Provisioning Documentation for the CG Infrastructure Isolation Project - For Bare Metal and Big Data Servers

Revision Date and Time: 9/8/2014 4:25 PM

Scope: The scope of this document is to reflect the CG Build Process for Bare Metal and Big Data Servers in the Eco Isolation Project and to reflect the basic build procedures for CG. It is not meant to cover all instances of provisioning.

Timeline: We have to provision 15,000 servers by November 30th to isolate TurboTax and other identified software required by TurboTax. This document will be updated daily to reflect changes as we automate the processes. It will be published each night and forwarded to India so their team can take over provisioning based on the build sheet showing where our engineers left off.

Note: For any changes to this document email your comments/suggestions to:

Lin Laurie (in all cases)

Contents

Before Beginning Your First Server Build

You should have checked your access to the QuickBases and tools we will be using prior to reading this document (see the Welcome email from Lin Laurie).

Note: See the Welcome Letter for additional information about gaining access to a specific tool.

QuickBase Access

You will need to request read/write access to the following QuickBases:

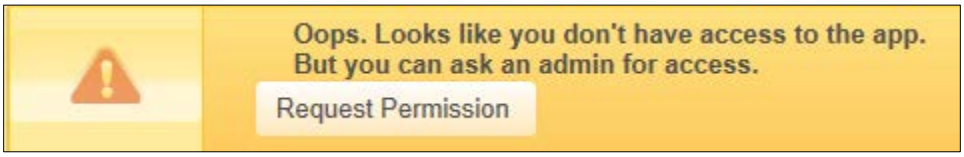
- Isolation Server Build QuickBase – Owned by XXXXX
  https://intuitcorp.quickbase.com/db/bi45ifbmw
- Opsware Implementation QuickBase - Owned by XXXX
  https://intuitcorp.quickbase.com/db/bd7ca9pmw?a=td
- IIT Escalation Procedures Database – You should have access to this one without requesting access.
  https://intuitcorp.quickbase.com/db/bdmsudrgn

You will need to request read access to the following QuickBases:

- QDC Rack Planning QuickBase - Owned by XXX
  https://intuitcorp.quickbase.com/db/bdu6yewfb
- LVDC - Rack Planning QuickBase – Currently owned by XXX which is an alias so I don't know who the actual owner is. Just request permission as normal.
- DCOP - Data Center Operations and Planning – Currently listed as being owned by XXX but this person has left Intuit. Ask your manager to escalate a request for access.
  https://intuitcorp.quickbase.com/db/be3yieinh

Requesting Access to a QuickBase

1. Click on the link to any QuickBase on the list above to test your access, and if you don't have access, you can request it.
2. When the message appears, click on the Request Permission button.



3. If you don't gain access within 24 hours, send an email directly to the owners of each QuickBase requesting access directly:
   - Ask for the type of access you need.
   - Explain the reason for your need.

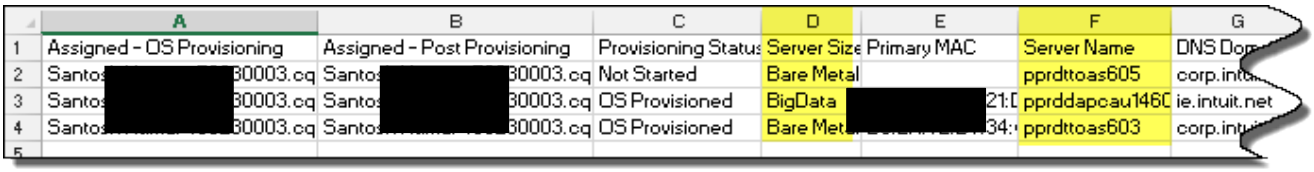
- If there is no owner specified for the QuickBase you want, notify your manager immediately and request access via email.

Daily Build Instructions – Start Here

Building the Opsware QuickBase Record for Your Server

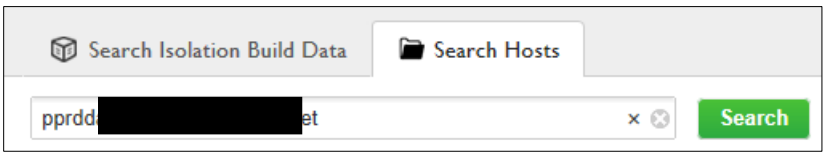
Timing: 15-20 minutes to build an Opsware QuickBase record for your server.

1. In email, open the latest Build Sheet.

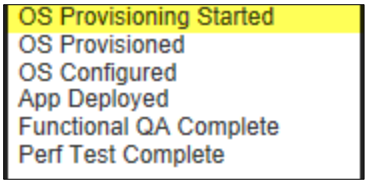


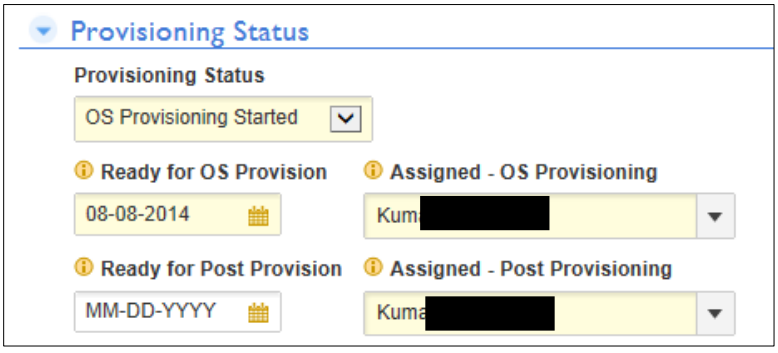
	A	B	C	D	E	F	G
1	Assigned - OS Provisioning	Assigned - Post Provisioning	Provisioning Status	Server Size	Primary MAC	Server Name	DNS Dom
2	Santos[redacted]30003.cq	Santos[redacted]30003.cq	Not Started	Bare Metal		pprdttoas605	corp.int
3	Santos[redacted]30003.cq	Santos[redacted]30003.cq	OS Provisioned	BigData	[redacted]	pprddapcau1460	ie.intuit.net
4	Santos[redacted]30003.cq	Santos[redacted]30003.cq	OS Provisioned	Bare Met[redacted]		pprdttoas603	corp.intu
5							

2. Locate the server you want to start provisioning; find the Server Size to determine the type of server (BareMetal, BigData, or other entries), and then copy the Server Name (CTRL+C) to memory.
3. In the Isolation Build Data QuickBase, open the Search dialog.
   https://intuitcorp.quickbase.com/db/bi45ifbmw
4. Paste (CTRL+P) the Server Name into the Search dialog box, and then click Search to find the server you want to build.

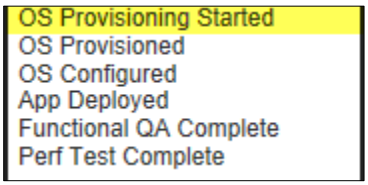


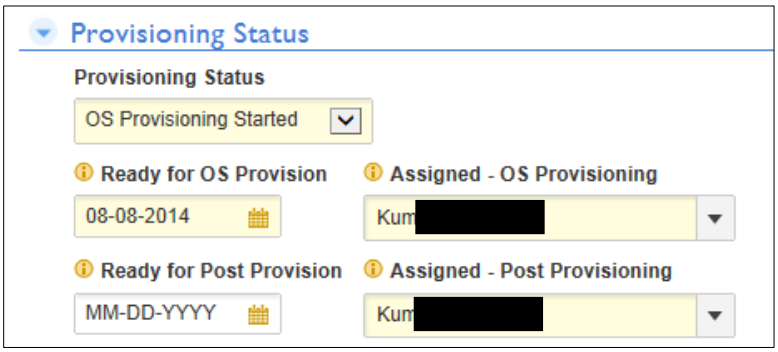
5. In the Provisioning Status section, change the Provisioning Status from Not Started to OS Provisioning Started.





6. If the Assigned – OS Provisioning field contains your name, leave it as is; otherwise change it by selecting it from the drop-down to reflect your name or the person who is actually doing the OS Provisioning of this server.
7. In the Opsware Implementation QuickBase, search for the name of the server (from the Build Sheet) for the name of the server you're provisioning. If you cannot find it, skip to Step 9 below.
8. If you find the server, then change the Provisioning Status to OS Provisioned, and add today's date to the Ready for Post Provisioning line, and then skip to Post Provisioning.





9. Return to the Build Sheet and look at the requirements of server you're provisioning. Find a Host name from the table below and copy the Host Name to memory (CTRL+C).

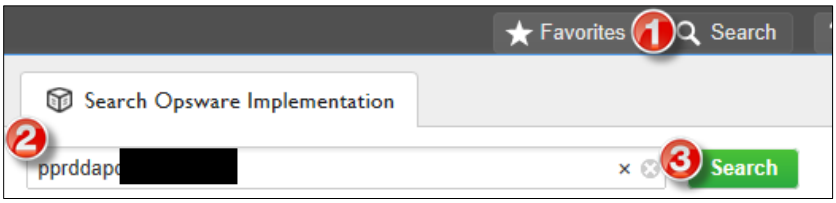
   Note: Please check the Hardware brand before you create an Opsware record. Verify the Raid Policy according to that specified in the Server Build Documentation. The following servers are Dell servers.

DELL Hardware Only

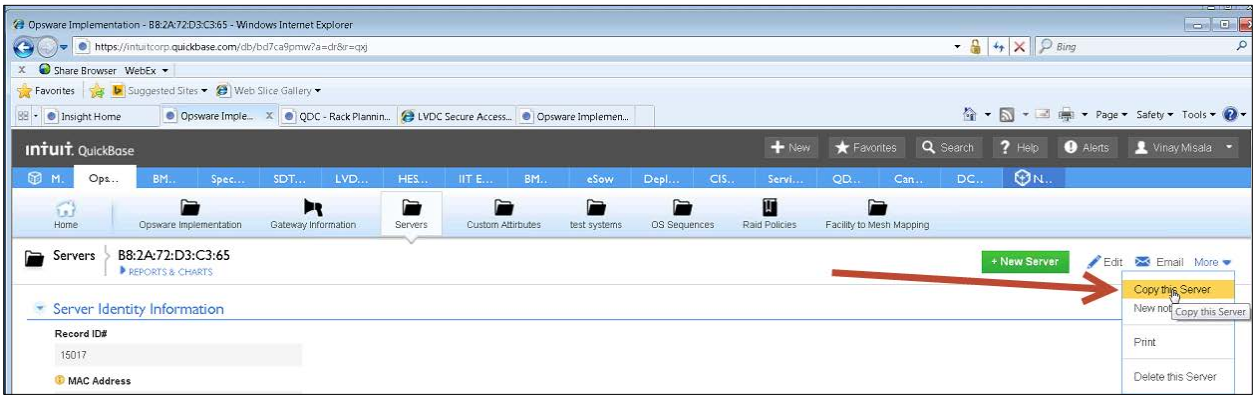
Data Center	Type	Host Name
QDC	Cassandra	pprddapcauxxx.intuit.net
QDC	Gluster	pprddapgluxxxxxx.intuit.net
QDC	Hadoop	pprddaxxxxxx.corp.intuit.net
QDC	Bare Metal	oprdsstmoxxxxxx.corp.intuit.net (Please pick right domain according to the server. e.g.: (CORP/IE))
QDC	Bare Metal TTO	pprdttoasxxxx.corp.intuit.net
LVDC	Cassandra	pprddapcauxxxxxx.ie.intuit.net
LVDC	Gluster	pprddapgluxxxxxx.ie.intuit.net
LVDC	Hadoop	Currently there are no Hadoop nodes in LVDC, but we are planning to build them in the future and will update the build documentation when we do.
LVDC	Bare Metal	oprdsstmoxxxx.corp.intuit.net (Please pick right domain according to the server. e.g.: (CORP/IE))

Data Center	Type	Host Name
LVDC	Bare Metal TTO	pprdttoasxxxx.corp.intuit.net

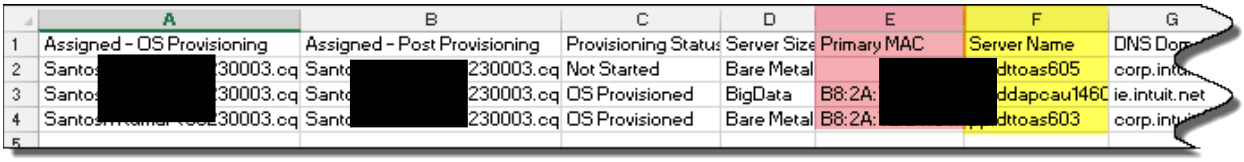
1. In the Opsware Implementation QuickBase search for the server:
    1. Click Search at the top of the QuickBase screen.
    2. Paste the Host Name for the server type that you are building using the table above
    3. Click Search to locate the server record.



2. From the More drop-down list, select Copy this Server.

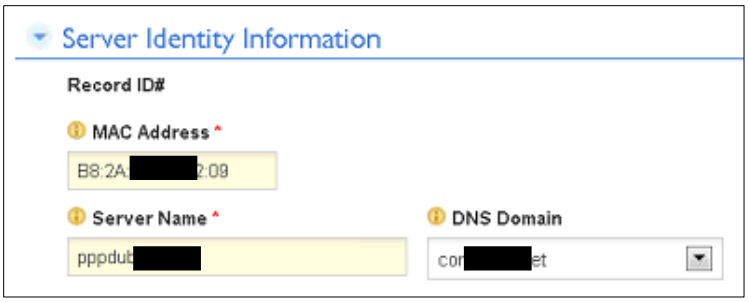


3. Go back to the Build Sheet, and then copy and paste the following fields into matching fields in the Opsware Implementation QuickBase.
    - Server Name
    - Primary MAC address

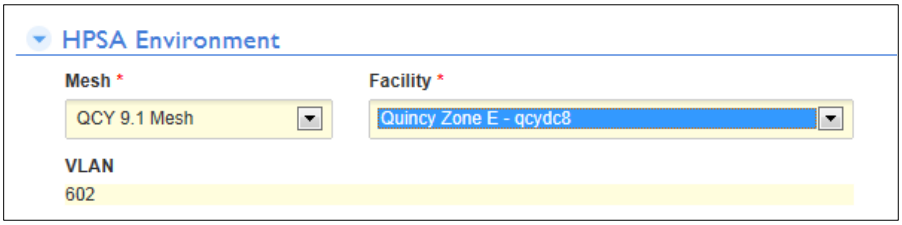


	A	B	C	D	E	F	G
1	Assigned - OS Provisioning	Assigned - Post Provisioning	Provisioning Status	Server Size	Primary MAC	Server Name	DNS Dom
2	Santos[redacted]30003.cq	Sant[redacted]230003.cq	Not Started	Bare Metal		[redacted]dttoas605	corp.int
3	Santos[redacted]30003.cq	Sant[redacted]230003.cq	OS Provisioned	BigData	B8:2A:[redacted]	[redacted]ddapcau1460	ie.intuit.net
4	Santos[redacted]30003.cq	Sant[redacted]230003.cq	OS Provisioned	Bare Metal	B8:2A:[redacted]	[redacted]dttoas603	corp.int
5							

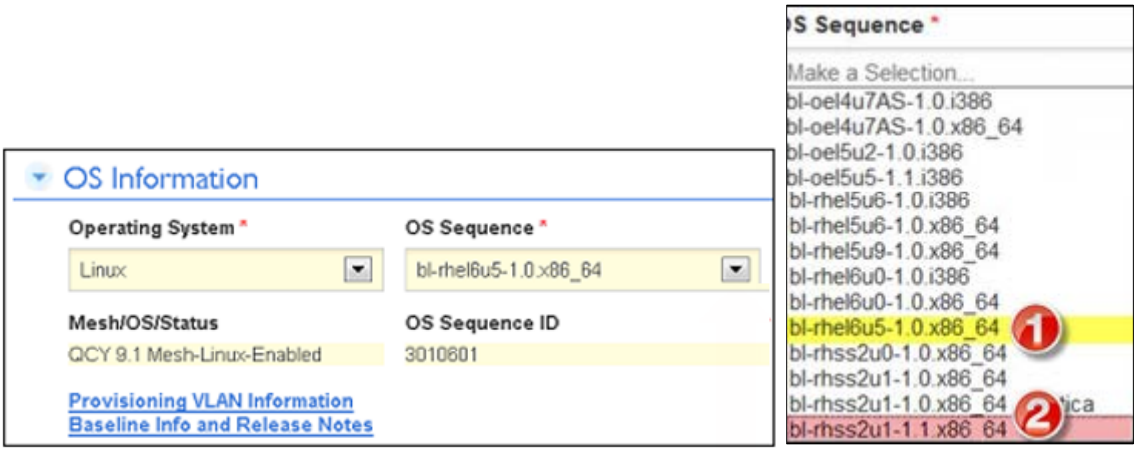
4. In the Server Identity Information section, use the values from the Build Sheet to populate the MAC Address, Server Name, and DNS Domain in the Opsware Implementation QuickBase.



5. In the HPSA Environment section, use the values in the Build Sheet to populate the Mesh and Facility fields by selecting them from the drop-down list in the Opsware Implementation QuickBase.



6. In the OS Information section and select Linux as the Operating System.
   You can look at the Build Sheet to verify the server OS and the OS Sequence in the Opsware Implementation QuickBase. In this example we are running Red Hat 6 so your OS Sequence would correspond to that.



<<Will update #2 when RedHat gets us a new baseline. >>

Note: Be careful to select the one that matches the Build Sheet. For Linux you always want to select the latest version but select the option that matches what is on your Build Sheet.

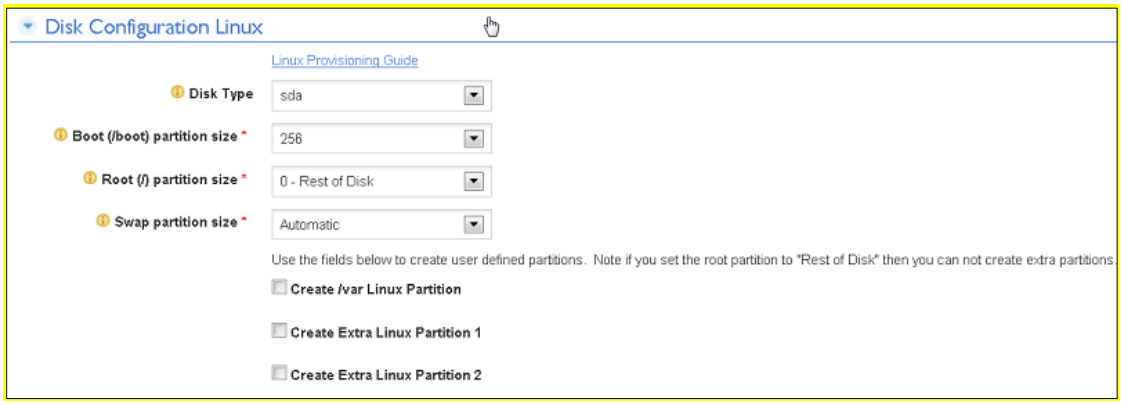
1. Use selection 1 for Cassandra servers.
2. Use selection 2 for Gluster servers.

   Your other selections will default once you've entered the Operating System and OS Sequence.

7. In the Delayed Provisioning and clear the check box from the Ready to Provision field before proceeding any further.

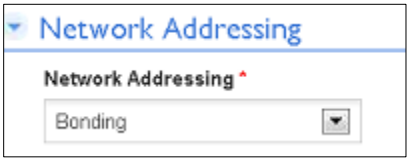
Warning: Do Not Skip This Step!

8. In the Server Ownership Information section enter the Requestor name (your own name), and then use the Build Sheet to select Customer from the drop-down list.

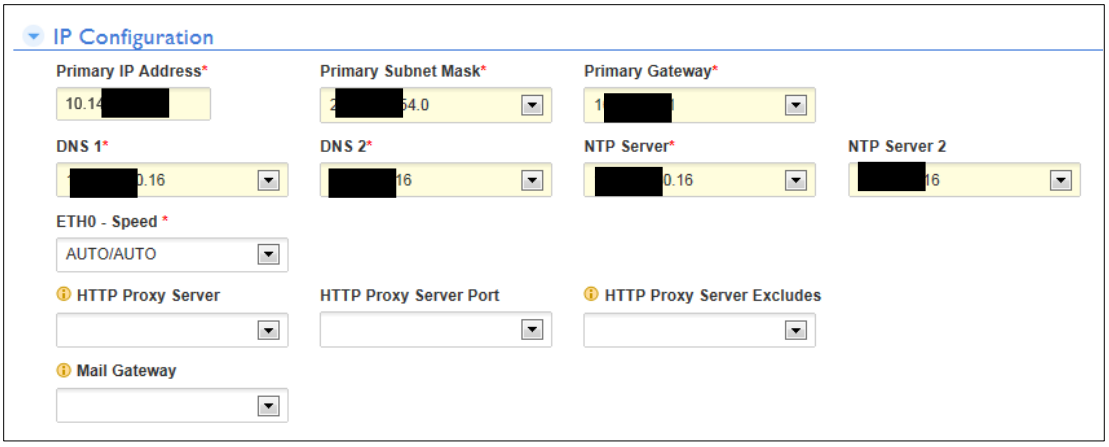


Disk Type: Leave blank for Bare Metal. For Big Data, select sda.

9. In the Networking Address section use the values from the Build Sheet to populate these fields.

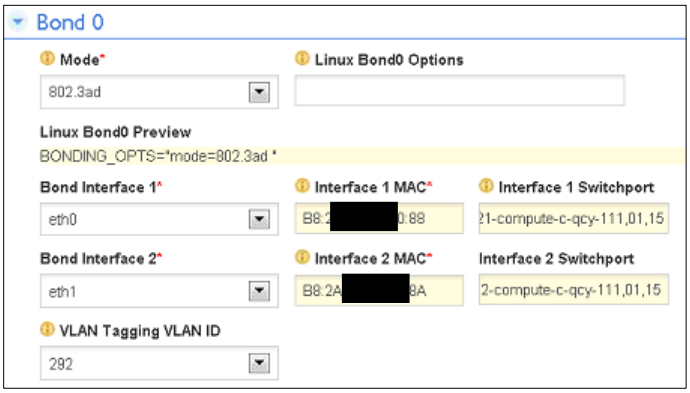


10. In the IP Configuration section, copy and paste the correct information from your Build Sheet into the appropriate fields (see highlighted fields below).



11. In the Bonding section, make sure to check it IF you are creating a bonded server.

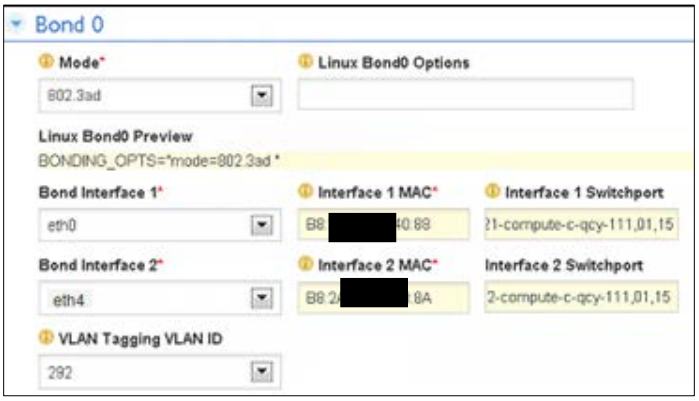
12. Review the Server Size field in the Build Sheet. If the Server Size is “Big Data”, proceed to Step 22, if the Server Size is “Bare Metal”, proceed to Step 23.
13. In Bond 0, configure the Bonding options, and then proceed to Step 24.
    - Bond Interface 1 = eth0
    - Interface 1 MAC = “Primary MAC Address” from Build Sheet
    - Interface 1 Switchport = “Primary Switchport” from Build Sheet
    - Bond Interface 2 = eth1
    - Interface 2 MAC = “Secondary MAC Address” from Build Sheet
    - Interface 2 Switchport = “Secondary Switchport” from Build Sheet
    - VLAN Tagging VLAN ID = “VLAN Tagging ID” from Build Sheet



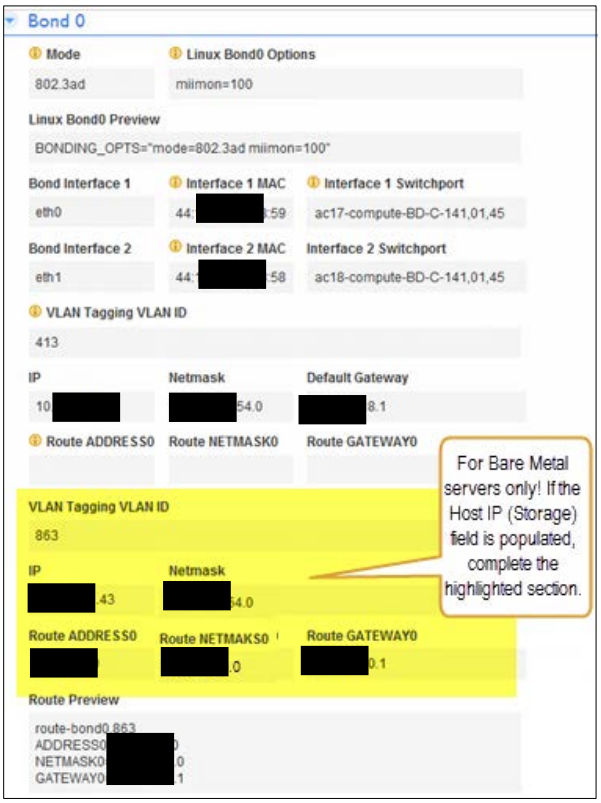
After you configure Bond0 options above, proceed forward to Step 15.

14. In Bond 0, configure the Bonding options. (Only perform this step for a Bare Metal Server.)

- Bond Interface 1 = eth0
- Interface 1 MAC = “Primary MAC Address” from Build Sheet
- Interface 1 Switchport = “Primary Switchport” from Build Sheet
- Bond Interface 2 = eth4
- Interface 2 MAC = “Secondary MAC Address” from Build Sheet
- Interface 2 Switchport = “Secondary Switchport” from Build Sheet
- VLAN Tagging VLAN ID = “VLAN Tagging ID” from Build Sheet

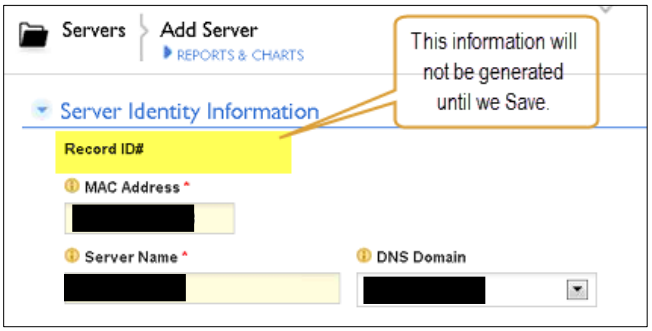


For Bare Metal with NFS data populated in the Build Sheet:



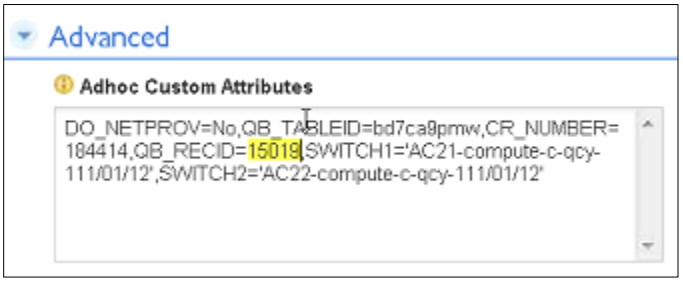
15. If the Storage_IP field is populated in the Build Sheet, update the following fields in the Opsware Implementation QuickBase to match the values in the Build Sheet:
    - Storage VLAN Tagging ID updates the VLAN Tagging VLAN ID field.
    - Storage_IP updates the IP field.
    - Storage_Netmask updates the Netmask field.
    - Storage_Route_Address0 updates to the Route Address0 field.
    - Storage_Route_NetMask0 updates Route NETMAKS0.
    - Storage_Route_Gateway0 updates Route GATEWAY0.
16. Click Save to auto-generate the server Record ID.

    Note: Earlier in the process you removed the check in the Ready to Provision checkbox so that when you save your work, this information is available without generating a change request record. If you scroll to the top of the QuickBase record you'll see that you don't have a Record ID and it isn't generated until you click Save.

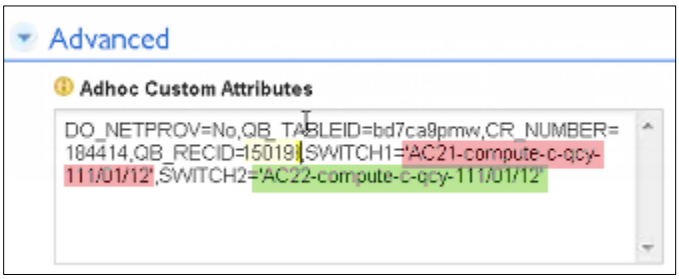


17. When the Record ID is generated, click Edit to complete the remainder of the Opsware Implementation QuickBase work.

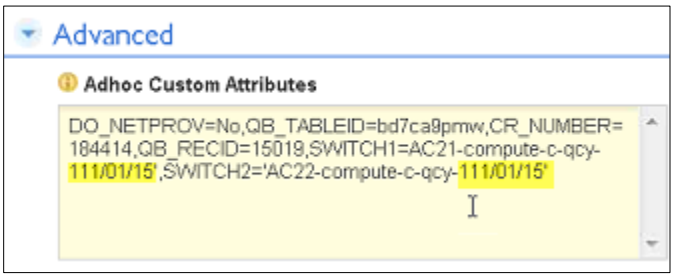
18. At the top of the QuickBase record, highlight and copy (CTRL+C) the newly assigned Record ID from the top.
19. In the Advanced section, in the Adhoc Custom Attributes field, highlight the record ID that was inherited from the server record you based your new server record on, and paste (CTRL+V) the new ID to replace the highlighted field.



20. Replace the Switch Port information in this field with the new Primary and Secondary Switch Port information that you earlier added to the Bond 0 section above.



21. Verify that you selected the right data for each Switch Port and replace the commas with backslashes.



Your example should look like the highlighted information above and include end quotes after each Switch Port's data.

22. Return to the Delayed Provisioning section and check Ready to Provision.

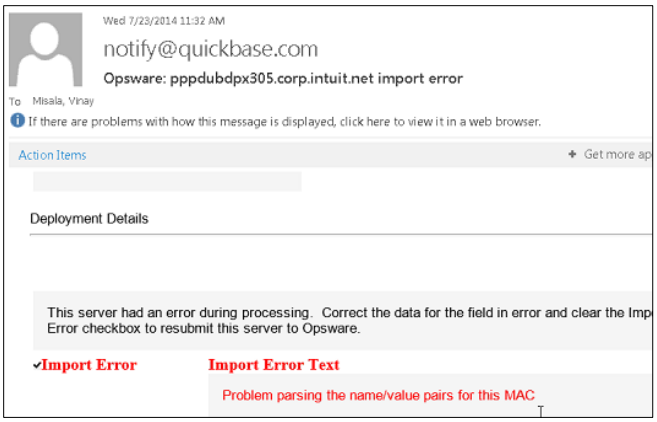
23. Select Deploy State to NetProv Successful in this section before you save.

24. Click Save to generate the Change Request record.

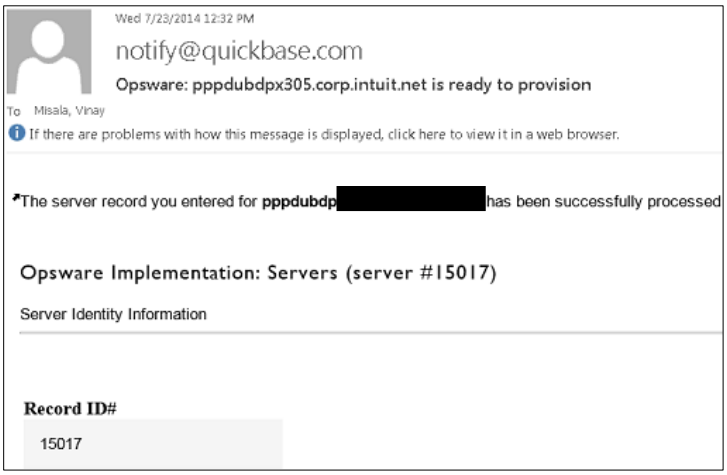
25. Check your email until you receive a QuickBase message within about 5 minutes stating the server is saved.

Error in the OS Deployment Process

Note: If you miss something while entering the Adhoc data or made any other mistakes, you will receive an email like the following and will have to verify all your entries to fix the error and resubmit the record. It isn't very specific so you will have to go through and recheck all the data that you entered into every field and also review the data that auto-populated.



Once the record is successfully processed you will receive a notify@quickbase.com email like the following:



Note: While you're waiting for this email you can begin the OS Deployment process for the next server on your list if you have others servers to work on.

If you do not receive a notify@quickbase.com message stating that the Opsware Implementation QuickBase server is ready for provisioning (but instead receive an error message), notify your team lead, manager, or the project manager.

Provisioning the Server (The PXE BOOT)

Timing: Approximately 30 minutes per device.

Before Using the DRAC (Dell Remote Access Controller) the First Time:

WARNING: The first time you log into the DRAC, you will be asked whether you want to keep the default password. You want to keep the default! Do not add a custom password to the DRAC.

1. Look in your email for a message stating that the server you submitted in QuickBase is ready to provision.

2. Create a .txt file called Iplist.txt with the IP address of each server you are ready to perform the PXE Boot process on. It should contain 1 IP address per line.

   IPlist.txt (Text file with List of DRAC IP's)

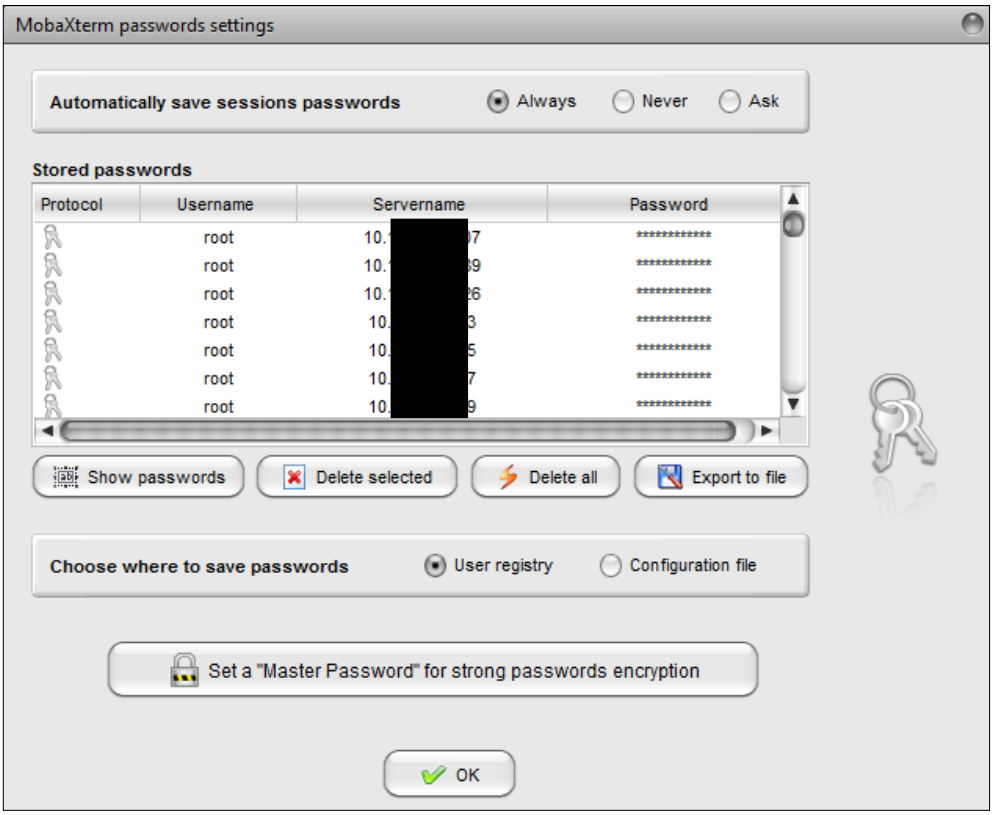
   For Example:

   10.154 [redacted]

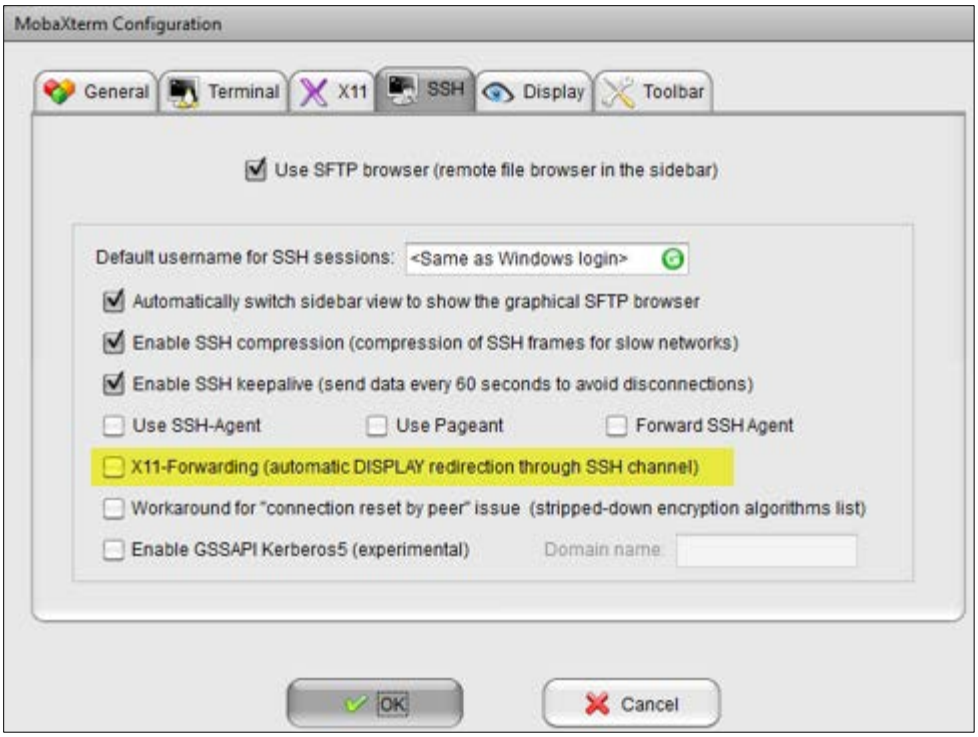
   10.154. [redacted]

3. Using a tool such as MobaXTerm, in Settings > General > Automatically Save Passwords, change the setting to Always on the Automatically save sessions passwords option, and then click OK.

   Note: If you do not make this change, you will have to log in for each server you are provisioning in the text file you created above.



4. In Settings> SSH, uncheck X11-Forwarding from the Settings Menu to stop pasting X11 Forwarding for each server while you run the script, and click OK.



5. Copy the " idrac-BareMetal.sh" script for BareMetal Servers to your Desktop and execute it from "MobaXterm":

   Note: Make sure the script is executable.

Running the Bare Metal Script

1. Execute this script for Bare Metal servers.

   idrac-BareMetal.sh

   idrac-validate.sh

   ```
   #!/bin/bash

   IPfile=`cat IPlist.txt`

   for line in $IPfile; do

   echo -e "\n"

   echo $line

   sshpass -p 'xxx' ssh root@`echo $line` racadm get
   idrac.tuning.DefaultCredentialWarning

   sshpass -p 'xxx' ssh root@`echo $line` racadm get
   BIOS.BiosBootSettings.BootMode

   sshpass -p 'xxx' ssh root@`echo $line` racadm get
   BIOS.BiosBootSettings.BootSeqRetry
   ```



```
sshpass -p 'xxx' ssh root@`echo $line` racadm get
BIOS.OneTimeBoot.OneTimeBootSeqDev

sshpass -p 'xxx' ssh root@`echo $line` racadm get
BIOS.BiosBootSettings.BootSeq

done > $0.log
```

Big Data

1. Copy " idrac-BigData.sh" script for BigData Servers to your Desktop and Execute it from "MobaXterm":

   Note: Make sure the script is executable.

   idrac-BigData.sh

```
#!/bin/bash

IPfile=`cat IPlist.txt`

for line in $IPfile; do

echo -e "\n"

echo $line

sshpass -p 'xxx' ssh root@`echo $line` racadm serveraction powercycle

sshpass -p 'xxx' ssh root@`echo $line` racadm set
LifecycleController.LCAttributes.LifecycleControllerState 1

sshpass -p 'xxx' ssh root@`echo $line` racadm set
iDRAC.tuning.DefaultCredentialWarning Disabled

sshpass -p 'xxx' ssh root@`echo $line` racadm set
BIOS.BiosBootSettings.BootMode Bios

sshpass -p 'xxx' ssh root@`echo $line` racadm set
BIOS.BiosBootSettings.BootSeqRetry Disabled

sshpass -p 'xxx' ssh root@`echo $line` racadm config -g cfgServerInfo -o
cfgServerBootOnce 1

sshpass -p 'xxx' ssh root@`echo $line` racadm config -g cfgServerInfo -o
cfgServerFirstBootDevice PXE

sshpass -p 'xxx' ssh root@`echo $line` racadm get
BIOS.OneTimeBoot.OneTimeBootSeqDev

sshpass -p 'xxx' ssh root@`echo $line` racadm jobqueue create BIOS.setup.1-
1 -r pwrcycle -s TIME_NOW -e TIME_NA

sshpass -p 'xxx' ssh root@`echo $line` racadm jobqueue view

done > $0.log
```


Big Data or Bare Metal Validation

1. Copy "idrac-validate.sh" script to validate parameters, on to your Desktop and execute it from "MobaXterm" (BG or BM).

   Note: Make sure the script is Executable

   This script is used to validate parameters that are changed. There is no compulsion to run this script. It can be run only to verify just in case there are any errors while building the server.

   idrac-validate.sh

```
#!/bin/bash

IPfile=`cat IPlist.txt`

for line in $IPfile; do

echo -e "\n"

echo $line

sshpass -p 'xxx' ssh root@`echo $line` racadm get
idrac.tuning.DefaultCredentialWarning

sshpass -p 'xxx' ssh root@`echo $line` racadm get
BIOS.BiosBootSettings.BootMode

sshpass -p 'xxx' ssh root@`echo $line` racadm get
BIOS.BiosBootSettings.BootSeqRetry

sshpass -p 'xxx' ssh root@`echo $line` racadm get
BIOS.OneTimeBoot.OneTimeBootSeqDev

sshpass -p 'xxx' ssh root@`echo $line` racadm get
BIOS.BiosBootSettings.BootSeq

done > $0.log
```

Checking Validation Results

1. Open the validate log file and review its contents. They should resemble the example below:

   cat idrac-validate.sh.log

```
10.154.138.87

[Key=idrac.Embedded.1#DefaultCredentialMitigationConfigGroup.1]

DefaultCredentialWarning=Disabled

[Key=BIOS.Setup.1-1#BiosBootSettings]

BootMode=Bios

[Key=BIOS.Setup.1-1#BiosBootSettings]

BootSeqRetry=Disabled

[Key=BIOS.Setup.1-1#OneTimeBoot]
```



```
OneTimeBootSeqDev=HardDisk.List.1-1

[Key=BIOS.Setup.1-1#BiosBootSettings]

BootSeq=HardDisk.List.1-1,NIC.Integrated.1-1-1
```

Reviewing the Log File

1. When you've successfully completed executing the appropriate scripts, the log files should show up in the current directory.
2. See the Example Log file below (idrac-BigData.sh.log)
3. If you see the message "Object value modified successfully," it indicates that the parameters have been successfully updated. All the changed parameters are still pending until a reboot. At this point, a job queue is created to reflect all the pending changes.
4. Open the Console and you should see the server rebooting several times for all the changes to take effect. The server automatically PXE boots and picks up the image.

```
cat idrac-BigData.sh.log


10.1[redacted]
Object value modified successfully


[Key=iDRAC.Embedded.1#DefaultCredentialMitigationConfigGroup.1]
Object value modified successfully


[Key=BIOS.Setup.1-1#BiosBootSettings]
RAC1017: Successfully modified the object value and the change is in
pending state.


To apply modified value, create a configuration job and reboot
the system. To create the commit and reboot jobs, use "jobqueue"
command. For more information about the "jobqueue" command, see RACADM
 help.


[Key=BIOS.Setup.1-1#BiosBootSettings]
RAC1017: Successfully modified the object value and the change is in
pending state.
```

```
To apply modified value, create a configuration job and reboot
the system. To create the commit and reboot jobs, use "jobqueue"
command. For more information about the "jobqueue" command, see RACADM
 help.


Object value modified successfully
Object value modified successfully
[Key=BIOS.Setup.1-1#OneTimeBoot]
OneTimeBootSeqDev=HardDisk.List.1-1
RAC1024: Successfully scheduled a job.
Verify the job status using "racadm jobqueue view -i JID_xxxxx" command.
Commit JID = JID_083751269708
Reboot JID = RID_083751270132
------------------------JOB QUEUE-----------------------
[Job ID=JID_081335346696]
Job Name=Configure: BIOS.setup.1-1
Status=Completed
Start Time=[Now]
Expiration Time=[Not Applicable]
Message=[PR19: Job completed successfully.]
-------------------------------------------------------
[Job ID=RID_081335347012]
Job Name=Reboot: Power cycle
Status=Reboot Completed
Start Time=[Now]
Expiration Time=[Not Applicable]
Message=[RED030: Reboot is complete.]
-------------------------------------------------------
[Job ID=JID_083751269708]
Job Name=Configure: BIOS.setup.1-1
Status=Ready For Execution
```



```
Start Time=[Now]
Expiration Time=[Not Applicable]
Message=[JCP000: New]
------------------------------------------------------------
[Job ID=RID_083751270132]
Job Name=Reboot: Power cycle
Status=Pending Reboot
Start Time=[Now]
Expiration Time=[Not Applicable]
Message=[JCP000: New]
```

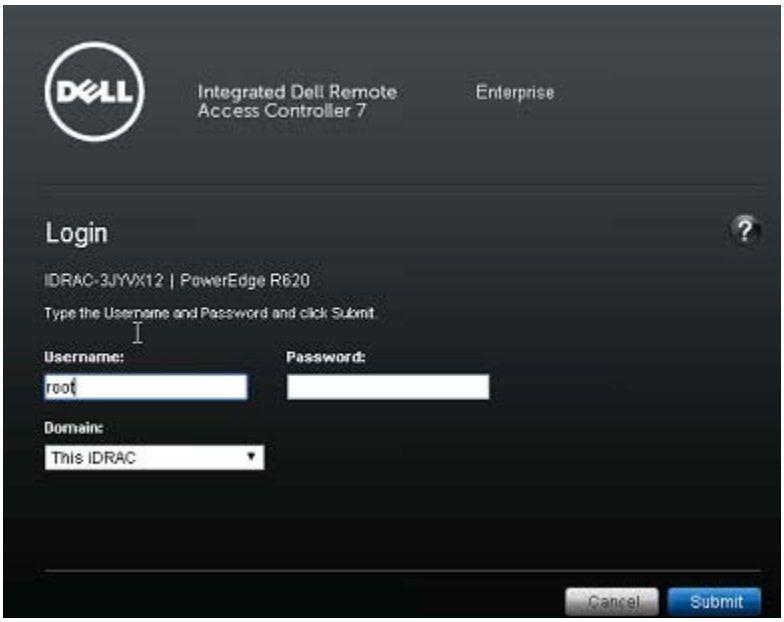
Logging into the DRAC to start the PXE Boot Process

1. Log into the DRAC (Dell Remote Access Controller) using the DRAC Host IP address from your Build Sheet.

   For example, enter Http://10.[redacted]62/login.html where the highlighted information will vary by IP address.

2. Enter the login and password (root and XXX), and then click Submit to access the DRAC.

   Note: We are all using these login and password credentials for this project.

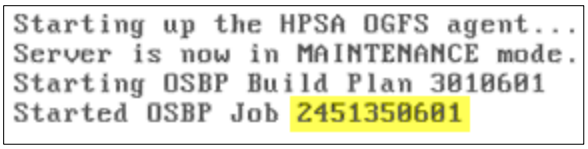


3. From the Navigation pane on the left side of the screen, click Overview>Server>Setup, and then click Launch Virtual Console.

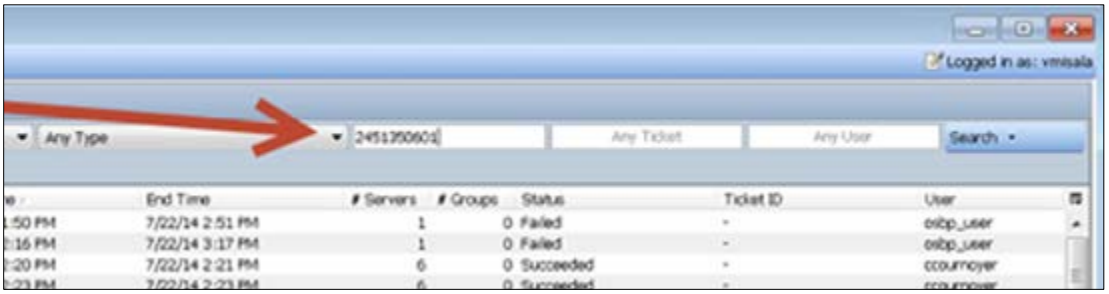
4. From the Navigation pane on the left side of the screen, click Overview>Server>Virtual Console, and then select Launch Virtual Console.

If you receive a warning message, click Keep to continue. If you see other warning messages, click OK.

5. Once the server starts the PXE Boot process, you will see a job number on your screen. Write it down so you can use that job to track its process in the HP Server Automation tool.



6. Open the HP Server Automation console from your desktop, and search for the specific job by entering it into the Job Logs field.

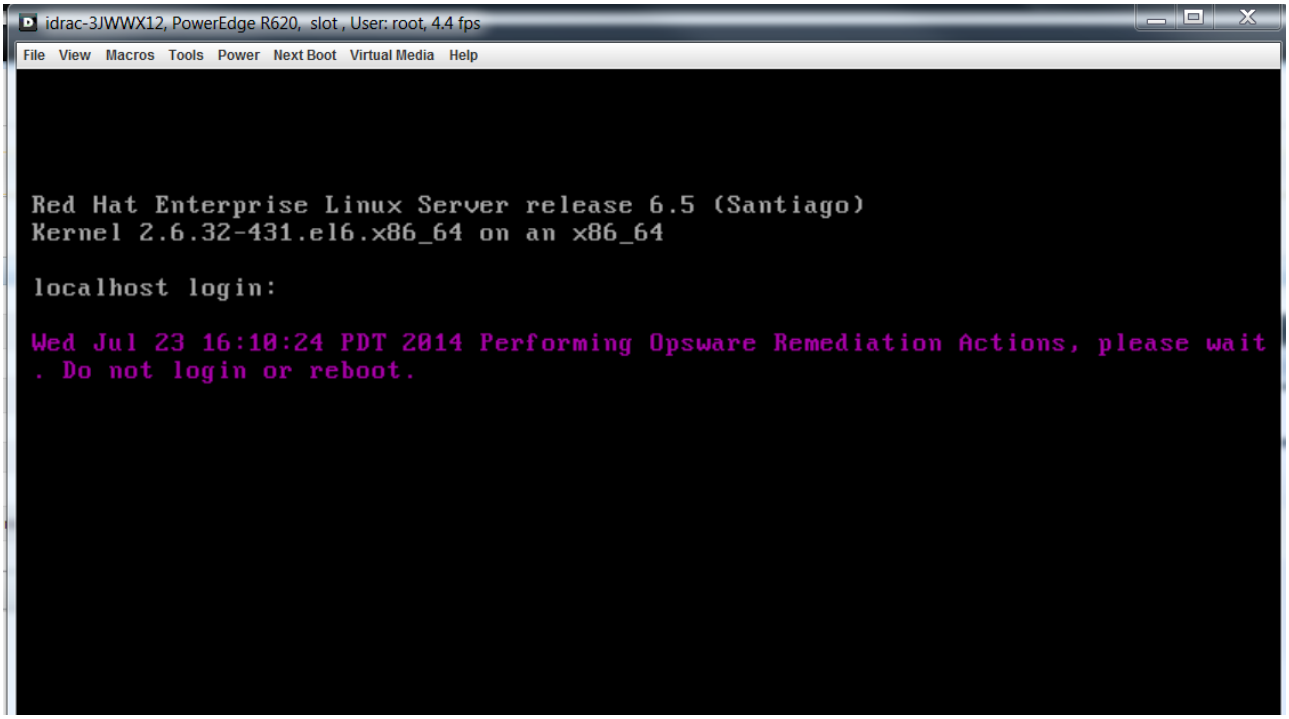


When you click Search it will display the results.

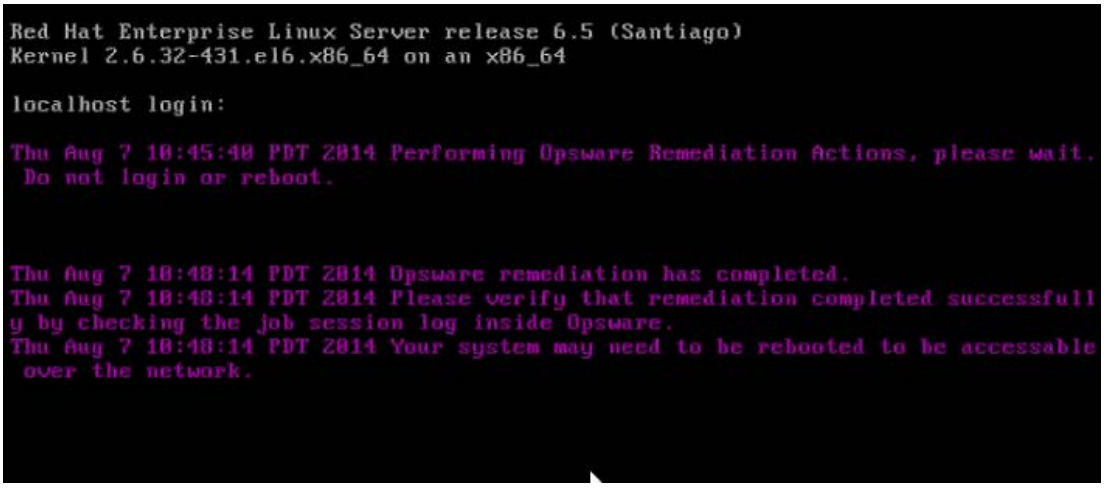
The system will complete the process. You can close the results screen.

You will see the following screen when the process is completed.

Warning: Once you enter the PXE Boot process, do not press ANY KEY while the following window is active until the process completes. If you do, the build will fail!



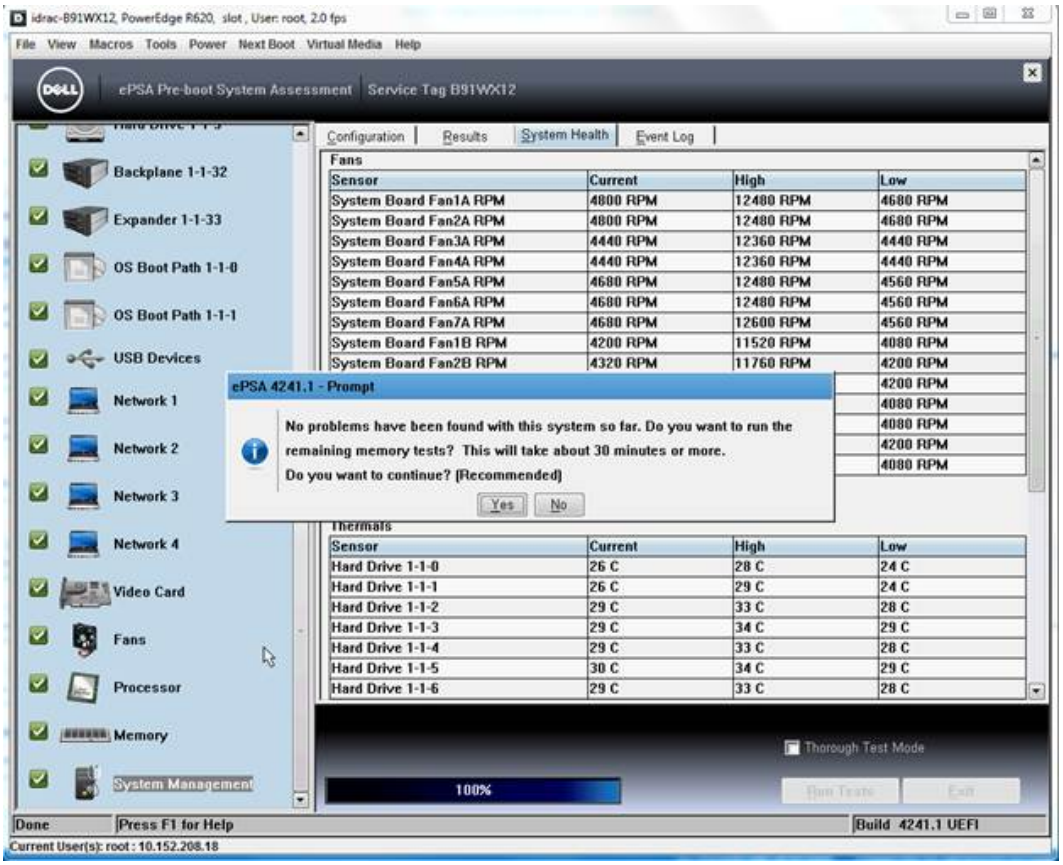
When this screen displays, the provisioning completed successfully. You can now close this window.



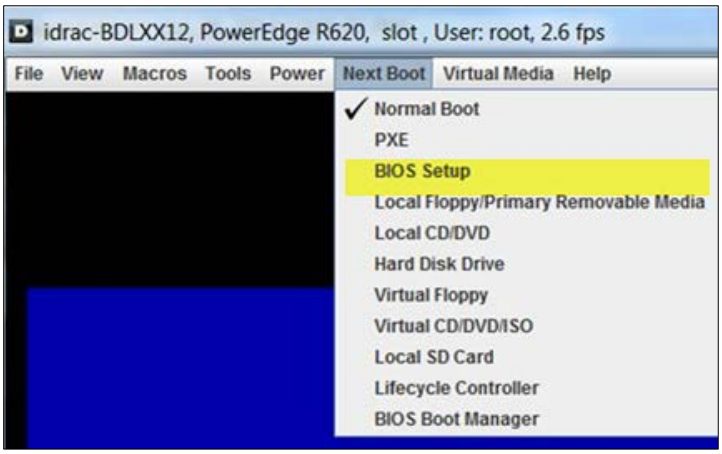
7. Log into the server with ‘ea’ and ‘su’ to the root using the password for both accounts as “deadbeef”.
8. Enter ‘reboot’ to REBOOT the server.

Troubleshooting the PXE Boot Process

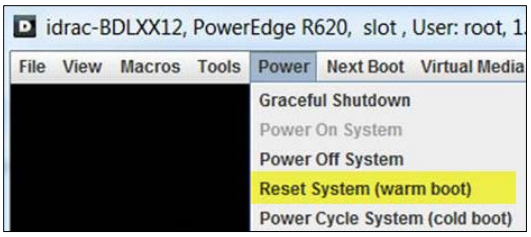
If you do not get this screen after approximately ½ hour, (but instead receive an error message), notify your lead or manager to indicate you have a problem with the PXE Boot process.



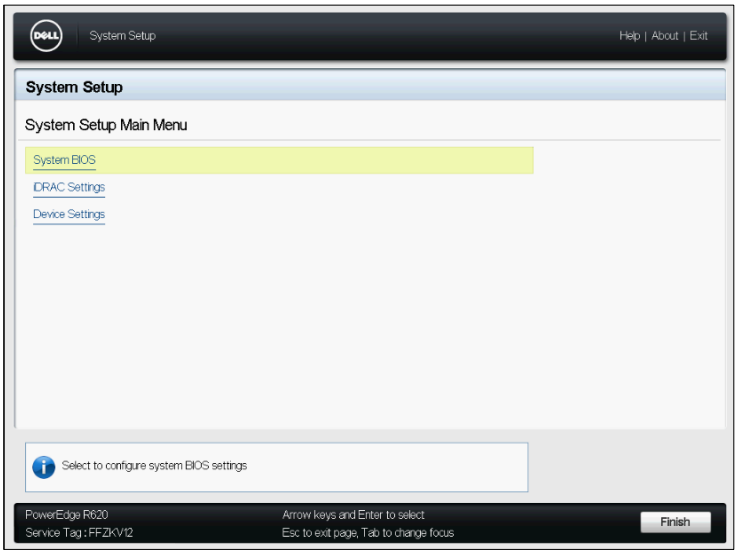
1. If you see this screen, click No to exit from the prompt screen in the Hardware Diagnostic mode.
2. In Click on Next Boot>Bios Setup>, and then save the settings when prompted.



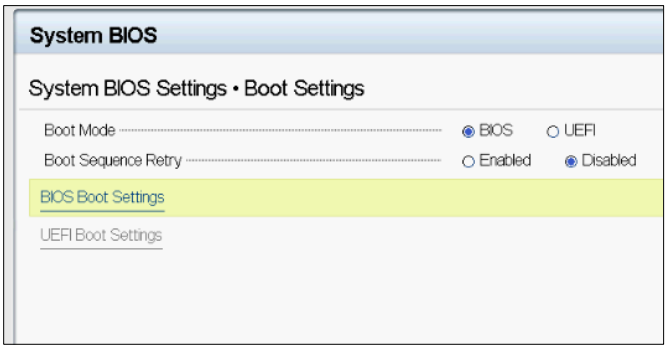
3. Select Power>Reset System (Warm Boot).



When it completes its boot process you will see the System Setup screen.

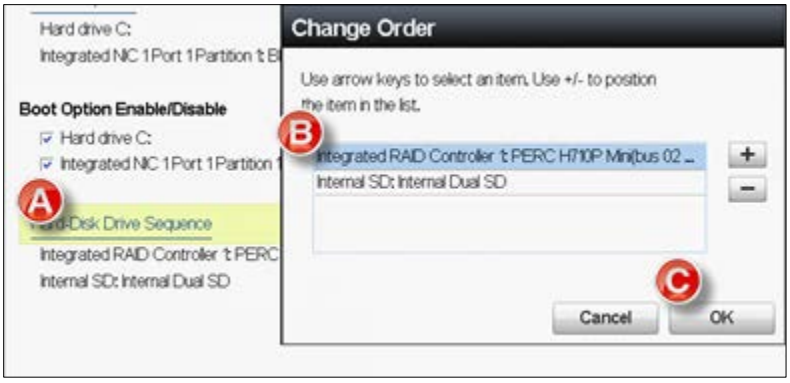


4. Select System Bios.



5. Change the Boot Mode to BIOS, and then click Exit.

If you are doing a Bare Metal server build, you will see the following screen.



For Bare Metal Server Builds:

a. Click on the Hardware Drive Sequence.

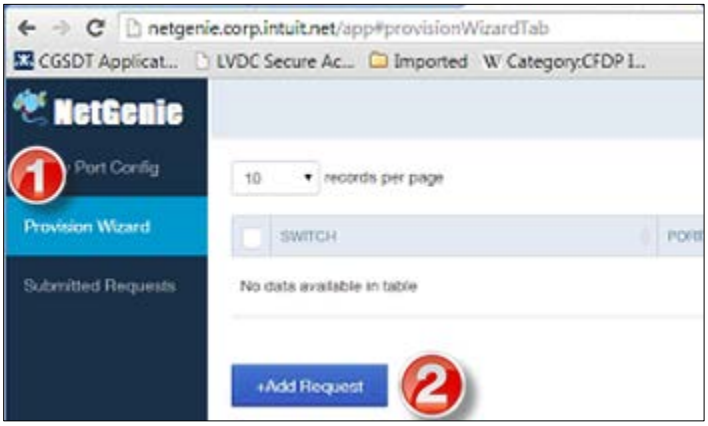
b. On the Change Order screen, select Integrated RAID Controller as shown above, and click Plus.

c. Click OK to continue.

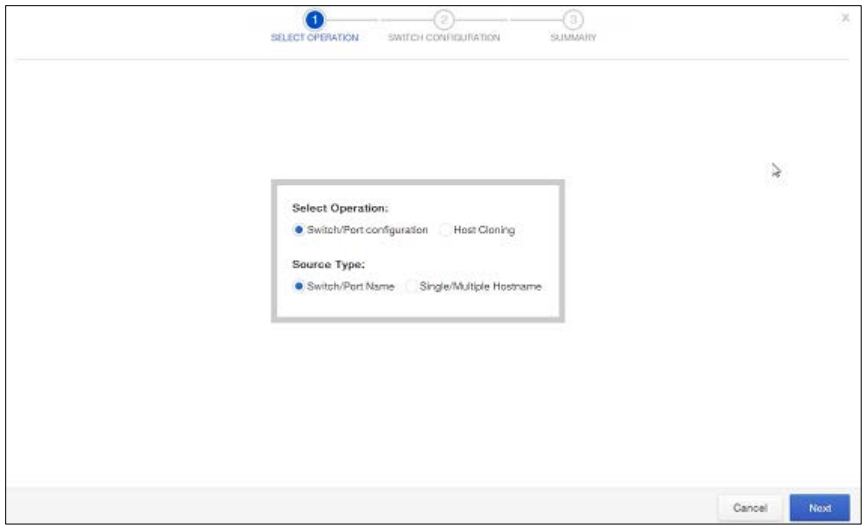
Configuring the Ports and VLAN for a Server

We are going to get direct approval for this process during the Isolation Build Project so we think we won't need to use this process but I am waiting for verification. Right now, Vinay is still doing this manually. If we are not doing this procedure, skip to step Post Provisioning

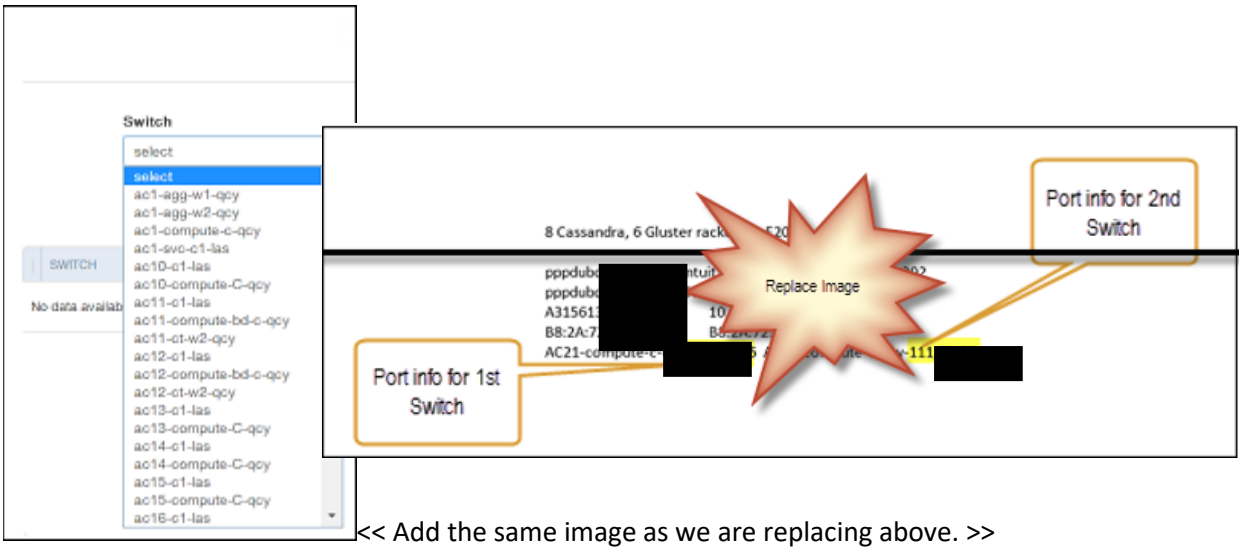
1. Log into NetGenie at netgenie.corp.iXXXXX.
2. Open the Provisioning Wizard and click Add Request.



3. When the Select Operation screen appears, click Next.



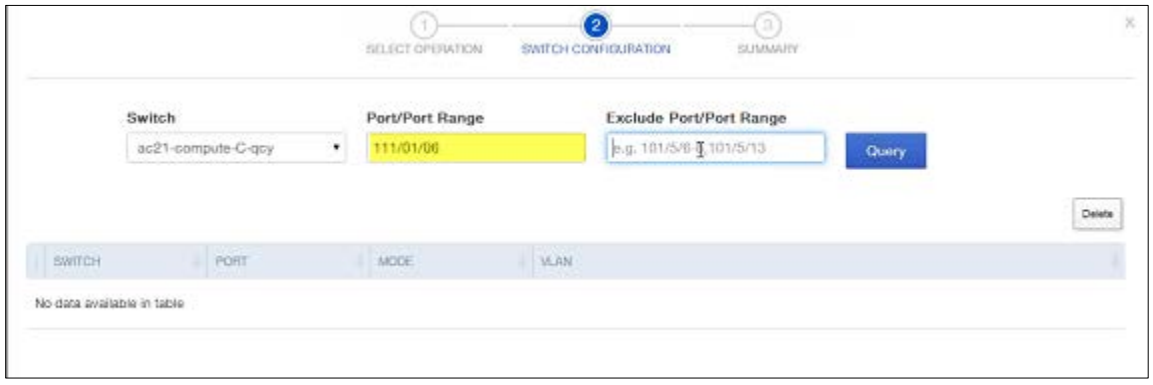
4. From the Switch drop-down list, select the Switch you want to configure. This information can be found in the Build Sheet.



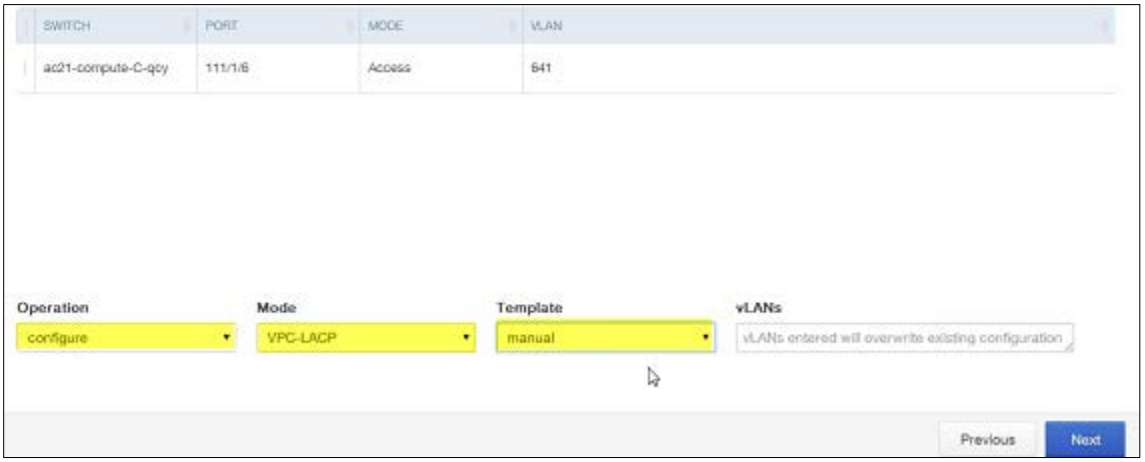
<< Add the same image as we are replacing above. >>

Note: In this example, we are setting up **AC21-compute-c-qcy** so you would select that from the drop-down list and then copy the highlighted port information.

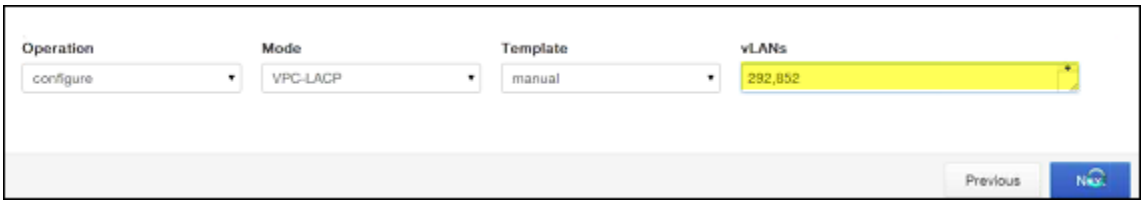
5. Enter the port information associated with the Switch Port in the Port/Port Range field.



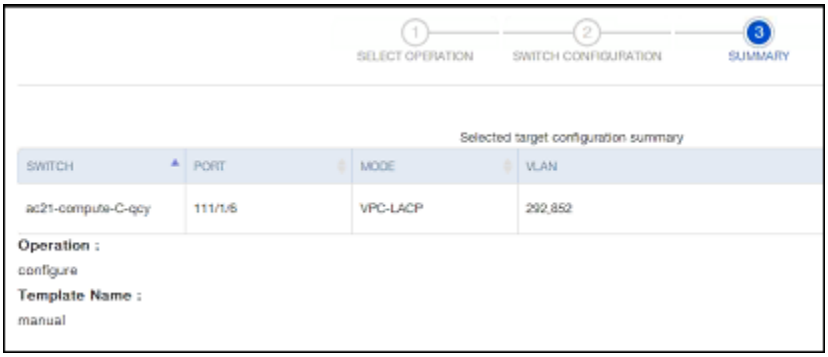
6. Change the commas to backslashes as you did earlier in the Opsware Implementation QuickBase.
7. Click Query to change the Mode to Access and display the VLAN associated with the switch. Once the Query is complete you will see the following results populating below the Switch line:



8. From the Operation drop-down list, select configure.
9. From the Mode drop-down list, select VPC-LACP. You will do this for all servers.
10. From the Template drop-down list, select manual.
    Note: If you select another template it will populate the vLANs field with preconfigured VLAN data.
11. Enter the VLAN information from the Build Sheet into the vLANs field, and then click Next.

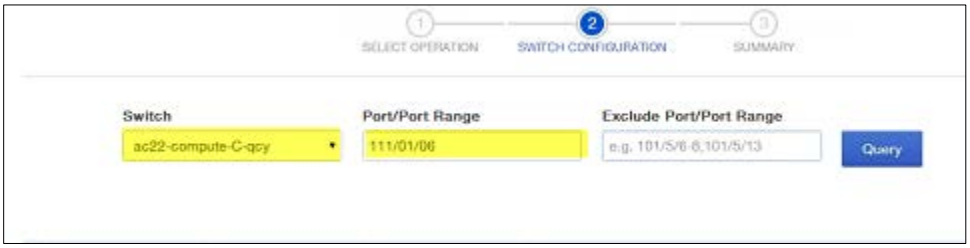


12. When the following information displays, click Finish.

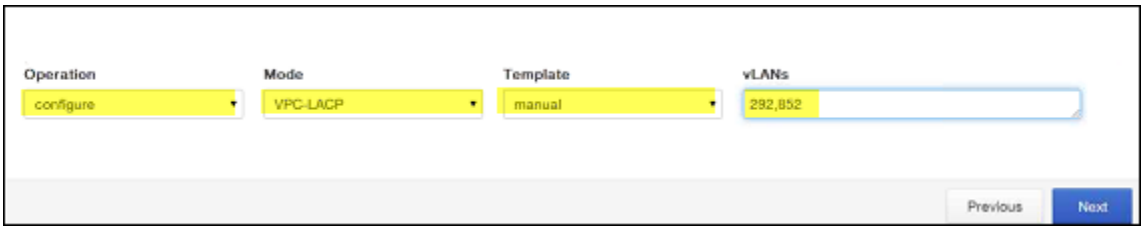


13. Repeat this process for the second switch to configure the ports for this switch.

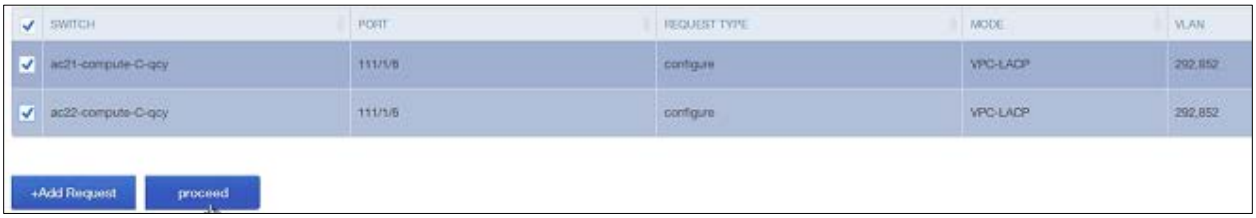
14. Remember to change the Switch information and then also replace the commas with backslashes before you click Query.



15. Enter the Operation, Mode, Template, and vLAN information again for the second switch, click Next, and then click Finish to complete the port configuration process.

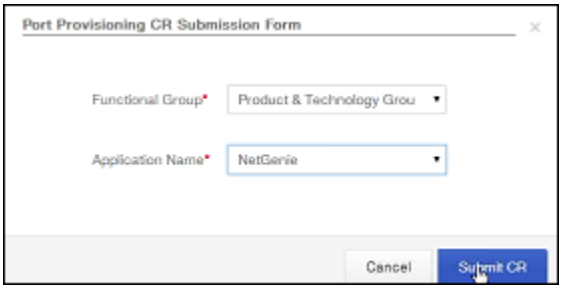


16. When the list of switches appears, select the two you just configured and place a check to the left of both of them.



17. Click Proceed.

18. When the Port Provisioning CR Submission Form appears, select the following from the drop-down lists, and then click Submit the CR.



- Provisioning Group: Select Product and Technology Group.
- Application Name: Select NetGenie

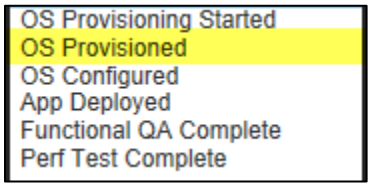
This will generate a change request in the Service Now system and it will be automatically routed to the appropriate person for approval.

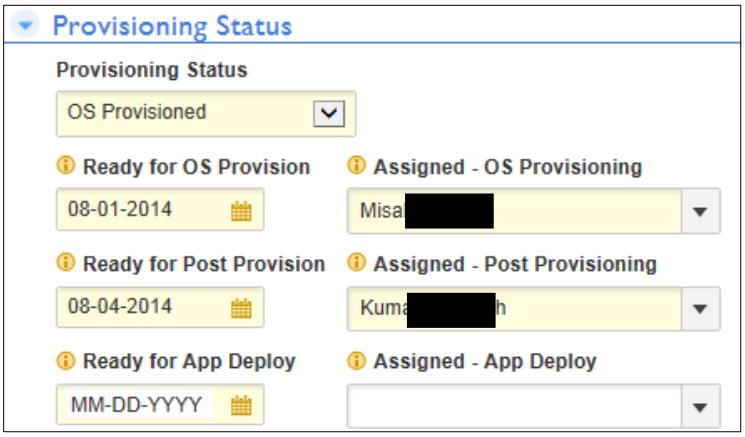
19. Once the Change Request is approved the status of the request will change from Pending to Complete in NetGenie.

Post Provisioning

This part of the OS Deployment process should be the same for all servers that are running Linux. After this section is completed, we will hand off the Build Complete server information to either the Apps team or for TTO, to David Foster for further work.

1. In the Isolation Build Server QuickBase, change the Provisioning Status to OS Provisioned.





2. Update the Ready for Post Provision date field to today's date. If the Assigned – Post Provisioning field is blank and you will perform the Post Provisioning, select your name from the drop-down list.

Linux Host Post Provisioning

Use this procedure when performing Post Provisioning for the Service Delivery Team's servers:

1. Open the HPSA Opsware console to start.
2. Check "root" user's profile and confirm /sbin is in its path. If not, add it and then "source /etc/profile"
3. Check the current date and time of the server by using the Date command:

   # date

   If it reflects the current date and time, continue to the next step. Otherwise, set the date using the following command as an example:

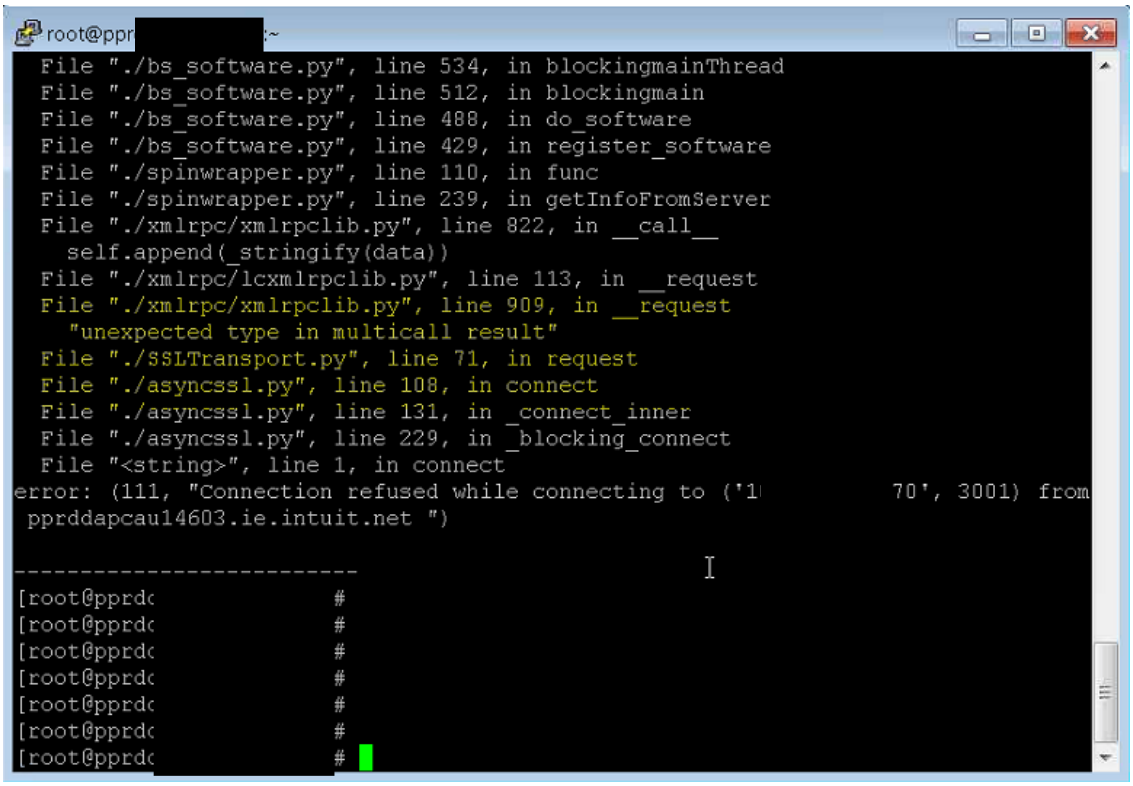
   # date --set="Mon Aug 21, 2014 11:00:00"

4. Use the VAStool to add the hosts to the Active Directory and move the hosts to the right organizational unit (OU) in Active Directory.

   /opt/quest/bin/vastool -u *yourname* **join -f -n $(hostname) $(hostname -d)**

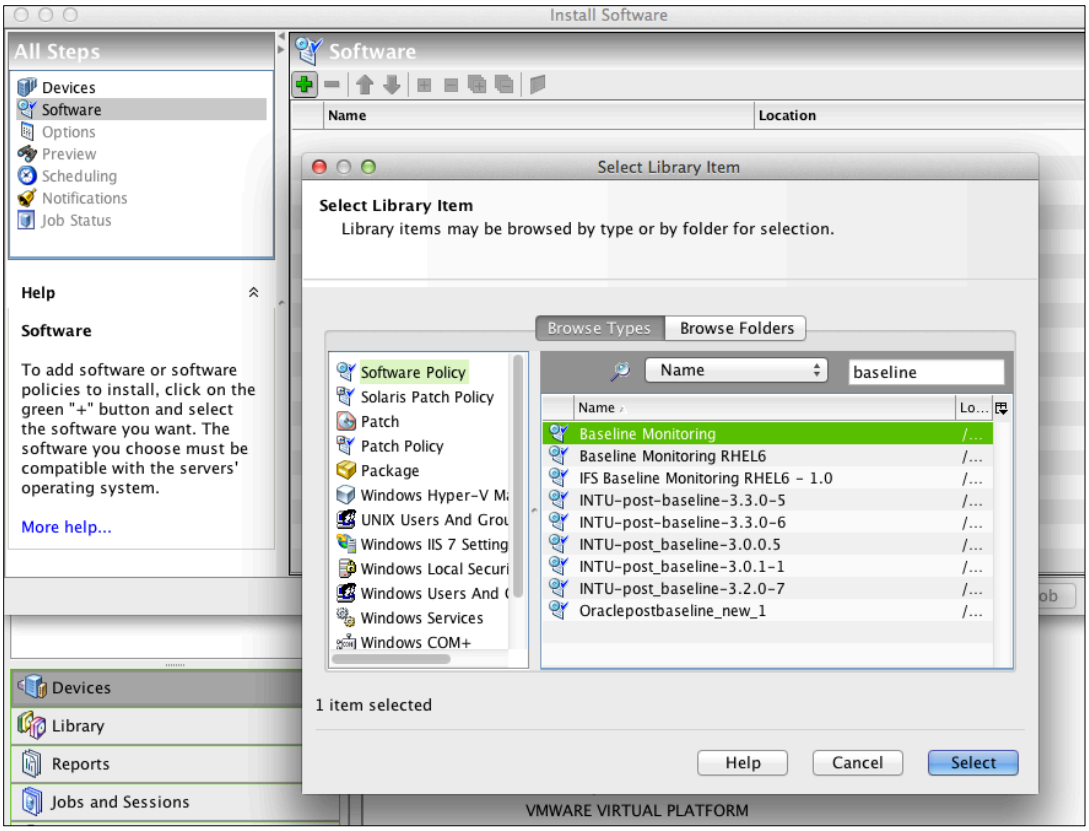
-u is the only variable that needs to be changed. The variable *yourname* is your Active Directory username-admin ID. The rest of the command can be submitted verbatim.

5. We can skip this section because we selected the RH baseline Linux up-to-date version during the OS Deployment. Otherwise, install software and patches via Opsware.



Install Software Policy(s):

1. Right-click on the host and select "Install Software".
2. In the left frame of the "Install Software" dialog box select "Software".
3. In the right frame of the "Install Software" box, click on the green "+" sign.
4. In the left frame of the "Select Library Option" popup box, select "Software Policy".
5. In the frame on the right of the popup box type "baseline" and select the closest fit to "Baseline Monitoring" that is appropriate for the host you are doing the post provisioning work for, then click "select".



6. Run the Post Provisioning script.
7. Install the LinuxPostProv.sh script
8. This script can be installed and run in multiple ways. Select how you want to perform it from the list below:
9. The script can be downloaded from Opsware (HES repo will be available soon to download the script from as well) and copied to the server to be run manually.
    a. copy the script to /tmp
    b. In Opsware: Library --> Customers --> IIT-OEI --> Unified Service Delivery --> Linux Post Provisioning --> LinuxPostProv.sh

    The script can be run from Opsware:

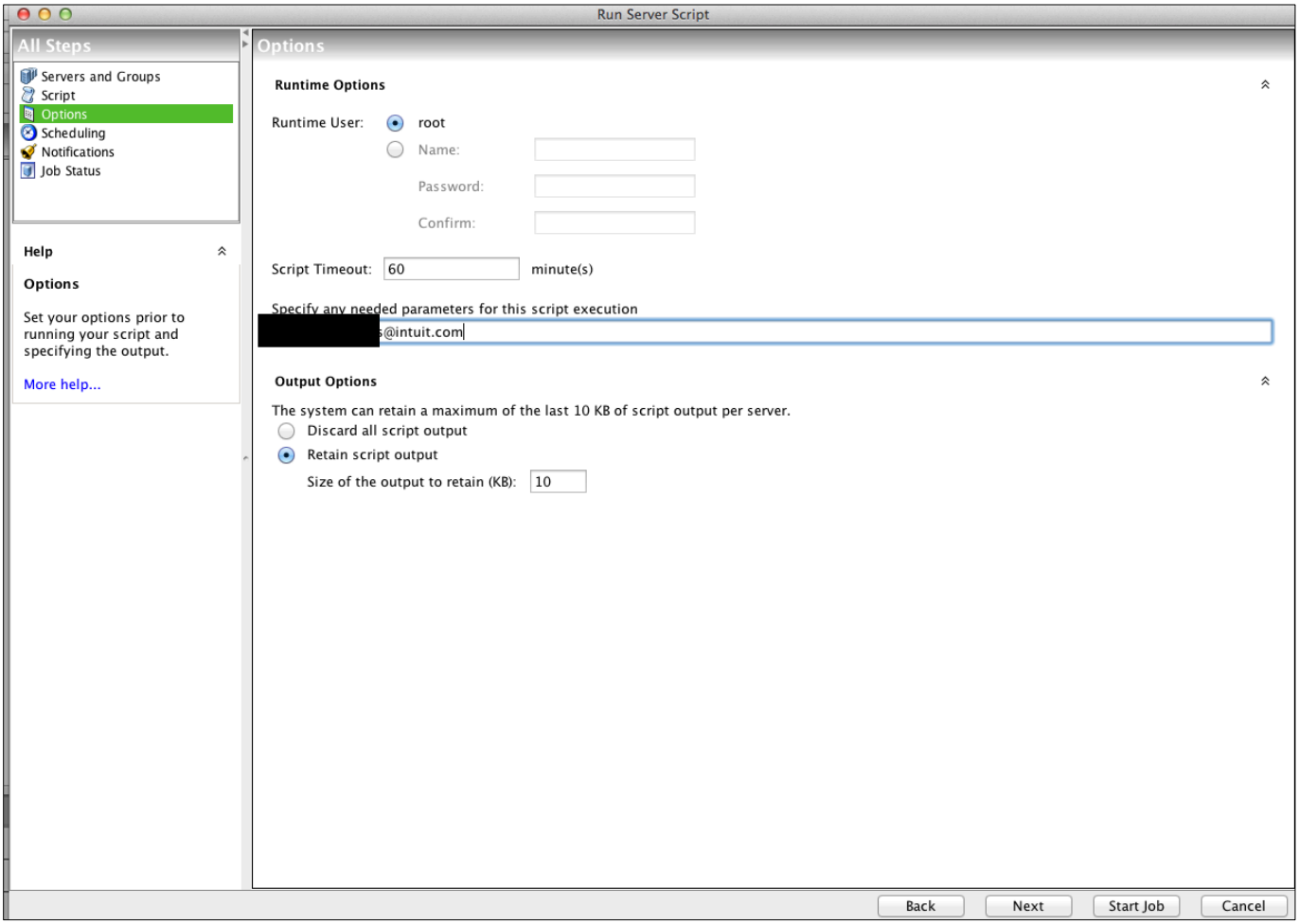
    a. In Opsware, select: Library --> Customers --> IIT-OEI --> Unified Service Delivery --> Linux Post Provisioning --> LinuxPostProv.sh.
    b. Run the script called Linux_PostProv.sh

Usage is: ./Linux_PostProv.sh <*Environment*><*DB?* > <*email address*>

a. Select your "Environment" Options: P (Prod) or NP (NonProd).
b. "DB?" - Means is this host going to be a DB server of any type?

- If you choose "N" it will change the ea and root passwords to the default ea/root for preprod and default ea for prod. Root passwords in prod need to be set manually
- If you choose "Y" it will set the root/ea passwords to "intuit01" so that the oracle preparation script will run

  EXAMPLE: ./Linux_PostProv.sh P Y mandy_rees@intuit.com



Note: Detailed information about the script can be found at this wiki:

http://wiki.intuit.com/display/SDT/Linux+Post+Provisioning+Script+for+Service+Delivery

10. Make password changes for ea and root users in Opsware.

Verification Process

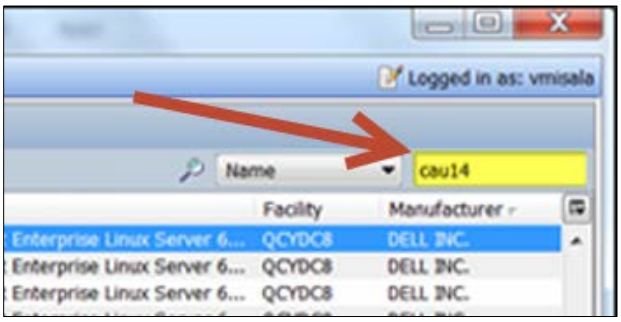
1. Log in and verify all configurations are correct and any errors flagged in the hosts file are notification errors or are corrected before you proceed.
2. Verify the version of VAS running on the host.
3. Run the command /opt/quest/bin/vgptool –v

4. Using Opsware, verify that the newest version of VAS is running on the host. If it is not, push the desired version of VAS to the host from Opsware following the steps outlined in 3a for installing software. Search for software package "vas".
5. Mount any external storage.
6. Reboot the server and log in to verify all is stable.
7. Create an escalation policy in the Escalation Procedures QB (https://www.quickbase.com/db/bdmsudrgn)
8. Add custom configurations specified in the eSOW.
9. Add users, packages, and Active Directory policy requirements.
10. Verify hosts are in spectrum. <<How? Is spectrum an evaluation tool, software, a range of appropriate values? >>
    - If the hosts are not in spectrum, discover them in the proper landscape with the correct version of SNMP.
    - If they cannot be discovered, check your /etc/snmp/snmpd.conf file to make sure it is configured to send to the correct snap trap server (Depends on DC) and community (iecommunity).
11. Verify host is in caci, and then create the appropriate group if necessary.

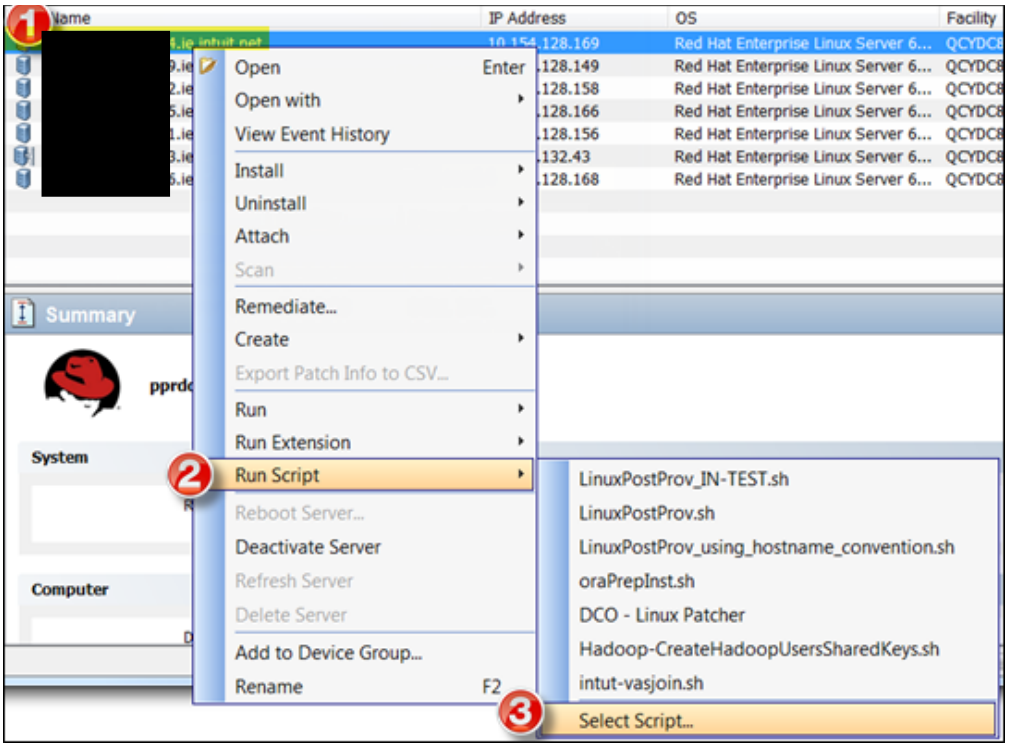
CFP Post Provisioning (for Cassandra or Gluster servers)

Warning: If you are provisioning a SPLUNK server, skip to Running the SPLUNK Script on page 36.

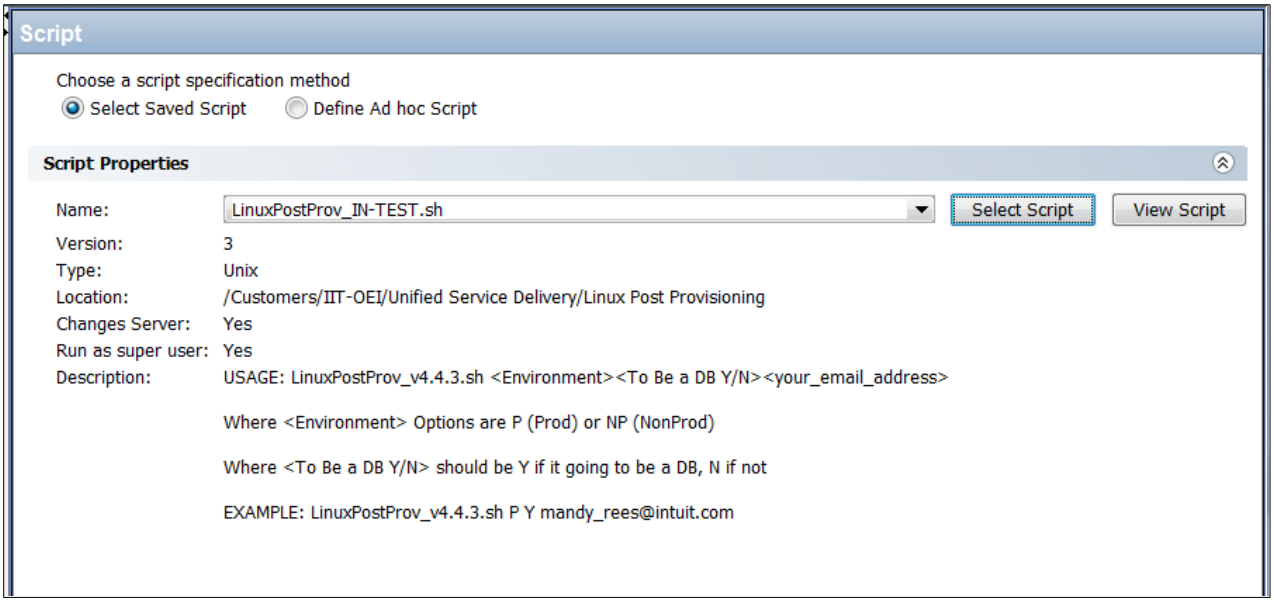
1. In the HPSA console, run the script that matches the type of server you are provisioning.
2. Search for your host by entering either the full or a partial name in the search field (see highlighted area below), and press Enter.



3. In the search results:
    1. Right-click on the host Name field.
    2. Click Run Script.
    3. Click Select Script.

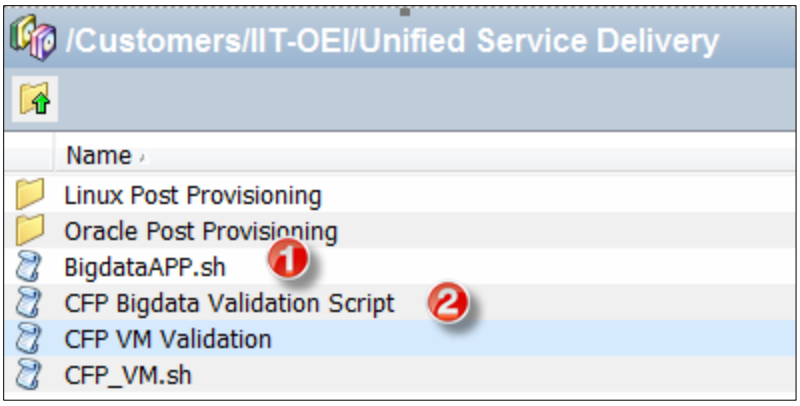


4. When the following screen appears, click Next.



5. Select Script>Browse Folders> Customers>IIT OEI>Unified Service Delivery and locate the script you want to run.

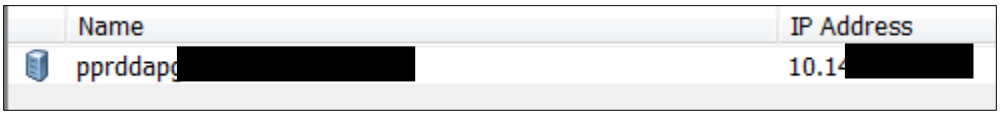
6. Select the script you want to run and then click Start Job:



7. Location: Customers ▯ IIT OEI ▯ Unified Service Delivery ▯ BigdataAPP.sh
8. Run CFP Bigdata Validation Script.
9. At the end of the post provisioning process, if there are no problems, remember to perform last steps at Last Steps – Before Handing Off to Apps.

Troubleshooting Post Provisioning Issues

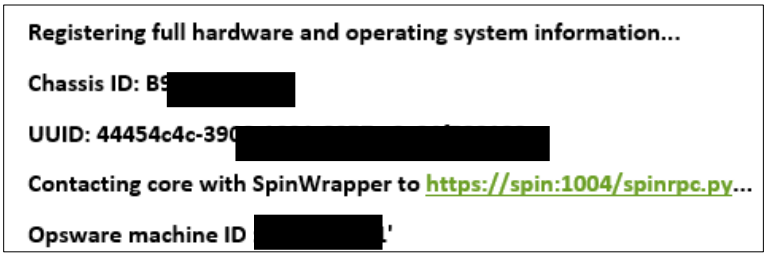
In the HPSA Automation Tool Console, if your server does not show up in the All Managed Servers section (it has an icon showing) perform the procedure below.



1. Enter the following command in your favorite shell access tool:

   `/opt/opsware/agent/pylibs/cog/bs_hardware`

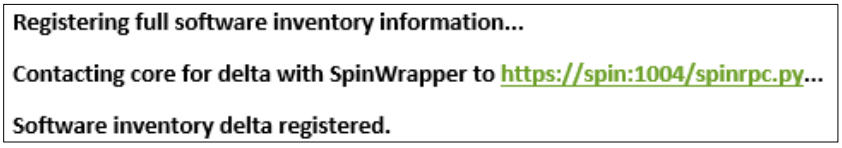
   Output: should look like the following which means that the server is good.



2. Enter the next line of code:

   `/opt/opsware/agent/pylibs/cog/bs_software`

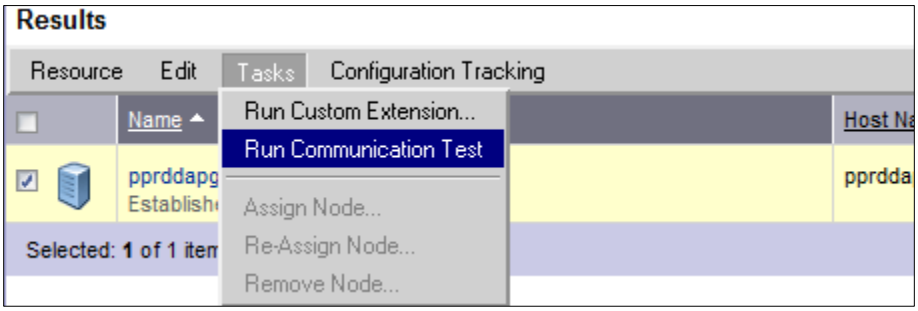
   Output:



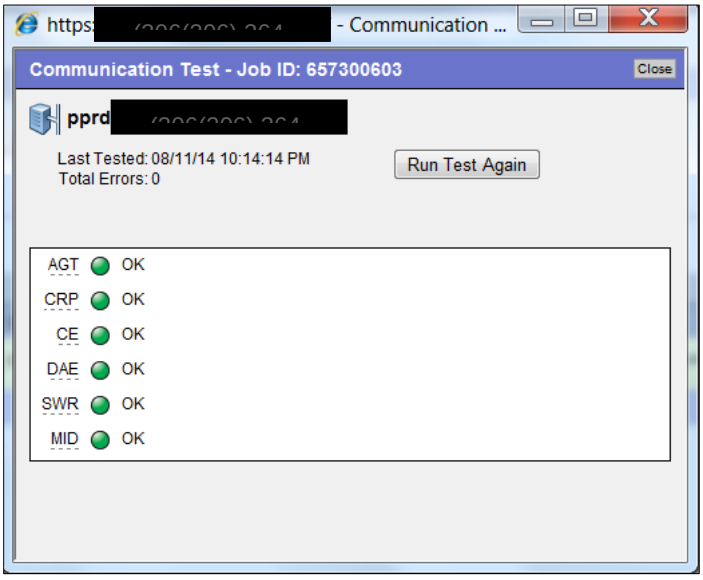
3. Restart the server by entering the following command:

   `/etc/init.d/opsware-agent restart`

4. Once this command completes, log into the Web Opsware tool to test the communication to the server.
   - If the server is in Quincy, run https://quincys[redacted] --- QDC
   - If the server is in Las Vegas, run https://vegass[redacted] --- LVDC
5. Click Tasks>Run Communication Test.



6. Check when the test is finished and if the server passed the test it displays the following:

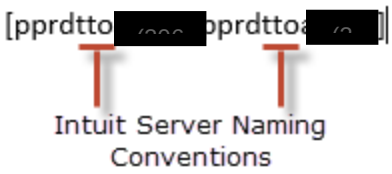


   If you do not receive this output, let your lead or manager know.

7. If you are successful, continue below.

TTO-Specific Server Post Provisioning

If your server is a TTO server (if in the host naming structure, you see TTO, for example), servers within this naming structure will be TTO-specific servers and need to go through the TTO-specific post provisioning procedure.



You will download the script for each server you provision. The script is downloaded to the server and then run in your shell program.

Note: Use quotes for –o. Run the 'script' command first so that the output of the script gets saved to a file so we can tell what happened and troubleshoot as needed.

1. In your favorite shell software, run the script to download the script to the server you want to do post provisioning on.

```
# wget http://oprdo[redacted]stprov/TTO/Scripts/t
to_post-provision_finishscript.sh

# chmod 755 ./tto_post-provision_finishscript.sh
```

2. For LVDC Only run the following script and then skip to Running the SPLUNK Script:

```
script /var/tmp/tto_post-provision_finishscript.sh.out

./tto_post-provision_finishscript.sh  -L

exit
```

3. For QDC, run the following step for the type of server you're trying to provision.

Application Servers

1. Run the following script to provision an app server:

Note: Leave the servers where "6xx" is included in the name as is. In some instances, this is being changed to reflect the hostname (i.e. "611"); DO NOT change this.

```
 [pprdttoas601 - pprdttoas665]
# script /var/tmp/tto_post-provision_finishscript.sh.out
# ./tto_post-provision_finishscript.sh -d qdc -e prod  \
   -n pnxpqyefd1cl02-n1-972n.corp.intuit.net   \
   -m  /pprdttoas6xx_nf[redacted]0/install  \
   -t app  -o "staticroute,mountnfs,patchcurrent"
   # exit
```

2. Skip to the SPLUNK script below.

Web Servers

1. Run the following script to provision a web server:

Note: Leave the servers where "6xx" is included in the name as is. In some instances, this is being changed to reflect the hostname (i.e. "611"); DO NOT change this.

```
[oprdttois601 – ostgttois616]
    # script /var/tmp/tto_post-provision_finishscript.sh.out
    # ./tto_post-provision_finishscript.sh -d qdc -e prod  \
    -n pnxpqyefd1cl[redacted]it.net    \
    -m  /pprdttoas6xx_nf[redacted]45500/install  \
    -t web  -o "staticroute,mountnfs,patchcurrent" \
    -w WEBNAME
# exit
```

WEBNAME specifies the VIP to use for the corresponding "Unit":

```
Odd numbered hosts in QDC (001,003,…)
qtwu1.qyeprd.turbo[redacted]ntuit.com
Even numbered hosts in QDC (002, 004,…):
qtwu2.qyeprd.tur[redacted].intuit.com
```

2. Skip to the SPLUNK script below.

DSM Servers

1. Run the following script to provision a DSM server:

   Note: Leave the servers where "6xx" is included in the name as is. In some instances, this is being changed to reflect the hostname (i.e. "611"); DO NOT change this.

```
[oprdttois601 and ostgttois601]
    # script /var/tmp/tto_post-provision_finishscript.sh.out
    # ./tto_post-provision_finishscript.sh -d qdc -e prod  \
     -n pnxpqyefd1cl02-n1-9[redacted]ntuit.net    \
     -m  /pprdttoas6xx_nfs_2[redacted]500/install  \
     -t dsm   -o "staticroute,mountnfs,patchcurrent"
# exit
```

2. Run the SPLUNK script below.

Running the SPLUNK Script

1. Run the SPLUNK script (listed below) to provision SPLUNK on your servers.

```
/sbin/parted -s /dev/sdb mklabel gpt
```

```
/sbin/parted -s /dev/sdb mkpart primary ext4 '1 -1'

/sbin/pvcreate --dataalignment 2048k /dev/sdb1

/sbin/vgcreate splunkvg /dev/sdb1

lvcreate -l 100%FREE -n splunkvol1 splunkvg

/sbin/mkfs.ext4 /dev/mapper/splunkvg-splunkvol1

echo "/dev/splunkvg/splunkvol1      /splunk    ext4    defaults 0 2"
>> /etc/fstab

mkdir /splunk

mount -a
```

Validating Your Post Provisioning

1. After the TTO-specific post-provisioning is complete, run the following to confirm that the NFS file system is mounted:

   ```
   df  -P  -t nfs
   ```

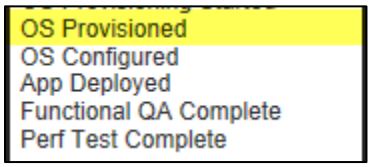
   If you see the following line:

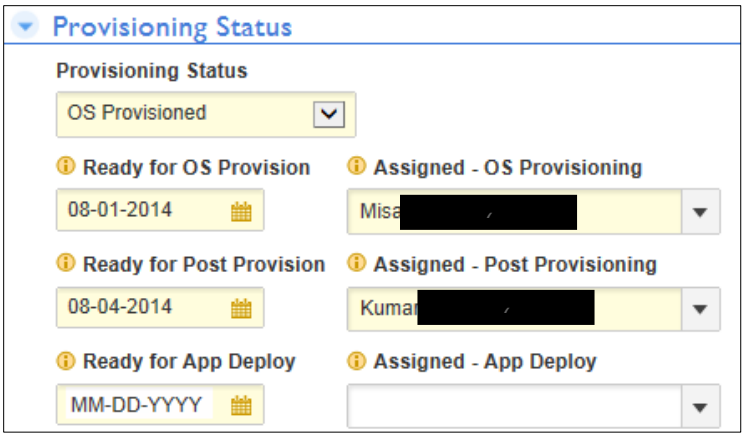
   ```
   pnxpqyefd1cl02-n1-
   [redacted]corp.intuit.n[redacted]0140807145500/install    2621
   4400 1301824  249125765% /tax/olt_mnt/install
   ```

   Then you can skip to the Completing the Provisioning Status and Handing Off to Apps Team section and update the Provisioning Status to hand the server off to the Apps team.

2. If you do NOT see the line above, then the NFS file system was not mounted. In this case, update the Isolation Build QuickBase Provisioning Status field "QA – Failed" and assign it to [redacted]. Please email David at da[redacted].com to notify him of the post-provisioning failure so he can troubleshoot the problem.

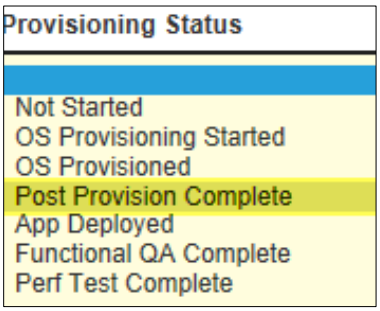
3. If the line above does not appear when you run the DF command, open the Isolation Build Server QuickBase, and change the Provisioning Status to OS Provisioned, and change the Ready for Post Provision date to today's date.

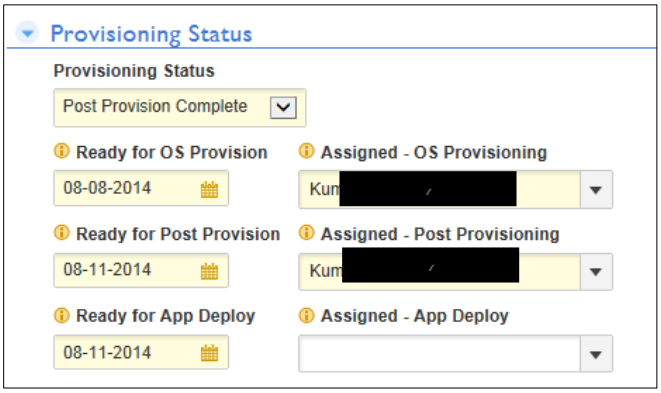




Last Steps – Before Handing Off to Apps

1. In the Isolation Build Server QuickBase, change the Provisioning Status to OS Configured.





2. Update the Ready for Ready for App Deploy field today's date.
3. Click Save to keep your work and the server will be transitioned to the Apps team for additional work.

