Server Monitor User's Manual

Accenture StormTest Development Center

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Product Version: 3.3.6

Web: http://www.accenturestormtest.com

Contents

1 Preface

1.1 StormTest

Accenture StormTest Development Center is the leading automated test solution for digital TV services. It is designed to reduce the cost of getting high quality digital TV services to market faster.

StormTest Development Center greatly reduces the need for time-consuming, expensive and error-prone manual testing and replaces it with a more accurate and cost-effective alternative. It scales easily to large numbers and types of devices and integrates with existing infrastructure to give much greater efficiency in testing. It can be used to verify and validate services on a virtually every piece of consumer premises equipment (CPE), from set-top boxes to games consoles and from iPads to Smart TVs. It has been specifically designed to meet the needs of developers and testers of these CPE devices and the applications which run on them.

StormTest Development Center consists of:

- A choice of hardware units that can test 1, 4, or 16 devices. Each device under test can be controlled individually and independently and the audio/video from each device can be captured and analysed to determine the outcome of the test. The StormTest hardware supports capture of audio and video over HDMI interfaces and supports all HD resolutions up to 1080p. In addition there is a hardware upgrade option for the 16 device tester that will allow native capture of UHD content.
- Server software that controls all the hardware and devices in the rack as well as managing a central repository of test scripts and a central database of test results.
- A Client API that allows test scripts to interact with the server software
- A number of graphical tools that allow the user to directly control devices connected to StormTest Development Center, to create and schedule tests to run and to view the results of those test runs.

Test scripts can be run from any location – the tester needs only a network connection to the StormTest server. Video and audio output from the devices under test can be streamed over this network to any location, allowing remote monitoring and control of testing, either within a company LAN or across a WAN. Alternatively, scheduled tests can run directly on the server, negating the need for maintaining a continuous network connection to the StormTest server.

1.2 About This Document

This document describes the Server Monitor.

1.3 Related Documentation

The StormTest user documentation set comprises of the following documents:

1) StormTest Developer Suite User's Manual
2) StormTest Programmer's Guide

3) StormTest Client API
4) StormTest Hardware Installation Guides (HV01, HV04, HV16)
5) StormTest Software Installation Guide
6) StormTest Server Monitor User's Manual
7) StormTest Administration Console User's Guide
8) StormTest Administration Tools User's Guide

The latest version of these documents can always be found on our support website, in the "Docs" section: https://larisa.engage.s3group.com/docman/?group_id=6.

1.4 Revision History

Date	Version	Description
March 2012	2.7	Update with new License screen layout and logos.
January 2013	2.9	Update for HS64 server
April 2013	3.0	Update for HD
September 2013	3.1	Minor change on HD operation
August 2016	3.3.6	Change of color scheme

Table 1 - Revision History

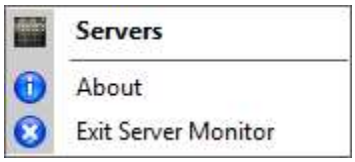
2 Using Server Monitor

2.1 StormTest Server Monitor

The StormTest Server Monitor is a utility which is designed to run on the same physical machine as a StormTest Development Center server. The main server runs as a Windows service. This means it has no user interface, starts when Windows starts and can run without a logged on user - very important as the whole StormTest Development Center can recover from a power cycle without user intervention.

However, to monitor the server and provide some level of control a separate application is needed - StormTest Server Monitor. The StormTest Server Monitor is built on the same framework as the main StormTest Developer Suite user interface. The navigation process is the same. Like all StormTest Development Center Administrative applications, StormTest Server Monitor has a gray color scheme compared to the default blue of the end user applications.

StormTest Server Monitor is intended to be always running so when you click on the close button, the application is minimized to the system tray. Clicking on the StormTest Icon will bring up the following menu:



Servers - will restore the StormTest Server Monitor to view and select the server view

About - will bring up the about box.

Exit Server Monitor - will truly exit the StormTest Server Monitor.

There are 5 views in StormTest Server Monitor:

- Status View - overall status and control of a StormTest Development Center server
- Video View - live video from a StormTest Development Center server
- Console View - the console output of a StormTest Development Center server
- License View - the license status of a StormTest Development Center server
- OCR View - the status of the OCR engine used by a StormTest Development Center server

2.1.1 Selecting a server

StormTest Server Monitor can monitor one server at a time. When the StormTest Server Monitor starts, it retrieves a list of servers from the StormTest Development Center facility and shows them at the top of the screen. You should select one. When StormTest Server Monitor runs on the same

physical machine as a StormTest Development Center server it will automatically select the same machine as the default.

2.1.2 Indicators

The main screen uses various icons to show you information about the server and facility. These are:

 The Configuration Server cannot be contacted

 The Configuration Server has been contacted fully

 The Configuration Server main control port has been contacted but the notification port has not - probably due to a firewall issue.

 StormTest Server Monitor is refreshing data from the Configuration Server. The stormtest logo will be spinning. Please Wait

 The StormTest Development Center Server is down.

 The StormTest Development Center Server is running normally

 The StormTest Development Center server is either starting or stopping.

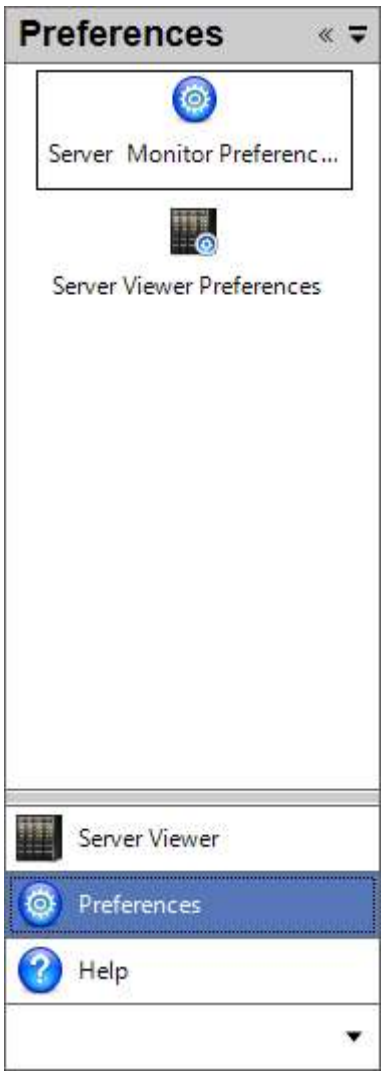
 The StormTest Development Center is running but not all network ports were contacted - it is probably an old version (pre 2.0.0) or there is a firewall preventing full access.

2.1.3 Remote Usage

Although StormTest Server Monitor is designed for running on the same machine as a StormTest Development Center Server, it can run on any machine with network access to the StormTest Development Center system. If there is a firewall between the StormTest Server Monitor and then it will need to be configured correctly. Also, the video view may use significant bandwidth if all 16 slots are monitored.

2.2 StormTest Server Monitor Navigation

The left hand panel of StormTest Server Monitor is the core navigation panel. It has 2 modes of operation: normal and minimal. The normal mode is shown below:



At the top is the currently active applet title (in this case, Server Viewer) along with 2 buttons:

« will switch to minimal mode, at which stage it changes to » to switch back to normal mode.

▾ brings up a menu to change applets. Applets can also be selected by clicking on them in the stacked area beneath the separator bar.

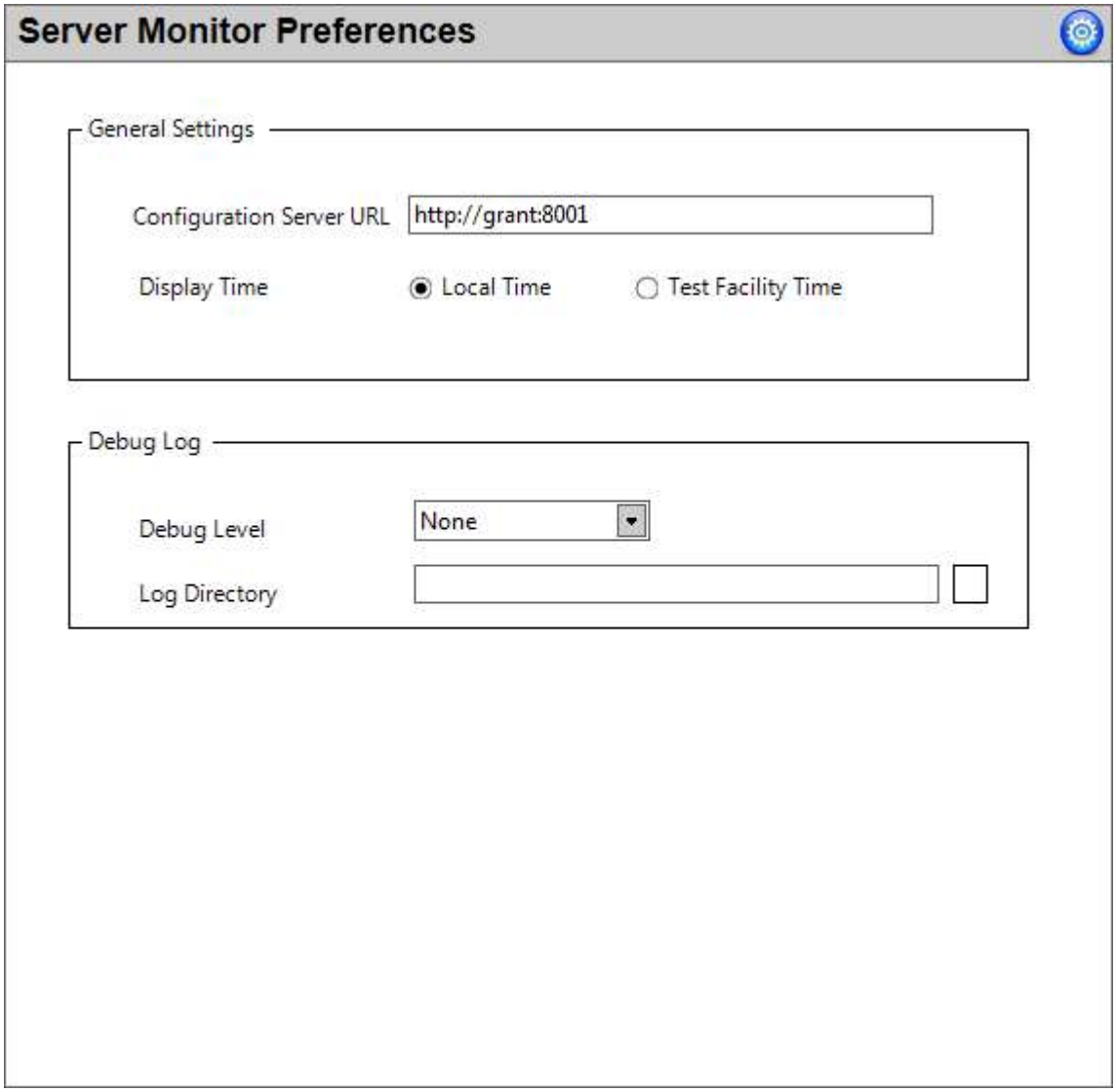
The size of the stacked area can be altered by dragging the separator bar, and the available applets can be changed by using the ▾ at the bottom right corner.

Each applet has one or more views, in the above case, the Server Viewer applet is showing 1 view (called Servers) - the actual contents of the view is not shown; it occupies the right hand side of the screen. Switching between views is by clicking them.

It is **not** possible to select views in minimal mode. Minimal mode allows the maximum possible area of the screen to be used for a view - at the expense of not being able to select views.

2.3 Preferences Applet

The preferences applet is where you can control how the application behaves. There is also a set of options for the server viewer applet itself.



2.3.1 General Settings

2.3.1.1 Configuration Server URL

The Configuration Server URL determines which logical facility the StormTest Server Monitor will use. It must be of the format http://servername:server port. The default server port is 8001. The

server name is set during the installation process and should not normally need changing. If you do change it, StormTest Server Monitor connects to the new server and refreshes internal data. It is essential that a valid server is running for correct operation of the application.

It is recommended that you exit and restart StormTest Server Monitor after changing the configuration server.

2.3.1.2 Display Time

Some applets deal with time - you can choose whether the time shown is your current local time or the time of the facility to which you are connected. The default at installation is local time. You may wish to work in the facility time if you are running StormTest Server Monitor from a remote location.

2.3.2 Debug Log

These settings control the generation of a debug log - mainly of value to support personnel.

2.3.2.1 Debug Level

This controls the amount of information in the debug log. There five levels: None, Fatal, Error, Warning,and Info. Default is None.

2.3.2.2 Log Directory

Choose a directory for log files. Either type in a value or use the button to browse for a folder. The directory should exist because StormTest Server Monitor will not automatically create directories on your PC. Files are stored as StormTestServerMonitor_date.txt

2.3.3 Saving the settings

The settings are saved automatically without your intervention.

2.4 Help Applet

The help applet is common to all applets and is the place to find all the online documentation. Each applet may define one or more help books. These appear within a separate tab. You can have as many tabs open as you like - even opening the same book in multiple tabs. In the StormTest Server Monitor there is just one help book.

 on the right hand side brings up a menu to select a new book to open.

 returns you to the start page of the book

 and  allow you to navigate backward and forward through the book. These may be disabled if it is not possible to move backward or forward.

selects between the active tabs - as does simply clicking on the tab. However, if you have many open tabs the button may be more convenient.

Click the X to the right of the tab will close the selected tab: 

.

brings up the about box with version information about StormTest Server Monitor

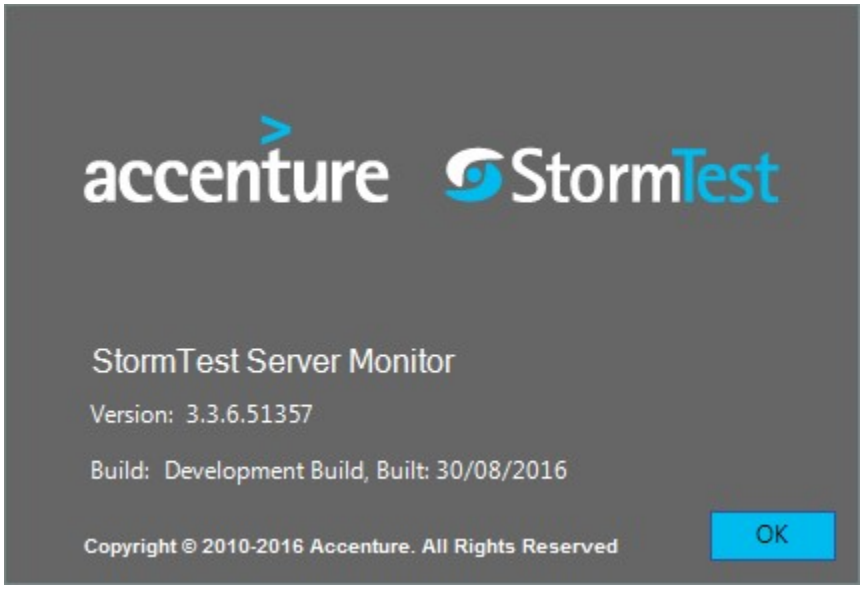
NOTE: When you enter the help system from within an applet, only the books supplied by that applet are available from the menu. However, when you use the main help applet, all books from all applets are available from the menu. This is by design.

2.5 About Box

The about box shows information about the version of StormTest Server Monitor and is essential information when contacting support.

The version is the product version and the Build string identifies exactly the code version used to build StormTest Server Monitor.

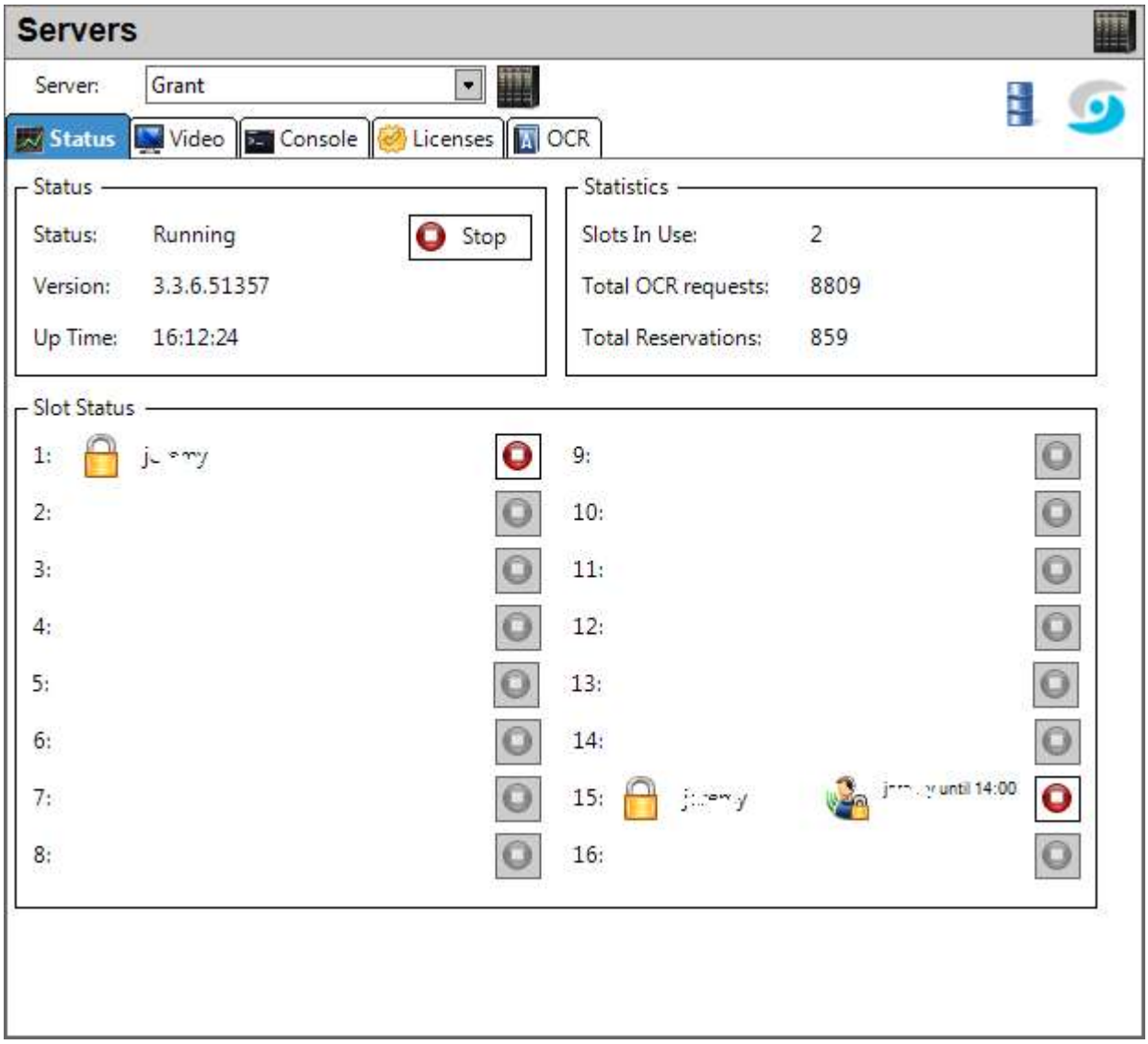
It is accessed from the Help Applet by clicking on About button.



Your version and build number may vary from the illustration.

2.6 Server Status

The status page is the main status and control page for a StormTest Development Center server:



2.6.1 Status Panel

The Status panel shows the current status (running / down) of the server, the Version of the server and how long it has been running. If less than 24 hours, then the format is HH:MM:SS. Once it has been running for more than a day, the number of days is shown - this just keeps incrementing without an attempt to convert to weeks or months.

A button is available to start or stop the server. It is disabled while the server is transitioning from up to down or vice versa. It is also disabled if there has been a problem contacting the server (a warning icon will appear at the top of the screen)

2.6.2 Statistics Panel

Statistics about the server appear here (if it is running). These are the number of slots currently used, the total number of OCR requests made since last restart and the cumulative total of reservations since last restart. The OCR requests is updated by polling the server so can be slightly inaccurate (or rather, up to 30 seconds behind reality)

2.6.3 Slot Status Panel

Here the status of each individual slot in the server is shown. For HV16 and HS64 systems there will be 16 slots shown, for HV04 systems 4 slots are visible and just one slot for HV01 systems. Icons are used to indicate the status:


The slot is locked at this moment. To the right is the Windows user name of the user who has locked the slot.

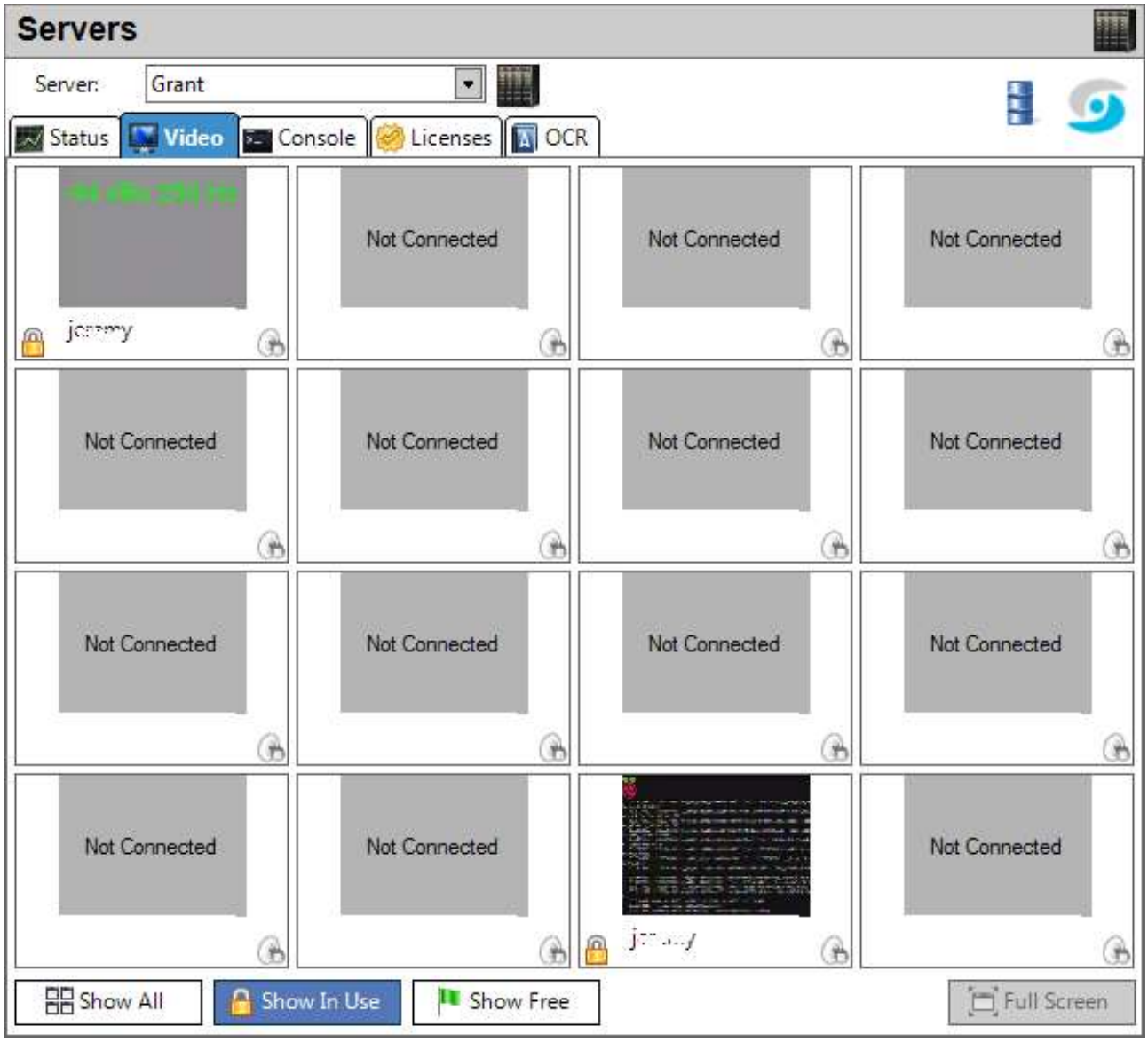

The slot is reserved by the StormTest Development Center scheduler (via the Developer Suite application). To the right is the Windows user name of the user who has the slot reserved and the time it will be released. A user may allocate STBs to his or her schedule in a variety of ways, not all of which lead to a reservation. Only if the schedule has allocated the STB by physical slot or by explicit name is a reservation created. Even then, if he or she has marked the schedule as 'Shared' then no reservation is created.

2.6.3.1 Killing a slot

It is possible that a test gets 'stuck' in a loop and the user has lost control of it. In this case, no other user can use the slot. Using the StormTest Server Monitor it is possible to free the slot - press the  button. You will be given a warning message before being allowed to proceed. It should be noted that this kill slot will forcibly free the slot so that other users / tests can use it. The script that was running will get errors and may do unexpected things as a consequence. This action is in no way a graceful way to end a script.

2.7 Video View

The video view shows the video of the slots. This will adjust from 1 to 16 windows based on the model of the server:



The slots are listed left to right, top to bottom. Slot 1 is top left, Slot 4 is top right, Slot 13 is lower left and Slot 16 is lower right.

Beneath each locked slot a small will appear along with the user's Windows user name.

If the server is HS64, then when monitoring the video, the current sub slot will be shown near the audio mute icon.

2.7.1 Viewing Video

You can view video in one of three ways:

- Video from all slots of server - click the 'Show All' button
- Video from the slots in use - click the 'Show In Use' button
- Video from unused slots - click the 'Show Free' button

When you are viewing the slots in use or free, the video will connect disconnect as the slot status changes.

2.7.2 HD Video

Not many systems can decode and view many HD channels simultaneously so Server Monitor does not try. In HD mode, only 1 frame per second is decoded and shown per slot. This is still a load on the server so you should not allow too many users to do this.

You can view any single slot at full frame rate by simply clicking on the slot of interest so that it is selected. There will be a slight delay (up to a second or two depending on your network) until the video becomes smooth at full frame rate.

2.7.3 Audio

You can listen to the audio from any slot that is showing video by clicking the  button. It will change to  . You can only listen to the audio from one slot at a time. Listening to any one slot automatically stops the audio from any other. You can stop audio totally by clicking the active  .

Note that most StormTest Development Center Server machines do not have an audio card so this feature does not work - it can be used remotely however if the PC used had an audio output.

2.7.4 HD Audio

The slow frame rate mentioned above for HD video causes synchronization issues with audio so for HD servers, you can only listen to the audio from the selected channel when it is running at full speed. You will see a message box if you try to monitor another audio channel.

2.7.5 Zooming Video

You can expand one video window to fill the whole page. Click on the video to zoom and then click the button 'Full Screen'. Or double click a video window. Make sure to click the actual video and not the surrounding area. Once a video is expanded, the button in the lower right corner changes to 'Matrix'. Clicking it returns the view to the matrix of video windows (or double clicking the video again will do the same).

2.7.6 Video Auto Disconnect

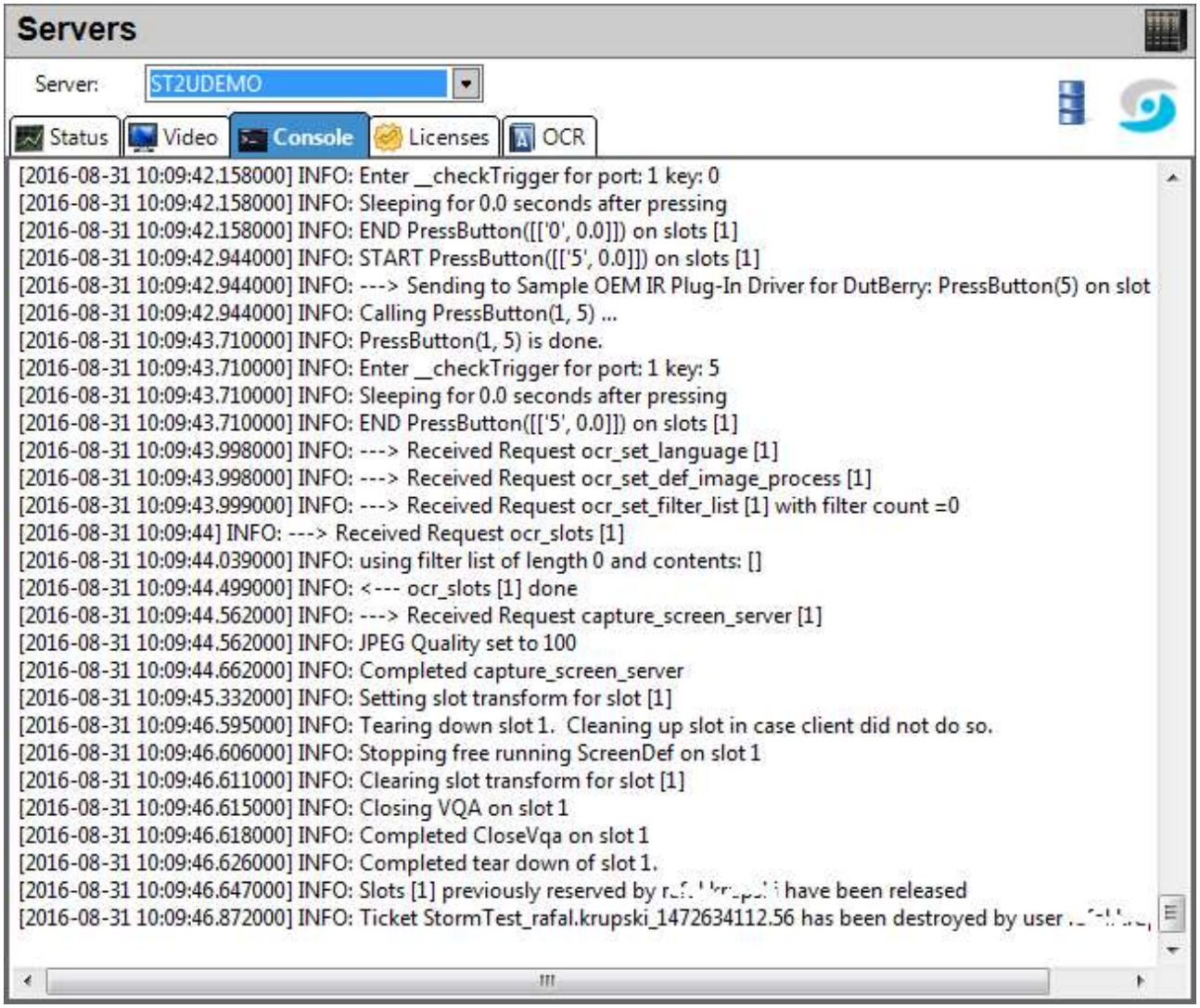
Showing video is a CPU intensive operation - especially on a machine such as a server with a limited graphics card. For this reason the video will automatically disconnect in 2 circumstances:

1. When switching to another page. As it can be useful to briefly view another page and go back to the video, there is a delay of 1 minute after hiding the video page before disconnecting the video. It takes several seconds to connect so it would be annoying to disconnect immediately.
2. After 10 minutes of inactivity. StormTest Server Monitor assumes that the human user has left the machine if he or she takes no action in 10 minutes (action means move the mouse or click a button in the video page). Just prior to disconnect a message appears in red in the lower portion of the display warning you - just click the button 'Reconnect Now' button that appears.

You can change these values or disable the timers fully from the Server View Preferences.

2.8 Console View

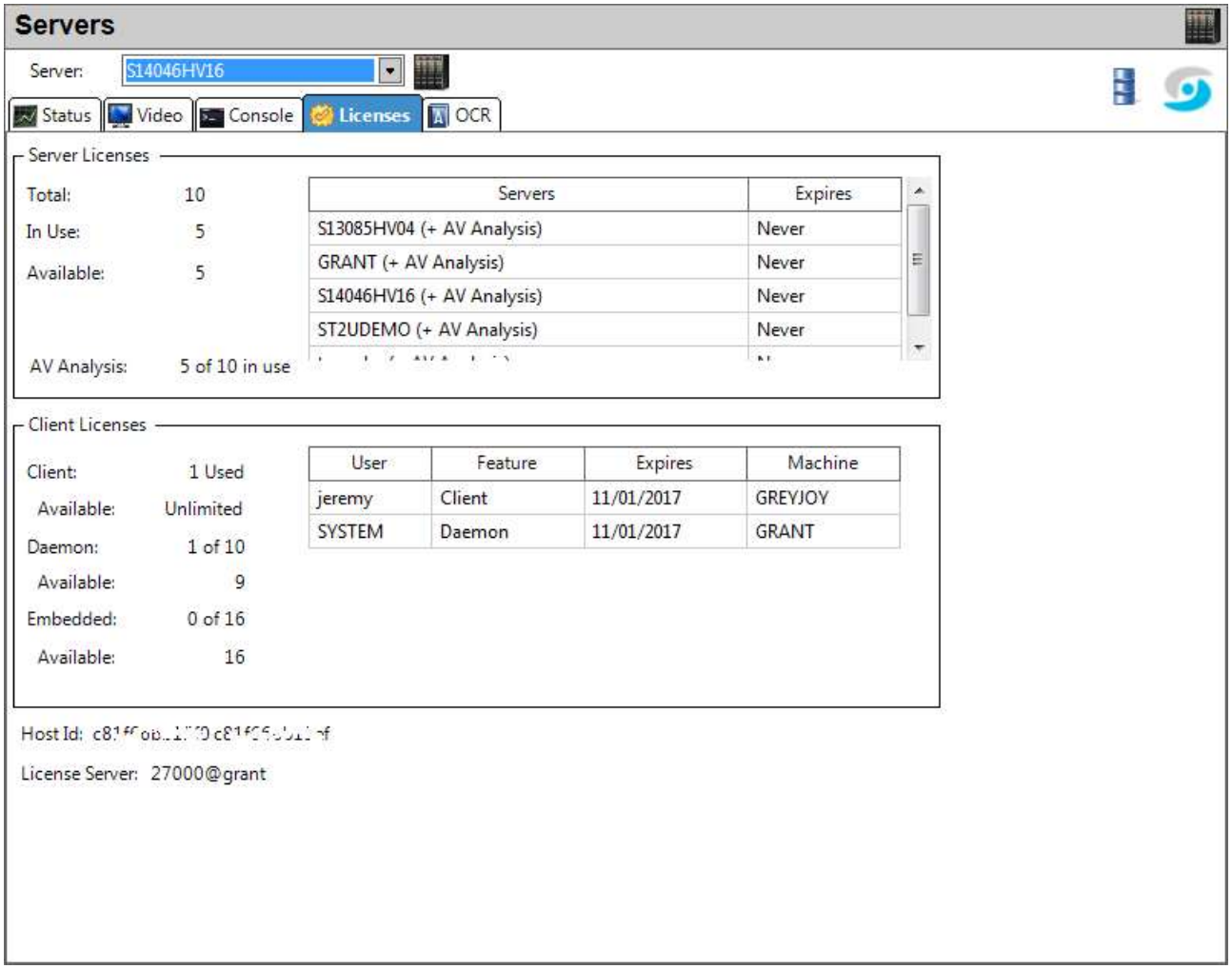
The console view shows the output from the server that used to appear on the console on previous versions of the StormTest Development Center. It gives useful debug information about the server (this information is also stored in a file):



New output is added to the end.

2.9 License Status View

The license status view shows the status of licenses as understood by the StormTest Development Center server:



It is important to realize that the status is as the server reads the status - occasionally the license service can get confused if there have been changes to the license server, for example after an upgrade. In that case different servers can have differing views of the license status. This view shows thus helps diagnose how the server sees the licensing world.

2.9.1 Server Licenses Panel

This shows the total server licenses, the number in use and the number available for use. To the right is the list of servers that have licenses - the machine name is listed along with any options that the server supports. The show servers are licensed for the optional audio video analysis. The expiry date of the license is also shown.

The total number of audio video analysis licenses available and used is summarized by the label AV Analysis.

2.9.2 Client Licenses Panel

Every client machine needs a license to reserve a slot. Clients are licensed on a machine + user basis. So 2 users on one machine (for example a server machine with remote access) will consume 2 licenses if both users access StormTest Development Center servers. Multiple uses by the same user on the same machine share the one license. The client daemon which runs tests on command of the scheduler on behalf of a user also needs a license. The Client Licenses panel shows the total client licenses, the number in use and the number available for use. Likewise, it shows the total client daemon licenses, the number in use and the number available for use.

A tool tip on each field shows the breakdown of model dependent client licenses and model independent licenses:

The HV01 and HV04 series of StormTest come with model dependent client licenses. Those licenses can only be used to connect to the correct model (HV01 or HV04). Also, if the same user connects to 2 distinct HV04's from the same machine, then that requires 2 HV04 licenses. Normally the model independent license that comes with HV16 series allows one user to connect to any number of servers from one machine.

The embedded licenses are only show for systems which have the optional White Box embedded test feature. These are licensed on a per slot basis.

The right hand list shows the user name, feature, expiry date and machine name for each client license in use.

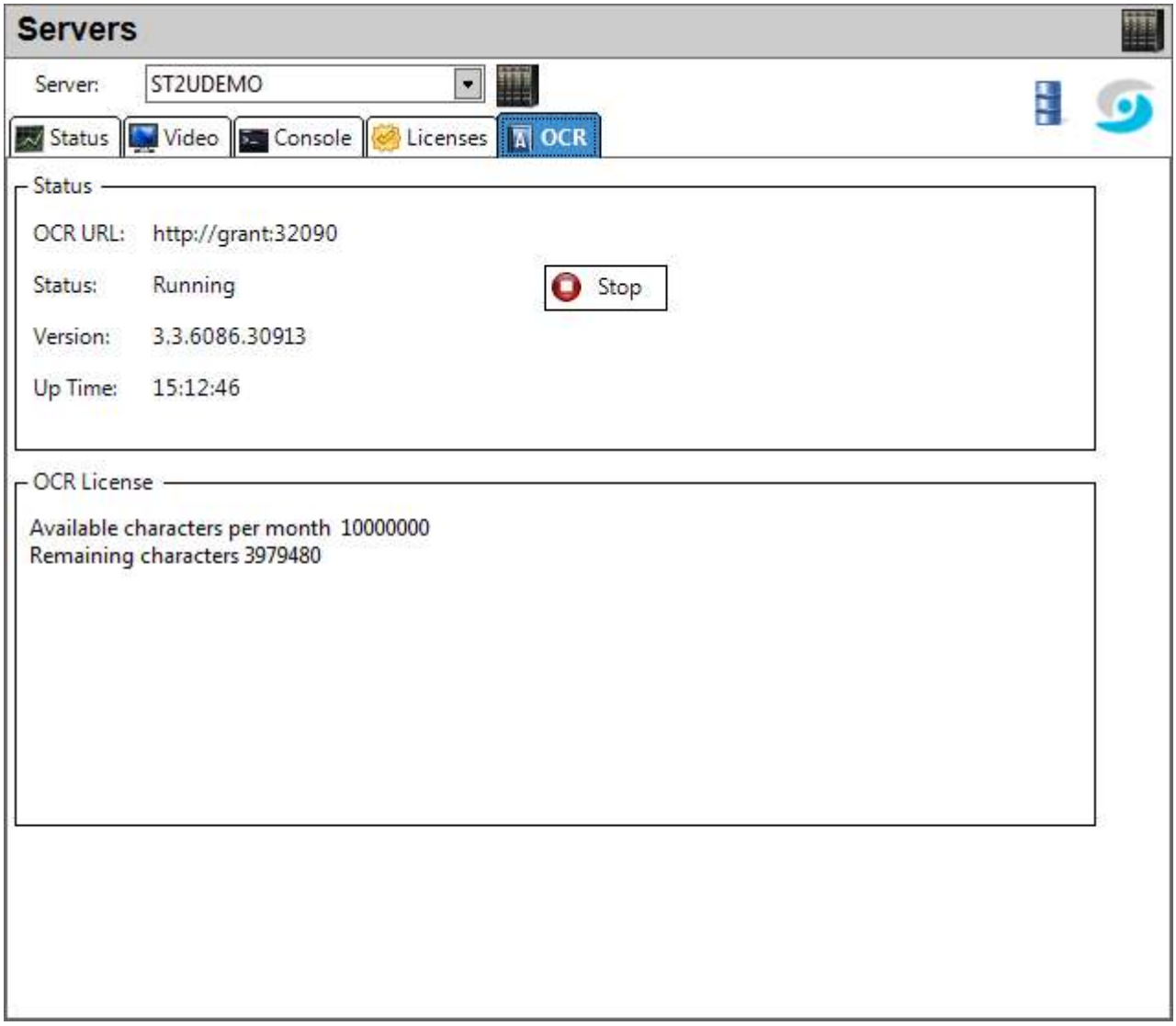
2.9.3 Host Id

This is the magic host identifier of the StormTest Development Center server for accessing the license server - it can be useful for debugging. It is, in fact, the MAC address(es) of the machine.

The location of the license server is also shown as port@host

2.10 OCR View

The OCR view shows you the OCR engine in use by the selected StormTest Development Center server:



2.10.1 Status Panel

This shows the URL of the OCR engine used, the status (running / down) of the OCR engine, the Version of the OCR engine and how long it has been running. If less than 24 hours, then the format is HH:MM:SS. Once it has been running for more than a day, the number of days is shown - this just keeps incrementing without an attempt to convert to weeks or months.

The button allows you to stop or start the OCR engine. It is disabled while the OCR engine is transitioning from up to down or vice versa. It is also disabled if there has been a problem contacting the associated server (a warning icon will appear at the top of the screen).

2.10.2 OCR License Panel

This shows the license status of the OCR engine. It has two elements: the available characters per month (the number that the OCR engine is licensed for) and the remaining characters. When this drops to zero, the OCR engine cannot perform any more OCR requests until the next calendar month.

2.11 StormTest Facility

Every StormTest Development Center server is part of a 'facility', a logical concept introduced with Version 1.2 of StormTest. The configuration of this facility is stored in a database. This database contains knowledge about the StormTest servers, the type of equipment in each rack, the DUTs in each rack and their configuration.

It is a requirement that all servers in one facility are closely located, specifically, StormTest Development Center makes the following assumptions about the system configuration:

- All StormTest servers have a fast (LAN) network link to the Configuration Server and the scheduler.
- The scheduler machine and the configuration server are in the same time zone
- The web server handling the web based test manager is in the same time zone as the Configuration Server

2.11.1 Configuration Server

Instead of directly accessing the database (via the native SQL), there exists a software module, the Configuration Server (often abbreviated to Config Server) running on a machine somewhere in the facility. This provides an interface to the database at a higher level.

All installations of a StormTest server as well as every installation of StormTest Server Monitor need to know where this server is - it is accessed via HTTP and it is this URL which needs to be entered for every StormTest Server Monitor installation. It is set during the install process but can be changed afterwards via the preferences applet.

2.11.2 Admin Console

The facility is configured via an administrator's console, a web based application. This is beyond the scope of the StormTest Server Monitor but is where the facility is configured.

2.12 Network Ports Used

In order to allow remote access by StormTest Server Monitor the correct network ports may be needed to be opened through a firewall. The ports used are all TCP and are:

8000 - Each StormTest Development Center server runs a server on this port. Protocol is HTTP XML-RPC.

8001 - The Configuration Server runs a server on this port. Protocol is HTTP XML-RPC.

8002 - Each StormTest Development Center server has a control process server on this port. Protocol is HTTP XML-RPC.

8004 - The Configuration Server runs a server process on this port. It is a simple TCP text based protocol which StormTest Server Monitor connects to and then reads. The Configuration Server sends notifications of asynchronous events to all clients listening on this port.

8005 - Each StormTest Development Center server has a server process on this port. It is a simple TCP text based protocol which StormTest Server Monitor connects to and then reads - this contains the remote console log and without it, there is no console log.

32090 - Each OCR engine runs a server on this port. Protocol is HTTP XML-RPC.

5050 Each StormTest Development Center server runs a server on this port. Protocol is TCP and audio/video data is sent over this to StormTest Server Monitor.

12001 - 12064 - Each StormTest Development Center server runs a server on these ports. Protocol is TCP and the serial output from each DUT is sent over these connections. Current version of StormTest Server Monitor does not use this but future versions may. Only port 12001 is needed for HV01 systems, 12001 - 12004 for HV04 systems, 12001 - 12016 for HV16 systems and 12001 - 12064 for HS64 systems.