

# Bare Metal Provisioning with Oracle Enterprise Manager

December 31, 2014

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## 1 Overview

## 2 Conventions used in this document

Text to be typed in is shown in this face: `type me in`

GUI menu options will be shown connected by arrows, thus: Top -> Child1 -> Child2 -> Leaf.

### 3 Current Environment

### 4 Setup

The following steps need to be taken once, to allow the browser to access the Oracle Enterprise Manager (OEM) GUI, and to prepare the OEM environment for Bare Metal Provisioning (BMP).

Accessing OEM is through the OEM URL: `https://HOST:17802/em` where `HOST` is the (resolvable) hostname or ip address of the host machine. (It is assumed that the local firewall permits port 17802 to be accessed).

#### 4.1 Browser Certificates

Connect to the OEM URL. Your browser will likely show a security exception (the image below is shown using Firefox 31.2.0):

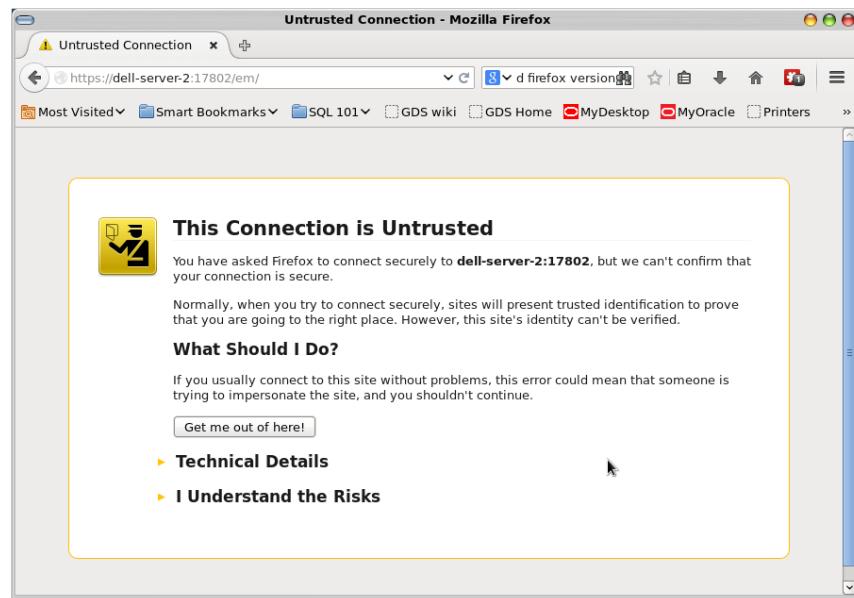


Figure 1: Initial Untrusted Certificate Screen

Click on the lower yellow triangle to expose the 'Add Exception...' button:

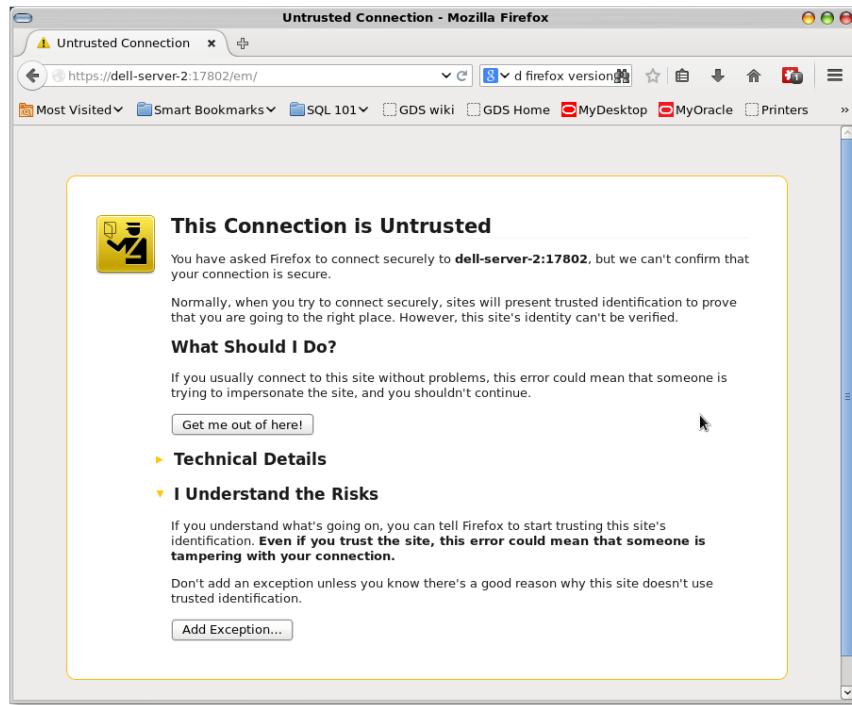


Figure 2: Untrusted Connection showing 'Add Exception...' Button

Add the exception by clicking the 'Add Exception...' button:



Figure 3: Add Security Exception

And then clicking the 'Confirm Security Exception' button. This will then take you to the OEM login window:

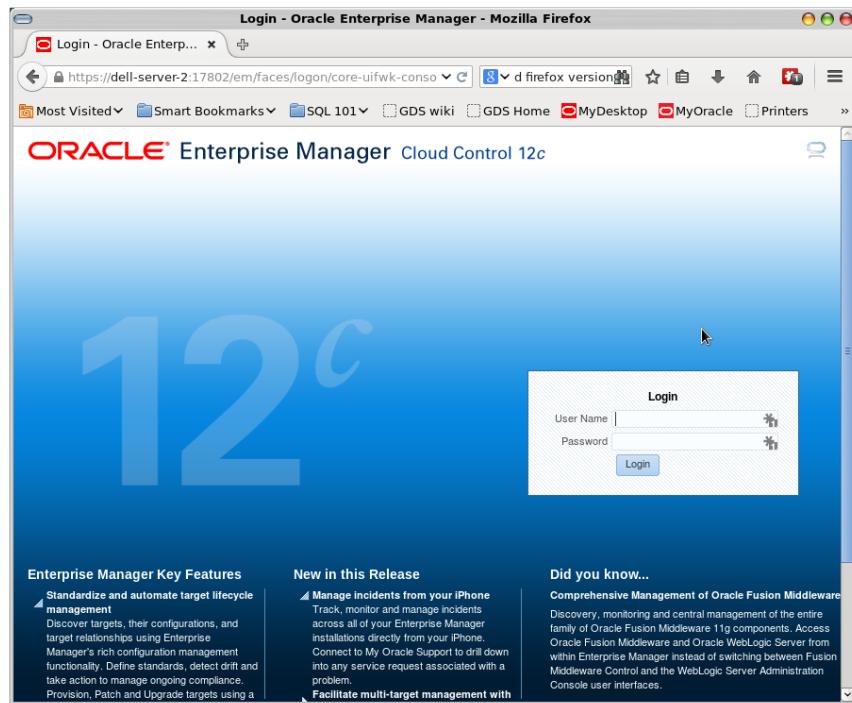


Figure 4: OEM Login

## 4.2 Oracle Enterprise Manager GUI setup

Login to OEM by accessing the OEM URL and using the name/password pair of 'sysman/Welcome1'. This will show you an 'Accessibility Preferences' page (this is **not** actually the page you'll first see! However the initial page is very similar, so hopefully this image is sufficient!):

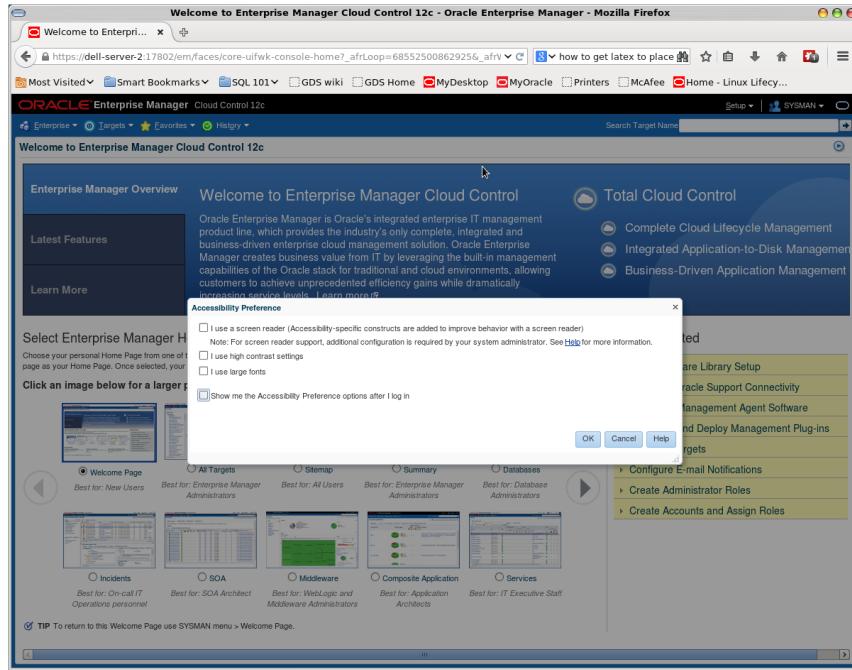


Figure 5: Accessibility Preferences

Select the preferences for you (if any), and then OK. Your preferences are now set up and you will be taken to the 'OEM Welcome' Screen:

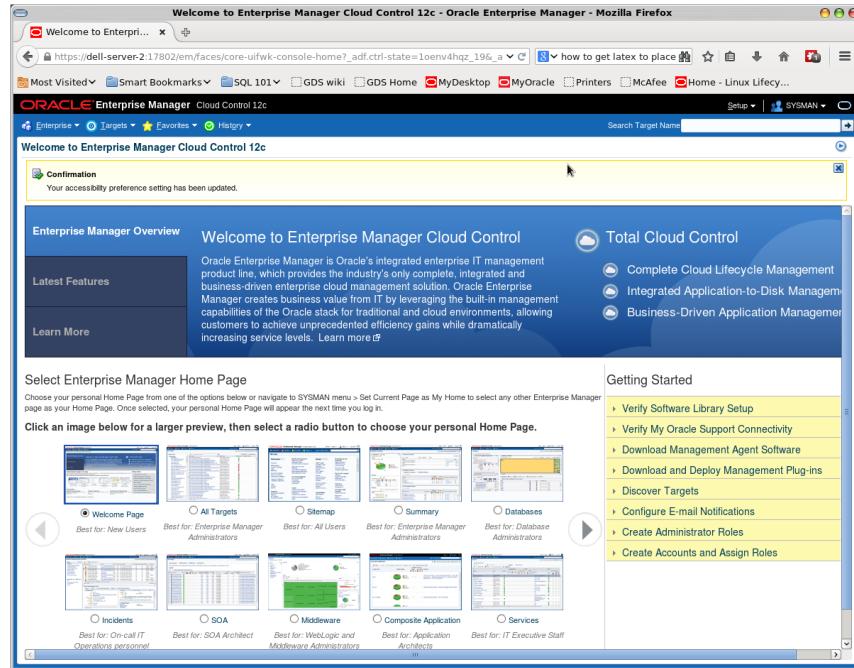


Figure 6: OEM Welcome Screen

(If you need to change these preferences you can do so using the menu Sysman -> Accessibility option)

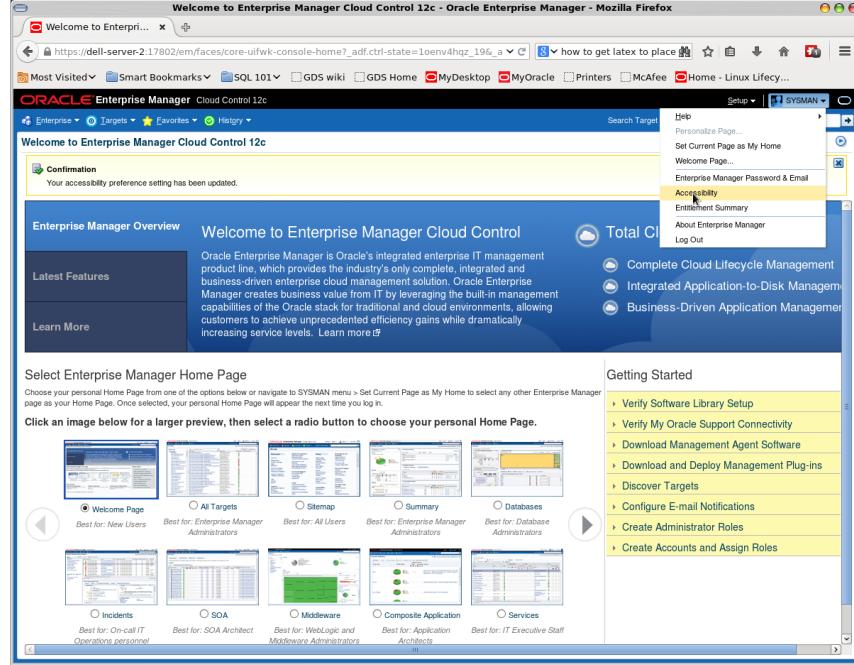


Figure 7: OEM Change Accessibility Menu

### 4.3 Software Library

Bare Metal Provisioning, when run using the GUI (it can be run using the command line too), requires that at least two components be setup in the Software Library. These two components are an Operating System Component, and a Disk Component. These components will be referenced later during specific executions of BMP.

Use menu option Enterprise -> Provisioning and Patching -> Software Library to access the Software library:

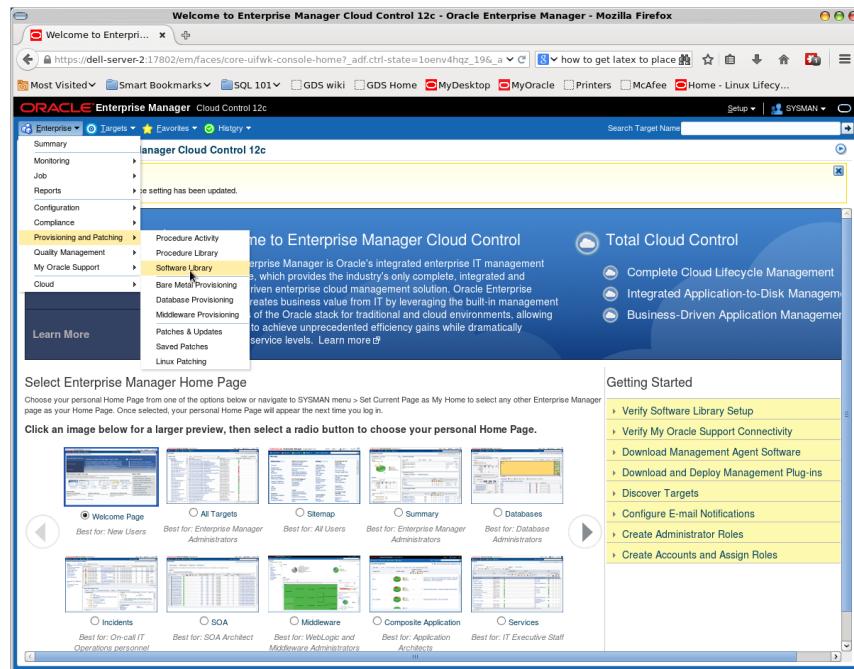


Figure 8: OEM Software Library Access

This will take you to the Software Library:

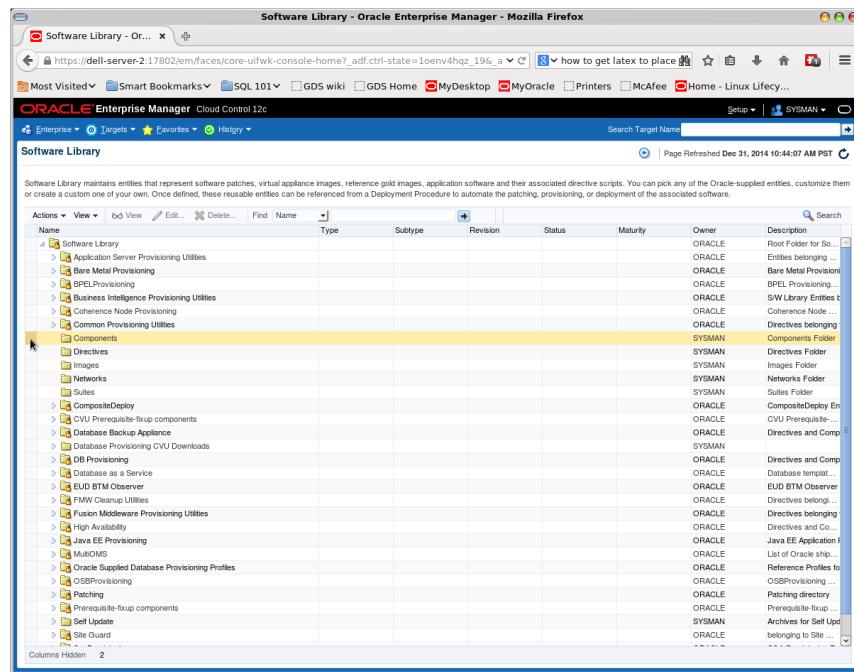


Figure 9: OEM Software Library

#### 4.3.1 Operating System Component

To create an Operating System Component right click on the 'Components' line in the Software Library, and select the 'Create Entity -> Bare Metal Provisioning' menu option:

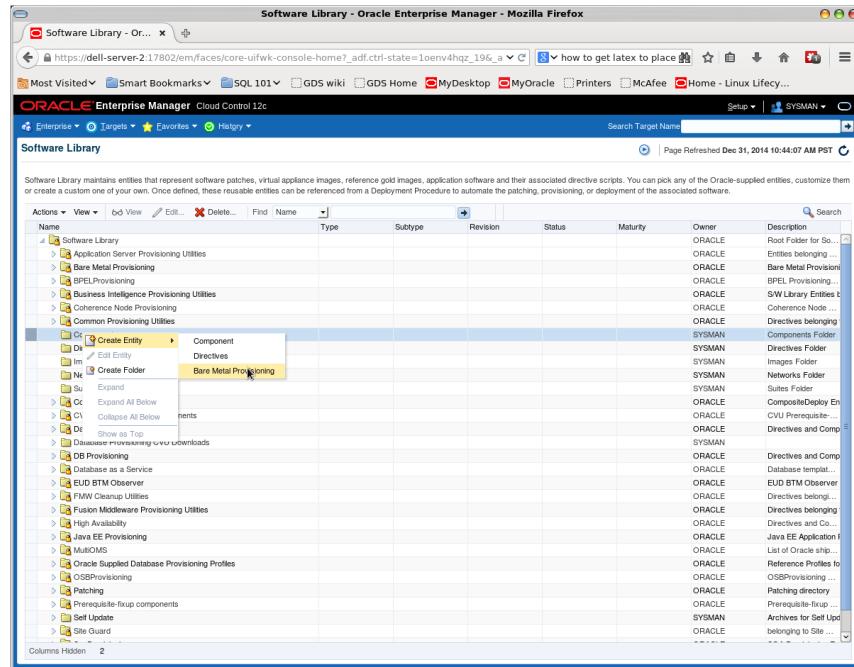


Figure 10: Bare Metal Provisioning Menu Option

This will provide a Create Entity pop-up showing the 'Operating System' to be created:

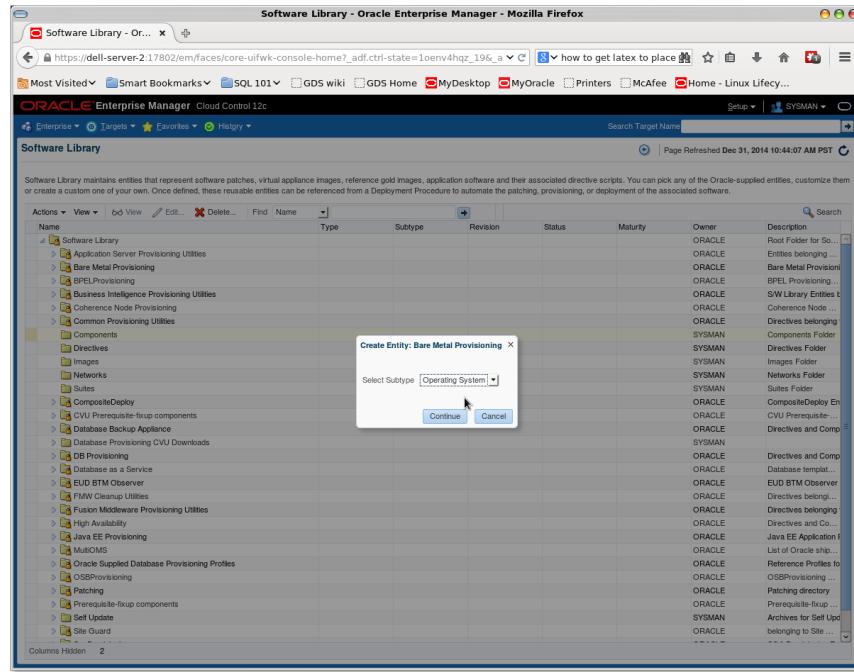


Figure 11: Create Entity (Operating System) pop-up

Select 'Continue', and you'll be taken to Step 1 (of 4) of the 'Create Operating System' wizard:

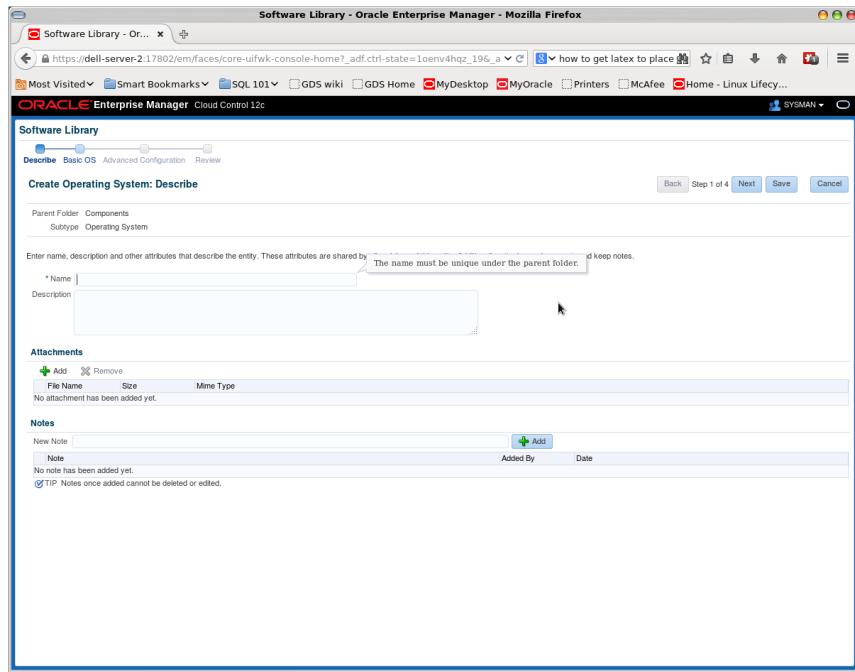


Figure 12: Create OS (Step 1)

Provide a name and (optional) description and hit 'Next' to get to Step 2. In Step 2 use the following settings:

Item	Value
Timezone	Suit yourself
Root password	vagrant
Confirm Root Password	vagrant

(OEM has already been configured with a Named Credential (ROOT<sub>NC</sub>) with this user/password pair)

Then add a an Operating System User by selecting the 'Add' button. Use the following settings:

Item	Value
User Name	oracle
Password	oracle
Confirm Password	oracle
Primary Group	oracle
Additional Groups	oinstall

(Again, this user/password combination has already been configured as a Named Credential (ORACLE<sub>NC</sub>) within OEM)

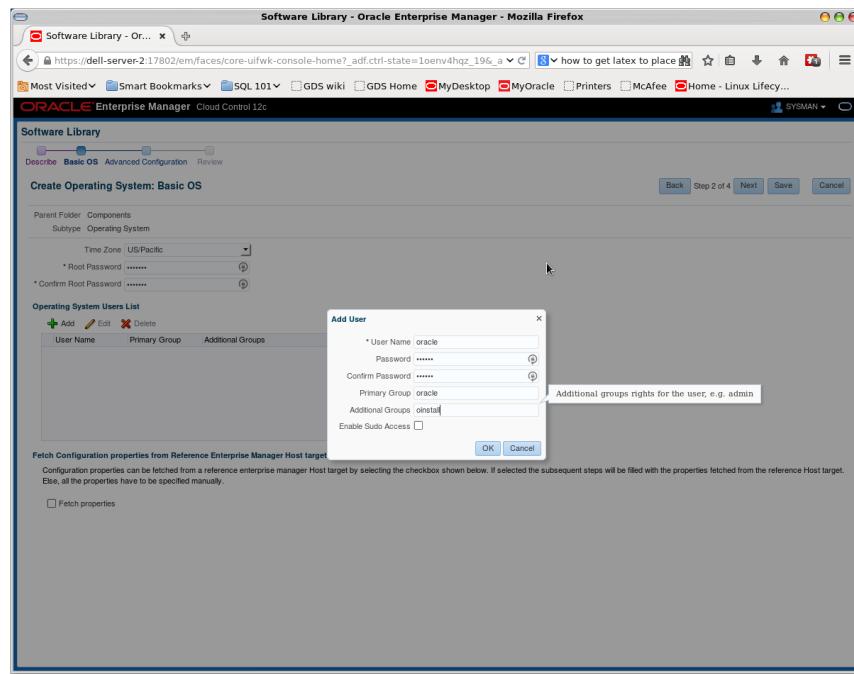


Figure 13: Create OS (Step 2)

Hit 'OK' and 'Next' to move to Step 3:

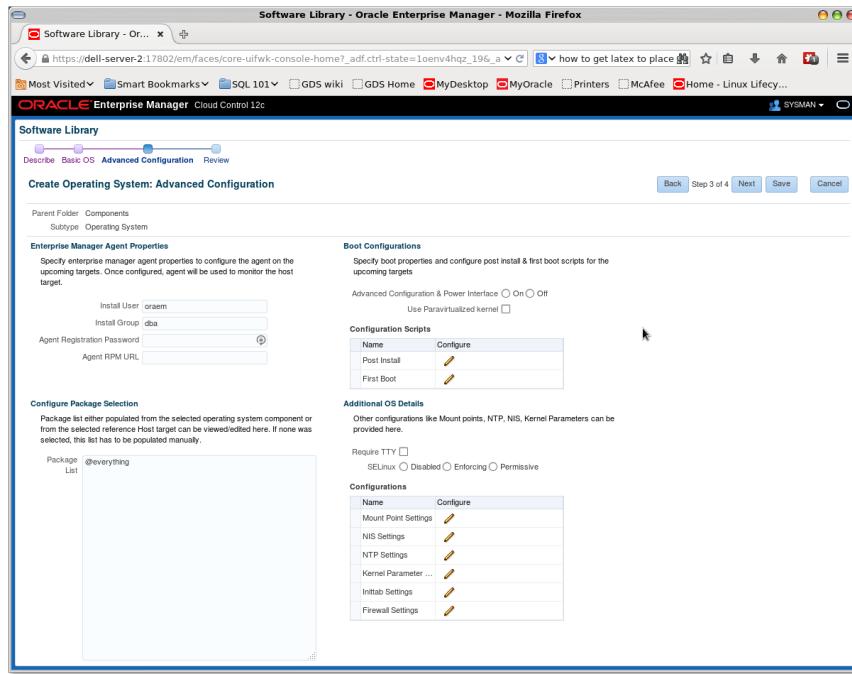


Figure 14: Create OS (Step 3)

Set the following Enterprise Manager Agent Properties:

Item	Value
Install User	oracle
Install Group	oinstall
Agent Registration Password	Welcome1

Change the Package List from @everything to @base - this will greatly reduce the number of packages installed during BMP, thus speeding the process up.

The screen should look like this:

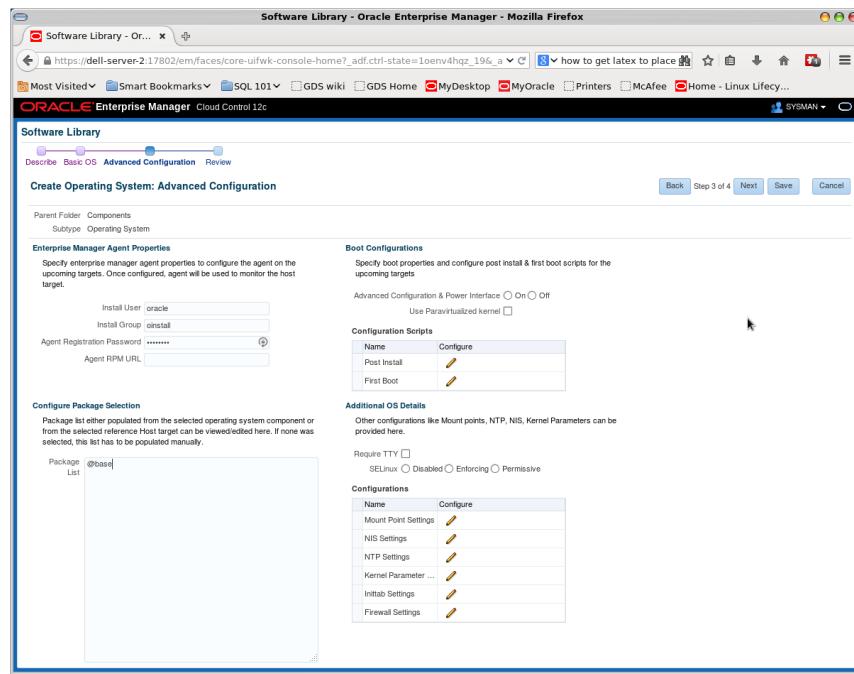


Figure 15: Create OS (Step 3) With Properties Updated

Hit 'Next' to get to Step 4 (Review):

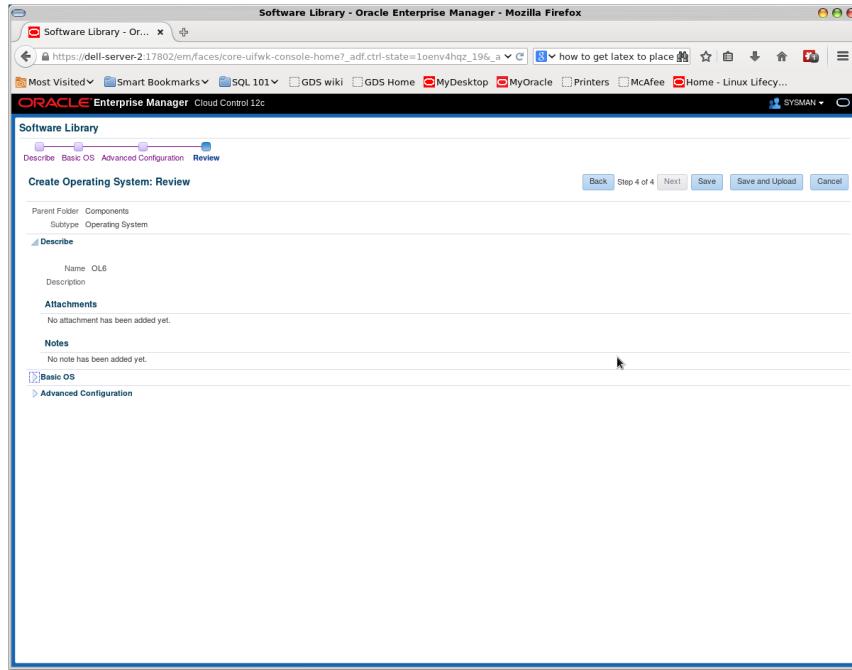


Figure 16: Create OS (Step 4)

Review the settings (you can go back and change them if you think you made a mistake). When satisfied hit 'Save and Upload' to save this component into the Software Library.

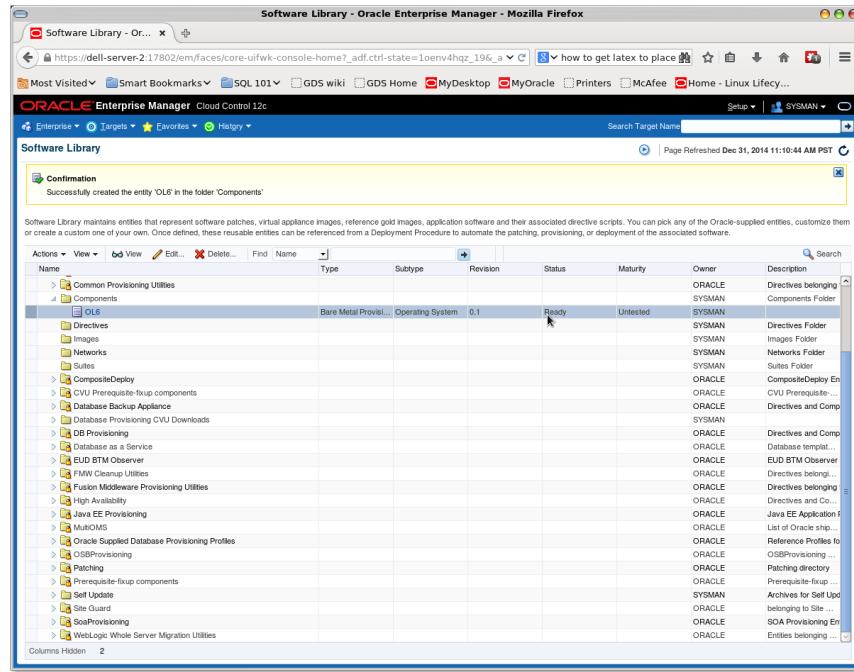


Figure 17: Create OS Completed

### 4.3.2 Disk Component

Create a Disk Component by right clicking on the 'Components' line in the Software Library and selecting the 'Create Entity -> Bare Metal Provisioning' menu option:

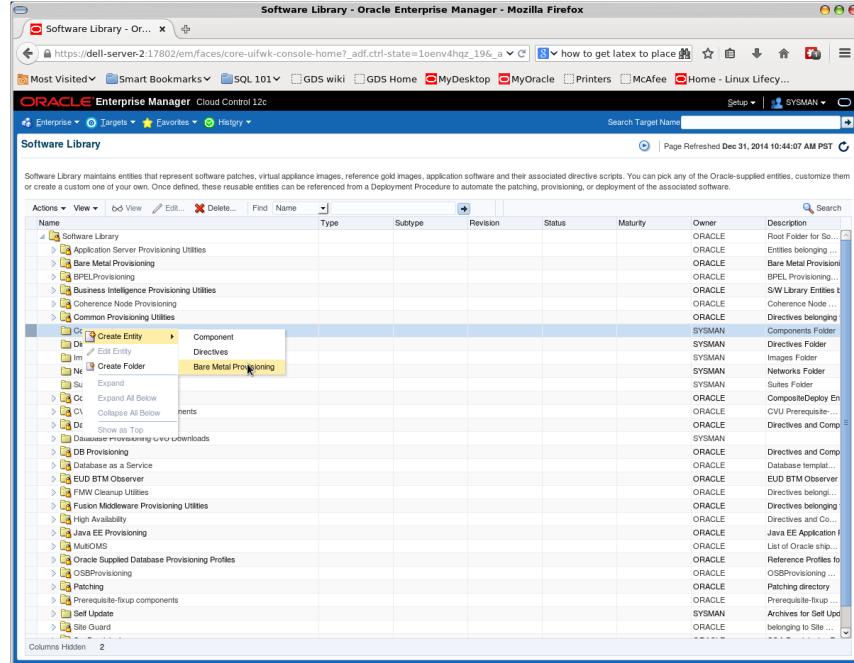


Figure 18: Bare Metal Provisioning Menu Option

This will provide a Create Entity pop-up showing the 'Operating System' to be created. Change the selection to 'Disk Layout':

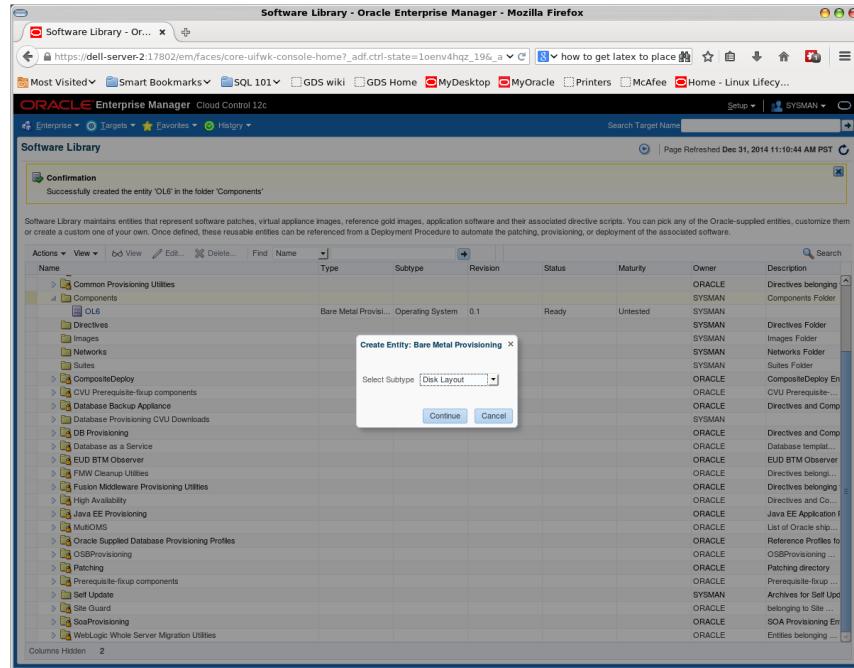


Figure 19: Create Entity (Disk Layout) pop-up

Hit 'Continue' to go to Step 1 (of 3) in the Create Disk Layout wizard.

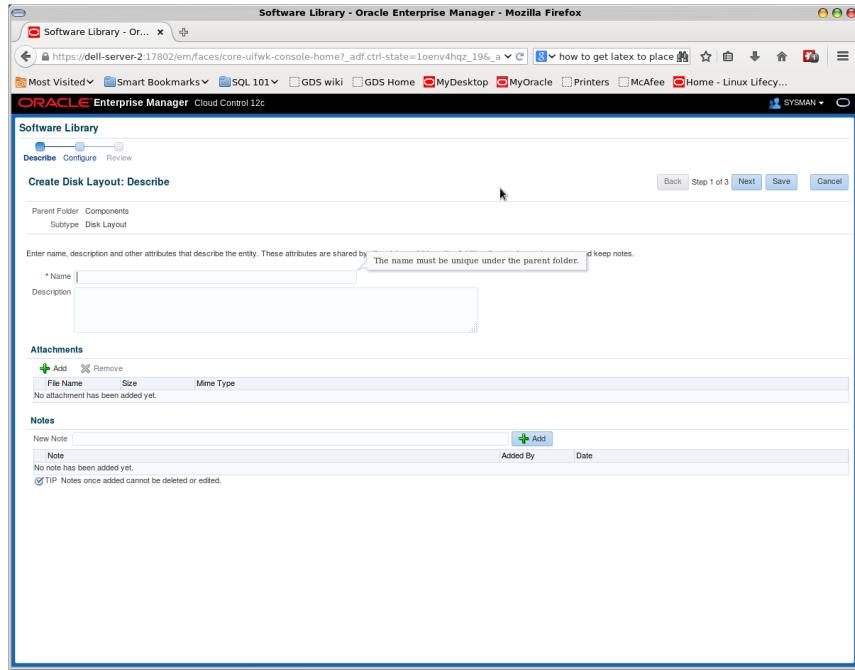


Figure 20: Create Disk Layout (Step 1)

Provide a name and (optional) description and hit 'Next' to move to Step 2 of the Disk Layout wizard:

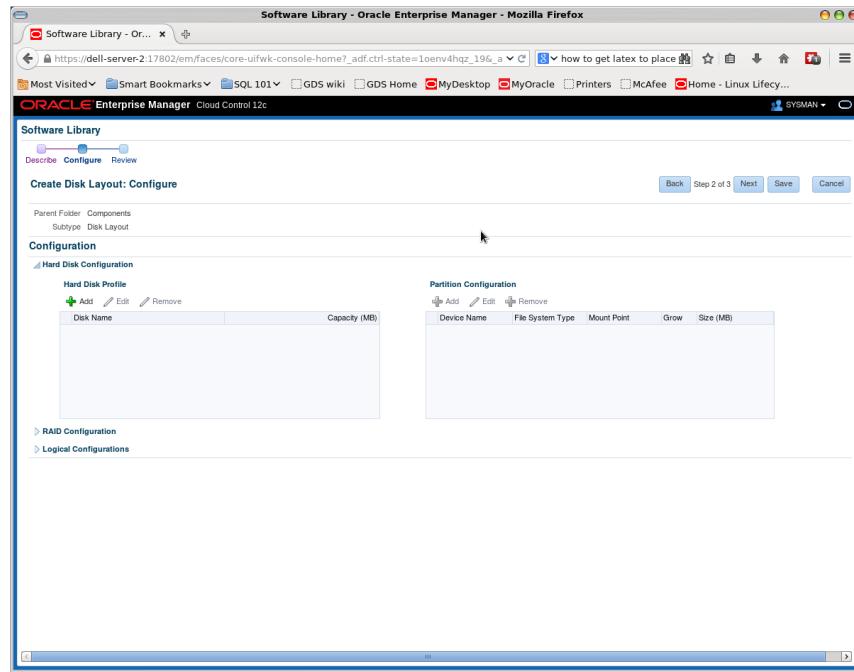


Figure 21: Create Disk Layout (Step 2)

Add a Disk Profile by selecting the appropriate 'Add' button, and create a disk named **sda** with a size of 15360 MB (15GB):

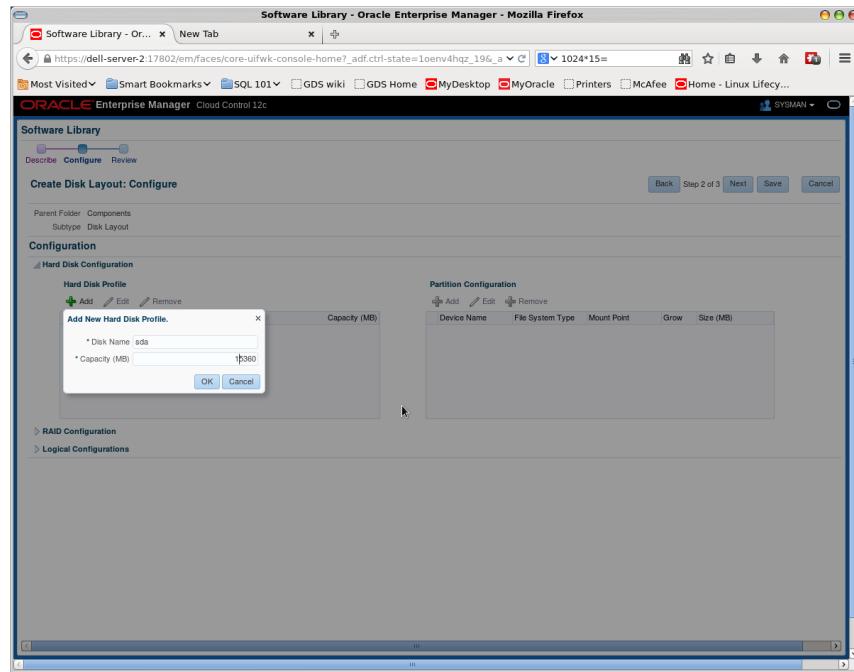


Figure 22: Add New Hard Disk Profile

Add three partitions using the 'Add' button under 'Partition Configuration', configured thus:

Device Name	File System Type	Mount Point	Grow	Size (MB)
/dev/sda0	ext3	/boot	false	200
/dev/sda1	swap	swap	false	1024
/dev/sda2	ext3	/	true	1

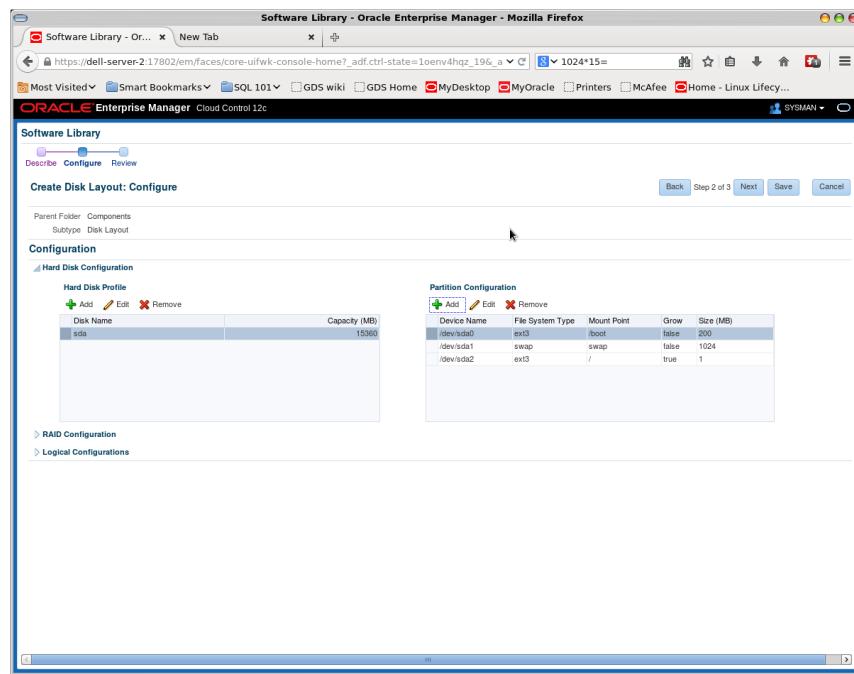


Figure 23: Partition Configuration

More complex disk layouts are possible, but for simplicity's sake we'll go with this basic layout. Select 'Next' to move to Step 3 of the Disk Layout wizard. Expanding the 'Configure' subsection will show the configuration that has been completed so far. Review it, go back to make changes if necessary:

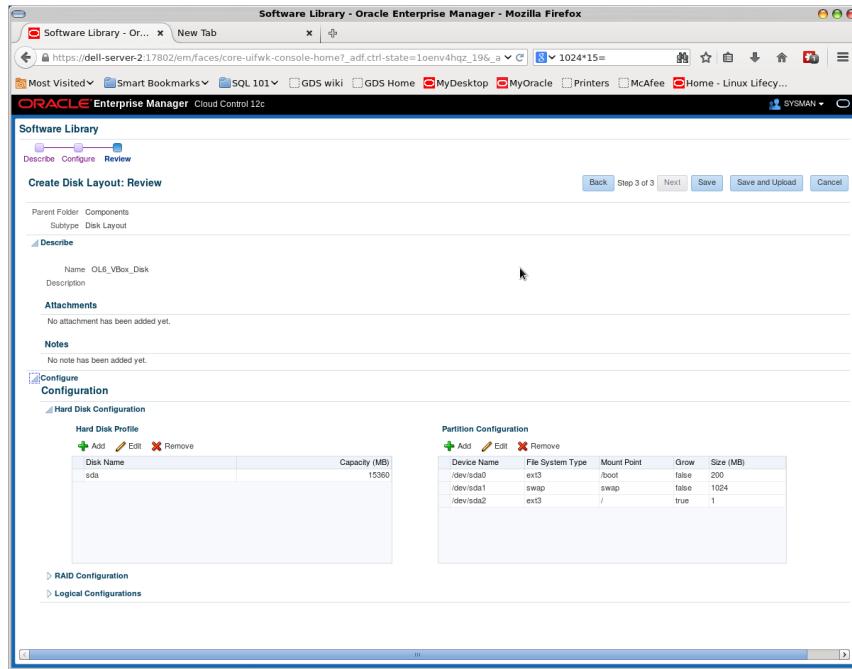


Figure 24: Create Disk Layout (Step 3)

Select 'Save and Upload' to be taken back to the Software Library:

The screenshot shows a Mozilla Firefox browser window titled "Software Library - Oracle Enterprise Manager - Mozilla Firefox". The URL is [https://dell-server-2:17802/em/faces/core-ui/wk-console-home?\\_adf.ctrl-state=1oenv4hzq\\_19&\\_a=1024\\*15](https://dell-server-2:17802/em/faces/core-ui/wk-console-home?_adf.ctrl-state=1oenv4hzq_19&_a=1024*15). The page displays the "Software Library" interface for Oracle Cloud Control 12c. A confirmation message box is open, stating: "Successfully created the entity 'OL6\_Vbox\_Disk' in the folder 'Components'". Below this, a table lists various software entities. One row is highlighted in yellow, corresponding to the newly created "OL6\_Vbox\_Disk" entry. The table columns include Name, Type, Subtype, Revision, Status, Maturity, Owner, and Description. The "Name" column shows entries like "Components", "OL6", and "OL6\_Vbox\_Disk". The "Type" column shows "Bare Metal Provisioning System" and "Bare Metal Provision Disk Layout". The "Owner" column consistently shows "SYSMAN". The "Description" column provides detailed information about each entity, such as "Components Folder", "Directives Folder", "Images Folder", etc.

Figure 25: Create Disk Layout Component Completed

## 4.4 Bare Metal Provisioning Infrastructure

Access the Bare Metal Provisioning wizard by selecting the Enterprise -> Provisioning and Patching -> Bare Metal Provisioning menu option:

The screenshot shows the Oracle Enterprise Manager Software Library interface in Mozilla Firefox. The left sidebar has a tree view with various categories like Enterprise, Monitoring, Job, Reports, Configuration, Compliance, Provisioning and Patching (which is highlighted in yellow), Quality Management, My Oracle Support, and Cloud. Under Provisioning and Patching, there are sub-options: Procedure Activity, Procedure Library, Software Library, and Bare Metal Provisioning (also highlighted in yellow). The main content area shows a table of provisioning entities. The table has columns: Find, Name, Type, Subtype, Revision, Status, Maturity, Owner, and Description. One row is selected, showing 'Bare Metal Provision Disk Layout' as the name, 'Operating System' as the type, '0.1' as the revision, 'Ready' as the status, and 'Untested' as the maturity. The owner is 'SYSMAN' and the description is 'Components Folder'. A tooltip for this row states: 'Bare Metal Provision Disk Layout is a Bare Metal Provisioning entity. It represents software patches, virtual appliance images, reference gold images, application software and their associated directive scripts. You can pick any of the Oracle-supplied entities, customize them or entities can be referenced from a Deployment Procedure to automate the patching, provisioning, or deployment of the associated software.' Below the table, there are links for Directives, Images, Networks, Suites, Linux Patching, CVU Prerequisite-fixup components, Database Backup Appliance, Database Provisioning CVU Downloads, DB Provisioning, Database as a Service, EUD BTM Observer, FMW Cleanup Utilities, Fusion Middleware Provisioning Utilities, High Availability, MultiData, Oracle Supplied Database Provisioning Profiles, OSBProvisioning, Patching, Prerequisite-fixup components, Self Update, Site Guard, Seal Provisioning, and WebLogic Whole Server Migration Utilities.

Figure 26: Bare Metal Provisioning Menu Option:

This will take you to the initial BMP screen:

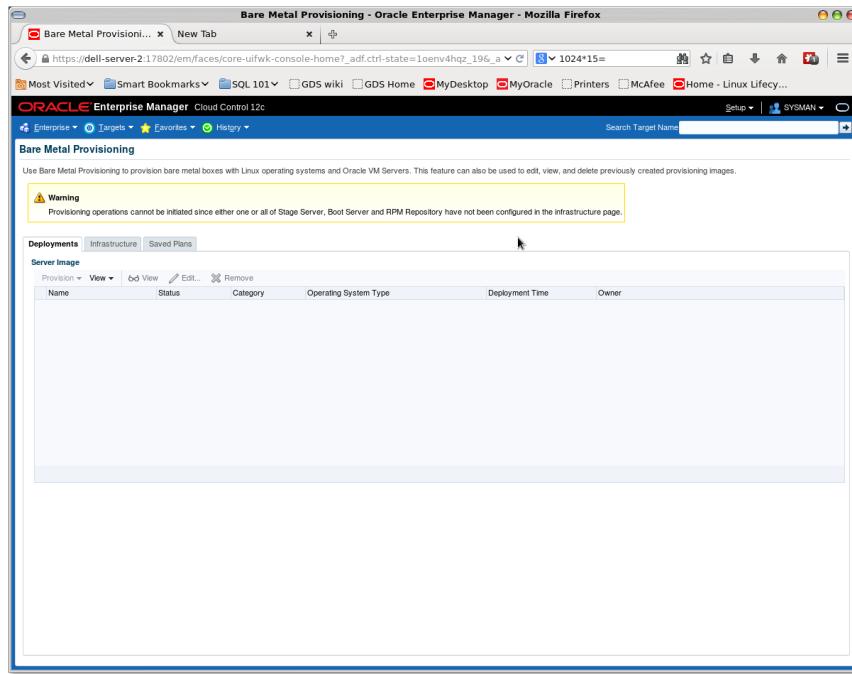


Figure 27: BMP Initial Screen

As indicated on that initial page no BMP can occur because one or more parts of the infrastructure have not been configured. Select the 'Infrastructure' tab to begin the setup:

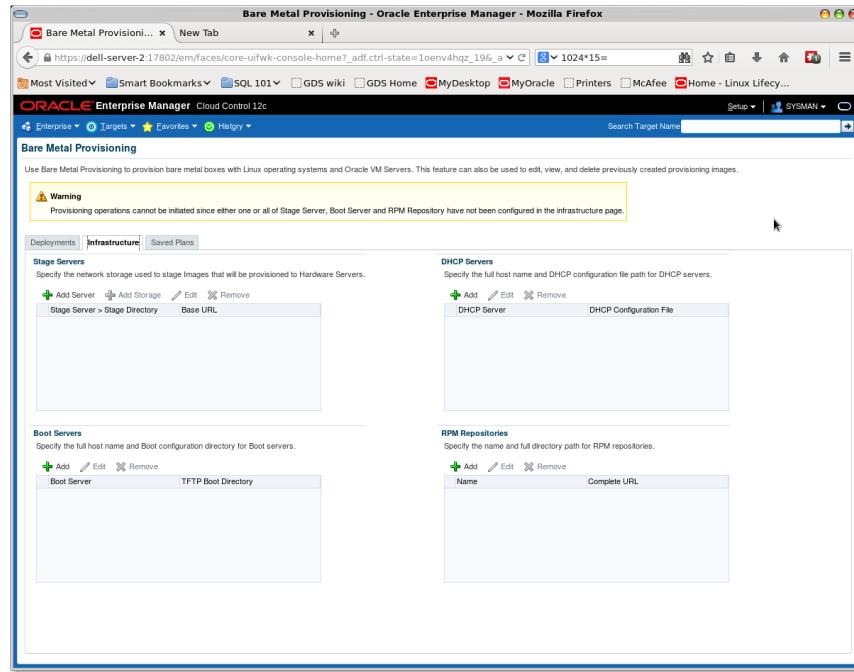
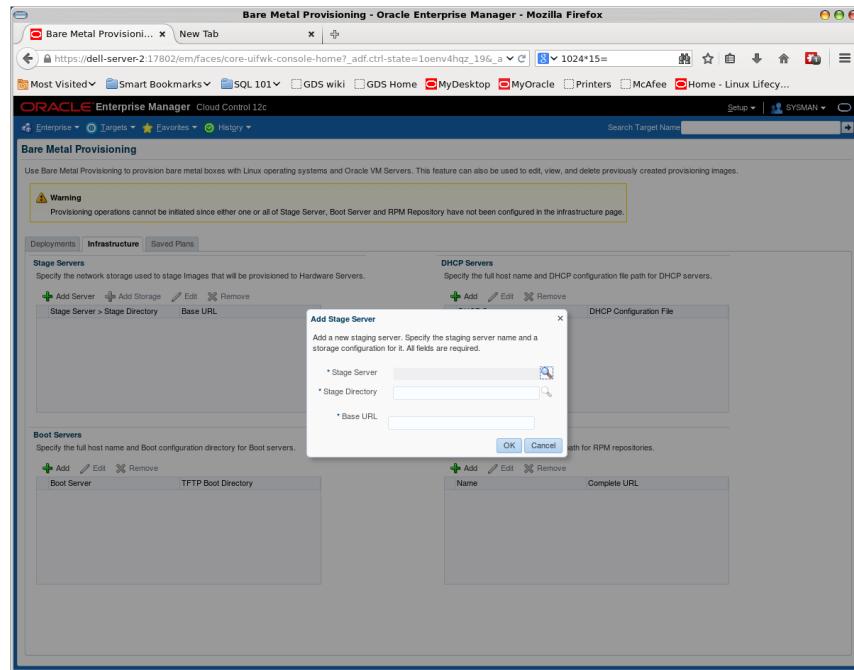


Figure 28: Infrastructure Wizard

Add a Stage Server by selecting the appropriate 'Add' button to open up the 'Add Stage Server' wizard:



Select the stage server by clicking on the magnifying glass on the right and then using the Select Targets wizard<sup>1</sup>:

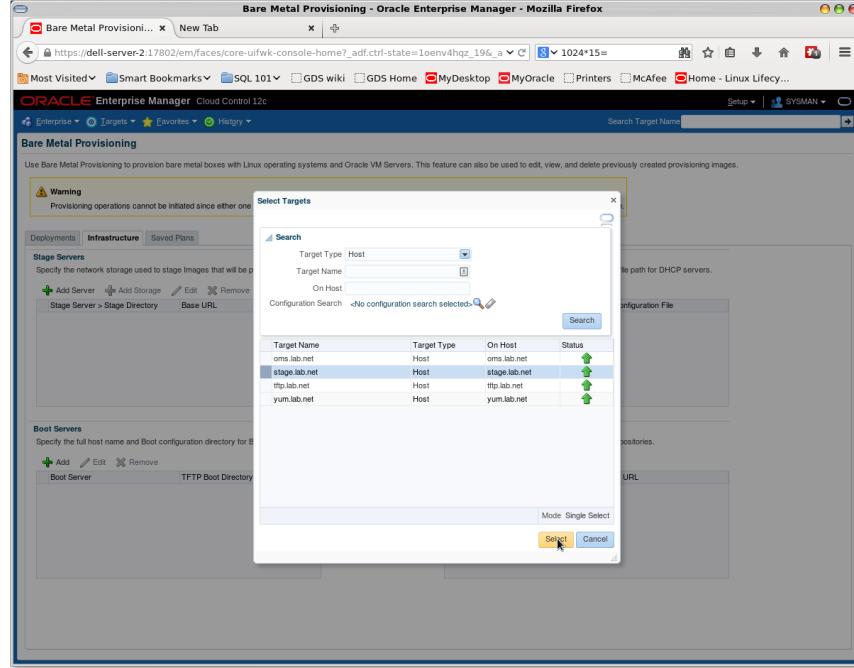


Figure 29: Stage Server Selection

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<sup>1</sup> Alternatively, for the Stage Directory property, by selecting the magnifying glass on the 'Stage Directory' line you can open up the 'Remote File Browser' to select the directory using a wizard

This will bring you back to the 'Add Stage Server' wizard. Add the next two properties manually:

Property	Value
Stage Directory	/stage
Base URL	<b>file:///stage.lab.net/stage</b>

It is very important to get these values correct. Be careful and check your work. A failure to get these values correct isn't easy to figure out later!

Add a Boot server similarly. The property values required are:

Property	Value
Boot server	tftp.lab.net
TFTP Boot Directory	/tftpboot

Again, check these values carefully!

We won't be using OEM to modify a DHCP server, so we don't configure one (its optional).

Add an RPM Repository, using the following property values:

Property	Value
Repository Name	OL6 Repository
Complete URL	<b>http://yum.lab.net/ol6</b>

When this process is completed the infrastructure page (with the 'Stage Server' expanded) should look like this:

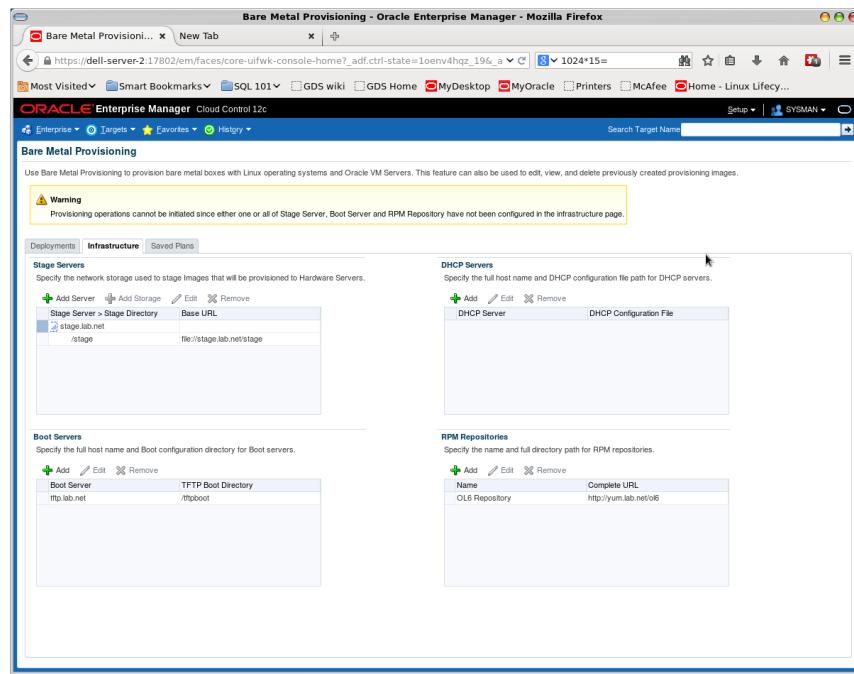


Figure 30: Infrastructure Setup Review

Returning to the 'Deployments' tab will finalize this setup and the previous warning will no longer be shown:

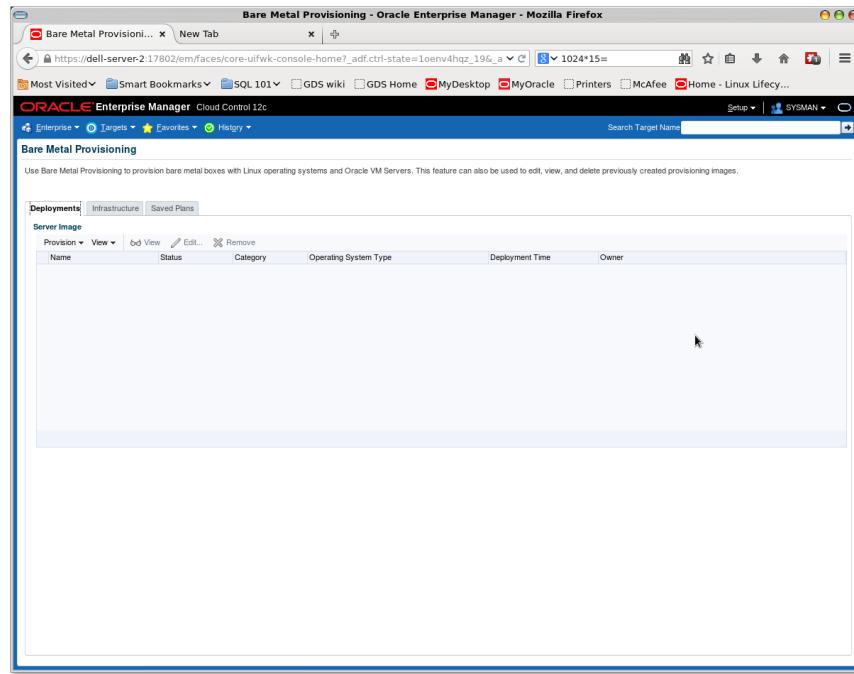


Figure 31: Infrastructure Setup Completed

#### **4.5 Snapshot**

### **5 Demo Operation**