

Oracle® Communications
EAGLE Element Management System
System Health Check Guide
Release 46.5 and later
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Oracle Communications EAGLE Element Management System System Health Check Guide, Release 46.5 and later

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Before beginning this procedure, contact My Oracle Support and inform them of your upgrade plans.

What's New in This Guide

This section introduces the documentation updates for Release 47.0 in Oracle Communications EMS System Health Check Guide.

Release 47.0 – F99750-01, June 2024

Updated the command to record the OS version in the [System Status](#) section.

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1 Introduction

1.1 Purpose and Scope

This document describes the Oracle recommended methods and procedures to evaluate the health of the setup. This document is intended for use for system running OCEEMS release 46.5 and later. This document describes a procedure for analyzing system health before and after upgrade to release 46.5 and later. A comparison can also be established between the system health before and after upgrade. As an example, the upgrade analysis from release 46.2 to 46.5 is documented here. However, this document is not release specific. Heath of system can also be analyzed while upgrade from 46.3 to 46.5.

This document is intended for EAGLE® engineering, integration, documentation, technical services, and any craft person who is familiar with OCEEMS interface.

The document is written to support all customer configurations. All of the commands specified in the procedures should be executed unless explicitly stated otherwise in the individual procedure. Not doing so may result in a delay in the analysis performed by Oracle support.

1.2 Acronyms

This section lists terms and acronyms specific to this document.

Table 1. Acronyms

Acronym/Term	Definition
OCEEMS	Oracle Communications Eagle Element Management System

1.3 Terminology

Multiple servers may be involved with the procedures in this manual. Therefore, most steps in the written procedures begin with the name or type of server to which the step applies. For example:

Each step has a checkbox 1A for every command within the step that the technician should check to keep track of the progress of the procedure

The title box describes the operations to be performed during that +step

Each command that the technician is to enter is in 9 point Lucida Consile font

Output displayed only for reference actual output may differ

1A	verify date	\$ date Thu Apr 20 11:48:24 EDT 2017
----	-------------	---

Figure 1. Example of a step that indicates the Server on which it needs to be executed

2 Health Check Overview

2.1.1 Configuration I: Health Check on Failover OCEEMS Server

An OCEEMS system is a pair of Linux Servers (Primary and Secondary). Current deployments of OCEEMS support two geographically separated OCEEMS failover systems, meaning they communicate and replicate MySQL information. When the primary server is up and running, the standby server monitors the primary server. Once the primary server is down, the standby server detects a shutdown and takes over as primary.

This document describes the health check of the OCEEMS failover setup, system consisting of two servers (primary and standby).

2.1.2 Configuration II: Health Check on Standalone OCEEMS Server

OCEEMS also provides a Standalone OCEEMS system. Only one Linux server is required for this configuration. There is no other system to cater any failure in system.

This document describes the health check of the OCEEMS standalone server, system consisting of only one server.

Note: Most of the steps to perform health check are common for both configurations except a few steps which will be exclusively highlighted to run on particular configuration.

3 Pre-Health Check Requirements

- User shall have the access to the server on which health check is to be performed.
- User shall have access to OCEEMS client.
- User shall have the terminal capture enabled to allow review of the output.
- User shall have the passwords for the following users as mentioned in table below:

User	Password
root	
emsadmuser	

4 OCEEMS Health Check

4.1 System Status

These steps can be performed on any of the OCEEMS configuration mentioned in section 2. **For failover setup commands should be run on both the servers.** Note that upgrade from release 46.2 to 46.5 is given as example here. If the user wants to perform health check of current running OCEEMS system, then the steps to upgrade the system can be skipped and rest all configurations can be recorded.

S T E P #	Steps To Be Completed	Expected output/command to be executed
1. ☐	Log in as root	login: root password: <root_password>
2. ☐	Record the OS Version	# cat /etc/oracle-release Oracle Linux Server release 8.8
3. ☐	Record the current date and time on the system.	# date Thu May 18 07:40:55 IST 2017 # clock Thu 18 May 2017 07:40:52 PM IST -0.906329 seconds
4. ☐	Record the last reboot occurred	# uptime 16:32:58 up 118 days, 18:36, 4 users, load average: 0.53, 0.32, 0.20
5. ☐	Record the OCEEMS release number from rpm query.	# rpm -qi E5-MS Name : E5-MS Version : 46.2.0.0.1 Release : 462.16.0 Architecture: x86_64 Install Date: Thu 18 May 2017 10:23:39 AM IST Group : Applications/System Size : 1190516288 License : Restricted Signature : (none) Source RPM : E5-MS-46.2.0.0.1-462.16.0.src.rpm Build Date : Wed 30 Mar 2016 02:07:48 AM IST

		Build Host : diablo-7 Relocations : (not relocatable) Packager : Surendra Vendor : Oracle URL : http://www.oracle.com/ Summary : E5-MS RPM Description : Tekelec E5-MS RPM
6. ☐	Verify the attributes of volume groups If the output does not contain the “logical volume” sections, contact Oracle Support so that corrective procedures can be scheduled to be performed.	<pre># vgdisplay -v Using volume group(s) on command line. --- volume group --- VG Name ol System ID Format lvm2 Metadata Areas 1 Metadata Sequence No 4 VG Access read/write VG Status resizable MAX LV 0 Cur LV 3 Open LV 3 Max PV 0 Cur PV 1 Act PV 1 VG Size 465.27 GiB PE Size 4.00 MiB Total PE 119109 Alloc PE / Size 119108 / 465.27 GiB Free PE / Size 1 / 4.00 MiB VG UUID ajkUn0-gJ0G-qvTx-4Jpt-1nfE-Lvmc- Mx9azb --- Logical volume --- LV Path /dev/ol/root LV Name root</pre>

		<pre> VG Name o1 LV UUID 0bR1jk-asnS-vQ2v-t9IO-ZEhn-jen2- eYtHnM LV Write Access read/write LV Creation host, time localhost, 2016-11-19 00:18:38 +0530 LV Status available # open 1 LV Size 432.06 GiB Current LE 110608 Segments 1 Allocation inherit Read ahead sectors auto - currently set to 8192 Block device 252:0 --- Logical volume --- LV Path /dev/o1/home LV Name home VG Name o1 LV UUID IwiL42-Mr1x-b8B1-Vikm-FQc8-UoAd- J1E13n LV Write Access read/write LV Creation host, time localhost, 2016-11-19 00:18:40 +0530 LV Status available # open 1 LV Size 25.33 GiB Current LE 6484 Segments 1 Allocation inherit Read ahead sectors auto - currently set to 8192 Block device 252:2 --- Logical volume --- LV Path /dev/o1/swap </pre>
--	--	---

		<pre> LV Name swap VG Name ol LV UUID tmuuOV-2ICl-Jgu9-K7PN-D26D-WSrP- g74Kag LV Write Access read/write LV Creation host, time localhost, 2016-11-19 00:18:41 +0530 LV Status available # open 2 LV Size 7.88 GiB Current LE 2016 Segments 1 Allocation inherit Read ahead sectors auto - currently set to 8192 Block device 252:1 --- Physical volumes --- PV Name /dev/sda2 PV UUID bdkClf-rSR0-f6p0-7SHg-EtKX-z54M- AQNshy PV Status allocatable Total PE / Free PE 119109 / 1 </pre>
7. ☐	Record the total amount of free and used physical and swap memory in the system before starting the OCEEMS server.	<pre> # service e5msService status OCEEMS server is not started! # free total used free shared buff/cache available Mem: 7871188 2390700 2196952 213360 3283536 5132481 Swap: 8257532 7520 8250012 </pre>
8.	Record the output of 'top' command to see current CPU utilization. Note: Press 'q' to exit.	<pre> # top top - 19:26:15 up 118 days, 21:29, 4 users, load average: 0.15, 0.20, 0.13 Tasks: 167 total, 1 running, 166 sleeping, 0 stopped, 0 zombie %Cpu(s): 0.1 us, 0.1 sy, 0.0 ni, 99.8 id, 0.0 wa, 0.0 </pre>

		<pre> hi, 0.0 si, 0.0 st KiB Mem : 7871188 total, 2202416 free, 2390928 used, 3277844 buff/cache KiB Swap: 8257532 total, 8250012 free, 7520 used. 5133397 avail Mem </pre> <pre> PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND 20521 root 20 0 6271816 703816 42608 S 1.0 8.9 31:22.37 java 17462 root 20 0 0 0 0 S 0.3 0.0 1:02.54 kworker/2:1 35713 root 20 0 146136 2120 1416 R 0.3 0.0 0:00.04 top 1 root 20 0 208228 22664 2164 S 0.0 0.3 5:57.49 systemd 2 root 20 0 0 0 0 S 0.0 0.0 0:02.82 kthreadd 3 root 20 0 0 0 0 S 0.0 0.0 0:16.57 ksoftirqd/0 5 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 kworker/0:0H 7 root 0 -20 0 0 0 S 0.0 0.0 0:00.00 kworker/u:0H 8 root rt 0 0 0 0 S 0.0 0.0 0:07.52 migration/0 9 root 20 0 0 0 0 S 0.0 0.0 0:00.00 rcu_bh </pre>
9.	Record the output of netstat command to see what all ports are occupied on the system.	<pre> # netstat -tulpn Active Internet connections (only servers) Proto Recv-Q Send-Q Local Address Foreign Address State PID/Program name tcp 0 0 127.0.0.1:199 0.0.0.0:* LISTEN 44727/snmpd tcp 0 0 192.168.122.1:53 0.0.0.0:* LISTEN 2693/dnsmasq tcp 0 0 0.0.0.0:22 0.0.0.0:* LISTEN 1316/sshd tcp 0 0 127.0.0.1:631 0.0.0.0:* </pre>

		<pre> LISTEN 1320/cupsd tcp6 0 0 :::22 :::* LISTEN 1316/sshd tcp6 0 0 :::1:631 :::* LISTEN 1320/cupsd udp 0 0 0.0.0.0:55230 0.0.0.0:* 724/avahi-daemon: r udp 0 0 192.168.122.1:53 0.0.0.0:* 2693/dnsmasq udp 0 0 0.0.0.0:67 0.0.0.0:* 2693/dnsmasq udp 0 0 0.0.0.0:161 0.0.0.0:* 44727/snmpd udp 0 0 0.0.0.0:5353 0.0.0.0:* 724/avahi-daemon: r </pre>
10.	Start OCEEMS server and record the total amount of free and used physical and swap memory in the system.	<pre> # service e5msService start Starting OCEEMS server... Starting mysql / 170518 17:05:08 mysqld_safe Logging to '/Tekelec/WebNMS/mysql/data/e5ms9.err'. 170518 17:05:08 mysqld_safe Starting mysqld daemon with databases from /Tekelec/webNMS/mysql/data Warning: Using a password on the command line interface can be insecure. 170518 17:05:15 mysqld_safe mysqld from pid file /Tekelec/webNMS/mysql/data/e5ms9.pid ended / Oracle Corporation. Starting Oracle Communications EAGLE Element Management System "Primary" Server Modules, please wait This edition of Oracle Communications EAGLE Element Management System with release 46.2.0.0.1 is a registered version in name of EMS in company Aricent. </pre>

	Process : NmsAuthenticationManager	[Started]
	Process : ParseMeasReports	[Started]
	Process : CheckReplication	[Started]
	Process : MeasurementScheduler	[Started]
	Process : TL1CustomViewsMgr	[Started]
	Process : NmsConfigurationServer	[Started]
	Process : CommunicationBEProcess	[Started]
	Process : WebNMSAgentApp	[Started]
	Process : SnmpAgentProcess	[Started]
	Process : StartProvModule	[Started]
	Process : NmsTftpServer	[Started]
	Process : WebNMSMgmtBEProcess	[Started]
	Process : UtilizationScheduler	[Started]
	Process : TL1DiscProcess	[Started]
	Process : NMSTAServer	[Started]
	Process : StorageServer	[Started]
	Process : EMSInitializationProcess	[Started]
	Process : UserConfigProcess	[Started]
	Process : E5msSchedulerProcess	[Started]
	Process : WebNMSBackup	[Started]
	Process : RunJSPModule	[Started]
	Process : MapServerBE	[Started]
	Process : ProcessTest	[Started]
	Process : CLIFactoryBinder	[Started]
	Process : RunRmiRegistry	[Started]
	Process : EventMgr	[Started]
	Process : DBServer	[Started]
	Process : StartTelnetClient	[Started]
	Process : NmsPolicyMgr	[Started]
	Process : NMSMServer	[Started]
	Process : NbiProcess	[Started]
	Process : TL1EventProcess	[Started]
	Process : Collector	[Started]

	<pre> Process : TL1GatewayProcess [Started] Process : CMISchedulerInitiator [Started] Process : ParsingScheduler [Started] Process : AdminModuleInit [Started] Process : DataMgmtRPI [Started] Process : NMSSAServer [Started] Process : NmsAuthManager [Started] Process : NmsMainFE [Started] Process : TAServerFE [Started] Process : SAServerFE [Started] Process : AuthenticationManagerFE [Started] Process : NmsSAServerFE [Started] Process : EventFE [Started] Process : MapFE [Started] Process : PolicyFE [Started] Process : AlertFE [Started] Process : UserConfigProcessFE [Started] Process : ConfigFE [Started] Process : StorageServerFE [Started] Process : AuthorizationManagerFE [Started] Process : StartTelnetClientFE [Started] Process : PollFE [Started] Process : ExampleFE [Started] Process : TopoFE [Started] Process : MServerFE [Started] Process : ProvisioningFE [Started] Process : CommunicationFEProcess [Started] Process : WebNMSMgmtFEProcess [Started] Verifying connection with web server ... verified OCEEMS Server modules started successfully at May 18,2017 05:05:31 PM Please connect your client to the web server on port: 8443 </pre>
--	--

		<pre># free</pre> <table><tr><td></td><td>total</td><td>used</td><td>free</td><td>shared</td></tr><tr><td>buff/cache</td><td>available</td><td></td><td></td><td></td></tr><tr><td>Mem:</td><td>7871188</td><td>2947748</td><td>1122236</td><td>213416</td></tr><tr><td>3801204</td><td>4574333</td><td></td><td></td><td></td></tr><tr><td>Swap:</td><td>8257532</td><td>7484</td><td>8250048</td><td></td></tr></table>		total	used	free	shared	buff/cache	available				Mem:	7871188	2947748	1122236	213416	3801204	4574333				Swap:	8257532	7484	8250048																																																																																																																																																																						
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11.	Record the output of ‘top’ command to see CPU utilization after server startup. Note: Press ‘q’ to exit.	<pre># top</pre> <pre>top - 10:29:03 up 119 days, 29 min, 5 users, load average: 0.29, 0.34, 0.23</pre> <pre>Tasks: 174 total, 1 running, 173 sleeping, 0 stopped, 0 zombie</pre> <pre>%Cpu(s): 0.5 us, 0.3 sy, 0.0 ni, 99.2 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st</pre> <pre>KiB Mem : 7871188 total, 1121396 free, 2949052 used, 3800740 buff/cache</pre> <pre>KiB Swap: 8257532 total, 8250048 free, 7484 used. 4573445 avail Mem</pre> <table><tr><th>PID</th><th>USER</th><th>PR</th><th>NI</th><th>VIRT</th><th>RES</th><th>SHR</th><th>S</th><th>%CPU</th><th>%MEM</th></tr><tr><th>TIME+</th><th>COMMAND</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></tr><tr><td>62792</td><td>root</td><td>20</td><td>0</td><td>9594524</td><td>426584</td><td>15936</td><td>S</td><td>3.3</td><td>5.4</td></tr><tr><td>0:32.57</td><td>java</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>17462</td><td>root</td><td>20</td><td>0</td><td>0</td><td>0</td><td>0</td><td>S</td><td>0.3</td><td>0.0</td></tr><tr><td>1:13.98</td><td>kworker/2:1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>63035</td><td>mysql</td><td>20</td><td>0</td><td>7193564</td><td>798476</td><td>8992</td><td>S</td><td>0.3</td><td>10.1</td></tr><tr><td>0:01.73</td><td>mysqld</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>root</td><td>20</td><td>0</td><td>208228</td><td>22692</td><td>2164</td><td>S</td><td>0.0</td><td>0.3</td></tr><tr><td>5:58.01</td><td>systemd</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td>root</td><td>20</td><td>0</td><td>0</td><td>0</td><td>0</td><td>S</td><td>0.0</td><td>0.0</td></tr><tr><td>0:02.82</td><td>kthreadd</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td>root</td><td>20</td><td>0</td><td>0</td><td>0</td><td>0</td><td>S</td><td>0.0</td><td>0.0</td></tr><tr><td>0:16.61</td><td>ksoftirqd/0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td>root</td><td>0</td><td>-20</td><td>0</td><td>0</td><td>0</td><td>S</td><td>0.0</td><td>0.0</td></tr><tr><td>0:00.00</td><td>kworker/0:0H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td>root</td><td>0</td><td>-20</td><td>0</td><td>0</td><td>0</td><td>S</td><td>0.0</td><td>0.0</td></tr><tr><td>0:00.00</td><td>kworker/u:0H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td>root</td><td>rt</td><td>0</td><td>0</td><td>0</td><td>0</td><td>S</td><td>0.0</td><td>0.0</td></tr></table>	PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND									62792	root	20	0	9594524	426584	15936	S	3.3	5.4	0:32.57	java									17462	root	20	0	0	0	0	S	0.3	0.0	1:13.98	kworker/2:1									63035	mysql	20	0	7193564	798476	8992	S	0.3	10.1	0:01.73	mysqld									1	root	20	0	208228	22692	2164	S	0.0	0.3	5:58.01	systemd									2	root	20	0	0	0	0	S	0.0	0.0	0:02.82	kthreadd									3	root	20	0	0	0	0	S	0.0	0.0	0:16.61	ksoftirqd/0									5	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/0:0H									7	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/u:0H									8	root	rt	0	0	0	0	S	0.0	0.0
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8	root	rt	0	0	0	0	S	0.0	0.0																																																																																																																																																																																							

		<pre> 0:07.53 migration/0 9 root 20 0 0 0 0 s 0.0 0.0 0:00.00 rcu_bh 10 root 20 0 0 0 0 s 0.0 0.0 10:52.88 rcu_sched 11 root rt 0 0 0 0 s 0.0 0.0 0:31.00 watchdog/0 12 root rt 0 0 0 0 s 0.0 0.0 0:30.74 watchdog/1 13 root 20 0 0 0 0 s 0.0 0.0 0:15.95 ksoftirqd/1 </pre>
12. ☐	Record the total amount of free and used disk space on the server.	<pre> # df -kh Filesystem Size Used Avail Use% Mounted on /dev/mapper/ol-root 432G 50G 383G 12% / devtmpfs 3.8G 0 3.8G 0% /dev tmpfs 3.8G 84K 3.8G 1% /dev/shm tmpfs 3.8G 210M 3.6G 6% /run tmpfs 3.8G 0 3.8G 0% /sys/fs/cgroup /dev/sda1 497M 196M 301M 40% /boot /dev/mapper/ol-home 26G 33M 26G 1% /home tmpfs 769M 16K 769M 1% /run/user/42 tmpfs 769M 4.0K 769M 1% /run/user/0 tmpfs 769M 0 769M 0% /run/user/986 </pre>
13.	Record the output of netstat command to see occupied ports. The difference in the output before and after starting server will give the ports used by OCEEMS.	<pre> # netstat -tulpn Active Internet connections (only servers) Proto Recv-Q Send-Q Local Address Foreign Address State PID/Program name tcp 0 0 127.0.0.1:199 0.0.0.0:* LISTEN 44727/snmpd tcp 0 0 192.168.122.1:53 0.0.0.0:* LISTEN 2693/dnsmasq tcp 0 0 0.0.0.0:22 0.0.0.0:* LISTEN 1316/sshd tcp 0 0 127.0.0.1:631 0.0.0.0:* LISTEN 1320/cupsd tcp6 0 0 :::36001 :::* LISTEN 63806/java tcp6 0 0 10.248.21.70:36003 :::* LISTEN 63806/java </pre>

		<pre> tcp6 0 0 127.0.0.1:8005 :::* LISTEN 63806/java tcp6 0 0 :::3306 :::* LISTEN 64049/mysqld tcp6 0 0 10.248.21.70:1099 :::* LISTEN 63806/java tcp6 0 0 :::2000 :::* LISTEN 63806/java tcp6 0 0 :::6000 :::* LISTEN 63806/java tcp6 0 0 :::22 :::* LISTEN 1316/sshd tcp6 0 0 :::4567 :::* LISTEN 63806/java tcp6 0 0 :::1:631 :::* LISTEN 1320/cupsd tcp6 0 0 :::3000 :::* LISTEN 63806/java tcp6 0 0 :::8443 :::* LISTEN 63806/java tcp6 0 0 :::2300 :::* LISTEN 63806/java udp 0 0 0.0.0.0:55230 0.0.0.0:* 724/avahi- daemon: r udp 0 0 192.168.122.1:53 0.0.0.0:* 2693/dnsmasq udp 0 0 0.0.0.0:67 0.0.0.0:* 2693/dnsmasq udp 0 0 0.0.0.0:161 0.0.0.0:* 44727/snmpd udp 0 0 0.0.0.0:5353 0.0.0.0:* 724/avahi- daemon: r udp6 0 0 :::55542 :::* 63806/java udp6 0 0 :::44358 :::* 63806/java udp6 0 0 :::8001 :::* 63806/java udp6 0 0 10.248.21.70:8002 :::* 63806/java udp6 0 0 :::69 :::* 63806/java udp6 0 0 10.248.21.70:16500 :::* 63806/java udp6 0 0 :::162 :::* 63806/java udp6 0 0 :::1234 :::* 63806/java udp6 0 0 :::55153 :::* 63806/java </pre>
14.	Record the MySQL configurations.	<pre> # cd /Tekelec/WebNMS/mysql/bin/ [root@e5ms9 bin]# ./mysql -uroot -p<password> WebNmsDB Warning: Using a password on the command line interface can be insecure. Reading table information for completion of table and column names You can turn off this feature to get a quicker startup with -A </pre>

	Welcome to the MySQL monitor. Commands end with ; or \g. Your MySQL connection id is 6819 Server version: 5.6.31-enterprise-commercial-advanced-log MySQL Enterprise Server - Advanced Edition (Commercial) Copyright (c) 2000, 2016, Oracle and/or its affiliates. All rights reserved. Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners. Type 'help;' or '\h' for help. Type '\c' to clear the current input statement. mysql> SHOW VARIABLES; <table><tr><td> Variable_name</td><td> Value</td></tr><tr><td> </td><td></td></tr><tr><td>+-----+-----</td><td></td></tr><tr><td>-----+-----</td><td></td></tr><tr><td>-----+-----</td><td></td></tr><tr><td>-----+-----</td><td></td></tr><tr><td> auto_increment_increment</td><td> 1</td></tr><tr><td> </td><td></td></tr><tr><td> auto_increment_offset</td><td> 1</td></tr><tr><td> </td><td></td></tr><tr><td> autocommit</td><td> ON</td></tr><tr><td> </td><td></td></tr><tr><td> automatic_sp_privileges</td><td> ON</td></tr><tr><td> </td><td></td></tr><tr><td> avoid_temporal_upgrade</td><td> OFF</td></tr><tr><td> </td><td></td></tr><tr><td> back_log</td><td> 80</td></tr><tr><td> </td><td></td></tr><tr><td> basedir</td><td> /Tekelec/WebNMS/mysql</td></tr><tr><td> </td><td></td></tr><tr><td> big_tables</td><td> OFF</td></tr><tr><td> </td><td></td></tr><tr><td> bind_address</td><td> *</td></tr></table>	Variable_name	Value			+-----+-----		-----+-----		-----+-----		-----+-----		auto_increment_increment	1			auto_increment_offset	1			autocommit	ON			automatic_sp_privileges	ON			avoid_temporal_upgrade	OFF			back_log	80			basedir	/Tekelec/WebNMS/mysql			big_tables	OFF			bind_address	*
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big_tables	OFF																																														
bind_address	*																																														

		binlog_cache_size 32768
		binlog_checksum CRC32
		binlog_direct_non_transactional_updates OFF
		binlog_error_action IGNORE_ERROR
		binlog_format MIXED
		binlog_gtid_simple_recovery OFF
		binlog_max_flush_queue_time 0
		binlog_order_commits ON
		binlog_row_image FULL
		binlog_rows_query_log_events OFF
		binlog_stmt_cache_size 32768
		binlogging_impossible_mode IGNORE_ERROR
		block_encryption_mode aes-128-ecb
		bulk_insert_buffer_size 8388608
		character_set_client utf8
		character_set_connection utf8
		character_set_database latin1
		character_set_filesystem binary
		character_set_results utf8

		character_set_server latin1
		character_set_system utf8
		character_sets_dir
		/Tekelec/WebNMS/mysql/share/charsets/
		collation_connection utf8_general_ci
		collation_database latin1_swedish_ci
		collation_server latin1_swedish_ci
		completion_type NO_CHAIN
		concurrent_insert AUTO
		connect_timeout 10
		core_file OFF
		datadir /Tekelec/WebNMS/mysql/data/
		date_format %Y-%m-%d
		datetime_format %Y-%m-%d %H:%i:%s
		default_storage_engine InnoDB
		default_tmp_storage_engine InnoDB
		default_week_format 0
		delay_key_write ON
		delayed_insert_limit 100
		delayed_insert_timeout 300

		delayed_queue_size	1000
		disconnect_on_expired_password	ON
		div_precision_increment	4
		end_markers_in_json	OFF
		enforce_gtid_consistency	OFF
		eq_range_index_dive_limit	10
		error_count	0
		event_scheduler	OFF
		expire_logs_days	0
		explicit_defaults_for_timestamp	OFF
		external_user	
		flush	OFF
		flush_time	0
		foreign_key_checks	ON
		ft_boolean_syntax	+ -><()~*:"'&
		ft_max_word_len	84
		ft_min_word_len	4
		ft_query_expansion_limit	20
		ft_stopword_file	(built-in)
		general_log	OFF
		general_log_file	

		/Tekelec/WebNMS/mysql/data/e5ms9.log
		group_concat_max_len 1024
		gtid_executed
		gtid_mode OFF
		gtid_next AUTOMATIC
		gtid_owned
		gtid_purged
		have_compress YES
		have_crypt YES
		have_dynamic_loading YES
		have_geometry YES
		have_openssl DISABLED
		have_profiling YES
		have_query_cache YES
		have_rtree_keys YES
		have_ssl DISABLED
		have_symlink YES
		host_cache_size 279
		hostname e5ms9
		identity 0

		ignore_built_in_innodb	OFF
		ignore_db_dirs	
		init_connect	
		init_file	
		init_slave	
		innodb_adaptive_flushing	ON
		innodb_adaptive_flushing_lwm	10
		innodb_adaptive_hash_index	ON
		innodb_adaptive_max_sleep_delay	150000
		innodb_additional_mem_pool_size	8388608
		innodb_api_bk_commit_interval	5
		innodb_api_disable_rowlock	OFF
		innodb_api_enable_binlog	OFF
		innodb_api_enable_mdls	OFF
		innodb_api_trx_level	0
		innodb_autoextend_increment	64
		innodb_autoinc_lock_mode	1
		innodb_buffer_pool_dump_at_shutdown	OFF
		innodb_buffer_pool_dump_now	OFF
		innodb_buffer_pool_filename	ib_buffer_pool

		innodb_buffer_pool_instances	8
		innodb_buffer_pool_load_abort	OFF
		innodb_buffer_pool_load_at_startup	OFF
		innodb_buffer_pool_load_now	OFF
		innodb_buffer_pool_size	4294967296
		innodb_change_buffer_max_size	25
		innodb_change_buffering	all
		innodb_checksum_algorithm	innodb
		innodb_checksums	ON
		innodb_cmp_per_index_enabled	OFF
		innodb_commit_concurrency	0
		innodb_compression_failure_threshold_pct	5
		innodb_compression_level	6
		innodb_compression_pad_pct_max	50
		innodb_concurrency_tickets	5000
		innodb_data_file_path	ibdata1:12M:autoextend
		innodb_data_home_dir	
		innodb_disable_sort_file_cache	OFF
		innodb_doublewrite	ON
		innodb_fast_shutdown	1

		innodb_file_format	Antelope
		innodb_file_format_check	ON
		innodb_file_format_max	Antelope
		innodb_file_per_table	ON
		innodb_flush_log_at_timeout	1
		innodb_flush_log_at_trx_commit	1
		innodb_flush_method	
		innodb_flush_neighbors	1
		innodb_flushing_avg_loops	30
		innodb_force_load_corrupted	OFF
		innodb_force_recovery	0
		innodb_ft_aux_table	
		innodb_ft_cache_size	8000000
		innodb_ft_enable_diag_print	OFF
		innodb_ft_enable_stopword	ON
		innodb_ft_max_token_size	84
		innodb_ft_min_token_size	3
		innodb_ft_num_word_optimize	2000
		innodb_ft_result_cache_limit	2000000000
		innodb_ft_server_stopword_table	

		innodb_ft_sort_pll_degree	2
		innodb_ft_total_cache_size	640000000
		innodb_ft_user_stopword_table	
		innodb_io_capacity	200
		innodb_io_capacity_max	2000
		innodb_large_prefix	OFF
		innodb_lock_wait_timeout	50
		innodb_locks_unsafe_for_binlog	OFF
		innodb_log_buffer_size	8388608
		innodb_log_compressed_pages	ON
		innodb_log_file_size	50331648
		innodb_log_files_in_group	2
		innodb_log_group_home_dir	./
		innodb_lru_scan_depth	1024
		innodb_max_dirty_pages_pct	75
		innodb_max_dirty_pages_pct_lwm	0
		innodb_max_purge_lag	0
		innodb_max_purge_lag_delay	0
		innodb_mirrored_log_groups	1
		innodb_monitor_disable	

		innodb_monitor_enable	
		innodb_monitor_reset	
		innodb_monitor_reset_all	
		innodb_old_blocks_pct	37
		innodb_old_blocks_time	1000
		innodb_online_alter_log_max_size	134217728
		innodb_open_files	2000
		innodb_optimize_fulltext_only	OFF
		innodb_page_size	16384
		innodb_print_all_deadlocks	OFF
		innodb_purge_batch_size	300
		innodb_purge_threads	1
		innodb_random_read_ahead	OFF
		innodb_read_ahead_threshold	56
		innodb_read_io_threads	4
		innodb_read_only	OFF
		innodb_replication_delay	0
		innodb_rollback_on_timeout	OFF
		innodb_rollback_segments	128
		innodb_sort_buffer_size	1048576

		innodb_spin_wait_delay	6
		innodb_stats_auto_recalc	ON
		innodb_stats_method	nulls_equal
		innodb_stats_on_metadata	OFF
		innodb_stats_persistent	ON
		innodb_stats_persistent_sample_pages	20
		innodb_stats_sample_pages	8
		innodb_stats_transient_sample_pages	8
		innodb_status_output	OFF
		innodb_status_output_locks	OFF
		innodb_strict_mode	OFF
		innodb_support_xa	ON
		innodb_sync_array_size	1
		innodb_sync_spin_loops	30
		innodb_table_locks	ON
		innodb_thread_concurrency	0
		innodb_thread_sleep_delay	10000
		innodb_tmpdir	
		innodb_undo_directory	.
		innodb_undo_logs	128

		innodb_undo_tablespaces	0
		innodb_use_native_aio	ON
		innodb_use_sys_malloc	ON
		innodb_version	5.6.31
		innodb_write_io_threads	4
		insert_id	0
		interactive_timeout	28800
		join_buffer_size	262144
		keep_files_on_create	OFF
		key_buffer_size	8388608
		key_cache_age_threshold	300
		key_cache_block_size	1024
		key_cache_division_limit	100
		large_files_support	ON
		large_page_size	0
		large_pages	OFF
		last_insert_id	0
		lc_messages	en_US
		lc_messages_dir	
		/Tekelec/WebNMS/mysql/share/	
		lc_time_names	en_US

		license Commercial
		local_infile ON
		lock_wait_timeout 31536000
		locked_in_memory OFF
		log_bin ON
		log_bin_basename
		/Tekelec/WebNMS/mysql/data/log-bin
		log_bin_index
		/Tekelec/WebNMS/mysql/data/log-bin.index
		log_bin_trust_function_creators OFF
		log_bin_use_v1_row_events OFF
		log_error
		/Tekelec/WebNMS/mysql/data/e5ms9.err
		log_output FILE
		log_queries_not_using_indexes OFF
		log_slave_updates ON
		log_slow_admin_statements OFF
		log_slow_slave_statements OFF
		log_throttle_queries_not_using_indexes 0
		log_warnings 1
		long_query_time 10.000000

		low_priority_updates	OFF
		lower_case_file_system	OFF
		lower_case_table_names	0
		master_info_repository	FILE
		master_verify_checksum	OFF
		max_allowed_packet	4194304
		max_binlog_cache_size	18446744073709547520
		max_binlog_size	1073741824
		max_binlog_stmt_cache_size	18446744073709547520
		max_connect_errors	100
		max_connections	151
		max_delayed_threads	20
		max_digest_length	1024
		max_error_count	64
		max_heap_table_size	16777216
		max_insert_delayed_threads	20
		max_join_size	18446744073709551615
		max_length_for_sort_data	1024
		max_prepared_stmt_count	16382
		max_relay_log_size	0

		max_seeks_for_key	18446744073709551615
		max_sort_length	1024
		max_sp_recursion_depth	0
		max_tmp_tables	32
		max_user_connections	0
		max_write_lock_count	18446744073709551615
		metadata_locks_cache_size	1024
		metadata_locks_hash_instances	8
		min_examined_row_limit	0
		multi_range_count	256
		myisam_data_pointer_size	6
		myisam_max_sort_file_size	9223372036853727232
		myisam_mmap_size	18446744073709551615
		myisam_recover_options	OFF
		myisam_repair_threads	1
		myisam_sort_buffer_size	8388608
		myisam_stats_method	nulls_unequal
		myisam_use_mmap	OFF
		net_buffer_length	16384
		net_read_timeout	30

		net_retry_count 10
		net_write_timeout 60
		new OFF
		old OFF
		old_alter_table OFF
		old_passwords 0
		open_files_limit 5000
		optimizer_prune_level 1
		optimizer_search_depth 62
		optimizer_switch
		index_merge=on,index_merge_union=on,index_merge_sort_union=on,
		index_merge_intersection=on,engine_condition_pushdown=on,
		index_condition_pushdown=on,mrr=on,mrr_cost_based=on,
		block_nested_loop=on,batched_key_access=off,materialization=on,
		semijoin=on,loosescan=on,firstmatch=on,
		subquery_materialization_cost_based=on, use_index_extensions=on
		optimizer_trace enabled=off,one_line=off
		optimizer_trace_features
		greedy_search=on,range_optimizer=on,dynamic_range=on,
		repeated_subselect=on
		optimizer_trace_limit 1
		optimizer_trace_max_mem_size 16384
		optimizer_trace_offset -1
		performance_schema ON
		performance_schema_accounts_size 100

		performance_schema_digests_size 10000
		performance_schema_events_stages_history_long_size 10000
		performance_schema_events_stages_history_size 10
		performance_schema_events_statements_history_long_size 10000
		performance_schema_events_statements_history_size 10
		performance_schema_events_waits_history_long_size 10000
		performance_schema_events_waits_history_size 10
		performance_schema_hosts_size 100
		performance_schema_max_cond_classes 80
		performance_schema_max_cond_instances 3504
		performance_schema_max_digest_length 1024
		performance_schema_max_file_classes 50
		performance_schema_max_file_handles 32768
		performance_schema_max_file_instances 7693
		performance_schema_max_mutex_classes 200
		performance_schema_max_mutex_instances 15906
		performance_schema_max_rwlock_classes 40
		performance_schema_max_rwlock_instances 9102
		performance_schema_max_socket_classes 10
		performance_schema_max_socket_instances 322

		performance_schema_max_stage_classes	150
		performance_schema_max_statement_classes	168
		performance_schema_max_table_handles	4000
		performance_schema_max_table_instances	12500
		performance_schema_max_thread_classes	50
		performance_schema_max_thread_instances	402
		performance_schema_session_connect_attrs_size	512
		performance_schema_setup_actors_size	100
		performance_schema_setup_objects_size	100
		performance_schema_users_size	100
		pid_file	
		/Tekelec/WebNMS/mysql/data/e5ms9.pid	
		plugin_dir	
		/Tekelec/WebNMS/mysql/lib/plugin/	
		port	3306
		preload_buffer_size	32768
		profiling	OFF
		profiling_history_size	15
		protocol_version	10
		proxy_user	
		pseudo_slave_mode	OFF

		pseudo_thread_id	6819
		query_alloc_block_size	8192
		query_cache_limit	1048576
		query_cache_min_res_unit	4096
		query_cache_size	1048576
		query_cache_type	OFF
		query_cache_wlock_invalidate	OFF
		query_prealloc_size	8192
		rand_seed1	0
		rand_seed2	0
		range_alloc_block_size	4096
		read_buffer_size	131072
		read_only	OFF
		read_rnd_buffer_size	262144
		relay_log	
		/Tekelec/WebNMS/mysql/data/relay-bin	
		relay_log_basename	
		/Tekelec/WebNMS/mysql/data/relay-bin	
		relay_log_index	
		/Tekelec/WebNMS/mysql/data/relay-bin.index	
		relay_log_info_file	relay-log.info
		relay_log_info_repository	FILE

		relay_log_purge ON
		relay_log_recovery OFF
		relay_log_space_limit 0
		report_host
		report_password
		report_port 3306
		report_user
		rpl_stop_slave_timeout 31536000
		secure_auth ON
		secure_file_priv
		server_id 1
		server_id_bits 32
		server_uuid cd82c312-3b87-11e7-9c61-00151a6e04d8
		sha256_password_private_key_path private_key.pem
		sha256_password_public_key_path public_key.pem
		show_old_temporals OFF
		simplified_binlog_gtid_recovery OFF
		skip_external_locking ON
		skip_name_resolve OFF

		skip_networking	OFF
		skip_show_database	OFF
		slave_allow_batching	OFF
		slave_checkpoint_group	512
		slave_checkpoint_period	300
		slave_compressed_protocol	OFF
		slave_exec_mode	STRICT
		slave_load_tmpdir	/tmp
		slave_max_allowed_packet	1073741824
		slave_net_timeout	3600
		slave_parallel_workers	0
		slave_pending_jobs_size_max	16777216
		slave_rows_search_algorithms	
		TABLE_SCAN,INDEX_SCAN	
		slave_skip_errors	
		1032,1050,1054,1060,1061,1062,1065,1146,1396	
		slave_sql_verify_checksum	ON
		slave_transaction_retries	10
		slave_type_conversions	
		slow_launch_time	2
		slow_query_log	OFF

		slow_query_log_file /Tekelec/WebNMS/mysql/data/e5ms9-slow.log
		socket /tmp/mysql.sock
		sort_buffer_size 262144
		sql_auto_is_null OFF
		sql_big_selects ON
		sql_buffer_result OFF
		sql_log_bin ON
		sql_log_off OFF
		sql_mode NO_ENGINE_SUBSTITUTION
		sql_notes ON
		sql_quote_show_create ON
		sql_safe_updates OFF
		sql_select_limit 18446744073709551615
		sql_slave_skip_counter 0
		sql_warnings OFF
		ssl_ca
		ssl_capath
		ssl_cert
		ssl_cipher

		ssl_crl	
		ssl_crlpath	
		ssl_key	
		storage_engine	InnoDB
		stored_program_cache	256
		sync_binlog	0
		sync_frm	ON
		sync_master_info	10000
		sync_relay_log	10000
		sync_relay_log_info	10000
		system_time_zone	IST
		table_definition_cache	1400
		table_open_cache	2000
		table_open_cache_instances	1
		thread_cache_size	9
		thread_concurrency	10
		thread_handling	one-thread-per-connection
		thread_stack	262144
		time_format	%H:%i:%s
		time_zone	SYSTEM

		timed_mutexes	OFF
		timestamp	1495149911.103216
		tmp_table_size	16777216
		tmpdir	/tmp
		transaction_alloc_block_size	8192
		transaction_allow_batching	OFF
		transaction_prealloc_size	4096
		tx_isolation	REPEATABLE-READ
		tx_read_only	OFF
		unique_checks	ON
		updatable_views_with_limit	YES
		version	5.6.31-enterprise-commercial-
		advanced-log	
		version_comment	MySQL Enterprise Server -
		Advanced Edition (Commercial)	
		version_compile_machine	x86_64
		version_compile_os	linux-glibc2.5
		wait_timeout	28800
		warning_count	0
		+-----+-----	

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15.	Record CPU information (number of CPUs, core etc.)	<pre># cat /proc/cpuinfo processor : 0 vendor_id : GenuineIntel cpu family : 6 model : 42 model name : Intel(R) Xeon(R) CPU E31220 @ 3.10GHz stepping : 7 microcode : 0x29 cpu MHz : 3092.962 cache size : 8192 KB physical id : 0 siblings : 4 core id : 0 cpu cores : 4 apicid : 0 initial apicid : 0 fpu : yes fpu_exception : yes cpuid level : 13 wp : yes flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic popcnt tsc_deadline_timer aes xsave avx lahf_lm ida arat xsaveopt pln pts dtherm tpr_shadow vnmi flexpriority ept vpid bogomips : 6185.92 clflush size : 64 cache_alignment : 64 address sizes : 36 bits physical, 48 bits virtual power management: processor : 1 vendor_id : GenuineIntel</pre>
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	cpu family : 6 model : 42 model name : Intel(R) Xeon(R) CPU E31220 @ 3.10GHz stepping : 7 microcode : 0x29 cpu MHz : 3092.962 cache size : 8192 KB physical id : 0 siblings : 4 core id : 1 cpu cores : 4 apicid : 2 initial apicid : 2 fpu : yes fpu_exception : yes cpuid level : 13 wp : yes flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic popcnt tsc_deadline_timer aes xsave avx lahf_lm ida arat xsaveopt pln pts dtherm tpr_shadow vnmi flexpriority ept vpid bogomips : 6185.92 clflush size : 64 cache_alignment : 64 address sizes : 36 bits physical, 48 bits virtual power management: processor : 2 vendor_id : GenuineIntel cpu family : 6 model : 42 model name : Intel(R) Xeon(R) CPU E31220 @ 3.10GHz
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	stepping : 7 microcode : 0x29 cpu MHz : 3092.962 cache size : 8192 KB physical id : 0 siblings : 4 core id : 2 cpu cores : 4 apicid : 4 initial apicid : 4 fpu : yes fpu_exception : yes cpuid level : 13 wp : yes flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic popcnt tsc_deadline_timer aes xsave avx lahf_lm ida arat xsaveopt pln pts dtherm tpr_shadow vnmi flexpriority ept vpid bogomips : 6185.92 clflush size : 64 cache_alignment : 64 address sizes : 36 bits physical, 48 bits virtual power management: processor : 3 vendor_id : GenuineIntel cpu family : 6 model : 42 model name : Intel(R) Xeon(R) CPU E31220 @ 3.10GHz stepping : 7 microcode : 0x29 cpu MHz : 3092.962
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		cache size : 8192 KB physical id : 0 siblings : 4 core id : 3 cpu cores : 4 apicid : 6 initial apicid : 6 fpu : yes fpu_exception : yes cpuid level : 13 wp : yes flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic popcnt tsc_deadline_timer aes xsave avx lahf_lm ida arat xsaveopt pln pts dtherm tpr_shadow vnmi flexpriority ept vpid bogomips : 6185.92 clflush size : 64 cache_alignment : 64 address sizes : 36 bits physical, 48 bits virtual power management:																					
16. ☐	Record the hard drive and partition size	# fdisk -l /dev/sd[a-z] Disk /dev/sda: 500.1 GB, 500107862016 bytes, 976773168 sectors Units = sectors of 1 * 512 = 512 bytes Sector size (logical/physical): 512 bytes / 512 bytes I/O size (minimum/optimal): 512 bytes / 512 bytes Disk label type: dos Disk identifier: 0x00015701 <table><tr><th>Device</th><th>Boot</th><th>Start</th><th>End</th><th>Blocks</th><th>Id</th><th>System</th></tr><tr><td>/dev/sda1</td><td>*</td><td>2048</td><td>1026047</td><td>512000</td><td>83</td><td>Linux</td></tr><tr><td>/dev/sda2</td><td></td><td>1026048</td><td>976773119</td><td>487873536</td><td>8e</td><td>Linux LVM</td></tr></table>	Device	Boot	Start	End	Blocks	Id	System	/dev/sda1	*	2048	1026047	512000	83	Linux	/dev/sda2		1026048	976773119	487873536	8e	Linux LVM
Device	Boot	Start	End	Blocks	Id	System																	
/dev/sda1	*	2048	1026047	512000	83	Linux																	
/dev/sda2		1026048	976773119	487873536	8e	Linux LVM																	

17. ☐	Verify smartctl output	<pre># smartctl -A -l error /dev/sda smartctl 6.2 2013-07-26 r3841 [x86_64-linux-3.8.13- 98.7.1.el7uek.x86_64] (local build) Copyright (C) 2002-13, Bruce Allen, Christian Franke, www.smartmontools.org === START OF READ SMART DATA SECTION === SMART Attributes Data Structure revision number: 16 Vendor Specific SMART Attributes with Thresholds: ID# ATTRIBUTE_NAME FLAG VALUE WORST THRESH TYPE UPDATED WHEN_FAILED RAW_VALUE 1 Raw_Read_Error_Rate 0x002f 200 198 051 Pre-fail Always - 121 3 Spin_Up_Time 0x0027 173 171 021 Pre-fail Always - 2333 4 Start_Stop_Count 0x0032 100 100 000 Old_age Always - 75 5 Reallocated_Sector_Ct 0x0033 199 199 140 Pre-fail Always - 25 7 Seek_Error_Rate 0x002f 200 200 051 Pre-fail Always - 0 9 Power_On_Hours 0x0032 086 086 000 Old_age Always - 10948 10 Spin_Retry_Count 0x0033 100 253 051 Pre-fail Always - 0 11 Calibration_Retry_Count 0x0033 100 253 051 Pre-fail Always - 0 12 Power_Cycle_Count 0x0032 100 100 000 Old_age Always - 74 180 Unknown_HDD_Attribute 0x002f 200 200 100 Pre-fail Always - 0 184 End-to-End_Error 0x0033 100 100 097 Pre-fail Always - 0 187 Reported_Uncorrect 0x0032 100 001 000 Old_age Always - 126 188 Command_Timeout 0x0032 100 069 000 Old_age Always - 31 190 Airflow_Temperature_Cel 0x0022 070 056 045 Old_age Always - 30</pre>
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		<pre> 192 Power-Off_Retract_Count 0x0032 200 200 000 old_age Always - 67 193 Load_Cycle_Count 0x0032 200 200 000 old_age Always - 7 194 Temperature_Celsius 0x0022 113 099 000 old_age Always - 30 195 Hardware_ECC_Recovered 0x0036 200 200 000 old_age Always - 0 196 Reallocated_Event_Count 0x0032 178 178 000 old_age Always - 22 197 Current_Pending_Sector 0x0032 200 200 000 old_age Always - 0 198 Offline_Uncorrectable 0x0030 200 200 000 old_age Offline - 0 199 UDMA_CRC_Error_Count 0x0032 200 200 000 old_age Always - 0 200 Multi_Zone_Error_Rate 0x0008 200 200 000 old_age Offline - 2 SMART Error Log Version: 1 No Errors Logged </pre>
18. ☐	Start Disk Integrity Check	<pre> # smartctl -t short /dev/sda smartctl 6.2 2013-07-26 r3841 [x86_64-linux-3.8.13- 98.7.1.el7uek.x86_64] (local build) Copyright (C) 2002-13, Bruce Allen, Christian Franke, www.smartmontools.org === START OF OFFLINE IMMEDIATE AND SELF-TEST SECTION === Sending command: "Execute SMART Short self-test routine immediately in off-line mode". Drive command "Execute SMART Short self-test routine immediately in off-line mode" successful. Testing has begun. Please wait 2 minutes for test to complete. Test will complete after Thu May 18 17:21:04 2017 Use smartctl -X to abort test. </pre>

19. ☐	Verify and record Disk Integrity Check results	<pre># sleep 100;smartctl -l selftest /dev/sda</pre> <pre>smartctl 6.2 2013-07-26 r3841 [x86_64-linux-3.8.13-98.7.1.el7uek.x86_64] (local build)</pre> Copyright (C) 2002-13, Bruce Allen, Christian Franke, www.smartmontools.org === START OF READ SMART DATA SECTION === SMART Self-test log structure revision number 1 <table><thead><tr><th>Num</th><th>Test_Description</th><th>Status</th><th>Remaining</th></tr><tr><th>LifeTime(hours)</th><th>LBA_of_first_error</th><th></th><th></th></tr></thead><tbody><tr><td># 1</td><td>Short offline</td><td>Completed without error</td><td>00%</td></tr><tr><td>10948</td><td>-</td><td></td><td></td></tr></tbody></table> Note: Record if any error is reported and contact Oracle Support.	Num	Test_Description	Status	Remaining	LifeTime(hours)	LBA_of_first_error			# 1	Short offline	Completed without error	00%	10948	-																					
Num	Test_Description	Status	Remaining																																		
LifeTime(hours)	LBA_of_first_error																																				
# 1	Short offline	Completed without error	00%																																		
10948	-																																				
20. ☐	Record any hard disk sector error	<pre># smartctl -a /dev/sda grep -i LBA</pre> <table><thead><tr><th>Num</th><th>Test_Description</th><th>Status</th><th>Remaining</th><th>LifeTime(hours)</th></tr><tr><th>LBA_of_first_error</th><th></th><th></th><th></th><th></th></tr></thead><tbody><tr><td colspan="5">SPAN MIN_LBA MAX_LBA CURRENT_TEST_STATUS</td></tr></tbody></table> Note: No error should be observed in case any error is observed output will be like as mentioned below, record the output and contact Oracle Support <pre>40 51 a0 11 8e 57 e0 Error: UNC 160 sectors at LBA = 0x00578e11 = 538001</pre> <pre>40 51 a8 11 8e 57 e0 Error: UNC 168 sectors at LBA = 0x00578e11 = 538001</pre> <table><thead><tr><th>Num</th><th>Test_Description</th><th>Status</th><th>Remaining</th><th>LifeTime(hours)</th></tr><tr><th>LBA_of_first_error</th><th></th><th></th><th></th><th></th></tr></thead><tbody><tr><td colspan="5">If UNC errors are found, execute following command:</td></tr><tr><td colspan="5">\$ smartctl -a /dev/sda</td></tr></tbody></table>	Num	Test_Description	Status	Remaining	LifeTime(hours)	LBA_of_first_error					SPAN MIN_LBA MAX_LBA CURRENT_TEST_STATUS					Num	Test_Description	Status	Remaining	LifeTime(hours)	LBA_of_first_error					If UNC errors are found, execute following command:					\$ smartctl -a /dev/sda				
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If UNC errors are found, execute following command:																																					
\$ smartctl -a /dev/sda																																					
21. ☐	Repeat the procedure for standby server	Repeat steps from 1 to 27 on standby server if it is a failover configuration.																																			

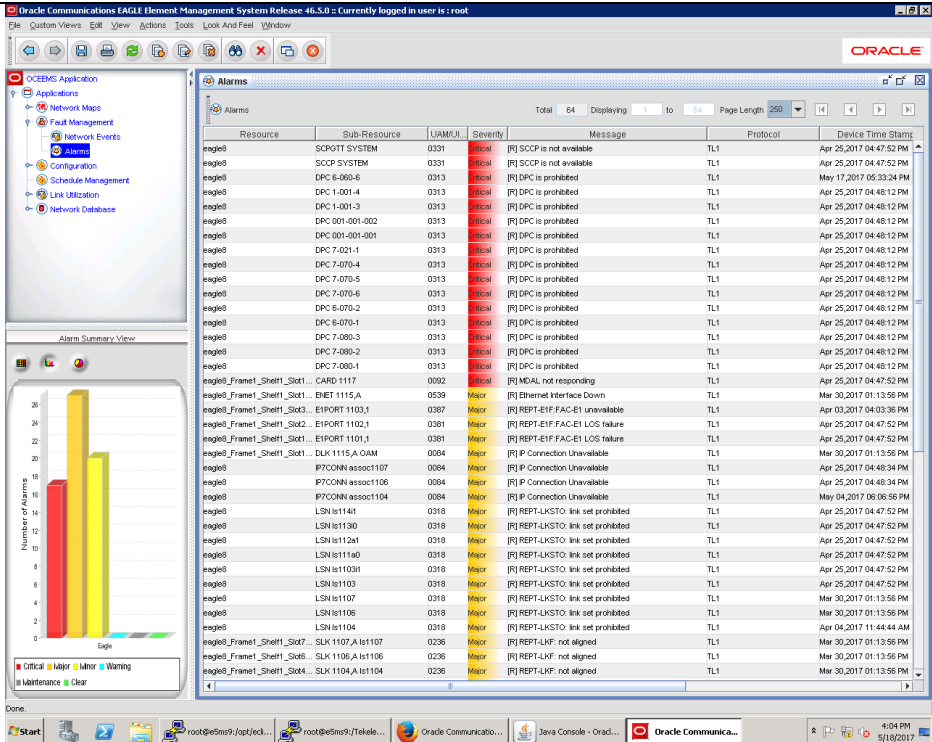
4.2 System Configuration

These steps can be performed on any of the OCEEMS configuration as mentioned in section 2. For failover setup commands should be run on both the servers.

S T E P #	Steps To Be Completed	Expected output/command to be executed
1. ☐	Login as root or non-root user(if non-root user is configured for OCEEMS operations)	login: root/emsadmuser password: <root/emsadmuser password>
2. ☐	Record /etc/hosts configuration	<pre>\$ cat /etc/hosts # # Do not modify this file by hand. Refer to Oracle Configuration # documentation. # # The order of the aliases in this file is significant # to the installation process. # 127.0.0.1 localhost 10.248.9.3 e5ms3 10.248.10.21 e5ms7 10.248.10.25 e5ms10 10.248.21.74 e5ms1 10.248.21.70 e5ms9 10.248.21.76 e5ms12 10.248.9.5 e5ms8 10.248.10.25 e5ms10</pre>
3. ☐	Verify and Record IPs configured on each interface	<pre># ifconfig eno1: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500 ether a0:b3:cc:e7:41:35 txqueuelen 1000 (Ethernet) RX packets 0 bytes 0 (0.0 B) RX errors 0 dropped 0 overruns 0 frame 0 TX packets 0 bytes 0 (0.0 B) TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0 device interrupt 17 memory 0xfbee0000-fbf00000 enp2s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500 ether a0:b3:cc:e7:41:34 txqueuelen 1000 (Ethernet) RX packets 0 bytes 0 (0.0 B) RX errors 0 dropped 0 overruns 0 frame 0 TX packets 0 bytes 0 (0.0 B) TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0 device interrupt 16 memory 0xfbde0000-fbe00000 ens2f0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500 inet 10.248.21.70 netmask 255.255.255.0 broadcast 10.248.21.255 inet6 fe80::215:1aff:fe6e:4d8 prefixlen 64 scopeid 0x20<link> ether 00:15:1a:6e:04:d8 txqueuelen 1000 (Ethernet) RX packets 73620479 bytes 42456180136 (39.5 GiB) RX errors 0 dropped 0 overruns 0 frame 0 TX packets 74825240 bytes 50525619210 (47.0 GiB) TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0 device interrupt 16 memory 0xfbfe0000-fc000000</pre>

		<pre> ens2f1: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500 ether 00:15:1a:6e:04:d9 txqueuelen 1000 (Ethernet) RX packets 0 bytes 0 (0.0 B) RX errors 0 dropped 0 overruns 0 frame 0 TX packets 0 bytes 0 (0.0 B) TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0 device interrupt 17 memory 0xfbfa0000-fbfc0000 lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536 inet 127.0.0.1 netmask 255.0.0.0 inet6 ::1 prefixlen 128 scopeid 0x10<host> loop txqueuelen 0 (Local Loopback) RX packets 183376340 bytes 127904309653 (119.1 GiB) RX errors 0 dropped 0 overruns 0 frame 0 TX packets 183376340 bytes 127904309653 (119.1 GiB) TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0 virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500 inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255 ether 52:54:00:be:9a:cf txqueuelen 0 (Ethernet) RX packets 0 bytes 0 (0.0 B) RX errors 0 dropped 0 overruns 0 frame 0 TX packets 5 bytes 1203 (1.1 KiB) TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0 </pre>
4. ☐	Verify and record the output of Netstat (Network Statistic) command	<pre> # netstat -r Kernel IP routing table Destination Gateway Genmask Flags MSS Window irtt Iface default 10.248.21.1 0.0.0.0 UG 0 0 0 ens2f0 10.248.21.0 0.0.0.0 255.255.255.0 U 0 0 0 ens2f0 192.168.122.0 0.0.0.0 255.255.255.0 U 0 0 0 virbr0 </pre>
5. ☐	Verify operational status of OCEEMS Server	<pre> # service e5msService status OCEEMS server is running. </pre>
6. ☐	Check the iptables service if non-root user is being used for OCEEMS operations.	<pre> # service iptables status Redirecting to /bin/systemctl status iptables.service iptables.service - IPv4 firewall with iptables Loaded: loaded (/usr/lib/systemd/system/iptables.service; disabled) Active: active (exited) since Thu 2016-12-22 22:16:27 IST; 3 months 22 days ago Main PID: 11509 (code=exited, status=0/SUCCESS) CGroup: /system.slice/iptables.service Dec 22 22:16:27 e5ms1 iptables.init[11509]: iptables: Applying firewall rules: [OK] Dec 22 22:16:27 e5ms1 systemd[1]: Started IPv4 firewall with iptables. </pre>
7.	Check the status of snmpd service for SNMP related operations.	<pre> # service snmpd status Redirecting to /bin/systemctl status snmpd.service snmpd.service - Simple Network Management Protocol (SNMP) Daemon. Loaded: loaded (/usr/lib/systemd/system/snmpd.service; disabled) Active: active (running) since Sat 2017-04-15 21:21:17 IST; 2s ago Main PID: 39248 (snmpd) CGroup: /system.slice/snmpd.service └─39248 /usr/sbin/snmpd -LS0-6d -f Apr 15 21:21:17 e5ms1 snmpd[39248]: NET-SNMP version 5.7.2 Apr 15 21:21:17 e5ms1 systemd[1]: Started Simple Network Management Protocol (SNMP) Daemon.. </pre>

8. ☐	Record /etc/passwd file	<pre> # cat /etc/passwd root:x:0:0:root:/root:/bin/bash bin:x:1:1:bin:/bin:/sbin/nologin daemon:x:2:2:daemon:/sbin:/sbin/nologin adm:x:3:4:adm:/var/adm:/sbin/nologin lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin sync:x:5:0:sync:/sbin:/bin/sync shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown halt:x:7:0:halt:/sbin:/sbin/halt mail:x:8:12:mail:/var/spool/mail:/sbin/nologin operator:x:11:0:operator:/root:/sbin/nologin games:x:12:100:games:/usr/games:/sbin/nologin ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin nobody:x:99:99:Nobody:/:/sbin/nologin dbus:x:81:81:System message bus:/:/sbin/nologin polkitd:x:999:999:User for polkitd:/:/sbin/nologin usbmuxd:x:113:113:usbmuxd user:/:/sbin/nologin ntp:x:38:38:/:etc/ntp:/sbin/nologin pegasus:x:66:65:tog-pegasus OpenPegasus WBEM/CIM services:/var/lib/Pegasus:/sbin/nologin named:x:25:25:Named:/var/named:/sbin/nologin saslauthd:x:998:76:"Saslauthd user":/run/saslauthd:/sbin/nologin libstoragemgmt:x:997:996:daemon account for libstoragemgmt:/var/run/lsm:/sbin/nologin avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi- daemon:/sbin/nologin avahi-autoipd:x:170:170:Avahi IPv4LL Stack:/var/lib/avahi- autoipd:/sbin/nologin rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin memcached:x:996:995:Memcached daemon:/run/memcached:/sbin/nologin rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin chrony:x:995:994:/:var/lib/chrony:/sbin/nologin radvd:x:75:75:radvd user:/:/sbin/nologin unbound:x:994:993:Unbound DNS resolver:/etc/unbound:/sbin/nologin colord:x:993:992:User for colord:/var/lib/colord:/sbin/nologin amandabackup:x:33:6:Amanda user:/var/lib/amanda:/bin/bash qemu:x:107:107:qemu user:/:/sbin/nologin apache:x:48:48:Apache:/usr/share/httpd:/sbin/nologin rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin nfsnobody:x:65534:65534:Anonymous NFS User:/var/lib/nfs:/sbin/nologin abrt:x:173:173:/:etc/abrt:/sbin/nologin pulse:x:171:171:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin hsqldb:x:96:96:/:var/lib/hsqldb:/sbin/nologin tomcat:x:91:91:Apache Tomcat:/usr/share/tomcat:/sbin/nologin gdm:x:42:42:/:var/lib/gdm:/sbin/nologin gnome-initial-setup:x:992:990:/:run/gnome-initial- setup:/sbin/nologin pcp:x:991:989:Performance Co-Pilot:/var/lib/pcp:/sbin/nologin sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin postgres:x:26:26:PostgreSQL Server:/var/lib/pgsql:/bin/bash postfix:x:89:89:/:var/spool/postfix:/sbin/nologin dovecot:x:97:97:Dovecot IMAP server:/usr/libexec/dovecot:/sbin/nologin dovnull:x:990:988:Dovecot's unauthorized user:/usr/libexec/dovecot:/sbin/nologin oprofile:x:16:16:Special user account to be used by OProfile:/var/lib/oprofile:/sbin/nologin tcpdump:x:72:72:/:/sbin/nologin deepak:x:1000:1000:deepak:/home/deepak:/bin/bash emsuser:x:1001:1001:/:home/emsuser:/bin/bash ems:x:1003:1004:/:home/ems:/bin/bash emsadmuser:x:1007:1007:/:home/emsadmuser:/bin/bash emsuser10:x:1009:1009:/:home/emsuser10:/bin/bash yogesh:x:1011:1011:/:home/yogesh:/bin/bash mysql:x:1012:1017:/:home/mysql:/bin/bash </pre>
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9. ☐	Take backup of the OCEEMS database and configuration files.	<pre># cd /Tekelec/webNMS/bin/backup</pre> <pre># sh BackupDB.sh -d /tmp/backup/</pre> Please wait! OCEEMS Backup is in progress..- OCEEMS database backup file "E5MS_Database_BackUp.sql" successfully created. \ Backup of directories successfully created. OCEEMS Backup is completed.
10. ☐	Verify backups are being taken properly	<pre># ls -lrt /tmp/backup/</pre> <pre>total 1232</pre> <pre>-rw-r--r--. 1 root root 1252531 May 18 08:15</pre> <pre>E5MS_Database_BackUp.sql</pre> <pre>drwxr-xr-x. 4 root root 29 May 18 08:15 users</pre> <pre>drwxr-xr-x. 2 root root 66 May 18 08:15</pre> <pre>linkutilizationScripts</pre> <pre>drwxr-xr-x. 7 root root 67 May 18 08:15</pre> <pre>commandManagersScripts</pre> <pre>drwxr-xr-x. 2 root root 4096 May 18 08:15 reportingStudio</pre> <pre>drwxr-xr-x. 2 root root 34 May 18 08:15 defaultconf</pre> <pre>drwxr-xr-x. 3 root root 19 May 18 08:15 classes</pre> <pre>drwxr-xr-x. 2 root root 31 May 18 08:15 html</pre> <pre>drwxr-xr-x. 3 root root 4096 May 18 08:15 conf</pre>
11. ☐	Gather application log files	<pre># tar -cvf Application_logs.tar /var/E5-MS</pre>
12. ☐	Gather system log files	<pre># tar -cvf NMS_logs.tar /Tekelec/webNMS/logs</pre>
13. ☐	Record alarms on the system from the OCEEMS client	

14.	Gather the configuration files of OCEEMS setup.	<pre># ls -ltr /Tekelec/WebNMS/conf/tekelec/ -rw-r--r--. 1 root root 493 May 17 21:19 tekmeas.conf -rw-r--r--. 1 root root 2625 May 17 21:19 server_conf.properties -rw-r--r--. 1 root root 1980 May 17 21:19 security.properties -rw-r--r--. 1 root root 577 May 17 21:19 reporting.properties -rw-r--r--. 1 root root 694 May 17 21:19 NbiParameters.conf -rw-r--r--. 1 root root 994 May 17 21:19 ModulesConf.xml -rw-r--r--. 1 root root 929 May 17 21:19 lui_template_script.txt -rw-r--r--. 1 root root 572 May 17 21:19 lui.properties -rw-r--r--. 1 root root 420 May 17 21:19 InventoryCommands.txt -rw-r--r--. 1 root root 3392 May 17 21:19 fault.properties -rw-r--r--. 1 root root 18399 May 17 21:19 EagleCardNameNumMap.xml -rw-r--r--. 1 root root 12451 May 17 21:19 ContinentZonalMap.xml -rw-r--r--. 1 root root 2656 May 17 21:19 common.config -rw-r--r--. 1 root root 1688 May 17 21:19 CmiParameters.conf</pre>
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5 My Oracle Support

CAUTION: Use only the guide downloaded from the Oracle Technology Network (OTN)

(<http://www.oracle.com/technetwork/indexes/documentation/oracle-comms-tekelec-2136003.html>).

Before upgrading your system, access the **My Oracle Support** web portal (<https://support.oracle.com>) and review any Knowledge Alerts that may be related to the System Health Check or the Upgrade.

Before beginning this procedure, contact My Oracle Support and inform them of your upgrade plans. If installing for an Oracle customer on a customer site, obtain the customer's Support Identifier (SI) before requesting assistance.

Web portal (preferred option): My Oracle Support (MOS) (<https://support.oracle.com/>)

Phone: Contact your local Oracle Global Customer Support Center (<http://www.oracle.com/support/contact.html>)

Make the following selections on the Support telephone menu:

1. Select '2' for New Service Request
2. Select '3' for Hardware, Networking and Solaris Operating System Support
3. Select '1' for Technical Issues and when talking to the agent, please indicate that you are an existing Tekelec customer