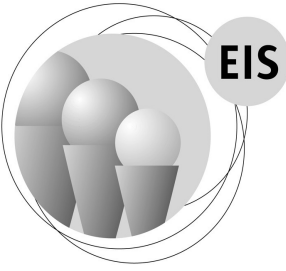


EIS Installation Checklist for the ORACLE® Exadata Database Machine

Customer:		
Sales Order Number:		
CASE Number:		
Technician:		
Version EIS-DVD:		
Date:		

- It is recommend that the EIS web pages are checked for the latest version of this checklist prior to commencing the installation.
- It is assumed that the installation is carried out with the help of the current **EIS-DVD**. See <http://EIS/eisdvd>.
- The idea behind this checklist is to help the installer achieve a "good" installation.
- It is assumed that the installer has attended the appropriate training classes.
- This checklist covers Exadata Database Machines up to & including the X2-2. In some places there is reference to the X2-8 version but this is currently incomplete.
- Use of a laptop (preferably with Solaris or Linux available) is recommended during the installation.
- The installation should be prepared using EISdoc V4.
- It is not intended that this checklist be handed over to the customer.

	<i>System</i>
System Type:	
Rack Master Serial Number:	

<i>Task</i>	<i>Comment</i>	<i>Check</i>
PREPARATION		
EIS <i>Installation Configuration Plan & Test Procedures Plan</i> complete?	EISdoc V4: Use appropriate BUILD and TPP documentation.	
EIS <i>Installation Specification Document</i> signed?	EISdoc V4: File EIS-DOCS-Installation-Specification-Document.odt	
FAB/EIS-ALERT info reviewed?		
If name service (DNS, NIS) in use, ensure that new hostnames, IP addresses etc. are correct on name server.		
Laptop available during installation?	Preferably with Solaris or Linux available.	

<i>Task</i>	<i>Comment</i>	<i>Check</i>
UNPACKING		
For reference refer to the <i>Oracle ® Exadata Database Machine Owner's Guide</i> E13874 Chapter 2 (Site Planning) and Chapter 5 (Installing).		
Determine the Rack Master Serial Number and contact your regional Installation Coordinator either by phone or email and provide this serial number. This is so that your Installation Coordinator can begin the process to verify Install Base information is correct for future	The Rack's Master Serial Number is located on the top left side wall (viewed from rear) inside the rack on the rear of the chassis.	
Delivery complete?		
Collect the Customer Information Sheets CIS (yellow system records).	File away carefully!	
Allow the system to acclimatise (power off) at the customer site.	Refer to EIS standard “ <i>Acclimatisation of Sun Servers & Storage</i> ”	
Unpack outside data center to ensure no contamination/dust is released inside customer's controlled environment.	Collect packing material together for disposal.	
Verify all packing material has been removed, i.e. nothing is blocked.	Fans & air vents must be free to operate.	
Ensure that Rack levelling feet have been lowered.		
<p>There is a box with a number of spare parts that should be handed to the Customer for safe-keeping (must be able to locate them when needed!).</p> <ul style="list-style-type: none"> Infiniband (IB) cables intended to be used for inter-rack cabling but can be used as temporary spares if necessary. The following quantity are individually packaged in the spares box: <ul style="list-style-type: none"> Full-Rack: 6 x 3m cables & 10 x 5m cables. Half-Rack (V2): 8 x 5m cables. Half-Rack (X2-2): 6 x 3m cables & 10 x 5m cables. Quarter-Rack: 4 x 5m cables. Spare disk drive in their brackets (one in the half & quarter systems, two in the full rack). Spare Sun Flashfire cards (one in the half & quarter systems, two in the full rack). <p>Tied inside the rack are:</p> <ul style="list-style-type: none"> Spare 5M Infiniband (IB) cable (one in the Half & Quarter systems, two in the Full Rack). Spare Ethernet cables (one each blue, red, black, orange). <p>There are also 2 sets of 2 keys to open the rack doors and side panels.</p>		
Collect documentation together.	Give to customer during handover.	

ASSUMPTIONS

In an EIS installation the following assumptions are made:

- Systems no longer run the “First Boot” configuration script after initial power on. They now come pre-configured from the factory with a default name and IP address. This is utilised in this check list for actions before connecting to the customer network. The root password on all systems OS and ILOM has been set to `welcome1`. The default name and IP address scheme used is on page 4.
- EIS recommends that connections from the rack components to the Customer network should be made AFTER the initial configuration (as described in this checklist). Connecting before power on could cause undesirable interactions due to possible presence of a duplicate IP address in the Customer's environment.
- For X2-2 racks it is assumed here that initial configuration takes place initially from the Keyboard/Monitor/Mouse (KMM) tray within the rack. Once configured, it is also OK to attach the KVM switch to the Customer's network and then do the work remotely. The installation can either be fully completed using the KVM or via a laptop¹ (preferably with Solaris or Linux) plugged into the Cisco switch using SSH to the default IP addresses defined on page 4.
- For X2-8 racks, it is required to use a laptop plugged into the Cisco switch using SSH to the default IP addresses defined on page 4 (the X2-8 has no KVM).
- Component numbering starts with 1 at the rack bottom working upwards based on the server type. Using a Full Rack for example, Exadata Storage Server 1 is the lower-most storage cell in the rack location U2, Exadata Storage Server 7 is the upper-most storage cell in the bottom half rack location U14; Exadata Storage Server 8 starts the top half progressing up to 14. X4170 / X4170 M2 Database Server 1 is the lower-most DB Node and numbers up to 4 directly below the switches and KMM tray. X4170 / X4170 M2 Database Server 5 is the lower-most DB Node directly above the switches and numbers up to 8 directly below storage cell 8. Half Rack and Quarter Rack configurations number the same way, except stop at the appropriate number of components in each configuration.
- For the X2-8 racks the X4800 Database Server 1 is the lower-most DB node below the switches and Database Server 2 is the upper-most DB node above the switches.

¹ A Laptop has cut/paste & scrolling available (KVM does not). If 2 engineers available then the second can use the KVM.

Default IP Address Set-Up

The following table depicts the default IP address set up for Full, Half and Quarter rack systems.

<i>Hostname</i>	<i>net0 IP</i>	<i>ILOM IP</i>	<i>IB bonded IP</i>	<i>RU</i>	<i>Rack Config.</i>
cell14	192.168.1.22	192.168.1.122	192.168.10.22	41	Full rack only
cell13	192.168.1.21	192.168.1.121	192.168.10.21	39	Full rack only
cell12	192.168.1.20	192.168.1.120	192.168.10.20	37	Full rack only
cell11	192.168.1.19	192.168.1.119	192.168.10.19	35	Full rack only
cell10	192.168.1.18	192.168.1.118	192.168.10.18	33	Full rack only
cell09	192.168.1.17	192.168.1.117	192.168.10.17	31	Full rack only
cell08	192.168.1.16	192.168.1.116	192.168.10.16	29	Full rack only
db08	192.168.1.15	192.168.1.115	192.168.10.15	28	Full rack (X2-2) only
db07	192.168.1.14	192.168.1.114	192.168.10.14	27	Full rack (X2-2) only
db06	192.168.1.13	192.168.1.113	192.168.10.13	26	Full rack (X2-2) only
db05	192.168.1.12	192.168.1.112	192.168.10.12	25	Full rack (X2-2) only
db04	192.168.1.11	192.168.1.111	192.168.10.11	19	Full X2-2 / Half rack only
db03	192.168.1.10	192.168.1.110	192.168.10.10	18	Full X2-2 / Half rack only
db02	192.168.1.9	192.168.1.109	192.168.10.9	17	Full / Half / Qrtr rack
db01	192.168.1.8	192.168.1.108	192.168.10.8	16	Full / Half / Qrtr rack
cell07	192.168.1.7	192.168.1.107	192.168.10.7	14	Full / Half rack only
cell06	192.168.1.6	192.168.1.106	192.168.10.6	12	Full / Half rack only
cell05	192.168.1.5	192.168.1.105	192.168.10.5	10	Full / Half rack only
cell04	192.168.1.4	192.168.1.104	192.168.10.4	8	Full / Half rack only
cell03	192.168.1.3	192.168.1.103	192.168.10.3	6	Full / Half / Qrtr rack
cell02	192.168.1.2	192.168.1.102	192.168.10.2	4	Full / Half / Qrtr rack
cell01	192.168.1.1	192.168.1.101	192.168.10.1	2	Full / Half / Qrtr rack
ibswitch3	192.168.1.203			24	Full / Half / Qrtr rack
ibswitch2	192.168.1.202			20	Full / Half / Qrtr rack
ibswitch1	192.168.1.201			1	See footnote ²
ethernet switch	192.168.1.200			23	Full / Half / Qrtr rack

Note: The ILOM configuration is carried out during the OS imaging process and the ACS applyconfig portion later that puts the customer IPs on to the whole machine. There is nothing that legacy Sun engineers need to configure manually on the ILOMs unless something does not work correctly during the re-IP process.

² Ibswitch1 is present on X2-2 & X2-8 full-rack and X2-2 half-rack systems only.

INFORMATION: CABLE LABELS WITHIN RACK

The cables between the various units within the rack are labelled by manufacturing. The cables are also colour-coded as follows:

- Black – Infiniband Data
- Black – Infiniband Switch Ethernet management cables
- Red – ILOM Ethernet management cables
- Blue – Component Gigabit Ethernet management (eth0) cables
- Orange – Component KVM switch to dongle cables (not on X2-8).
- Black – AC power jumper cables

Some examples are given here:

At the KVM switch connection to a server node (orange cable):

U21 P19 (local / where it is): Rack Unit 21 Port 19.

U8 Video (remote / where its going to): Rack Unit 8 video dongle.

At an Infiniband switch (connection to second switch) (black cable):

R1 U20 P8A (local): Rack Unit 20 Port 8A on the switch.

R1 U24 P8A (remote): Rack Unit 24 Port 8A on the switch.

At a Infiniband switch to a PCI card on a server (black cable):

R1 U20 P15A (local): Rack Unit 20 Port 15A on the switch.

R1 U12 PCIE3-1 (remote): Rack Unit 12 PCIE card in slot 3, port #1.

At a server's ILOM to Ethernet switch (red cable):

R1 U8 ILOM (local): Rack Unit 8 ILOM NET MGT port.

R1 U23 P38 (remote): Rack Unit 23 Port 38 on the Ethernet switch.

At a server's power cable / PDU³ (black cable):

U19 PS0 (local): Rack Unit 19 Power Supply 0.

PDU A (remote): Group 2 Output 3 on PDU A (left side, viewed from rear).
G2-3

For data cables the label at the opposite end of the cable is labelled with local/remote exchanged; for power cables the labels at each end are identical.

3 PDU = Power Distribution Unit.

<i>Task</i>	<i>Comment</i>	<i>Check</i>
INITIAL CABLING ACTIONS		
In an EIS installation it is recommended not to connect the data cables or the Cisco switch to the Customer's network at this stage.		
Connecting Rack PDUs to Power & Confirming Redundant Distribution		
<p>Connect power to PDU B only.</p> <p>Verify that all these breaker switches (1 per group; 6 per PDU) are off before connecting the power cables.</p>	<p>PDU B is on the right-side of rack when viewed from rear.</p> <p>When breaker is in the On (I) position, the breakers are flush with the side of the PDU. When in the OFF (0) position, the circuit breakers extend beyond the side of the PDU.</p> <p>Then switch them all ON on PDU B only one at a time.</p>	
<p>Go through all units within the rack and verify that the expected power LEDs (and only these) are ON.</p> <p>If something is missing or some other LED is on then something has been wrongly-cabled and must be fixed NOW.</p>	<ul style="list-style-type: none"> • Sun Fire servers: PS1 <ul style="list-style-type: none"> • For X4275 / X4270 M2 – the top LED. • For X4170 / X4170 M2 (X2-2) – the right-hand LED. • X2-2 Racks only: <ul style="list-style-type: none"> • KVM switch: LED B (lower one). • KMM: ONLY supplied by PDU B. • CISCO switch: LED on left (viewed from front) will turn GREEN and middle LEDs for the other PSU will be RED. • IB switch: <ul style="list-style-type: none"> • For initial systems: LED on left (viewed from front) labelled PS0. • For S/N ≥ 1016AKxxxx: LED on right (viewed from front) labelled PS1. 	

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<p>Additionally connect power to PDU A. Please ensure that for the single phase systems (the ones with 6 power cords) that:</p> <ul style="list-style-type: none"> • PDU_A Input_2 and PDU_B Input_0 must be on the same phase. • PDU_A Input_1 and PDU_B Input_1 must be on the same phase. • PDU_A Input_0 and PDU_B Input_2 must be on the same phase. <p>These are marked where they come out of the PDU. Connecting the cables in this manner, ensures that in the case of a failover the phases are balanced on both the A and B sides.</p> <p>Verify that all these breaker switches (1 per group; 6 per PDU) are off before connecting the power cables.</p>	<p>PDU A is on the left-side of rack when viewed from rear.</p> <p>When breaker is in the On (I) position, the breakers are flush with the side of the PDU. When in the OFF (0) position, the circuit breakers extend beyond the side of the PDU.</p> <p>Then switch them all ON on PDU A one at a time.</p>	
Go through all units within the rack and verify that ALL expected power LEDs are ON.		
Perform visual check of all cable connections within the rack.	Do NOT press every connector “just in case”.	
<p>Verify that for all systems the OK LED is blinking “standby”. This means that the ILOM is up and that the host is off.</p> <p>If the system does not go into Standby, connect to that unit's SP SER MGT port with baud settings 115200,8,N,1. If it is at the <code>pre-boot></code> menu, then check the locate button on front and rear is not stuck depressed, then type</p>	<p>The OK LED blinks on for 0.1 seconds once every 3 seconds when in “standby”.</p> <p>The system OK LED does NOT flash while ILOM is booting as it did on past systems. The LED will stay dark until it goes into Standby blink mode after 2 to 3 minutes.</p>	

<i>Task</i>	<i>Comment</i>	<i>Check</i>
CONFIGURING THE KVM SWITCH (X2-2 Racks Only)		
<p>The KVM switch described here is the Avocent MPU4032DAC. For detailed information refer to the <i>Avocent Mergepoint Unity Switch Manual</i> code 590-883-501A from http://www.avocent.com – under Resources / Manual and Technical Bulletins.</p> <p>This step is only to configure the KVM switch. The connected component systems should not be powered on during this step; they will be configured later.</p>		
Pull the KMM tray out of the front of the rack and open it via the handle in the front.	The screen should have the power LED (green) on and the screen blank.	
Touch the touch pad.	The screen should display some content.	
If you observe BIOS or OS text output from a component system Host Session , then toggle back to the KVM User Interface .	Toggle between host and KVM interface is done using a hot-key sequence. Press the left-side Ctrl key twice in succession (double-tap it like a mouse double-click).	
Under Unit View select Target Devices .	<p>You will see a list of KVM sessions sorted according to the serial number of the dongles attached to the KVM switch.</p> <p>The number of sessions should be:</p> <ul style="list-style-type: none"> • Full Rack: 22 • Half Rack: 11 • Quarter Rack: 5 	
<p>To look for any missing sessions click on IQ Adaptors under the Ports heading. This displays a list of adapters found.</p> <p>Click on port (in the table heading) to sort by port number and thus locate the missing items. Resolve any numbers that are missing or offline. The names when the KVM interface first comes on are pre-set at the factory, numbered from the bottom of the rack up. Make a note of any names that are not sequential so they can be corrected during later setup. We will go through and re-name them all later in this checklist. Finally return to the Target Devices screen.</p>		
Connecting to the Management Network		
Now the KVM switch can be configured for and connected to the Customer's management network – the Customer's network administrator may wish to perform these steps.		
<p>Set a password for Admin account:</p> <p>Under User Accounts select Local.</p> <p>Under “Users” click the “Admin” button. Fill in the values for password and click the “Save” button.</p>	<p>The user information screen appears. Set the Admin user password to welcome1.</p> <p>Do not modify any other parameters – leave them at defaults.</p>	
Under Appliance Settings select Network .	The screen “ Network Information ” appears.	

<i>Task</i>	<i>Comment</i>	<i>Check</i>
Fill in the values for Address, Subnet and gateway together with the IP address(es) of the DNS server(s).	Select save to complete.	
Connect the KVM's LAN1 Ethernet port to the Customer's management network. To verify that port LAN1 has been correctly connected, ensure that the MAC address on the “ Network Information ” screen matches the label next to the LAN1/LAN2 ports on the rear of the KVM switch.		
Rename the KVM switch according to the Customer's requirements Under Appliance select Overview and then enter the preferred name into the Name field followed by saving it.		
Reboot the KVM switch for the settings to take effect: Under Appliance select Overview . Click on Reboot .	Confirm with YES	
The Customer should now be able to login from the network using the Admin account.	The installer may wish to have the Customer confirm this.	
Examine Avocent Firmware version & Update if Required		
<p>The Avocent firmware version 1.2.10⁴ is included on EIS-DVD ≥30MAR10 in directory .../sun2/patch/Avocent or can be obtained from: http://www.avocent.com/Pages/GenericTwoColumn.aspx?id=12541</p> <p>If your system is running firmware prior to v1.2.3 it is only updateable from a network browser login. If you have v1.2.3 or later you can update it locally from the local keyboard via aUSB thumb drive plugged into the KVM front USB port (on the front side of the rack), or via the network. v.1.2.8 or later is recommended.</p> <p>Currently (mid-September 2010) version 1.2.15 is available from the Avocent web site. Currently this has not been tested with Exadata.</p>		
<p>Examine the firmware version. Under Appliance Settings select Versions.</p> <p>Required version is: Application 1.2.10.15038 Boot 1.6.15020</p> <p>Old version was: Application 1.0.4.11546 Boot 1.1.10808</p>	<p>There are 2 version numbers, for Application and Boot, where the overall package number on the Avocent download site contains both, but may not match either individual component version number but will be closest to Application. In this case v1.2.10 on the EIS-DVD contains the versions required.</p> <p>If the switch comes with v1.2.10 or later, then do not attempt to downgrade.</p>	
Copy the firmware file to a laptop.	If updating from EIS-DVD the firmware can be accessed directly from the DVD.	
Connect laptop to the KVM (either via network or back-to-back) and open a browser session to the KVM.	Login as Admin with password welcome1 as set above (case sensitive).	

⁴ Avocent firmware version 1.2.15 is on EIS-DVD ≥28SEP10.

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<p>Under Appliance select Overview then click on Upgrade Firmware under the Tools list.</p> <p>The screen prompts for 1 of 4 methods for loading the firmware file and changes for the appropriate settings needed for each local filesystem (relative to the system running the browser), tftp, ftp or http (relative to an IP address on the network that the KVM can address or route to). Use the appropriate method suitable for the laptop you are using, how its connected to the network the KVM is on and where the firmware file is located.</p> <p>Once the method, settings (if applicable) and filename are given, click on the Upgrade button.</p>	<p>Once the upgrade is initiated, the Avocent KVM will then download the file to the KVM and flash it and reboot itself (at which time the browser will show session expired).</p> <p>If the Avocent responds with errors finding the file, then rename the file to DOS 8.3 format e.g. FL123.fl and retry.</p> <p>The whole flashing process until the reboot is complete, takes 5 to 10 minutes.</p>	
<p>Confirm that the firmware version is as required.</p>	<p>After the KVM has rebooted after update, refresh the browser session to the login page, login again, and examine the firmware version again (Under Appliance Settings select Versions).</p>	

Task	Comment	Switch		
		1	2	3
CONFIGURING THE SUN DATACENTER 36-PORT MANAGED QDR INFINIBAND SWITCHES				
IB switch #1 is only relevant to full-rack installations – ignore for the smaller configurations.				
Connect a serial cable between the IB switch's USB port and a laptop or similar device. The default serial port speed is 115200 baud, 8 bits, no parity, 1 stop bit & no handshake. The terminal settings may need to be changed depending on the terminal type on the laptop end of the serial cable e.g. TERM=vt100; export TERM	Two USB to DB9 serial adapters are provided in the ship kit. One is required to plug into the IB USB port. A DB9-DB9 null-modem cable is included in the ship kit for systems with a rack. Since most laptops do not have a DB9 serial port you will need the second serial to USB converter cable. Suitable OS drivers may be required – a CD with drivers for MS-Windows is included in the USB-DB9 cable packaging between the paper insert. For Mac OS X drivers see http://www.prolific.com.tw/eng/downloads.asp?ID=31 .			
Login as root: The switch OS is Linux-based.	localhost: root password: welcome1			
Edit (e.g. via vi) file /etc/sysconfig/network-scripts/ifcfg-eth0. The values for IPADDR , NETMASK and GATEWAY need to be set to Customer values. BOOTPROTO must be STATIC & ONBOOT must be yes Any other values for NETWORK or others should be removed. The resulting contents should look like (example values): DEVICE=eth0 BOOTPROTO=static ONBOOT=yes IPADDR=10.7.7.32 NETMASK=255.255.255.0 GATEWAY=10.7.7.1				
Edit (e.g. via vi) file /etc/hosts to set the IP-address and hostname: The resulting contents should look like: # Do not remove the following line, or various programs # that require network functionality will fail. 127.0.0.1 localhost.localdomain localhost 10.7.7.32 trnasw-ib2.sodm.com trnasw-ib2 It is necessary that the second line has BOTH the fully-qualified and non-fully qualified names.				

Task	Comment	Switch		
		1	2	3
<p>Edit (e.g. via vi) file /etc/resolv.conf to set the DNS server and domain name, adding a nameserver line for each DNS server the customer has:</p> <p>The resulting contents should look like:</p> <pre> ; search sodm.com nameserver 10.7.7.3 </pre>				
Configuring for NTP				
<p>Modify the following content in /etc/ntp.conf using vi or similar</p> <p>Comment out by adding # in front, or remove the following 3 server lines (if they are present):</p> <pre> # Use public servers from the pool.ntp.org project. # Please consider joining the pool (http://www.pool.ntp.org/join.html). # server 0.centos.pool.ntp.org # server 1.centos.pool.ntp.org # server 2.centos.pool.ntp.org </pre> <p>Add the following lines for each NTP server the Customer is using:</p> <pre> # Use public servers from the pool.ntp.org project. # Please consider joining the pool (http://www.pool.ntp.org/join.html). # Customer servers server 10.7.7.3 prefer (NOTE: This is the IP address of Primary NTP server) server 10.7.10.21 (NOTE: This is the IP address of Secondary NTP server) </pre> <p>Do not modify any other lines.</p> <p>If the file is missing, then check file /conf/ntp.conf for a copy, or create the file /etc/ntp.conf with the following command (all on 1 line):</p> <pre> # echo -e "# NTP server configuration file\n#server\nnone\n#server none\ndriftfile\n/var/lib/ntp/drift\npidfile /var/run/ntpd.pid\n#END"> /etc/ntp.conf </pre>				
<p>Configure the timezone and set the date:</p> <p>Stop the daemon if its running:</p> <pre> [root@localhost ~]# service ntpd stop Shutting down ntpd: </pre> <p style="text-align: right;">[OK]</p>				

Task	Comment	Switch		
		1	2	3
<p>Set the proper timezone:</p> <pre>[root@localhost ~]# cd /usr/share/zoneinfo</pre> <pre>[root@localhost zoneinfo]# ls *</pre> will list all the possible files. <pre>[root@localhost zoneinfo]# cp -p US/Eastern /etc/localtime</pre> <p>using the proper timezone file as applicable.</p> <p>The proper timezone file to use should be listed in the network configuration information that Oracle has obtained from the customer and should have supplied to you.</p> <p>Time zone data provided with the Oracle Exadata Database Machine and Oracle Enterprise Linux comes from the zoneinfo database. For a reference list of latest time zone values, refer to the zoneinfo database available in the public domain available at: ftp://elsie.nci.nih.gov/pub</p> <p>The timezone files available supplied on the IB switch may not have the latest that is on the above site.</p>				
<p>Manually set the current date/time to something near current time:</p> <pre>[root@localhost zoneinfo]# date 120810452009</pre> <p>using the format MMddHHmmCCyy Month, Day, Hour, Minute, Century, Year.</p> <pre>[root@localhost zoneinfo]# date</pre> <p>Tue Dec 8 14:44:35 EST 2009 <<< should now be close to correct.</p>				
<p>Start the ntpd daemon:</p> <pre>[root@ibswitch2 etc]# chkconfig ntpd on</pre> <pre>[root@ibswitch2 etc]# service ntpd start</pre> <p>Starting ntpd: [OK]</p> <p>Since the switches are not yet connected to the customer's network, we cannot verify this is working.</p>				
Reboot the switch, then reconnect.	<pre>[root@localhost ~]# reboot</pre>			
Examine the Firmware version:	<pre>[root@ibswitch2 ~]# nm2version</pre> <p>NM2-36p version: 1.0.1-1 Build time: Sep 14 2009 12:52:51 ComExpress info: Manufacturing Date: 2009.06.25 Serial Number: "NCD3R0957" Hardware Revision: 0x0006 Firmware Revision: 0x0102</p> <pre>[root@ibswitch2 ~]#</pre> <p><== Expected firmware: 1.1.3-2</p> <p>The original systems were released with firmware version 1.0.1-1 – the current version is 1.1.3-2.</p> <p>If the firmware is downrevved follow the instructions in the section below.</p>			
Check the overall health of the switch:	<pre># showunhealthy</pre> <p>OK - No unhealthy sensors</p>			
<p><i>Intentionally left blank</i></p>				

Task	Comment	Switch		
		1	2	3
Updating the Firmware				
Locate the 1.1.3-2 firmware (~200Mb in size). It is available from: <ul style="list-style-type: none">EIS-DVD ≥28SEP10 (COMMON DVD) in directory .../sun2/patch/DC-SWITCH file SUN_DCS_36p_1.1.3.tar.gzOn the Sun Downloads A-Z website under Datacenter Infiniband Switch 36 1.1.3In MOS as patch 9560930. This has an Exadata-specific README which is in addition to the README supplied with the first two sources. The firmware itself is identical. The instructions in this checklist are based upon the Exadata-specific README file. It is assumed that this is a fresh installation & hence the steps 1.a to 1.f are omitted in this checklist.				
A system is needed as “Web Server” in order to serve the update to the switches via FTP. Two alternatives are suggested: <ol style="list-style-type: none">Use a laptop running Solaris/Linux as FTP server (preferred method).If you only have a Windows laptop available, configure DB node 1 to serve the package files via http. You will also need a USB stick.				
Updating via a Solaris/Linux laptop (preferred method)				
Connect laptop to the Cisco switch and onto the local 192.168.1.x network.				
Create a temporary directory on the laptop (eg fdir) and unpack the file. <pre>mkdir fdir cd fdir gzcat <location>/SUN_DCS_36p_1.1.3.tar.gz</pre>				
Unpack file spfw_upgrade_1.1.3.tar.gz (creates the packages directory): <pre>gzcat spfw_upgrade_1.1.3.tar.gz tar xvBpf -</pre>				
Copy the spfw_upgrade_1.1.3.sh script to the /tmp directory on each switch. <pre># scp spfw_upgrade_1.1.3.sh root@dm01sw-ib1:/tmp</pre>				
From the switch as user root: <pre># ./spfw_upgrade_1.1.3.sh ftp://laptop-user:password@192.168.1.x/full path to packages</pre> If the install script fails with errors on every file, then its usually due to a file access issue. Check permissions, paths, and passwords in that case.				
The upgrade will show the following question. Enter Y for yes. ===== Packages not belonging to the switch firmware being installed are found! These packages are: rhpl wireless-tools ===== The package rhpl does not belong to the switch firmware version which is being installed! It is recommended that the package is uninstalled. Do you agree to remove rhpl? [Y/n]: Y				

Task	Comment	Switch		
		1	2	3
Goto “Completing the Firmware update” (below).				
Updating via a Windows laptop				
Overview: If you only have a Windows laptop available, configure DB node 1 to serve the package files via http, enable http and place the packages directory into /var/www/html. Since the DB Nodes have not yet been configured delay this until the final step on page 39.				
Attach the laptop to the Cisco switch & onto the local 192.168.1.x network.				
Copy the firmware file SUN_DCS_36p_1.1.3.tar.gz (from EIS-DVD or download) onto a USB stick. Insert this stick into USB port of DB node 1.				
Find the device name of the USB stick: # tail -10 /var/log/messages Then mount the 1st partition on it (example): # mount /dev/sdb1 /mnt				
Log into DB node 1 as user root & unzip the firmware file into /var/www/html & /var/www/html/packages: [root@db01 ~]# cd /var/www/html [root@db01 ~]# gzcat /mnt/SUN_DCS_36p_1.1.3.tar.gz tar xBpf - [root@db01 ~]# gzcat spfw_upgrade_1.1.3.tar.gz tar xBpf -				
Enable http on DB node 1: [root@db01 ~]# chkconfig httpd on [root@db01 ~]# service httpd start				
Open a browser on the laptop. You should be able connect to DB node 1 & get an Apache page at http://192.168.1.8/ and see files at http://192.168.1.8/packages.				
Copy the spfw_upgrade_1.1.3.sh script from the Web server to the /tmp directory on each switch. # scp spfw_upgrade_1.1.3.sh root@dm01sw-ib1:/tmp				
From the switch as user root: # ./spfw_upgrade_1.1.3.sh http://192.168.1.8/packages If the install script fails with errors on every file, then its usually due to a file access issue. Check permissions, paths, and passwords in that case.				
The upgrade will show the following question. Enter Y for yes. ===== Packages not belonging to the switch firmware being installed are found! These packages are: rhpl wireless-tools ===== The package rhpl does not belong to the switch firmware version which is being installed! It is recommended that the package is uninstalled. Do you agree to remove rhpl? [Y/n]: Y				

Task	Comment	Switch		
		1	2	3
When all switches updated: delete the files from DB node 1: [root@db01 ~]# cd /var/www/html [root@db01 ~]# rm -rf packages [root@db01 ~]# rm README* swpf* SUNDCS36p_ILOM_ADDRev1RC3.tar.gz				
When all switches updated: disable http on DB node 1: [root@db01 ~]# service httpd stop [root@db01 ~]# chkconfig httpd off				
Log out from DB node 1.				
Completing the Firmware Update				
Edit the /etc/opensm/opensm.conf & change log_flags to 0x03				
Reboot the switch, then reconnect.	[root@localhost ~]# reboot			
Confirm the Firmware version: [root@burxsw-ib2 ~]# nm2version SUN DCS 36p version: 1.1.3-2 Build time: Mar 25 2010 10:00:23 SP board info: Manufacturing Date: 2009.06.25 Serial Number: "NCD3R0957" Hardware Revision: 0x0006 Firmware Revision: 0x0102 BIOS version: NOW1R112 BIOS date: 04/24/2009 [root@burxsw-ib2 ~]#	<== Expected firmware: 1.1.3-2			
Confirm that you can login via ssh as ilom-admin both from laptop & a server node.	localhost: ilom-admin password: ilom-admin			
Point laptop's browser to the switches address & verify it brings up the ILOM interface. Verify that you can login as root / welcome1 & ilom-admin / ilom-admin .				
<i>Intentionally left blank</i>				

Task	Comment	Switch		
		1	2	3
Continuing After Firmware Actions				
General environment test: Ensure that all tests return “OK”. Fans 1, 2 & 3 are expected; Fans 0 & 4 not present is also expected. This switch shares the same chassis as the 72-port switch which requires those extra fans, the 36-port does not. All OK and PASSED results should be positive indication that everything is normal.	# env_test NM2 Environment test started: Starting Voltage test: Voltage ECB OK Measured 3.3V Main = 3.28 V Measured 3.3V Standby = 3.42 V Measured 12V = 12.06 V Measured 5V = 5.03 V Measured VBAT = 3.06 V Measured 2.5V = 2.53 V Measured 1.8V = 1.79 V Measured I4 1.2V = 1.22 V Voltage test returned OK Starting PSU test: PSU 0 present PSU 1 present PSU test returned OK Starting Temperature test: Back temperature 30.50 Front temperature 33.88 ComEx temperature 34.12 I4 temperature 56, maxtemperature 57 Temperature test returned OK Starting FAN test: Fan 0 not present Fan 1 running at rpm 12946 Fan 2 running at rpm 12684 Fan 3 running at rpm 12558 Fan 4 not present FAN test returned OK Starting Connector test: Connector test returned OK Starting I4 test: I4 OK All I4s OK I4 test returned OK NM2 Environment test PASSED			
Enable IB subnet manager: [root@ibswitch2 log]# enablesm Starting IB Subnet Manager. If you get an error indicating IB subnet manager is already running, then restart it by disabling and then enabling it: [root@ibswitch2 log]# disablesm Stopping IB Subnet Manager.. [root@ibswitch2 log]# enablesm Starting IB Subnet Manager.				

<i>Task</i>	<i>Comment</i>	<i>Switch</i>		
		1	2	3
Verify that IP address is correct:				
<pre>[root@burxsw-ib2 ~]# ifconfig eth0 eth0 Link encap:Ethernet HWaddr 00:E0:4B:2A:07:2B inet addr:192.168.10.32 Bcast:192.168.10.255 Mask:255.255.255.0 inet6 addr: fe80::2e0:4bff:fe2a:72b/64 Scope:Link UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1 RX packets:11927 errors:0 dropped:0 overruns:0 frame:0 TX packets:89 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:1000 RX bytes:720262 (703.3 KiB) TX bytes:11402 (11.1 KiB) [root@burxsw-ib2 ~]#</pre>				
Verify that hostname is correct:	<pre>[root@burxsw-ib2 ~]# hostname burxsw-ib2.east.sun.com [root@burxsw-ib2 ~]#</pre>			
If the above network settings did not come up correctly after the reboot, then power cycle the switch by removing both AC cords for 1 minute.				

Task	Comment	Switch		
		1	2	3
<p>For Full Rack & Half Rack only: Verify the Switches and Subnet Manager Master are correct. The end goal of this step is to have the spine switch IB1 to be the Subnet Manager Master. The sminfo command run on any switch will tell you the guid of the subnet master within the whole IB subnet. Match that to the hostname with the same guid from the ibswitches command output. It is easiest to do this step by concurrently opening ssh sessions to each switch from the IB switch currently tipped into. If this is not possible, then open concurrent tip sessions to switch 2 and 3.</p> <p>For full-rack or half-rack, the master guid should be switch #1 with priority 5. If the master is not switch #1, then reboot switch #2 and/or switch #3, and re-check the output of sminfo until switch #1 guid is the master.</p> <p>Example:</p> <pre>[root@burxsw-ib2 ~]# ibswitches</pre> <pre>Switch : 0x0021283a87b8a0a0 ports 36 "Sun DCS 36 QDR LC switch burxsw-ib3.east.sun.com" enhanced port 0 lid 18 lmc 0</pre> <pre>Switch : 0x0021283a87cba0a0 ports 36 "Sun DCS 36 QDR LC switch burxsw-ib2.east.sun.com" enhanced port 0 lid 1 lmc 0</pre> <pre>Switch : 0x0021283a87dfa0a0 ports 36 "Sun DCS 36 QDR LC switch burxsw-ib1.east.sun.com" enhanced port 0 lid 18 lmc 0</pre> <pre>[root@burxsw-ib2 ~]# sminfo</pre> <pre>sminfo: sm lid 18 sm guid 0x21283a87b8a0a0, activity count 1202 priority 5 state 3 SMINFO_MASTER</pre> <pre>[root@burxsw-ib2 ~]#</pre> <p>Switch 3 has the lowest guid so it has become master. Reboot switch 3, then switch 2 should become master. Reboot switch 2 now, while switch 3 is still rebooting and switch 1 should become master. If you don't reboot switch 2 within 1 minute of rebooting switch 3, switch 3 may come back up into the subnet and take over master status with the lower guid before switch 1 has taken it.</p> <pre>[root@burxsw-ib3 ~]# reboot</pre> <pre>[root@burxsw-ib2 ~]# sminfo</pre> <pre>sminfo: sm lid 18 sm guid 0x21283a87cba0a0, activity count 1202 priority 5 state 3 SMINFO_MASTER</pre> <pre>[root@burxsw-ib2 ~]# reboot</pre> <p>After both switches 2 and 3 have rebooted and come back into the fabric, login as root and check again that switch 1 is now master:</p> <pre>[root@burxsw-ib2 ~]# ibswitches</pre> <pre>Switch : 0x0021283a87b8a0a0 ports 36 "Sun DCS 36 QDR LC switch burxsw-ib3.east.sun.com" enhanced port 0 lid 18 lmc 0</pre> <pre>Switch : 0x0021283a87cba0a0 ports 36 "Sun DCS 36 QDR LC switch burxsw-ib2.east.sun.com" enhanced port 0 lid 1 lmc 0</pre> <pre>Switch : 0x0021283a87dfa0a0 ports 36 "Sun DCS 36 QDR LC switch burxsw-ib1.east.sun.com" enhanced port 0 lid 18 lmc 0</pre> <pre>[root@burxsw-ib2 ~]# sminfo</pre> <pre>sminfo: sm lid 18 sm guid 0x21283a87dfa0a0, activity count 1202 priority 5 state 3 SMINFO_MASTER</pre> <pre>[root@burxsw-ib2 ~]#</pre> <p>For quarter-rack it does not matter which is master, both are set to priority 5 and the switch with lowest guid will be master.</p>				

<i>Task</i>	<i>Comment</i>	<i>Switch</i>		
		1	2	3
Logout from the IB switch.	[root@ibswitch2 etc]# exit			
Disconnect the serial cable from the IB switch's USB port.				

<i>Task</i>	<i>Comment</i>	<i>Check</i>
CONFIGURING THE CISCO ETHERNET SWITCH		
<p>Here we configure the Cisco switch into one big VLAN. More complex switch configuration, including multiple VLANs, is outside the scope of this installation service.</p> <p>We configure the hostname, IP setup and DNS & NTP configurations.</p> <p>NOTES:</p> <ul style="list-style-type: none"> The Cisco switch should not be connected until the running config has been verified and any necessary changes have been made by the customers network administrator. Some customers may wish to configure the Cisco Ethernet switch themselves. This may include having a particular version of the IOS software or particular configuration settings necessary to communicate properly with the rest of the customer's network infrastructure. This is supported but is outside the scope of this installation service. Some customers may wish to replace the Cisco Ethernet switch with a Make and Model of their own choosing that they supply. The model should have similar quantity of ports to make all the same connections as the Cisco. This is supported and Sun should do the hardware replacement, however configuration is then outside the scope of this installation service. It is NOT recommended to connect the Cisco switch to the customer's network until AFTER ORACLE Advanced Customer Services (ACS) has re-configured IP addresses on all the systems within, to prevent any duplicate IP conflicts possible with the default IP addresses the systems have shipped with. 		
<p>Connect a serial cable between the CISCO console and a laptop or similar device.</p> <p>Ensure the following terminal session is logged on the laptop/client device by scripting the output. The data can then be used as a reference to ensure the switch has been correctly configured.</p> <p>The default serial port speed is 9600 baud, 8 bits, no parity, 1 stop bit & no handshake.</p>	<p>An RJ45 – DB9 serial cable is included in the CISCO documentation packet in the ship kit.</p> <pre>Switch con0 is now available Press RETURN to get started.</pre>	
Change to “enable” mode:	<p>The default password is welcome1:</p> <pre>Switch>enable Password: Switch#</pre>	

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<p>Configure the network for a single VLAN (example values):</p> <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#interface vlan 1 Switch(config-if)#ip address 10.7.7.34 255.255.255.0 Switch(config-if)#end Switch# *Sep 15 14:12:06.309: %SYS-5-CONFIG_I: Configured from console by Switch#write memory Building configuration... Compressed configuration from 2474 bytes to 1066 bytes[OK]</pre>		
<p>For the Exadata v2 use case, disabling IP routing on the switch is preferred in all cases using the 1st example, however check with the Customer's network administrator if in doubt. If the Customer's network requires IP routing on the switch, then use the 2nd example.</p> <p>Disable the default IP routing setting and configure the default gateway (example 1):</p> <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#no ip routing Switch(config)#ip default-gateway 10.7.7.1 Switch(config)#end *Sep 15 14:12:46.309: %SYS-5-CONFIG_I: Configured from console by Switch#write memory Building configuration... Compressed configuration from 2492 bytes to 1070 bytes[OK]</pre> <p>If the Customer's network requires IP routing on the switch, then leave IP routing setting as the default, and configure the default gateway as follows (example 2):</p> <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#ip route 0.0.0.0 0.0.0.0 10.7.7.1 Switch(config)#end Switch# *Sep 15 14:13:26.013: %SYS-5-CONFIG_I: Configured from console by Switch#write memory Building configuration... Compressed configuration from 2502 bytes to 1085 bytes[OK]</pre>		
<p>Set the hostname of the switch, using the standard Exadata naming convention (example):</p> <pre>Switch# configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#hostname burxsw-ip burxsw-ip(config)#end burxsw-ip#write memory Building configuration... Compressed configuration from 3789 bytes to 1469 bytes[OK] burxsw-ip#</pre> <p>The system hostname will be used as the prompt name.</p>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<p>Set the password (should have been set by manufacturing but if a change is required.....):</p> <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#enable password welcome1 Switch(config)#enable secret welcome1 The enable secret you have chosen is the same as your enable password. This is not recommended. Re-enter the enable secret. Switch(config)#end Switch#write memory *Sep 15 14:25:05.893: %SYS-5-CONFIG_I: Configured from console by Building configuration... Compressed configuration from 2502 bytes to 1085 bytes[OK]</pre>		
<p>Set the password for telnet network access (example):</p> <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#line vty 0 15 Switch(config-line)#login % Login disabled on line 1, until 'password' is set % Login disabled on line 2, until 'password' is set % Login disabled on line 3, until 'password' is set <SNIP> % Login disabled on line 15, until 'password' is set % Login disabled on line 16, until 'password' is set Switch(config-line)#password welcome1 Switch(config-line)#login Switch(config-line)#end Switch#write memory Building configuration... Compressed configuration from 3786 bytes to 1468 bytes[OK] Switch#</pre> <p>The first "login" output shows the password is not set so telnet access is disabled. If "login" returns nothing, then the password is set and telnet access should now work.</p>		
<p>Configure for up to 3 DNS servers (example values – replace with Customer values):</p> <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#ip domain-name sodm.com Switch(config)#ip name-server 10.7.7.3 Switch(config)#ip name-server 129.148.5.5 Switch(config)#ip name-server 10.8.160.1 Switch(config)#end *Sep 15 14:26:37.045: %SYS-5-CONFIG_I: Configured from console by Switch#write memory Building configuration... Compressed configuration from 2603 bytes to 1158 bytes[OK]</pre>		
Setting the Clock and Timezone Manually		
<p>The following information is a reference on what the command syntax and options mean.</p>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<p><u>For manually setting the timezone information:</u></p> <p>The switch keeps internal time in universal time coordinated (UTC) so this command is used only for display purposes and when the time is manually set.</p> <p>The command to set the clock time to use UTC is: no clock timezone global configuration</p> <p>The command to set the clock to use a timezone is: clock timezone zone hours-offset [minutes-offset]</p> <ul style="list-style-type: none"> • For zone enter the name of the time zone to be displayed when standard time is in effect. The default is UTC. • For hours-offset enter the hours offset from UTC. • (Optional) For minutes-offset enter the minutes offset from UTC. <p>Summer time is disabled by default. The command to set summer-time rules for the timezone is: clock summer-time zone recurring [week day month hh:mm week day month hh:mm [offset]]</p> <ul style="list-style-type: none"> • If you specify clock summer-time zone recurring without parameters, the summer time rules default to the United States rules. • For zone, specify the name of the time zone (for example, PDT) to be displayed when summer time is in effect. • (Optional) For week, specify the week of the month (1 to 5 or last). • (Optional) For day, specify the day of the week (Sunday, Monday...). • (Optional) For month, specify the month (January, February...). • (Optional) For hh:mm, specify the time (24-hour format) in hours and minutes. • (Optional) For offset, specify the number of minutes to add during summer time. The default is 60. 		
<p><u>To manually set the clock to any time:</u></p> <p>The time specified is _relative_ to the configured time zone.</p> <p>The command is: clock set hh:mm:ss month day year</p> <p>For hh:mm:ss specify the time in hours (24-hour format), minutes and seconds:</p> <ul style="list-style-type: none"> • For day specify the day by date in the month. • For month specify the month by name. • For year specify the year (no abbreviation). 		
<p>Set the clock to local timezone and time - ordering is important:</p> <pre>Switch# configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#clock timezone EST -5 << Example US Eastern time Switch(config)#clock summer-time EDT recurring << Example US default. Switch(config)#end Switch# clock set 21:00:00 December 09 2009 << use a time close to current time in the timezone just set Switch#write memory Building configuration... Compressed configuration from 3784 bytes to 1465 bytes[OK] Switch# show clock 21:00:06.643 EST Wed Dec 9 2009 << should be close to what you set</pre>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
Configure for up to 2 NTP Servers		
<p>(example values – replace with Customer values):</p> <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#ntp server 10.7.7.32 prefer Switch(config)#ntp server 129.148.9.19 Switch(config)#end *Sep 15 14:51:08.665: %SYS-5-CONFIG_I: Configured from console by console Switch#write memory Building configuration... Compressed configuration from 2654 bytes to 1163 bytes[OK] Switch#show ntp status <output will vary per network> Switch#show clock 20:59:06.643 EST Wed Dec 9 2009</pre> <p>The above should now be showing NTP sync'd exact local time if the Cisco switch was connected to the customer network where NTP server is accessible. Since this is not the case, this can be checked later if necessary.</p> <p>The symbol that precedes the show clock display has this meaning:</p> <ul style="list-style-type: none"> * –Time is not authoritative. –Time is authoritative (symbol is a blank – the above is an example of this). . –Time is authoritative, but NTP is not synchronized. 		
<p>The "show running-config" output below is an edited example. More than likely there will be additional default settings displayed that we did not set which may be different to the settings required by the customer's network. All the settings we need to check in the above output are everything that we specifically changed in the above configuration steps.</p> <p>Display entire configuration:</p> <pre>Switch#show running-config Building configuration... Current configuration : 2654 bytes ! version 12.2 no service pad service timestamps debug datetime msec service timestamps log datetime msec no service password-encryption service compress-config ! hostname Switch ! boot-start-marker boot-end-marker ! enable secret 5 \$1\$mS8h\$EaJrIECUxavfGH6vLZg1T. enable password welcome1 ! no aaa new-model ip subnet-zero ip domain-name sodm.com ip name-server 10.7.7.3 ip name-server 129.148.5.5 ip name-server 10.8.160.1 ! ip vrf mgmtVrf</pre>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<pre> ! vtp mode transparent ! power redundancy-mode redundant !! spanning-tree mode pvst spanning-tree extend system-id ! vlan internal allocation policy ascending ! ! interface FastEthernet1 ip vrf forwarding mgmtVrf no ip address speed auto duplex auto ! interface GigabitEthernet1/1 spanning-tree portfast ! interface GigabitEthernet1/2 spanning-tree portfast ! ! interface GigabitEthernet1/44 spanning-tree portfast ! interface GigabitEthernet1/45 media-type rj45 spanning-tree portfast ! interface GigabitEthernet1/46 media-type rj45 spanning-tree portfast ! interface GigabitEthernet1/47 media-type rj45 spanning-tree portfast ! interface GigabitEthernet1/48 media-type rj45 ! interface Vlan1 ip address 10.7.7.34 255.255.255.0 ! interface Vlan48 no ip address shutdown ! ip default-gateway 10.7.7.1 ip http server ! ! control-plane ! ! line con 0 stopbits 1 line vty 0 4 password welcome1 login line vty 5 15 password welcome1 login ! </pre>	<SNIP>	

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<pre>ntp server 10.7.7.32 prefer ntp server 129.148.9.1 end</pre>		
<p>If anything in the above list is incorrect, go back and repeat the appropriate section. To erase a setting, insert "no" in front of the same command. Any other settings that the customer requires should be checked and corrected by the customer.</p> <p>Erase the default gateway (example):</p> <pre>Switch#configure terminal Enter configuration commands, one per line. End with CNTL/Z. Switch(config)#no ip default-gateway 10.7.7.1 Switch(config)#end Switch# *Sep 15 14:13:26.013: %SYS-5-CONFIG_I: Configured from console by console Switch#write memory Building configuration... Compressed configuration from 2502 bytes to 1085 bytes[OK]</pre>		
<p>Make the current configuration permanent:</p> <pre>Switch#copy running-config startup-config Destination filename [startup-config]? Building configuration... Compressed configuration from 2654 bytes to 1189 bytes[OK]</pre>		
<p>Exit from the session:</p> <pre>Switch#exit</pre> <p>Switch con0 is now available</p> <p>Press RETURN to get started.</p>		
<p>Disconnect the cable from the CISCO console.</p>		
<p>The Cisco switch must NOT be connected to the Customers management network. This will be done later after Oracle have configured the systems with the customer's IP addresses and the customer has checked and performed the remaining configuration of the switch.</p> <p>If you wish to check the Cisco switch attach your laptop to port 48 and ping the IP addresses of the Exadata internal management network.</p>		

Task	Comment	Storage Cell						
		1	2	3	4	5	6	7
INITIAL ACTIVITIES: EXADATA STORAGE SERVERS 1 – 7								
The X4275 / X4270 M2 servers are referred to as "Exadata Storage Servers".								
Refer to the Assumptions on page 3 for requirements/suggestions for using the KVM / laptops for this work.								
Storage cell numbering starts with 1 at the rack bottom working upwards. For quarter-rack configurations only storage cells 1 – 3 are present.								
KVM Note: when pressing the ESC key the BIOS sometimes received TWO ESC characters and thus asks if you wish to exit the BIOS. Respond with CANCEL.								
If for any reason you need to connect to the ILOM Serial Management port for debug, the baud rate setting on Exadata systems is changed from the normal ILOM default (9600) to 115200,8,N,1.								
Power on the server:	Power button on front panel. If the button appears to be stuck, you may need a small tool to free it, or disassemble it and reassemble it to be free.							
EX2-2-KVM: Under Unit View select Target Devices . Click on the system name of the dongle in the Name column via the Left Mouse Button (LMB).								
EX2-2-KVM: Click on Overview and overwrite the name with the Oracle standard naming convention – Customer prefix, and node type and number. Press Save .	Example prefix “trna” storage cell number 3 from the bottom: trnace103							
Repeat the above steps for each system in the rack. Each server will boot itself up through BIOS and boot the OS with the default factory IP configuration.								
From laptop ⁵ : • Login via SSH to the server's default IP on page 4. From KMM: • Under Unit View select Target Devices . • Click on the system name of the dongle in the Name column via the Left Mouse Button (LMB). • Click on the KVM session.	The system should be waiting at the Linux login prompt. Example: cel101 login: You may have to press Enter to wake up the system first.							
Login as user root	Password: welcome1							

⁵ A Laptop has cut/paste & scrolling available (KVM does not). If 2 engineers are available then the second can use the KVM.

Task	Comment	Storage Cell						
		1	2	3	4	5	6	7
<p>Use ipmitool to verify that this is the same as the SysSN label on the server front panel for the KVM session being accessed.</p> <pre>[root@cell101 ~]# ipmitool sunoem cli "show /SYS product_serial_number" Connected. Use ^D to exit. -> show /SYS product_serial_number /SYS Properties: product_serial_number = 0937XFG03B -> Session closed Disconnected [root@cell101 ~]#</pre>								
<p>Verify that all memory is present in Linux. Total memory on X4275 / X4270 M2 Storage Cells is 24GB. If any is missing the below will show less and the faulted memory should be identifiable in ILOM event logs.</p> <p><u>On Exadata V2 Storage Servers:</u></p> <pre>[root@burxccl01 ~]# grep MemTotal /proc/meminfo MemTotal: 24531888 kB [root@burxccl01 ~]#</pre> <p><u>On Exadata EX2-2 Storage Servers:</u></p> <pre>[root@ht21cel02 ~]# grep MemTotal /proc/meminfo MemTotal: 24531440 kB [root@ht21cel02 ~]#</pre>								
<p>Verify the 12 disks are visible and online. They should be numbered slot 0 to 11.</p> <pre>[root@ht21cel02 ~]# cd /opt/MegaRAID/MegaCli/ [root@ht21cel02 MegaCli]# ./MegaCli64 -Pdlist -aAll grep "Slot\ Firmware" Slot Number: 0 Firmware state: Online, Spun Up Slot Number: 1 Firmware state: Online, Spun Up Slot Number: 2 Firmware state: Online, Spun Up Slot Number: 3 Firmware state: Online, Spun Up Slot Number: 4 Firmware state: Online, Spun Up Slot Number: 5 Firmware state: Online, Spun Up Slot Number: 6 Firmware state: Online, Spun Up Slot Number: 7 Firmware state: Online, Spun Up Slot Number: 8 Firmware state: Online, Spun Up Slot Number: 9 Firmware state: Online, Spun Up Slot Number: 10 Firmware state: Online, Spun Up Slot Number: 11 Firmware state: Online, Spun Up [root@ht21cel02 MegaCli]#</pre>								

Task	Comment	Storage Cell						
		1	2	3	4	5	6	7
Verify that the 16 Flash Modules are visible, 4 per card:								
<pre># lsscsi grep -i marvel [1:0:0:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdm [1:0:1:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdn [1:0:2:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdo [1:0:3:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdp [2:0:0:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdq [2:0:1:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdr [2:0:2:0] disk ATA MARVELL SD88SA02 D20Y /dev/sds [2:0:3:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdt [3:0:0:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdu [3:0:1:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdv [3:0:2:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdw [3:0:3:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdx [4:0:0:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdy [4:0:1:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdz [4:0:2:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdaa [4:0:3:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdab # # cellcli -e list lun where disktype=flashdisk 1_0 1_0 normal 1_1 1_1 normal 1_2 1_2 normal 1_3 1_3 normal 2_0 2_0 normal 2_1 2_1 normal 2_2 2_2 normal 2_3 2_3 normal 4_0 4_0 normal 4_1 4_1 normal 4_2 4_2 normal 4_3 4_3 normal 5_0 5_0 normal 5_1 5_1 normal 5_2 5_2 normal 5_3 5_3 normal # Typically the numbering shows the PCI Slot ID and FMOD ID e.g "1_0" is the card in PCI slot 1, FMOD 0 on that card. To confirm the flash disks are mapped this way, use the following command: # cellcli -e list physicaldisk attributes name, id, slotnumber where disktype=flashdisk and 'status!="not present"' [1:0:0:0] 5080020000921b4FMOD0 "PCI Slot: 4; FDOM: 0" [1:0:1:0] 5080020000921b4FMOD1 "PCI Slot: 4; FDOM: 1" [1:0:2:0] 5080020000921b4FMOD2 "PCI Slot: 4; FDOM: 2" [1:0:3:0] 5080020000921b4FMOD3 "PCI Slot: 4; FDOM: 3" [2:0:0:0] 508002000091b5cFMOD0 "PCI Slot: 1; FDOM: 0" [2:0:1:0] 508002000091b5cFMOD1 "PCI Slot: 1; FDOM: 1" [2:0:2:0] 508002000091b5cFMOD2 "PCI Slot: 1; FDOM: 2" [2:0:3:0] 508002000091b5cFMOD3 "PCI Slot: 1; FDOM: 3" [3:0:0:0] 508002000091ff2FMOD0 "PCI Slot: 5; FDOM: 0" [3:0:1:0] 508002000091ff2FMOD1 "PCI Slot: 5; FDOM: 1" [3:0:2:0] 508002000091ff2FMOD2 "PCI Slot: 5; FDOM: 2" [3:0:3:0] 508002000091ff2FMOD3 "PCI Slot: 5; FDOM: 3" [4:0:0:0] 50800200009258cFMOD0 "PCI Slot: 2; FDOM: 0" [4:0:1:0] 50800200009258cFMOD1 "PCI Slot: 2; FDOM: 1" [4:0:2:0] 50800200009258cFMOD2 "PCI Slot: 2; FDOM: 2" [4:0:3:0] 50800200009258cFMOD3 "PCI Slot: 2; FDOM: 3" [root@ht21cel02 MegaCli]#</pre>								

Task	Comment	Storage Cell						
		1	2	3	4	5	6	7
If any FMODs are missing, then try power-cycling the system and waiting 10 minutes after boot to check again. If this does not resolve, then reseal any missing module and flash card. If that still does not resolve, then consider swapping it with another slot's card to see if it follows the card or the slot and then consider replacing with the onsite spare.								
Walk around to the rear and check the Flash card LEDs are green (5) all the way across: FMOD 0, 1, 2, 3 & SuperCAP. If any are amber, then check again after the next step reboot. If they are still amber after a reboot, then reseal that particular card and SuperCAP or DOM. If the fault persists, then the card should be replaced with one of the Spares in the ship kit box. The visual check can be done on all systems at once, it does not need to be done as a single per-server check like the rest of this checklist.								
<p>Check the boot device order on the cell nodes:</p> <pre># biosconfig -get_boot_order grep DEVICE_NAME</pre> <p>It will print them from device 1 to whatever. Confirm USB, RAID, followed by the PXE. Example output:</p> <pre>[root@burxcel01 ~]# biosconfig -get_boot_order grep DEVICE_NAME <DEVICE_NAME>USB:Port0:Unigen PSA4000</DEVICE_NAME> <DEVICE_NAME>RAID:Slot0.F0:(Bus 13 Dev 00) PCI RAID Adapter</DEVICE_NAME> <DEVICE_NAME>PXE:IBA GE Slot 0100 v1324</DEVICE_NAME> <DEVICE_NAME>PXE:IBA GE Slot 0101 v1324</DEVICE_NAME> <DEVICE_NAME>PXE:IBA GE Slot 0700 v1324</DEVICE_NAME> <DEVICE_NAME>PXE:IBA GE Slot 0701 v1324</DEVICE_NAME> [root@burxcel01 ~]#</pre>								
Logout from the system:	[root@cell01 ~]# logout							
Completion								
<p>Disconnect in order to move on to next cell.</p> <p>Repeat above until all nodes are configured.</p>	<p>If using laptop:</p> <ul style="list-style-type: none"> exit or logout from SSH <p>If using KVM: return to KVM User Interface:</p> <ul style="list-style-type: none"> Press the left-side Ctrl key twice in succession (double-tap it like a mouse double-click) to toggle back to the KVM. Select “Disconnect Session”. Click on Unit View and select Target Devices. 							

Task	Comment	Storage Cell						
		8	9	10	11	12	13	14
INITIAL ACTIVITIES: EXADATA STORAGE SERVERS 8 – 14 Full-Rack Configuration Only								
This section is only relevant for a full-rack configuration – otherwise go to page 36. Storage cell numbering starts with 8 above the second set of DB servers working upwards.								
Power on the server:	Power button on front panel. If the button appears to be stuck, you may need a small tool to free it, or disassemble it and reassemble it to be free.							
EX2-2-KVM: Under Unit View select Target Devices . Click on the system name of the dongle in the Name column via the Left Mouse Button (LMB).								
EX2-2-KVM: Click on Overview and overwrite the name with the Oracle standard naming convention – Customer prefix, and node type and number. Press Save .	Example prefix “trna” storage cell number 10, 3 up from the 2 nd set of x4270 M2s: trnace110							
Repeat the above steps for each system in the rack. Each server will boot itself up through BIOS and boot the OS with the default factory IP configuration.								
From laptop: <ul style="list-style-type: none">Login via SSH to the server's default IP on page 4. From KMM: <ul style="list-style-type: none">Under Unit View select Target Devices.Click on the system name of the dongle in the Name column via the Left Mouse Button (LMB).Click on the KVM session.	The system should be waiting at the Linux login prompt. Example: cell110 login: You may have to press Enter to wake up the system first.							
Login as user root	Password: welcome1							
Use ipmitool to verify that this is the same as the SysSN label on the server front panel for the KVM session being accessed. [root@cell110 ~]# ipmitool sunoem cli "show /SYS product_serial_number" Connected. Use ^D to exit. -> show /SYS product_serial_number /SYS Properties: product_serial_number = 0937XFG033 -> Session closed Disconnected [root@cell110 ~]#								

Task	Comment	Storage Cell						
		8	9	10	11	12	13	14
<p>Verify that all memory is present in Linux. Total memory on X4275 / X4270 M2 Storage Cells is 24GB. If any is missing the below will show less and the faulted memory should be identifiable in ILOM event logs.</p> <p>On Exadata V2 Storage Servers:</p> <pre>[root@burxccl01 ~]# grep MemTotal /proc/meminfo MemTotal: 24531888 kB [root@burxccl01 ~]#</pre> <p>On Exadata EX2-2 Storage Servers:</p> <pre>[root@ht21cel02 ~]# grep MemTotal /proc/meminfo MemTotal: 24531440 kB [root@ht21cel02 ~]#</pre>								
<p>Verify the 12 disks are visible and online. They should be numbered slot 0 to 11.</p> <pre>[root@ht21cel02 ~]# cd /opt/MegaRAID/MegaCli/ [root@ht21cel02 MegaCli]# ./MegaCli64 -Pdlist -aAll grep "Slot\ Firmware" Slot Number: 0 Firmware state: Online, Spun Up Slot Number: 1 Firmware state: Online, Spun Up Slot Number: 2 Firmware state: Online, Spun Up Slot Number: 3 Firmware state: Online, Spun Up Slot Number: 4 Firmware state: Online, Spun Up Slot Number: 5 Firmware state: Online, Spun Up Slot Number: 6 Firmware state: Online, Spun Up Slot Number: 7 Firmware state: Online, Spun Up Slot Number: 8 Firmware state: Online, Spun Up Slot Number: 9 Firmware state: Online, Spun Up Slot Number: 10 Firmware state: Online, Spun Up Slot Number: 11 Firmware state: Online, Spun Up [root@ht21cel02 MegaCli]#</pre>								
<p>Verify that the 16 Flash Modules are visible, 4 per card:</p> <pre># lsscsi grep -i marvel [1:0:0:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdm [1:0:1:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdn [1:0:2:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdo [1:0:3:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdp [2:0:0:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdq [2:0:1:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdr [2:0:2:0] disk ATA MARVELL SD88SA02 D20Y /dev/sds [2:0:3:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdt [3:0:0:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdu [3:0:1:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdv [3:0:2:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdw [3:0:3:0] disk ATA MARVELL SD88SA02 D20Y /dev/sdx</pre>								

<i>Task</i>		<i>Comment</i>		<i>Storage Cell</i>					
				8	9	10	11	12	13
[4:0:0:0]	disk	ATA	MARVELL SD88SA02 D20Y /dev/sdy						
[4:0:1:0]	disk	ATA	MARVELL SD88SA02 D20Y /dev/sdz						
[4:0:2:0]	disk	ATA	MARVELL SD88SA02 D20Y /dev/sdaa						
[4:0:3:0]	disk	ATA	MARVELL SD88SA02 D20Y /dev/sdab						
#									
# cellcli -e list lun where disktype=flashdisk									
	1_0	1_0	normal						
	1_1	1_1	normal						
	1_2	1_2	normal						
	1_3	1_3	normal						
	2_0	2_0	normal						
	2_1	2_1	normal						
	2_2	2_2	normal						
	2_3	2_3	normal						
	4_0	4_0	normal						
	4_1	4_1	normal						
	4_2	4_2	normal						
	4_3	4_3	normal						
	5_0	5_0	normal						
	5_1	5_1	normal						
	5_2	5_2	normal						
	5_3	5_3	normal						
#									
Typically the numbering shows the PCI Slot ID and FMOD ID e.g "1_0" is the card in PCI slot 1, FMOD 0 on that card. To confirm the flash disks are mapped this way, use the following command:									
# cellcli -e list physicaldisk attributes name, id, slotnumber where disktype=flashdisk and 'status!="not present"'									
	[1:0:0:0]	5080020000921b4FMOD0	"PCI Slot: 4; FDOM: 0"						
	[1:0:1:0]	5080020000921b4FMOD1	"PCI Slot: 4; FDOM: 1"						
	[1:0:2:0]	5080020000921b4FMOD2	"PCI Slot: 4; FDOM: 2"						
	[1:0:3:0]	5080020000921b4FMOD3	"PCI Slot: 4; FDOM: 3"						
	[2:0:0:0]	508002000091b5cFMOD0	"PCI Slot: 1; FDOM: 0"						
	[2:0:1:0]	508002000091b5cFMOD1	"PCI Slot: 1; FDOM: 1"						
	[2:0:2:0]	508002000091b5cFMOD2	"PCI Slot: 1; FDOM: 2"						
	[2:0:3:0]	508002000091b5cFMOD3	"PCI Slot: 1; FDOM: 3"						
	[3:0:0:0]	508002000091ff2FMOD0	"PCI Slot: 5; FDOM: 0"						
	[3:0:1:0]	508002000091ff2FMOD1	"PCI Slot: 5; FDOM: 1"						
	[3:0:2:0]	508002000091ff2FMOD2	"PCI Slot: 5; FDOM: 2"						
	[3:0:3:0]	508002000091ff2FMOD3	"PCI Slot: 5; FDOM: 3"						
	[4:0:0:0]	50800200009258cFMOD0	"PCI Slot: 2; FDOM: 0"						
	[4:0:1:0]	50800200009258cFMOD1	"PCI Slot: 2; FDOM: 1"						
	[4:0:2:0]	50800200009258cFMOD2	"PCI Slot: 2; FDOM: 2"						
	[4:0:3:0]	50800200009258cFMOD3	"PCI Slot: 2; FDOM: 3"						
[root@ht21cel102 MegaCli]#									
If any FMODs are missing, then try power-cycling the system and waiting 10 minutes after boot to check again. If this does not resolve, then reseal any missing module and flash card. If that still does not resolve, then consider swapping it with another slot's card to see if it follows the card or the slot and then consider replacing with the onsite spare.									

<i>Task</i>	<i>Comment</i>	<i>Storage Cell</i>						
		8	9	10	11	12	13	14
Walk around to the rear and check the Flash card LEDs are green (5) all the way across: FMOD 0, 1, 2, 3 & SuperCAP. If any are amber, then check again after the next step reboot. If they are still amber after a reboot, then reseal that particular card and SuperCAP or DOM. If the fault persists, then the card should be replaced with one of the Spares in the ship kit box. The visual check can be done on all systems at once, it does not need to be done as a single per-server check like the rest of this checklist.								
Check the boot device order on the cell nodes. # biosconfig -get_boot_order grep DEVICE_NAME It will print them from device 1 to whatever. Confirm USB, RAID, followed by the PXE.								
Logout from the system:	[root@cell101 ~]# logout							
Completion								
Disconnect in order to move on to next cell. Repeat above until all nodes are configured.	<p>If using laptop:</p> <ul style="list-style-type: none"> exit or logout from SSH <p>If using KVM: return to KVM User Interface:</p> <ul style="list-style-type: none"> Press the left-side Ctrl key twice in succession (double-tap it like a mouse double-click) to toggle back to the KVM. Select “Disconnect Session”. Click on Unit View and select Target Devices. 							

Task	Comment	DB Node			
		1	2	3	4
INITIAL ACTIVITIES: ORACLE DATABASE SERVERS 1 – 4					
The Oracle Exadata Database Machine can have 2 different types of database <ul style="list-style-type: none">EX2-2 with 2, 4, or 8 Sun Fire X4170 / X4170 M2 database servers.EX2-8 with 2 Sun Fire X4800 database servers. Refer to the Assumptions on page 3 for requirements/suggestions for using the KVM / laptops for this work.					
For EX2-8 Full rack and EX2-2 quarter-rack configurations only database nodes 1 – 2 are present.					
Database cell numbering starts with 1 above the storage cells working upwards.					
Power on the server:	Power button on front panel.				
EX2-2-KVM: Under Unit View select Target Devices . Click on the system name of the dongle in the Name column via the Left Mouse Button (LMB).					
EX2-2-KVM: Click on Overview and overwrite the name with the Oracle standard naming convention – Customer prefix, and node type and number. Press Save .	Example prefix “trna” database node, number 2 from the bottom: trnad02				
Repeat the above steps for each system in the rack. Each server will boot itself up through BIOS and boot the OS with the default factory IP configuration.					
X2-8: X4800 servers may take up to 15 minutes to boot through the normal BIOS POST tests.					
From laptop ⁶ : <ul style="list-style-type: none">Login via SSH to the server's default IP on page 4. From KMM: <ul style="list-style-type: none">Under Unit View select Target Devices.Click on the system name of the dongle in the Name column via the Left Mouse Button (LMB).Click on the KVM session.	The system should be waiting at the Linux login prompt. Example: db01 login: You may have to press Enter to wake up the system first.				
Login as user root	Password: welcome1				

⁶ A Laptop has cut/paste & scrolling available (KVM does not). If 2 engineers available then second can use the KVM.

Task	Comment	DB Node			
		1	2	3	4
Use ipmitool to verify that this is the same as the SysSN label on the server front panel for the KVM session being accessed.	<pre> [root@db01 ~]# ipmitool sunoem cli "show /SYS product_serial_number" Connected. Use ^D to exit. -> show /SYS product_serial_number /SYS Properties: product_serial_number = 0937XF5001 -> Session closed Disconnected [root@db01 ~]#</pre>				
Verify that all memory is present in Linux. Total memory on X4170 DB nodes is 72GB; X4170 M2 DB nodes is 96GB. If any is missing the below will show less and the faulted memory should be identifiable in ILOM event logs.	<p>Output from X4170 DB node:</p> <pre> [root@burxdb01 ~]# grep MemTotal /proc/meminfo MemTotal: 74027752 kB [root@ burxdb01 ~]#</pre> <p>Output from X4170 M2 DB node:</p> <pre> [root@burxdb01 ~]# grep MemTotal /proc/meminfo MemTotal: 98848968 kB [root@ burxdb01 ~]#</pre>				
Verify the 4 disks are visible and online. They should be numbered slot 0 to 3 with 3 online and 1 hotspare.	<pre> [root@ht21db01 ~]# cd /opt/MegaRAID/MegaCli/ [root@ht21db01 MegaCli]# ./MegaCli64 -Pdlist -aAll grep "Slot\ Firmware" Slot Number: 0 Firmware state: Online, Spun Up Slot Number: 1 Firmware state: Online, Spun Up Slot Number: 2 Firmware state: Online, Spun Up Slot Number: 3 Firmware state: Hotspare, Spun down [root@ht21db01 MegaCli]#</pre>				
Verify the hardware RAID5 logical volume is correctly setup. Look for Virtual Disk 0 in a RAID5 with 3 drives, and 1 hotspare. If this is incorrect it will need to be reconfigured in the LSI WebBIOS utility. Use the following command:	<pre> [root@db01 ~]# cd /opt/MegaRAID/MegaCli [root@db01 MegaCli]# ./MegaCli64 -LdInfo -lAll -aAll</pre> <p>Output for Exadata V2 DB nodes:</p> <p>Adapter 0 -- Virtual Drive Information: Virtual Disk: 0 (Target Id: 0) Name: RAID Level: Primary-5, Secondary-0, RAID Level Qualifier-3 Size:272.437 GB State: Optimal</p>				

Task	Comment	DB Node			
		1	2	3	4
<p>Stripe Size: 1.0 MB</p> <p>Number Of Drives:3</p> <p>Span Depth:1</p> <p>Default Cache Policy: WriteBack, ReadAheadNone, Direct, No Write Cache if Bad BBU</p> <p>Current Cache Policy: WriteBack, ReadAheadNone, Direct, No Write Cache if Bad BBU</p> <p>Access Policy: Read/Write</p> <p>Disk Cache Policy: Disabled</p> <p>Encryption Type: None</p> <p>Number of Dedicated Hot Spares: 1</p> <p>0 : EnclId - 252 SlotId - 3</p> <p>Exit Code: 0x00</p> <p>[root@db01 MegaCli]#logout</p> <p>Output for Exadata EX2-2 DB nodes:</p> <p>Adapter 0 -- Virtual Drive Information:</p> <p>Virtual Drive: 0 (Target Id: 0)</p> <p>Name :DBSYS</p> <p>RAID Level : Primary-5, Secondary-0, RAID Level Qualifier-3</p> <p>Size : 556.929 GB</p> <p>State : Optimal</p> <p>Stripe Size : 1.0 MB</p> <p>Number Of Drives : 3</p> <p>Span Depth : 1</p> <p>Default Cache Policy: WriteBack, ReadAheadNone, Direct, No Write Cache if Bad BBU</p> <p>Current Cache Policy: WriteBack, ReadAheadNone, Direct, No Write Cache if Bad BBU</p> <p>Access Policy : Read/Write</p> <p>Disk Cache Policy : Disabled</p> <p>Encryption Type : None</p> <p>Number of Dedicated Hot Spares: 1</p> <p>0 : EnclId - 252 SlotId - 3</p> <p>Exit Code: 0x00</p> <p>[root@ht21db01 MegaCli]# logout</p>					
Address Bug 6974465 (not applicable to M2 systems)					
<p>Check the ILOM is configured for proper fan cooling on each DB server, by enabling the ILOM fan policy control for a rack with Flash Accelerator cards in it. First enter:</p> <p>db01# ipmitool sunoem cli "show /SP/policy"</p>					
<p>If it returns show: Invalid target /SP/policy or "FLASH_ACCELERATOR_CARD_INSTALLED" is not listed under "Properties" then it is an older version of ILOM and this can be ignored.</p>					
<p>If the policy is present and enabled, then it is good & no further action is required.</p> <p>If the policy is present and disabled, then enable it (the following as a single line with a space between policy and FLASH):</p> <p>db01# ipmitool sunoem cli "set /SP/policy FLASH_ACCELERATOR_CARD_INSTALLED=enabled"</p>					

Task	Comment	DB Node			
		1	2	3	4
Completion					
Disconnect in order to move on to next cell. Repeat above until all nodes are configured.	If using laptop: <ul style="list-style-type: none">• exit or logout from SSH If using KVM: return to KVM User Interface: <ul style="list-style-type: none">• Press the left-side Ctrl key twice in succession (double-tap it like a mouse double-click) to toggle back to the KVM.• Select “Disconnect Session”. Click on Unit View and select Target Devices.				
If the IB switch firmware needs to be updated and you only have a Windows laptop available (no Solaris/Linux laptop) then go back to page 15 and perform the necessary actions.					

Task	Comment	DB Node			
		5	6	7	8
INITIAL ACTIVITIES: ORACLE DATABASE SERVERS 5 – 8					
EX2-2 Full-Rack Configuration Only					
This section is only relevant for an EX2-2 full-rack configuration – otherwise go to page 43.					
Database cell numbering starts with 5 above the switches working upwards.					
Power on the server:	Power button on front panel.				
EX2-2-KVM: Under Unit View select Target Devices . Click on the system name of the dongle in the Name column via the Left Mouse Button (LMB).					
EX2-2-KVM: Click on Overview and overwrite the name with the Oracle standard naming convention – Customer prefix, and node type and number. Press Save .	Example prefix “trna” database node, number 2 from the top: trnadb07				
Repeat the above steps for each system in the rack.					
Each server will boot itself up through BIOS and boot the OS with the default factory IP configuration.					
From laptop: <ul style="list-style-type: none">Login via SSH to the server's default IP on page 4. From KMM: <ul style="list-style-type: none">Under Unit View select Target Devices.Click on the system name of the dongle in the Name column via the Left Mouse Button (LMB).Click on the KVM session.	The system should be waiting at the Linux login prompt. Example: db05 login: You may have to press Enter to wake up the system first.				
Login as user root	Password welcome1				
Use ipmitool to verify that this is the same as the SysSN label on the server front panel for the KVM session being accessed. [root@db05 ~]# ipmitool sunoem cli "show /SYS product_serial_number" Connected. Use ^D to exit. -> show /SYS product_serial_number /SYS Properties: product_serial_number = 0937XF500B -> Session closed Disconnected [root@db05 ~]#					

Task	Comment	DB Node			
		5	6	7	8
Verify that all memory is present in Linux. Total memory on X4170 DB nodes is 72GB; X4170 M2 DB nodes is 96GB. If any is missing the below will show less and the faulted memory should be identifiable in ILOM event logs: Output from X4170 DB node: [root@burxdb01 ~]# grep MemTotal /proc/meminfo MemTotal: 74027752 kB [root@ burxdb01 ~]# Output from X4170 M2 DB node: [root@burxdb01 ~]# grep MemTotal /proc/meminfo MemTotal: 98848968 kB [root@ burxdb01 ~]#					
Verify the 4 disks are visible and online. They should be numbered slot 0 to 3 with 3 online and 1 hotspare. [root@ht21db01 ~]# cd /opt/MegaRAID/MegaCli/ [root@ht21db01 MegaCli]# ./MegaCli64 -Pdlist -aAll grep "Slot\ Firmware" Slot Number: 0 Firmware state: Online, Spun Up Slot Number: 1 Firmware state: Online, Spun Up Slot Number: 2 Firmware state: Online, Spun Up Slot Number: 3 Firmware state: Hotspare, Spun down [root@ht21db01 MegaCli]#					
Verify the hardware RAID5 logical volume is correctly setup. Look for Virtual Disk 0 in a RAID5 with 3 drives, and 1 hotspare. If this is incorrect it will need to be reconfigured in the LSI WebBIOS utility. Use the following command: [root@db05 ~]# cd /opt/MegaRAID/MegaCli [root@db05 MegaCli]# ./MegaCli64 -LdInfo -lAll -aAll Output for Exadata V2 DB nodes: Adapter 0 -- Virtual Drive Information: Virtual Disk: 0 (Target Id: 0) Name: RAID Level: Primary-5 , Secondary-0, RAID Level Qualifier-3 Size:272.437 GB State: Optimal Stripe Size: 1.0 MB Number Of Drives:3 Span Depth:1 Default Cache Policy: WriteBack, ReadAheadNone, Direct, No Write Cache if Bad BBU Current Cache Policy: WriteBack, ReadAheadNone, Direct, No Write Cache if Bad BBU Access Policy: Read/Write Disk Cache Policy: Disabled Encryption Type: None Number of Dedicated Hot Spares: 1 0 : EnclId - 252 SlotId - 3 Exit Code: 0x00 [root@db05 MegaCli]# logout					

Task	Comment	DB Node			
		5	6	7	8
Output for Exadata EX2-2 DB nodes:					
Adapter 0 -- Virtual Drive Information: Virtual Drive: 0 (Target Id: 0) Name :DBSYS RAID Level : Primary-5, Secondary-0, RAID Level Qualifier-3 Size : 556.929 GB State : Optimal Stripe Size : 1.0 MB Number Of Drives : 3 Span Depth : 1 Default Cache Policy: WriteBack, ReadAheadNone, Direct, No Write Cache if Bad BBU Current Cache Policy: WriteBack, ReadAheadNone, Direct, No Write Cache if Bad BBU Access Policy : Read/Write Disk Cache Policy : Disabled Encryption Type : None Number of Dedicated Hot Spares: 1 0 : EnclId - 252 SlotId - 3 Exit Code: 0x00 [root@ht21db01 MegaCli]# logout					
Address Bug 6974465 (not applicable to M2 systems)					
Check the ILOM is configured for proper fan cooling on each DB server, by enabling the ILOM fan policy control for a rack with Flash Accelerator cards in it. First enter: db01# ipmitool sunoem cli "show /SP/policy"					
If it returns show: Invalid target /SP/policy or "FLASH_ACCELERATOR_CARD_INSTALLED" is not listed under "Properties" then it is an older version of ILOM and this can be ignored.					
If the policy is present and enabled, then it is good & no further action is required. If the policy is present and disabled, then enable it (the following as a single line with a space between policy and FLASH): db01# ipmitool sunoem cli "set /SP/policy FLASH_ACCELERATOR_CARD_INSTALLED=enabled"					
Completion					
Disconnect in order to move on to next cell. Repeat above until all nodes are configured.	If using laptop: <ul style="list-style-type: none">exit or logout from SSH If using KVM: return to KVM User Interface: <ul style="list-style-type: none">Press the left-side Ctrl key twice in succession (double-tap it like a mouse double-click) to toggle back to the KVM.Select “Disconnect Session”. Click on Unit View and select Target Devices.				

<i>Task</i>	<i>Comment</i>	<i>Check</i>
ADDITIONAL ACTIVITIES:FOR ALL SYSTEMS		
<p>This section is utilizing the pre-configured IP addresses and setup in order to do some commands on all systems at the same time. The only system fully setup with ssh keys to use “dcli” from is Oracle Exadata Database Server 1.</p> <p>The IP group files for use with dcli are already created. Depending on the configuration, substitute "half", "full", or "quarter" for half in the examples below.</p>		
Login into the first DB node db01 system as user root .	This is the only system able to use dcli in the preconfigured state.	
<p>Change directory to the first configuration tools:</p> <pre>[root@db01 ~]# cd /opt/oracle.SupportTools/firstconf</pre>		
<p>Verify the network eth0 port to all systems can be pinged over the Cisco network switch. The following example is with success:</p> <pre>[root@burxdb01 firstconf]# ./fetch_macs.sh half grep ping [INFO] Checking nodes are pingable... [root@burxdb01 firstconf]#</pre> <p>The following example with a failure:</p> <pre>[root@burxdb01 firstconf]# ./fetch_macs.sh half grep ping [INFO] Checking nodes are pingable... [ERROR] Following nodes are not pingable. Check connections and retry. Unpingable: 192.168.10.25 192.168.10.18 [root@burxdb01 firstconf]#</pre>		
<p>Verify that the Rack Master Serial Number is set correctly by manufacturing:</p> <pre>[root@db01 firstconf]# dcli -l root -g half "ipmitool sunoem cli 'show /SP system_identifier'" > /tmp/show-rack-csn.out [root@db01 firstconf]# more /tmp/show-rack-csn.out</pre> <p>For X2-2 racks expect to see output similar to:</p> <pre>192.168.1.11: Connected. Use ^D to exit. 192.168.1.11: -> show /SP system_identifier /SP Properties: system_identifier = Exadata Database Machine X2-2 1033AK213A 192.168.1.11: -> Session closed 192.168.1.11: Disconnected ...Output for the rest of the units is truncated for brevity... 192.168.1.1: Connected. Use ^D to exit. 192.168.1.1: -> show /SP system_identifier /SP Properties: system_identifier = Exadata Database Machine X2-2 1033AK213A 192.168.1.1: -> Session closed 192.168.1.1: Disconnected [root@db01 firstconf]#</pre> <p>For X2-8 racks the <code>system_identifier</code> will be of the form x2-8 1033AK21C0</p>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<p>If the R-MSN is incorrect, insert it into the ILOM on <u>every</u> system (refer to the IP addresses on page 4):</p> <p>X2-2 racks – enter the following command (on one line, no break):</p> <pre>[root@db01 firstconf]# dcli -l root -g half "ipmitool sunoem cli 'set /SP system_identifier=\""Exadata Database Machine X2-2 1033AK213A\""" > /tmp/set-rack-csn.out</pre> <p>X2-8 racks – enter the following command (on one line, no break):</p> <pre>[root@db01 firstconf]# dcli -l root -g half "ipmitool sunoem cli 'set /SP system_identifier=\""Exadata Database Machine X2-8 1033AK21C0\""" > /tmp/set-rack-csn.out</pre> <p>Where <R-MSN> is the Rack Master Serial Number (e.g. 1033AK213A).</p> <p>Note that the system_identifier has a 40 character limit so if too much text is entered between Machine and the end of the serial number for the R-MSN value, you will receive a "set: invalid property value" error.</p>		
<p>Verify HW Profile is operating correct on all systems. The checks a number of items including CPU type and count, firmware revisions of various components, and full speed operation of some components:</p> <pre># dcli -l root -g half "/opt/oracle.SupportTools/CheckHWnFWProfile -c strict" > /tmp/checkhwfw.out # more /tmp/checkhwfw.out 192.168.1.11: [SUCCESS] The hardware and firmware profile matches one of the supported profiles 192.168.1.10: [SUCCESS] The hardware and firmware profile matches one of the supported profiles <SNIP> 192.168.1.1: [SUCCESS] The hardware and firmware profile matches one of the supported profiles</pre> <p>If there are any errors, they will need to be corrected. An example of a check that fails is:</p> <pre>192.168.1.6: [WARNING] The hardware and firmware are not supported. See details below [DiskControllerPCIeSlotWidth] Requires: x8 Found: x4 [WARNING] The hardware and firmware are not supported. See details above</pre>		
Example of Output From a Storage Cell (Exadata V2):		
<pre># /opt/oracle.SupportTools/CheckHWnFWProfile -d [SystemManufacturer] SUN MICROSYSTEMS [SystemModel] SUN FIRE X4275 SERVER [BIOSVendor] American Megatrends Inc. [BIOSVersion] 07060219 [BIOSDate] 06/19/2009 [ProcessorInformation] Cores:16 Intel(R) Xeon(R) E5540 2.53GHz step: 5</pre>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<pre> [ILOMVersion] 3.0.6.10.a r49385 [DiskControllerPCIESlotNumber] PCI-E Slot 0 [DiskControllerModel] LSI MegaRAID SAS 9261-8i [DiskControllerFirmwareRevision] 12.0.1-0081 [InfinibandHCAPCIESlotNumber] PCI-E Slot 3 [InfinibandHCAPCIESlotWidth] x8 [InfinibandHCADeviceID] 26428 [InfinibandHCAChipRevision] A0 [InfinibandHCAImageType] ConnectX [InfinibandHCAFirmwareVersion] 2.7.0 [SASBackplaneFirmwareVersion] 05.02.14.00 [DiskControllerPCIESlotWidth] x8 [EnclosureSlotDisktypeMakeModelFirmware] ALL:ALL SAS SEAGATE ST360057SSUN600G 0605 [PcislotsHbaModelHwMpthwFrmwBiosDomDevMakeModelFrmw] All_HBA LSILogicSAS1068E B3 105 011b0300 6.26.00.00 All_DOM MARVELL SD88SA02 D20R NumDOM 4_16 [InfinibandHCAHardwareRev] 50 [LightsOutFirmwareVersion] Firmware Revision : 3.0 # </pre>		
Example of Output From a Database node (Exadata V2):		
<pre> # /opt/oracle.SupportTools/CheckHWnFWProfile -d [SystemManufacturer] SUN MICROSYSTEMS [SystemModel] SUN FIRE X4170 SERVER [BIOSVendor] American Megatrends Inc. [BIOSVersion] 07060219 [BIOSDate] 06/19/2009 [ProcessorInformation] Cores:16 Intel(R) Xeon(R) E5540 2.53GHz step: 5 [ILOMVersion] 3.0.6.10.a r49385 [DiskControllerPCIESlotNumber] PCI-E Slot 0 [DiskControllerModel] LSI MegaRAID SAS 9261-8i [DiskControllerFirmwareRevision] 12.0.1-0081 [InfinibandHCAPCIESlotNumber] PCI-E Slot 2 [InfinibandHCAPCIESlotWidth] x8 [InfinibandHCADeviceID] 26428 </pre>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<pre> [InfinibandHCAChipRevision] A0 [InfinibandHCAImageType] ConnectX [InfinibandHCAFirmwareVersion] 2.7.0 [SASBackplaneFirmwareVersion] NotAvailable [DiskControllerPCIESlotWidth] x8 [InfinibandHCAHardwareRev] 50 [LightsOutFirmwareVersion] Firmware Revision : 3.0 [EnclosureSlotDisktypeMakeModelFirmware] ALL:ALL SAS HITACHI H103014SCSUN146G A160 # </pre>		
Example of Output From a Storage cell (Exadata EX2-2):		
<pre> [root@ht21cel02 ~]# /opt/oracle.SupportTools/CheckHwFWProfile -d [SystemManufacturer] SUN MICROSYSTEMS [SystemModel] SUN FIRE X4270 M2 SERVER [BIOSVendor] American Megatrends Inc. [BIOSVersion] 08040203 [BIOSDate] 09/14/2010 [ProcessorInformation] Cores:24 Intel(R) Xeon(R) L5640 2.27GHz step: 2 [ILOMVersion] 3.0.9.27.a r58740 [PhysicalMemoryGB] 24 [DiskControllerPCIESlotNumber] PCI-E Slot 0 [DiskControllerModel] LSI MegaRAID SAS 9261-8i [DiskControllerFirmwareRevision] 12.9.0-0037 [DiskControllerSilicon] B4 [DiskControllerBatteryBackupUnitVersion] iBBU08 [InfinibandHCAPCIESlotNumber] PCI-E Slot 3 [Fans] FM0 FM1 FM2 FM3 FM4 FM5 [Powersupplies] PS0:OK PS1:OK [InfinibandHCAPCIESlotWidth] 5Gbps,x8 [InfinibandHCADeviceID] 26428 [InfinibandHCAChipRevision] B0 [InfinibandHCAImageType] ConnectX [InfinibandHCAFirmwareVersion] 2.7.8100 [SASBackplaneFirmwareVersion] </pre>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
05.03.65.02 [DiskControllerPCIESlotWidth] x8 [Enclosure:Slot:DiskType:DiskMake:DiskModel:Diskfw] ALL:ALL SAS SEAGATE ST360057SSUN600G 0705 [PCISlot:HBA:LSIModel:LSIhw:MPThw:LSIfw:MPTBios:DOM:OSDevice:DOMMake:DOMModel:DOMfw:CountAuraCountDOM] AllSlots_AllHBAs LSILogicSAS1068E B3 105 011b5a00 6.26.00.00 AllDOMs_NotApplicable MARVELL SD88SA02 D20Y 4_16 [InfinibandHCAHardwareRev] 50 [LightsOutFirmwareVersion] Firmware Revision : 3.0 [root@ht21cel02 ~]#		
Example of Output From a Database node (Exadata EX2-2):		
[root@ht21db01]# /opt/oracle.SupportTools/CheckHWnFWProfile -d [SystemManufacturer] SUN MICROSYSTEMS [SystemModel] SUN FIRE X4170 M2 SERVER [BIOSVendor] American Megatrends Inc. [BIOSVersion] 08040203 [BIOSDate] 09/14/2010 [ProcessorInformation] Cores:24 Intel(R) Xeon(R) X5670 2.93GHz step: 2 [ILOMVersion] 3.0.9.27.a r58740 [PhysicalMemoryGB] 98 [DiskControllerPCIESlotNumber] PCI-E Slot 0 [DiskControllerModel] LSI MegaRAID SAS 9261-8i [DiskControllerFirmwareRevision] 12.9.0-0037 [DiskControllerSilicon] B4 [DiskControllerBatteryBackupUnitVersion] iBBU08 [InfinibandHCAPCIESlotNumber] PCI-E Slot 2 [Fans] FM0 FM1 FM2 FM3 [Powersupplies] PS0:OK PS1:OK [InfinibandHCAPCIESlotWidth] 5Gbps,x8 [InfinibandHCADeviceID] 26428 [InfinibandHCAChipRevision] B0 [InfinibandHCAImageType] ConnectX [InfinibandHCAFirmwareVersion] 2.7.8100 [SASBackplaneFirmwareVersion] NotAvailable [DiskControllerPCIESlotWidth] x8		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
<pre>[10GEtherModelPCISlot] 82599EB PCI-E Slot 1 82599EB PCI-E Slot 1 [InfinibandHCAHardwareRev] 50 [LightsOutFirmwareVersion] Firmware Revision : 3.0 [Enclosure:Slot:DiskType:DiskMake:DiskModel:Diskfw] ALL:ALL SAS HITACHI H103030SCSUN300G A2A8 [root@ht21db01]#</pre>		
Continuing...		
<p><u>IF</u> any of profile checks fail and any firmware needs to be reflashed, this can be done from the system itself using (command on a single line):</p> <pre>[root@db01 ~]# /opt/oracle.SupportTools/CheckHwFWProfile -U /opt/oracle.cellos/iso/cellbits Now updating the ILOM and the BIOS ... <update takes place></pre> <p>After flash update, power off the system, reset ILOM, then wait 10 minutes for ILOM to flash BIOS, then power on the system again.</p>		
<p>Carry out a ping test of the ILOMs:</p> <pre># cp full full.ilom # vi full.ilom</pre> <p>Modify the above file to list the IPs of all the ILOMs per page 4 adding 10 or 1 as appropriate to make IPs 101 - 122.</p> <pre># for ilom in `cat full.ilom` ; do /bin/ping -c 3 \$ilom ; done > /tmp/ilom.pingtest.out # more /tmp/ilom.pingtest.out</pre> <p>Examine this for any errors and packet loss problems that might indicate a bad cable or connection.</p>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
SUN VERIFICATION OF INFINIBAND NETWORK		
Perform visual check of all IB cable connections within the rack.	Visually check the IB cabling – that the lights on the ports are ON. Look through the cable management arms to ensure that the expected LEDs are ON. Do NOT press every connector “just in case”.	
Login into any system as user root .	This can be any of the servers in the rack.	
Verify Infiniband topology (example of fully-operational system): <pre>[root@db01 ~]# cd /opt/oracle.SupportTools/ibdiagtools [root@db01 ibdiagtools]# ./verify-topology</pre> <pre>[DB Machine Infiniband Cabling Topology Verification Tool] Is every external switch connected to every internal switch..... [SUCCESS] Are any external switches connected to each other..... [SUCCESS] Are any hosts connected to spine switch..... [SUCCESS] Check if all hosts have 2 CAs to different switches..... [SUCCESS] Leaf switch check: cardinality and even distribution..... [SUCCESS]</pre> For a Quarter Rack or Half Rack you need to use the "-t" option to specify the topology. Example: ./verify-topology -t quarterrack Example: ./verify-topology -t halfrack		
Verify Infiniband topology (example with bad IB switch to IB switch cable): <pre>[root@db01 ibdiagtools]# ./verify-topology</pre> <pre>[DB Machine Infiniband Cabling Topology Verification Tool] Is every external switch connected to every internal switch..... [SUCCESS] Are any external switches connected to each other..... [SUCCESS] Are any hosts connected to spine switch..... [SUCCESS] Check if all hosts have 2 CAs to different switches..... [SUCCESS] Leaf switch check: cardinality and even distribution..... [SUCCESS] Check if each rack has an valid internal ring.....[ERROR]</pre>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
Verify Infiniband topology (example with bad IB cable on a DB node): <pre> [root@db01 ibdiagtools]# ./verify-topology [DB Machine Infiniband Cabling Topology Verification Tool] Is every external switch connected to every internal switch..... [SUCCESS] Are any external switches connected to each other..... [SUCCESS] Are any hosts connected to spine switch..... [SUCCESS] Check if all hosts have 2 CAs to different switches.....[ERROR] Node db01 has 1 endpoints. (Should be 2) Port 2 of this node is not connected to any switch -----fattree End Point Cabling verification failed----- Leaf switch check: cardinality and even distribution.....[ERROR] [SUCCESS] Check if each rack has an valid internal ring.....[SUCCESS] [root@db01 ibdiagtools]# </pre>		
Verify Infiniband topology (example of bad IB connections on both a switch and a system): <pre> [root@db01 ibdiagtools]# ./verify-topology [DB Machine Infiniband Cabling Topology Verification Tool] Is every external switch connected to every internal switch..... [SUCCESS] Are any external switches connected to each other..... [SUCCESS] Are any hosts connected to spine switch..... [SUCCESS] Check if all hosts have 2 CAs to different switches.....[ERROR] -----fattree End Point Cabling verifation failed----- Leaf switch check: cardinality and even distribution.....[ERROR] Internal QDR Switch 0x21283a87b8a0a0 has fewer than 4 compute nodes It has only 3 links belonging to compute nodes [SUCCESS] Check if each rack has an valid internal ring.....[ERROR] Switches 0x21283a87cba0a0 0x21283a87b8a0a0 have 6 connections between them They should have at least 7 links between them [root@db01 ibdiagtools]# </pre>		

<i>Task</i>	<i>Comment</i>	<i>Check</i>
INITIAL SOFTWARE CONFIGURATION		
<p>An ORACLE Advanced Customer Services (ACS) engineer will now perform the initial configuration of the operating system on the storage cells and Database nodes known as Unattended First Boot.</p> <p>Any suspected hardware issues that arise will need to be investigated by Oracle.</p> <p>After this step is complete, the systems will have IP addresses suitable for the Customer's network, so the network connections can be made.</p>		
<p>Connect the Cisco switch port 48 to the Customer's management network – the Customer's network administrator may wish to perform this step.</p> <p>The Cisco switch should not be connected until the running configuration has been verified and any necessary changes have been made by the customer's network administrator.</p>		
<p>Connect Ethernet cables between the Exadata Database Machine database servers and the customer's network</p> <p>Sun installer should route the cables through the CMAs on each server.</p> <p>Once the cables are routed, the Customer's network administrator may wish to perform the switch end connection.</p>	<p>In simplest configuration there will be 1 cable each between the Customer's network and each database server. If the network is bonded or additional networks are used the number of cables will multiply accordingly.</p> <p>Disengage the left side of the cable management arm & swing it out in order to improve access to the Ethernet ports. Avoid disengaging the right side at your peril.</p>	
<p>After the Unattended First Boot and connection of the various Ethernets, you will need to verify the systems are all pingable as expected from the customer networks. You will need to enlist the customer's help to do this. If anything does not work as expected, the customer's network administrator will be required to add any settings as necessary on the Cisco switch or external switches or external routers in order to properly connect to the hosts through the customer's network infrastructure.</p>		
<p>Check all OK LEDs are green.</p> <p>If not, login to the system host and enter:</p> <pre>ipmitool sunoem cli 'reset -script /SP'</pre> <p>to reset the ILOM after the ACS reboots during the onecommand process.</p>		
<p>Check all systems and switches are clock synchronized and also seeing the NTP server correctly.</p>	<p>If not, reboot each box or switch and monitor the console boot messages, or check the routing through the Cisco switch.</p>	

<i>Task</i>	<i>Comment</i>	<i>Check</i>
HANDOVER		
Perform Installation Assessment tests as described in the <i>EIS Test Procedures Plan</i> .	EISdoc V4 – completed during preparation of installation.	
Short briefing: the configuration.		
Complete documentation and hand over to ORACLE ACS.	Complete and sign the <i>Sun Installation Engineer checklist</i> as supplied by ORACLE engineer. Obtain ORACLE engineer's signature on the document. A copy signed by both the Sun and ORACLE engineers should be retained by the Sun engineer.	

Copies of the checklists are available on the EIS web pages or on the EIS-DVD. We recommend that you always check the web pages for the latest version.

Comments & RFEs are welcome. Please use ServiceDesk (Search Tasktype & enter "EIS") or mail to EIS-DESK@sun.com if no SWAN access available – typically for a partner.