Cisco StadiumVision Mobile Reporter Architecture and Administration

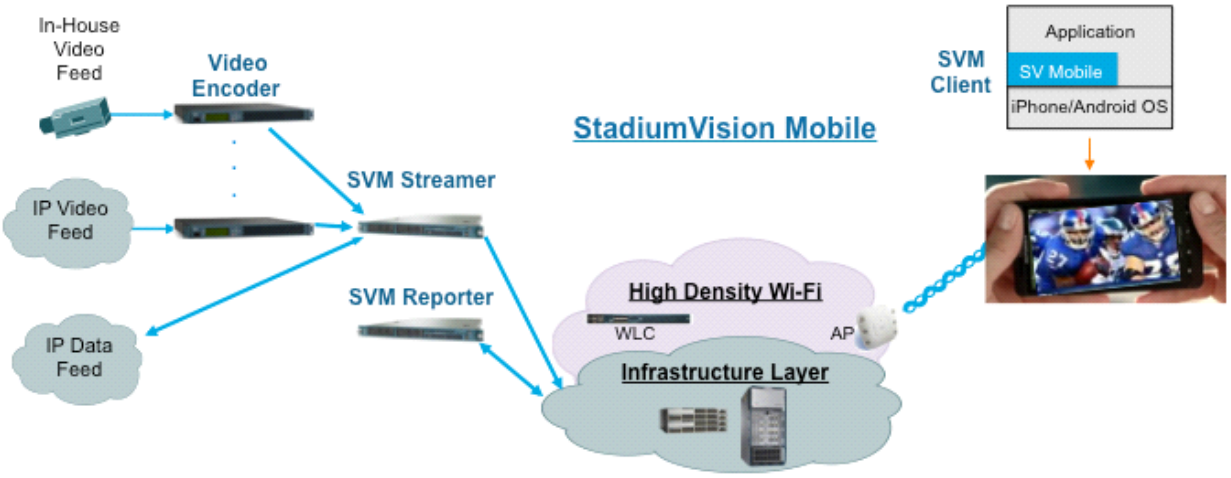
This module contains information that system administrators will use to configure and maintain the StadiumVision Mobile Reporter, and contains the following sections:

Overview of the StadiumVision Mobile Reporter

The StadiumVision Mobile Reporter works in conjunction with the StadiumVision Mobile Streamer, SDK, and client application to provide quality of experience statistics. It collects and processes data from the StadiumVision Mobile Streamer, SDK, and client application, and provides wireless network analysis via reports and live event charts. Figure 1 depicts the StadiumVision Mobile Reporter in the StadiumVision Mobile solution.

The Reporter accepts data from mobile devices in the stadium which are running an application based on the StadiumVision Mobile Client SDK. The clients report their data periodically and frequently, perhaps once per minute or more. The Reporter is designed to efficiently process large amounts of data and summarize it in multiple and flexible ways.

Figure 1 Cisco StadiumVision Mobile Architecture



User Roles and Capabilities

The Cisco StadiumVision Mobile Reporter has two users enabled by default: Admin and Marketing.

The **admin** user role provides technical tools with the following features:

- System monitoring reports
  - Disk utilization
  - Current number of users)
- System alerts
- Event upload function for event statistics

The **marketing** user role provides marketing information with the following reports on both a live and historical basis:

- Maximum Viewers
- Total unique viewers
- Total viewing time
- Mobile device break down

Cisco StadiumVision Mobile Reporter Text Utility Interface

The StadiumVision Mobile Reporter Text Utility Interface (TUI) provides a console-based text interface for use by system installers and on-site troubleshooting personnel. The TUI can be used to perform routine system tasks such as modifying system configurations, changing passwords, and checking system logs. Remote TAC access and troubleshooting can both be facilitated from the TUI in the event of a StadiumVision Mobile Reporter outage or failure.

Logging into the TUI

To access the TUI, you need either physical console access or an SSH client such as PUTTY. Log in from the console or over SSH with the following credentials:

username = installer
password = cisco!123

You will be prompted to change the password on your first successful login. You also have the option of changing the password via the TUI.

File Editor

Several of the TUI options open server system files for you to modify using the Unix system vi editor. The following configuration files are editable from the TUI:

- DNS information—/etc/resolv.conf
- NTP server information—/etc/ntp.conf
- Server host information—/etc/hosts

Before modifying configuration files, you should be familiar with the simple editing techniques used within the vi editor. Table 1 describes some of the more common vi Editor commands.

Table 1 Common vi Editor Commands

Command	Description
ZZ or **:wq**	Exit vi and save changes.
:q!	Exit vi without saving changes.
Esc key	Exit current mode and enter vi command mode.
Cursor Movement	
h	Move left (backspace).
j	Move down.
k	Move up.
l	Move right.
Enter key	Move to the beginning of the next line.
Inserting	
a	Append character after cursor.
i	Insert character before cursor. Enters INSERT mode.
r	Replace character under cursor with next character typed.
R	Keep replacing character until [Esc] is pressed.
Deleting	
db	Delete word before cursor.
dd	Delete line under cursor.
dw	Delete word under cursor.
x	Delete character under cursor.

Table 1 Common vi Editor Commands (continued)

Command	Description
P	Undo deletion of characters, words, or lines before cursor.
p	Undo deletion of characters, words, or lines after cursor.

Using the TUI

Figure 2 shows an overall view of the StadiumVision Mobile Reporter TUI.

Figure 2 Cisco StadiumVision Mobile Reporter TUI Hierarchy

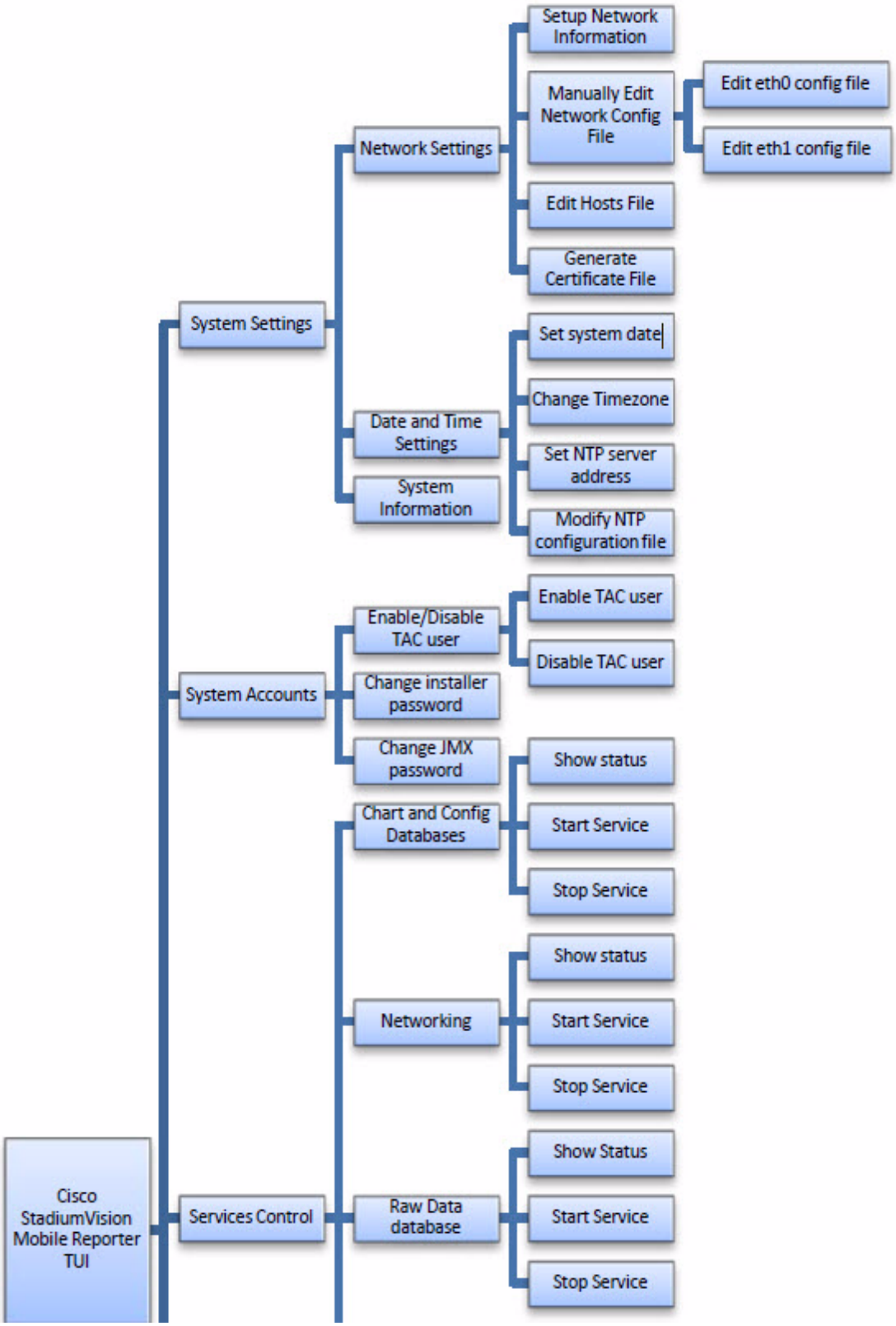
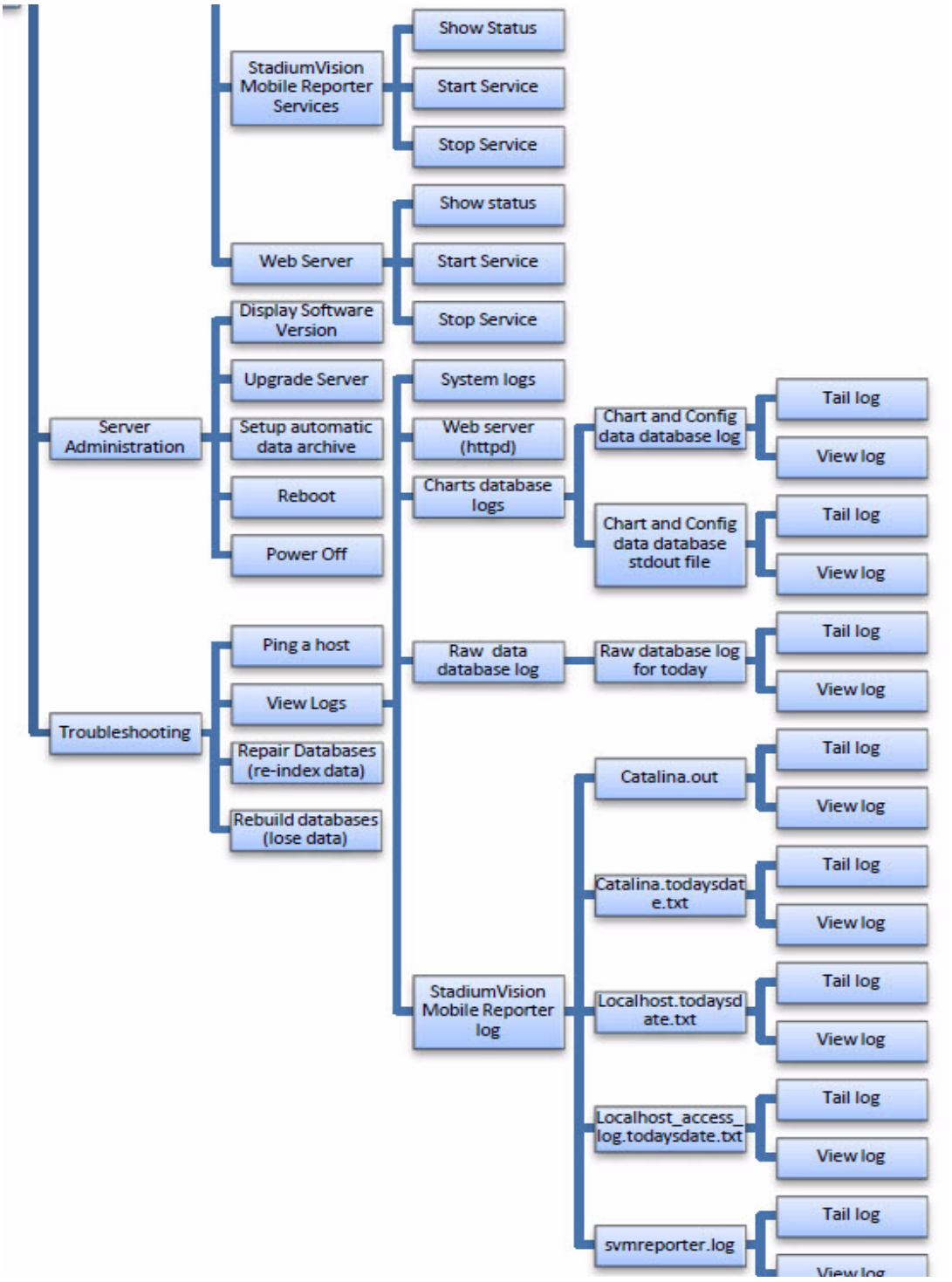


Figure 3 Cisco StadiumVision Mobile Reporter TUI Hierarchy (continued)



The following sections provide a brief description of each TUI menu item.

System Settings

Network Settings

Setup Network Information

Allows for configuration of network devices and the DNS server

Manually edit network config file

- Edit eth0 config file - allows for configuration of Ethernet port 0
- Edit eth1 config file - allows for configuration of Ethernet port 1

Edit hosts file

Uses the vi editor to modify the /etc/hosts file

Generate certificate file

Generates a new networked certificate file

Data and time settings

The system date, timezone, and NTP server address should be set during the installation process. If these items were not configured during installation, it is critical to configure these items to avoid time drift and to ensure accurate reporting.

Set system date

Manually sets the date.

Change timezone

Allows for setting the timezone. Choose a number next to the correct timezone.

Set NTP server address

Allows for setting the Network Time Protocol (NTP). Enter an IP address for a valid NTP server.

Modify NTP configuration file

Allows for manually editing the NTP configuration file.

System Information

Displays network information for eth0 and eth1 ports, hosts file, DNS information, and NTP server information.

System Accounts

Enable/Disable TAC user

- Enable TAC user

  Enables a Cisco TAC representative to remotely troubleshoot the StadiumVision Mobile Reporter. This will allow for remote shell access which will be used for remote troubleshooting purposes. Always disable this access once you complete troubleshooting the system.

- Disable TAC user

  Disables remote shell access.

Change installer password

Changes the installer password.

Change JMX password

Changes the Java Management Extensions password, which may be used to allow JMX clients to monitor and troubleshoot the Reporter.

Services Control

Charts and Config Database

Allows the user to show the status of the charts and configuration database, and to start or stop the charts and configuration database service.

- Show Status - displays the overall service status
- Start Service - starts the service
- Stop Service - stops the service

Networking

- Networking status - displays the status of ports eth0 and eth1
- Restart networking - restarts the networking service

Raw Data Database

The StadiumVision Mobile Reporter contains two databases: the raw data database, where the unprocessed event data is collected, and the charts and config database

- Show Status - displays the status of the raw data database service
- Start Service - starts the raw data database service
- Stop Service - stops the raw data database service

StadiumVision Mobile Reporter Services

- Show Status - displays the svmreporter service status
- Start Service - starts the svmreporter service
- Stop Service - stops the svmreporter service

Web Server

- Show Status - displays the httpd service status
- Start Service - starts the httpd service
- Stop Service - stops the httpd service

Server Administration

Display Software Version

Displays the installed software version.

Upgrade Server

Provides a way to upgrade the StadiumVision Mobile Reporter software by choosing an ISO image from a list. See the "Upgrading StadiumVision Mobile Reporter Using the Web Browser User Interface" section in the *Cisco StadiumVision Mobile Reporter and Cisco StadiumVision Mobile Streamer Installation and Upgrade Guide*.

Setup automatic data archive

On a nightly basis, backups are done of the chart and config database. Also a nightly archive of the raw data database is performed. These file archives are available to download via HTTP download as shown in Table 3. The file archives are automatically removed from the StadiumVision Mobile Reporter after 20 days.

Reboot

Reboots the StadiumVision Mobile Reporter.

Power Off

Powers the StadiumVision Mobile Reporter off.

Troubleshooting

Ping a host

Allows for connectivity testing by pinging an IP address.

View logs

Log files are written as events transpire. The log files are available to be downloaded via HTTP. The log files are intended for a Cisco TAC representative to aid in troubleshooting. The log files are rotated out of the system, typically after 20 days.

- System logs
  - System console messages (/var/log/messages)
  - Authentication/Authorization logs (/var/log/secure)
  - Driver messages (dmesg)
    - Tail log
    - View log
  - Authentication/Authorization logs
- Web Server logs (httpd)

  - Web Server access log (/var/log/httpd/error_log)
    - Tail log
    - View log
  - Web Server error log
    - Tail log
    - View log
- Charts database logs
  - Chart and Config data database log
    - Tail log
    - View log
  - Chart and Config data database stdout file
    - Tail log
    - View log
- Raw data database log
  - Raw database log for today
    - Tail log
    - View log
- StadiumVision Mobile Reporter Log
  - catalina.out
    - Tail log
    - View log
  - catalina.2012-12-11.log
    - Tail log
    - View log
    - localhost.2012-12-11.log
    - Tail log
    - View log
    - localhost_access_log.2012-12-11.txt
    - Tail log
    - View log
  - svmreporter.log
    - Tail log
    - View log

Repair databases (re-index data)

- Repair Raw Data database

Rebuild databases (lose data)

- Rebuild Raw Data database (data will be lost)

- Rebuild Chart and Config database (data will be lost)
- Re-seed Chart and Config database

Setting the StadiumVision Mobile Reporter User Time Zone

The StadiumVision Mobile Reporter has the default users marketing and admin, and a default time zone setting of Pacific Standard Time (PST). If the user browser or device is set to Pacific Standard Time (PST) and if the events are occurring in the EST time zone, the user can change the reports timestamp to the Eastern Standard Time (EST) time zone.

Each user time zone can be changed by using the following procedure:

Note Access to the StadiumVision Reporter CLI requires administrator access.

Step 1 SSH to the StadiumVision Mobile Reporter.

Step 2 Execute the**./cassandra-cli** shell command.

Step 3 Within the CLI console, execute the following commands:

a. **use BDASchema;**

b. **set Users['marketing']['gmtoffset']='-8';**

c. **set Users['admin']['gmtoffset']='-8';**

'-8' can be changed according to the desired time zone offset listed in Table 2.

Table 2 Time Zones and Offsets

Time Zone Offset	Time Zone Abbreviation	Time Zone Description
0	GMT	Greenwich Mean Time
+1	ECT	European Central Time
+2	EET	European Eastern Time
+2	ART	(Arabic) Egypt Standard Time
+3	EAT	Eastern African Time
+3.5	MET	Middle East Time
+4	NET	Near East Time
+5	PLT	Pakistan Lahore Time
+5.5	IST	India Standard Time
+6	BST	Bangladesh Standard Time
+7	VST	Vietnam Standard Time
+8	CTT	China Taiwan Time
+9	JST	Japan Standard Time
+9.5	ACT	Central Australia Time
+10	AET	Eastern Australia Time

Time Zone Offset	Time Zone Abbreviation	Time Zone Description
+11	SST	Solomon Standard Time
+12	NST	New Zealand Standard Time
-11	MIT	Midway Islands Time
-10	HST	Hawaii Standard Time
-9	AST	Alaska Standard Time
-8	PST	Pacific Standard Time
-7	PNT	Phoenix Standard Time
-7	MST	Mountain Standard Time
-6	CST	Central Standard Time
-5	EST	Eastern Standard Time
-5	IET	Indiana Eastern Time
-4	PRT	Atlantic Standard Time
-3.5	CNT	Canada Newfoundland Time
-3	AGT	Argentina Standard Time
-3	BET	Brazil Eastern Time
-1	CAT	Central Africa Time

About Databases, Backups, and Managing Disk Utilization

There are two databases in the Reporter: the raw data database, and the chart and configuration data database. The configuration database is never deleted. The raw data can potentially use up all available disk space, and therefore the data must be periodically purged.

On a daily basis, a backup of both databases is done at around 4:00 AM. The data files can be viewed by going to the URL http://svm:8080/reporter/jsp/svmbackup.jsp. These files are kept on the Reporter for 20 days and can be downloaded from that location. The backup files are listed below:

Chart and Configuration data backup file:

- ChartAndConfigData.MMDDHHMI.tgz (where YYYYMMDDHHMI is the year/month/day/hour/minute)

Raw data backup files:

- MonitorEvent.YYYYMMDDHHMI.bson.gz
- CepResults.YYYYMMDDHHMIbson.gz
- StreamerEvent.YYYYMMDDHHMI.bson.gz
- SvmMobileMapEvent.YYYYMMDDHHMI.bson.gz

In StadiumVision Mobile Reporter release 1.2, there is an automated scheduled to remove all the raw data in the reporter. It happens every 6 months, on June 1 and December 1, at 5:30AM. Just prior to the data purge, an archive file of the existing data will be created and available at the above URL.

Changing the Data Purge Schedule

To change the purge schedule, a change should be made to the 'crontab' file. From a shell terminal session, use the following command:

```
$sudo crontab -e
```

This invokes vi editor, and you will see two lines like the following:

```
# purge mongo raw data every 6 months at 5:00 AM
0 05 01 Jun,Dec *
/var/svm/bin/purgeMongoData.sh/opt/sv/servers/svmreporter/logs/purgeMongo.log 2>&1
```

Modify the second line as desired, according to crontab conventions. For example, if you would like to purge data every 3 months, change "Jun,Dec" to "Mar,Jun,Sep,Dec".

Performing a Backup

Download the backup file on a regular basis. The purpose of performing a backup is to maintain a copy of the files in the event that the reporter machine becomes unusable or hard drive failure.

Step 1 Access the following link in a web browser:

http://*reporter ip adress:*8080/reporter/jsp/svmbackup.jsp

Note After a fresh install, no backup files will exist.

A list of files will appear, as shown below:


Please select a raw data export file from the list below. This will be downloaded to your client machine for further processing in Mongo.

Filename	Date	Size
ChartAndConfigData.201212200402.tgz	Thu Dec 20 04:02:00 PST 2012	3,988,594
StreamerEvent.201212200402.bson.gz	Thu Dec 20 04:02:00 PST 2012	953,071
MonitorEvent.201212200402.bson.gz	Thu Dec 20 04:02:00 PST 2012	34,350
CepResults.201212200402.bson.gz	Thu Dec 20 04:02:00 PST 2012	1,007,222
SvmMobileMapEvent.201212200402.bson.gz	Thu Dec 20 04:02:00 PST 2012	37,012,189
ChartAndConfigData.201212210402.tgz	Fri Dec 21 04:02:00 PST 2012	4,419,767
MonitorEvent.201212210402.bson.gz	Fri Dec 21 04:02:00 PST 2012	52,348
CepResults.201212210402.bson.gz	Fri Dec 21 04:02:00 PST 2012	1,592,574
StreamerEvent.201212210402.bson.gz	Fri Dec 21 04:02:00 PST 2012	1,456,353
SvmMobileMapEvent.201212210402.bson.gz	Fri Dec 21 04:02:00 PST 2012	50,677,352
MonitorEvent.201212220402.bson.gz	Sat Dec 22 04:02:00 PST 2012	70,096
ChartAndConfigData.201212220402.tgz	Sat Dec 22 04:02:00 PST 2012	4,851,750
CepResults.201212220402.bson.gz	Sat Dec 22 04:02:00 PST 2012	2,160,837
StreamerEvent.201212220402.bson.gz	Sat Dec 22 04:02:00 PST 2012	1,939,023
SvmMobileMapEvent.201212220402.bson.gz	Sat Dec 22 04:02:00 PST 2012	63,353,504
ChartAndConfigData.201212230402.tgz	Sun Dec 23 04:02:00 PST 2012	5,266,139
MonitorEvent.201212230402.bson.gz	Sun Dec 23 04:02:00 PST 2012	88,146
StreamerEvent.201212230402.bson.gz	Sun Dec 23 04:02:00 PST 2012	2,500,867
CepResults.201212230402.bson.gz	Sun Dec 23 04:02:00 PST 2012	2,770,391
SvmMobileMapEvent.201212230402.bson.gz	Sun Dec 23 04:02:00 PST 2012	79,175,193
ChartAndConfigData.201212240402.tgz	Mon Dec 24 04:02:00 PST 2012	5,568,109
MonitorEvent.201212240402.bson.gz	Mon Dec 24 04:02:00 PST 2012	106,299
CepResults.201212240402.bson.gz	Mon Dec 24 04:02:00 PST 2012	3,189,152
StreamerEvent.201212240402.bson.gz	Mon Dec 24 04:02:00 PST 2012	3,069,843
SvmMobileMapEvent.201212240402.bson.gz	Mon Dec 24 04:02:00 PST 2012	90,144,735
CepResults.201212250402.bson.gz	Tue Dec 25 04:02:00 PST 2012	3,552,039
MonitorEvent.201212250402.bson.gz	Tue Dec 25 04:02:00 PST 2012	124,264

Step 2 Identify the following backup files:

Chart and Configuration data backup file:

- ChartAndConfigData.MMDDHHMI.tgz (where YYYYMMDDHHMI is the year/month/day/hour/minute)

Raw data backup files:

- MonitorEvent.YYYYMMDDHHMI.bson.gz
- CepResults.YYYYMMDDHHMIbson.gz
- StreamerEvent.YYYYMMDDHHMI.bson.gz
- SvmMobileMapEvent.YYYYMMDDHHMI.bson.gz

Step 3 Copy the backup files from the list onto a backup drive.

Performing a Restore

This procedure requires that you first obtain an SNE TAC account. To restore the chart and config database, use the following procedure.

Step 1 Log on with an **snetac** account to access the command line prompt.

Step 2 Copy the ChartAndConfigData.MMDDHHMI.tgz backup file onto the reporter machine via a file transfer mechanism.

Step 3 Run the restore script '**restoreCassandra.sh**' using the backup filename.

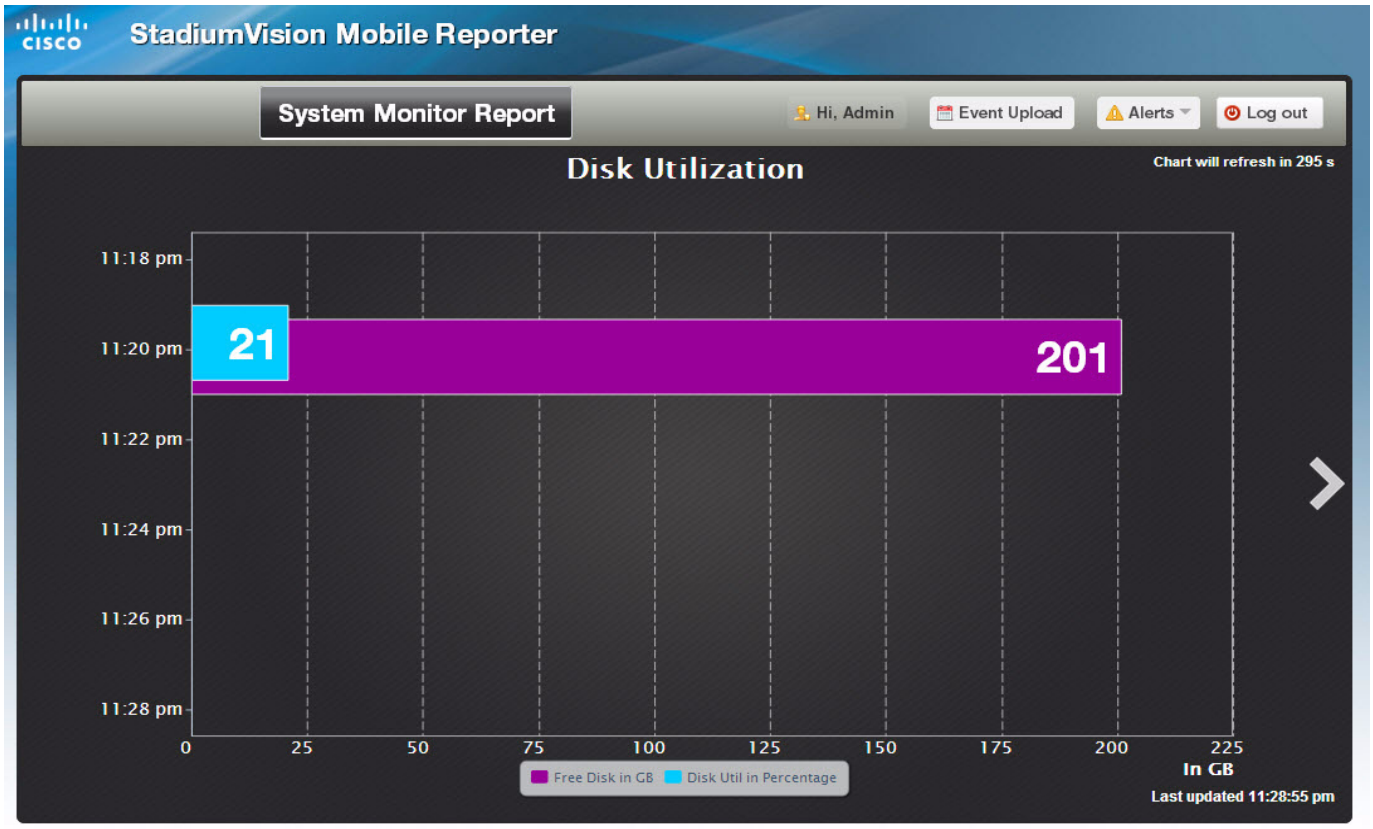
```
/var/svm/bin/restoreCassandra.sh /tmp/ChartAndConfigData.11140402.tgz
```

This script will stop and start the SVM tomcat and chart and config database processes. Output will go to the console but also to the system log (/var/log/messages) and the chart and config database log (/var/log/restoreCassandra.out).

Disk Utilization Report

The Admin role in the StadiumVision Mobile Reporter GUI provides a graphic report of the current disk utilization, as shown in Figure 4.

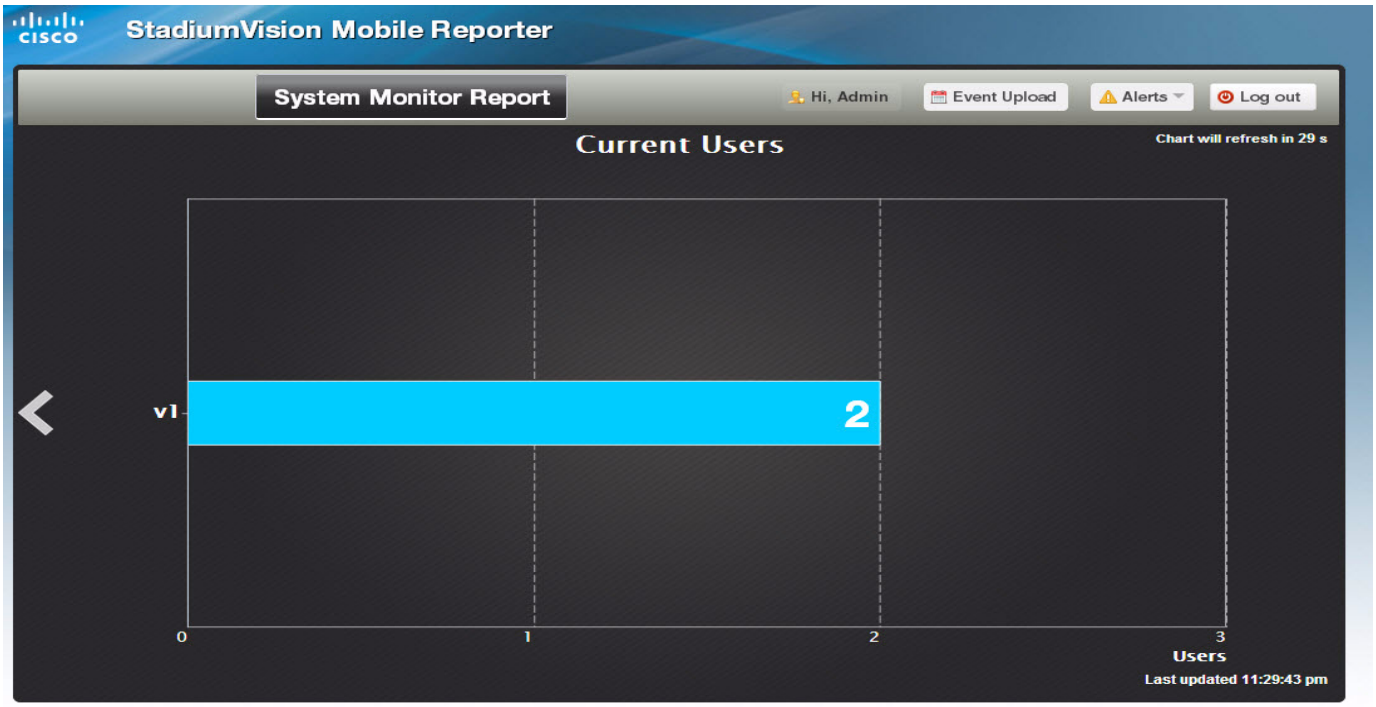
Figure 4 Disk Utilization Report



Current Users Report

The StadiumVision Mobile Reporter provides a report that depicts the current number of unique clients using StadiumVision Mobile, as shown in Figure 5.

Figure 5 Current Users Report



Viewing StadiumVision Mobile Reporter Alerts

The StadiumVision Mobile Reporter alerts the admin user as to high, medium, and low threshold alerts. To access the alerts, click on the Alerts button, and choose View Alerts as shown in Figure 6.

The number of alerts displayed, as well as the start time of the alerts can be configure by clicking on the **alert settings** option on the Alerts drop-down menu. The alerts lists is shown in Figure 7.

Figure 6 Alerts Button and Settings

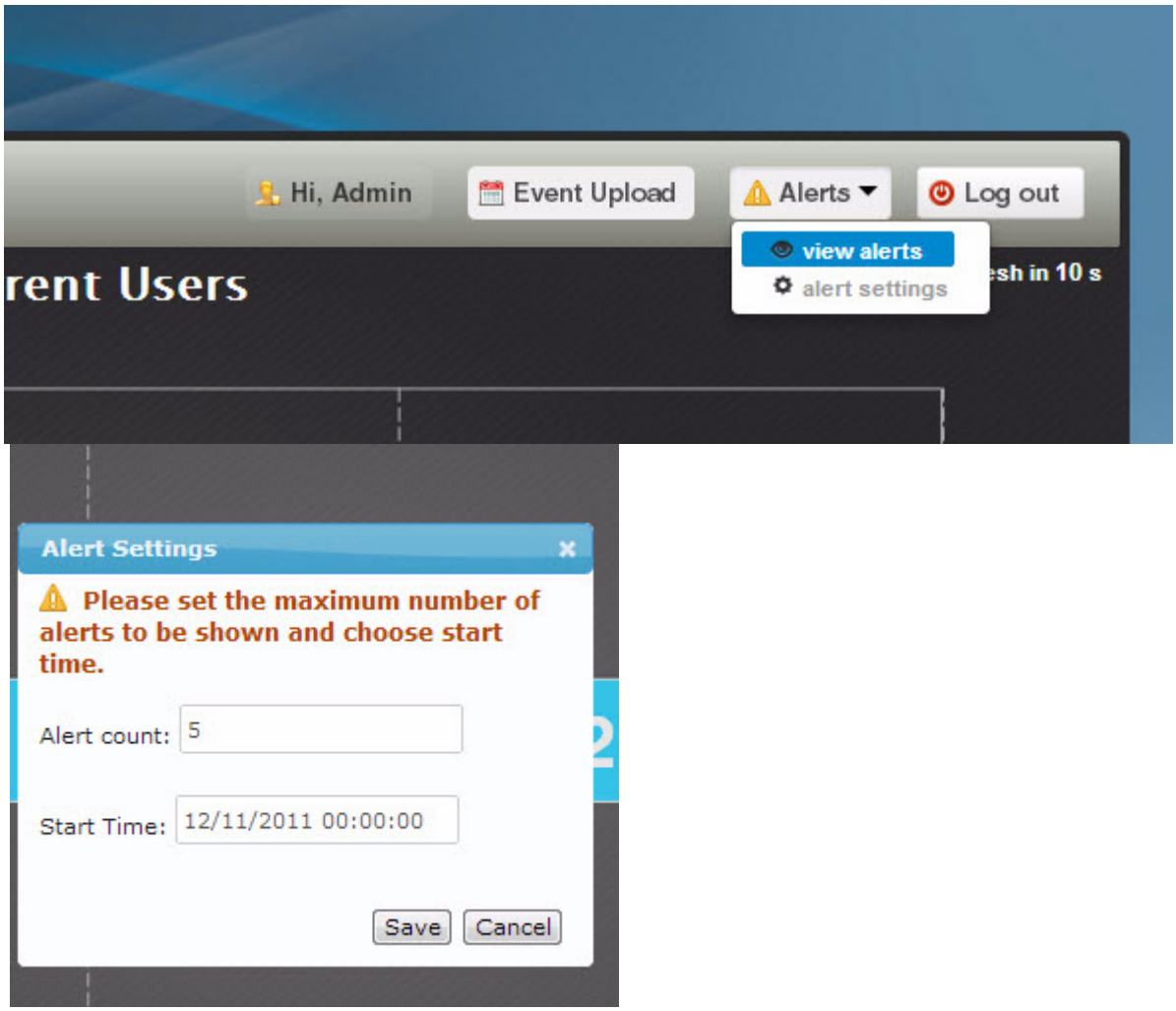
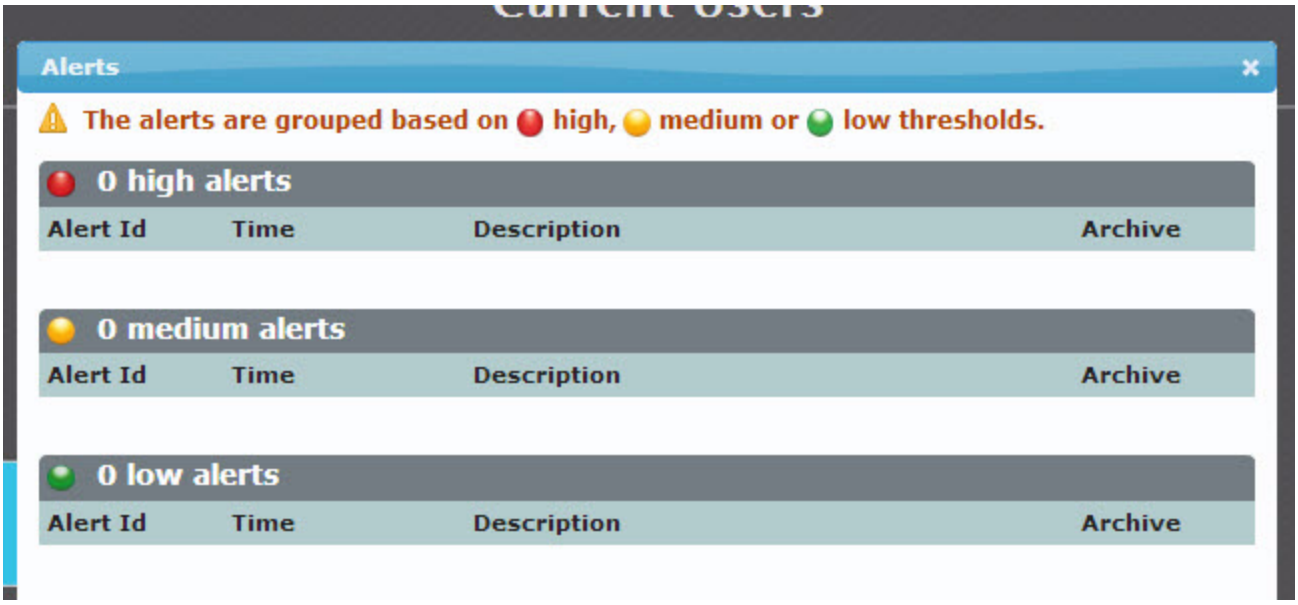


Figure 7 Alerts Listing



Using Output Triggers with Cisco StadiumVision Director

For more information on configuring output triggers with Cisco StadiumVision Director, refer to the *Configuring Cisco StadiumVision Director for External Triggers, Release 3.1* document.

Accessing Administrative Interfaces

Table 3 lists URLs and addresses to access various StadiumVision Mobile Reporter interfaces and functions.

Table 3 StadiumVision Mobile Reporter Interface URLs and Addresses

URL	Usage
http://svm:8080/reporter/upload	SDK 1.1 streamer and mobile devices
http://svm:8080/reporter/client.up	SDK 1.2+ mobile client devices
http://svm:8080/reporter/streamer.up	SDK 1.2+ streamer
http://svm:8080/reporter/dashboard.svm	Client report login
http://svm:8080/reporter/jsp/svmbackup.svm	Data archive and backups
http://svm:8080/reporter/eventupload.svm	Event schedule upload
http://svm/EventSchedule.txt	Event schedule template
ssh installer@reporter IP address	StadiumVision Mobile Reporter TUI