Oracle® Communications
LSMS Query Server on Solaris

Installation and Upgrade Guide

Release 13.4

F23731-01 Revision 1

January 2020

ORACLE

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 incremental upgrade plans.

Refer to Appendix D for instructions on accessing My Oracle Support.

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1. INTRODUCTION

1.1 Purpose and Scope

This document contains detailed procedures for installing/upgrading to LSMS 13.4 Query Server system.

The audience for this document is Oracle customers and the following EAGLE:

Manufacturing,

Product Verification,

Documentation,

Customer Service including Software Operations and New Product Engineering,

Application developers.

This document provides step-by-step instructions to install or upgrade the Query Server.

1.2 References

1.2.1 Internal (Oracle)

The following are references internal to Oracle. They are provided here to capture the source material used to create this document. Internal references are only available to Oracle personnel.

[1] *TEKELEC Acronym Guide*, MS005077, Current Version, Oracle.

[2] *Software Upgrade Procedure Template*, TM005074, Current Version, Oracle

[3] *OCLSMS 13.4 Alarms and Maintenance Guide*, Current Version, Oracle

[4] *OCLSMS 13.4 Configuration Manual Guide*, Current Version, Oracle.

1.3 Acronyms

E5-APP-B	Eagle5 Application Card class B cpu/board
GB	Gigabyte
OCELAP	Oracle Communication Eagle LNP Application Processor
OCLSMS	Oracle Communication Local Service Management System
QS	Query Server
SPARC	Scalable Processor Architecture
TN	Telephone Number

Table 1: Acronyms

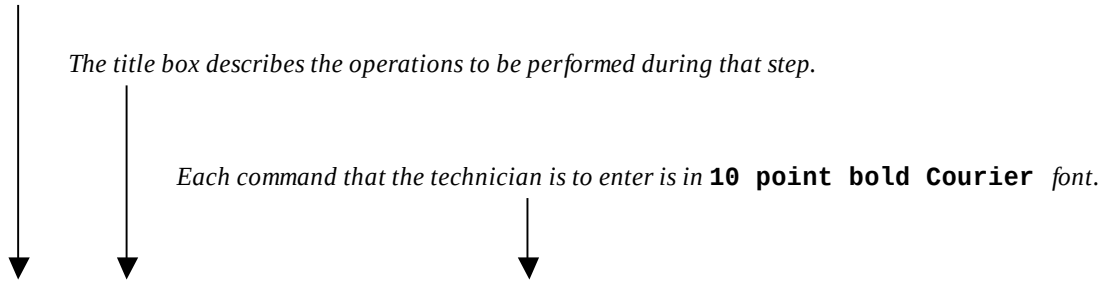
1.4 Guidelines

The steps in the written procedures begin with the name or type of server to which the step applies. Also of note is the shading of the step number box. If a box is not shaded at all, this signifies a step that needs to be performed but does not require a specific command be entered at the E5-APP-B; this is shown in Figure 1. If a box is shaded completely black, this signifies there is a specific command to be entered; this is shown in Figure 2. For example:

Each step has a checkbox 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 **`10 point bold Courier`** *font.*



1 ☐	Verify all materials required are present	Materials are listed in Material List (Section 3.1)

Figure 1. Example of an instruction that indicates the server to which it applies

1 ☐	**E5-APP-B:** Log in as the user "root"	**`[hostname] consolelogin: root`** password: *password*

Figure 2. Example of an instruction that performs a specific command

1.5 Recommendations

This procedure should be followed thoroughly utilizing the steps as written. In the event any unexpected results are returned while executing steps in this procedure halt the activity and refer to Appendix D to contact My Oracle Support for assistance. The given outputs for procedures are being provided as a reference.

2. GENERAL DESCRIPTION

The platform that is used to host a query server must meet the minimum requirements shown in Table 2 in order to meet performance requirements.

Component	Minimum Requirement	Exact Requirement
Operating System	Solaris 10*	Solaris 11
Processor	400 MHz	N/A
Memory	2GB	N/A
Minimum Disk Space (in partition containing /usr/mysql/) See Note 1.	125 GB	N/A
Minimum Disk Space (in root partition /)	10 GB	N/A
Note 1: The partitioning and setting up of the **/usr/mysql/** file system with the minimum required disk space are the responsibility of the customer. * The Solaris 10 setup must have the **SUN119254-92 Solaris 10 SPARC: Install and Patch Utilities Patch** already installed		

Table 2: Query Server Platform Requirements

2.1 Additional Requirements

- Use a SPARC platform to host a query server
- Ensure the platform hosting a query server is dedicated to the query server function. Using the query server platform for any other processing degrades performance and may potentially conflict with the query server operation and produce unpredictable results.
- Use a dedicated 100BASE-TX Ethernet interface.
- The Solaris 10 setup must have the **SUN119254-92 Solaris 10 SPARC: Install and Patch Utilities Patch** already installed.

  NOTE: The network between the OCLSMS and the query server and between the query server and the daisy-chained query servers must meet the specifications and conditions shown in Table 3 (for firewall protocol filtering).

Interface	TCP/IP Port	Use	Firewall configuration[1] – Port Open for Inbound Access(from Query Server)	Firewall configuration[1] – Port Open for Outbound Access(to Query Server)
OCLSMS > Query Server Uses the interface to the OCELAP network, active only on active server For more information about which interface is used by the OCELAP network, refer to the *OCLSMS Configuration Manual*.	20	FTP-data(database snapshot)	No	Yes[1]
	21	FTP(database snapshot)	No	Yes[1]
	3306	Continuous database replication	Yes[2]	No
Query Server (master) > Daisy Chained Query Server (slave)	20	FTP-data(database snapshot)	No	Yes[1]

	21	FTP(database snapshot)	No	Yes[1]
	3306	Continuous database replication	Yes[2]	No

1 The FTP TCP/IP port is required to be open on the OCLSMS and query servers that act as both UPDATWE and slave. This port is used to retrieve the current "snapshot" of the master database so it can be loaded into the query server. The snapshots effectively become the initial version (starting point for replication) of the query server's database.

2 Port 3306 is required to be open on the OCLSMS and query servers that act as both master and slave. The query server connects to the master server on port 3306 to receive continuous replication updates. If the feature “Configurable MySQL port” is enabled on OCLSMS, the configured port is required to be open on the OCLSMS.

Table 3: Platform Ports Configuration for Firewall Protocol Filtering

3. UPGRADE OVERVIEW

This section provides a detailed method to install/upgrade the Query Server application on SPARC Solaris 10/11 platform.

3.1 Required Materials

1. Target release DVD or ISO image if software is being provided electronically.
2. The capability to log into the server.
   Refer to the references mentioned in section 1.2

   Note: The ISO image can be downloaded online. Follow the following steps to download the ISO image.
   a. Go to the link "https://edelivery.oracle.com/".
   b. Click on the "Sign In / Register" button. Sign in or register.
   c. Search for "Oracle Communications LSMS Query Server" and click on Continue.
   d. Select the 13.4.0.0.0 release and click on Continue.
   e. Accept the Terms and Restrictions.
   f. Download the zip file.

3.2 Upgrade Paths

Refer to the table below to determine what procedure is to be followed in different scenarios.

SPARC Platform	Current ISO installed	Procedure to be followed
Solaris 10	None	Installation of LSMSQS 13.4
	LSMSQS 13.0	Upgrade to LSMSQS 13.4
Solaris 11	None	Installation of LSMSQS 13.4
	LSMSQS 13.1	Upgrade to LSMSQS 13.4

Table 4: Upgrade Paths

3.3 Installation Phases

The following table illustrates the progress of the installation process by procedure with estimated times and may vary due to differences in typing ability and system configuration. The phases outlined in **Table 5** are to be executed in the order they are listed. Installation procedure assumes that servers already have SPARC Solaris 10 or 11 installed.

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Pre-install check and Connectivity setup	30	30	Verify requirements for install are met and Set up connectivity to the Solaris server.	**Procedure 1**
Verify install	5	35	Verify this should be an install.	**Procedure 2**
Install Server	30	65	Install Application and make configuration changes.	**Procedure 3**
Reload database and Start Replication	35	100	Start replication from OCLSMS to Query Server.	**Procedure 5**

Table 5: Installation Phases

3.4 Upgrade Phases

The following table illustrates the progression of the upgrade process by procedure with estimated times and may vary due to differences in typing ability and system configuration. The phases outlined in **Table 6** are to be executed in the order they are listed. Upgrade procedure assumes that the server has an Oracle-provided MySQL version lower than the target version that is already installed.

Phase	Elapsed Time (Minutes)		Activity	Procedure
	This Step	Cum.		
Pre-upgrade check and Connectivity setup	30	30	Verify requirements for upgrade are met and Set up connectivity to the server.	**Procedure 1**
Verify upgrade	5	35	Verify this should be an upgrade.	**Procedure 2**
Upgrade Server	30	65	Upgrade Application and make configuration changes.	**Procedure 4**
Reload database and Start Replication	35	100	Start replication from OCLSMS to Query Server.	**Procedure 5**

Table 6: Upgrade Phases

3.5 Log Files

All the messages are displayed on command prompt from where the install/upgrade command is executed. There is no separate log file maintained. However, a MySQL log file /usr/mysql/mysql1/<hostname.err> or /usr/mysql1 may be referenced if replication does not start properly after install/upgrade.

4. PREPARATION

4.1 Pre- Installation / Pre-Upgrade Requirement Check

Procedure 1: Verifying Pre-Installation / Pre-Upgrade Requirements

S T E P #	This procedure verifies that all pre-installation/pre-upgrade requirements have been met. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1 ☐	Verify all materials required are present	▪ Screen logging is required throughout the procedure. These logs should be made available to Oracle Customer Care Center representative in the event their assistance is needed. ▪ Verify all the requirements mentioned in section 3.1 are fulfilled.
2 ☐	Set up the console session.	Connect console connection with SSH or telnet.
3 ☐	Verify Oracle standard configurations	Verify that the Oracle standard configurations (mentioned default paths and config files etc.) are strictly followed. If not, then refer to Appendix D to contact My Oracle Support for assistance.
End of Procedure		

4.2 Upgrade/Installation Determination

Procedure 2: Determine if the upgrade or installation is required.

S T E P #	This procedure provides instructions to determine if this will be an installation or an upgrade of existing software. **NOTE :** If you are setting up MySQL for the first time on Solaris 11/10, then it will be installation **NOTE**: If you encounter a problem determining the version you have, or if you are unsure whether to install or upgrade, contact My Oracle Support. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. IF THIS PROCEDURE FAILS, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1 ☐	**Solaris server**: Determine whether the Oracle-provided MySQL version is installed	Login on QS as root and run the following command: **`# /opt/mysql/mysql/bin/mysql -V`** Examine the output of the command and proceed to the next step of this procedure.
2 ☐	**Solaris server**: Logout	**`# logout`**
3 ☐	Determine if an installation is required.	If the output of the command in Step 1 is the following: `/opt/mysql/mysql/bin/mysql: not found` Because the prompt is immediately returned with above output, perform an installation. Proceed to the next step in **Table 5.** Otherwise, proceed to the next step of this procedure.

Procedure 2: Determine if the upgrade or installation is required.

4 ☐	Determine if an upgrade is required.	If the output for the command of step 1, for Solaris 11 is the following: **`/opt/mysql/mysql/bin/mysql  Ver 14.14 Distrib 5.6.31, for solaris11 (sparc) using  EditLine wrapper`** The 'Distrib' value indicates the Oracle-provided version which was installed previously. If the 'Distrib' value is less than 5.6.31, then perform an upgrade by proceeding to the next step in Table 6. If the 'Distrib' value is equal to 5.6.31, then no procedure needs to be followed as the latest MySQL version is already present. Note down the Solaris version from the above output. The Solaris version should be either 10 or 11.
End of Procedure		

5. SOFTWARE INSTALL/UPGRADE PROCEDURE

Please read the following notes on installation/upgrade procedures:

Procedure completion times shown here are estimates. Times may vary due to differences in database size, user experience, and user preparation.

Command steps that require user entry are indicated with white-on-black step numbers.

The shaded area within response steps must be verified in order to successfully complete that step.

Where possible, EXACT command response outputs are shown. EXCEPTIONS are as follows:

- Banner information is displayed in a format form only.
- System-specific configuration information such as *card location*, *terminal port # assignments*, and *system features.*
- ANY information marked with "*XXXX*" or "*YYYY*." Where appropriate, instructions are provided to determine what output should be expected in place of "*XXXX* or *YYYY*"

After completing each step and at each point where data is recorded from the screen, the technician performing the installation/upgrade must initiate each step. A check box should be provided.

Captured data is required for future support reference if My Oracle Support is not present during the installation/upgrade.

5.1 Software Install Procedure

Procedure 3: Installing the Application

S T E P #	This procedure installs the MySQL application on the server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. SHOULD THIS PROCEDURE FAIL, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1. ☐	**Solaris server:** Create the DB administrator user	Login on query server as root user. `# cd /usr/sbin` `# ./groupadd -g 1007 mysql` `# ./useradd -u 1001 -g 1007 -s /bin/sh mysql` `# passwd mysql` `passwd:  Changing password for mysql` `New password: <password for the mysql user>` `Re-enter password: <password for the mysql user>`
2. ☐	**Solaris server:** Create mysql1 directory if not exists	`# mkdir /usr/mysql/mysql1 ,` on Solaris 11 or `# mkdir /usr/mysql1 ,` on Solaris 10
3. ☐	**Solaris server**: If Installing MySQL using DVD, otherwise skip this step	Insert the Installation Media into the DVD drive of Solaris server. Run the following command: `# cd /cdrom/cdrom0` Go to step 5.
4. ☐	**Solaris server:** Mount the ISO if installing MySQL using ISO	First copy the MySQL iso to /tmp directory of query server. Run the following commands: `# cd /` `# mkdir /mnt/iso` `# /usr/sbin/lofiadm -a /tmp/<Name of iso>` Example: `# /usr/sbin/lofiadm -a /tmp/LSMSQS-13.4.0.0.0_132.5.0.iso` Output: /dev/lofi/1 `# mount -F hsfs -o ro <Output of above command> /mnt/iso` Example: `# mount -F hsfs -o ro /dev/lofi/1 /mnt/iso` `# cd /mnt/iso`
5. ☐	**Solaris server:** Install MySQL package	`# ./install_mysql` Output similar to the following displays: `Performing installation of MySQL advanced version 5.6.31`

		`` ****************************** Installation of <mysql> was successful. ```
6.	**Solaris server:** Unmount the ISO if installed MySQL using ISO. Otherwise skip this step	After completing the installation of MySQL, unmount the iso: `# cd /` `# umount /mnt/iso`
7.	**Solaris server:** Eject the media if installed MySQL using DVD. Otherwise skip this step	After completing the installation of MySQL, eject the DVD and return the media to its case: `# cd /` `# eject cdrom`
8.	**Solaris server:** Copy the configuration file to new path	`# cp /opt/mysql/mysql/support-files/my-default.cnf /opt/mysql/mysql/my.cnf`
9.	**Solaris server:** Check ownership and permissions of mysql1 directory	`# ls -ltr /usr` If the ownership is anything other than mysql:mysql, change it using the following command: `# chown mysql:mysql /usr/mysql/mysql1 ,` on Solaris 11 or `# chown mysql:mysql /usr/mysql1/ ,` on Solaris 10 If the permissions is anything other than 755, change it using the following command: `# chmod 755 /usr/mysql/mysql1 ,` on Solaris 11 or `# chmod 755 /usr/mysql1 ,` on Solaris 10 Verify once more that the ownership has been changed. `# ls -ltr /usr`
10.	**Solaris server:** Empty the old database directory if exists.	`# cd /usr/mysql/mysql1 ,` on Solaris 11 or `# cd /usr/mysql1 ,` on Solaris 10 `# rm -rf *`
11.	**Solaris server :** Modify MySQL configuration file	`# vi /opt/mysql/mysql/my.cnf` Remove the content of my.cnf and copy the following in my.cnf. `# The following options will be passed to all MySQL` `# clients` `[client]` `port = 3306` `socket = /tmp/mysql.sock` `[mysqld]` `datadir = /usr/mysql/mysql1` `port = 3306` *NOTE: The port is required to be modified, if the feature "Configurable QS MySQL port" is enabled on OCLSMS.* `socket = /tmp/mysql.sock` `server-id =` <some unique number between 3 and 4,294,967,295, which is unique among all query servers in your network>

NOTE: The server-id value must be different for each server participating in replication.

```
max_allowed_packet = 1M
sort_buffer_size = 1M
read_buffer_size = 1M
read_rnd_buffer_size = 4M
myisam_sort_buffer_size = 64M
thread_cache_size = 8
query_cache_size= 16M
# Try number of CPU's*2 for thread_concurrency
thread_concurrency = 8

default-storage-engine=myisam
default_tmp_storage_engine=myisam

skip-innodb
net_read_timeout=30
max_allowed_packet=32M
slave-net-timeout=120
slave-skip-errors=1062
replicate-ignore-db=ResyncDB
replicate-wild-ignore-table=ResyncDB.%
replicate-ignore-db=logDB
replicate-wild-ignore-table=logDB.%
replicate-ignore-table=supDB.DbConfig
replicate-wild-ignore-table=supDB.%Key
replicate-ignore-table=supDB.LsmsUser
replicate-ignore-table=supDB.LsmsUserSpid
replicate-ignore-table=supDB.Authorization
replicate-ignore-table=supDB.EbdaProcessList
replicate-wild-ignore-table=supDB.%Measurements
replicate-ignore-table=supDB.AlarmFilter
replicate-ignore-db=mysql
replicate-wild-ignore-table=mysql.%
replicate-ignore-db=ReplTestDB
replicate-wild-ignore-table=ReplTestDB.%
replicate-ignore-db=performance_schema
replicate-wild-ignore-table=performance_schema.%

explicit_defaults_for_timestamp

# Replication Master Server (default)
# binary logging is required for replication
log-bin=mysql-bin

relay-log=queryserver-relay-bin

[mysqldump]
quick
max_allowed_packet = 16M

[mysql]
no-auto-rehash

[isamchk]
key_buffer = 128M
sort_buffer_size = 128M
read_buffer = 2M
```

		write_buffer = 2M [myisamchk] key_buffer = 128M sort_buffer_size = 128M read_buffer = 2M write_buffer = 2M [mysqlhotcopy] interactive-timeout **NOTE: The Measurements tables are ignored by default. If the customer wants to replicate those tables, remove or comment out only the line: replicate-ignore-table=supDB.%Measurements from my.cnf file.** **The Replication DB is also ignored.To include the database, remove or comment out only the line: replicate-ignore-db=ResyncDB from my.cnf file.** **When these are done, the customer must get new snapshots every time any OCELAP is added to the OCLSMS system.**
12. ☐	**Solaris server :** Set permissions of my.cnf file	Run the following command to set the permissions of my.cnf. # chmod 644 /opt/mysql/mysql/my.cnf
13. ☐	**Solaris server :** Make a share directory on mysql1 path	Goto step 14, if Solaris 10 In /usr/mysql/mysql1 directory, rename the "share" file with "share_file" file if exists, using the following command: # mv /usr/mysql/mysql1/share /usr/mysql/mysql1/share_file Create share directory, if does not exist. # cd /usr/mysql/mysql1 # mkdir share Run following command if errmsg.sys does not exist on /usr/mysql/mysql1/share path. # cp /opt/mysql/mysql/share/english/errmsg.sys /usr/mysql/mysql1/share
14. ☐	**Solaris server :** Make a share directory on mysql1 path	In /usr/mysql1 directory, rename the "share" file with "share_file" file if exists, using the following command: # mv /usr/mysql1/share /usr/mysql1/share_file Create share directory, if does not exist. # cd /usr/mysql1 # mkdir share Run following command if errmsg.sys does not exist on /usr/mysql1/share path. # cp /opt/mysql/mysql/share/english/errmsg.sys /usr/mysql1/share
15. ☐	**Solaris server:** Change ownership and permissions of files in mysql1	Change the ownership and permission of files and directories of mysql1 directory in /usr/mysql/mysql1 by using the following commands: On Solaris 11 # chown mysql:mysql /usr/mysql/mysql1/*

		# chmod 755 /usr/mysql/mysql1/* On Solaris 10 # chown mysql:mysql /usr/mysql1/* # chmod 755 /usr/mysql1/*
16. ☐	**Solaris server :** Initialise database	# su mysql # cd /opt/mysql/mysql/scripts On Solaris 11 # ./mysql_install_db –-force --datadir=/usr/mysql/mysql1/ On Solaris 10 # ./mysql_install_db --force --datadir=/usr/mysql1 # exit
17. ☐	**Solaris server**: Stop MySQL if running	• Check if mysql process is running: # ps –ef | grep mysql • If it is not running, directly go to next step of this procedure. If it is running, stop MySQL. # cd /opt/mysql/mysql/bin # ./mysqladmin shutdown –p # Enter password: # <Query server's MySQL root user password> If the password is unknown, use the following command: # kill <pid of mysqld_safe> <pid of mysqld> Verify that no MySQL process is running using the following command: # ps -eaf |grep mysql
18. ☐	**Solaris server:** Reset the password	• Change to directory /opt/mysql/mysql/bin # cd /opt/mysql/mysql/bin • Reset the password using the following commands: # mysqld_safe --skip-grant-tables & # ./mysql mysql> UPDATE mysql.user SET PASSWORD=PASSWORD('<Enter password>') WHERE USER = 'root'; Query OK, 2 rows affected (0.07 sec) Rows matched: 2 Changed: 2 Warnings: 0 mysql> flush privileges; Query OK, 0 rows affected (0.00 sec) mysql> exit; • Stop MySQL. # ./mysqladmin shutdown –p # Enter password: # <Query server's MySQL root user password>

		• Restart MySQL `# ./mysqld_safe --basedir=/opt/mysql/mysql --skip-slave-start &`
19. ☐	**Solaris server :** Installation Complete	Installation and configuration are now complete. Go to next step in Table 5.
End of Procedure		

THIS COMPLETES THE INSTALLATION

5.2 Software Upgrade Procedure

Procedure 4: Upgrading Application

S T E P #	This procedure upgrades the MySQL application on the server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. SHOULD THIS PROCEDURE FAIL, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1. ☐	**Solaris server**: Stop MySQL replication	• Log into Query Server as root. • `# cd /opt/mysql/mysql/bin/` • Stop MySQL: `# ./mysqladmin shutdown –p` `Enter password: <mysql password>`
2. ☐	**Solaris server**: Backup the my.cnf file	Copy the /usr/mysql/mysql1/my.cnf file to /var/tmp/ directory `#/opt/mysql/mysql/my.cnf`
3. ☐	**Solaris server:** Create mysql1 directory if not exist	`# mkdir /usr/mysql/mysql1 ,` on Solaris 11 or `# mkdir /usr/mysql1 ,` on Solaris 10
4. ☐	**Solaris server**: If upgrading MySQL using DVD, otherwise skip this step	Insert the Upgrade Media into the DVD drive of Solaris server. Run the following command: `# cd /cdrom/cdrom0` Go to step 6.
5. ☐	**Solaris server:** Mount the ISO if upgrading MySQL using iso	First copy the MySQL ISO to /tmp directory of query server. Login on query server as root user and run the following commands: `# cd /` `# mkdir /mnt/iso` `# /usr/sbin/lofiadm -a /tmp/<Name of iso>` Example: `#/usr/sbin/lofiadm -a /tmp/ LSMSQS-13.4.0.0.0_132.5.0.iso` Output: `/dev/lofi/1` `# mount -F hsfs -o ro <Output of above command> /mnt/iso` Example: `#mount -F hsfs -o ro /dev/lofi/1 /mnt/iso` `# cd /mnt/iso`

6. ☐	**Solaris server:** Upgrade MySQL package	`# ./install_mysql` Output similar to the following displays: `Found installed package TKLCmysql on the server...` `The following package is currently installed:` `TKLCmysql TKLCAPP=TKLCmysql MySQL Relational Database (sparc) 5.0.90 Tekelec build 2010-06-22-11-12` `Do you want to remove this package? [y,n,?,q] y` `## Removing installed package instance <TKLCmysql>` `## Verifying package <TKLCmysql> dependencies in global zone` `## Processing package information.` `**********Removal of <TKLCmysql> was successful.` `Performing installation of MySQL advanced version 5.6.31` `Processing package instance <mysql> from </tmp/mysql-advanced-5.6.31-solaris` `MySQL Advanced Server (Commercial)(sparc) 5.6.31` `**********` `Installation of <mysql> was successful.`
7. ☐	**Solaris server:** Unmount the ISO if upgraded MySQL using ISO, otherwise skip this step	After completing the upgrade of MySQL, unmount the ISO: `# cd /` `# umount /mnt/iso`
8. ☐	**Solaris server:** Eject the media if upgraded MySQL using DVD, otherwise skip this step	After completing the upgrade of MySQL, eject the DVD and return the media to its case: `# cd /` `# eject cdrom`
9. ☐	**Solaris server:** Check ownership of mysql1 directory	`# ls -ltr /usr` Change the ownership and permission of mysql1 directory in /usr by using the following commands: On Solaris 11 `# chown mysql:mysql /usr/mysql/mysql1/` `# chmod 755 /usr/mysql/mysql1` On Solaris 10 `# chown mysql:mysql /usr/mysql1` `# chmod 755 /usr/mysql1` Verify once more that the ownership and permission has been changed. `# ls -ltr /usr`

10. ☐	**Solaris server :** Empty the default database directory if exists	`# cd /opt/TKLCplat/mysql/data ,` on Solaris 11 or `# cd /opt/mysql ,` on Solaris 10 `# rm -rf *`
11. ☐	**Solaris server:** Modify MySQL configuration file	Run the following command: `# vi /opt/mysql/mysql/my.cnf` Copy the content of Procedure 3 step 11 in my.cnf file and save it.
12. ☐	**Solaris server**: Stop MySQL if running	• Check if MySQL process is running: `# ps –ef | grep mysql` • If it is not running, directly go to next step of this procedure. If it is running, stop MySQL. `# cd /opt/mysql/mysql/bin` `# ./mysqladmin shutdown –p` `Enter password: <mysql password>`
13. ☐	**Solaris server:** Reset the password	• Change to directory /opt/mysql/mysql/bin `# cd /opt/mysql/mysql/bin` • Reset the password using the following commands: `# ./mysqld_safe --skip-grant-tables &` `# ./mysql` `mysql> UPDATE mysql.user SET PASSWORD=PASSWORD('<Enter password>') WHERE USER = 'lsmsrepl';` `Query OK, 2 rows affected (0.07 sec)` `Rows matched: 2 Changed: 2 Warnings: 0` `mysql> flush privileges;` `Query OK, 0 rows affected (0.00 sec)` `mysql> exit;` • Stop MySQL. `# ./mysqladmin shutdown –p` `Enter password: <mysql password>` • Restart MySQL `# ./mysqld_safe --basedir=/opt/mysql/mysql --skip-slave-start &`
14. ☐	**Solaris server**: Upgrade complete	Upgrade and configuration are now complete. Go to next step in Table 6.

End of Procedure

THIS COMPLETES THE UPGRADE

5.3 Start/Stop Replication Procedure

Procedure 5: Start/Stop Replication

S T E P #	This procedure is used to start/stop replication from OCLSMS to Query Server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. SHOULD THIS PROCEDURE FAIL, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1. ☐	**Solaris server**: Stop MySQL replication	• Log into Query Server as root. Go to directory /opt/mysql/mysql/bin `# cd /opt/mysql/mysql/bin` • Check if mysql process is running: `# ps –ef | grep mysql` • If it is not running, directly go to step 3 of this procedure. If it is running, stop MySQL replication by stopping slave: `# ./mysql -u root –p` `Enter password:<Query server's MySQL root user password>` `mysql> stop slave;` • Verify that MySQL replication is no longer running using the SHOW SLAVE STATUS command (ensure the Slave_IO_Running and Slave_SQL_Running column values are set to No). `mysql> SHOW SLAVE STATUS \G;` • Exit the MySQL command-line utility: `mysql> exit;`
2. ☐	**Solaris server**: Stop MySQL	Stop MySQL. `# cd /opt/mysql/mysql/bin` `# ./mysqladmin shutdown –p` `Enter password:<Query server's MySQL root user password>`
3. ☐	**OCLSMS server:** Create query server user on OCLSMS	`# lsmsdb –c addrepluser –h <IP/Hostname of QS>  –p <mysqlpwd>`
4. ☐	**OCLSMS server:** Create and copy the snapshots from the OCLSMS server.	Please refer to [4], Appendix E (Query Server Maintenance Procedures), section "Reload a Query Server Database from the OCLSMS" in the section 1.2.1.
5. ☐	**Solaris server:** Extract the snapshot data from the archive tar files copied from OCLSMS.	`# cd /usr/mysql/mysql1 ,` on Solaris 11 or `# cd /usr/mysql1 ,` on Solaris 10 `# gunzip -d mysql-snapshot-<regionDB>.tar.gz` `# gtar -xvf mysql-snapshot-<regionDB>.tar ,` on Solaris 11 or `# tar –xvf mysql-snapshot-<regionDB>.tar ,` on Solaris 10

		`# rm mysql-snapshot-<regionDB>.tar` In the above commands, replace <regionDB> with the regional database name (for example, CanadaDB). Execute the same commands for supDB and noreplDB snapshot files.
6. ☐	**Solaris server:** Verify ownership of database files and directories.	`# ls -ltr` If any database directories have ownership other than mysql:mysql, change them using this command: `# chown -R mysql:mysql <DB NAME>` `where <DB NAME> is supDB, noreplDB, or <region>DB,` `where <region> is the name of an NPAC region.` Also change the ownership of snapinfo.sql to mysql:mysql by executing the following command: `# chown mysql:mysql snapinfo.sql`
7. ☐	**Solaris server:** Open the snapinfo.sql file	`# vi snapinfo.sql` Refer to Appendix A.1 to modify the snapinfo.sql file.
8. ☐	**Solaris server**: Verify MySQL tables if following the upgrade procedure, otherwise skip it.	• Restart MySQL `# ./mysqld_safe --basedir=/opt/mysql/mysql --skip-slave-start &` • Start MySQL session: `# ./mysql -u root –p` `Enter password:<Query server's MySQL root user password>` • Verify the tables present in the MySQL database: `mysql> use mysql;` `mysql> show tables;` `+---------------------------+` `| Tables_in_mysql |` `+---------------------------+` `| columns_priv |` `| db |` `| event |` `| func |` `| general_log |` `| help_category |` `| help_keyword |` `| help_relation |` `| help_topic |` `| innodb_index_stats |` `| innodb_table_stats |` `| ndb_binlog_index |` `| plugin |` `| proc |` `| procs_priv |` `| proxies_priv |` `| servers |` `| slave_master_info |` `| slave_relay_log_info |` `| slave_worker_info |` `| slow_log |` `| tables_priv |` `| time_zone |`

		`| time_zone_leap_second |` `| time_zone_name |` `| time_zone_transition |` `| time_zone_transition_type |` `| user |` `+--------------------------+` `28 rows in set (0.00 sec)` Exit from the MySQL command line utility and execute the below commands in case above query doesn't return same output, otherwise continue to the next step. `mysql> exit;` `# cd /opt/mysql/mysql/bin` `# ./mysql_upgrade –u root –p` `Enter password:<Query server's MySQL root user password>` Note: Please ignore if there is any error in the output of above command and again verify MySQL tables by using step 8 of this procedure. If the output still differs then contact the Oracle Customer Care Center for assistance, otherwise continue to the next step.
9. ☐	**Solaris server**: Create replication user	• Log into Query Server as root. Change to directory /opt/mysql/mysql/bin `# cd /opt/mysql/mysql/bin` • Start MySQL session: `# ./mysql -u root –p` `Enter password:<Query server's MySQL root user password>` `mysql> create user 'lsmsslave'@'localhost' identified by 'mysql123';` `mysql> create user 'lsmsslave'@'%' identified by 'mysql123';` `mysql> grant super,replication client on *.* to 'lsmsslave'@'%';`
10. ☐	**Solaris server:** Reset configuration information	`mysql> reset master;` `mysql> reset slave;`
11. ☐	**Solaris server:** **S**tart replication from the correct position on the master	`mysql> source <absolute path of the snapinfo.sql file>`
12. ☐	**Solaris server:** Start mysql slave	`mysql> start slave;`
13. ☐	**Solaris server:** Check slave status	`mysql> show slave status\G` In the output of above command, ensure that values corresponding to columns Slave_IO_Running and Slave_SQL_Running are set to Yes.
14. ☐	**Solaris server:** If the column value of both	`# vi /usr/mysql/mysql1/*.err` if on Solaris 11, else `# vi /usr/mysql1/*.err`

	Slave_IO_Running and Slave_SQL_Running are other than Yes, the status is not good and the error will need to be investigated.	Look at last few lines of error log and record the errors below. Record error here: Contact the Oracle Customer Care Center and ask for assistance. Continue from step 13 of this procedure after error resolution.
15. ☐	**OCLSMS server:** Login to the OCLSMS Primary server and verify that Query Server is Connected.	login as: **lsmsadm** lsmsadm@IP's password:<Enter Password> `$ lsmsdb -c queryservers` Example: $ lsmsdb -c queryservers Output: cs2-bss2 (10.253.110.72) Connected You have now completed this procedure. Query Server has started replicating data from OCLSMS.

End of Procedure

6. RECOVERY PROCEDURES

Installation/Upgrade procedure recovery issues should be directed to My Oracle Support (MOS). See Appendix D.

APPENDIX A. GENERIC PROCEDURES

A.1 Set Master Information

Procedure 6: Set the master information on QS

S T E P #		
	This procedure is used to update the master information in snapinfo.sql file on Query Server. Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number. SHOULD THIS PROCEDURE FAIL, CONTACT MY ORACLE SUPPORT AND ASK FOR ASSISTANCE.	
1. ☐	**Solaris server:** If Configurable MySQL port feature is not enabled on OCLSMS, edit the snapinfo.sql file as indicated, otherwise, go to next step.	The value of master-port on Query Server should be same as configured on OCLSMS. Edit the snapinfo.sql file as follows: `CHANGE MASTER TO MASTER_HOST='192.168.60.5', MASTER_USER='lsmsrepl', MASTER_PASSWORD='mysql123', MASTER_LOG_FILE='mysql-bin.000034', MASTER_LOG_POS=311172` Where MASTER_HOST = <VIP of the OCLSMS pair, where VIP is the Virtual IP address> MASTER_USER = <replication user name of OCLSMS> MASTER_PASSWORD = <replication user's password> Skip next steps and go back to the Procedure 5 step 8. Note: We can directly run the command written in file on mysql prompt followed by semicolon and can skip the Procedure 5 step 11.
2. ☐	**OCLSMS server:** If the MySQL port is changed for OCLSMS using GUI	Run the following command: `# lsmsdb -c masterstatus` Example: # lsmsdb -c masterstatus mysql-bin.000080 79245037 Where mysql-bin.000080 is the value of MASTER_LOG_FILE and 79245037 is the value of MASTER_LOG_POS. Go to next step.
3. ☐	**Solaris server:** If Configurable MySQL port feature is enabled on OCLSMS	Refer to step 2 of this procedure to get the value of MASTER_LOG_FILE and MASTER_LOG_POS. The value of master-port on Query Server should be same as configured on OCLSMS using GUI. Edit the snapinfo.sql file as follows: `CHANGE MASTER TO MASTER_HOST='10.248.10.80', MASTER_USER='lsmsrepl', MASTER_PASSWORD='mysql123', MASTER_PORT=3456, MASTER_LOG_FILE='mysql-bin.000006', MASTER_LOG_POS=17020215` Where MASTER_HOST = <VIP of the OCLSMS pair, where VIP is the Virtual IP address> MASTER_USER = <replication user name of OCLSMS> MASTER_PASSWORD = <replication user's password> MASTER_PORT = <Port on which OCLSMS is connecting with QS> Note: We can directly run the command written in file on mysql prompt followed by semicolon and can skip the Procedure 5 step 11.
End of Procedure		

APPENDIX B. SWOPS SIGN OFF.

Discrepancy List

Date	Test Case	Description of Failures and/or Issues. Any CSR's / RMA's issued during Acceptance. Discrepancy	Resolution and SWOPS Engineer Responsible	Resolution Date:

APPENDIX C. CUSTOMER SIGN OFF

Sign-Off Record

*** **Please review this entire document**. ***
This is to certify that all steps required for the installation/upgrade successfully completed without failure.

Sign your name, showing approval of this procedure, and fax this page and the above SWOPS Sign Off Discrepancy List to Oracle, FAX # 919-461-1083.

Customer: Company Name: _____ Date: _____

Site: Location:_____

Customer:(Print)_____ Phone:_____

Fax: _____

Start Date: _____ Completion Date: _____

This procedure has been approved by the undersigned. Any deviations from this procedure must be approved by both Oracle and the customer representative. A copy of this page should be given to the customer for their records. The SWOPS supervisor will also maintain a signed copy of this completion for future reference.

Oracle Signature: _____ Date: _____

Customer Signature: _____ Date: _____

APPENDIX D. MY ORACLE SUPPORT (MOS)

MOS (https://support.oracle.com) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with MOS registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below 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 2 for Non-technical issue

You will be connected to a live agent who can assist you with MOS registration and provide Support Identifiers. Simply mention you are an Oracle Customer new to MOS.

MOS is available 24 hours a day, 7 days a week, 365 days a year.

APPENDIX E : REINSTALLATION OF MYSQL

1. Login with root user.

2. Run the below command and grep the package name for installed mysql :
   ```
   pkginfo | grep –i mysql
   ```

3. Check the version details of mysql package:
   ```
   pkginfo -l <mysql package name>
   ```

4. Remove mysql package:
   ```
   /usr/sbin/pkgrm <mysql package name>
   ```

5. Run step 2 again to confirm that the package is removed and then proceed further.

6. Run the following commands to clean the database directory. This command should be run only if it is required to delete the MySQL database, due to some inconsistency or corruption in the database.
   I. `rm –rf /usr/mysql1/*` , in case of Solaris 10 setup or
   II. `rm –rf /usr/mysql/mysql1/*` , in case of Solaris 11 setup

7. Proceed with fresh install of QS as mentioned in 5.1.

8. Once the above procedure is completed, execute steps 1, 2 and 4 to 7 of procedure 5.3