



## PICED Tutorial

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# 1 Introduction

This is a tutorial for the Piced software. By following the [steps](#) in this guide, you will gain enough knowledge of the software to be able to start creating your own projects.

Guidance is also given in how to make projects which are [attractive and easy to use](#). This is critical to ensure that the users of your projects are satisfied.

This document does not provide details of how each function works. For more information, refer to the other Piced help files and manuals.

## 1.1 Version

Version 4.13.

## 1.2 Typographic Conventions

When reference is made to a software button or menu item, the name (or text) is written in **bold**. Menu and submenu items are separated by a vertical bar. For example, **Edit | Undo** would refer to the "Undo" menu item in the "Edit" menu.

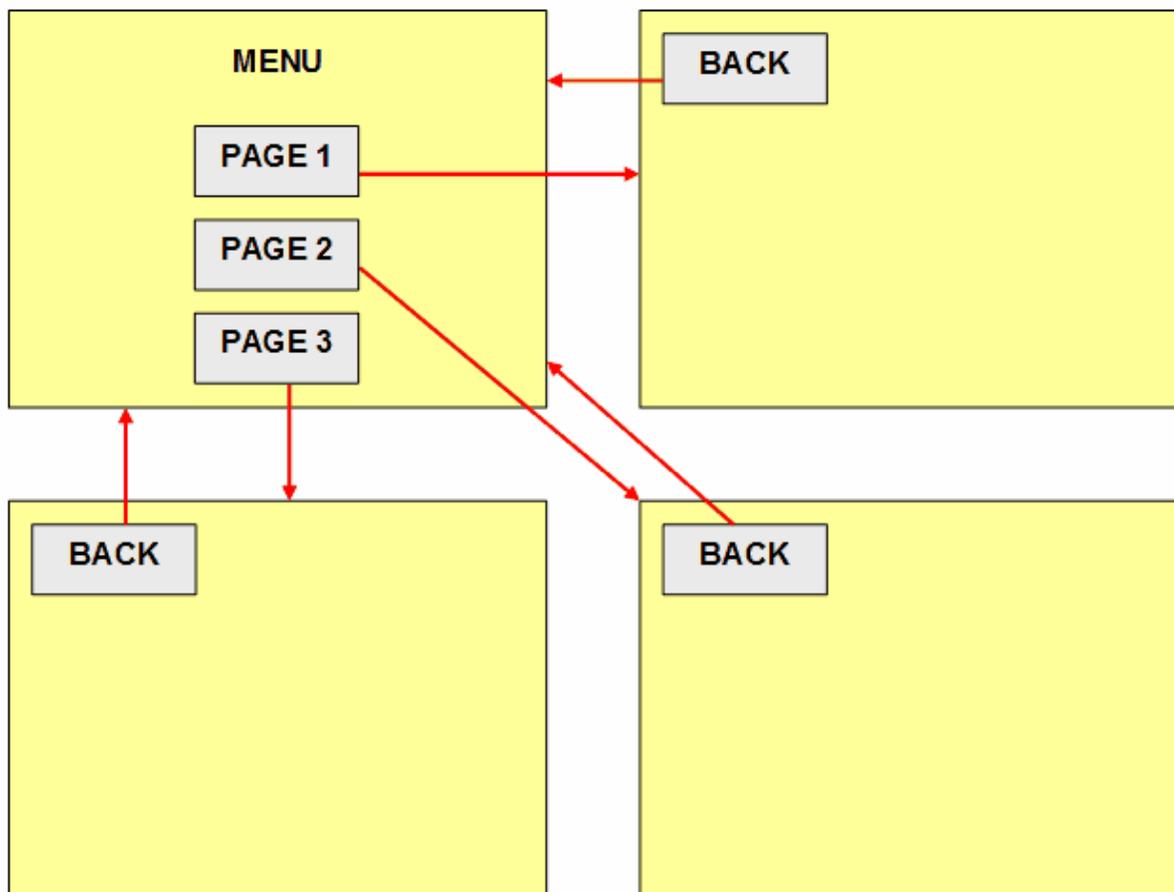
## 2 Before you Start

### 2.1 Software Concept

Before you start creating your own PICED project, run the software and open a few example projects to familiarise yourself with what PICED projects look like and to get some ideas of what is possible.

### 2.2 Project Structures

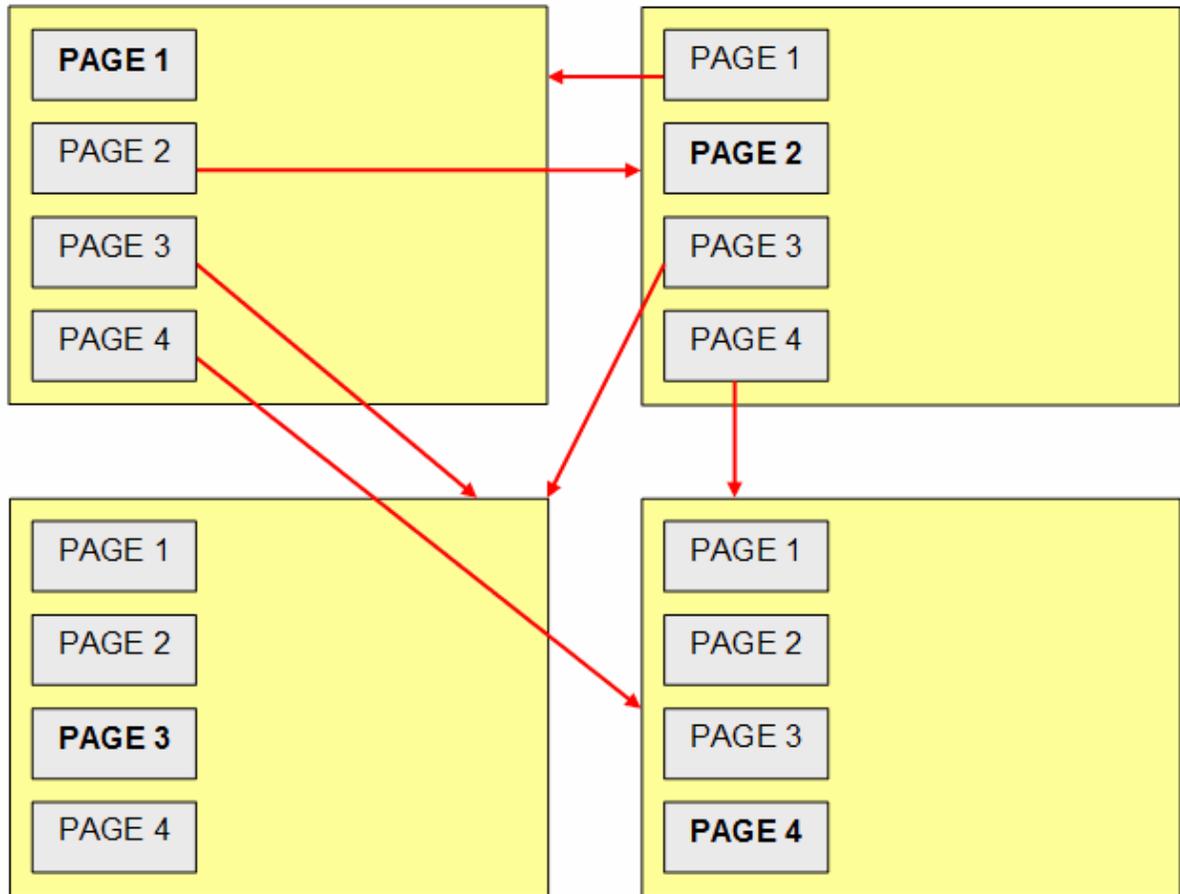
There are several common ways of structuring a PICED project. The first is to have a main menu page with links to all other pages as shown below. Each page has a "back" button to link back to the main page. A common variant of this is to have an image of a site floor plan on the main menu page, with invisible buttons linking to pages for each room. This is useful for projects with small screen sizes (such as for black and white C-Touch) as little of the screen is used for buttons on all pages except for the main menu.



**Menu Based Structure**

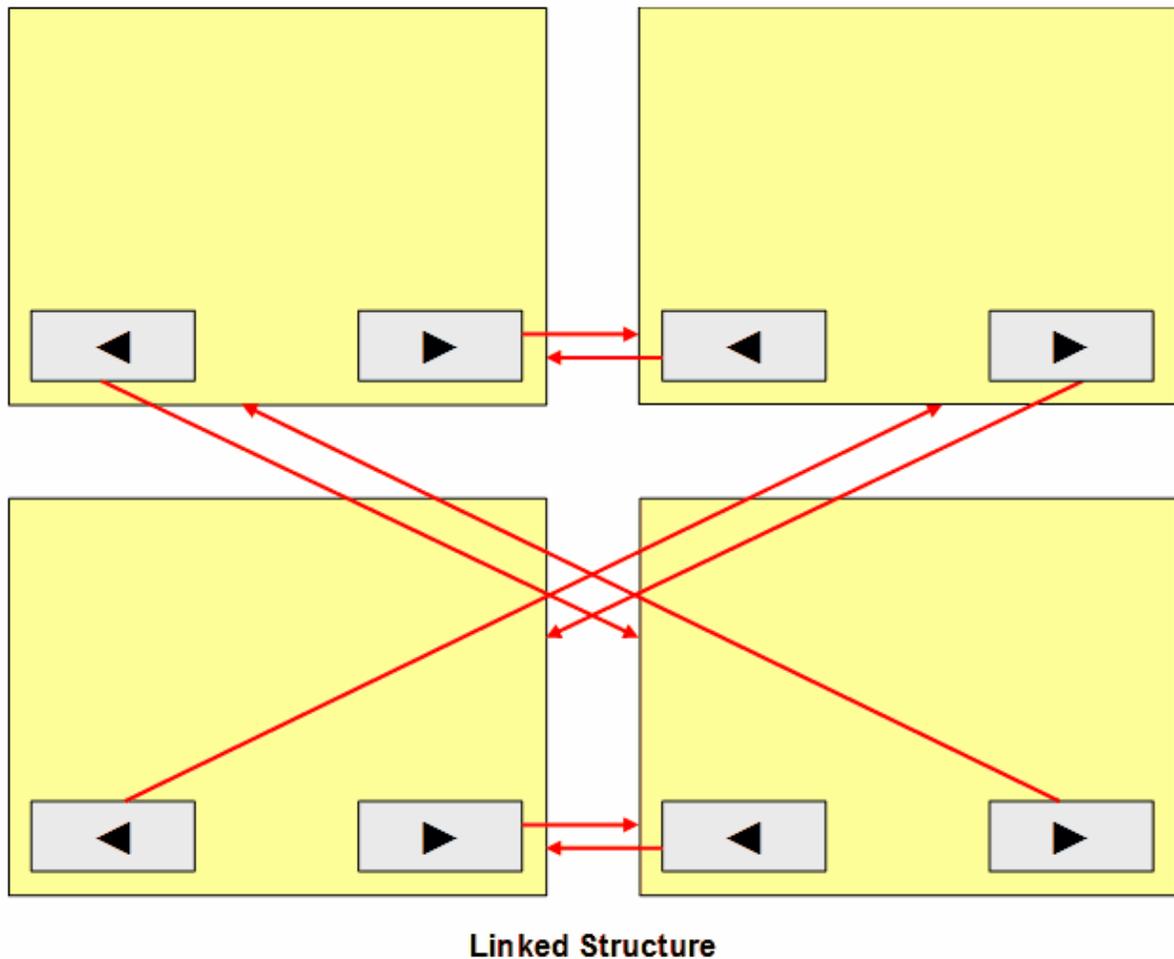
The next common way of structuring a project is to use a "tabbed" structure, similar to that shown

below. In this case, each page links to every other page and the selected page is highlighted. This has the advantage that you can very quickly navigate from any page to any other. Most of the theme templates work this way.



**Tab Based Structure (not all links shown)**

The last method is to use "next" and "previous" buttons to link each page to the next one and the previous one in a circle, as shown below. This is useful for projects with small screen sizes (such as for black and white C-Touch) as little of the screen is used for buttons.



## 2.3 Fulfilling User Requirements

Prior to commencement of a real project, the installer should visit the customer with a laptop and show examples of sample PICED projects and rough out the customer's requirements freehand on the Pro-Forma forms provided.

The success of a PICED project is best judged on the basis of how well it meets the requirements of the user. These requirements must be captured with the customer before and during the design of an actual project.

The project should follow the order indicated below:

- Design the C-Bus Network(s) if not already installed
- Show examples of sample projects to the customer
- Use the storyboard to design the flow from one page to another
- Design scenes
- Design schedules
- Implement at office
- Bring a laptop and "simulate" the project or run "live" on an existing Network
- Make changes and repeat the above steps if necessary

- Install PICED and commission

### **Basic C-Bus Setup**

A set of drawings showing the devices to be controlled by C-Bus should be available for reference. The tags created by the C-Bus Installation Software are available to the PICED project under **Project | Project Details** on the **Project** tab.

### **Story boarding**

Once the lighting groups have been assigned, the overall look of the project should be sketched out using the storyboard sheet (printed and copied to produce an adequate supply). The idea is to show how one page flows to the next and how the pages are interconnected.

The precise look of the pages need not be reproduced at this stage.

### **Scene Design**

The combination of various loads, associated levels and ramp rates that comprise the scenes in a project can create an effective lighting effect, which differentiates C-Bus from conventional lighting. In addition to the aesthetic aspects of scenes their use in scheduling should not be overlooked.

### **Schedule Design**

Following this, schedules should be planned out on the Schedule pro-forma. Some illustrations of example schedules may provide a better understanding of how they can be used. The purpose-designed scenes should also be incorporated into schedules.

### **Initial Implementation**

Once the overall requirements have been recorded, the project should be designed at the office and brought back when complete.

### **Testing**

The PICED can be used to demonstrate how the project will look when installed.

### **Iteration**

The PICED Software provides a quick convenient interface for designing control layouts. The prototypes of the project can be run on a laptop at the most convenient place for the customer to see the project. The customer should then be encouraged to explore two or three options during this step to engender "ownership" of the design and help guarantee a satisfied customer.

### **Commissioning**

When a PICED unit is programmed the quickest and most reliable method of transferring a project is via the serial connection. A project that takes 5 minutes to transfer using a serial connection could take 45 minutes to transfer over the C-Bus Network.

In the case of a new installation, PICED is installed along with the rest of the C-Bus equipment and the commissioning of PICED is carried out as part of the overall commissioning work.

The customer should be instructed on the use of PICED including :

- Navigating between pages
- Controlling C-Bus
- Controlling and editing Scenes
- Enabling and editing Schedules
- Access Control (passwords)

The customer should also be provided with an archive of the Project file for safe keeping.

## 3 Tutorial

In the following pages, a sample project will be created. This will introduce you to :

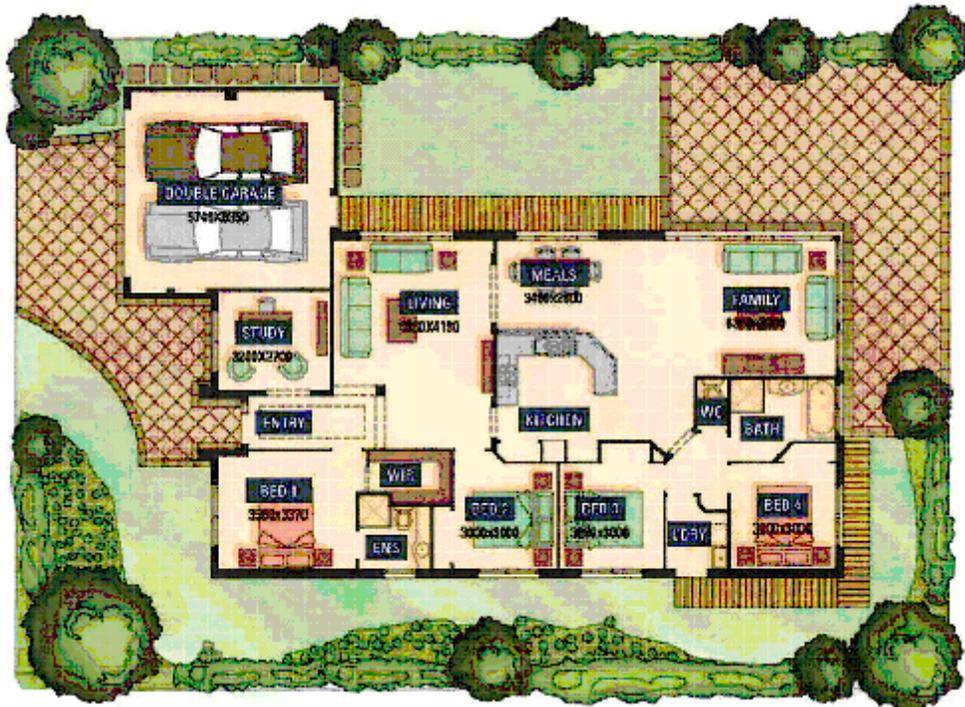
- [Story-Boarding the Project](#)
- Using [Templates](#)
- Adding [Pages](#) and [Components](#)
- Creating [Scenes](#)
- Creating [Schedules](#)

There are many aspects of the PICED not covered by this tutorial. To learn about other features of the software, refer to the other PICED help files and manuals.

### 3.1 Project Requirements

The project for this tutorial is in the **Guide Example** project.

For the purposes of this exercise, we are going to assume that C-Bus is installed in the house shown below. We want to have control of lighting in some main areas, scene setting throughout the house and scheduling for other functions. The unit will be installed in the family room.



The areas controlled by C-Bus are:

- Living room
- Meals / Family room / Kitchen
- Entry hall
- Porch

- Garage
- Bedrooms 1, 2, 3 & 4
- Study
- Laundry
- Bathroom
- Toilet
- Deck
- Garden lights
- Garden sprinklers

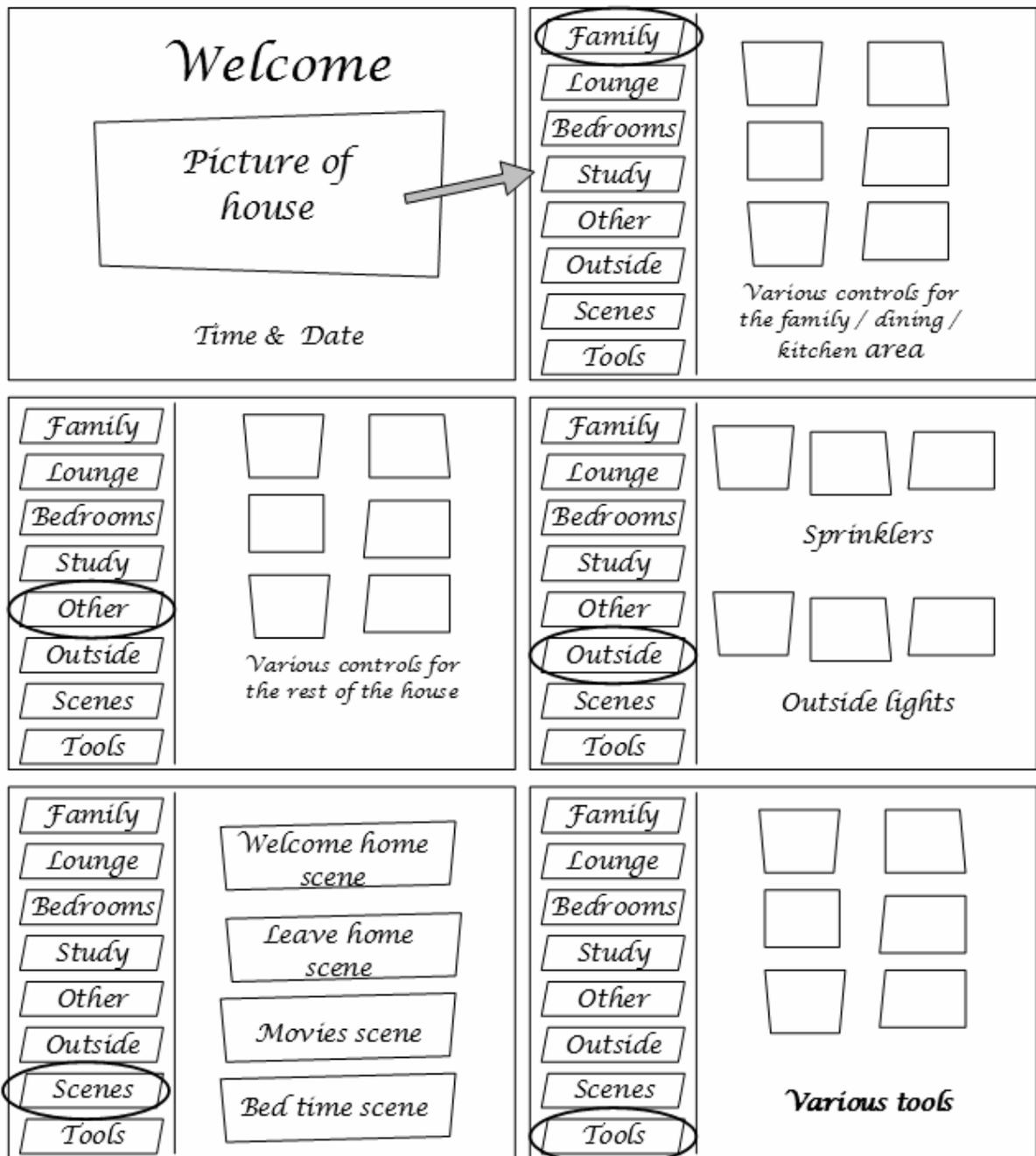
Having identified the various areas under control we use the C-Bus Tool Kit to create a project and tags to implement the basic layout of the house. The units in the Network are programmed according to normal C-Bus practice and ultimately will be transferred and tested in final commissioning.

For this tutorial, we are going to use the "Home" C-Bus project supplied with the ToolKit software.

### 3.1.1 Story-Boarding the Project

A "Story-Board" can be used to sketch out how many [Pages](#) are needed, which [Components](#) will be required and which Page Links will be needed to link them together.

Below is an example of the "hand drawn" storyboard for the first few pages of the project (see the Programming Guide for a Pro-Forma). It has been decided to use a "tabbed" [Project Structure](#) with a "welcome" page.



The first page in the project is a "welcome" page which links to the family room page. The welcome page image has an arrow drawn to the family room page showing the transfer of control. For clarity the page links of the "tabs" has been left off.

The necessary level of detail has been written on each "page".

Once the overall story-board is sketched out, the schedules and scenes need to be designed.

### 3.1.2 Scenes

The scenes in a project may be used to create a mood by ramping lights up or down at predetermined rates. Another use for scenes is to enable several loads to be controlled at once for the purposes of scheduling.

The scenes shown in the example below are used in conjunction with the schedule section which follows. Some example scenes which could be implemented by PICED as shown below (see the Programming Guide for a Pro-Forma) :

Scene Name	Load(s)	Level (%)	Rate (sec)
<i>Welcome Home</i>	<i>Entry</i>	<i>100</i>	<i>4</i>
<i>(triggered by</i>	<i>Kitchen 1</i>	<i>100</i>	<i>4</i>
<i>automatic door)</i>	<i>Family room</i>	<i>100</i>	<i>4</i>
	<i>Garage</i>	<i>100</i>	<i>0</i>
<i>Leave Home</i>	<i>Porch</i>	<i>100</i>	<i>0</i>
	<i>All others</i>	<i>0</i>	<i>4</i>
<i>Movies</i>	<i>Kitchen 1</i>	<i>30</i>	<i>4</i>
	<i>Kitchen 2</i>	<i>0</i>	<i>4</i>
	<i>Dining 1 &amp; 2</i>	<i>0</i>	<i>4</i>
	<i>Lounge Room</i>	<i>70</i>	<i>8</i>
<i>Bed Time</i>	<i>Bed 1</i>	<i>100</i>	<i>8</i>
	<i>Entry</i>	<i>50</i>	<i>8</i>
	<i>All others (not bedrooms)</i>	<i>0</i>	<i>30</i>

The Welcome Home scene is initiated by entry to the house. All main access lighting to common living areas is activated. It can be directly triggered by PICED. In this scenario we imagine that a Group Address called "Automatic Door" on the Control Application is set when the garage door is opened. This is what triggers the scene.

The movie scene provides a lighting configuration for movie watching. Some dim lighting is maintained in access areas to allow people to move around the house during breaks in the movie but maintain the mood. Some people prefer low level lighting in the actual room the movie is being shown in, this depends upon the size of the television or projection screen and viewer preferences in combination.

### 3.1.3 Schedules

Here is an example of some Schedules (see the Programming Guide for a Pro-Forma) :

Name, Load or Scene Date / Enabled By	AM											PM												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
<i>Porch light, week days</i>																				■	■	■		
<i>Porch light, week ends</i>																				■	■	■	■	■
<i>Irrigation, summer, every 3 days</i>																						●		
<i>Irrigation, winter, every week</i>																					●			

Each schedule is given a "Name" which describes the purpose of the schedule. The details of the "Load" (from the C-Bus project) can also be written in.

The porch light, for example is to be turned on automatically each evening and so has a schedule entry. The lighting requirements in this case are different according to whether it is a weekday or the weekend (and hence requires two separate schedules).

Some schedules may be different depending on the season. In our example, the Irrigation schedules which activate the Irrigation Control need to come on a different times during the year. This can be achieved by :

- selecting different months for each of the two Schedules in the Schedule Editor; or
- using an enabling Group Address which is enabled only during the Winter months for the Winter Schedule. So although the Irrigation schedule in this case would contain no limits except for the hours of operation, it is enabled by the Winter Group Address which is only on during that time. The Summer Schedule would be implemented in the same way.

One other point regarding the actual event being scheduled: the event can be either Group Address related or Scene related. In the former a Group Address is pulsed for a given period or set to a particular level. In the latter a scene is fired at the scheduled time.

### 3.2 Creating a Personal Template

Before starting on the creation of your first real project, you should create a Template which you will use for your future Projects. The benefit of doing this is that you can avoid having to do the same work every time you start a new project.

Creating a New Project

The first step is to create a new Project. If the PICED software is already running, select the **File | New Project** menu item. Otherwise, starting the PICED software will bring up the New Project wizard.

Select the **Create a New Project Based on a Theme** button. Select the **Shadows** theme for this example.

Click on **Next**.

Select the required project type. In this case, select **Colour C-Touch** and click on **Next**.

Select any C-Bus project. This will be changed when you create a real Project, so the choice is

irrelevant. Click on **Next**.

Click on **Next** again.

#### Setting Up Personal Details

As the project will be different each time, leave this blank for now. When you are creating a real project, you should fill in this information. Click on **Next**.

Fill in your details and click on **Next**.

Select any preferred options, then click on **Next**.

Click on **Next**.

Select your location from the list. If your location is not in the list, enter the details manually and click on the **Add to Database** button. Click on **Next**.

Select your time zone and Daylight Savings details. Click on **Finish**.

#### Setting up the Project Appearance

If you want to have particular Pages in your Project each time (for example, an introduction page or main menu), then add these. It is worthwhile spending a little time to make these pages [attractive](#), as it will be used many times in the future. You may prefer to do this after the tutorial when you have a little more familiarity with editing projects.

#### Saving the Project

Click on the **File | Save as Template** menu item. Click on **OK**. Navigate to the **Templates\Themes \Colour** folder. Enter the file name "my template" and click on **OK**.

#### Re-using the Project

Whenever you create a new project, you can load the template you have just created. The next time you open the New Project wizard, the template will already be in the drop down list.

## 3.3 Creating the Project

We will now create a sample PICED project.

### 3.3.1 Selecting the Template

Click on **File | New Project**. Select **Create a New Project Based on a Template**. Select your template created in the previous section. If you haven't created your own template, just select the Shadows one.

### 3.3.2 Customising the Template

The template currently has seven pages labelled "Page 1" to "Page 7". These need to be re-named.

Click **Next** twice. Select the **C-Bus Project**.

Keep clicking on **Next** until you get to **Create Project Pages**. Select Auto Create. Enter the names of the pages for the project in the **Page Names** list to match the [Story-Board](#) :

- Family
- Lounge
- Bedrooms
- Study
- Other
- Outside
- Scenes

When complete, click on **Finish**.

If you right click on the buttons, you will now see the pages change, and the selected page is identified by the highlighted button.

### 3.3.3 Adding Pages

The template you have selected already has most of the pages needed, however you will need to add the welcome page.

Select the **Page | New Page** menu item. Enter the **name** "Welcome". Select a new page background colour by clicking on **Select Background Colour 1**, selecting a new colour and click on **OK**. Click on **OK**.

So that the Piced software knows that this is to be the start-up page, select the **Project | Project Details** menu item. Go to the **Options** tab. Select the "welcome" page in the **Start Up Page** and **Time-out Page** lists. Click on **Finish**.

For more information on adding pages, see the help files and manuals.

### 3.3.4 Adding Components

In accordance with the [Story-Board](#), the welcome page needs a title, a picture and a clock.

#### Adding text

Select the **Text** toolbar item or **Component | Place Text** menu item. Enter the text "welcome" and click **OK**. Place the text near the top of the page. Open the text component by double clicking on it or selecting **Edit | Component Properties**. Click the **Set Font** button. Click the **Select Other Fonts** button. Select a large script type font. Click on **OK**. Click on **OK**. Click on **OK**.

#### Adding an Image

Select the **Image** toolbar item or **Component | Place Image** menu item. Select the "smallhouse.bmp" file in the guide example project and click **OK**. Place the image near the centre of the page. Open the image component. Select the Page Link tab. Select the "Family" page. Click on **OK**.

### Adding a clock

Select the **Clock** toolbar item or **Component | Place Clock** menu item. Place the clock near the bottom of the page. Open the clock component. Select your preferred time format. Click on **OK**.

For more information on adding components see the help files and manuals.

## 3.3.5 Adding Scenes

We will now add the "movie" scene which will do the following :

- Set the Kitchen 1 light to 30% over 4 seconds
- Set the Kitchen 2 light to 0% over 4 seconds
- Set the Dining 1 light to 0% over 4 seconds
- Set the Dining 2 light to 0% over 4 seconds
- Set the Lounge light to 70% over 8 seconds

To add a Scene, click on the **Scene** button on the Tool Bar or the **Project | Edit Scenes** menu item. Click on the **Add** button. Enter the name "Movie Scene". Select the **Scene Components** tab. Select the Kitchen 1 & 2, Dining 1 & 2 and Lounge Groups in the **Available Groups** list and click on the **>** button to add them. The Lounge level needs to be changed to 70%, so select the Lounge group in the **Scene Components** list. Select 70% and 8 seconds. Select the other groups and change the time to 4 seconds. Select the Kitchen 1 group and change the level to 30%. Click on **OK**. Click on **OK**.

For more information on adding Scenes see the help files and manuals.

## 3.3.6 Adding Schedules

We will now add a Schedule which will switch on the porch light each week-day evening.

To add a Schedule, click on the **Schedule** button on the Tool Bar or the **Project | Edit Schedules** menu item. Click on the **Add** button. Enter the name "Porch weekday". Select the **Time** tab and select the time 19:00:00. Select the **day** tab and select **every week day** from the list. Select the **event** tab and select **Pulse Groups**. Select the "Porch" group address. Set the level to 100%. Select a 4 second **Ramp Rate** and a **duration** of 3 hours. Click on **OK**. Click on **OK**.

For more information on adding Schedules see the help files and manuals.

## 3.3.7 Adding C-Bus Controls

Navigate to the "family" page :

- If you have the "welcome" page displayed, just right click on the image.
- If you have another page selected, right click on the "family" button.
- You can also select the pages from the **page** list on the tool bar.

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Select the **C-Bus Button** toolbar item or **Component | Place C-Bus Button** menu item. Place the button near the top of the page. Open the C-Bus Button component by double clicking on it or selecting **Edit | Component Properties**. Select the Group Address called "Kitchen 1". Click on **OK**. Click on **Yes**.

Repeat this process for the "Kitchen 2", "Dining 1" and "Dining 2" group addresses.

You now have a usable page in your project.

To add a scene button, select the Scenes page. Select the **C-Bus Button** toolbar item or **Component | Place C-Bus Button** menu item. Place the button near the top of the page. Open the C-Bus Button component. Select a **key function** of Scene. Select the Movie Scene in **Scene Groups**. Select the **Status** tab and select **Scene Indicator**. Click on **OK**.

### 3.3.8 Saving

Click on the **File | Save** menu item. Select a file name and click on **OK**.

You now have the basis of a working project. To complete it, you would need to add more C-Bus buttons, Scenes, Schedules and so forth.

## 4 Creating Good Projects

A well designed PICED Project will be easier for the user to use and will be much more visually appealing. Studies have shown that an aesthetic design of a user interface is perceived to be easier to use and hence is more likely to be used. The following suggestions will help to produce a well designed project.

The Check Project function can be useful for identifying many design errors. It is recommended that you ALWAYS check the project for errors before completion and follow the suggested changes. This will avoid some subtle, but potentially serious, problems with your Project.

### 4.1 Project Structure

The most common graphical interface similar to PICED for the average user would be that presented by internet browsers. These tend to feature a "Back" button to return to previously visited pages (see the Menu Based [Project Structure](#)). Although this scheme can be used to navigate through any project, other schemes such as the example project illustrated throughout this Guide may be used. Virtually any logical system can be used to navigate, and once a user is familiar with a particular scheme the exact details are unimportant. The key is to make the scheme logical and consistent.

Another idea worth enforcing is that of a limit on the number of levels of menus supported. A project should have no more than three levels of depth for comprehensibility. If a greater depth is chosen, the user can become disoriented and frustrated at being unable to find a particular page. If the "three deep" rule is adhered to this is most unlikely.

The PICED Software offers the options of password protected screens and this is a particularly useful feature for protecting critical items.

### 4.2 Pages

The most important thing with regard to page layout is being consistent. The following sorts of things should be the same on each page, where possible :

- Heading position
- [Fonts](#)
- [Colours](#)
- Position of the navigation buttons (particularly the "back" buttons, if used)

Themes are designed to ensure consistency throughout your project, as well as making it attractive.

First impressions do count. Hence the start-up page is the most critical and should receive the most design attention. The important factors are :

- Aesthetics (use photos or logos)
- It needs to be clear what the user needs to do next
- Commonly used functions need to be easy to get to quickly

## 4.3 Components

A few general rules for the use of components :

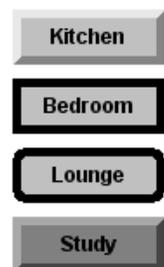
- Generally speaking, larger [Components](#) and icons are easier to see and use. However, the bigger a component is, the more memory will be used in black and white C-Touch.
- Where Components perform similar functions (eg. Page Links or controlling C-Bus), they should look similar and have similar sizes. Note : Components which are identical to each other use very little extra memory in black and white C-Touch.
- Where there are groups of related Components, they should be close to each other and aligned to each other.
- Avoid placing too many Components on a single [page](#) unless necessary, as it can be difficult to find what is needed.
- Design components so that they do not blend into the background too much as a result of similar colours or textures.
- Move features which are rarely used to separate pages, so that they don't clutter the commonly used pages.
- All 3-D buttons supplied with the PICED software have the appearance of being lit from the top left. If creating buttons with other software (such as Photoshop), ensure that the lighting point is the same. If a mixture of lighting angles is used, it destroys the illusion of buttons looking 3-D.

Examples of the above rules are shown below.

**GOOD EXAMPLE**  
- simple and tidy



**BAD EXAMPLES**



## 4.4 Fonts

The number of different fonts should be minimised. The use of different fonts, styles and sizes can create an effective visual impact, but using too many will be distracting and counter-productive. Each font used by the Black and White C-Touch also uses up more Resources.

Hints for effective usage of fonts :

- Many people find serif fonts (such as Times New Roman) easier to read because the serifs draw the eye from character to character.
- Sans-serif fonts, such as Arial used in this document, tend to give a cleaner and more modern appearance.
- Using too many fonts makes reading difficult.
- Avoid all capital letters as it is harder to read.
- Make sure there is enough contrast between the text and the background.
- Keep font sizes large enough to be easily read by people with poor eyesight.
- Draw the user's attention to important items by the use of a font with different size, colour or style (eg

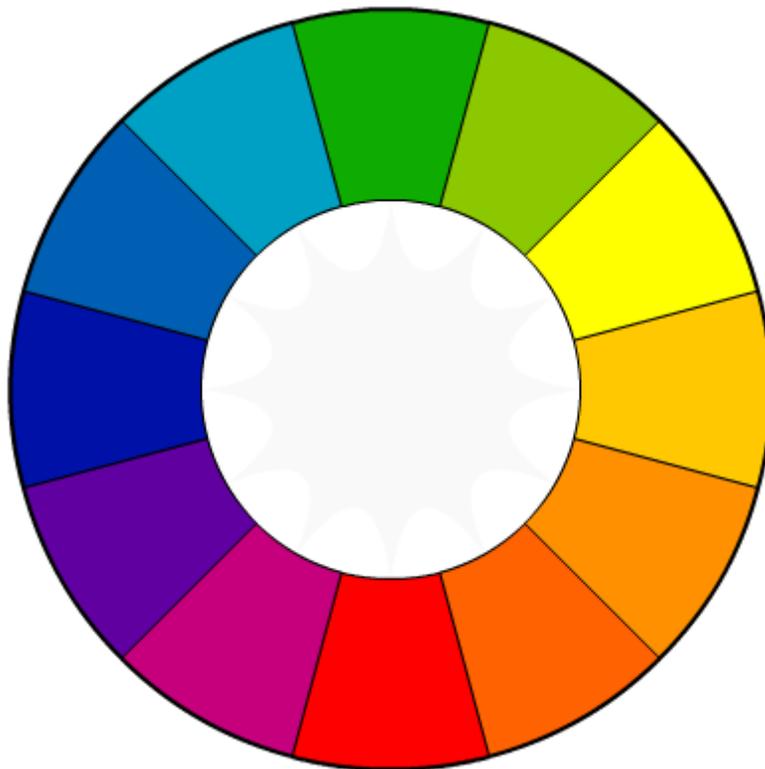
bold)

- Check spelling and grammar. Few things are more distracting or give a worse impression than poor spelling or grammar.

## 4.5 Colours

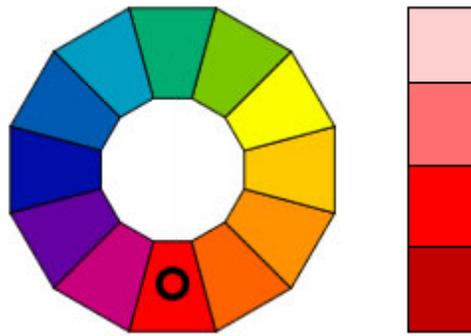
The use of colours is critical in determining the visual effect of the project. Avoid the excessive use of different colours as it can make the effect harsh and confusing.

Colour relationships can be visually represented with a colour wheel which is simply the colour spectrum wrapped onto a circle as shown below. In the colour schemes below, the term "colour" refers to the hue, not the saturation or lightness.



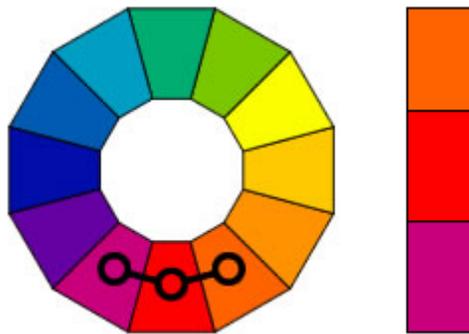
### Monochromatic Colour Scheme

The monochromatic colour scheme uses variations in lightness and saturation of a single colour. This scheme looks clean and elegant and produces a soothing effect. The monochromatic scheme is very easy on the eyes, especially with blue or green hues.



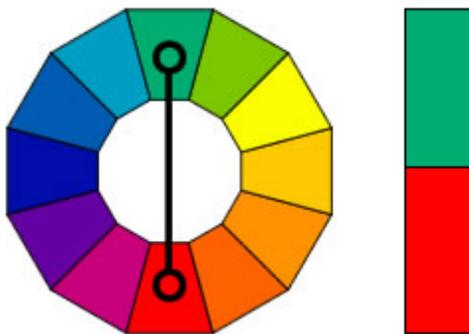
### Analogous Colour Scheme

The analogous colour scheme uses colours that are adjacent to each other on the colour wheel. One colour is used as a dominant colour while others are used to enhance the scheme. The analogous scheme has a similar visual effect to the monochromatic scheme, but offers more nuances. The colours usually match well and create serene and comfortable designs. Make sure you have enough contrast when choosing an analogous colour scheme.



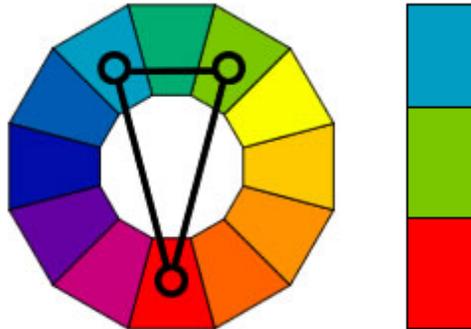
### Complementary Colour Scheme

The complementary colour scheme consists of two colours that are opposite to each other on the colour wheel. This scheme looks best when you place a "warm" colour (colours near red on the colour wheel) against a cool colour (colours near green-blue on the colour wheel). The high contrast of complementary colours creates a vibrant look especially when using fully saturated colours. This colour scheme must be managed well so that it is not too jarring. Complementary colours are tricky to use in large doses, but work well when you want something to stand out. Complementary colours should be avoided for text.



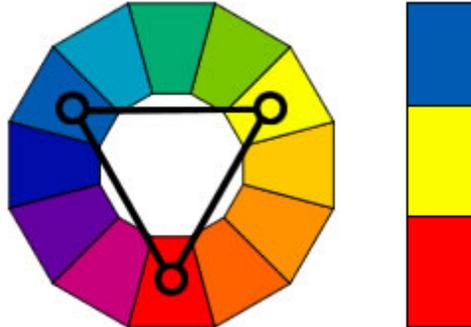
### Split-Complementary

The split-complementary colour scheme is a variation of the complementary colour scheme. In addition to the base colour, it uses the two colours adjacent to its complementary colour. This colour scheme has the same strong visual contrast as the complementary colour scheme, but has less "tension".



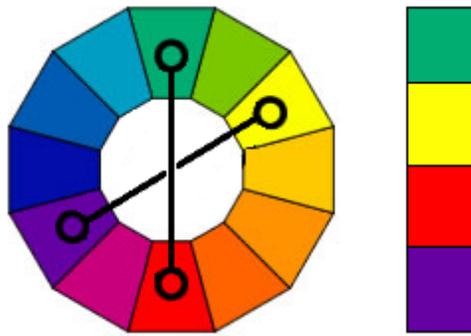
### Triadic Colour Scheme

The triadic colour scheme uses three colours equally spaced around the colour wheel. The triadic scheme is not as contrasting as the complementary scheme, making it look more balanced and harmonious. Triadic colour harmonies tend to be quite vibrant, even if you use pale or unsaturated versions of the hues. To use a triadic colour scheme successfully, the colours should be carefully balanced - let one colour dominate and use the two others for accent.



### Tetradic (Double Complementary) Colour Scheme

The tetradic (double complementary) scheme is the most colourful because it uses two complementary colour pairs. This scheme is hard to use well. If all four hues are used in equal amounts, the scheme may look unbalanced, so you should choose a single colour to be dominant.



## 4.6 Usability

The goal of a well designed user interface is to make it usable to someone with little or no training. Make the functions of the project so transparent in their use that they could not possibly be intended for any other purpose.

Some tips on making easy-to-use projects :

- Follow conventional use of images and words
- Where possible, use words to describe the desired action of a component
- Use metaphors, but be aware of their limitations. Icons may mean something to some people, but not to others
- Be consistent, so that principles learned in one part of the project apply to other parts too
- Put related functions together, and make the components look similar
- Avoid having too many choices on commonly used pages, as it takes the users a long time to find what they want.
- If using objects which represent physical objects, they should respond in the same way as the object they mimic.

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Endnotes 2... (after index)

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