DemoDesign Software Manual

GETTING SUPPORT

COMPATIBLE HARDWARE

ORGANISING YOUR PROJECT

CREATING THE USER INTERFACE

ADVANCED TOPICS

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Introduction

WHAT IS THE DEMOPAD SOLUTION?

The DemoPad solution consists of 2 elements:

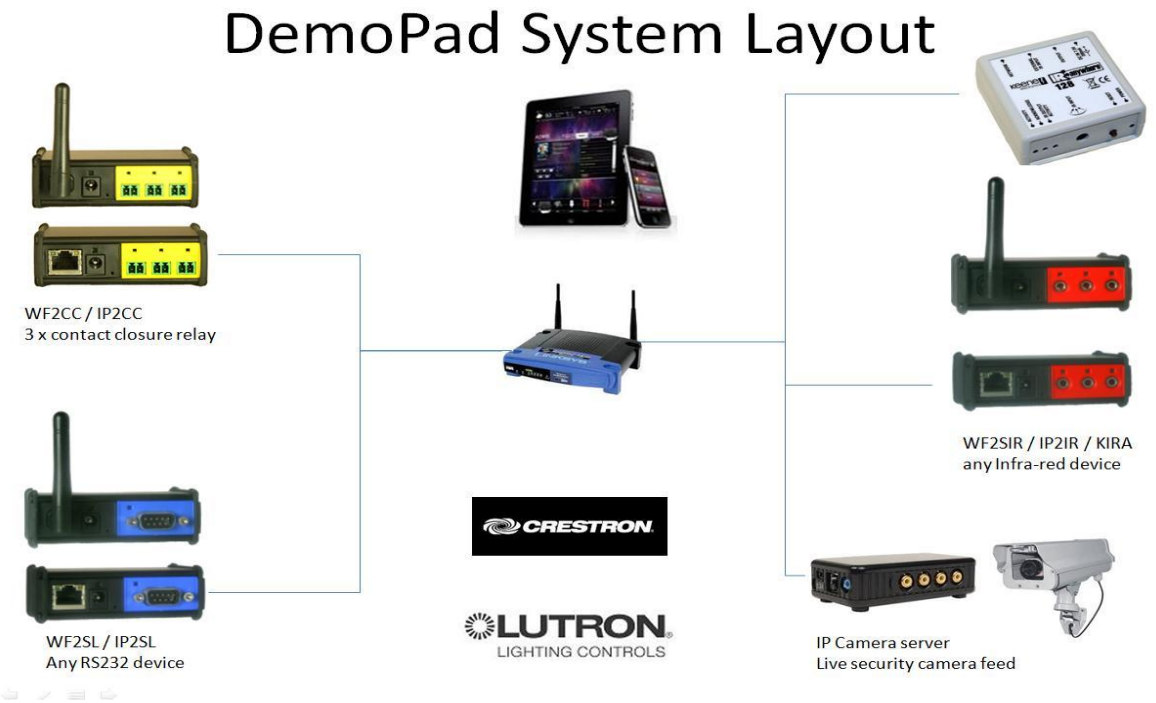
DemoDesign Software

The DemoDesign PC software allows you to create a customised Graphical User Interface (GUI) for an iPhone / iPad & embed commands which can be sent to almost any TCP/IP compliant device. This can then be uploaded to an iPad / iPhone running the DemoControlHD app from iTunes.

DemoControlHD iTunes app

The DemoControlHD app is available through Apple's iTunes App Store, and uses the compiled configuration file generated by DemoDesign to display the GUI on the device, and allow commands to be sent via wifi directly to the equipment to be controlled.

The end result is a powerful home automation application which, with additional hardware, will allow control over almost any audio & visual device, lighting, heating etc. Whilst this system supports home automation / lighting processors such as Lutron / Crestron, there is no requirement for a processor to be present.



SYSTEM REQUIREMENTS

For Design Software: PC running Microsoft Windows OS (or emulator) – XP or later with .NET 3.5 installed. It is also recommended that the computer be fully updated with the latest Microsoft updates – refer to your PC documentation.

For DemoControlHD app: iPhone / iPad / iPod Touch running iOS version 3.1.3 or later (iOS 4 or later recommended)

Getting Started

OBTAINING & INSTALLING THE SOFTWARE

The DemoDesign software can be downloaded from www.demopad.com/software.asp

INSTALLATION

To install the software, double click on DemoDesignerSetup.msi & follow the onscreen instructions. It is recommended to install the software to the default location of "c:\Program Files\Demopad Software Ltd\Demopad Designer" which will henceforth be referred to as <program dir>.

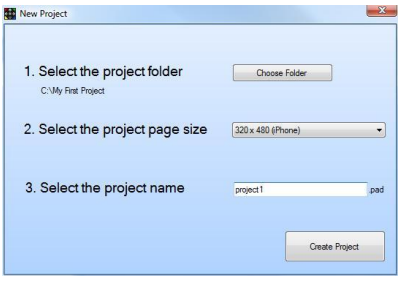
Once installed, there should be an entry in the start menu under programs\Demopad, and a shortcut icon on the desktop called "DemoPad Designer". Double click the shortcut to launch the software.

CREATING A NEW PROJECT

From the home screen of the software choose 'Create Project', or click on the menu circle in the top left of the window & choose 'New'. You will then see the following screen:

Click on 'Choose Folder' & select, or create a folder on your computer which will contain all of the project files. Choose the size of the pages (either iPhone or iPad size) and give the project a name. The project name should be kept short.

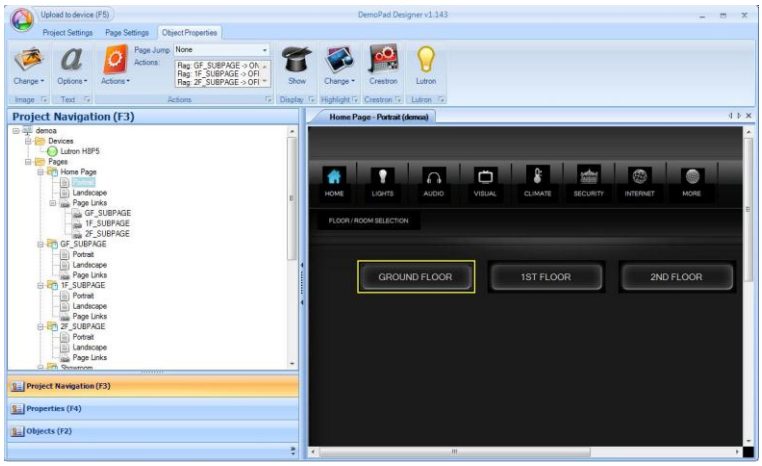
Click 'Create Project' to continue.



You will then be taken to the main window and a new project will have been created, with no devices and a single default page, 'Home Page'.

APPLICATION WINDOW ELEMENTS

The application window consists of 3 main areas: the top menu bar, the left side navigation area & the right project page area.



The top menu bar changes dynamically, depending on the task you are performing, and provides all the relevant menu options necessary at the time. Some menu buttons expand by clicking on the square/arrow in the bottom right to reveal more options. 

The side navigation area consists of 3 views:

- Project Navigation (press F3 to show) which displays all the projects, devices & pages in the project
- Properties (press F4 to show) which displays the object properties for the selected object
- Objects (press F2 to show) which allows you to navigate to a selection of images to use for page buttons / images

OBTAINING THE DEMOCONTROLHD APP

Either on your iDevice, or through iTunes, go to the app store & search for DemoControlHD. Follow the iTunes instructions to purchase & install the app. Ensure that your iDevice can see the internet, then run the DemoControlHD app found on your iDevice. This will communicate with our server & download & run a simple project.

Please note the DemoControlLite app (also available on iTunes) can be used to test GUI layouts with the software, however no commands will be sent out by the Lite app, unless you are using a pre-defined Lite template.

PROJECT FILE MANAGEMENT

Projects created with the PC software consist of 2 main sets of files:

1. The “<ProjectName>.pad” file – this .pad file is the main project file which contains all the information about your project.
2. The “<ProjectName>.pad_Files” folder. This folder contains a local copy of all the images used in your project, and also contains the .DC7 file when your project is compiled. The iPad / iPhone downloads the .DC7 and all the image files referred to by it during a project upload.

If you wish to deploy your project via a web server, there is no need to include the .pad file – the only files used by the iPad / iPhone are those contained within the _Files folder.

Backing up your Project

It is ESSENTIAL to make incremental backups of your .pad file, particularly before upgrading the PC software to the latest version. Failure to do so can result in the loss of all your project information.

Basic Concepts

DEVICES

Devices are the physical TCP/IP units with which the iPad / iPhone will communicate with to accomplish the various home automation tasks. For example, a device may be a Global Cache IP to Infra-Red module, or a Lutron Homeworks processor. Please note, a device would NOT be a particular TV, or DVD player, unless it can be controlled directly through TCP/IP. In the case of an IP to Infra-Red module, this single device in the software could control many pieces of end user equipment, such as TVs, DVD players, Amplifiers etc. Only a single device would be needed in the software in this situation. A device has the following properties:

- **IP Address** – the static IP address of the device, eg 192.168.1.55
- **Port** – the communication port used by the device, eg 4998
- **Command Suffix** – which is amended to each command sent by the device (usually \x0D\x0A which equals a carriage return & line feed character)
- **Remote IP address / port** – which is used instead of the normal IP address when the user sets the 'Remote Access' option on the iPad / iPhone. Used for accessing the devices from a remote location.

PAGES

The GUI will consist of at least 1 page, which is the total screen area shown to the user. A page has both a portrait & landscape view, which may or may not have the same page objects displayed on it. A page view can have any number of the following objects placed on it, which together will build up the GUI:

- **Buttons**
- **Images**
- **Text**
- **Sub Page**
- **Gauge**
- **Web Views**

PAGE OBJECTS

BUTTONS
A button is a pressable image, which can have actions associated with the push and/or release events. A typical button would, for example, send a command to turn a TV off, or cause a page jump to another GUI page.

IMAGES
Images are non-pressable objects used for design purposes.

TEXT
A Text object is a non-pressable object, eg 'Home Screen' - used for design purposes

SUB-PAGE
A page link causes all objects from another page to be displayed on the current page, optionally as a result of an internal flag condition (see project flags section)

GAUGE
Applicable only to Lutron / Crestron / Rako systems, a gauge displays a value from 0-100% as a bar, and in the case of Lutron / Rako systems, provides a way of adjusting a lighting channel by sliding your finger up & down the gauge.

WEB VIEW
Allows you to embed a browser window into the GUI, and treat as an internet browser sub page.

ACTIONS
An action is something which 'happens' in the software. An example action might be an infra-red command being sent to a device, or a jump to another page in the GUI. Actions can occur in response to the following situations:

1. When a button is pressed
2. When a button is released
3. When a page is displayed (ie after a page jump)
4. When the app starts
5. When a gauge value changes
6. When feedback is received from a device

It is recommended for most actions to occur as a result of the button release event, allowing the user the chance to press a button, and slide their finger off the button without the action being performed.

The following actions can be performed (or any combination of multiple actions):

1. Send a command to a device

2. Set the status of a flag (see flags section later)
3. Set the value of a label (see labels section later)
4. Send data to a web server
5. Launch another app / navigate to a web page
6. Jump to another page in the GUI
7. Exit the DemoControlHD app
8. Set the value of a number variable (see numbers section later)

FLAGS

Flags are Boolean (YES/NO) variables within the software. They can have one of two values: ON, or OFF. Any action can set the status of a flag, and they are used for the following purposes:

1. Flag Dependent Actions – where particular parts of an action list are only executed if a particular flag is set to, say, 'ON'. (Conditional Logic Statements)
2. Making objects / pages appear – you can have certain objects appear on screen in response to a flag being set to 'ON', and have them disappear when the flag is set to 'OFF'
3. Disabling buttons – you can disable a button by having all actions dependent on a flag

LABELS

Labels are textual variables within the software. They can have any text value. Any action can set the value of a label, and they are used for the following purposes:

1. For display only – a button / text object can have a dynamic text label, which will always reflect the value of the label variable. For example, a button might say 'TURN TV ON', but then change to 'TURN TV OFF' when pressed.
2. To retrieve an image from the internet – by setting an image dynamic label, images within the GUI can be dynamically loaded from external sources, eg setting a label value to http://www.demopad.com/ipcamera.jpg & associating that label with an image in the software would cause the jpg file at that location to be displayed.

NUMBERS

Numbers are numerical variables within the software. They can have any numeric value. Any action can set the value of a number, and they are used for the following purposes:

1. To alter the visual value of a gauge
2. To trigger a particular set of actions if the number is changed, by, for example, a user changing a gauge manually.

Getting Support

Support is handled through email – please send any questions to:

support@demopad.com

Compatible Hardware

It should be noted that in addition to the compatible hardware, by extension, anything that the compatible hardware can pass signals to can also be controlled. This includes any infra-red device, any RS232 device, etc.

TCP/IP DEVICES

The app is able to open a TCP socket to communicate with various equipment. Compatible devices include (but are by no means limited to) the following:

Global Cache GC-100 series units – for RS232, infra-red, contact closure control of devices

Global Cache iTach range of products – for RS232, infra-red, contact closure control of devices

Onkyo, Denon amplifiers (which support Ethernet control)

Insteon

And many others...

UDP DEVICES

The app is able to send packets of data in UDP format to the following:

Keene Electronics IP to IR units

Rako Lighting Ethernet Bridges

And many others...

COMPATIBLE SYSTEMS (2-WAY AUTOMATIC FEEDBACK)

The app can communicate with the following systems, providing 2-way feedback to the GUI, and control over anything which the systems themselves can control:

Crestron Series-2 Processors

Lutron Homeworks Processors

Rako Lighting Systems

Organising your Project

GUI DESIGN CONCEPTS

It is important, when designing your GUI layout, to consider the needs of the client, the complexity of the project (ie the number of functions), and the screen size & orientations of the target device, whether it is an iPad, iPhone, or iPod Touch.

CONTROLLABLE EQUIMENT

A piece of controllable equipment within the software would, for example, be a particular TV or Blu-Ray player. It is important to be aware of each piece of controllable equipment, and the control method for each – IR, RS232, Ethernet etc. It is also important to obtain the control codes that will need to be set up in the project devices, for controlling the equipment.

DEVICES

Once you have obtained a list of equipment to be controlled, you should consider the project devices which may be needed. In the case of Ethernet control, the device and the controllable equipment are one & the same, however in the case of IR, RS232 or other method of control, an intermediary piece of hardware will be required to send commands to the target equipment. An example would be to control 3 pieces of IR equipment (TV, Blu-Ray, DVD), you might use a single 3 port Global Cache IP-to-IR device.

COMMANDS

For each device you add to the project, there will be a set of commands which will be associated with the device. These might be IR, RS232 or Ethernet commands. Ethernet & RS232 commands should be obtained from the manufacturer of the equipment. IR commands can either be learned, using an IR Learner, or converted from existing codes (eg Pronto Hex format) to match the protocol of the IR device being used.

USING CUSTOM GRAPHICS

When the software is installed, a set of graphics are installed on the target PC, by default in the following location:

C:\program files\demopad software ltd\demopad designer\images

To use your own graphics in the software easily, you should copy any files (.PNG format recommended) to the Images folder, creating whatever directory structure best fits your needs. The images directory is duplicated in the design software to allow you to choose the required images for your GUI design.

PROJECT DEVELOPMENT CYCLE

The typical development cycle will, in many cases, be as follows:

1. Start the project & create the home page
2. Add the devices to the project (and optionally the commands)
3. Create the other pages to be used in the project, and the method for navigating between pages
4. Upload the project to the device & test the page navigation
5. Populate each page with the GUI buttons / images etc to build up the interface
6. Upload the project to the device & test the GUI layout
7. Add the commands to the devices & assign them to the GUI buttons
8. Upload the project to the device & test the execution of the commands

The basic principle is to create the GUI first, and then worry about the commands which will be sent.

Creating the User Interface

ADDING PAGES TO A PROJECT

There are two types of pages which can be added to a project, these are:

Full Screen Pages

Full screen pages take up the entire screen size of the target device, and there is both a portrait & landscape 'version' of the page.

Sub Pages

Sub pages are smaller page areas which can be created separately & then inserted onto a full screen page. These are useful for bringing up controls which are not always used, or for re-using common screen areas across a project.

To add a page to the project, select from the project navigation tree either the project name (top level), or a page folder. This will bring up the project menu, shown below.

Click on New Page / New Subpage to create the page, and type in a page name (which must be unique within the project.

Resizing Sub Pages

In the case of a sub page, to change the size of the sub page, double click the portrait / landscape page within the project navigation tree to bring up the blank sub page canvas area. Move your mouse to the lower right hand side of the canvas area & hold the left mouse button down & drag the canvas to the required size.

The portrait & landscape versions of the sub page can have different canvas sizes to suit your GUI layout.

SETTING A PAGE BACKGROUND IMAGE / COLOR

To bring up the page menu, click on either the 'Portrait' or 'Landscape' view of a page from the project navigation tree. This will bring up the page menu, shown below

To add a page background, choose from the 'Page Background' menu options, either select a color, or choose an image.

ORGANISING PAGES WITH FOLDERS

Pages (both sub pages and full screen pages) can be organised into folders within the software. To create a folder, access the project menu & click 'New Folder'. Give the folder a name & press Enter.

To move a page to a folder, hold the left mouse button down on a page name from the project navigation tree (eg the 'Home Page' item) & drag the page onto the folder tree item.

To move a page out of a folder, drag it onto the higher level 'Pages' folder, or into another folder.

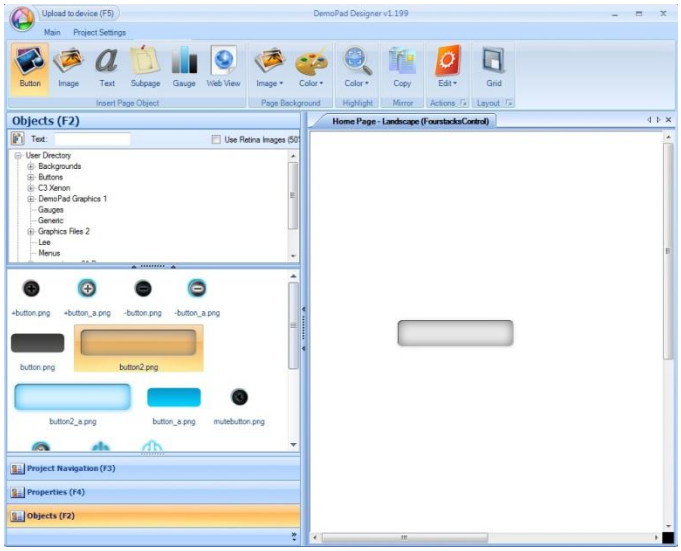
ADDING / REMOVING PAGE OBJECTS

Before you can add any object to a page, you must first bring up the page in the project page area of the software window. From the project navigation tree, click either the 'Portrait' or the 'Landscape' view of a page. This will bring up the page design screen on the right hand side, to which you can add page objects.

Once you do this, the page menu will be displayed, shown below

To insert a page object, click on the relevant object type from the 'Insert Page Object' menu options on the left. Always ensure the correct type of object is highlighted before you drag an object onto a page, as an object's type cannot be changed later. For example, graphics which are added to a page as 'Images' will not have any options for sending commands etc.

Adding Buttons / Images



Once you click on the 'Button' or 'Image' insertion menu option, the 'Objects' navigation area appears on the left hand side, shown here.

Expand the 'User Directory' tree by clicking the + symbol. This reveals the directory structure located at "<installation dir>\Images" on your computer. You are free to add folders, sub folders & images to this location manually, to use your own graphics in your projects. There is a refresh button at the top of the tree view.

Expand any of the folders & hover your mouse over a particular image. You will see a preview of the image. Move your mouse over the image preview & then drag and drop the image onto the page canvas on the right & then release the mouse button.

In the case of a button, you can optionally enter some text into the text area which will appear as the label of the button (you can also manually enter this later).

Adding Text

Adding text objects is similar to adding buttons / images, however be sure to have the 'Text' menu option highlighted. Enter some text in the text area provided, then drag & drop the preview text which appears.

Adding Sub Pages

In order to add a subpage to a project, a subpage must already exist (see creating pages section). Choose the 'Sub Page' insertion menu option, then hover your mouse over the subpage orientation (Portrait or Landscape). You will then see a preview of the subpage. Move your mouse over the preview, then drag & drop onto the host page (which must be opened and visible on the right hand side project page window area).

See the sub page section below for more information regarding the use of sub pages.

Adding Gauges

Gauges are sliders which range from 0-100%. In the case of Lutron / Rako, you are able to slide your finger up and down to alter the lighting levels of those systems.

To add a gauge, click on the 'Gauge' insertion menu option, then drag & drop an image in the same way as adding a button. It is wise to choose a suitable image to act as the gauge. Also see the section below 'Highlighting Objects', as it is always necessary to specify the highlighted image for a gauge to allow the value to be shown. Typically the image will be the same size, but a different color. Examples can be found in the 'Gauges' image directory installed with the software.

Adding Web Views

Web views allow you to place an embedded web browser within your GUI. This can be used for internet browsing, or local browser based control of equipment. To add a web view, click on the 'Web View' insertion tool & hold the left mouse button down on a page & drag a box to represent the browser area, then release the mouse. You can then use the Web View menu to enter the default web address of the view, and optionally choose a dynamic label (which can be changed by an action) to choose the browser address.

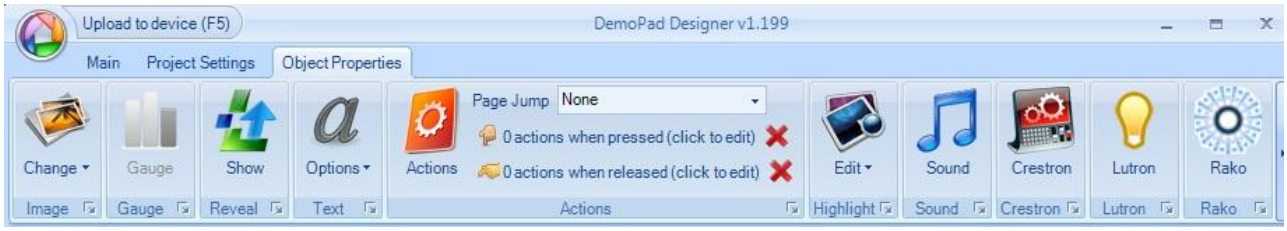
Removing Objects

To remove a single object, click on the object, then press the 'Del' key on your keyboard. This will only remove the object from the current page (and not the other orientation if the object is mirrored).

To remove multiple objects, group select the objects by dragging a rectangle entirely around the objects, then use the 'Delete' option from the group menu which appears.

PAGE OBJECT MENU OPTIONS

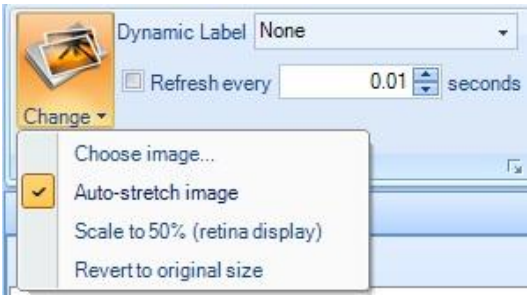
One an object has been added to a page, or after single clicking a page object on screen, the page object menu appears (see below). These menu options allow you to configure the specific page object. While some options are available to all object types (eg 'Display' menu), others are not available for certain object types & will be 'greyed out' & disabled when that object type is selected.



ALTERING OBJECT IMAGES

The image menu allows you to alter the 'normal' state image of an object. The 'Choose image' menu allows you to choose any graphics file to replace the existing one.

The 'Auto-stretch image' option determines whether an image is stretched to fit the size of an object, if it is resized. The default is for this option



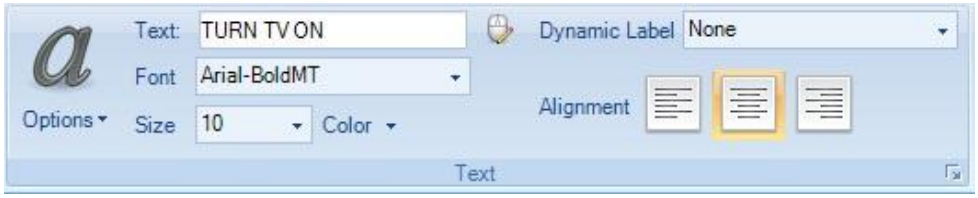
to be enabled. By disabling the auto stretch option, you can resize an object & the image will remain in the centre at the original size, however the pressable area will increase.

If an object is resized, you can return it to the original size of the image by selecting the 'Revert to original size' option.

The dynamic label / refresh options refer to loading images dynamically from an IP/web address – see the section below on dynamic labels for more information.

ALTERING OBJECT TEXT

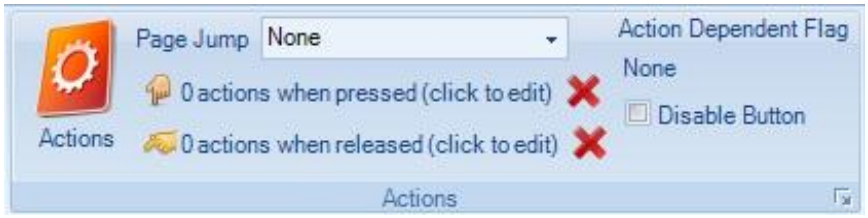
The text label of a button / text object can be altered using the Text menu.



The size, alignment, color & font (more Fonts coming soon) can be altered using the menu options. You can also have the text change dynamically, based on a project label – see the 'using labels' section below.

THE ACTIONS MENU

The Actions menu, applicable only to Button objects, is where you assign action that will be peformed when the button is either pressed, released, or both. It is recommended to use the 'Release' actions wherever possible – this gives the user the option to press their finger on a button, & move their finger away from the button without performing any actions.

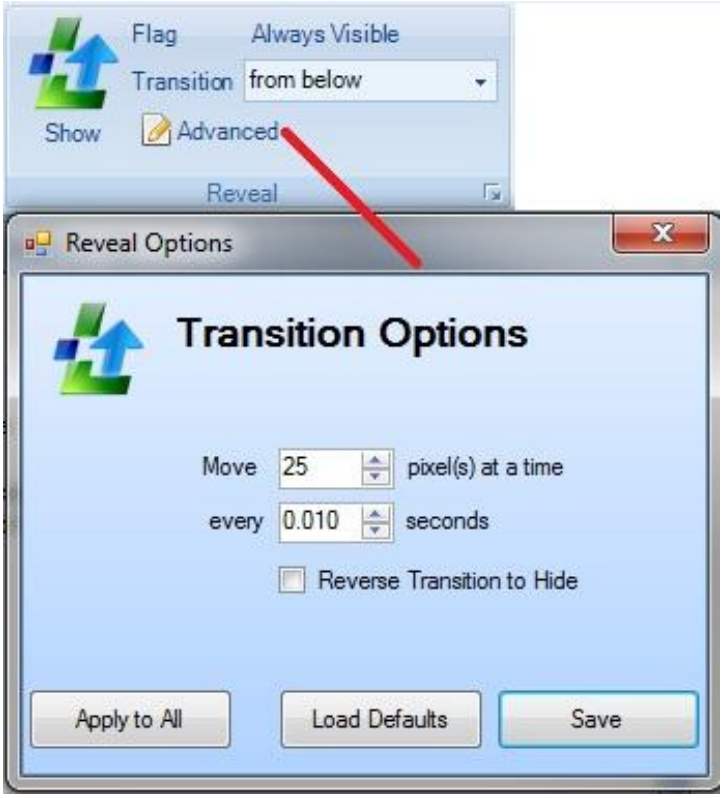


Please note, if a button has one or more 'press' actions associated with it, then if the user should move their finger off the button, the 'release' actions will still be executed.

There is an optional 'Action Dependent Flag' menu, which will look at the state of a flag to determine whether to execute any commands or not. The decision is made at the point at which the user pressed / released the button. Please note it is also possible to specify flag dependencies within a set of commands, where the decision whether or not to execute the command, based on the state of a flag, is made at the point when the command is about to execute (ie after any delay that has been set on the command).

DISPLAYING OBJECTS DYNAMICALLY

The Reveal menu option allows you to dynamically show and hide page objects based on the status of a project flag. Once you select the flag which will determine whether the object will be shown, you can select how the object should appear, when the associated flag is set.

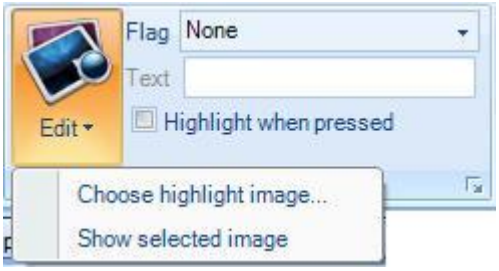


You can also select the 'Advanced' option which gives you greater control over the speed & smoothness of the object transition. Setting a low pixel value & a small reveal time will result in a fast, smooth transition, however care should be taken when moving multiple objects to avoid over taxing the device processor.

HIGHLIGHTING OBJECTS

Buttons & Gauges can have an associated 'highlight' state, which could, for example, change the image or label text when the object is highlighted. There are 2 ways to highlight a button:

1. When the user presses the button – by selecting the 'highlight when pressed' option, and
2. When a flag is set (see using flags section)



Once a highlighted image is selected, you can switch between the 2 images using the 'Show selected image' menu option. You can also optionally specify some fixed text which will replace the standard text of the button when highlighted.

LINKING TO CRESTRON

Buttons , Gauges & Text objects can be linked to a Crestron system using the Crestron Menu option.

You must have a device set up in the project which is defined as a Crestron processor. Select the 'Link to Crestron' check box & choose the Crestron device from the drop down list, and select the JoinID which will be reflected in the Crestron SIMPL Windows program. In the case of a button, this will be the digital join, in the case of a Gauge object, this will be the analogue join.

You can also optionally specify the Serial ID for buttons / text objects to dynamically set the text label of the object based on serial feedback from the Crestron processor. Setting the Serial ID to 0 equals 'no serial join'.

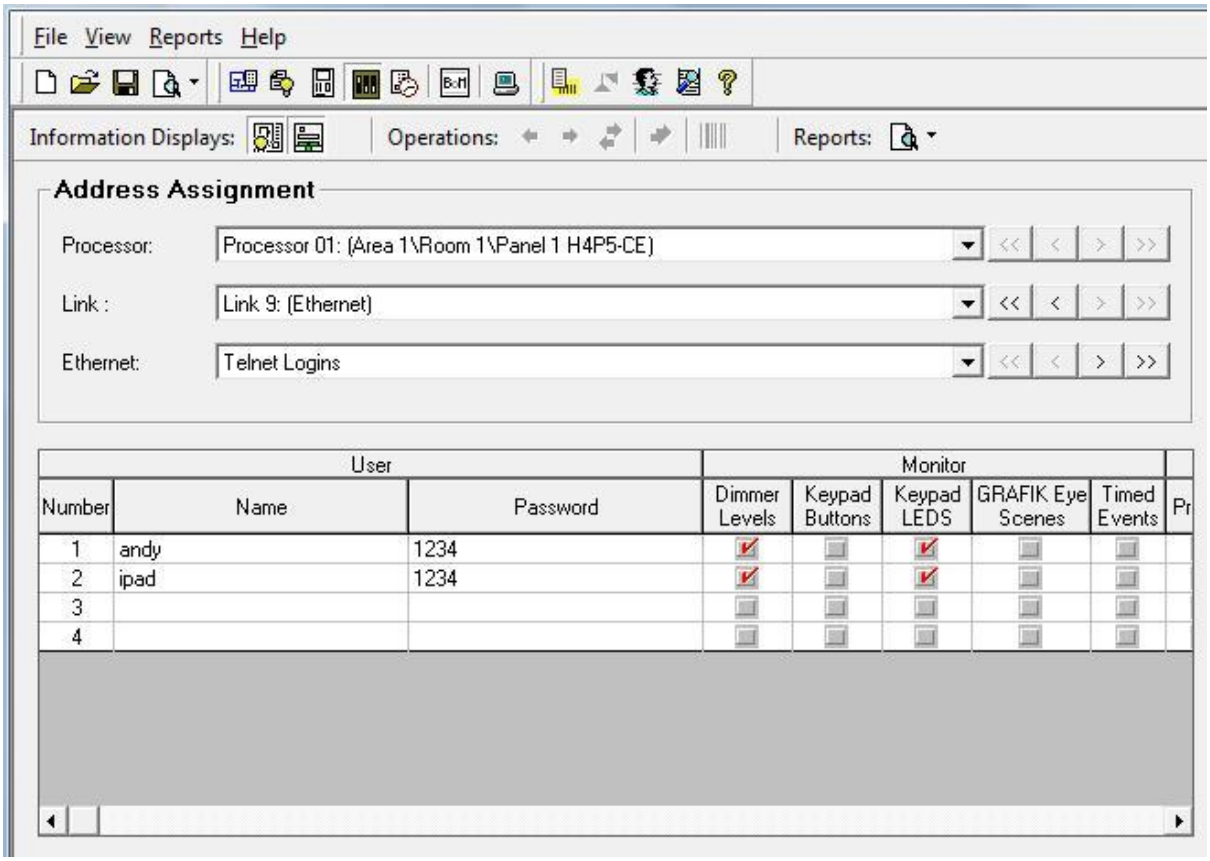
Please email support@demopad.com to obtain the Crestron SIMPL module to use in your Crestron programs, together with a sample Crestron project.

LINKING TO LUTRON

Buttons and Gauge objects can be linked to a Lutron Homeworks system using the Lutron menu.

You must have a device set up in the project as a Lutron Processor . The default port for Lutron processor telnet logins is 23. When adding the device, you need to enter the username & password in the 'initial command' section of the device menu, shown below.

This is entered in the format <username><comma><password>, for example"ipad,1234" (without the quotes). This username/password must be set up in Homeworks on the Ethernet link 9 telnet login section, shown below



You also need to ensure that the 'Dimmer Levels' and 'Keypad LEDs' monitoring options are enabled (and nothing else).

Select 'Link to Lutron System' & choose the Lutron processor from the device list. You then need to enter the address of the keypad / button / channel you wish to simulate in the project. You must enter the address (set up in Lutron Homeworks software) in the following format, with any leading zeros – for example the address 1:4:3 should be entered in the software as [01:04:03]

In the case of a button, you enter the address of the keypad, then enter the button number on the right. In the case of an individual lighting circuit, you only need enter the address of the circuit.

Once set up, the buttons & gauges will operate the lighting system & reflect the state of the keypad LEDs / lighting circuit levels. It is also possible to alter the individual channel levels by sliding your finger up and down the gauge. For Lutron buttons & gauges, it is important to specify the highlighted image in order to see the feedback states.

LINKING TO RAKO

Buttons & Gauges can be linked to Rako using the Rako Ethernet Bridge. You must have a device set up as a 'Rako Ethernet Bridge' in the system. The default port for communication is 9761. The UDP option must also be checked for Rako systems.

Select the 'Link to Rako' option & choose the Rako Bridge device from the drop down list. Then specify the room that the object will link to, and in the case of a button, specify the scene number (Off is scene 0). In the case of a gauge, specify the channel number.

Once set up, the buttons & gauges will operate the lighting system & reflect the state of the keypad LEDs / lighting circuit levels. It is also possible to alter the individual channel levels by sliding your finger up and down the gauge. For Rako buttons & gauges, it is important to specify the highlighted image in order to see the feedback states.

GROUPING / ALIGNING OBJECTS

It is possible to deal with a group of page objects at the same time by dragging a box with your mouse around the objects. To do this, hold the left mouse button down on the page background at the top left corner of the objects you wish to group, then drag a box to the bottom right. An object's boundaries must be completely covered by the group box in order for it to be included in the selection.

One done, the selected objects will have a border color as defined by the highlight icon at the page menu level, shown here.

You will then see the group menu options, shown below.

You then have the following options to perform on all the objects:

- Delete All – this will remove all the selected objects from the current page
- Align Top
- Align Center (horizontally)
- Align Bottom
- Align Left
- Align Center (vertically)
- Align Right

- Space Evenly Apart (vertically)
- Space Evenly Apart (horizontally)

- Make all objects the same size as the smallest selected object
- Make all objects the same size as the largest selected object

- Mirror selected objects to the alternate orientation (see below)

MIRRORING OBJECTS

Each page with the project has both a portrait and landscape version. It is possible to create layouts which are completely different in the portrait & landscape orientations, by adding objects individually to each orientation, however it is also often desirable to have the same buttons, images etc on both orientations, but at a different location, suited to the particular orientation.

In this case, rather than creating the buttons etc separately & having to maintain twice as many objects, the software allows you to 'Mirror' the objects to the alternate orientation. Objects which are mirrored share the same properties (except for their x,y position on the page), so any changes made to the object on one orientation will be mirrored to the other orientation.

To mirror all objects on a page

Click somewhere on the background of the page to bring up the page menu. Click on the 'Mirror' option and, after a warning, all the page objects will be mirrored.

To mirror individual page objects

First, drag a group rectangle around the object(s) & then use the 'Mirror' option from the group menu.

This simple procedure will save a great deal of time when creating & maintaining a project.

Note: Objects which have already been mirrored will not be 'copied' again, nor will their location information be lost, so you can choose to mirror all objects on a page after adding some objects without fear of having to reset the location of objects which you have previously mirrored.

USING SUB PAGES

A sub page is a page canvas area which is smaller than the project page canvas size. Sub pages can be inserted as page objects onto normal pages, and can either be always visible, or appear in response to a flag condition (as can any page object). Any sub page which appears will 'block' any buttons which are placed behind the sub page area. Please refer to 'Using Merged Pages' which do not block buttons.

Sub pages are typically used to show remote controls of devices, or temporary GUI menu options, or where common commands are needed – sub pages prevent you having to continually copy/paste onto each page.

Creating / Resizing Sub Pages

To create a sub page, choose the 'New Subpage' option from the project menu, shown below.

Sub pages can be arranged in page folders, like any page, and must have a unique page name within the project. Sub Pages show in the project navigation tree with a yellow tint to the icon.

Each orientation of the sub page may have a different size – to change the size of a page orientation, double click the orientation to bring up the canvas area (this is where you will add buttons, images etc as with any other page). Move your mouse to the lower right hand corner of the canvas area & left click / drag with your mouse to create the new sub page size.

Adding sub pages to a page

To add a sub page to a host page, bring up the host page canvas area & select the 'Subpage' option from the 'Insert Page Object' page menu, shown below.

Choosing this option will bring up the project navigation tree, if it is not already visible. Hover your mouse over a particular orientation of the sub page you wish to add to see a preview of the sub page. Then, move your mouse over the preview & left click / drag the sub page onto the host page, just as you would with a button / image.

Making sub pages appear / vanish

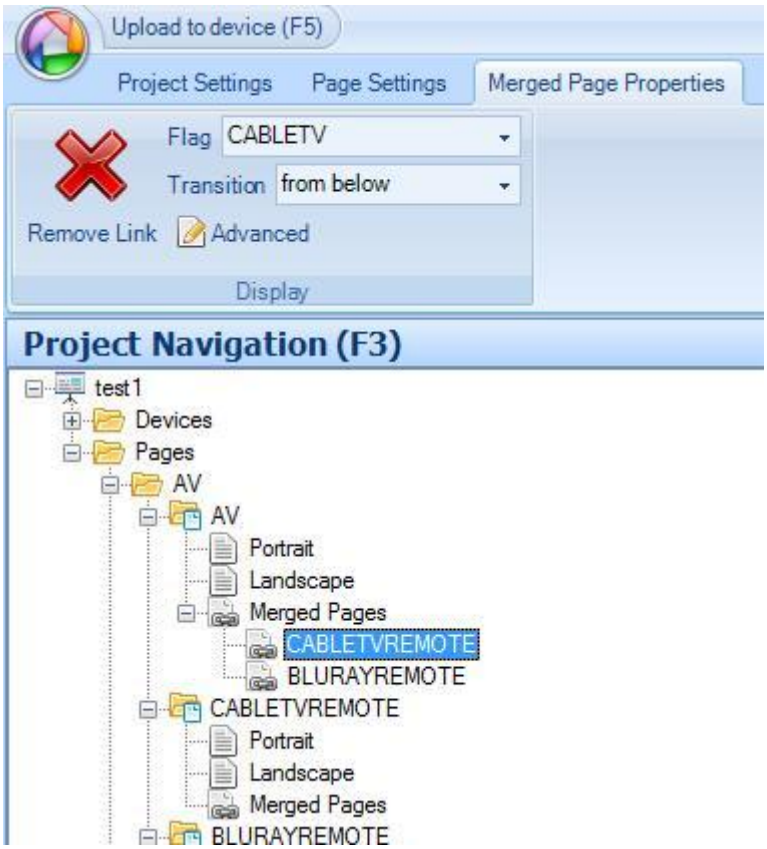
Please refer to the 'Displaying objects dynamically' section which applies to all page objects.

USING MERGED PAGES (not recommended)

It is possible to merge 2 or more pages together such that all objects from the merged page appear on the main page in addition to the main page objects. It is possible to use buttons from both the main page and the merged page. Merged pages have the same canvas area as main pages, and are created in the same way as 'normal' pages.

Merged pages are typically used where it is not possible to use sub pages to perform a particular task (for example subpages do not allow buttons 'underneath' to be pressed), and should only be used in this instance, as they are less efficient and can lead to performance issues with large projects.

To merge one page onto another, left click & drag the page name you want to merge, from the project navigation tree (eg 'Home Page') and move it over the page name of the page you want it to be merged with (the host page). Release the mouse button and, after a warning, the merged page link will be created.



You will then be presented with the merge page menu options, shown here.

You may choose the have the page 'Always Visible', or have the merged page objects appear in response to a flag condition. You can also specify the direction & speed etc of the transition using the transition & advanced options.

Merged pages only merge the page objects on a particular page, not the background image / color.

Sending Commands

This manual has so far dealt with the process of setting up the Graphical User Interface for your project. This section deals with assigning commands to your buttons, so that they can affect external equipment & actually 'do' something.

ADDING A DEVICE TO A PROJECT

The first step is to add at least one device to your project. To do this, access the project menu (by clicking on the project name in the project navigation tree) and select 'New Device'. The following options will appear:

You should enter the following information:

- IP Address – this is the IP address of the device, eg 192.168.1.15
- Port – this is the communications port used by the device, eg 4998 (refer to device specifications)
- Type – if the device is a Crestron, Lutron, or Rako unit, select from the drop down list, otherwise leave as 'Generic IP Device'
- UDP – check this box if the device communicates via UDP (refer to device specifications)

- Remote IP Address – if you want the system to be able to communicate with the device when outside the local network (eg when on holiday / at work) – enter the external device of the system router / modem here.
- Remote Port – set the remote port to communicate with the device – note this will require a port forwarding rule to be set up in the internet router / modem.

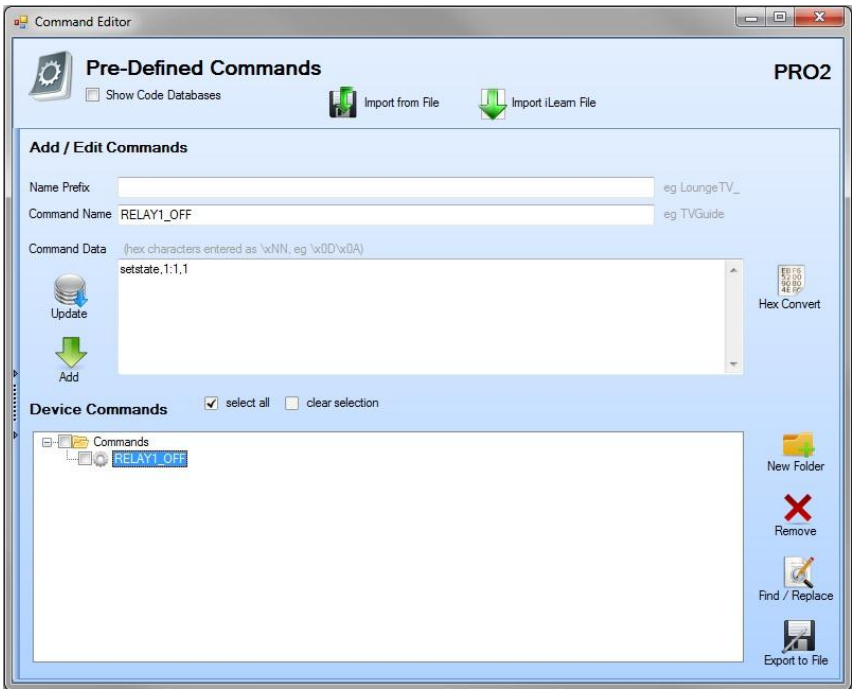
- Initial Command – This command is sent to the device when a connection is established. In the case of Lutron systems, this needs to be the username,password of the telnet login user set up in the Lutron software.

ENTERING OR IMPORTING COMMANDS

Whilst it is possible to manually add each command to your project buttons, it is desirable to be able to store these against the device, and call them up from the buttons. That way, any changes which need to be made to the commands can be made once, and the entire project will be updated.

To enter pre-defined commands, click on the 'Edit' commands menu with the device selected. You will then be presented with the following screen:

To enter new commands for the device, give the command a name (and optional prefix, added to the start of the name), and enter the command data (refer to the device documentation for command structure). Once done, click 'Add Command' and the command will be added to the list of pre-defined commands.



Once the list is complete, you can choose to 'Save to File' so that you can import the commands on another project. Equally, you can 'Load from File' to bring in a list of previously saved commands.

In the case of Global Cache IR devices, there is a routine to directly import the text file that Global Cache's iLearn program generates. (iLearn allows you to learn & capture IR codes from a remote control, and stores the commands in the text file). When importing an iLearn file, the names of the commands will be taken from the command names in the iLearn file, so be sure to use appropriate command names when capturing the IR codes. The name prefix will also be used when importing.

Please note each command for a device must have a unique name. This is particularly important when considering devices which control multiple pieces of equipment (eg the 3 port Global Cache IP to IR device). It would be useless to name a command 'UP_ARROW' for example, as more than one device could have the same command name. Better to use the name prefix when importing the commands, for example a prefix of "SKY_" will yield a command name of "SKY_UP_ARROW", distinguishing it from, say, "BLURAY_UP_ARROW".

SENDING HEX COMMANDS

The command format entered in the pre-defined command screen, or when manually entering commands is standard ASCII text. For those devices which require HEX bytes to be sent, you need some way of entering the hex byte. For this, the software uses \x notation, for example to enter 3 hex bytes 0D 34 2A you would enter \x0D\x34\x2A in the software. Always use uppercase for the hex numbers, and a lowercase x, eg \x0D is correct, \X0D or \x0d is not correct.

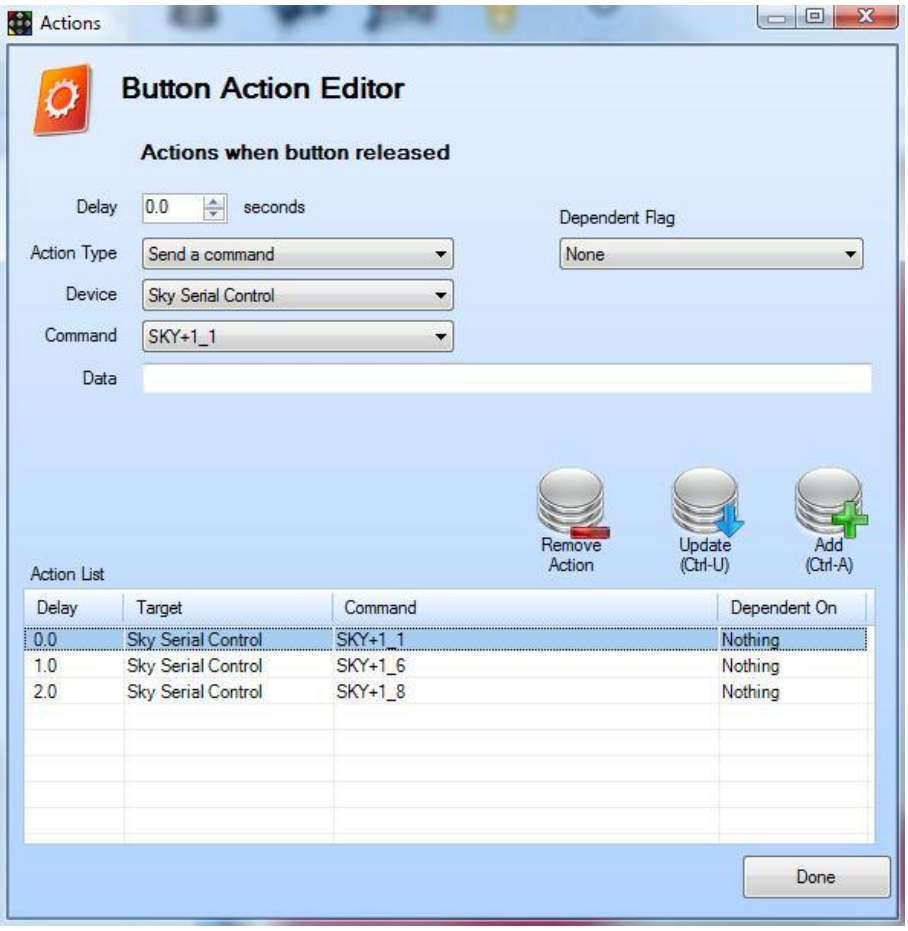
If you have a need to send \x as 2 ASCII characters, then use \\x

ASSIGNING COMMANDS TO BUTTON ACTIONS

Commands can be assigned to buttons using the button action editor. (There is also an action editor for the app startup event, and page load event for each page which functions in the same way).

Select a button, and choose from the Action drop down menu either 'Edit on Press' or 'Edit on Release'. This will take you to the action editor for that event, shown below. You can also double-click a button to bring up the 'Edit on Release' action editor, which is the recommended approach.

Here, you can add many actions, with an optional delay, which will occur after the user, in this case, releases the button. The example shows 3 commands, executing 1 second after each other (the delay field is not cumulative, setting each action with a delay of, say, 1 second will cause all actions to execute at the same time, 1 second after the button is released).



There are several action types which will be discussed later, including

- Set a Flag
- Set a Label
- Send Data to a website
- Launch another app
- Jump to a page
- Exit the App
- Set a Number

For the 'Send a command' action type, you must select the device to send the command to, and then either enter the command manually in the 'Data' text area, or if you have set some pre-defined commands up, choose one from the drop down list. Note if you use a pre-defined command, and that command is altered from the device pre-defined commands screen, the button will use the updated command.

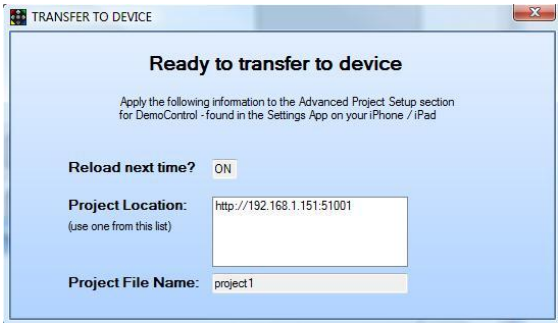
Once you have entered the required information, click 'Add', or press Control-A to add the action to the list.

Editing / Removing Actions

You can remove an action by clicking on the action line in the grid, & clicking 'Remove Action'. You can edit an action by clicking on the action in the list, making any necessary changes & then clicking 'Update' or pressing Control-U.

Deploying & Running the Project

Once the project is ready to be deployed, you should ensure that the iPad / iPhone in question is on the same network as your computer (so that it can communicate with it through wifi), and that you have placed the project in the upload state, by pressing F5, or clicking 'Upload to device' from the top menu bar. You will then see the following screen, which contains the information you need to enter in the settings for DemoControlHD on the iPad / iPhone.



Note – the upload process uses port 51001 by default, please ensure that this is allowed by any security software / firewall you may have running on your computer, or your network.

Uploading the project from the PC to the iPad / iPhone is a one-time operation. You enter the settings for the project upload & then launch the app itself. Once uploaded, the project & all the image files reside on the iPad / iPhone. Multiple projects can exist on the device at the same time, and you can switch between then by altering the 'Project File Name' below.

Go into the general 'Settings' app on your iPad / iPhone & scroll down to DemoControlHD. Navigate to 'Project Setup' & set the following:

Reload next time: ON (do this each time you want to refresh the project, and set to NO once the project has been uploaded correctly)

Reload images: ON (only needs to be done initially, or when there have been image changes – set to NO when the project has been uploaded correctly)

Project Location: Copy from the PC upload screen, eg http://192.168.1.151:51001

Project Password: leave blank, unless you have protected the project

Project File Name: Copy from the PC upload screen, eg project1

Now exit the Settings app & launch the DemoControlHD app.

Note - if running iOS 4 or later, you may want to check that the app is not already running in the background & close it – double-tap the home button on the iPad / iPhone and search for the DemoControlHD app in the list of running applications. If it is there, press & hold it & then tap on the 'Cancel' symbol to close it down.

When the app launches with the 'reload' option set, it will attempt to download the project from the entered location. If it fails to download, it will display an error message & load up the last 'good'

project. Once the project has been downloaded & tested, set the 'reload' options to NO so that it does not try to download the project each time the app is launched.

DEMOCONTROLHD SETTINGS

In addition to the project setup options in the iPad / iPhone settings app, there are several other app options, namely:

- **Remote Access** – if set to ON, the project will use the 'remote' IP address & port settings from the project file. This setting is used to access the app functions when away from the local wireless network, but still connected to the internet.
- **Remember Last Page** – if set to ON, the app will load up the last page it displayed when you launch the app.
- **Multitasking** – if supported on your device, setting this to ON will send the app to the background tasks on the iPad / iPhone when you 'exit' the app. It is recommended only to use this option when the size of your project images results in a slow launch time, which can be avoided with the multitasking option.
- **Key Clicks** – enables / disables a key click sound when buttons are pressed
- **Disable Pinch Zoom** – gives the user the choice of being able to zoom in to the GUI using a pinch gesture
- **Startup Message**: which is displayed while the app starts up

ZOOMING IN ON THE APP GUI

Whilst the majority of functionality is defined by your project file (buttons which link to other pages etc), you can always use the 2-finger 'pinch in' gesture to zoom in to the GUI. When zoomed in, you can use a single-finger drag operation to scroll around the page area. To zoom out, use the 'pinch out' gesture.

These gestures must be performed on 'empty' areas of the screen where there are no pressable buttons.

Advanced Topics

USING FLAGS

Flags are Boolean (YES/NO) variables within the software. They can have one of two values: ON, or OFF. Any action can set the status of a flag, and they are used for the following purposes:

1. Flag Dependent Actions – where particular parts of an action list are only executed if a particular flag is set to, say, 'ON'. (Conditional Logic Statements)
2. Making objects / pages appear – you can have certain objects appear on screen in response to a flag being set to 'ON', and have them disappear when the flag is set to 'OFF'
3. Disabling buttons – you can disable a button by having all actions dependent on a flag

To create a flag, choose 'Add' from the 'Project Flags' option of the project menu. A flag simply has a name, which must be unique. You can organise flags in group folders. When the DemoControlHD app is first launched, all flags have a value of 'OFF'. (Unless you have selected the 'Remember Last Page' option in the app settings, in which case all flags have the value they were last set to when the app was running)

A flag can be set by creating an action on a button push/release, page load, or app load event. Whilst in the action editor, select 'Set a Flag' as the action type, choose the flag from the drop down list & set the value (either 'ON' or 'OFF'). You can also choose to set an entire flag group to ON or OFF.

It is often useful to use the "App Startup Actions" editor to set the default state of certain flags, so that they are set to "ON" when the app is launched.

Flag Dependent Actions

At the point at which actions are due to execute (ie after their delay, if any), the system can look at the state of a flag to determine whether to actually process the action. To set this up, simply choose a 'Dependent Flag' before adding the action, and choose the value that flag must be equal to in order for the action to occur.

Making objects appear

Merged pages, and page objects can have an optional 'Display' flag, which means that they only appear if a flag is set to 'ON'. This can be useful for bringing up device remote controls etc. Please refer to the "Displaying objects dynamically" section for more information.

Disabling buttons

Whilst dependent actions are only executed if the state of a flag matches the required state, the decision whether or not to execute the action is made at the time the action is supposed to execute.

It is also possible to completely disable all actions from occurring, based on a global button dependent flag. This is configured by expanding the 'Actions' menu for the button. If a dependent flag is selected, and the condition is not met at the point that the button is pressed / released, then no associated actions will occur – whether they themselves are dependent on a flag or not – effectively you are disabling the button, based on the condition of a flag.

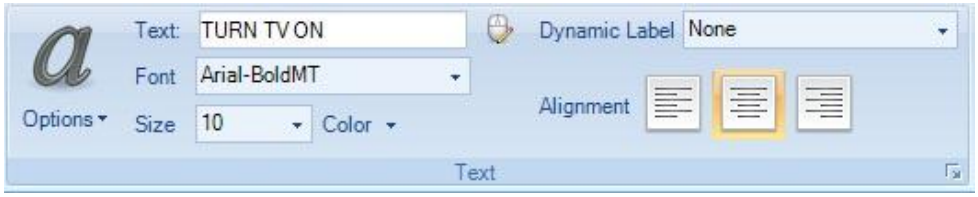
USING LABELS

Labels are text variables within the software. They are set up in the same way as flags, ie they have a name, but they also have a 'Default Value'. This is the value of the label when the DemoControlHD app is launched.

A label can be set by creating an action on a button push/release, page load, or app load event. Whilst in the action editor, select 'Set a Label' as the action type, choose the label name from the drop down list & set the value (any text value, eg "TV IS SWITHCED ON")

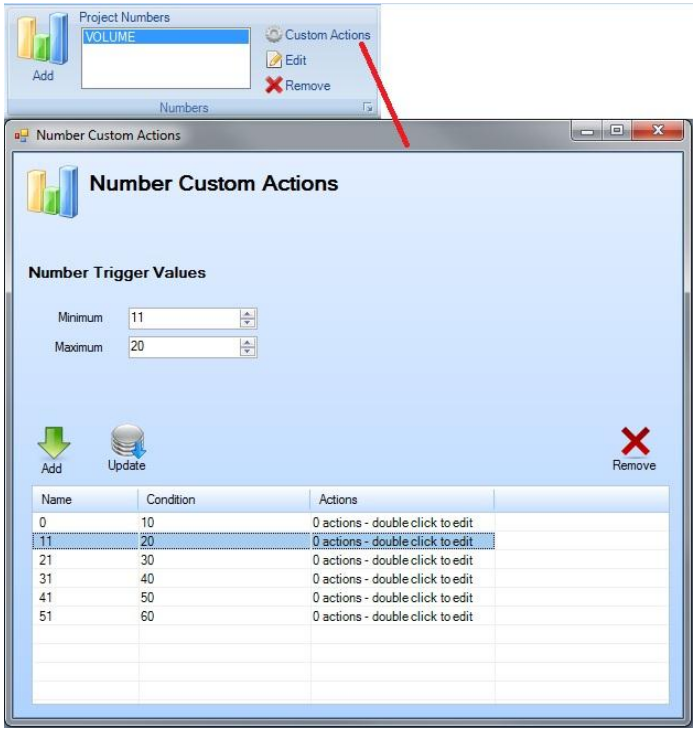
Buttons & text objects can have these dynamic labels associated with them, and the text which appears on the object will reflect the value of the label. This is particularly useful when using Toggle buttons, where the text on the button can change depending on the button function.

To assign a label to a button / text object, expand the Text menu for the object, and choose a Dynamic Label.

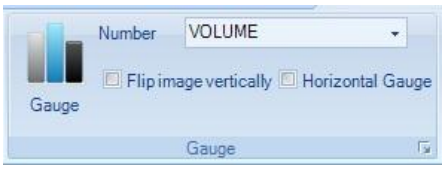


USING NUMBERS

Numbers are numerical variables within the software. Numbers have a maximum, minimum and default value. Any action can set the value of a number, and numbers can have actions associated with certain values of the number. For example, if a user slides a gauge to 0%, and that gauge is associated with a number variable, you can perform actions to, for example, turn a piece of equipment off. Similarly, if a gauge is set to 90%, a command can be sent to an amplifier to set the volume to 90%.



You can associate gauges with number variables using the gauge menu.

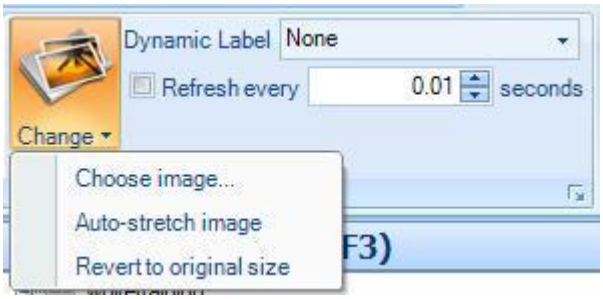


DYNAMICALLY LOADING IMAGES FROM THE WEB / IP CAMERAS

It is possible for the app to retrieve an image directly from an IP address or host name, and display it on the user interface. Labels are used to 'point' to the image location, and if, in the case of many IP cameras, this image is refreshed, you can continually refresh the image on the iPad / iPhone as well.

To set this up, create a label (eg called CAMERAFEED), and set the default value of the image location. This might be something like: "http://192.168.1.54/Jpeg/CamImg.jpg". Then, add an image object to a page – you can choose any image initially, however the transparent50x50.png image which is supplied with the software is ideal for this. Resize the image on screen to match either the size of the target image, or to whichever size you choose (dynamically loaded images are stretched to fit the object they are displayed in).

Then expand the 'Image' menu for that object, and choose the Dynamic Label you set up, in this case, CAMERAFEED. You can also set the refresh rate if the image itself changes (eg if it is an IP camera server).



IMPLEMENTING A TOGGLE BUTTON

Whilst there is no specific module built in the software to implement a toggle button, the nature of the software design means that you can create the same effect (and more) using flags & dependent actions. Here is an example of a toggle button action sequence – you will need 2 flags set up in the software to accomplish this, we'll call them TOGGLETEMP and TOGGLEMEMORY for this example. Here are the actions which are performed.

1. Set TOGGLETEMP="OFF"
2. Set TOGGLETEMP="ON", dependent on TOGGLEMEMORY being = "ON"

3. Execute all actions for the first toggle state, dependent on TOGGLETEMP being ="OFF"
4. Execute all actions for the second toggle state, dependent on TOGGLETEMP being = "ON"

5. Set TOGGLEMEMORY="ON", dependent on TOGGLETEMP being = "OFF"
6. Set TOGGLEMEMORY="OFF", dependent on TOGGLETEMP being = "ON"

If we look at what we are doing here, we are using a Flag called TOGGLETEMP, and we are setting that Flag equal to whatever TOGGLEMEMORY is in lines 1 & 2. If TOGGLEMEMORY is "OFF", line 2 is not executed, so TOGGLETEMP will = "OFF".

From then on, we are using TOGGLETEMP to determine whether we should execute certain actions. We split the actions into two sets – the red actions are executed if TOGGLETEMP="OFF", and the green actions are executed when TOGGLETEMP="ON". Only one set of these actions will execute for a given press of the button.

Finally, lines 5 & 6 set the Flag TOGGLEMEMORY so that it is the opposite of the value it started with, so that the next time the button is pressed, the other actions will be performed.

LAUNCHING OTHER APPS

It is possible to launch certain other apps from the DemoControlHD app, using the Apple standard URL Scheme. Those apps which subscribe to this scheme (eg Safari, Apple Remote, Mail, Skype, Google Maps) can be launched with the correct command.

The most simple example is to launch the Safari web browser & navigate to a page. To do this, add an Action to a button & selected the 'Launch a web page / other app' action type. In the Web/App text area, type, for example,"http://www.demopad.com" (without the quotes). Now when the user presses the button, Safari will launch & navigate to the desired page.

Equally, to launch the Apple Remote app, type in "remote://" in the Web / App text area. http://applookup.com , as well as many other web sites, has a list of apps which can be launched in this manner.

SENDING DATA TO WEB SERVERS

It is possible for the DemoControlHD app to send data to a web server. This can be used to accomplish various tasks, depending on the web server, and essentially sends a GET request to the server (as if you typed the address in a web browser).

To send data to a server, add an action of type 'Send data to a website', and in the Web Data text area enter the web address of the server, and any parameters expected by the server, for example: "http://www.demopad.com/startservice.asp?data=342"

Obviously the web server in question must be 'listening' to these requests & perform some action for this to be useful – however it can be used, for example to send an SMS text message through a http gateway.

No feedback from the web server is displayed within the app.

IMPLEMENTING GENERIC 2-WAY FEEDBACK

It is possible for the DemoControlHD app to listen to any data coming back from a device, and perform actions when it sees particular data anywhere in the response. This is currently limited to fixed discrete responses only, so cannot be used to display track information etc, there is currently no way to 'use' the data coming back, only decide if the data matches a specific response, and perform actions if it does.

It is important to set the response terminator for the device (defaults to hex 0D) so that the app knows when a particular 'chunk' of data has been received. It is also important to check the box 'maintain connection' to tell the app to constantly listen to the device.

You then simply set up each response individually, and specify the actions that are to be executed if the returned data (or any part of it) matches the data specified.

Further Information

Support questions may be submitted to support@demopad.com

Support packages for A/V professionals are available on request, including priority email support, live online chat services, and access to advanced software training literature. Contact info@demopad.com for further information.

Feedback

We welcome your feedback, and suggestions for software improvements – please email support@demopad.com with these, as we are constantly working to improve the DemoControl solution.