Oracle® Communications
EAGLE Element Management System

System Health Check Guide

Release 46.5 and later

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ORACLE®

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

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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.

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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:

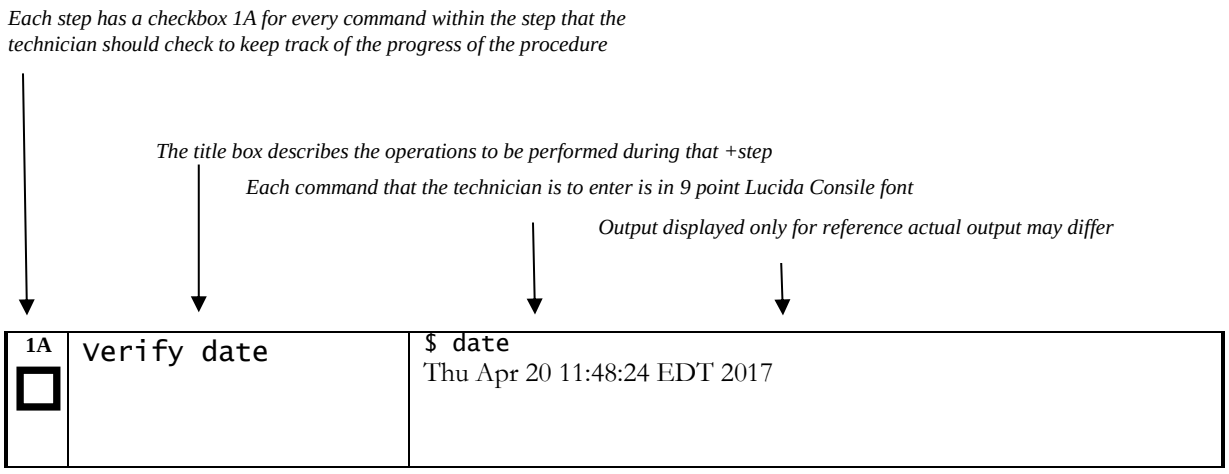


Figure 1. Example of a step that indicates the Server on which it needs to be executed

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.

STEP #	Steps To Be Completed	Expected output/command to be executed
1. ☐	Login as root	**login: root** **password: <root_password>**
2. ☐	Record the OS Version	`# cat /etc/redhat-release` Red Hat Enterprise Linux Server release 7.2 (Maipo)
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.	# 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 ajKUnO-gJOG-qvTx-4Jpt-1nfE-Lvmc-Mx9azb --- Logical volume --- LV Path /dev/ol/root LV Name root

		VG Name ol 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/ol/home LV Name home VG Name ol 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/ol/swap

		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-f6pO-7SHg-EtKX-z54M-AQNshy PV Status allocatable Total PE / Free PE 119109 / 1
7. ☐	Record the total amount of free and used physical and swap memory in the system before starting the OCEEMS server.	# 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
8.	Record the output of ‘top’ command to see current CPU utilization. Note: Press ‘q’ to exit.	# 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 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 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
9.	Record the output of netstat command to see what all ports are occupied on the system.	# 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 :::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
10.	Start OCEEMS server and record the total amount of free and used physical and swap memory in the system.	# 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.

		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] 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 # free total used free shared buff/cache available Mem: 7871188 2947748 1122236 213416 3801204 4574333 Swap: 8257532 7484 8250048
11.	Record the output of 'top' command to see CPU utilization after server startup. Note: Press 'q' to exit.	# top top - 10:29:03 up 119 days, 29 min, 5 users, load average: 0.29, 0.34, 0.23 Tasks: 174 total, 1 running, 173 sleeping, 0 stopped, 0 zombie %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 KiB Mem : 7871188 total, 1121396 free, 2949052 used, 3800740 buff/cache KiB Swap: 8257532 total, 8250048 free, 7484 used. 4573445 avail Mem 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 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
12. ☐	Record the total amount of free and used disk space on the server.	# 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

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.	# 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 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
14.	Record the MySQL configurations.	# 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 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; | 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	*
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_builtin_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_mdl	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 | +----------+----------+ +----------+
15.	Record CPU information (number of CPUs, core etc.)	# 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 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: processor : 1 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 : 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 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: processor : 2 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 : 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 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: 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 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 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	`# 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

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
18. ☐	Start Disk Integrity Check	# 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.

19. ☐	Verify and record Disk Integrity Check results	# sleep 100; smartctl -l selftest /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 Self-test log structure revision number 1 Num Test_Description Status Remaining LifeTime(hours) LBA_of_first_error # 1 Short offline Completed without error 00% 10948 - **Note:** Record if any error is reported and contact Oracle Support.
20. ☐	Record any hard disk sector error	# smartctl -a /dev/sda | grep -i LBA Num Test_Description Status Remaining LifeTime(hours) LBA_of_first_error SPAN MIN_LBA MAX_LBA CURRENT_TEST_STATUS **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 40 51 a0 11 8e 57 e0 Error: UNC 160 sectors at LBA = 0x00578e11 = 538001 40 51 a8 11 8e 57 e0 Error: UNC 168 sectors at LBA = 0x00578e11 = 538001 Num Test_Description Status Remaining LifeTime(hours) LBA_of_first_error 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.

STEP #	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	$ 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
3. ☐	Verify and Record IPs configured on each interface	# 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

		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

4. ☐	Verify and record the output of Netstat (Network Statistic) command	# 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
5. ☐	Verify operational status of OCEEMS Server	# service e5msService status OCEEMS server is running.

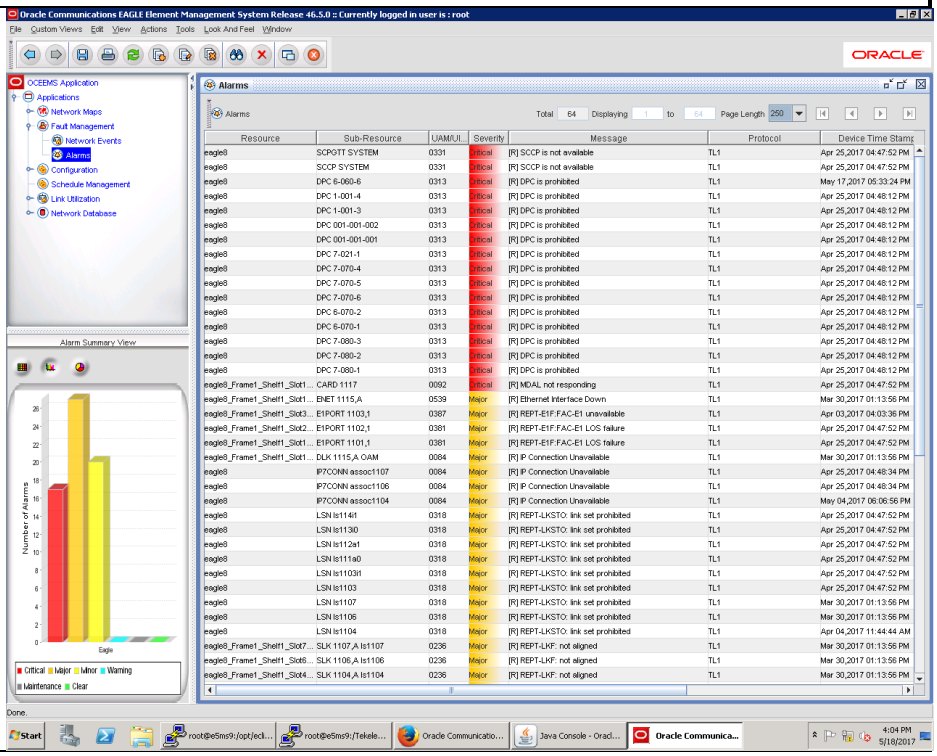
6. ☐	Check the iptables service if non-root user is being used for OCEEMS operations.	# service iptables status
		Redirecting to /bin/systemctl status iptables.service
		iptables.service - IPv4 firewall with iptables
		  Loaded: loaded (/usr/lib/systemd/system/iptables.service; disabled)
		  Active: 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.

7.	Check the status of snmpd service for SNMP related operations.	# 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..

8. ☐	Record /etc/passwd file	# 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 saslauth: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 dovenull: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

9. ☐	Take backup of the OCEEMS database and configuration files.	`# cd /Tekelec/WebNMS/bin/backup`
		
		`# sh BackupDB.sh -d /tmp/backup/`
		
		`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	`# ls -lrt /tmp/backup/`
		`total 1232`
		`-rw-r--r--. 1 root root 1252531 May 18 08:15 E5MS_Database_BackUp.sql`
		`drwxr-xr-x. 4 root root 29 May 18 08:15 users`
		`drwxr-xr-x. 2 root root 66 May 18 08:15 linkUtilizationScripts`
		`drwxr-xr-x. 7 root root 67 May 18 08:15 commandManagerScripts`
		`drwxr-xr-x. 2 root root 4096 May 18 08:15 reportingStudio`
		`drwxr-xr-x. 2 root root 34 May 18 08:15 defaultconf`
		`drwxr-xr-x. 3 root root 19 May 18 08:15 classes`
		`drwxr-xr-x. 2 root root 31 May 18 08:15 html`
		`drwxr-xr-x. 3 root root 4096 May 18 08:15 conf`

11. ☐	Gather application log files	`# tar -cvf Application_logs.tar /var/E5-MS`
12. ☐	Gather system log files	`# tar -cvf NMS_logs.tar /Tekelec/WebNMS/logs`
13.	Record alarms on the system from the OCEEMS client	

14.	Gather the configuration files of OCEEMS setup.	# 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

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