ESM Oracle to MySql mapping

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Mar/Apr 2014

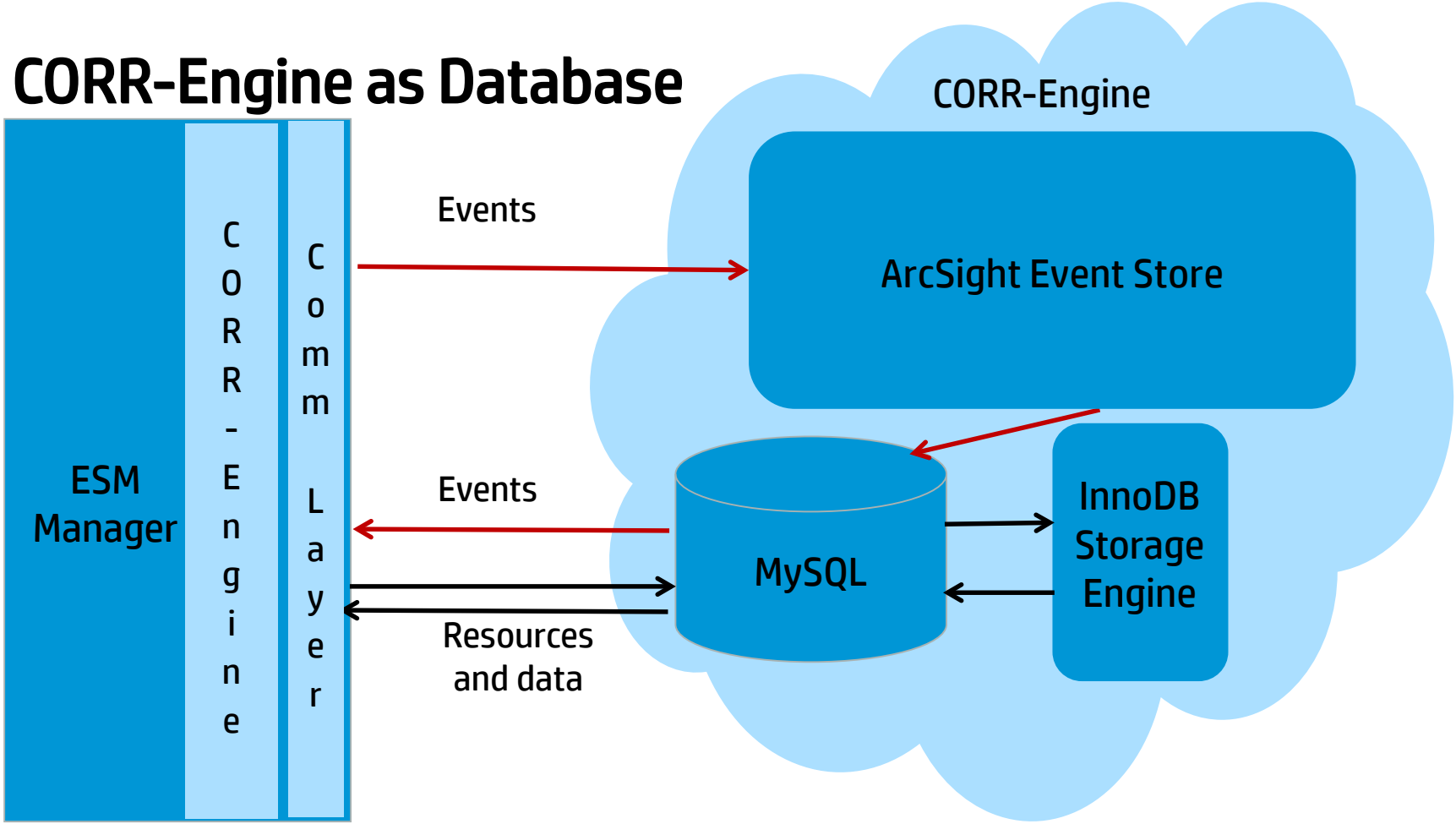
Objectives

After attending this presentation you should be able to:

- Understand how to access MySql DB for CORR-E utilities, etc
- Mappings of Oracle commands to MySql
- Utilities and getting at the data in CORR-E
- Known Issues & a few Best Practices

What is CORR-E

CORR-Engine as Database



MySQL Storage Engines

- The CORR-Engine relies on MySQL's pluggable storage engine architecture
  - Allows for different types of data handling
  - ArcSight's high performance event storage and retrieval
- InnoDB – Built-in transactional support, allowing updates and deletes
  - Multiversion concurrency control(same as Oracle)
  - Used for ESM resources(rules, channels, …) & trend data, active/session list data, annotations
- MySQL seamlessly handles the joins (e.g.: events and cases, actors)
- Patent-pending technology superstore (single database with Row and Column store)

Commands

Accessing the Databases

Command	Oracle	MySql
Connect to db as default user	arcdbutil sql / as sysdba Or sqlplus / as sysdba	/opt/arcsight/logger/current/arcsight/bin/mysql –u root –p
Connect to db as schema owner (default arcsight)	arcdbutil sql arcsight Or sqlplus arcsight	/opt/arcsight/logger/current/arcsight/bin/mysql –u arcsight –p
Connect to Postgres	N/A	/opt/arcsight/logger/current/arcsight/bin/psql rwdb web

DANGER! Do not manipulate mysql or postgresql in any way unless expressly advised by HP. Configuration changes or data changes at this level may result in catastrophic loss of data.

Log files

files	Oracle	MySql
Oracle alert log 10g	$ORACLE_HOME/admin/arcsight/bdump/alert_arcsight.log	*/opt/arcsight/logger/data/mysql/mysql.log*
Oracle alert log 11g	$ORACLE_BASE/diag/rdbms/arcsight/arcsight/trace/alert_arcsight.log	Same as above
Datafiles	SQL> select file_name from dba_data_files; select file_name from dba_temp_files;	mysql> SELECT @@datadir; +----------+ | @@datadir | +----------+ | /opt/arcsight/logger/current/../data/mysql/ | +----------+ 1 row in set (0.00 sec)

show databases – lists the schemas/databases available

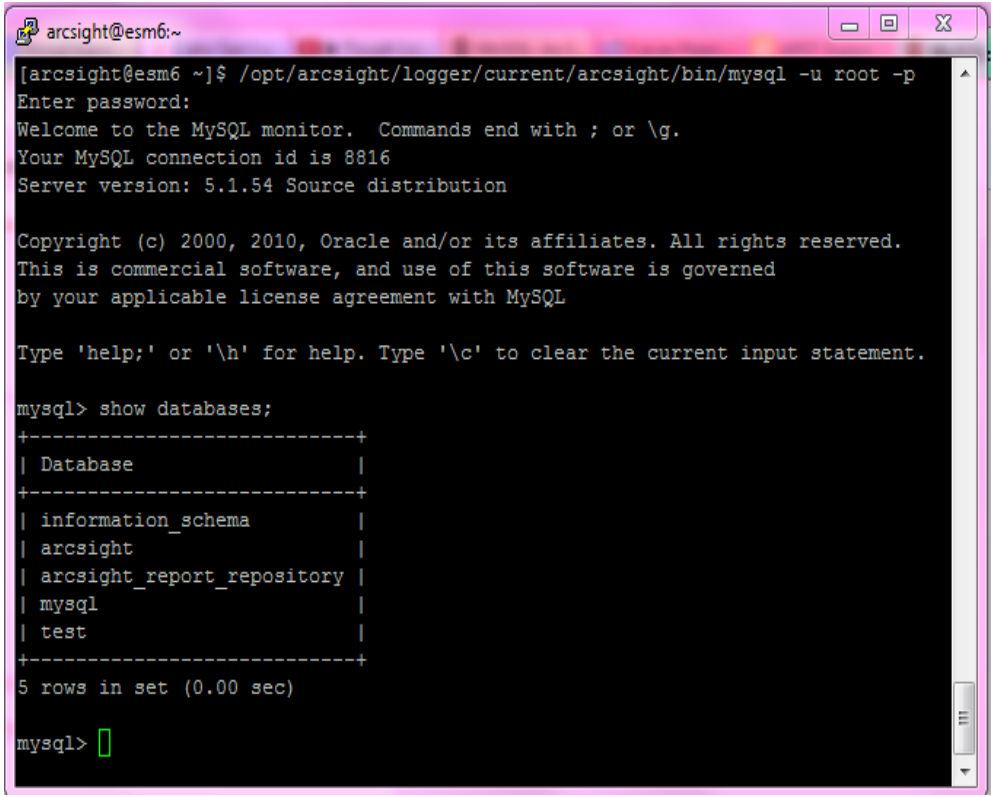
Oracle command to show schemas:

SQL> select username from dba_users;

Oracle has a database that can have many schemas or users.

In MySql database = schema

You cannot create multiple arcsight installs on CORR-E.

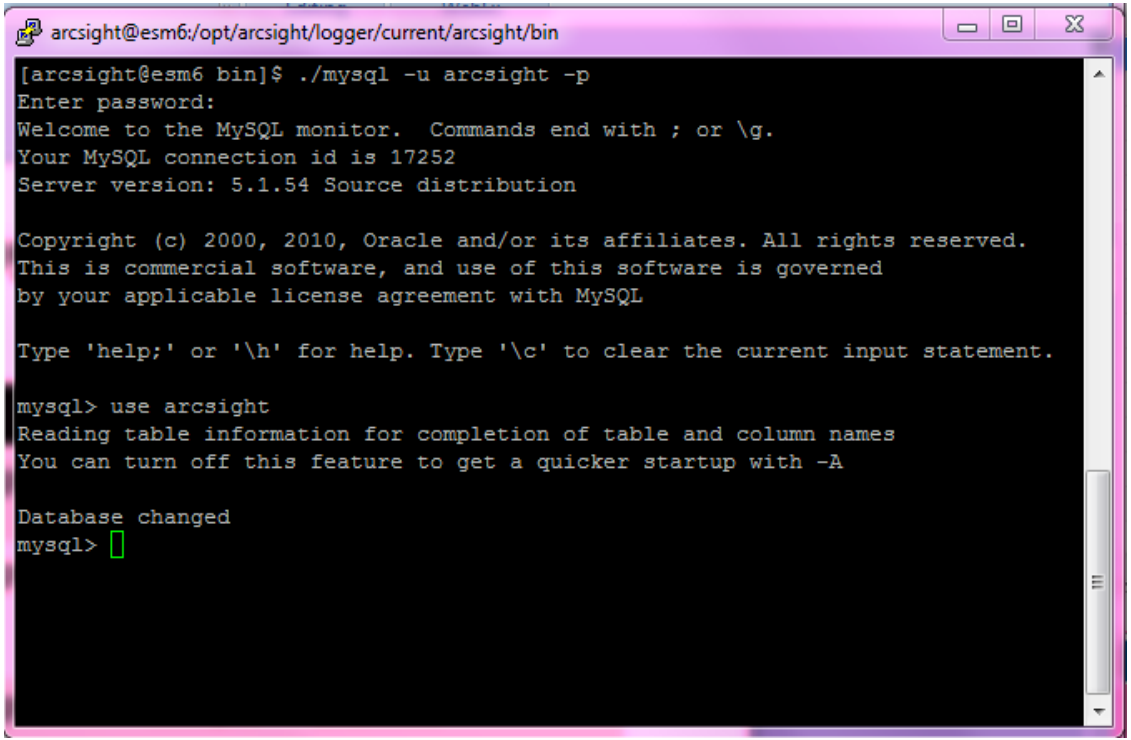


use database_name – selects the db to connect to

Oracle command:

sqlplus <schema name>

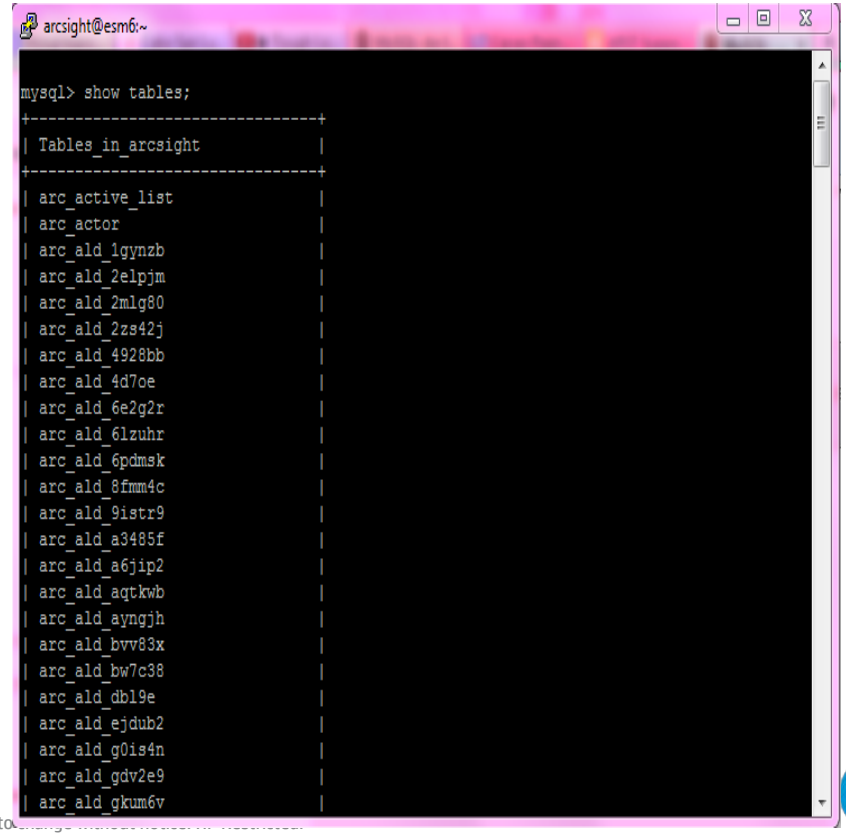
Our default is arcsight



show tables; - lists tables in the db/schema

Oracle command:

SQL> select table_name from dba_tables where owner='ARCSIGHT';



desc table_name; - describes columns/sizes in table

Oracle command:

SQL> desc table_name

MySql command:

mysql>desc table_name;

show processlist – shows active processes in DB

Oracle command:

arcdbutil sql arcsight

SQL> @dbessions

Our internal script dbsessions.out

Both show what users are connected and what is running.

MySql command:

mysql> use arcsight;

mysql> show processlist;

mysql> show full processlist;*

*Show full processlist will show actual queries running

Export System Tables – CORR-E - ESM service down

command	Oracle	MySql
Getting a system dump, referred to as export system tables	$ARCSIGHT_HOME/bin/arcsight export_system_tables <schema>/<password>@ORACLE_SID Example: /opt/arcsight/db/bin/arcsight export_system_tables arcsight/arcsight@arcsight Output file is in $ARCSIGHT_HOME/arcsight.dmp <Oracle ESM can stay up for export_system_tables>	/sbin/service arcsight_services stop manager Execute the following command from /opt/arcsight/manager/bin to export the tables: ./arcsight export_system_tables <mysql_username> <mysql_password> <mysql_dabatbase> Example: /arcsight export_system_tables arcsight arcsight arcsight Output file is: /opt/arcsight/manager/tmp/arcsight_dump_system_tables.sql start the Manager: /sbin/service arcsight_services start manager

Accessing Data

Manipulating Data Warnings

- **If you make changes directly through mysql – you could corrupt, change, irreparably damage your configuration (ie reports, connector information, trends, etc)**

- **If you make changes through pgsql – you could corrupt, change, irreparably damage the metadata that allows access to the CORR-E storage**

How to query arc_event table ?

http://support.openview.hp.com/selfsolve/document/KM00598676

mysql> select * from arcsight.events where arc_deviceHostName = 'esm6c.hp.local' limit 1;

Gets ERROR 1641 (HY000): 5005: invalid user session: [20]

We have to set a session before running a command:

set arc_logger_usersessionId =524299997;

CORR-E utility: arcdt

- **ArcSight Diagnostics tool – arcdt - runs sql commands**

- **/opt/arcsight/manager/bin/arcsight arcdt.**

Example: ***./arcsight arcdt runsql –f /tmp/test.sql***

Output will come to the screen

CORR-E utility: arcdt

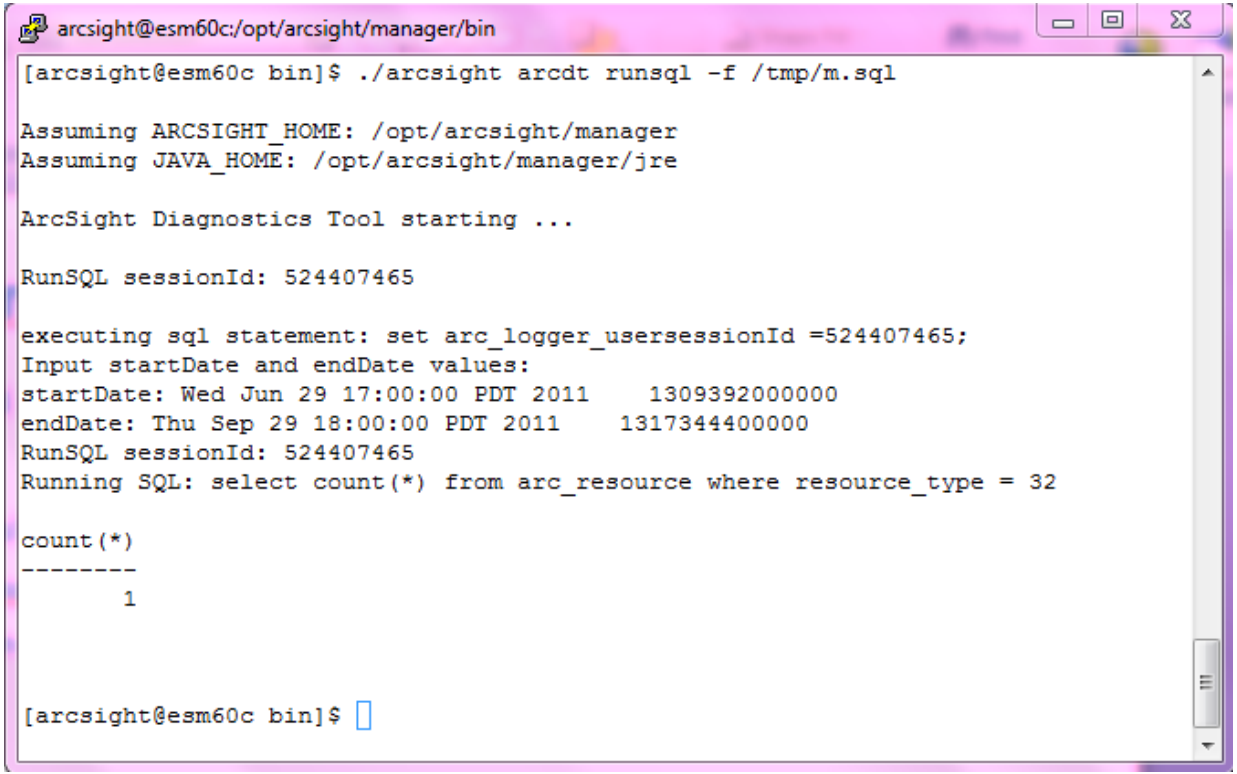
- **Preferred method for accessing the Database in CORR-E**

As tables are stored in either CORR-E storage OR innodb you will use different parameters for the arcdt command. All the parameters are listed in the 6.5 Admin guide on page 105-107 – too many to list here

https://protect724.hp.com/docs/DOC-9255

> Oracle equivalent of arcdt runsql = sqlp

CORR-E utility: arcdt simple command



How to tell where table is stored?

Oracle command:

SQL> select table_name, tablespace_name from dba_tables where table_name='ARC_EVENT';

MySql command:

mysql>show create table <tablename>

The end will show storage and character set parameter. For example:

mysql>show create table arcsight.events;

.

ENGINE=ARC_LOGGER DEFAULT CHARSET=utf8 COLLATE=utf8_bin |

mysql>show create table arc_resource;

.

ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_bin |

How to query arc_event table ? Oracle

Note: Use end_time as oracle stores in partitions via end_time

This will select count for the day of 1/2/2014

```
SQL> select count(*) from arc_event where
end_time < to_date('2014-01-02','YYYY-MM-DD') and end_time >= to_date('2014-01-02','YYYY-MM-DD');
```

OR with oracle as we have partitions, you can count by partition:

```
SQL>select count(*) from arc_event partition (arc_event_20140102);
```

OR with seconds included:

```
SQL>select count(*) from arc_event where
end_time <= to_date('2014-01-02 00:00:00','YYYY-MM-DD HH24:MI:SS')
and end_time > to_date('2014-01-02 23:59:59','YYYY-MM-DD HH24:MI:SS');
```

How to query arc_event table pt 2

http://support.openview.hp.com/selfsolve/document/KM00598676 contents:

- **To count the number of events in ESM CORRE you need to run a SQL command.**
- **1. Create a file /opt/arcsight/manager/sample.txt with the following statement:**

select count(*) from arcsight.events;

How to query arc_event table pt 3

2. Run this command. Replace the date format with the dates you will like to query (See example):

/opt/arcsight/manager/bin/arcsight arcdt runsql -f /opt/arcsight/manager/sample.txt
-type EndTime -ss yyyy-mm-dd-00-00-00-000-UTC -se yyyy-mm-dd-00-00-00-000-UTC

(all on 1 line)

For example:

/opt/arcsight/manager/bin/arcsight arcdt runsql -f /opt/arcsight/manager/sample.txt
-type EndTime -ss 2014-01-02-00-00-00-000-UTC -se 2014-01-02-00-00-00-000-UTC

will count all events from 2014/01/02 00 hour to 2014/01/02 00 hour.

Limiting result sets

MySql

Doesn't support the standard. Alternative solution:

```
SELECT columns
FROM tablename
ORDER BY key ASC
LIMIT n ;
```

Oracle

Supports ROW_NUMBER;

```
SELECT * FROM ( SELECT
ROW_NUMBER() OVER (ORDER BY key ASC) AS rownumber,     columns  FROM tablename)
WHERE rownumber <= n;
```

Known Issues

Known Issues – 6.0c – fixed patch 2 and 6.5

Don’t use command, it can corrupt mysql/innodb tables

/sbin/service arcsight_services stop all

Instead use the following:

/sbin/service arcsight_services stop arcsight_web

/sbin/service arcsight_services stop manager

/sbin/service arcsight_services stop logger

/sbin/service arcsight_services stop mysqld

Known Issues – space

There have been cases where arc_system_data fills the culprits usually are:

Trends

Session lists

Active lists

Sample SQL - Finding Large trend tables

To find the 5 largest trend tables:

```
SELECT concat(table_schema,'.',table_name) as Database_Tablename, table_rows as Rows,
concat(round(data_length/(1024*1024),2),'M') DATA, concat(round(index_length/(1024*1024),2),'M') idx,
concat(round((data_length+index_length)/(1024*1024),2),'M') total_size,
round(index_length/data_length,2) idxfrac
FROM information_schema.TABLES
where table_name like '%arc_trend%'
order by data_length+index_length DESC limit 5;
```

Truncate notification tables

- **Sometimes Notification tables fill due to Rules or Datamonitors getting too many hits and ESM doesn't start or logging into the console is really slow**

If you are ok in losing all your notifications, you can use the following SQL to remove them:

First you would shut the ESM service down then login to mysql or use arcsight arcdt

Mysql> set foreign_key_checks=0;

Mysql>truncate table arc_notification_history;

Mysql>truncate table arc_notification_registry;

Mysql>set foreign_key_checks=1;

Last bring ESM back up.

Instead of Delete - create/rename

- **If you are deleting many rows from a large table, you may exceed the lock table size for an InnoDB table. To avoid this issue, or simply to minimize the time that the table remains locked, the following strategy (which does not use DELETE at all) might be helpful:**

Login to mysql or use arcsight arcdt

CREATE TABLE arc_notification_history_copy LIKE arc_notification_history;

Use RENAME TABLE to atomically move the original table out of the way and rename the copy to the original name:

RENAME TABLE arc_notification_history TO arc_notification_history _old, arc_notification_history _copy TO arc_notification_history;

Drop the original table:

DROP TABLE arc_notification_history _old;

<repeat for arc_notification_registry>

If you are not deleting all rows from large table?

Select the rows *not* to be deleted into an empty table that has the same structure as the original table

INSERT INTO table_copy SELECT * FROM table WHERE ... ;

Use RENAME TABLE to atomically move the original table out of the way and rename the copy to the original name:

RENAME TABLE t TO table_old, table_copy TO table;

Drop the original table:

DROP TABLE table_old;

Expanding storage space

Oracle command:

arcsight database xts

MySql

In 6.0 there are files you can edit, but this can be dangerous if you use a smaller size, it can corrupt your data

Recommended step is to upgrade to 6.5 and use the Command Center to expand space.

ESM 6.5C Command Center – modify storage 6.5c only

Event Storage

Storage Groups

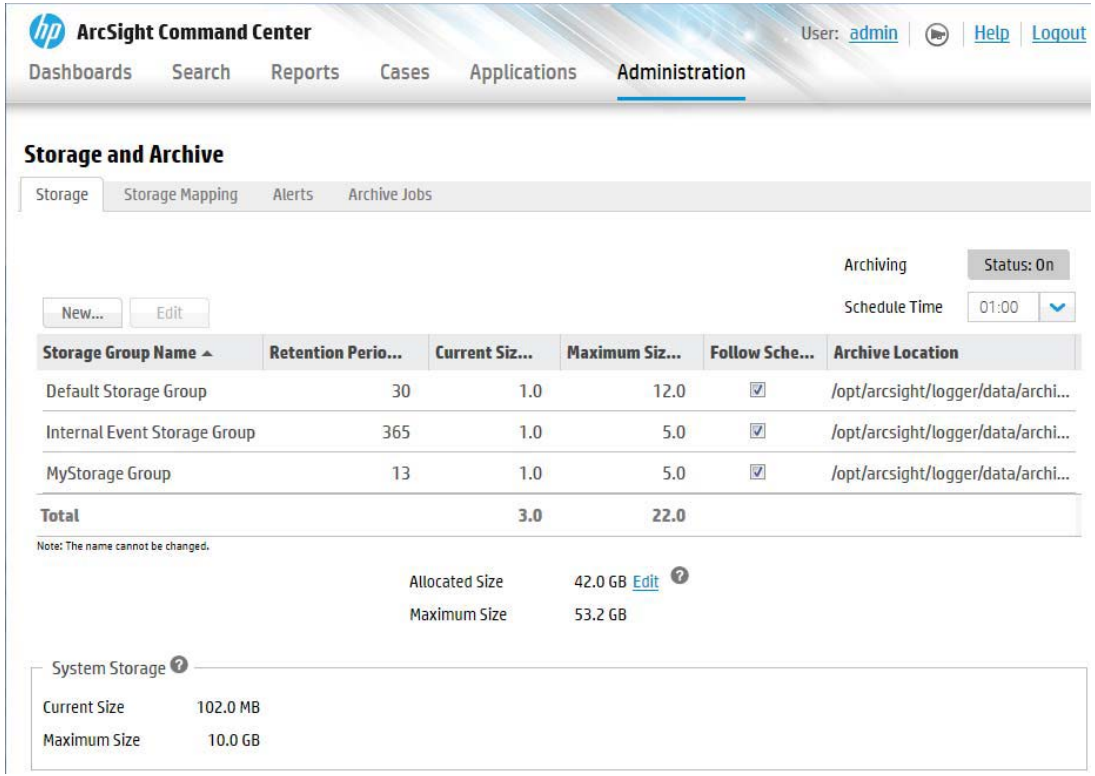
- Create New
- Edit Existing
- Control Archive location

Retention

- Specific to Storage group

Storage Mapping

- Segment your data



Space …Challenges

Support to have a KCS article to manually expand space

6.5 Command Center doesn't allow System Storage changes (bug)

Jira filed for a script NGS-4551

Best Practices

Patches and Release Notes

- **Same as Oracle versions – ALWAYS review the Release Notes for bugs fixed and tuning tidbits, for example 6.0C patch 2 release notes:**

– NGS-4082

If the buffer pool is too small, it can cause slow channel performance or prevent logging in to the Console. If you get an error message like this:

[ERROR][default.com.arcsight.common.persist.mysql.MysqlNotificationBroker][purgeOldNotifications]

java.sql.SQLException: The total number of locks exceeds the lock table size

...you can solve the problem by editing the file:

/opt/arcsight/logger/data/mysql/my.cnf to set innodb_buffer_pool_size = 512M

(the default was 128).

Then restart all services.

DB Don’t and Do’s

- **Oracle Best Practices:**
  - Search Protect 724 http://protect724.hp.com/docs/DOC-1466

- **CORR-E don’ts:**
  - **don’t make changes to the my.cnf file (mysql configuration)**
    - **Customers have lost all data with by adding parameters**
    - **Customers have encountered unrecoverable corruption – also lost data**

CORR-E do’s:

- **Open a support ticket and ask about any parameters you want to add or change first!**

Places to go for more information

- **Protect 724**
- **ArcSight Resources – webinars, tools, interesting stuff:**

https://protect724.hp.com/community/arcsight/arcsight-resources

Product Documentation:

https://protect724.hp.com/community/arcsight/productdocs

Thank you