration

Use the **New Zone Configuration** page to create new configurations.

Button

Button	Action
Search	Enter zone configuration information in the field and click to display a subset of zone configurations matching the search string.
Create	Create the zone configuration record.
Cancel	Cancel the creation of the zone configuration record.

Fields

Field	Description	Format
Name	Zone configuration name	Text
Pretty Name	Zone configuration nickname If none is specified, the zone configuration name is used.	Text

Field	Description	Format
RAM in MB	Amount of RAM in MB used in the zone configuration	Integer
CPU Shares	Number of CPU shares in the zone configuration	Integer
CPU Cap	Maximum percentage of a single CPU core the zone can use More than 100% — Zone utilizes multiple CPU cores. None specified — Server default is used.	Percentage
Swap in MB	Amount of swap space in MB used by the zone configuration	Integer
Max. Lightweight Processes	Maximum number of lightweight processes allowed by the zone configuration	Integer
Disk in GB	Amount of disk space in the zone configuration in GB	Integer
DNS Parent Domain	DNS parent domain for the zone configuration. If no DNS is to be used, leave blank.	URL E.g., aaaa.Joyent.us
Load Balancing Available?	If load balancing is available in the zone configuration	Checkbox **Checked** = Yes **Not checked** = No
Similar Zone Names Per Customer?	If similar zone names are to be used in the zone configuration. For example: aaabbaa aaabbab aaabbac	Checkbox Checked = Yes **Not checked** = No If not checked, random zone names are generated.

Zone Configurations➜Zone Configuration Detail

Buttons

Button	Action
Search	Enter zone configuration information in the field and click to display a subset of zone configurations matching the search string.
Edit	Display the **Zone Configuration** details page in edit mode.

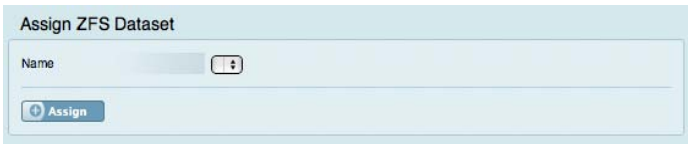**Zone Configurations➜Zone Configuration Detail⬇ZFS Datasets (1)**
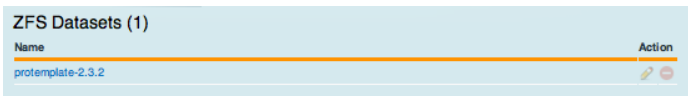
Columns

Column	Description	Link Delivers
Name	Zone configuration name	Zone configuration details page

Column	Description	Link Delivers
Action	✏️ Edit zone configuration information	Zone configuration details page in edit mode
	⛔ Delete the zone configuration	Delete confirmation dialog box

Zone Configurations➔Zone Configuration Detail⬇Assign ZFS Dataset

Fields

Field	Description	Format
Name	ZFS dataset name	Drop-down list

Buttons

Button	Action
Assign	Assign the ZFS Dataset selected in the **Name** field to the zone configuration.

Zone Configurations➔Zone Configuration Detail⬇Jobs

Columns

Column	Description	Link Delivers
Name	Job name	Job output
Method Name	Name of script/job	NA
State	Success/failure	NA
Priority	Rank of run sequence	NA
Queue Name	Name of node	NA
Queued At	Date of job run-time	NA
Actions	Create/delete	Create or delete button

Zone Configurations➜Zone Configuration Detail⬇Zones (4)
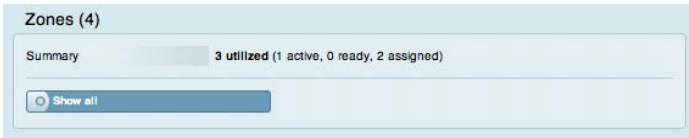
Buttons

Button	Action
Show All	Displays all zones using the current zone configuration.

Zones

Button

Button	Action
Search	Enter zone information in the field and click to display a subset of zones matching the search string.
New Zone	Create a new zone, ready to be provisioned.
	If you create a zone from this page, it will automatically be assigned to the next customer who requests a zone with the same zone configuration.
Filter by Zone Configuration	Filter the display by the zone configuration selected.

Columns

Column	Description	Link Delivers
Name	Zone name	Zone details page
IP	IPs associated with the zone	NA
Customer	Customer who owns the zone	Customer details page
Configuration	Zone configuration	NA
Status	Zone status	NA
Reserved	If the zone is reserved	NA

Column	Description	Link Delivers
Setup At	Date the zone was set up	NA
Size	Zone size	NA
Server	Server where the zone resides	
Comments	Notes relating to the zone	NA
Action	Edit zone information	Zone details page in edit mode
	Send Welcome email to zone owner	Confirmation message
	Delete the zone	Removes zone from display without prompting for confirmation

 NOTE: Red column titles indicate that the rows can be sorted. Click the column title to display the rows in ascending order. Click again to display the rows in descending order.

Zones➔Zone Detail

Zone ffc2vjab

Zones [ ] Search

Resend Welcome Email	Resend Email to Alternate Address	Mark as Deactivated	Queue For Deactivation in Solaris
Queue For Snapshot in Solaris	Mark as Reserved	Remove Customer	New IP pair
Status			

Customer	Joe Customer
Customer Assigned At	2010/69/30 09:21
Server Hostname	admin-1
Zone Name	ffc2vjab
DNS	
Zone Type	small proltemplate-2.3.2
Zone Status	active
ZFS Dataset	proltemplate-2.3.2
Virtual IP	
Internal IPs only	false
CPU Cap	350
Reserved	false
Created At	2010/69/30 09:21
Last Updated At	2010/10/06 12:17
Setup At	2010/69/30 09:24
Setup By	joyprovision
Deactivated At	
Deactivated By	
Destroyed At	
Destroyed By	
Disk Usage	0.00B (0.0%)
ZFS Quota	5G
ZFS Origin	zones/proltemplate-2.3.2@ffc2vjab
Comments	
DSA Key Fingerprint	25:2f:76:31:07:dd:20:73:dc:e0:a5:12:57:aa:9d:55
RSA Key Fingerprint	7f:8c:50:a9:76:48:06:1c:3d:14:f2:22:e4:6a:x0:7a

Buttons

Button	Action
Search	Enter zone information in the field and click to display a subset of zones matching the search string.
Resend Welcome Email	Resend the Welcome email to the zone owner.
Resend Email to Alternate Address	Resend the Welcome email to the alternate address associated with the zone.
Mark as Deactivated	Mark the zone as deactivated. This button does not initiate deactivation. Use this button if you deactivate a zone outside of Cloud Control.
Queue for Deactivation in Solaris	Queue the zone for deactivation in Solaris.
Queue for Snapshot in Solaris	Queue the creation of a zone snapshot that can be used to restore the zone.
Mark as Reserved	Mark the zone as reserved.
Remove Customer	Remove the customer association with the zone.
New IP Pair	Allocate a new pair of internal and external IP addresses for this zone and store them in the Cloud Control database.
Status	Display a list of running jobs and disk usage.

Fields

Field	Description	Format
Customer	Zone owner	Text
Customer Assigned At	Date/time the customer was assigned to the zone	YYYY/MM/DD HH:MM

Field	Description	Format
Server Hostname	Zone hostname	Text
Zone Name	Zone name generated by Cloud Control	Text
DNS	DNS associated with the zone (if designated)	URL
Zone Type	Zone type	Text
Zone Status	Zone status	Choice: Active Assigned Destroyed
ZFS Dataset	ZFS dataset (template) associated with the zone	Text
Virtual IP	Zone IP	Integer
Internal IP Only	Internal IP of zone configured	True/False
CPU Cap	Maximum percentage of a single CPU core the zone can use. More than 100% — Zone utilizes multiple CPU cores. None specified — Server default is used.	Percentage
Reserved	If the zone is reserved	**True** = Reserved **False** = Not Reserved
Created At	Date/time the zone was created	YYYY/MM/DD HH:MM
Last Updated At	Date/time the zone was last updated	YYYY/MM/DD HH:MM
Setup At	Date/time the zone was set up	YYYY/MM/DD HH:MM
Setup By	User who set up this zone. Usually joyprvsn	

Field	Description	Format
Deactivated At	Date/time the zone was deactivated	YYYY/MM/DD HH:MM
Deactivated By	User who deactivated zone	Text
Destroyed At	Date/time the zone was destroyed	YYYY/MM/DD HH:MM
Destroyed By	User who destroyed zone	Text
Disk Usage	Amount of disk used by the zone	GBs and Percent
ZFS Quota	Memory allocated to zone	Integer
ZFS Origin	Name of template used	Text
Comments	Notes relating to the zone	Text
DSA Key Fingerprint	DSA Key	Text
RSA Key Fingerprint	RSA Key	Text
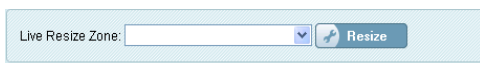
Buttons

Button	Action
Edit	Display the **Zones** details page in edit mode.
Resize	Select a new configuration for the zone from the drop-down list and click to queue the zone for resizing. This affects the RAM and CPU configuration.

Zones➜Zone Detail⬇IPs

The middle section of the **Zones** details page lists the IPs associated with the zone.

Columns

Column	Description	Link Delivers
IP Address	IP address	IP details page
Addressable	Zone name	Zones details page
Pingable?	**Pingable** = Server is pingable **Not Pingable!** = Server is not pingable	NA
Reserved?	**Reserved** = IP is reserved **Not Reserved** = IP is not reserved	NA
Comments	Notes associated with the IP	NA
Role	IP Role	NA
Actions	🖊 Edit zone information	Zones details page in edit mode
	⛔ Delete the zone	Delete confirmation dialog box

Fields

Field	Description	Format
IP Address	IP Address	x.y.z.0

Buttons

Button	Action
Assign	Assign the IP address to the zone.

Zones➜Zone Detail⬇Credentials
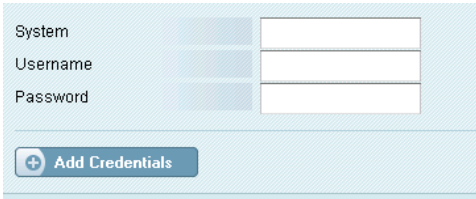
Columns

Column	Description	Link Delivers
System	Purpose of the credential	NA
Username	Username	NA
Password	Associated password	NA

Buttons

Button	Action
Remove	Remove the credential record.

Credentials added here are added only to the Cloud Control database.

Fields

Field	Description	Format
System	Purpose of the credential	Text
Username	Username	Text
Password	Associated password	Text

Buttons

Button	Action
Add Credentials	Create a new set of credentials based on the data in the form. Note that this information appears only in the Cloud Control database. It does not create a new user on the zone.

Zones➜Zone Detail⬇Hostnames

Columns

Column	Description	Link Delivers
Name	Desired hostname	NA
Action	Create hostname	NA

Fields

Field	Description	Format
Name	Hostname	Text

Buttons

Button	Action
Add Hostname	Add a hostname using the data in the **Name** field.

Zones➜Zone Detail⬇Jobs

Columns

Column	Description	Link Delivers
Name	Zone on which the job is running	Details of the job
Method Name	Job name	NA
State	Success or failure of the job	NA
Priority	Priority level of the job	NA
Queue Name	Name of the server on which the job was queued	NA
Queued At	Date/time the job was queued	NA
Actions	🚫 Remove the job record from the list. (Does not affect running jobs.)	Delete confirmation dialog box
Checkbox	Select multiple jobs for deletion	NA

Zones➜Zone Detail⬇Snapshots

Snapshots					
Name	Disk Used(GB)	Referenced Disk(GB)	Storage Pool	Zone	Destroyed?
ffc2vjab@20101009013154	0.0	1.27300119400024	zones (admin-1)	ffc2vjab	No

Columns

Column	Description	Link Delivers
Name	Snapshot name. Snapshots are named: `zonename@yyyymmddhhmmss`	Details of the snapshot
Disk Used (GB)	Amount of space the snapshot uses on the disk	NA
Referenced Disk (GB)	Amount of space the parent dataset uses on the disk	NA
Storage Pool	Pool that holds the zone	NA
Zone	Parent zone	Zone details page
Destroyed?	Destroyed Zones	NA

Zones➜Zone Detail➜Snapshots⬇Snapshot Detail

Buttons

Button	Action
Queue for Rollback	Queue a job for rolling back the state of the zone. A job record will appear on this page.
Queue for Destruction	Queue a job for destroying the snapshot. A job record will appear on this page.

Jobs
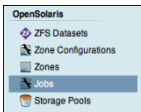
Buttons

Button	Action
Search	Enter job information in the field and click to display a subset of jobs matching the search string.
Filter by Method Name	Filter the list by the kind of job.

Column

Column	Description	Link Delivers
Name	Zone name	Detailed job record
Method Name	Job name	NA
State	Job state	NA
Priority	Job priority	NA
Queue Name	Queue name; typically, the name of the server	NA
Queued At	Time the job was queued	NA
Actions	Allows you to delete individual or multiple job records	NA

Storage Pools➔

Buttons

Button	Action
Search	Enter ZFS storage pool information in the field and click to display a subset of storage pools matching the search string.

Columns

Column	Description	Link Delivers

Column	Description	Link Delivers
Name (Server)	Pool and server name	Pool detail page
Available Disk (GB)	Available space in the pool in GB	NA
Total Disk (GB)	Total size of the pool in GB	NA
Full?	Whether the pool is full	NA
Health	Health of the pool (usually Online)	NA
Mountpoint	Mountpoint of the pool in the global zone	NA

Storage Pools➜ZFS Storage Pool Detail

Buttons

Button	Action
Search	Enter ZFS storage pool information in the field and click to display a subset of storage pools matching the search string.

Fields

Field	Description	Format
Total Disk (GB)	Pool and server name	Integer
Available Disk (GB)	Available space in the pool in GB	Integer
Server	Total size of the pool in GB	Link to host node
Full?	Whether the pool is full	Text
Health	Health of the pool (usually Online)	Text
Mountpoint	Mountpoint of the pool in the global zone	Text
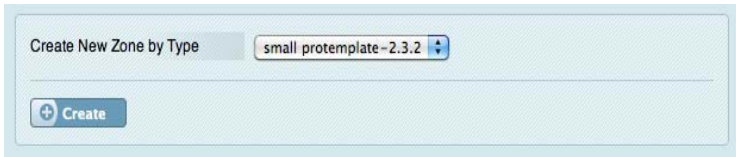
Common Tasks

Setting up a SmartMachine (Zone)
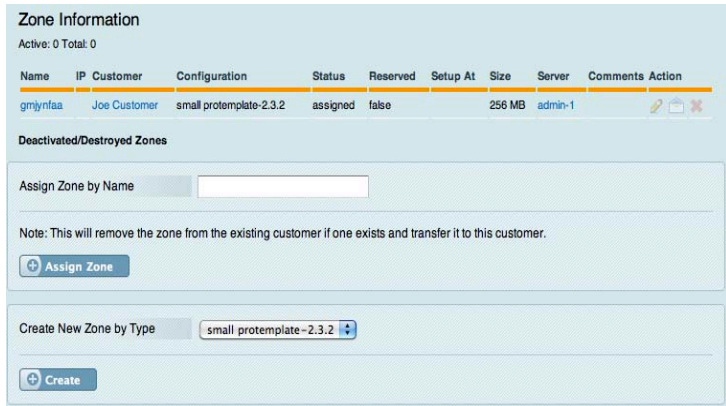
1 Select a customer from the customer list.
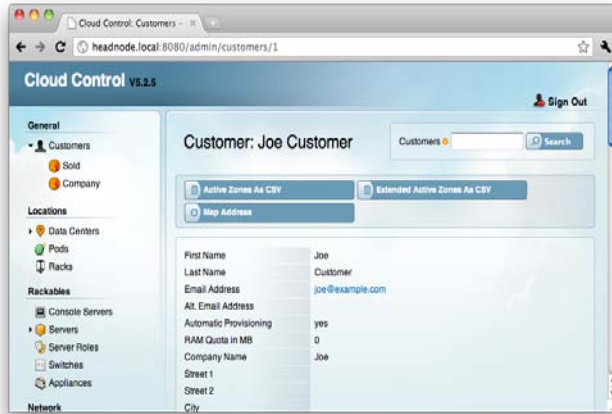
2   Scroll to the **Create New Zone by Type** panel.

3   Select a template from the drop-down list.

4   Click the **Create** button. The new zone appears in the **Zone Information** section with the status **assigned**.

5   Click the zone name to open the **Zone** page.

6   Click the **Queue for Provisioning in Solaris** button.
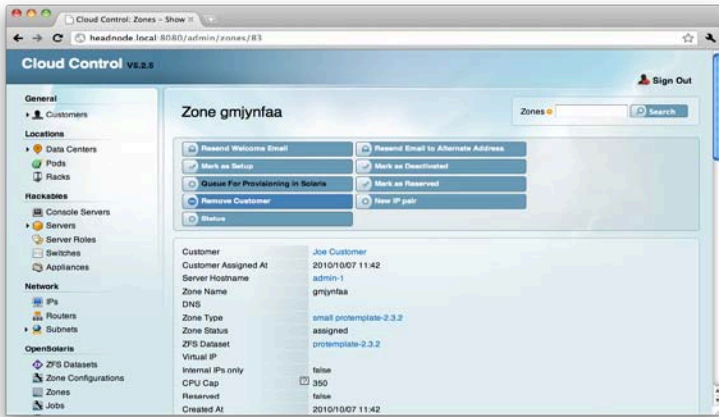
7   A message is displayed indicating that the zone is queued for provisioning.
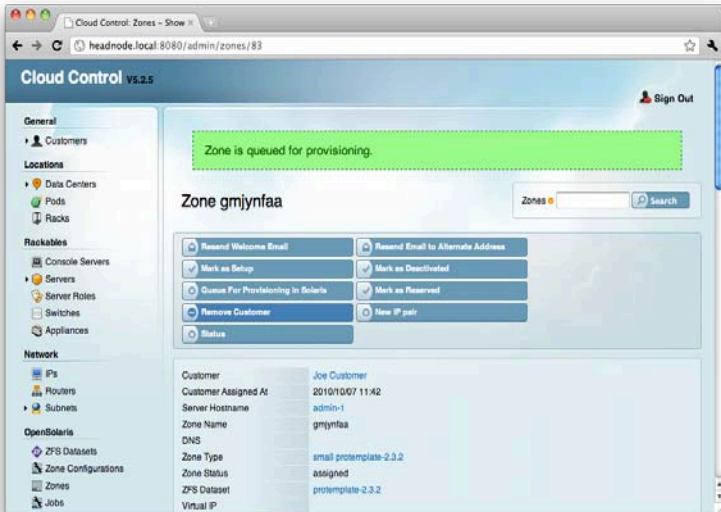
8   Scroll to the **Jobs** panel to verify that the provisioning job is queued.

More jobs appear as the provisioning process continues.

9   When the process is complete, the credentials information fields will be filled.

Credentials			
System	**Username**	**Password**	**Action**
root	root	xej7hr3f7c	⊖ Remove
shell	admin	m7puquu325	⊖ Remove
mysql	root	yhab5gd738	⊖ Remove
vs	jill	ycvs5xe84t	⊖ Remove

10 Return to the customer page to verify that the new zone is active.

Zone Information

Active: 1 Total: 1

| Name	IP	Customer	Configuration	Status	Reserved	Setup At	Size	Server	Comments	Action
gmjynfaa	192.168.3.23 192.168.2.23	Joe Customer	small protemplate-2.3.2	active	false	2010/10/07	256 MB	admin-1		✎ ✉ ✖

Deleting a SmartMachine (Zone)

1   Navigate to the page of the zone you want to delete.
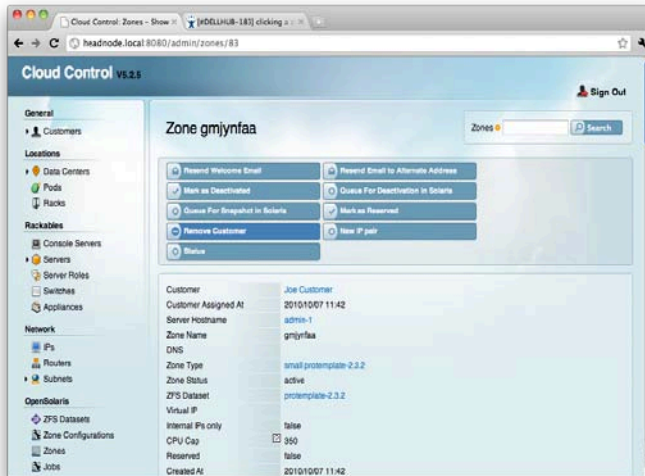
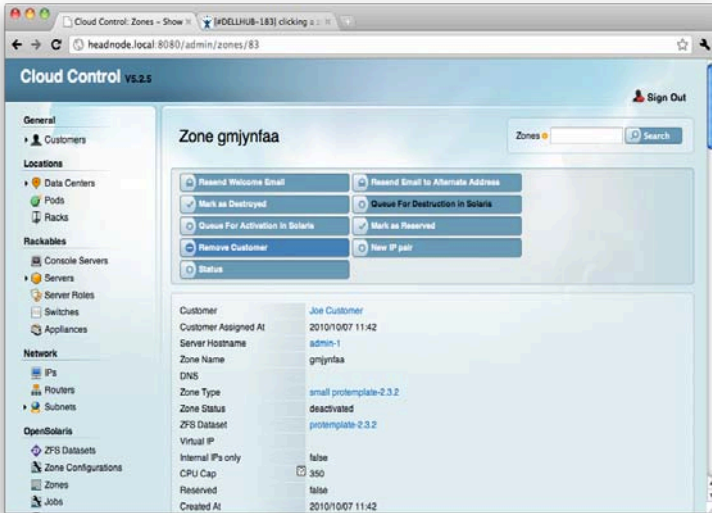2   Click the **Queue for Deactivation in Solaris** button.
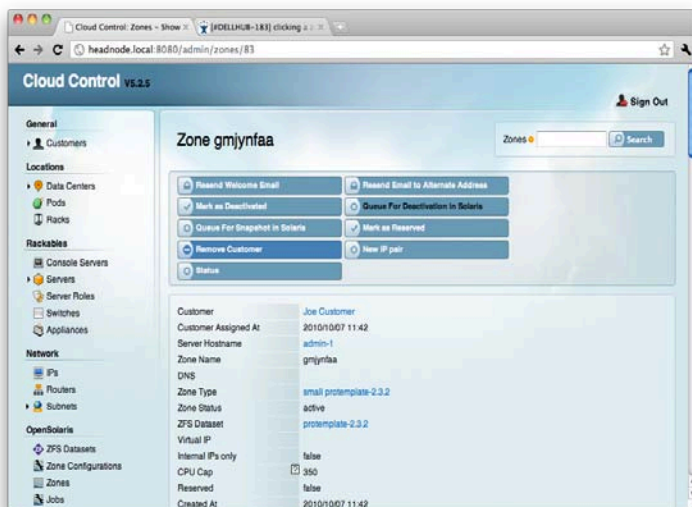
3 A dialog box appears, asking you to confirm that you want to deactivate the zone. Type `deactivate` and click the **OK** button.
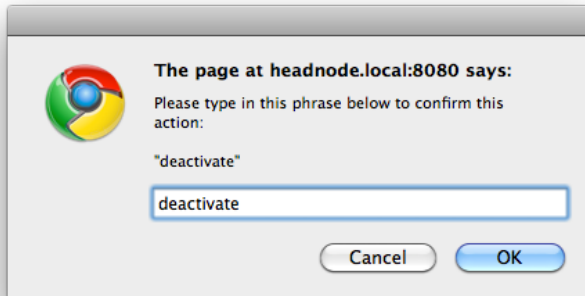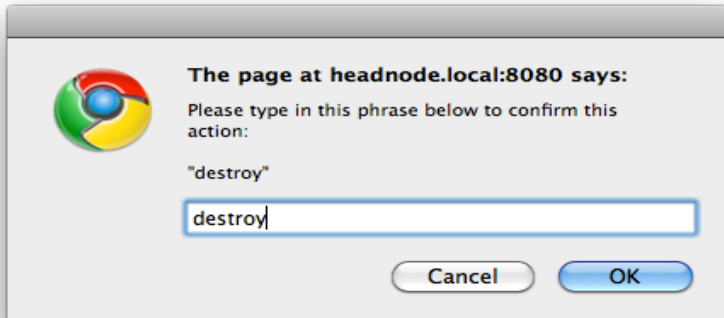

4 The deactivation job is queued. Wait a few seconds, and then refresh your browser.

5   Click the **Queue for Destruction in Solaris** button.

6   A dialog box appears, asking you to confirm that you want to destroy the zone. Type destroy and click the **OK** button.
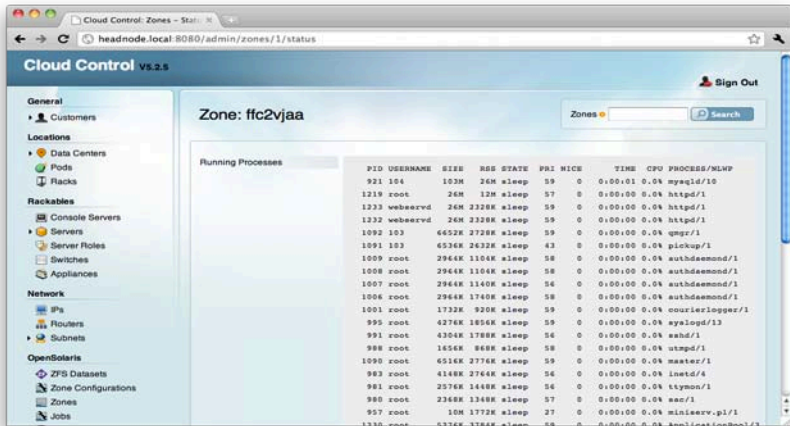
7   The destruction job is queued. Wait a few seconds, and then refresh your browser. The zone is destroyed.

8   If you want to remove the zone from the list of customer zones, click the **Remove Customer** button.
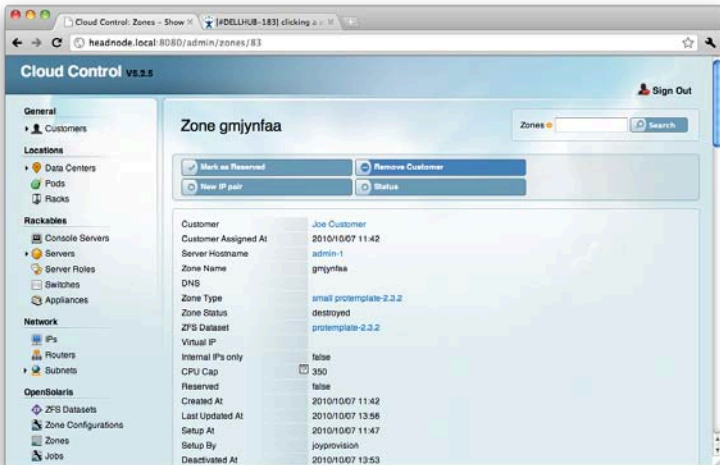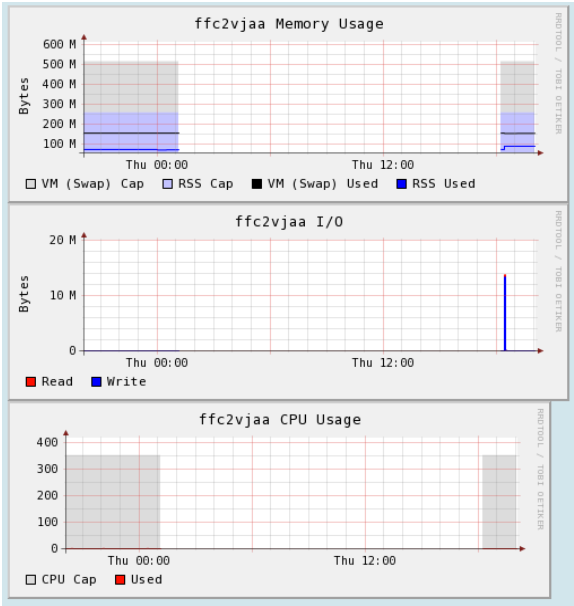
Monitoring a SmartMachine

You can monitor the health of a SmartMachine from a zone page two ways.

- Click the **Status** button to see a list of all the running processes.

- Scroll to the end of a zone page to see a graph of memory, I/O, and CPU usage.

ffc2vjaa Memory Usage

Bytes

600 M
500 M
400 M
300 M
200 M
100 M

Thu 00:00   Thu 12:00

☐ VM (Swap) Cap   ☐ RSS Cap   ■ VM (Swap) Used   ■ RSS Used

ffc2vjaa I/O

Bytes

20 M

10 M

0

Thu 00:00   Thu 12:00

■ Read   ■ Write

ffc2vjaa CPU Usage

400
300
200
100
0

Thu 00:00   Thu 12:00

☐ CPU Cap   ■ Used

4

User Portal

The self-service User Portal provides customers the means to perform certain tasks themselves. Through the User Portal, customers can self-provision, restart, shut down, and manage their SmartMachines.
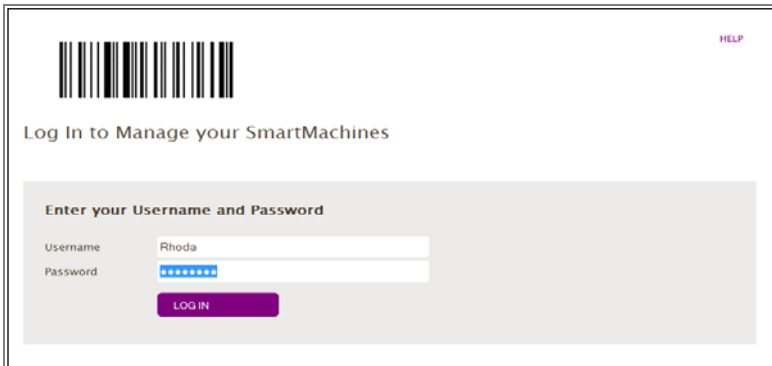
Accessing the User Portal

Access to the User Portal is achieved using a browser. See the *Dell Cloud Solutions for Web Applications Administrator Guide* for setup details.

User Portal Interface

Login

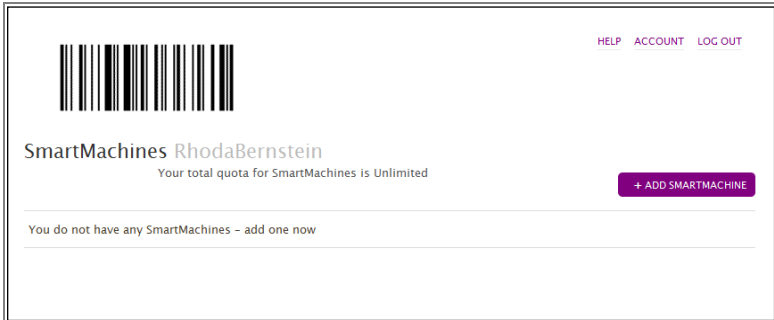To log in to the User Portal, enter your username and password and click the **Login** button.

Figure 12. User Portal Login

Creating SmartMachines

The first time you log in to the User Portal the following screen appears.

1   Click the **Add SmartMachine** button.
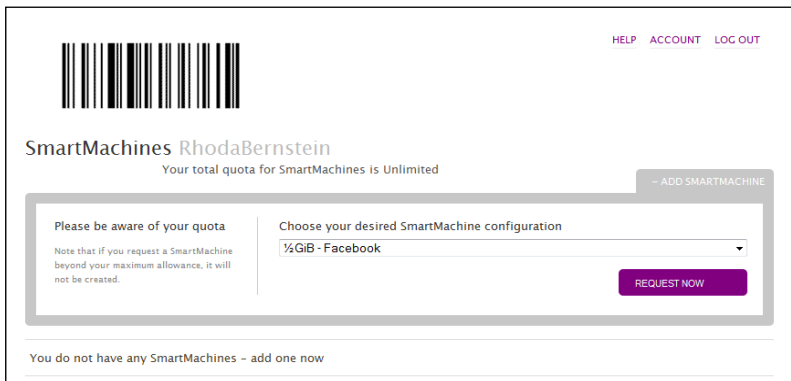

2   Create one or more SmartMachines.

> **NOTE:** The number of SmartMachines created cannot exceed your total RAM quota.

> **NOTE:** In the User Portal, you cannot specify the server on which the zone is created.

Select the appropriate configuration from **Choose Your Desired SmartMachine Configuration** drop-down list and click the **Request Now** button.

3   The system provisions your SmartMachine. A message displays, indicating that the SmartMachine is being provisioned.

During provisioning, the system creates a unique name for your SmartMachine. After provisioning, the User Portal displays basic details about your Smart Machine. Both a public and a private IP address are listed for each SmartMachine.

NOTE: The Status column shows the SmartMachine's status at the time the page was loaded. It does not refresh automatically. To refresh, click the status message.

4   Click the name of a given SmartMachine to display the **SmartMachine Details** page.

From this page there are three actions you can perform:

- Reboot the SmartMachine.

- Shutdown the SmartMachine.

- Delete the SmartMachine.

Customizing the Appearance of the User Portal

The appearance of the User Portal can be customized to suit the needs of your enterprise. You can customize the User Portal in the following ways:

- Change the title of the User Portal Window.

- Provide customized online help.

- Use a custom logo.

- Use a custom cascading style sheet

All customization of the User Portal is done on the head node in the **/opt/joyent/apps/cloud_control_dop/config** directory.

It is important to remember that after changes are made you must restart the User Portal in order for the customizations to take effect. To restart the User Portal, use the following command:

```
jill@headnode:/opt/joyent/apps/cloud_control_dop/config$
rvmsudo god restart cloud_control_dop
```

The system responds with:

```
Sending 'restart' command

The following watches were affected:
  cloud_control_dop
```

✐ NOTE: Modifying an existing **help.html** or **custom.css** file does not require a restart.

Changing the Title of the User Portal Window

To change the title of the User Portal window, edit `config.yml` and change the text after the label `name:`

```
---
production:
  name: ACME Portal
```

Providing Customized Online Help

To enable a link to a help page, create a file called `help.html`. In the file, include any help you wish to provide.

> **NOTE:** A sample **help.html** file is included in
> `/opt/joyent/apps/cloud_control_dop/config`.

Using a Custom Logo

To use a custom logo, create a PNG file named `logo.png` that is 110 pixels high by 276 pixels wide and place it in:
`/opt/joyent/apps/cloud_control_dop/config`

Task Summary

The following table identifies those tasks that can be performed through the self-service User Portal and those that must be performed by an administrator.

Task	Performed By	Using	Requires Restart
Create a user	Administrator	Cloud Control	No
Set a user Portal password	Administrator	Cloud Control	No
Set a user quota	Administrator	Cloud Control	No
Add a SmartMachine	User	User Portal	No
Delete a SmartMachine	User	User Portal	No
View SmartMachine Details	User	User Portal	No
Shutdown a SmartMachine	User	User Portal	No
Change a user's User Portal password	User	User Portal	No
Add/Remove User Portal Help	Administrator	Edit File	Yes
Add/Remove a Custom Logo	Administrator	Edit File	Yes

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Glossary

BMC
Baseboard Management Controller. Applies to PowerEdge™ R series servers only; not present in PowerEdge C series servers.

CC / Cloud Control
The web administration portal for managing the DCSWA operations. This provides the core management functionality of users, SmartMachines and the system in general.

Cloud Control API
Provides a REST programmatic interface into a subset of the features provided by Cloud Control. The API runs parallel with Cloud Control and inherits all of the redundancy features of Cloud. This is a web-service requiring XML/JSON style communications.

Cloud Software
The suite of Joyent Cloud management software that includes Cloud Control, Telemeter, and user portal.

CN / Node
Compute Node. A server in the pod that runs SmartMachines.

Core Router
Enables communication between the racks of a pod and the external internet to a pod.

Customer API
Provides a REST programmatic interface to manage customers as seen from the user portal. This is a thin layer that allows for multi-tenancy enforcement within the user portal. This is a web-service requiring XML/JSON style communications.

Data Center
The physical location of the cloud infrastructure.

DCSWA; Dell Cloud Solution for Web Applications
An optimized Private Cloud solution for running virtualized web applications, databases and other compute nodes efficiently. The Dell Cloud Solution includes hardware, software, and services and is highly scalable from the lab to massive data centers.

DCSWA User Portal; Dell Cloud Solution User Portal
See User Portal

Dell PowerConnect™ Switch
PowerConnect 6248 Switch

Dell PowerEdge Server
PowerEdge C2100; PowerEdge C1100; PowerEdge R710; PowerEdge R610

Dell PowerEdge Rack Enclosure
PowerEdge 4220 42U Server Rack Enclosure

DNS Server
Required by the cloud to operate properly. This can be provided by the customer or as part of the cloud and tied into the customer DNS system. In either case, the customer's DNS system must be modified to point to the cloud DNS server or host the cloud's address spaces and name spaces. The suggested implementation is for the cloud to host the DNS server with a cloud domain under the customer's domain. The customer's domain then points to the cloud-based DNS server running on the IS.

DOP; Department Ordering Portal
See User Portal

Head Node
See Infrastructure Server

IaaS
Infrastructure as a Service

Instance
See SmartMachine

IPMI
Intelligent Platform Management Interface. A common interface to monitor server temperature, voltage, power supplies, and chassis intrusion.

IPs
An IP address, either public or private, of an object within the cloud. IPs are "pingable".

IS / Infrastructure Server
Operates the provision and management capabilities of the cloud, including CC and DOP.

Joyent Cloud Control
See Cloud Control

Joyent Cloud Software
See Cloud Software

Joyent SmartMachine
See SmartMachine

Joyent Telemeter
See Telemeter

Jumpstart Server
The core provisioning component of the IS. It provides the base installation image and configuration tools needed to install and update the compute nodes.

KVM
Keyboard Video Mouse Switch

Load Balancer
An application that directs network traffic to other applications that handle the actual processing of the request.

MCP

Master Control Portal: The legacy acronym for Cloud Control.

MySQL

A common database used in web applications.

NSF Server

An optional customer provided hardware component used to provide back-up and disaster recovery support. It can also be a way for the compute nodes to access a shared storage area. It is not intended for cloud user storage. Dell Services may choose to sell a component per pod or Cloud depending on size and scale.

Ping

A utility used to determine whether a specific IP address is accessible. It works by sending a packet to the specified address and waiting for a reply.

Pod

A collection of up to 12 racks managed by a provisioning server (PS).

PowerEdge Rack Enclosure

Dell Cloud Solution for Web Applications is housed in Dell PowerEdge server rack enclosures.

PowerEdge Server

Dell PowerEdge Servers are used to host Joyent Cloud software and Joyent SmartMachines.

NTP Server

Runs on the IS and the compute nodes synchronized to that system. The IS can be configured to synchronize to an external time source.

PaaS

Platform as a Service

PDU

Power Distribution Unit

Provisioning Tools

These tools reside on the compute nodes and provide the services that Cloud Control uses to manage SmartMachines. The tools are deployed to the compute nodes by Cloud Control as part of installation.

PS / Provisioning Server

Server that performs the installation of compute nodes. For DCSWA, combined with the CC head node.

Rack

Physical enclosure where hardware (e.g., servers and load balancers) is placed.

Repository Server

Serves Solaris packages to the SmartMachines for update and maintenance. The default set of tools might not be current or contain everything a developer needs. The repository provides tools and updates that can be applied to the SmartMachines after initial installation. The repository server resides on the Infrastructure server.

RU

Rack unit (1¾ inch).

Servers

SmartMachines are housed in servers, also called global zones.

SmartMachine

The product name for the DCSWA virtual machine or compute instance. It is a self-contained virtual operating system instance with supporting libraries.

SmartOS

The general purpose UNIX-like operating environment, optimized to provide minimum guaranteed access to compute resources with automatic bursting as needed.

Subnet

A subset of the network. In Cloud Control, subnets are a range of IPs belonging to a particular router. Cloud Control tracks IP utilization in a subnet range.

Switches / Switching Fabric

A network topology where network nodes connect with each other. Traffic is spread across multiple physical links to offer better total throughput.

Telemeter

The reporting and monitoring system for Cloud Control. This service runs on the compute nodes and provides monitoring data/graphs accessible though an external web page. It is used for diagnostics and loading information, and can also provide billing data.

Top of Rack (ToR) Switch

Provides networking for servers in the rack.

User Portal

Allows individual end users to self-provision, restart, shut down and manage SmartMachines.

Zeus Load Balancer

Controls application traffic: inspects, transforms, and routes requests across the infrastructure. It runs as a SmartMachine and can be provisioned from the user portal.

Zone

A virtual machine or compute instance running on a node within the cloud.

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Getting Help

Contacting Dell

Customers in the United States can call 800-WWW-DELL (800-999-3355).

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1   Visit support.dell.com.

2   Click your country/region at the bottom of the page. For a complete country/region listing, click **All**.

3   Click **All Support Options** from the **Support** list at the bottom of the page.

4   Select the appropriate service or support link based on your need.

5   Choose the method of contacting Dell that is convenient for you.

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