Administration Tools User's Guide

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 Admin Tools along with the IR Trainer and Audio Video Analysis calibrator.

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

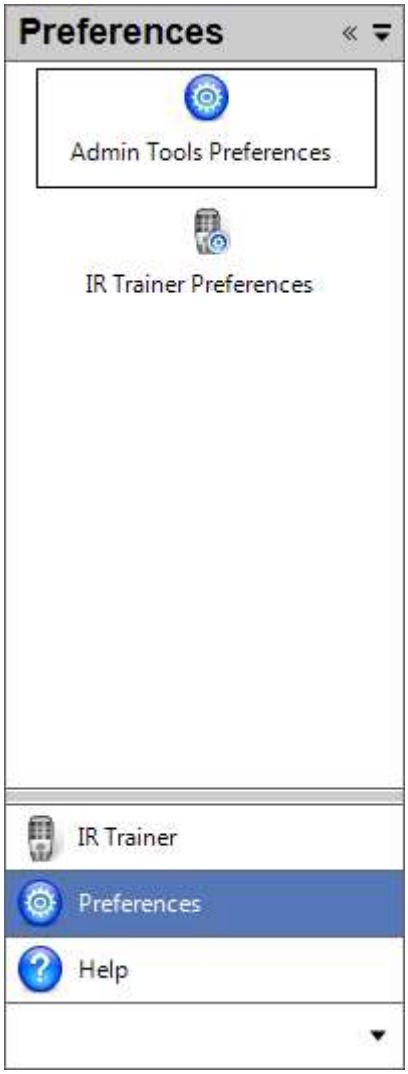
Date	Version	Description
March 2012	2.7	Update for new logos
July 2012	2.8	Change to default save of AV Calibrator
November 2012	2.8.3	Added explanation about RedRat3 on IR Trainer
January 2013	2.9	Minor Corrections to AV Calibrator auto save default
April 2013	3.0	Update for HD, Navigator and change STB to DUT
September 2013	3.1	Update for saving and import of calibration data
November 2014	3.2.2	Update for easy switching between config servers
August 2016	3.3.6	Updated color scheme, removal of AV Calibrator applet

Table 1 - Revision History

2 Admin Tools

2.1 StormTest Admin Tools Navigation

The left hand panel of StormTest Admin Tools 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, preferences) 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.

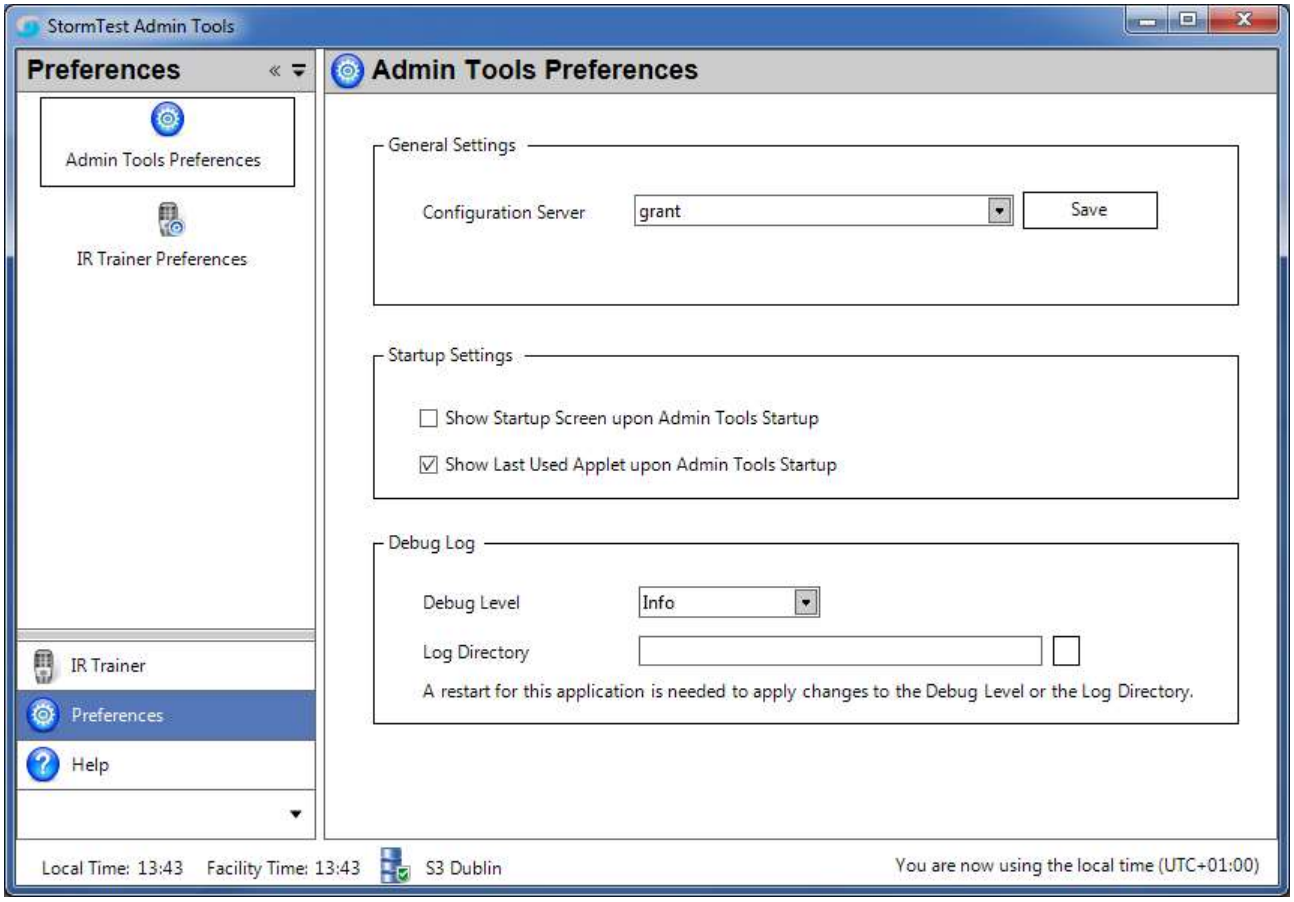
The size of the stacked area can be altered by dragging the separator bar, and the available applets can be changed by using the ▼ at the bottom right corner.

Each applet has one or more views, in the above case, the preferences applet is showing 2 views. 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.

2.2 StormTest Admin Tools Panels

The application is divided into two large panels, left and right. The divider does not resize the panels, although the left hand panel may be made smaller by other means. There are other smaller features of the StormTest Admin Tools workspace. Click on an area below to identify it and jump to the description:



2.2.1 Navigation Panel

The navigation panel is where you select which view of an applet you wish to work with. This can be customized to suit your work flow.

2.2.2 Applet Workspace

Each applet uses the right hand area for its work area. It is applet specific and documented in its own help file.

2.2.3 Current Facility

The name of the current facility (which is configured in the Admin Console and need not be the same as the name of the Config Server) is shown along with an icon indicating the current status of the connection. The possible icons are:

 StormTest Admin Tools is connected to the Config Server.

 StormTest Admin Tools has lost connection to the Config Server. It will try to reconnect.

Except when maximized, StormTest Admin Tools can be resized using the mouse - click an edge or corner and drag it. The caption bar is the standard Windows caption bar with minimize, maximize and close buttons.

2.3 Common Tasks

- Access online help

  Use the Help Applet.

- Make an applet active

  Click on the applet in the lower stack of the left hand panel or use the  button and select if from the menu.

  If the applet is not visible, try using the  in the bottom right corner and selecting the 'Add or Remove buttons' item to add the applet back to the application.

- Change views in an applet

  Click on the view (on the white background). If the view is not visible, use the scroll bars to bring it back into view. You may also use the tab button and select with a space when the desired view has a dotted rectangle around it.

- Exit the StormTest Admin Tools

  Click on the  button at the top right hand corner of the application or use the Alt-F4 keystroke combination.

- Force the mini toolbar to appear on startup

  Use the preferences applet and select 'Show startup screen on AdminTools startup'

- Make the last used applet start on startup

Use the preferences applet, uncheck 'Show startup screen upon Admin Tools startup' and check 'Show Last Used applet upon Admin Tools startup'

- See as much of the applet view as possible
  Click the button - note that you cannot then change views. See also the application navigation topic.

- See as many view items as possible
  Drag the separator bar above the applets as low as it will go. You can also use the button, and from the menu select 'Show fewer buttons' as many times as you like to increase the space for the view icons.

- Restore the view navigation
  Click on the button. See also the application navigation topic.

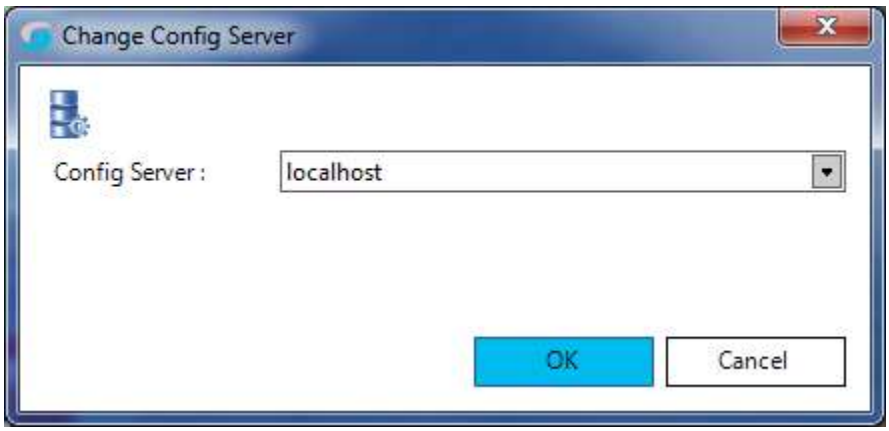
- Restore the applet stack to the default
  Drag the separator bar above the applet stack as far up as it will go. Also click on , select 'Add or Remove buttons' and select all the buttons.

- Start viewing a new help book in a new tab
  Click the next to the text 'New Tab:' and select a book to view.

- Enable debug log
  Use the preferences applet and select a folder for the log files and the log level - it must be something other than 'None' for a log file to be produced.

2.4 Change Configuration Server

If the initial Configuration Server cannot be contacted then you can change the configuration server with this dialog:



If the initial Configuration Server is contacted then you can switch to a new one from the preferences applet.

2.5 New User Dialog

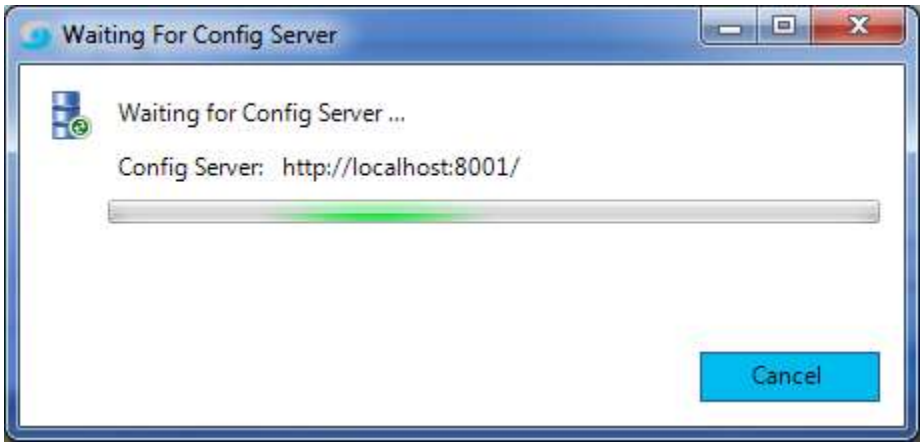
After StormTest Admin Tools starts it checks that your Windows user name exists in the StormTest Development Center database. If it does not then you are prompted for some extra information:

The user name cannot be changed - it was set when you logged on to Windows.

The other fields are optional. However, they will be used in later versions for display and possibly the email address will be used for notifications. Please enter your first and last names along with a valid email address. No checking is done by StormTest Admin Tools as to whether the fields are valid.

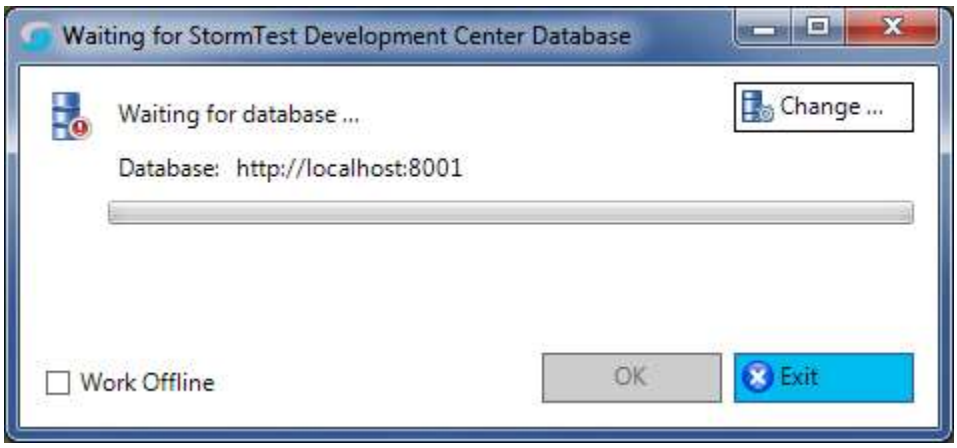
2.6 Waiting for Configuration Server

After changing the configuration server, StormTest Admin Tools attempts to contact the newly set Configuration Server . If you have made a mistake, you can cancel the dialog and set a new value for the Configuration Server .



2.7 Waiting for StormTest Database

After StormTest Admin Tools initialization, StormTest Admin Tools checks for the Configuration Server . If it does not respond then StormTest Admin Tools waits for the Configuration Server to respond. If StormTest Admin Tools has been configured with an incorrect value for the Configuration Server then you can change it by clicking the Change button to bring up a dialog to change the Configuration Server . You can also choose to work offline - a limited number of features are available offline.



2.8 About Box

The about box shows information about the version of StormTest Admin Tools 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 Admin Tools .

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

Your version and build number may vary from the illustration.

2.9 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.

 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 Admin Tools

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.

2.10 StormTest Admin Tools

The StormTest Admin Tools is a set of tools for the administrator of StormTest Development Center.

2.10.1 StormTest Admin Tools Structure

The StormTest Admin Tools is based around the concept of applets. Each applet has distinct functionality and one or more views. On first use of an applet, a help page is displayed. All versions of the StormTest Admin Tools come with the preferences and help applets. Version 2.0.0 comes with the IR Trainer applet pre-installed.

Navigation between applets is accomplished using the left hand panel. Once an applet is selected, navigation between views is also in the left hand panel while the views appear in the right hand panel.

The preferences and help applets are shared between all applets so that the preference or help for an applets may be accessed either via the applet itself or via the common preferences and help applets.

See Also:

- Application Panels
- Navigation
- Preferences Applet
- Help Applet
- Common Tasks

2.11 Mini Toolbar

After the splash screen has disappeared, a mini toolbar appears:

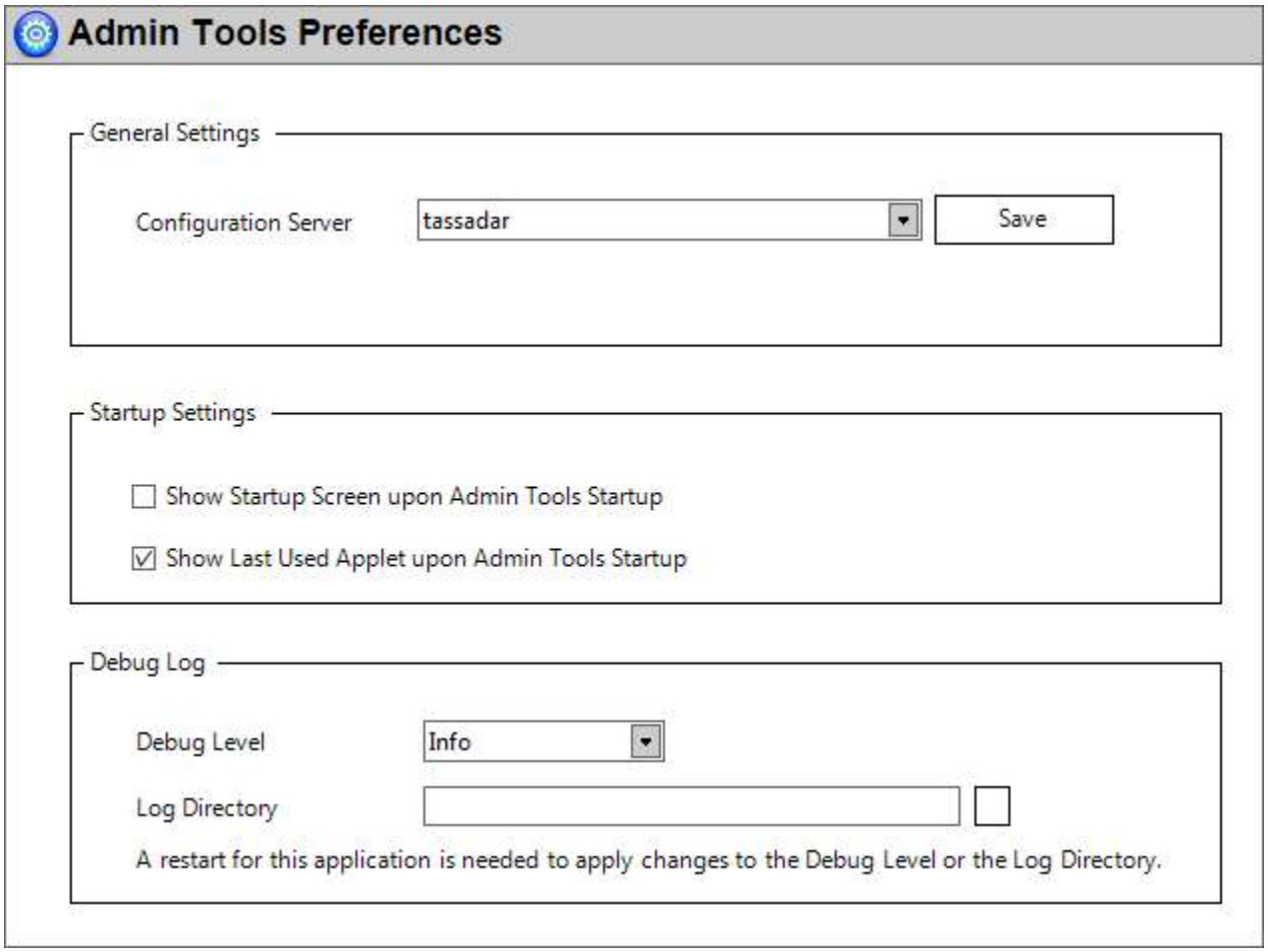
This will appear on the first use of StormTest Admin Tools . From here you can select one of the applets or exit StormTest Admin Tools . This mini toolbar can be disabled by checking the checkbox at the bottom of the screen or from the preferences applet.

The options available are:

- IR Trainer Applet
- Preferences Applet
- Help Applet
- Exit StormTest Admin Tools

2.12 Preferences Applet

The preferences applet is where you can control how the application behaves.



2.12.1 General Settings

2.12.1.1 Configuration Server

The Configuration Server determines which logical facility the StormTest Admin Tools will use. It can be a host name, IP address or a full URL of the format http://servername:server port. If you use http and the default server port of 8001, the user interface shortens this to just the name. The server name is set during the installation process . If you have multiple facilities, StormTest Admin Tools remembers the list you have used. You can select from any prior used configuration server by using the drop down arrow. If you change the configuration server, StormTest Admin Tools connects to the new server and refreshes internal data. It is essential that a valid server is running for correct operation of the application.

Click the 'Save' button to save the change. A dialog will appear confirming the connection.

NOTE: After changing the configuration server you must restart StormTest Admin Tools - you will be prompted to restart after a successful change of the configuration server.

If you need to remove a configuration server from the list to tidy up the drop down list, use the right mouse button to bring up the context menu. You can remove all previous configuration servers or a specific one that you no longer use. You cannot remove the current configuration server.

2.12.2 Startup Settings

These control how StormTest Admin Tools starts.

2.12.2.1 Show Startup Screen

By default, StormTest Admin Tools starts with the mini toolbar screen. From this you can select an applet.

2.12.2.2 Show Last Used applet

By default, StormTest Admin Tools will go to the most recently used applet. If you disable this then StormTest Admin Tools will always go to the main help. **This has no effect unless the show startup screen is disabled.**

2.12.3 Debug Log

These settings control the generation of a debug log - mainly of value to support personnel. You must restart StormTest Admin Tools for the changes to be used.

2.12.3.1 Debug Level

This controls the amount of information in the debug log. There five levels: Off, Error, Warning, Info and Verbose. Default is Off.

2.12.3.2 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 Admin Tools will not automatically create directories on your PC. Files are stored as AdminToolsLog_date.txt

2.13 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 server, the DUT's in each server 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

2.13.1 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 Admin Tools 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 Admin Tools installation. It is set during the install process but can be changed afterwards via the preferences applet.

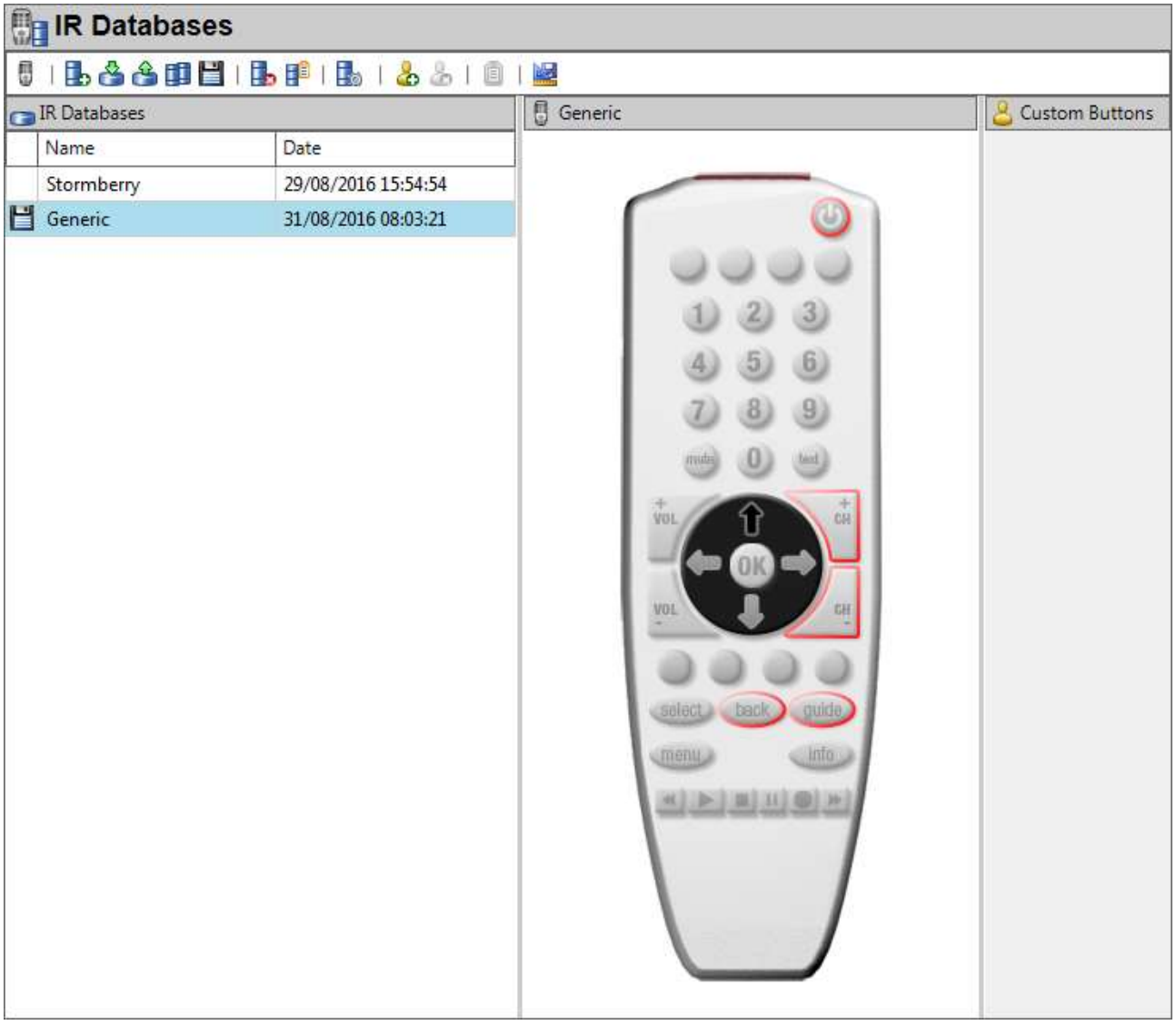
2.13.2 Admin Console

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

3 IR Trainer

3.1 IR Trainer

The IR Trainer is designed to allow you to train the StormTest Development Center to use a specific IR Remote control. Each DUT can, in theory, have a different IR Remote control. The main view is split into 3 resizable panels with a toolbar above them all.



Each definition of IR keys is known as an IR Database. The left hand panel lists all the IR Databases known to the StormTest Development Center. The middle panel is a representation of a generic IR Remote control - the training and testing of trained IR Databases is done here. On occasions, the generic remote control is not enough - you can add your own buttons, known as 'custom buttons' and these appear in the right hand panel.

Control is via the toolbar at the top or right mouse click and use the context menu. Some functions also have keyboard short cuts. When the IR Trainer starts it contacts the Configuration Server and retrieves all the IR databases in the StormTest Development Center. If you have a slow network link, this can take some time.

If you see a warning message in red stating that "No RedRat3 devices detected" please plug a RedRat3 into a USB port and after it has been detected by Windows, click the  button. If you unplug the RedRat3, the warning message will not reappear. It is not intended as a live indicator of the RedRat3 presence.

3.1.1 Commands:

 - Show information about the Hardware used by IR Trainer.

 - Create a new IR database.

 - Import IR database from a file.

 - Export selected IR Database to a text file.

 - Duplicate the selected IR Database.

 - Save all IR databases to StormTest Development Center.

 - Delete selected IR Database from StormTest Development Center. You will be prompted to make sure are certain.

 - Rename selected IR Database. Key F2 will also do this.

 - Show IR Database details.

 - Add a custom button - you will see an edit box so that you can choose a name for the button

 - Delete the selected custom button

 - Change the name of the selected custom button - you will see an edit box to type in the new name. Enter completes the entry, ESC key cancels the rename.

 Edit the skin (graphic) of the IR Database.

3.1.1.1 From the Right Mouse Menu only:

 - Save just the selected IR Database

Export all databases.

Clear Training - all key definitions are cleared ready for retraining. You will be prompted to make sure you are certain.

Delete All Buttons - deletes all custom buttons.

3.1.2 Mandatory Keys

The five keys edged in red need to be trained in order to run the example scripts supplied with StormTest Development Center. The other keys are likely to be useful for full use.

3.1.3 Training a key

Just click on an untrained key. If the database is totally empty, you will be prompted to detect the IR Protoocol. Otherwise, training will commence. If the key has already been trained, then you can hold down the shift key while clicking it to re-train the key.

3.1.4 Transmitting a key

Once the key has been trained you can transmit it from the IR device by clicking it. During transmission the following icon will show above the IR Remote graphic:

3.1.5 Button States

Each button shows you the status. This is illustrated by the example of the '0' digit:

 Untrained

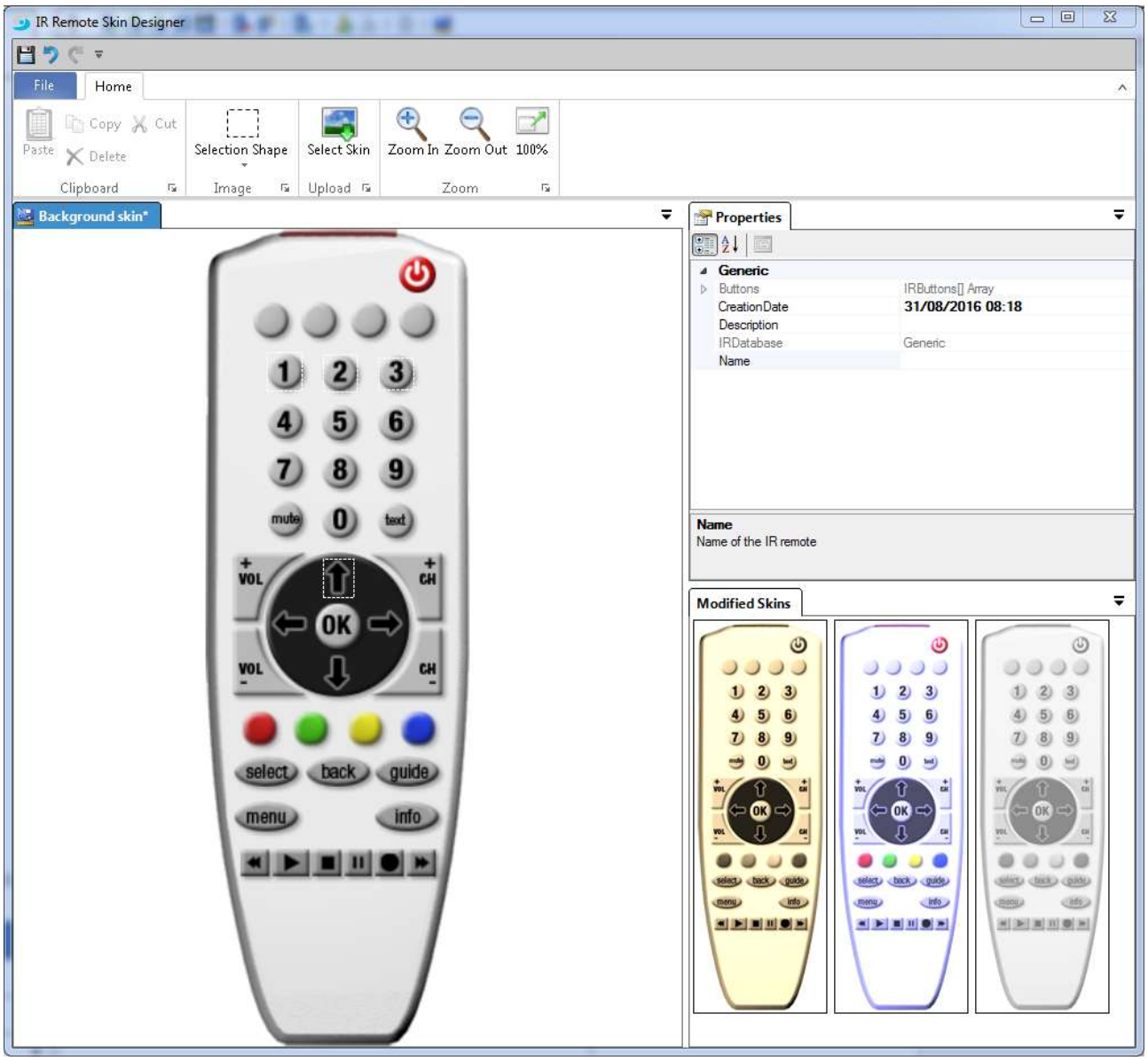
 Training in progress

 Trained

 Transmission in progress or completed

3.2 Skin Editor

The IR Skin editor allows you to edit the graphic shown in the Developer Suite whenever a user wishes to use a remote control.



3.2.1 Workflow

It is required that the IR Database be created first and all buttons, including custom buttons are trained before starting the Skin Editor.

3.2.2 Graphics Needed

As a minimum you will need an image of the IR Remote control itself. This should be no larger than 400 x 800 pixels. The image is stored in the StormTest Development Center database and downloaded to each user's machine on demand - larger images would cause a slow down of the application.

The final application uses 4 states for each IR button and for that, you need 4 images. The Skin Editor can create a simplistic effect for each state or you can import a professionally designed graphic for the purpose. The states needed are:

- Normal State (known as the background and shown in the left hand panel of the Skin Editor)

- Mouse Over (when the mouse hovers over a button - shown in lower right panel, left hand image)
- Mouse Press (when the mouse presses a button - shown in lower right panel, center image)
- Disabled (when the Remote is disabled for some reason - shown in lower right panel, right hand image)

3.2.3 Importing Images

To import any of the 4 images, select the window to import and then click `Select Skin` on the ribbon at the top of the editor. You must import the background image. If you do not import images for the other states, then IR Trainer will create images by applying color filters - these work reasonably well for dark background remote controls but not so well for lighter backgrounds. There are many graphical packages available to perform image editing.

3.2.4 Defining Buttons

After loading the image, you need to define the rectangles that are the buttons. Simple click and drag on the background to create a new button. Once created you can resize and move it by dragging on the square boxes around the selection. You may find it useful to zoom in or zoom out using the ribbon buttons.

Once defined, you must assign the properties using the upper right hand panel. Each button must have a `CommandName` and this is one of the already defined IR Database buttons (which is why you must train the IR prior to editing the skin). You may also add a `description` and a `name` property.

The name may in future be used in the Developer Suite application along with the description.

3.2.5 Deleting buttons

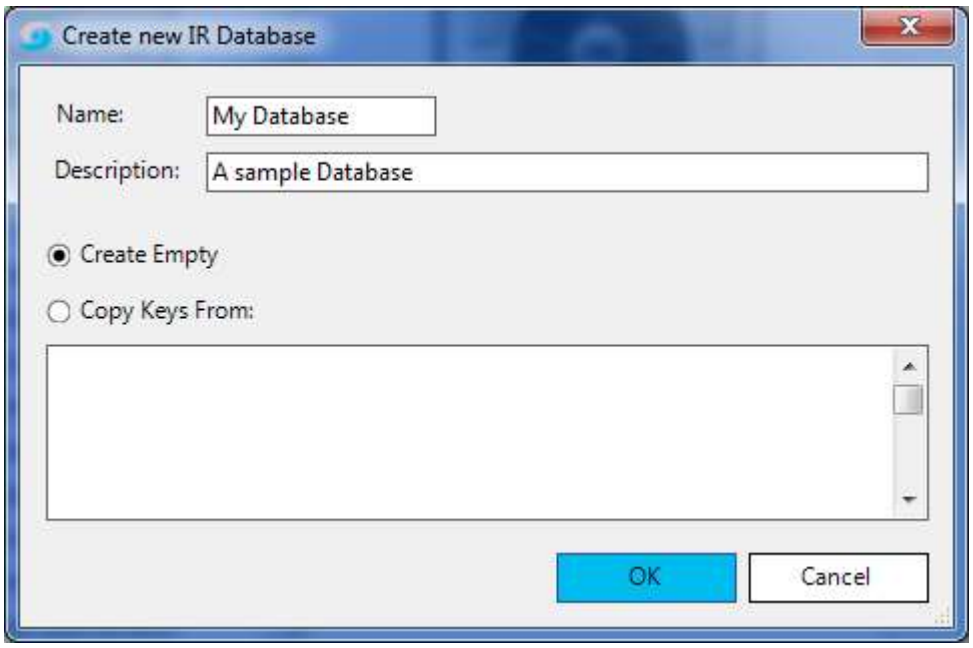
Highlight the button and use the `delete` key on the keyboard or the ribbon. Use Ctrl-Z to undo a mistaken delete or the quick access toolbar at the top of the application.

3.2.6 Saving Changes

Use the save button on the quick access toolbar at the top of the application or exit the Skin Editor - you will be prompted to save the skin. Once changed, you return to the main window. You need to explicitly commit the changes to the database by saving again.

3.3 Create New IR Database

To create a database, you need to supply a unique name:



You may also supply a description - this is not needed by StormTest Development Center but may help you. If there are existing IR databases then you may use any one of them as a basis for the newly created database. The default is to create it empty. You cannot copy from an empty database to another empty database - it does not really make sense.

3.4 Import IR Database

Previous versions of StormTest Development Center used text files to store the IR definitions. You can import these into StormTest Development Center version 2.0.0 by using the import command. You can import multiple files from the same directory in one go. They will be checked for validity during import.

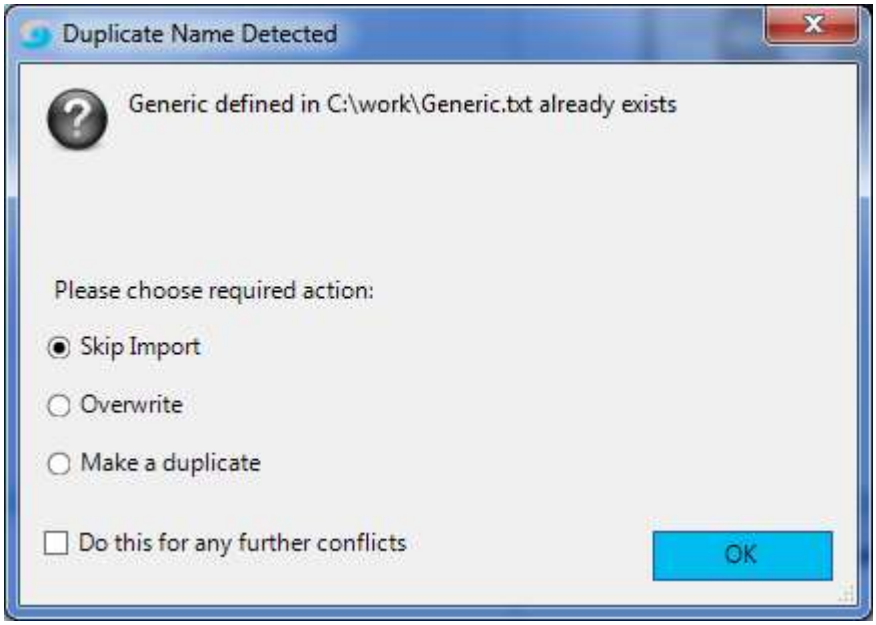
The files all contain a line of the form: Device: <device name>. The device name will be used as the name in version 2.0.0 and later versions. Test scripts will use a modified form of the name. Any spaces will be replaced by the underscore ('_') and appended with '.txt' - unless it already ends in '.txt'.

3.4.1 Conflicts during import

During import it is possible that an IR database of the same name already exists (names are not case sensitive). In that case you will be presented with a dialog to resolve the conflicts.

3.5 Resolve duplicate name

During import it is possible that an IR database of the same name already exists (names are not case sensitive). In that case you will be presented with a the dialog:



Choose the desired option - the default is to ignore the duplicate.

The check box 'Do this for any further conflicts' acts only on the current import command - further imports will always prompt for the first conflict.

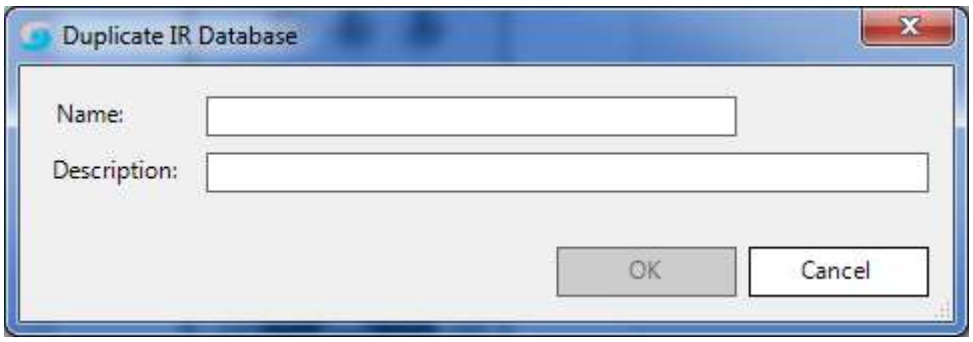
3.6 Export IR Database

You can export the trained IR database to a text file, for example to send to support personnel for analysis or just for backup. If you use the right mouse menu, you have the option to save all IR Databases to a folder. The file name is derived from the name using the same algorithm as a StormTest Development Center server uses: spaces are replaced with an underscore ('_') and '.txt' is appended.

Existing files will be overwritten without warning.

3.7 Duplicate IR Database

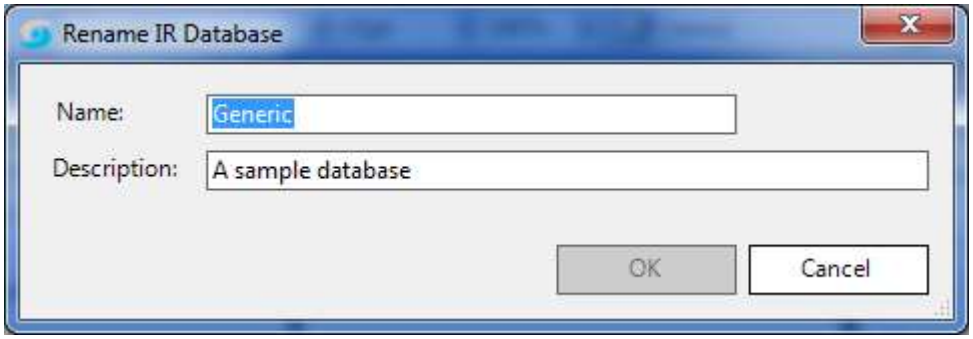
You can duplicate an IR database. This copies the complete contents of the selected database to a new one:



You must enter a unique name for the newly created database. You may also enter a description as when creating an IR database.

3.8 Rename Database

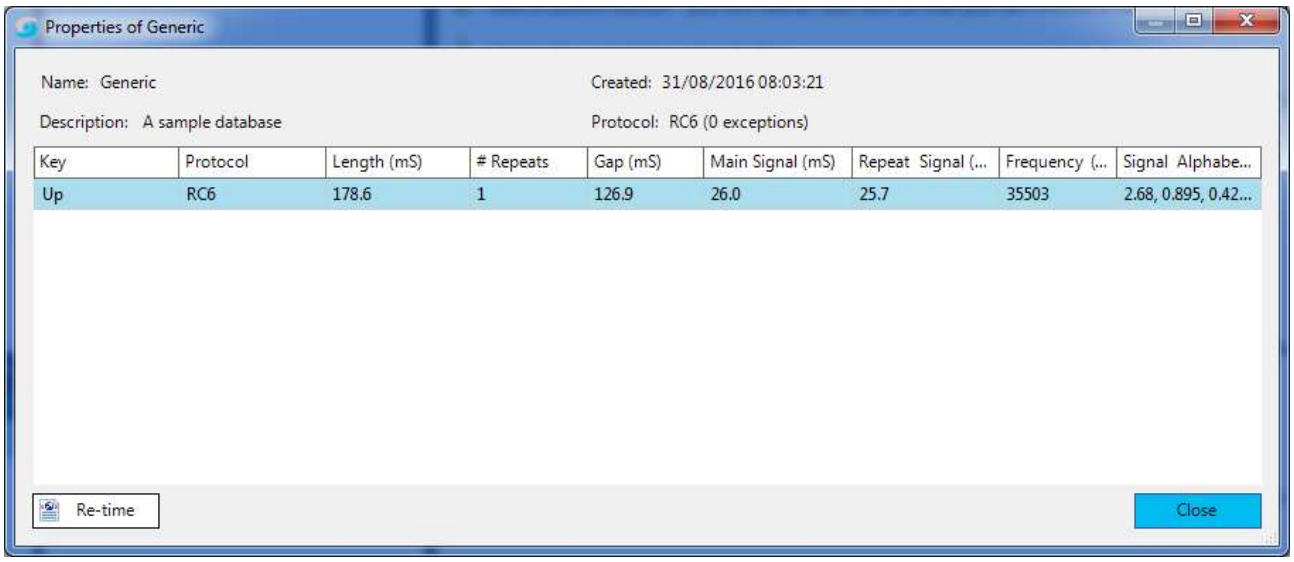
Any database can be renamed - the same dialog as the duplicate database appears but with a different title.



The new name must be unique. The description is optional.

3.9 IR Database Properties

The IR Database properties shows you information about the IR Database:



The creation date and time is local time of the last modification of the IR Database. The detected protocol is shown, along with the number of keys which did not match the protocol. The IR Trainer can detect the following protocols:

- RC-5
- RC-6
- RC-MM
- NEC protocol
- XMP

Others, and there are many, will show as 'Unknown'. The columns are:

Key - the name of the key

Protocol - name of protocol detected

Length - the total time needed to transmit the IR signal. This includes the time for the main signal, the gap and the secondary repeat signal.

 # Repeats - the number of repeats of the signal. A large number increases the chance of the signal being correctly detected, a low number speeds up the whole test process.

Gap - the time between the main signal and each repeat signal.

Main Signal - the time of the main signal. A typical IR signal contains a main signal followed by zero or more repeats. The repeat is sometimes the same as the main signal and sometimes not.

Repeat Signal - the time of the repeat signal.

Frequency - To prevent interference from normal domestic light sources, the raw IR signal is modulated, usually at around 36 kHz. Some protocols use slightly higher or lower frequencies.

Signal Alphabet - An IR signal consists of a selection of off pulses and on pulses. The IR Trainer stores the signal as a list of these but instead of storing the absolute length of each off and on, it stores the list of different lengths (the alphabet) and then lists the sequence of lengths. So, in the example above, the alphabet has 2.67, 0.889 and 0.444 mS (there are two 0.889 due to rounding). The data will be a mix of 0,1,2 and 3 corresponding to the alphabet lengths. The values in the alphabet give a clear clue to the protocol in use.

3.9.1 Re-timing the IR Database

Where the protocol is recognized by IR Trainer it is possible to correct the learned signal to match exactly the published specification. It has been found that some DUTs are very sensitive to the accuracy of the signal - re-timing will cure this. If the environment has a lot of interference then nothing will help the learning. This re-timing can be automatic.

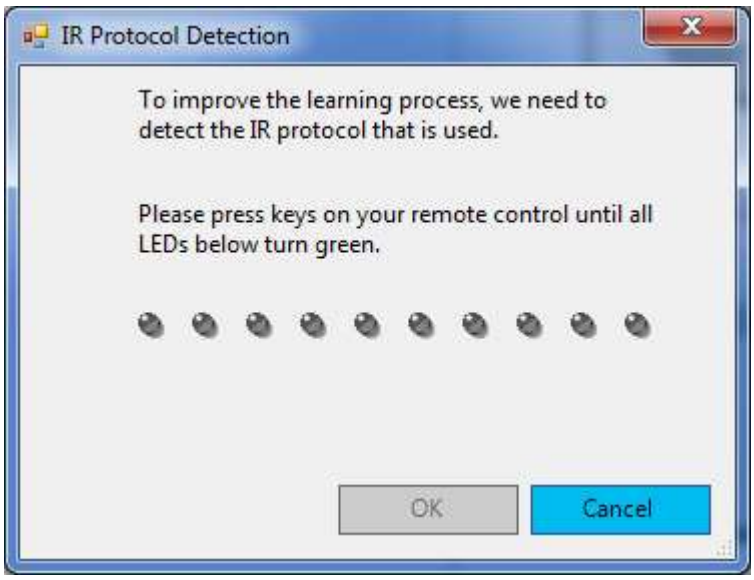
3.10 Hardware Properties

The properties of the hardware are shown:

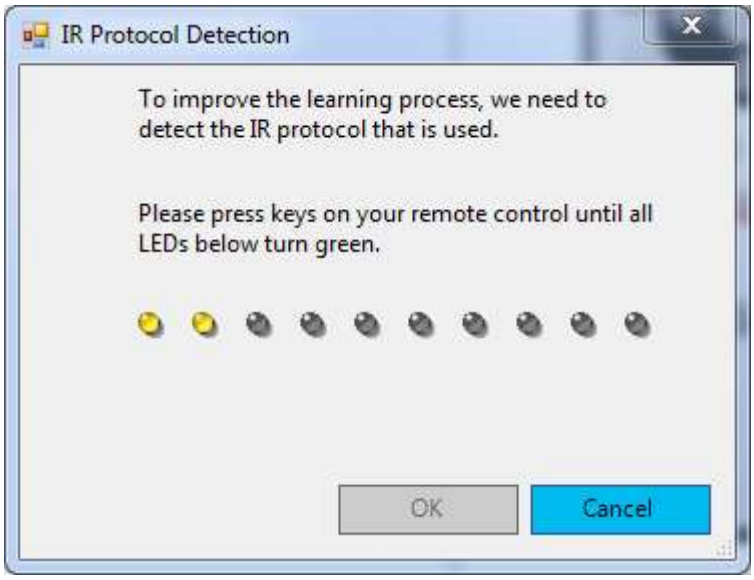
The IR Device should be a USB RedRat3. The version must be at least 1.07 if XMP style IR remotes are to be learned. If the firmware is up to date, then device will be XMP capable.

3.11 Protocol Detection

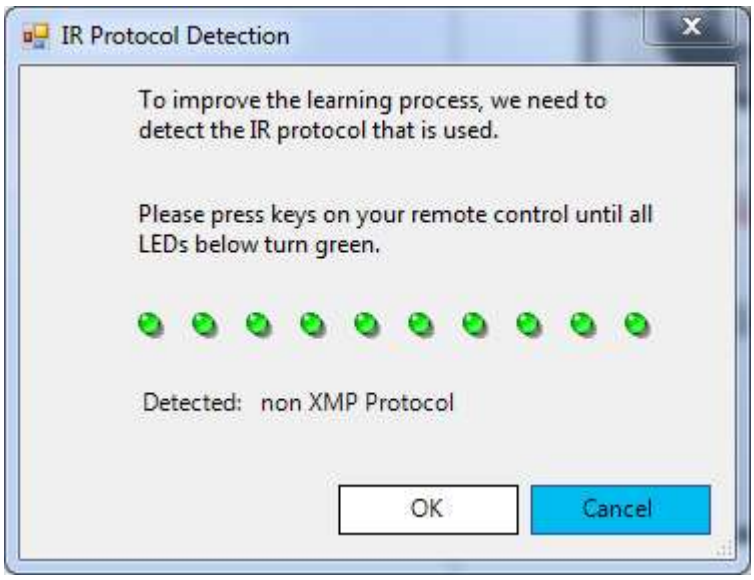
The hardware needs to be configured differently for learning the codes for XMP style remote controls. So, if the database is empty, you need to press some keys for the IR Trainer to determine whether or not the IR remote control is an XMP style control:



To ensure that the correct determination is made then you need to press at least 3 keys. Each key turns one LED yellow:



Assuming the environment has no undue interference, 3 keystrokes will be enough and all the LEDs turn green:



3.12 Training a Key

To train a key, you need to press the same key twice. This is because some IR protocols use a toggle bit to prevent a long key press being detected as two keystrokes. Not all protocols use the toggle bit.

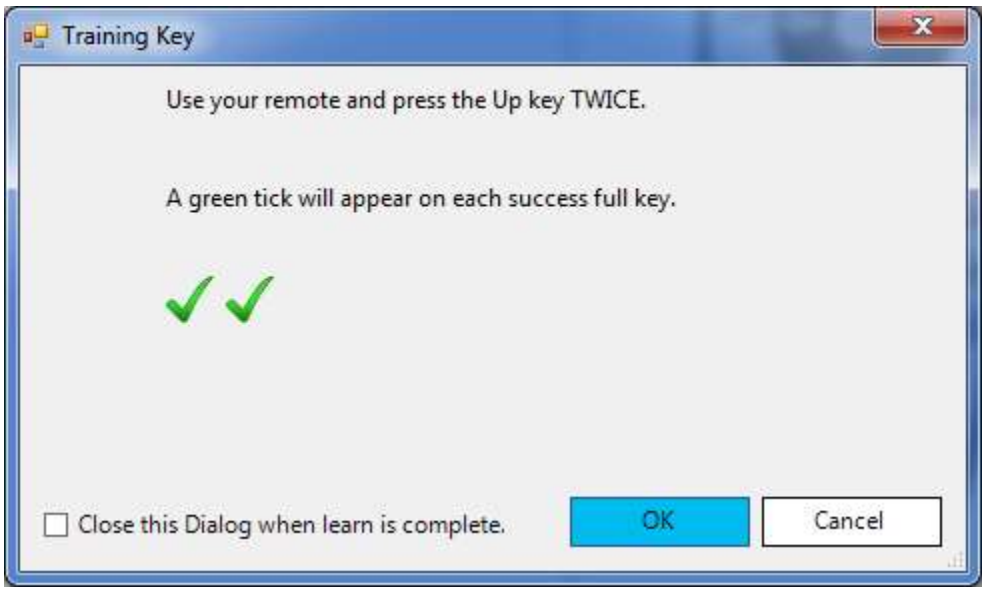
3.12.1 Optimizing Training

To improve the training, you should eliminate background sources of IR radiation. This would include sunlight as well as artificial lights. The ideal training environment would be darkness but there are practical issues in most practical environments.

The training dialog:

You can cancel at any time. When 1 key has been detected you should see:

If the checkbox is not checked, training completion will be indicated:

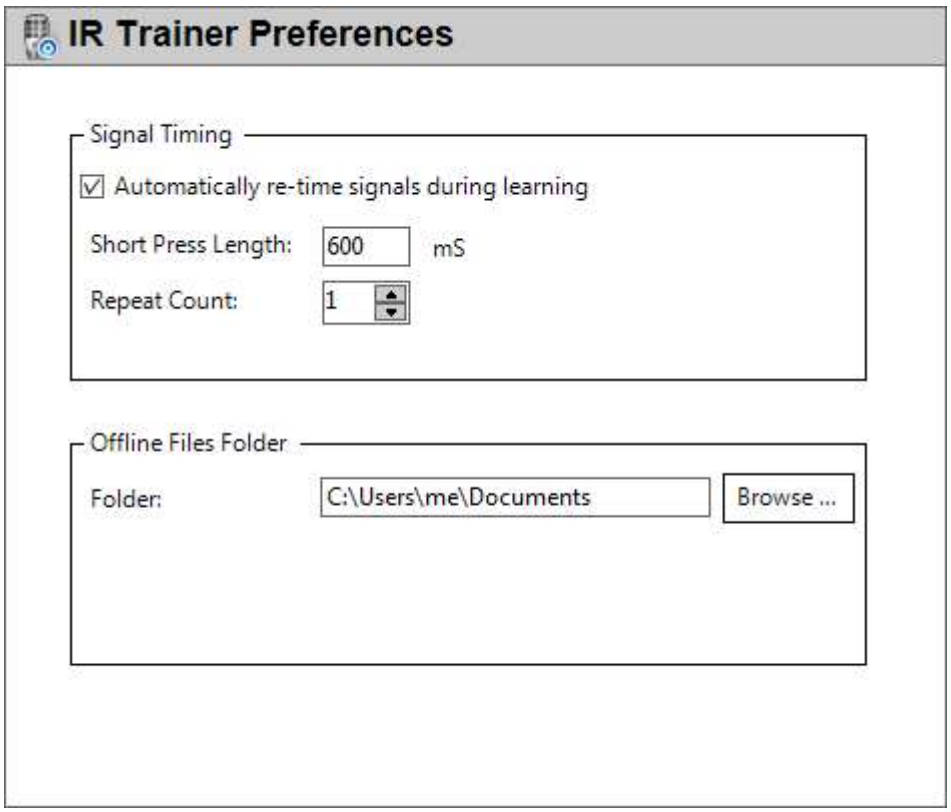


You can change the state of the check box at any time. If checked then you will not see the above dialog - it will close immediately after detecting the second key press.

If you happen to press different keys instead of the same key twice, then it will cause problems. There is no obvious way to detect this automatically. Looking at the IR Database properties may give a clue if the keystroke looks different from the others in the database.

3.13 IR Trainer Preferences

The IR Trainer has several options:



Automatically re-time signals during learning - this is the default. IR Trainer will correct the learned signal to match the published specification for known protocols. This tends to improve the overall reliability of the learned IR signals.

Short Press Length - when pressing the keys, it is inevitable that you will have variations in the length of key press. Some IR Remote Controls use this to mean different functions. In that case this value is used to distinguish 'short' keys and 'long' keys. The short keys are re-timed to be as short as you set (see below) but the long keys are not changed.

Repeat Count - the number of repeats that short keys (see above) should have. The default is 1 but some protocols can work with 0. Setting this value to a low number reduces the overall time needed to transmit IR signals and improves the test time - especially when a large number of DUTs are used at the same time.

Offline Files Folder - if you are not connected to a facility, you can still edit IR databases by storing them in an offline folder. This feature has some limitations in that you can't upload files to the facility, download files from the facility or delete files. There is also no check when you create a database whether it is a duplicate in the facility (no access to it). Once you connect to the facility, you will need to manually synchronize the edited IR databases with the facility.