

Quickstart Tutorial

In approximately one hour, completing this tutorial will give you a basic working knowledge of CitectHMI/SCADA version 7.00 software.

Learn how to build a small project, configure dynamic graphics, create alarms and trends, then run your project like a real plant.

This tutorial will also show you some shortcuts that, over time, will save you far more than the one hour you may take to complete the exercises inside.

The separate advanced networking tutorial will give you an insight into how simple it is to achieve a high reliability, fully redundant system, and how to distribute your system for maximum availability.



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Welcome, and thank you for purchasing CitectHMI or CitectSCADA. We would like your experience with the product to be a pleasant one, so we have created this tutorial to help new users get familiar with some of the fundamental features of the product.

The tutorial is designed so that you can complete it in around one hour. The tutorial is not intended as a substitute for attending a CitectHMI/SCADA training course. We encourage you to attend a training course to complete your basic training, learn how to use time saving tools or go on to learn some of the more advanced features of the product.

This tutorial assumes that you have already successfully installed the CitectSCADA product on your computer. You do not require a Citect license to complete this tutorial.

Repetition is an important part of learning or memorizing. One way you can speed up your familiarization is to take a few minutes to click through all the menus in the product and (briefly) try and figure out what each item might be for, if you can't make sense of something, don't be concerned just move on to the next one anyway. You may not consciously remember everything you see, but it helps to set a framework for when you revisit these items in the tutorial and in this way you will remember them much better.

By completing this tutorial you will learn the following...


- Creating a New Project
- Setting Up Communications with a PLC
- Adding and Configuring tags
- Creating New Graphics pages
 - Use Templates
 - Button Commands
 - Disabling Buttons
 - Dynamic Symbols
 - Drawing objects
 - Manipulating objects Copy, Paste, Align, Send to Back, Color Fill, Control Commands, Setting values
 - Drawing Text
 - Displaying analog values
 - Drawing Pipes
 - Grouping Objects
 - Defining Alarms
 - Configure an alarm page
 - Storing Trend Data
 - Configuring a trend page
- Operating Runtime Displays
- Using Administration Tools
 - Creating Runtime Menus
 - Tag Debug Utility
- Backing up and restoring a project

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If you continue to the separate advanced networking tutorial you will learn the following...

- Setting up redundant CitectSCADA servers for maximum reliability
- Setting up clustered CitectSCADA servers for maximum availability
- Adding networked clients
- Added clustered clients

Definition of Terms

Click	= Briefly press left mouse button
Double Click	= Press left mouse button twice – quickly
Right Click	= Briefly press right mouse button
Check	= A tick or cross in an options box 
Type Text	= Type in the word Text
Drag	= Position mouse, click and hold left mouse button, move mouse, then release mouse button.
Alt+Tab	= Press the Alt key, hold it down, then press the Tab key.



Single Click



Right Click



Double Click



Click and drag



Type

Quickstart Tutorial

CitectHMI/SCADA is made up of a several configuration tools and a runtime section.



Citect Explorer – Top level configuration interface



Citect Project Editor – Mainly used for entering database type information



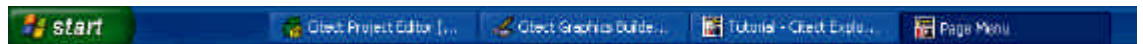
Citect Draw – Used for creating graphics



Citect Runtime – Provides the active operator interface

You can switch between these applications

1. using the icons at the top left of each application, or
2. hold down the Alt key, then press Tab until the application you want is selected, then release the alt key (Alt+Tab).
3. Clicking on the icons that appear near the start button as shown below.



To make sure that you have selected the correct icon you can let the mouse hang over the icon for about 2 seconds and a tool tip will appear to guide you.

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As you go through this tutorial you might like to click on the Help button located on many of the dialogs as this will show you some of the other options available to you that are not covered by this tutorial.

Project Folders store all of the CitectSCADA files for your project including graphic pages, tag definitions, code etc.

You can combine multiple configuration projects into a single runtime project using the “include” function described in the online help.

Tips:

Consider using the Quickstart Project as this can save you a lot of time.

Use the Example project to get ideas and learn how things are made, by pulling them apart.

Create a New Project Folder

Run the Citect Explorer.


Click on Start

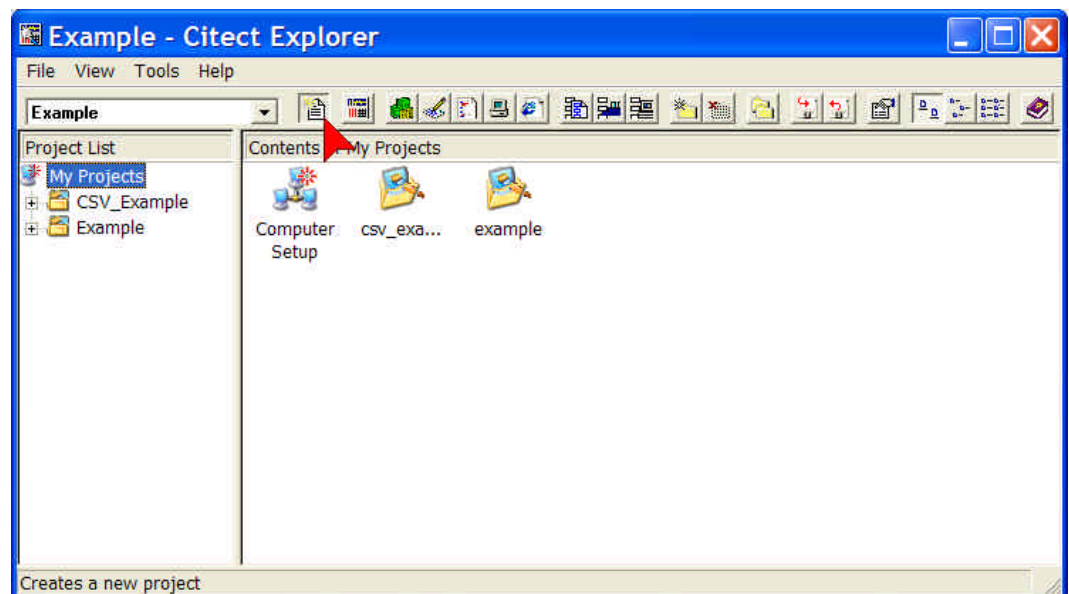
Click Programs

Click Citect

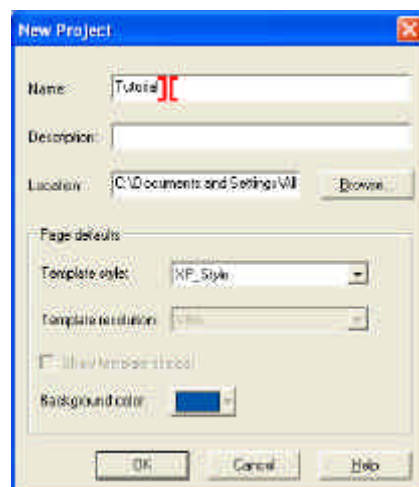
Click CitectSCADA 7

Click CitectSCADA Explorer.

On the Tool Bar, **click** on the **New Project** icon .



In the **New Project Dialog Box**, type **Tutorial** in the **Name** field to give the new project a name, give it a description, then **click OK**.



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CitectSCADA allows you to quickly and easily switch between different projects, simply by selecting them in the Project List.

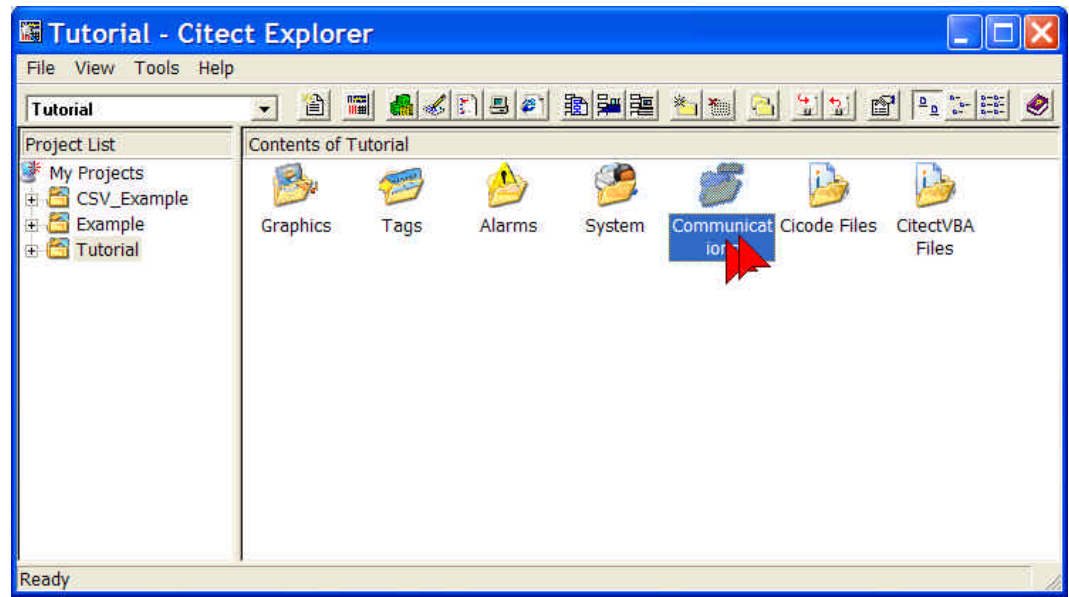
TIP: Make sure all pages are saved or closed in the Graphics Builder before changing projects.

When you backup a project, everything related to that project, including custom Cicode or VBA is backed up and easily transported to other computers. The only exception is any 3rd party items which need to be installed separately such as ActiveX objects.

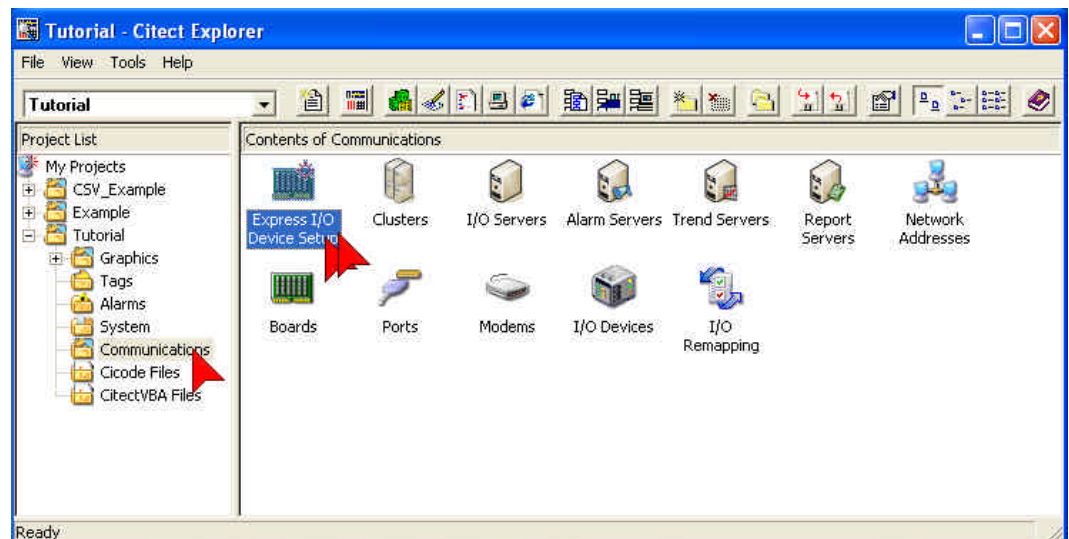
TIP: When networking your system, the project does not need to be copied to every computer. Refer to the Help topic: *Using CitectSCADA, Administering projects, Managing your projects, Linking projects*

Configure an I/O Device

Make sure the Tutorial project is selected in the project list on the left-hand side and **Double click** on the **Communications** folder.



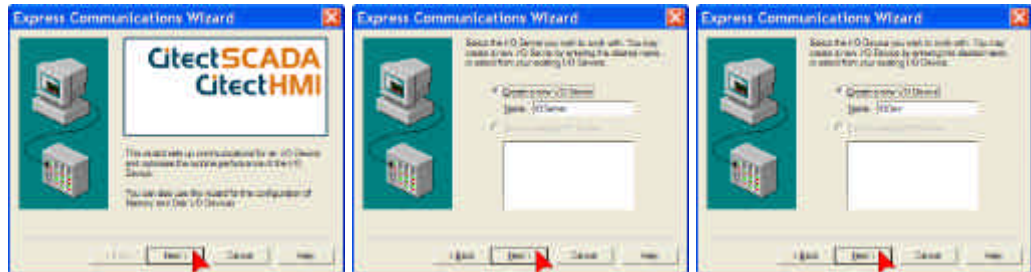
Double click on **Express I/O Device Setup**.



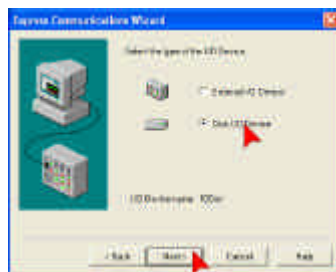
Quickstart Tutorial

Configuring I/O Device Continued...

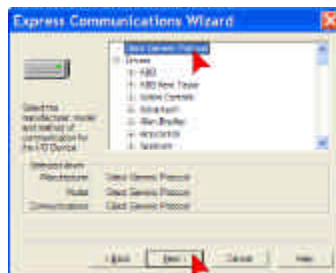
On the **Express Communications Wizard**, just press the **Next** button for these windows.



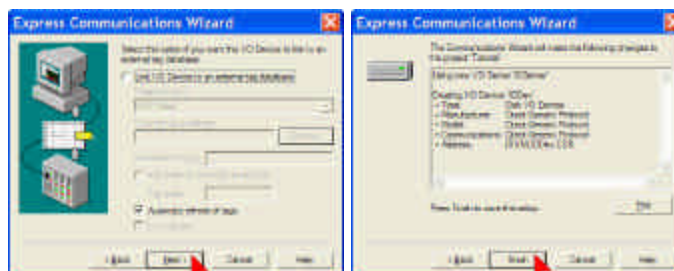
When you see the window below **click Disk I/O Device**, click **Next**.



When you see the page below **click on Citect Generic Protocol**.



On the final two screens you just need to press the **Next** & **Finish** buttons.



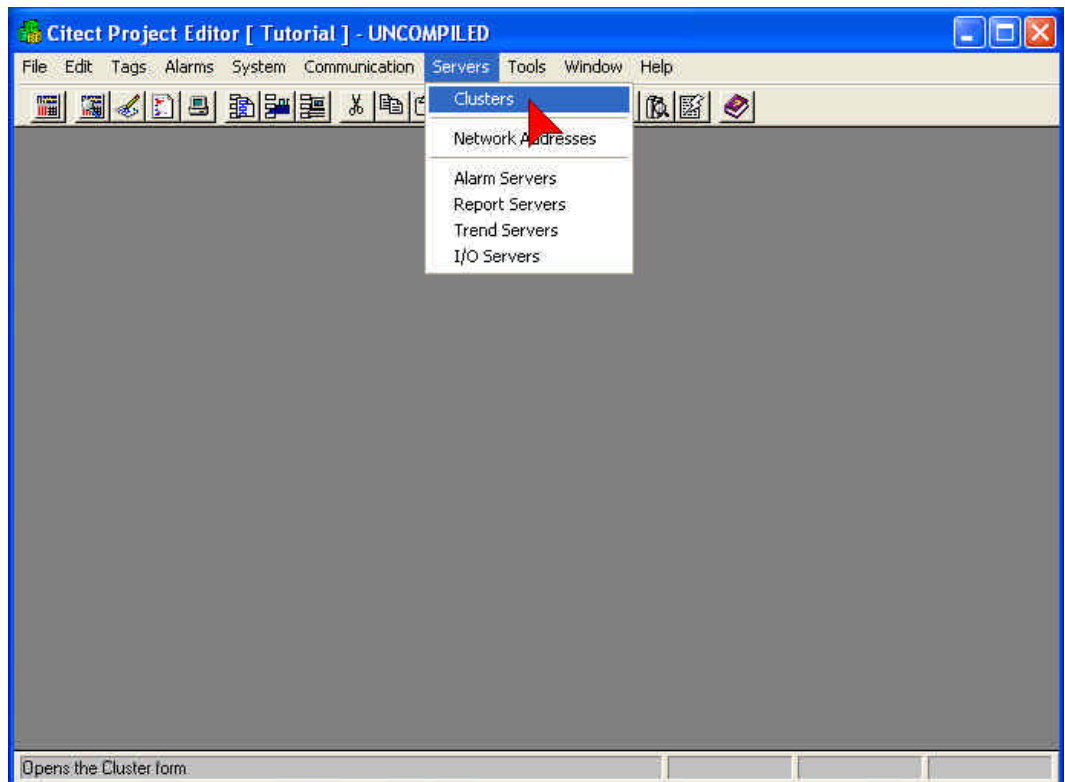
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Configuring Clusters

Clusters define where server processes (IO communications, data logging, alarming, etc), are run, and how different server processes interact with each other for redundancy purposes (refer to the online help for more details). Every CitectSCADA system must have at least one cluster defined, and we must assign our new IO Server to a cluster.

If the Project Editor is not visible, then use Alt+Tab until it appears.

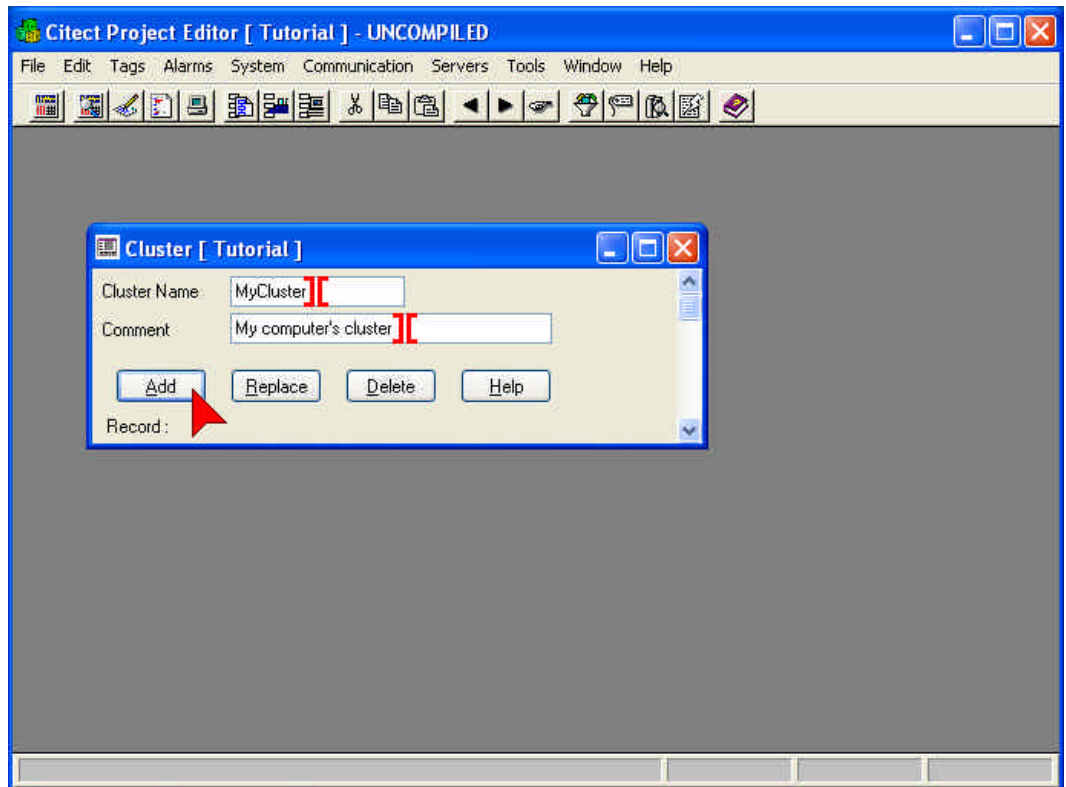
Click on **Servers** then **Clusters** (in Citect Project Editor toolbar at the top of the screen). Alternatively, you can **double-click Clusters** in the Project Explorer Communications menu.



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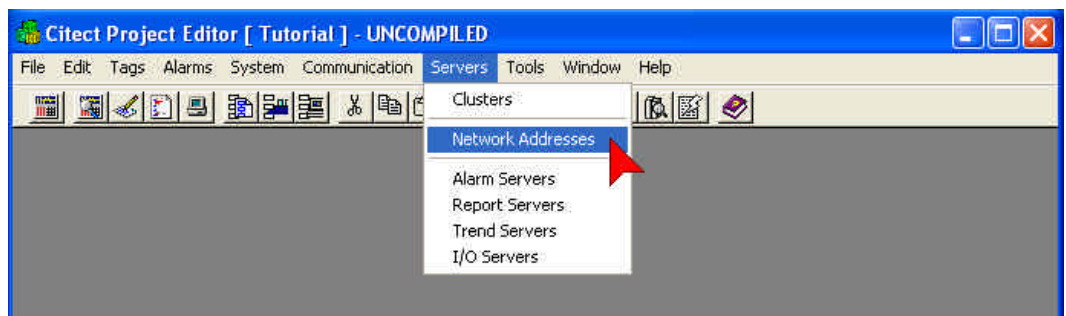
Configuring Clusters Continued...

In the Clusters form that appears, define a cluster called **MyCluster**, give it an appropriate description, then **Click Add**.



Close the Clusters window by clicking on the  or pressing ESC.

Click on Servers again, then Network Addresses.

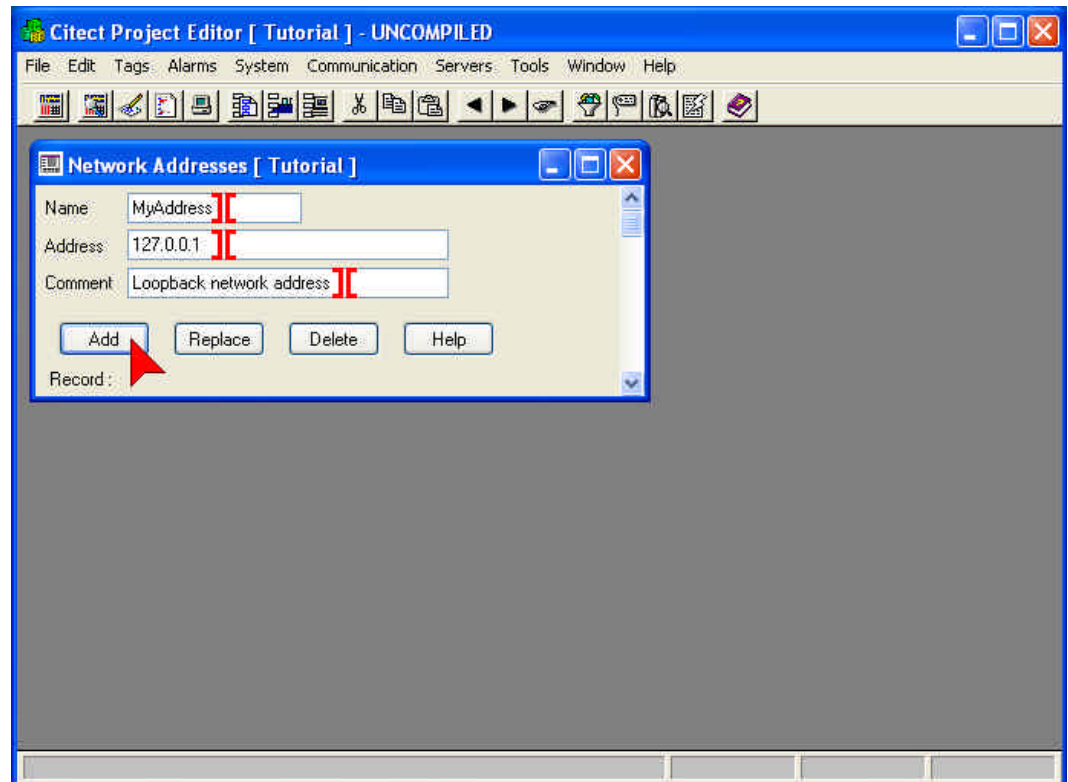


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The loopback address 127.0.0.1 is only appropriate for standalone systems. For networked or redundant systems, refer to the online help.

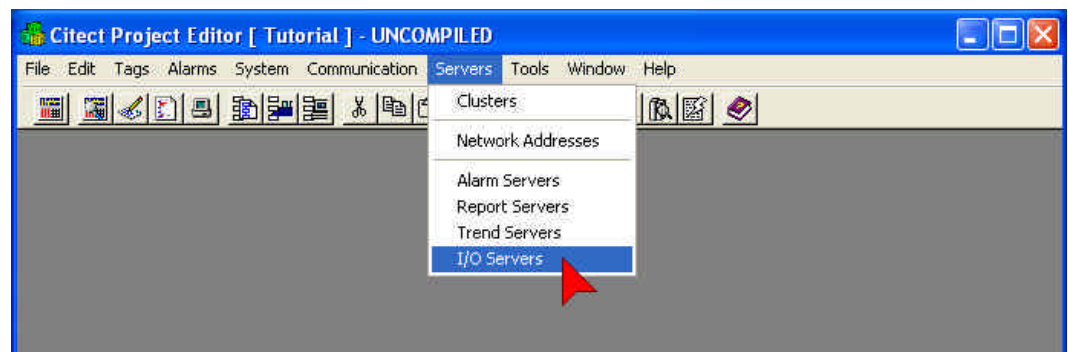
Configuring Clusters Continued...

In the Network Addresses form, enter the **Name** "MyAddress", the **Address** "127.0.0.1", and an appropriate **Comment**.



When you are finished, click **Add**, then close the form. This assigns the loopback TCP/IP address to the system. We will then use that address for our server processes.

Lastly, we need to assign both a Cluster and a Network Address to the IO Server that was created earlier by the IO Device Express Setup Wizard. Click on **Servers**, then **I/O Servers** on the Project Editor menu.



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Configuring Clusters Continued...

In the IO Servers form, use the pull-down lists to select **MyCluster** as the Cluster Name, and **MyAddress** as the Network Address. Leave the Port and Peer Port blank, and enter an appropriate Comment.

The screenshot shows the 'I/O Server [Tutorial]' form within the 'Citect Project Editor [Tutorial] - UNCOMPILED' application. The form contains the following fields and controls:

- Cluster Name:** A pull-down menu with 'MyCluster' selected. A red arrow points to it.
- Server Name:** A text field containing 'IOServer'.
- Network Addresses:** A pull-down menu with 'MyAddress' selected. A red arrow points to it.
- Port:** An empty text field.
- Peer Port:** An empty text field.
- Comment:** A text field containing 'IOServer running in MyCluster on MyAddress PC'. A red 'I' icon is at the end of the text.
- Buttons:** 'Add', 'Replace', 'Delete', and 'Help'. A red arrow points to the 'Replace' button.
- Status:** 'Record: 1' is displayed at the bottom left of the form.

Since the definition for IOServer already existed, we must **Replace** this information, and not Add it. Otherwise we will end up with two definitions for the same IOServer. Click **Replace**, then close the form.

We need to repeat this exercise for CitectSCADA's other core server tasks, namely Trending, Alarming and Reporting. Select each of them from the **Servers** menu on the menu bar, and configure them as shown below:

The screenshot shows the 'Alarm Servers [Tutorial]' form within the 'Citect Project Editor [Tutorial] - UNCOMPILED' application. The form contains the following fields and controls:

- Cluster Name:** A pull-down menu with 'MyCluster' selected.
- Server Name:** A text field containing 'MyServer'. A red 'I' icon is at the end of the text. A red arrow points to it.
- Mode:** A pull-down menu with 'Primary' selected. A red arrow points to it.
- Network Addresses:** A pull-down menu with 'MyAddress' selected. A red arrow points to it.
- Port:** An empty text field. A red arrow points to it.
- Comment:** A text field containing 'Alarms will run on the MyAddress PC'. A red 'I' icon is at the end of the text.
- Buttons:** 'Add', 'Replace', 'Delete', and 'Help'. A red arrow points to the 'Add' button.
- Status:** 'Record: 1' is displayed at the bottom left of the form.

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This identifies the Alarm Server process to run on the computer with MyAddress TCP/IP address, within the MyCluster server group, in the Primary mode. The Server Name "MyServer" will be used by networked clients to connect to this server to acquire the alarm information for display purposes. Refer to the online help for details on Primary and Secondary server functions.

Trend Servers [Tutorial]

Cluster Name: MyCluster

Server Name: MyServer

Network Addresses: MyAddress

Mode: Primary

Port:

Comment: Trends run on MyAddress PC in MyCluster

Buttons: Add, Replace, Delete, Help

Record:

Report Servers [Tutorial]

Cluster Name: MyCluster

Server Name: MyServer

Network Addresses: MyAddress

Mode: Primary

Port:

Comment: Reports run on the MyAddress PC in MyCluster

Buttons: Add, Replace, Delete, Help

Record:

We have now completed our Server setup and are ready to define Tags which will link to our PLC (in this case a disk based simulator).

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IMPORTANT

Do NOT press **ENTER** before filling in all the required fields. Each time you press **ENTER** a new record will be added to the project creating duplicates which will cause compilation failures.

For learners, it is better to use the Add button instead of the **ENTER** key. If you add an extra record by mistake, you can use the Delete button to mark it for deletion. Once marked for deletion the record will be ignored.

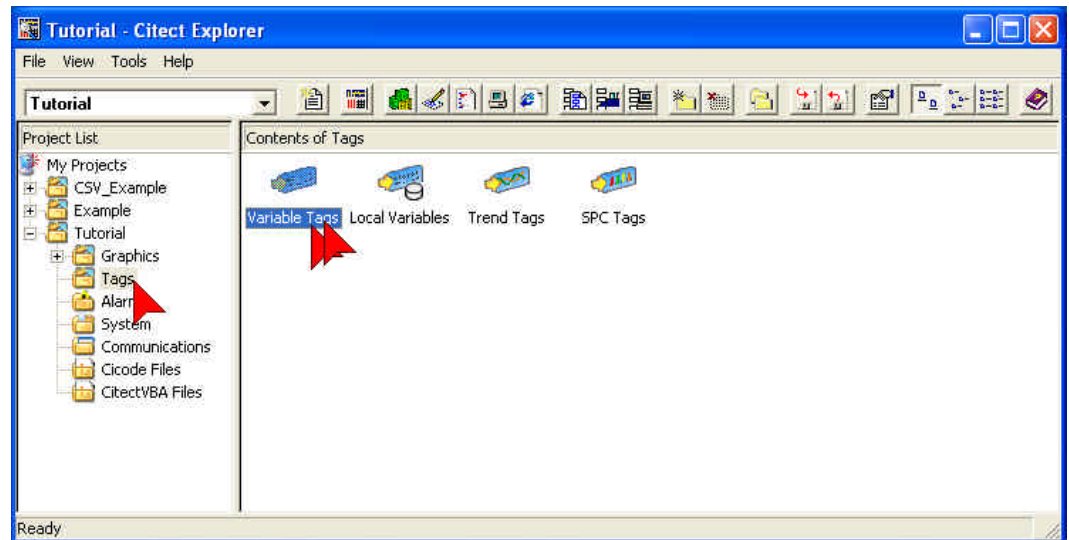
If you press delete by mistake you can press it again to undelete. To view records marked for deletion go to Tools, select Options and check **Show Deleted**.

To permanently remove deleted records from the project, go to File then select **Pack**.

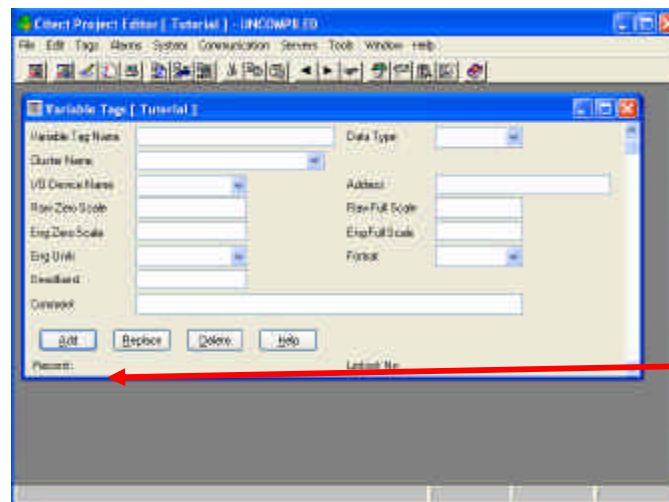
Configuring Tags

Variable Tags are a core building block for a CitectSCADA project. Tags provide the link between statuses, operator commands and the real-world. We will create three tags to represent our pump, a Run/Stopped status tag, an Auto/Manual control tag and a Speed control tag.

Click on Tags (in Project List pane on left-hand side)
Double Click on Variable Tags (in right-hand pane)



This will bring the Project Editor to the foreground and display the Variable Tags dialog. If it does not appear, use Alt+Tab to switch the view to the Project Editor.



The Project Editor is mainly for editing database type information.

The Variable Tags Database has one record for each Tag you define.

Each Tag has multiple fields. (Variable Tagname, Data Type, Address etc)

You can see the record number indicated in the bottom left of the dialog box

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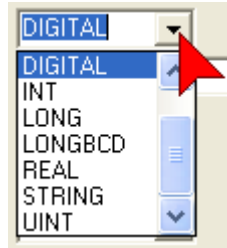
You can save a lot of time configuring tags by entering similar types of Tags together and just changing the parts that are different before pressing **Add**.

Use the mouse to highlight the parts that you want to change, then just overwrite. Eg; Pump_1_CMD can easily be changed to Pump_1_M. Highlight CMD then type M.

If you arrange your variables in your PLC into blocks where all the Digitals are contiguous and all the Integers are contiguous then the performance will be significantly improved as the CitectSCADA software will be able to read large blocks of data in a single communication message instead of multiple messages.

TIP: It does not matter what order the addresses are entered into the variables records, what matters is the contiguous block of addresses in the PLC.

Configuring Tags Continued...



CAUTION

Where a drop down is provided you should use it. If you mistype data into fields that require specific settings you may cause compile errors.

Next you will configure three tags as shown below. Remember to fill in the form before pressing **Add** or **Enter**. Use the Tab key or the mouse to move between fields.

To make corrections after you have pressed add, you can move to the Tag or record by using the scroll bars on the right hand side, then press **Replace** when you have made the changes.

The cursors have been added as a guide to show you where you should type and where you should click.

A screenshot of the Citect Project Editor [Tutorial] - UNCOMPILED window. The 'Variable Tags [Tutorial]' dialog box is open. It contains the following fields: Variable Tag Name (Pump_1_CMD), Cluster Name (MyCluster), I/O Device Name (IODev), Address (D1), Raw Zero Scale, Raw Full Scale, Eng Zero Scale, Eng Full Scale, Eng Units, Deadband, Format, and Comment (Pump 1 Command - On/Off). Red arrows point to the Variable Tag Name, Address, and the Add button. The Add button is highlighted with a red arrow. The Record field shows 'Record: ' and the Linked field shows 'Linked: No'.

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The format field defines the default style of displaying this variable.

defines number of characters. Eg; ###.## would have 3 digits to the left of decimal and 2 digits to the right.

Adding EU to the end specifies that Engineering Units will be appended to the value at runtime. Eg; 123.12 RPM.

TIP: DIGITAL types of tags can only have two states: On or Off.

INT (integer) or other numerical types of tags can have a range of numerical values.

TIP: INT tags can display decimal places provided the RAW scale has a larger range than the ENG scale.

Configuring Tags Continued...

If you are having difficulty reading from the screen grabs here is the information in plain format.

Variable Tag Name	Pump_1_CMD	Data Type	DIGITAL
I/O Device Name	IODev	Address	D1
Raw Zero Scale		Raw Full Scale	
Eng Zero Scale		Eng Full Scale	
Eng Units		Format	
Comment	Pump 1 Command – On/Off		


Variable Tag Name	Pump_1_M	Data Type	DIGITAL
I/O Device Name	IODev	Address	D2
Raw Zero Scale		Raw Full Scale	
Eng Zero Scale		Eng Full Scale	
Eng Units		Format	
Comment	Pump 1 Mode Auto/Manual		

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Variable Tag Name	Pump_1_Speed	Data Type	INT
I/O Device Name	IODev	Address	I1
Raw Zero Scale	0	Raw Full Scale	32767
Eng Zero Scale	0	Eng Full Scale	500.0
Eng Units	RPM	Format	###.##EU
Comment	Pump 1 Speed (0 – 500 rpm)		

Note: Engineering Units which are not included with CitectSCADA's default pull-down list can be typed in manually. Any text can be entered as engineering units.

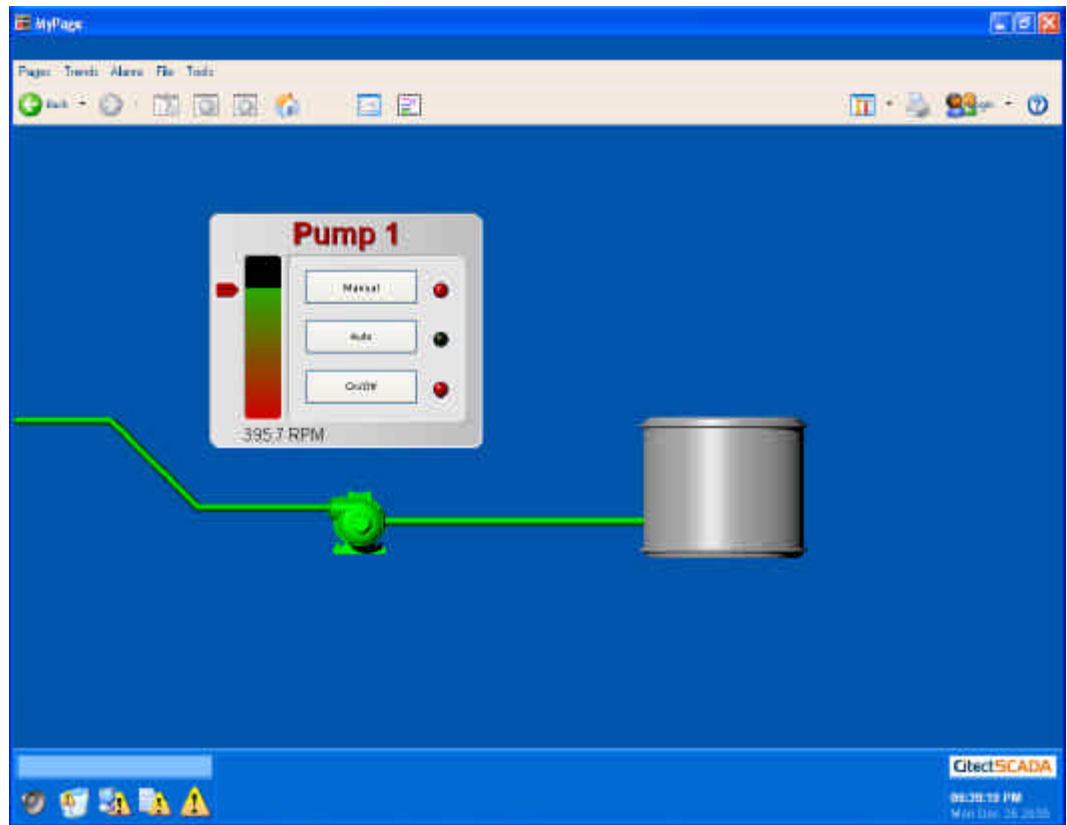
When you are finished, use the scroll bar on the right to scroll through each tag (record) and double check that you have entered the correct information. On the last tag, check that the number of tags (records) = 3.

Close the Variable Tags window by clicking on the  or pressing ESC.

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Creating Graphic Pages

Before you start lets take a look at what you will create.



This page contains a number of buttons that allow the operator to control the pump's mode and operation, as well as a slider to control its speed.

The pump itself will animate red or green depending on whether it is running or not and the lights, bar graph and number will indicate its mode, operation and speed.

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The fastest way to drive any application is with the keyboard. Most programs have shortcut keys – you may be surprised how quickly you can learn them.

Templates provide a vast range of pre-built functionality, making the task of building a new project with CitectSCADA extremely fast.

All pages must be based on a template, even if it is a blank template.

If you want to customize the look and feel of your pages, you can create your own templates from scratch, or copy the existing ones and modify them.

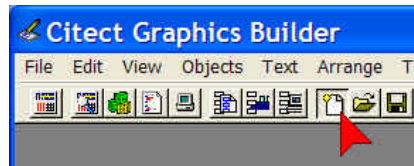
NOTE: Never modify templates, symbols or other items in the **Example**, **Include** or **CSV_Include** projects! These projects will be automatically re-loaded when you upgrade to the next version and your changes will be lost. Always copy items to your local project before modifying them.

Creating Graphic Pages, Creating a new page

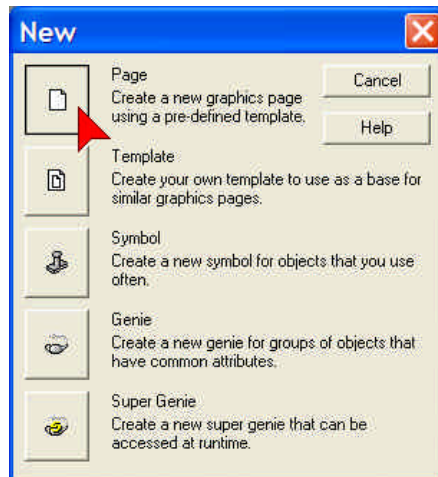
Switch to the **Graphics Builder** – click on the **Graphics Builder** icon.



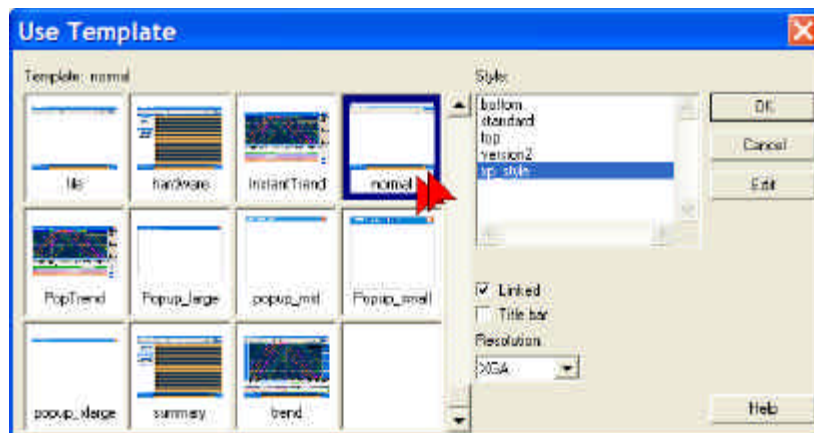
Click on the **New Page**  icon.



Click on the **Page** button.



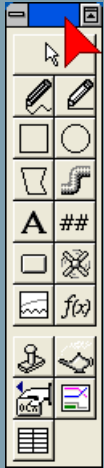
In the **Use Template** dialog, make sure **Standard** is selected in the **Style** box, then **Double Click** the **Normal** template as shown.



Instead of double clicking on Normal we could single click on Normal and then click OK – but that takes more time.

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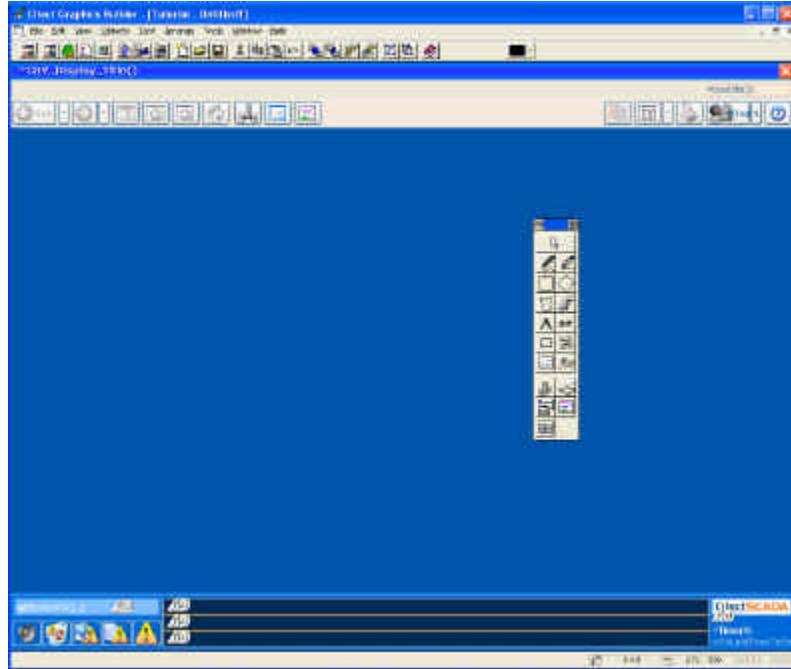
You can move the Toolbox by placing the cursor on the title bar, hold down the left mouse key while moving the mouse.



If your toolbox does not appear, it can be toggled by pressing the F3 button, or selecting it from the **View** menu.

Creating Graphic Pages, Saving your page

We are using the built-in templates to get a jump-start on your page. There are navigation buttons already configured for you and using templates helps to ensure a consistent look and feel throughout your project. This is very important if you want to make it easy-to-use for your operators.




Templates are displayed pretty much as they appear at runtime.

###.## indicates dynamic values that will change at runtime.

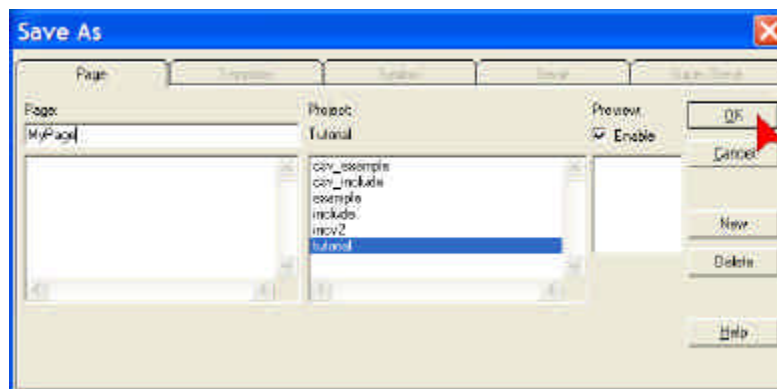
+1, +2 etc are Animation Numbers that are used as references for graphics objects that will be displayed at these locations in runtime. Animation Numbers are not displayed at runtime.

$f(x)$ is a script that is executed with the page.

It is good practice to save your graphics pages regularly, so let's begin the habit right now.

Click on the **Save** icon on the menu bar. 

Type **MyPage** in the **Page** edit box, then press **OK**.



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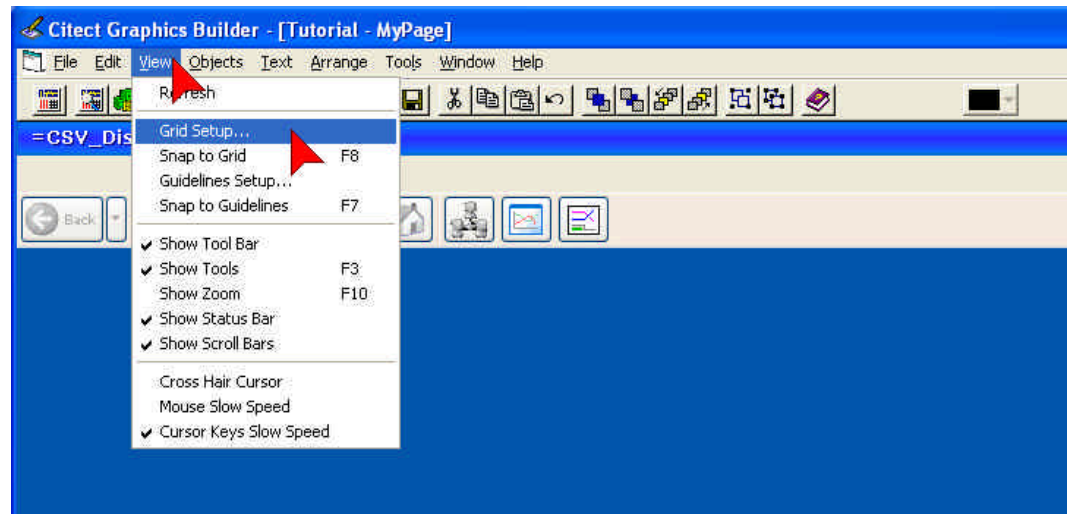
The Grid is not a necessary item for configuring graphics, however it vastly increases the ability to create uniform sized and positioned objects, which in turn makes your pages easier to visualize.

If the Grid prevents you from positioning an object exactly where you want it, it can be toggled on and off using the **F8** key.

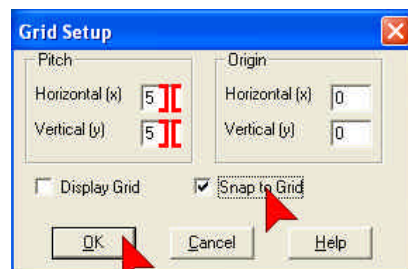
Creating Graphics pages, Setting up the Grid.

Firstly we will setup a grid which will allow our cursor to snap to uniformly positioned locations on the screen, making it easier to size and position objects in relation to each other.

On the toolbar, click **View**, then **Grid Setup**.



In the Grid Setup form, change the size of the grid from 8 x 8 pixels, to 5 x 5 pixels as shown below. Select **Snap to Grid**, then click **OK** to close the form.



Now we are ready to create and position our graphics objects.

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The Toolbox options are, from left-to-right and top-to-bottom:

- Free-form line
- Straight line
- Square/Rectangle
- Circle/Oval
- Polygon
- Pipe
- Text
- Number
- Button
- Animated symbol
- Trend
- Function
- Static symbol
- Genie
- ActiveX
- Process Analyst
- Database Exchange

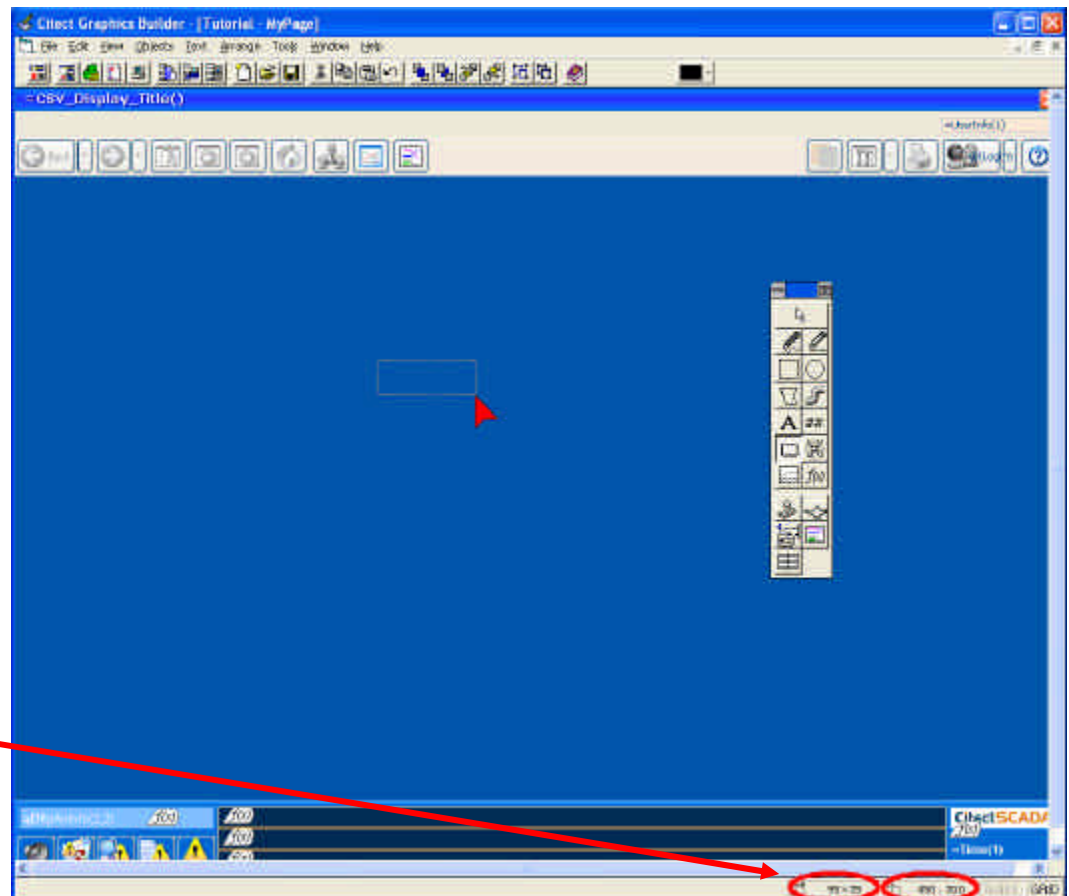
Creating Graphics pages, Configuring buttons.

Next we will configure some buttons to control the mode of the pump.



On the Toolbox **click** on the **button** icon.

To draw the button, **click and hold the left mouse button** while moving the mouse then **release the left mouse button**. ie; click and drag the mouse.



The **position** and **size** of the currently selected object are shown at the bottom right of the graphics builder status bar.

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If you don't see the expected property sheet as you go through these exercises, then you may need to locate the correct sheet by looking at the screens on the page then click on the horizontal & vertical tabs to find the right sheet.

Horizontal Tabs

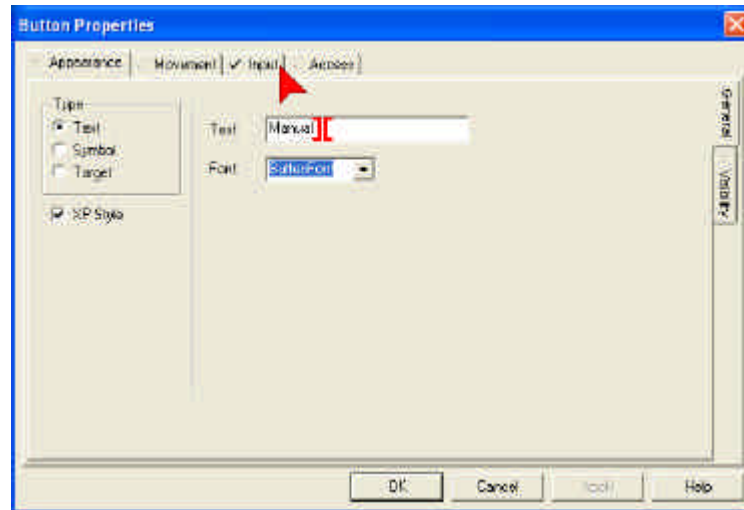


Vertical Tabs

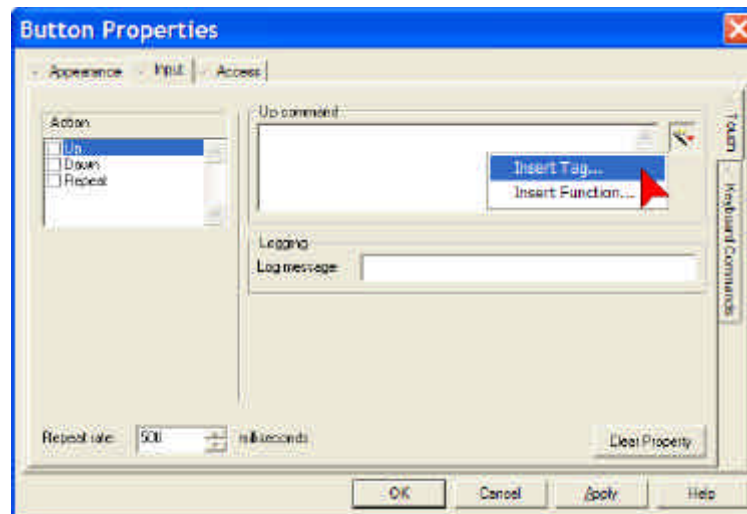
Creating Graphics Pages, Configuring Buttons Continued...

Once you release the mouse button, the Button Properties dialog popup will appear. **Double Click** on the word **button** in the **Text** edit box. This is a quick way to select a complete word. Next type **Manual**.

Finally, **click** on the **Input** tab at the top of the form to configure the action the button will perform.



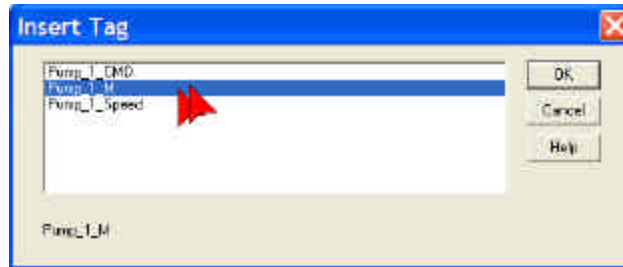
Click on the  button.
Click on **Insert Tag** option.



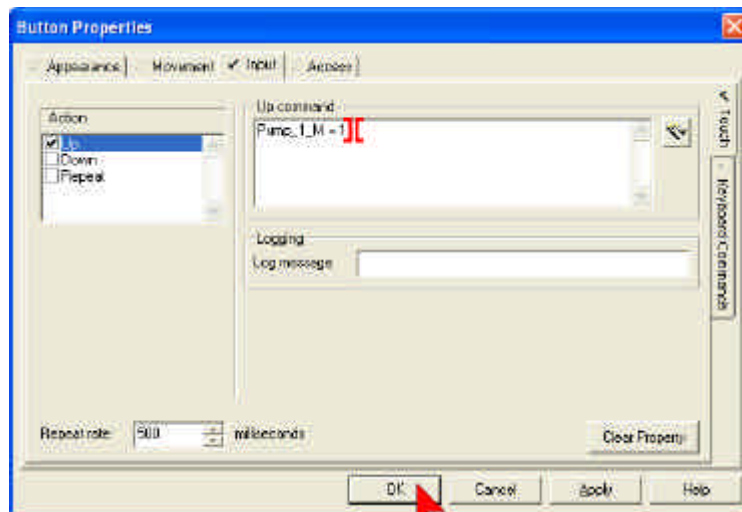
In the **Insert Tag** Dialog **Double Click** on **Pump_1_M**

Quickstart Tutorial

Creating Graphics Pages, Configuring Buttons Continued...



Pump_1_M will be inserted into the Up Command edit box. Click your mouse to the right of the Tag Pump_1_M and type = 1.



When the project is running, pressing on the Manual Button will set the tag Pump_1_M to a value of "1" to represent "Manual" mode. Repeated pressing of the button will continue to set the same value of "1" into the tag. Therefore we need a second button to set the tag to a value of "0" or "Auto" mode.

We will achieve this by copying the first button and modifying the copy. We do this because it is often quicker to make copies of objects than to draw them from scratch.

Here is a quick way to make a copy and position an object.

- Place the cursor over the Manual Button.
- **Hold down** the Ctrl key.
- **Hold down** the **left mouse** button.
- **Move** the **mouse** to position the copy.
- **Release** the **left mouse** button.

You don't need to be precise with position at this time – we will fix that later using an alignment tool.

Copying objects also ensures that their dimensions are identical to each other, creating a more visually appealing user interface.

Quickstart Tutorial

There are many ways to copy objects.

Ctrl + D will duplicate the currently selected object.

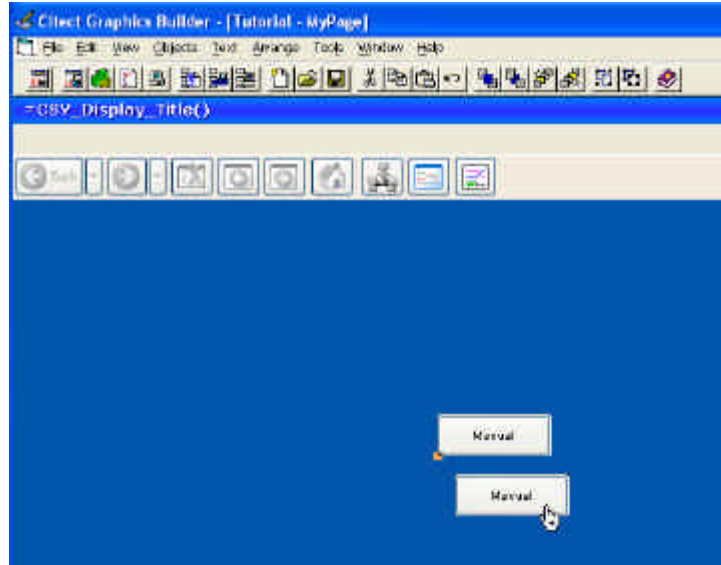
Ctrl + C will copy an object to clipboard.

Ctrl + V will paste an object from clipboard.

These last two work in almost all windows programs so are well worth remembering.

You can also select Copy, Paste or Duplicate from the Edit menu or by using the icons on the menu bar.

Creating Graphics Pages, Configuring Buttons Continued...



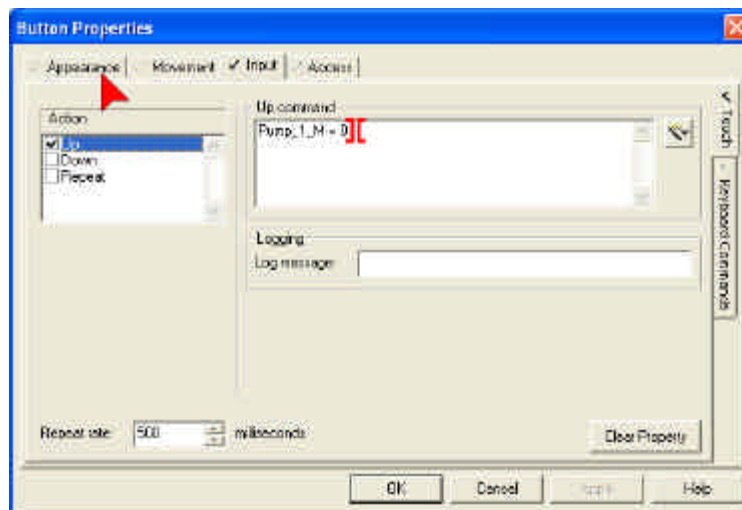
If you move the mouse immediately after holding down left mouse button, then you will only see the outline of the object as it is moved.

If you wait half a second before moving the mouse, you will see the object itself being moved, making it easier to position it in its new location.

The + sign will appear on the hand after pressing the Ctrl Key indicating a change of mode (copy rather than move).

Double Click on the new button.

In the Up Command edit box, **replace** the = 1 with a = 0. This will turn the digital tag Pump_1_M false to represent Auto mode.



Click on the **Appearance** Tab to change the text label on the button.

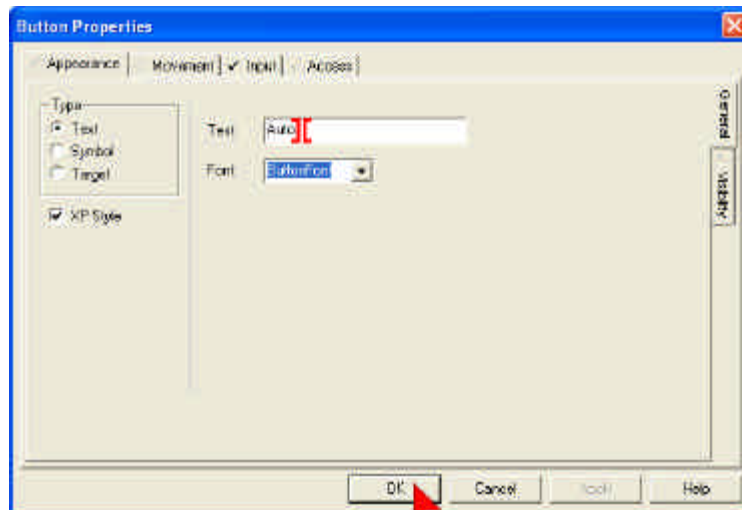
Quickstart Tutorial

You can also use the reserved word TRUE instead of a 1, and FALSE instead of a 0.

TRUE and FALSE are not case sensitive, but upper-case is a common convention used to indicate a reserved word.

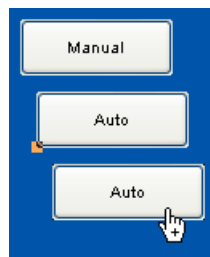
Creating Graphics Pages, Configuring Buttons Continued...

Double Click on the word **Manual** in the **Text** edit box, **replace** the text with **Auto**, then **click OK**.

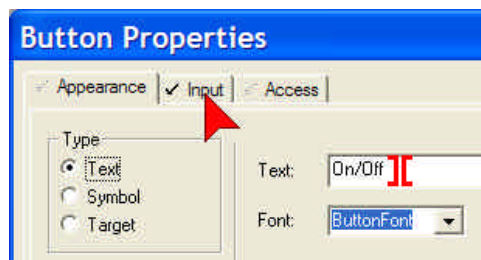


We now have two buttons that will set the control mode of the pump to Auto or Manual. Next we need a control to turn the pump on and off. Instead of using two buttons, one for on and another for off, this time we'll use just one button.

Make a copy of the Auto Button (hold the **Ctrl** key, then **click** and **drag** the Auto Button to create a copy in a new location).



Change the button Text to read "**On/Off**", then **click** on the **Input** tab.

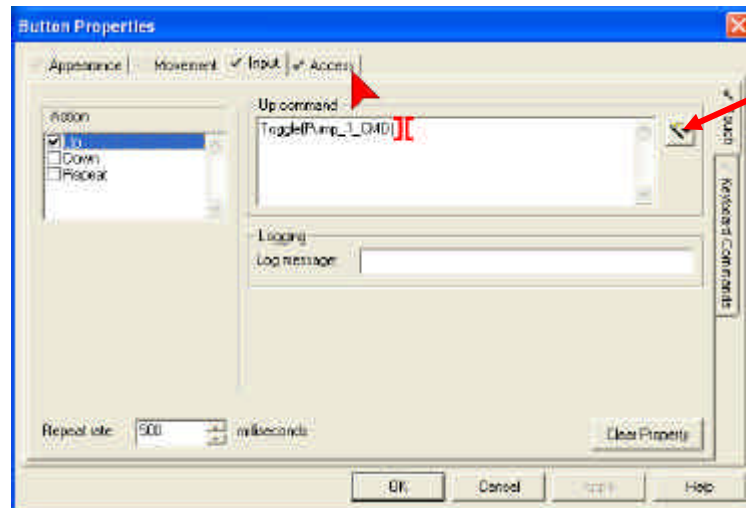


Quickstart Tutorial

Under the access tab you may notice there is a section called security. This is a very powerful feature in CitectSCADA that allows you to precisely define who can access what. Configuring security is covered in the CitectSCADA Configuration training course.

Creating Graphics Pages, Configuring Buttons Continued...

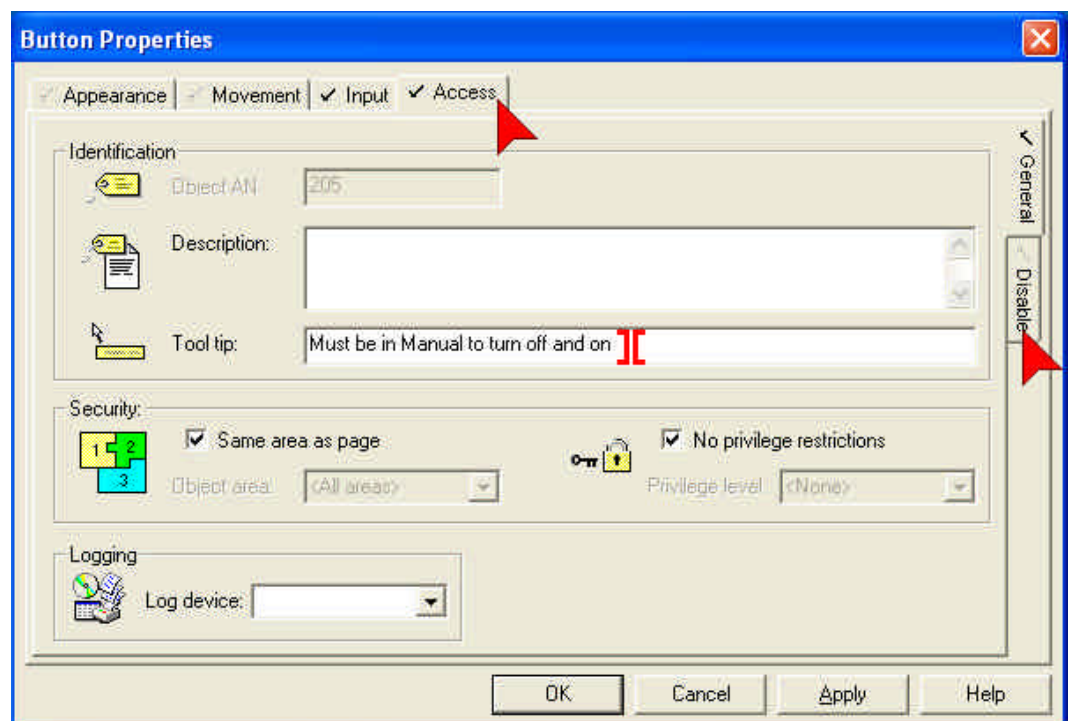
In the Up Command edit box **replace** the current text with **Toggle(Pump_1_CMD)**.



You can also use the **Insert** button to lookup the **Toggle function** and paste it into the Up Command.

We will now inhibit the Manual On/Off button from working while the pump is in Auto mode and we'll add a tool tip on the way to explain this to operators.

Click on the **Access** Tab at the top of the button form. In the **Tool tip** edit box **type** **"Must be in Manual to turn off and on"** then **click** the **Disable** tab (on the right side of the dialog).



Quickstart Tutorial

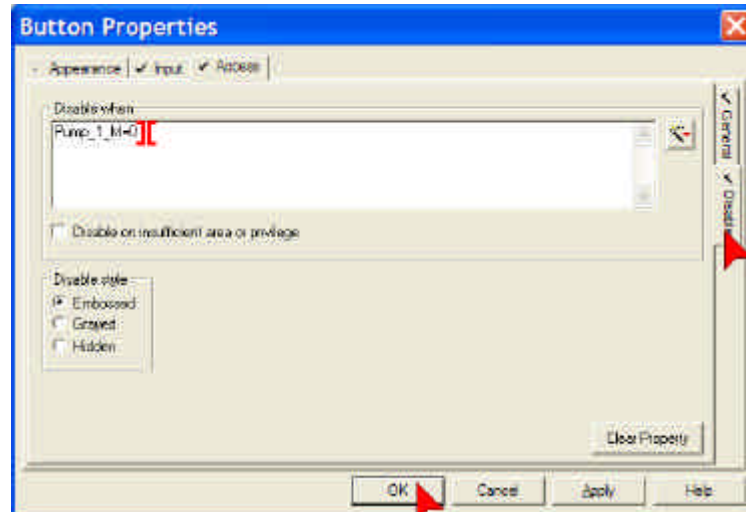
Creating Graphics Pages, Configuring Buttons Continued...

Click on the **Insert** icon 

Click **Insert Tag**.

Double Click on Pump_1_M and **Add** the text = 0 after the tag.

Click OK when you're finished.



When Pump_1_M is "0" or FALSE (ie. in Auto) this button will be disabled. The button's appearance will be altered using the Embossed style to indicate that it is disabled and it will not highlight when the cursor moves over it. The tool tip will still work normally.

Creating Graphics Pages, Configuring Symbol Sets

Next we need some indicators to tell us when the pump is on, off, auto or manual.

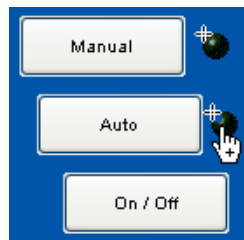
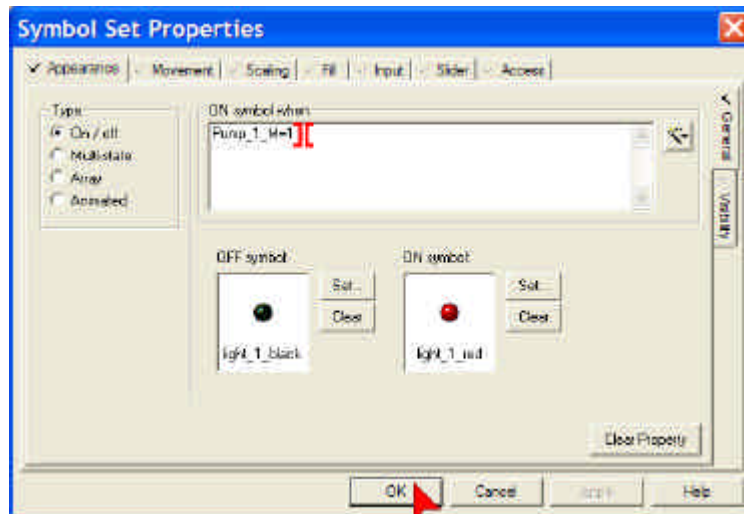
On the Toolbox **click** on the **Symbol Set** Tool.



Quickstart Tutorial

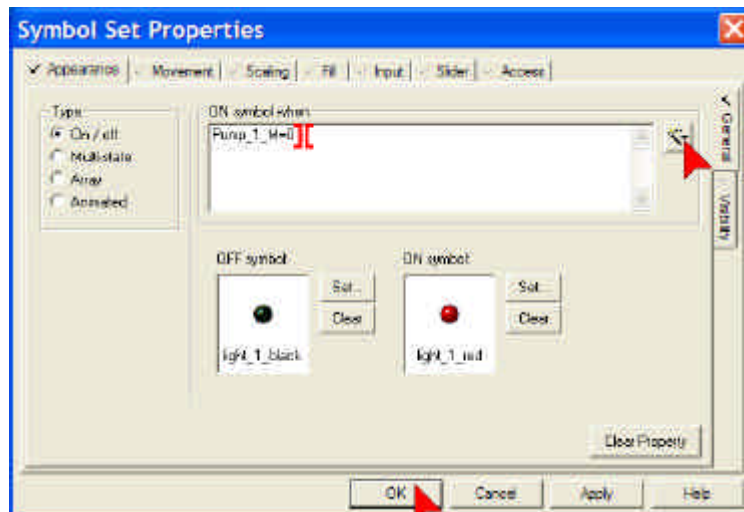
Creating Graphics Pages, Configuring Symbol Sets Continued...

Position the cursor next to the Manual button, then **click** to place the symbol on the page. In the **ON symbol when** edit box type **Pump_1_M = 1** then **click OK**.



Copy the **Symbol Set** and place the new one next to the **Auto** button. Again, don't worry about positioning the symbol perfectly, we will align the objects shortly.

In the **ON symbol when** edit box **replace** the expression with **Pump_1_M = 0** then **click OK**.



Quickstart Tutorial

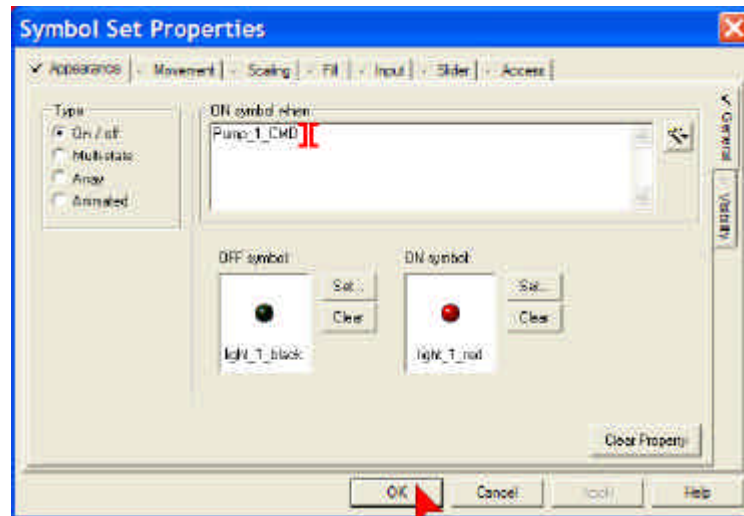
TIP: DIGITAL tag types do not require “=1” in their symbol detection logic because CitectSCADA knows that they only have two states corresponding to the two symbol states available.

This is a little different to when we were writing commands to the tag and we had to explicitly tell CitectSCADA which state to set the DIGITAL tag to.

TIP: Another way to select multiple objects is to drag the cursor around them while holding the left mouse button down to “lasso” the objects. You will need to be careful not to select additional objects if you use this method.

Creating Graphics Pages, Configuring Symbol Sets Continued...

Make another copy of the symbol set and position it next to the On/Off button. In the **On symbol when** edit box **replace** the text with **Pump_1_CMD** then **click OK**.



At Runtime, when Pump_1_CMD is on (ie. equals “1”) the Red Light will be displayed.

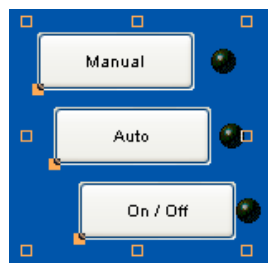
Creating Graphics Pages, Aligning Objects

It is worthwhile making your pages look aesthetically pleasing as it will encourage operators to use the system. It also makes it faster to find information on the screen.

Making sure everything is drawn precisely, aligned correctly and evenly spaced also helps to make your pages look professional.

You can align objects manually by dragging them around the screen until you have positioned them satisfactorily, and for which the Grid is an excellent assistant, however sometimes we want to align a group of objects quickly relative to each other. For this we use the Align tool.

Select all three buttons by clicking on each of them, while holding the **CTRL** key down for the last two. All three buttons should have a selection indication at their button left, and be bounded by a large transparent rectangle identified by the four corners, and four center points as shown below.



Quickstart Tutorial

Creating Graphics Pages, Aligning Objects Continued...

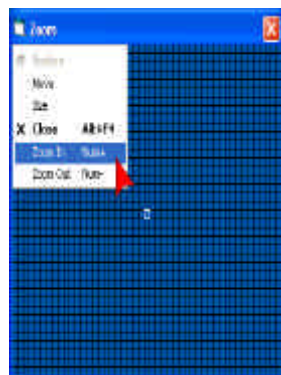
From the Graphics Builder toolbar, select **Arrange**, then **Align**. An alignment popup form will appear, asking you how you would like to arrange the selected objects. Select **Left** for the horizontal alignment, and **Even** for the vertical alignment.



Repeat this exercise for the lights to the right of the buttons. Try selecting a button and a light and aligning them vertically by **Centre** before aligning all three lights **Evenly**. Keep going until you are satisfied with the arrangement of the objects on your screen.

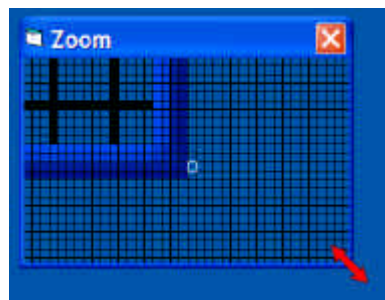
You may notice that the lights are not perfectly in line with the center line of the buttons. This is because the hot spot or anchor point for this symbol is in the top left of the symbol rather than in the middle. To correct for this we will use the zoom and the nudge tools.

To make sure your objects are aligned or positioned perfectly you can use the Zoom tool. From the **Menu** select **View, Show Zoom**.



The zoom tool will display an enlarged view of the region around your cursor. You can alter the "magnification" by clicking in the top left corner of the zoom window

You can change the size of the zoom by placing the cursor over one corner until the resize cursor is shown, then hold down the left mouse button and move the mouse.

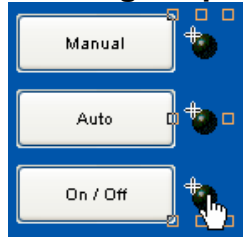


You can move the zoom window by placing the cursor on the title bar (the big blue bar at the top) then hold down the left mouse button and move the mouse.

TIP: The Zoom tool can be quickly toggled on and off using the **F10** key.

Quickstart Tutorial

Creating Graphics Pages, Aligning Objects Continued...



Since the lights are in the correct position relative to each other, we will select all the lights so that we can move them together as a group. Place **cursor** above and to left of top button, **hold down left mouse button** and **move mouse**, then **release mouse** button to lasso all three buttons.

If you have the Grid tool turned on, press **F8** to disable the **Snap to Grid** function, otherwise the buttons will only move to the nearest grid position.

You can now precisely position the lights by placing the **cursor over** the selected objects (make sure the hand cursor appears) then press **Enter** (or hold down left mouse button), next use the **arrow keys** on the keyboard to move the buttons one pixel at a time in the direction that you want. Use the zoom box to see exactly where the objects are positioned to the nearest pixel. Press enter again to set the position (or release left mouse button if you used that method).

Save your page.

Creating Graphics Pages, Formatting with Rectangles

Next we will create a grey background to highlight our control panel.

Press **F8** to turn the **Snap to Grid** selection back on. On the Toolbox **click** on the **Rectangle Tool**.



Click and drag to place a rectangle around your buttons and lights.

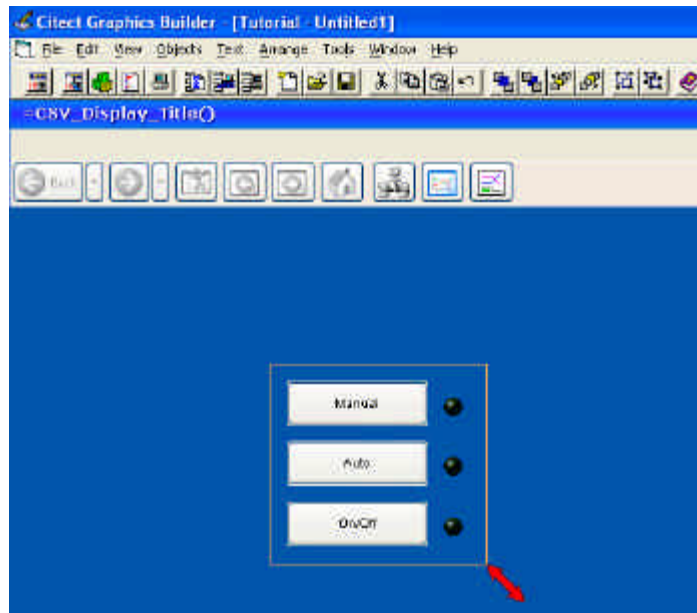
TIP: Windows XP style buttons have a grey border around the button. If you do not want a grey background for your buttons it is suggested that you uncheck the **XP Style** option under the **Appearances** tab of your buttons.

Quickstart Tutorial

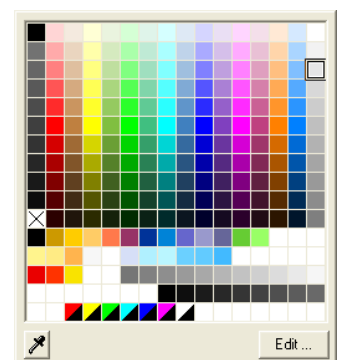
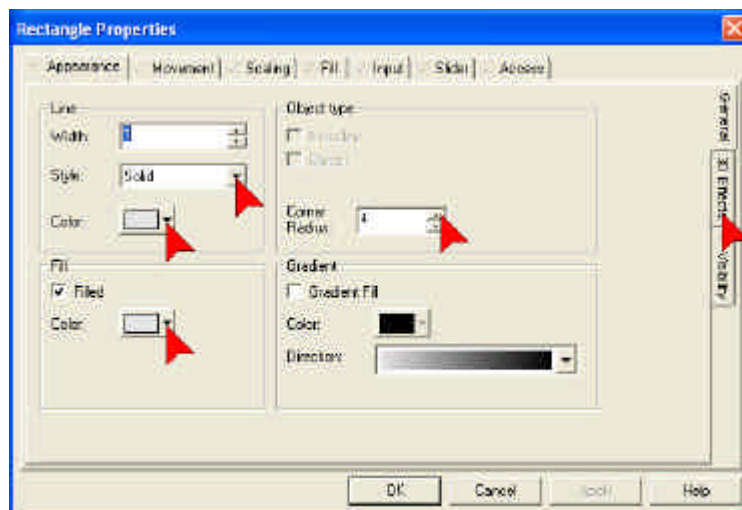
TIP: Once a rectangle has been created you can click and drag the node points (1 per corner and 1 per side), to modify its size and shape.

TIP: Holding the Ctrl key down while placing a rectangle or Oval forces the object to have the same vertical and horizontal dimensions. This allows you to easily create squares and circles respectively.

Creating Graphics Pages, Formatting with Rectangles Continued...



When the Rectangle Properties dialog popup appears, change the **Style** to **Solid**, the **Corner Radius** to **4**, the **Line Color** to **Grey**, and the **Fill Color** to **grey** as shown below.

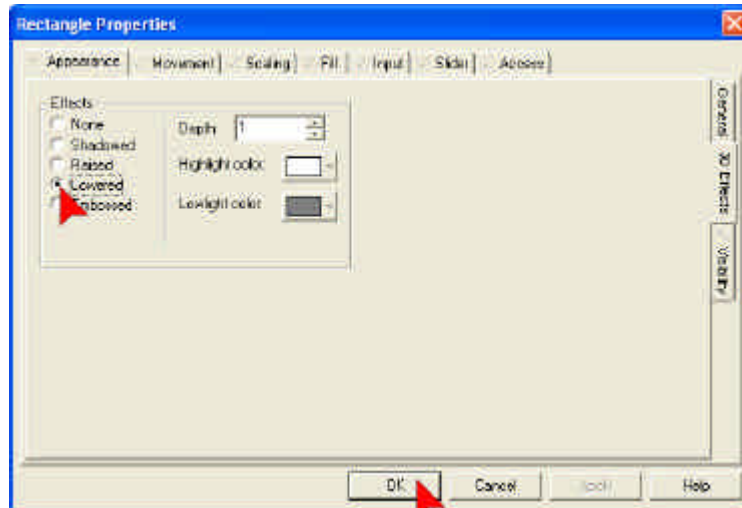


When you are finished, click on the **3D Effects** vertical tab on the right hand side of the form.


Quickstart Tutorial

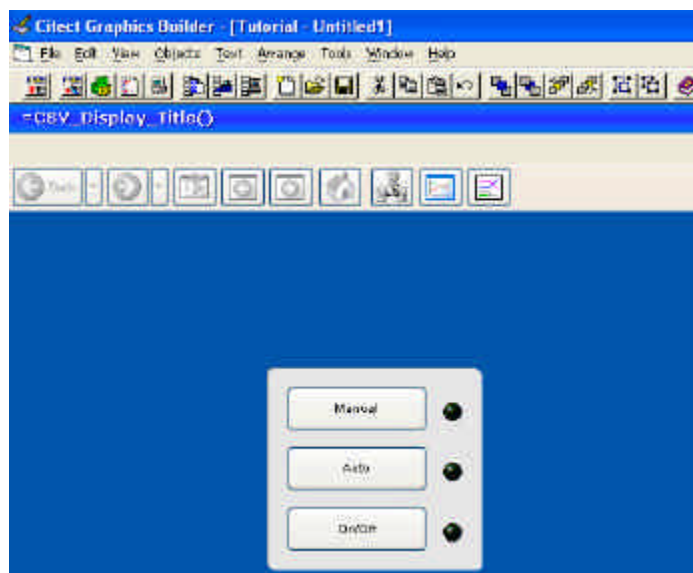
Creating Graphics Pages, Formatting with Rectangles Continued...

Select **Lowered** from the various 3D Effects available, and retain the default depth and color options, then click **OK**.



The rectangle should now cover all of your buttons and lights, obscuring them from view. We need to send the rectangle to the back layer to allow the buttons and lights to appear in front of it.

Select the **rectangle** by clicking on it, then click the Send-to-Back button , or alternatively select **Arrange**, then **Send to Back** from the menu bar.



Your page should now look similar to the above. **Save** your page.

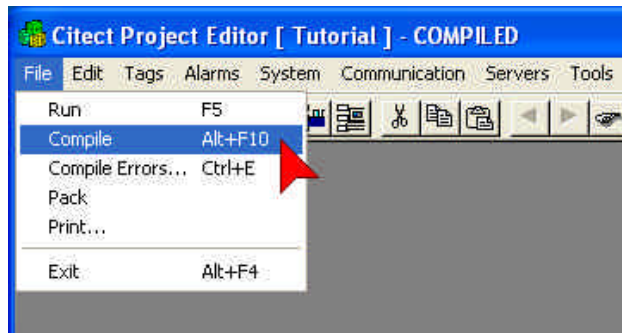
Quickstart Tutorial


The Computer Setup Wizard is typically run only once per project for each computer on which CitectSCADA will run.

Testing Graphics Pages, Computer Setup Wizard

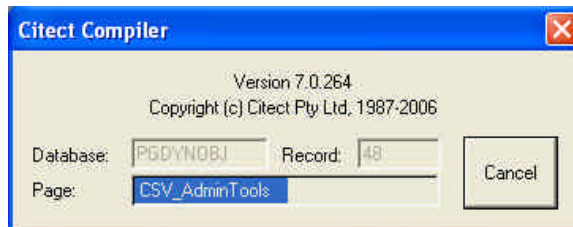
It's time to test your configuration and see how your page looks and feels to an operator. Firstly however, we need compile the project to make sure we have not made any configuration errors, and then we will run CitectSCADA's powerful Computer Setup Wizard to configure how you want this computer to behave within your overall CitectSCADA network.

Switch to the Citect Project Editor using Alt+Tab. From the **File** menu, select **Compile**.



Alternatively you can use the compile button  on the menu bar.

You should see a compilation progress bar, followed by a Compilation Success popup.



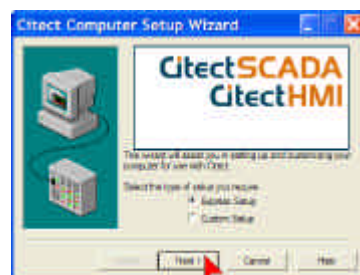
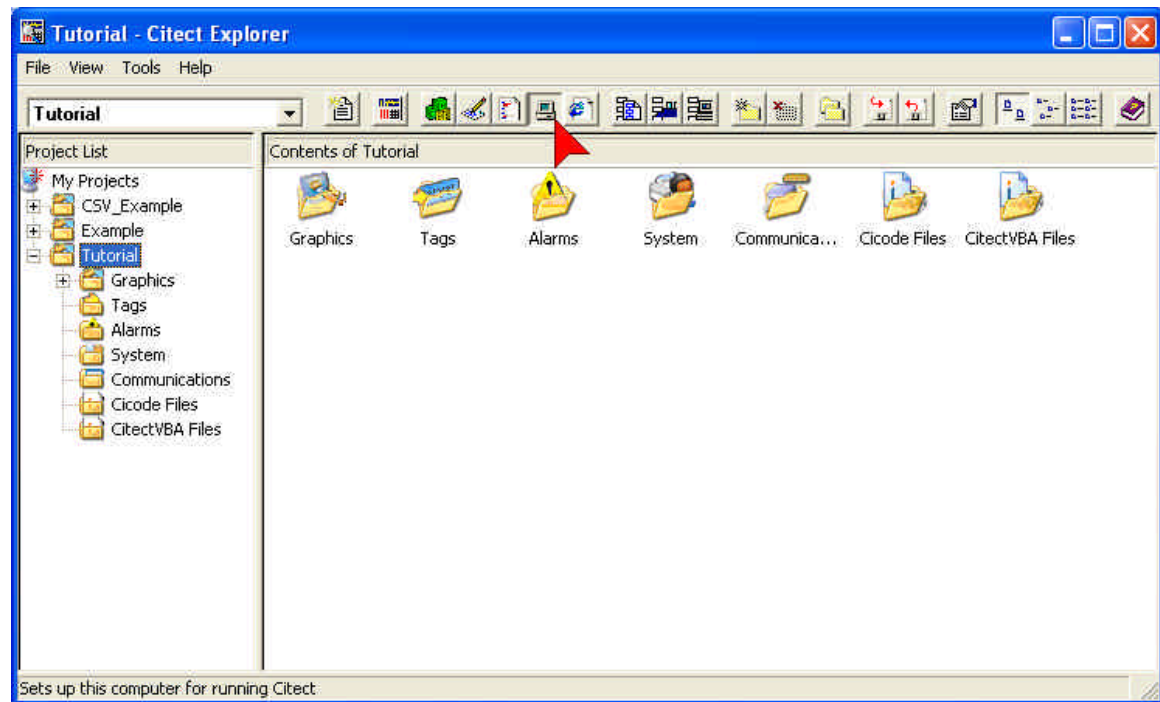
If your compilation fails, you can double-click on an error to take you directly to the location of the incorrect configuration, or you can review your work using this document to ensure that you have performed all steps correctly.

Quickstart Tutorial

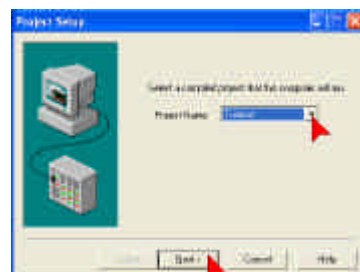
Testing Graphics Pages, Computer Setup Wizard Continued...

We will now setup our Computer's role within the CitectSCADA network. **Switch** to Citect Explorer using Alt+Tab.

In the Project List tree make sure the **Tutorial** project is selected.
In the menu bar, **click the Computer Setup button**.



Check Express Setup then **click Next**.

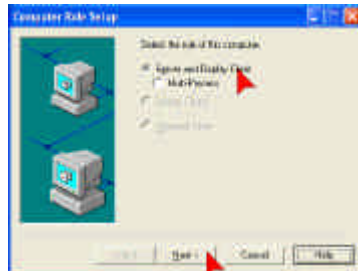


Click the Project Name Drop Down and select **Tutorial**, then **click Next**.

Multi-Processing is used to distribute server tasks across multiple computers and cannot be selected for Stand-alone applications.

Quickstart Tutorial

Testing Graphics Pages, Computer Setup Wizard Continued...

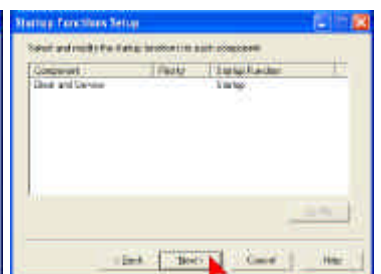
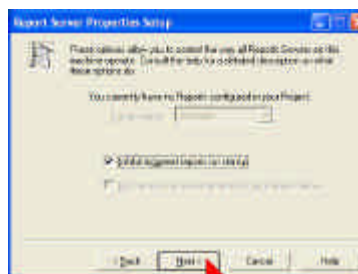
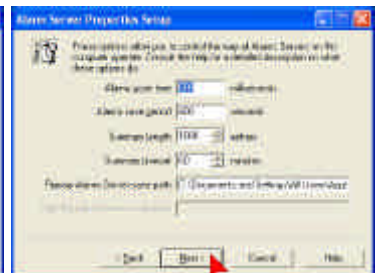
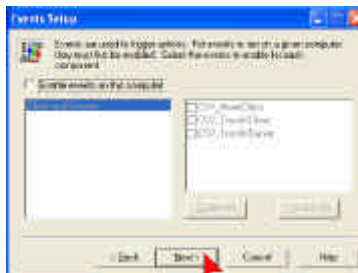
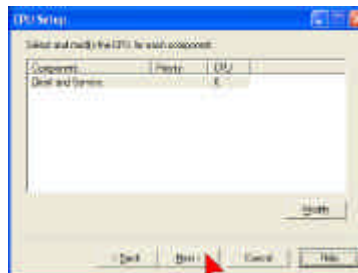


Check Server and Display Client, then click Next. Make sure you left the Multi-Process box unchecked.




Change the networking selection from the default of Discovery to **No Networking**, then **click Next**. This will isolate this CitectSCADA on the network to allow it to run as a Stand-alone system.

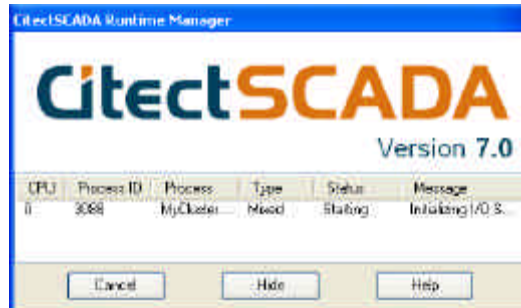
For the next seven screens just **click Next** then **click Finish**.



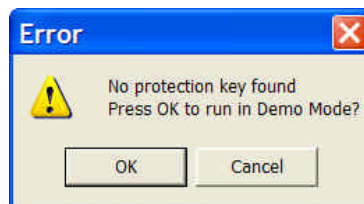
Quickstart Tutorial

Testing Graphics Pages, Runtime

Press the Run  button. The Runtime Manager dialog will appear, showing the startup process and status.



If you have not inserted a protection key you will see the following message.



Click OK to run the project in demonstration mode.

Demonstration mode allows integrators, partners and customers to build and test CitectSCADA projects without requiring additional licenses for these purposes.

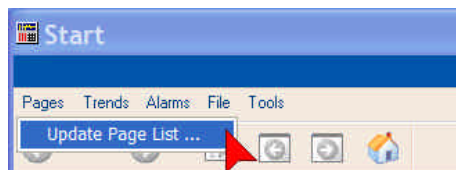
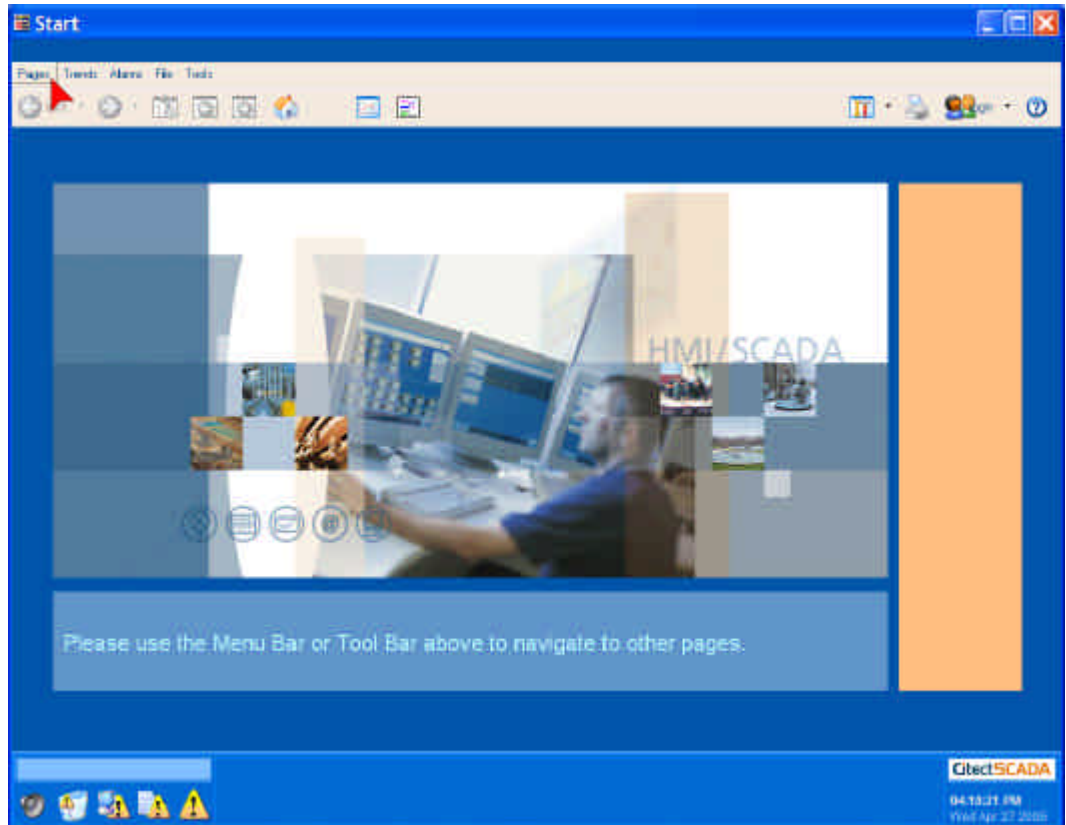
TIP: Demonstration mode will not allow networking or redundancy functionality to run.

TIP: Demonstration mode requires a Runtime restart after 15 minutes.

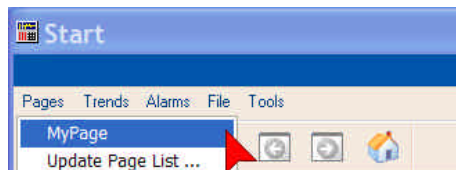
Quickstart Tutorial

Testing Graphics Pages, Runtime Continued...

The default startup page contains a number of menu items which can be configured in runtime. To configure the page navigation portion of this menu, click on **Pages**.



Click **Update Page List...** on the **Pages** menu will force CitectSCADA to update its menu to include any unlisted (eg. new) pages. Click it now.



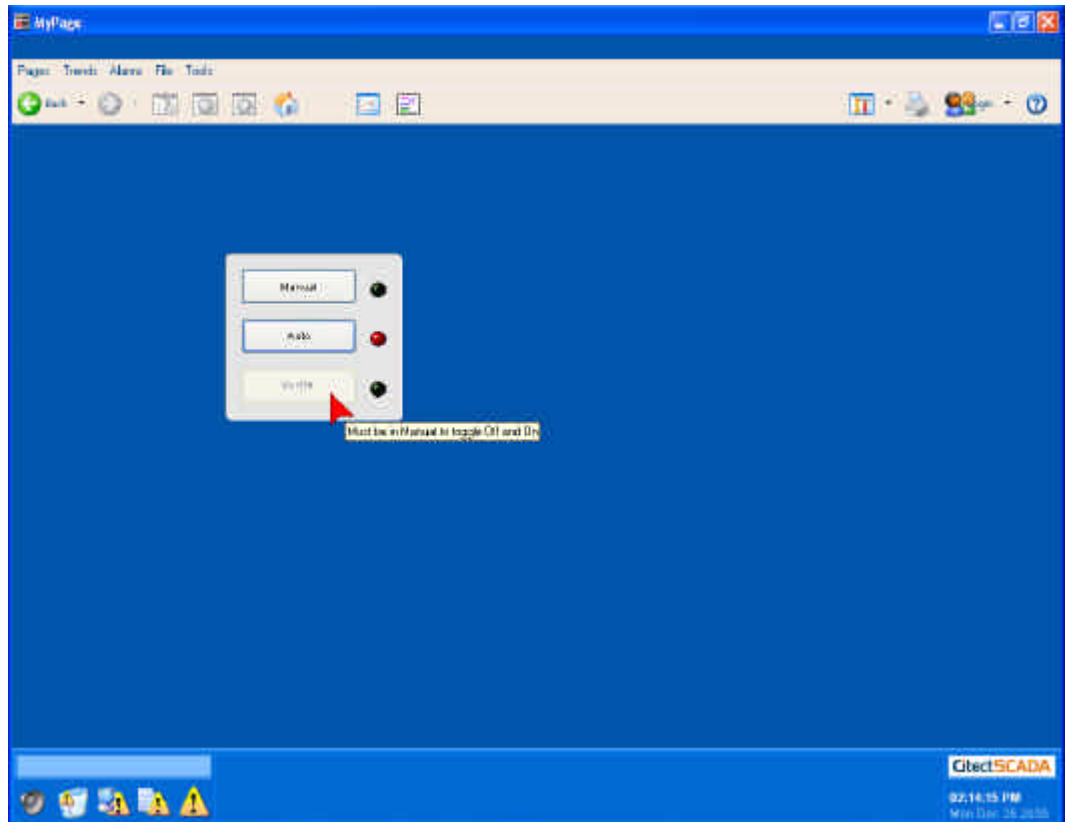
Returning to the **Pages** menu you will now see your page included in the navigation menu. Click on **MyPage** now.

Quickstart Tutorial

Testing Graphics Pages, Runtime Continued...

Your new page will now display. **Click** on the **Manual** button then the **Auto** button and check to see that the appropriate light turns red. Also check that the On/Off button becomes unavailable for selection/clicking while in Auto mode.

Move the mouse over the On/Off button and wait a couple of seconds to see that the tool tip appears.



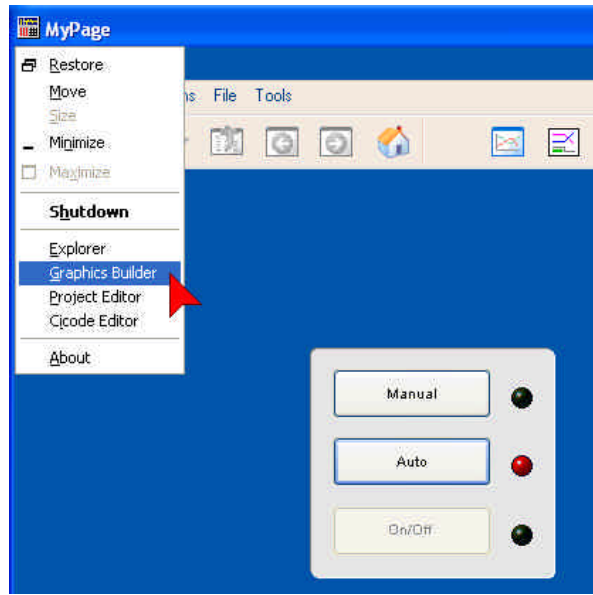
See what happens if you **click** on the **On/Off** button.
Click on **Manual**, then try **clicking** on the **On/Off** button again.

If you've made it to this point, give yourself a gold star and take a moment to stretch your muscles.

Quickstart Tutorial

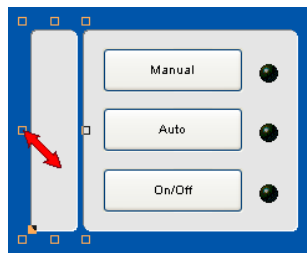
Creating Graphics Pages, Analog Indicators & Controls

To switch from runtime back to Graphics Builder, press **Alt+Space** together, then **click** on **Graphics Builder**.



Select the grey rectangle you have already created and copy it by **dragging** it and holding the **Ctrl** key down on your keyboard (alternatively use standard windows copy and paste controls). Position it to the left of the existing rectangle and drag the resize nodes to change it to a tall, narrow rectangle as shown below.

Use the Zoom and nudge, Align, or Grid tool to precisely position the Rectangle in line with the existing rectangle.

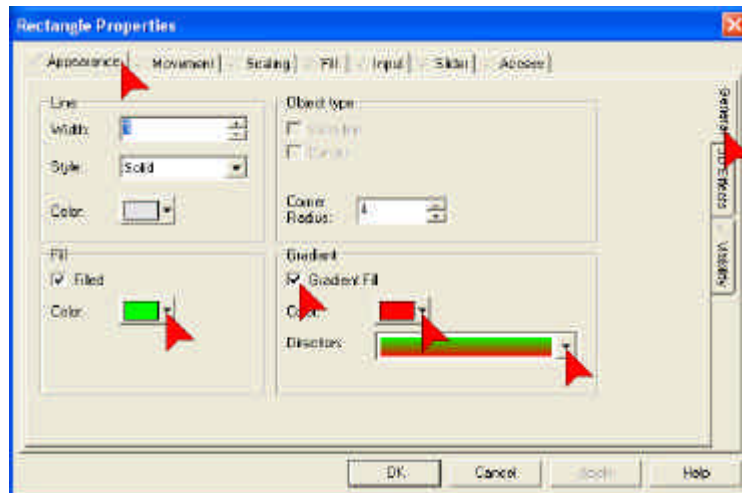


Double-click the rectangle to access the rectangle properties form.

Select the **Appearances** tab on the horizontal tabs, and the **General** tab on the vertical tabs.

Quickstart Tutorial

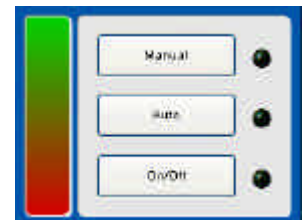
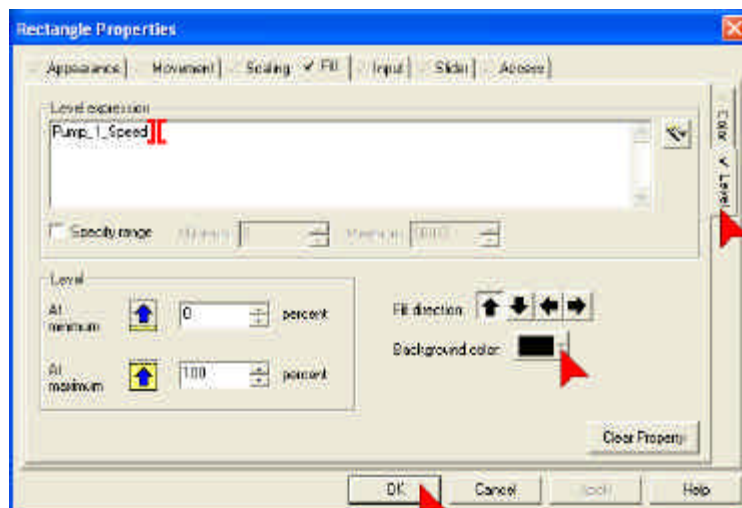
Creating Graphics Pages, Analog Indicators & Controls Continued...



Change the **Filled Color** to bright green.
Check the **Gradient Fill** option and select bright red as the **Gradient Color**.
From the pull-down options, change the **Gradient Direction** to vertical.

Once finished configuring the rectangle's appearance, click on the **Fill** tab and select the **Level** tab on the right hand side of the dialog.

Use the **Insert** button to insert the tag **Pump_1_Speed**. Change the **Background Color** to black then **click OK**.



This rectangle will fill and change color as the pump speed increases.

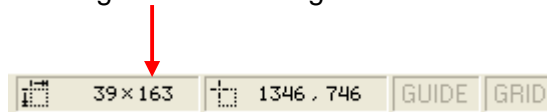
Next we will create a slider to allow operator control of the pump speed.

Quickstart Tutorial

Creating Graphics Pages, Analog Indicators & Controls Continued...

You will need to know the how far (in pixels) the slider needs to move. To find this out (make sure you still have the gradient rectangle selected) take a look at the bottom right corner of the Graphics Builder.

The status bar will show you the width and height of the selected object. Write down the height of the rectangle.

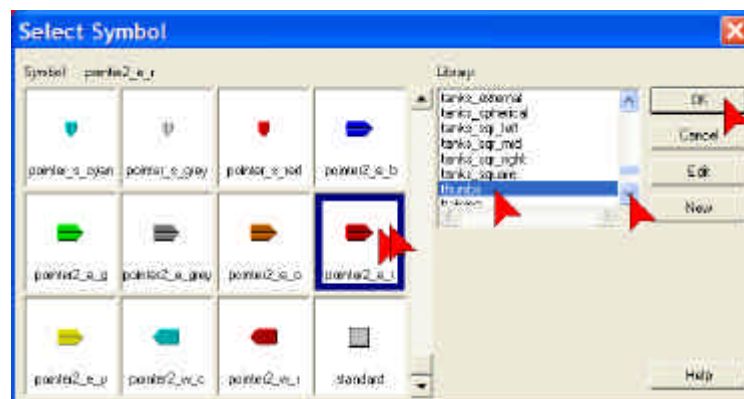


NOTE: If the status bar is not visible, go to the View menu on the menu bar and click on Show Status Bar.

On the Toolbox **click** on the **Static Symbol** tool.



When the Symbol selection popup appears, use the **scroll bars** to locate the **thumbs library** and then **Click** on **thumbs** in the **Library** list box to select that library.



Quickstart Tutorial

Use the **scroll bars** to locate **pointer2_e_r**, then **Double Click** on **Pointer2_e_r** to place it on the page.

Position the pointer at the left bottom side of the gradient rectangle using Zoom and Nudge or the Align tool.

Double Click on the **Pointer Symbol** to open the Symbol Properties form.

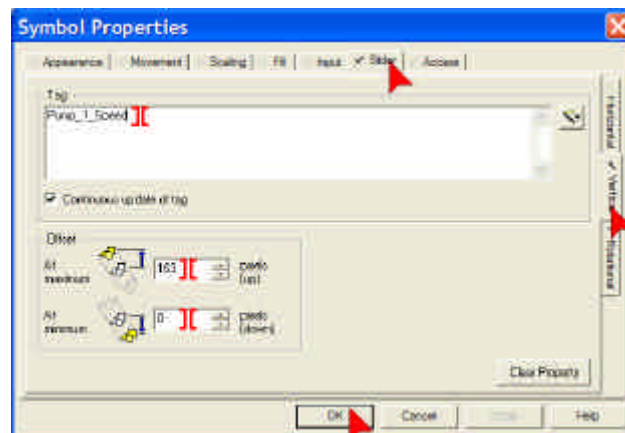
Click on the **Slider Tab**, then **click** on the **Vertical Tab** on the right hand side.

Use the **Insert** button to insert the **Pump_1_Speed** tag.

Make sure **Continuous update of tag** is checked.

In the **At Maximum** edit box type the height in pixels that you wrote down earlier.

Click on OK.



Now is a good time for a regular page save. **Click the save icon.**

You can run the project again to test these changes before continuing to the next chapter. If CitectSCADA is still running from your previous test, you will need to press the **Run icon** and **change pages** before updates are picked up by the running system.

Quickstart Tutorial

Flashing colors must be specifically assigned to the default palette. This means that the total number of flashing colors available to you is restricted to 80, which is more than enough for most projects.

To create a flashing color, firstly click on the palette location you wish to assign it to, then click Add.

Select Flashing from the check-box options.

Now Select the first Color (On State color).

click on Off State. Now Select the second Color.

The palette will display the color as two triangular colors in the one square, just like those on the bottom row of the palette (see picture on next page).

Colors will not flash in development mode – only in runtime.

NOTE: If you have upgraded from a previous version of CitectSCADA and used Flashing Color labels, you will need to reassign those labels to new palette flashing colors as the old method of flashing colors is no longer supported.

Creating Graphics Pages, Configuring Text

Now we will place some text above the buttons to label the controls.

Click on the letter **A** on the Toolbox.

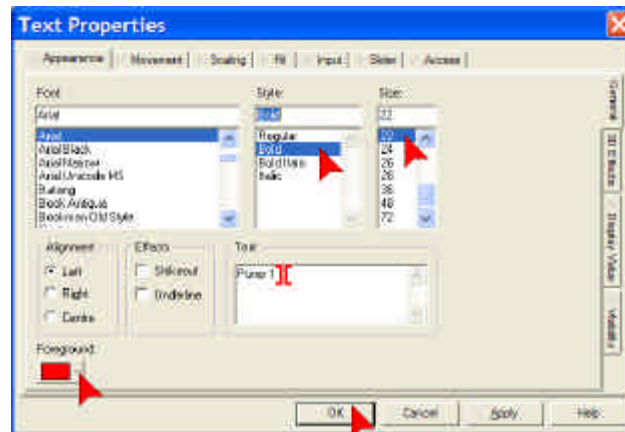
Type **Pump 1**.

Note: If you do not see the letters that you type it is most likely because the currently selected color is the same as the background.

Place the cursor above the buttons and **click** to position the text.

Select Bold, font size **22** (point) and change the Foreground color to red.

Click OK.



Creating Graphics Pages, Creating Colors

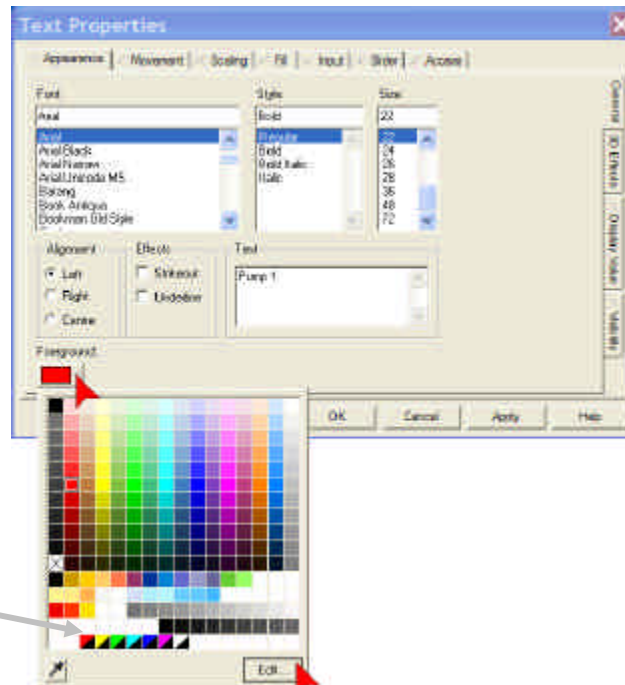
CitectSCADA supports True Colors. This allows far greater flexibility for importing images, as well as managing those colors quickly and easily.

The default palette contains 128 commonly used colors, however this does not restrict the number of colors you can actually use in your project.

Double-click on the **Pump 1** text on your graphics page to open the Text Properties dialog again. **Click** on the **Foreground** color.

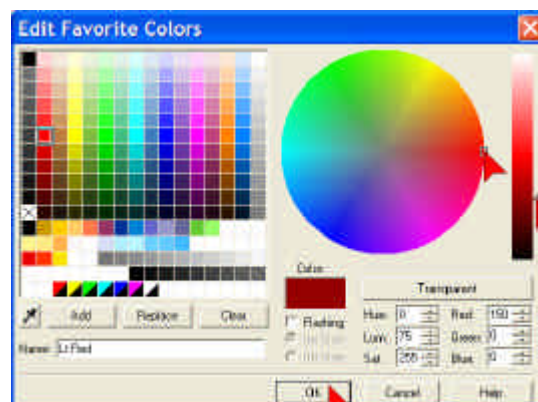
Quickstart Tutorial

Creating Graphics Pages, Creating Colors Continued...



Click on **Edit**.

You can use a variety of options in this color editing dialog to adjust the color to any of the 32 million true colors available (provided your computer supports 32bit colors). In our case, we will simply **Slide** the **Shading Cursor** on the right-hand side down to a darker shade of red, then **click OK** to finish.



Once you are satisfied with your dark red text we will add a 3D Effect of **Black Shadowing** using the 3D Effects tab on the right side of the Text Properties dialog popup.

Save your page.

Quickstart Tutorial

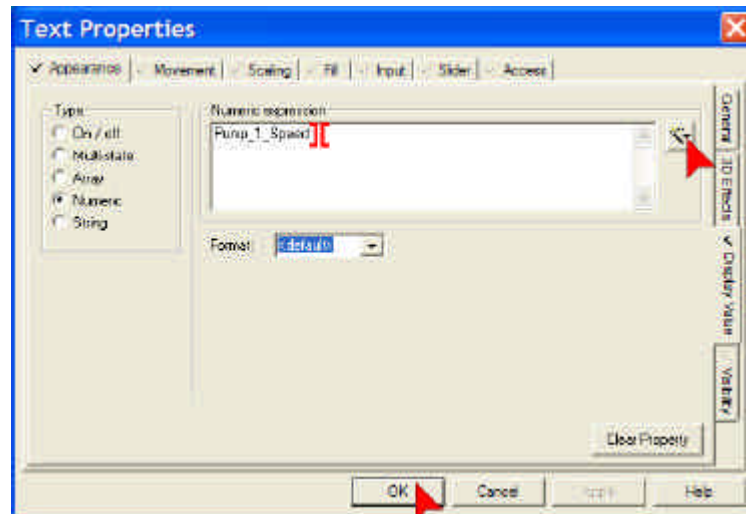
Creating Graphics Pages, Configuring Numbers

On the **Toolbox**, click on the **number tool**.

Click below the **gradient rectangle** to place the number.

Use the **Insert Tag** button to enter the tag **Pump_1_Speed**.

Click OK.



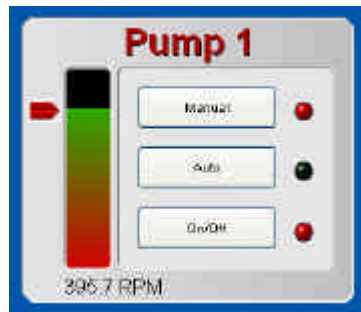
The Number tool is actually the Text tool. When you access it via the number tool icon you are presented with the Display Value sheet instead of the General Appearance sheet.

Click on the **General** Tab on the right hand side and set the font to **Black, 12** point.

Creating Graphics Pages, 3D rectangles

Next we'll add some cosmetics.

Draw a large rectangle that covers all the things you have drawn so far.



Set the Line color to **Light Grey** (see next page).

Check the **Filled** check-box and set the **Filled color** to **Light Grey** also.

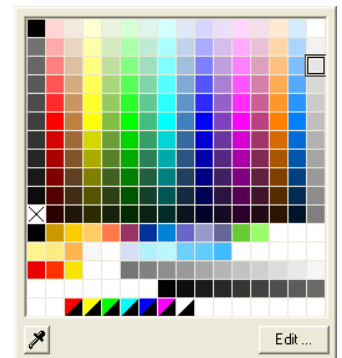
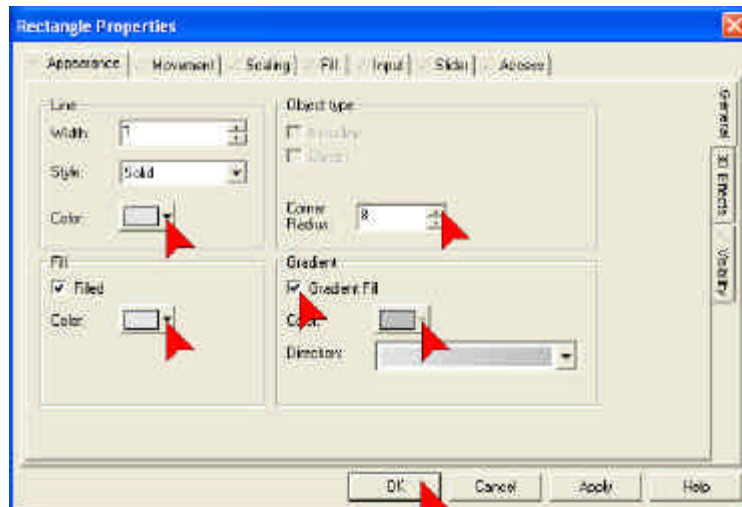
Set the **Corner Radius** to **8**, and activate the **Gradient Fill** with a medium grey hue.

Click on **3D Effects** tab and select **Lowered**.

Click OK when finished.

Quickstart Tutorial

Creating Graphics Pages, 3D rectangles Continued...



Since it will be difficult to see your work with the large rectangle in front of it, we need to send it to the back.



Make sure the new rectangle is selected, then **click** on the **Send to Back** button on the **Tool Bar**, or select **Send to Back** from the **Arrange** menu.

Creating Graphics Pages, Pumps & Piping

Next we will add a picture of the pump and some piping.



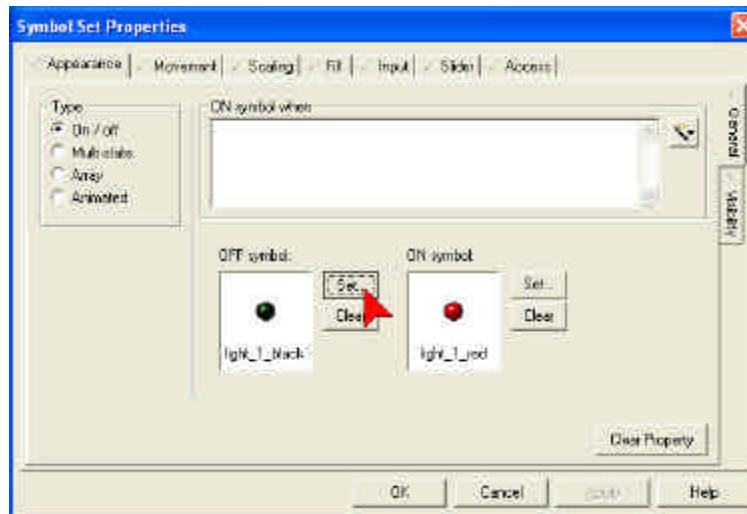
Click on the **Symbol Set** tool.

Click below the new rectangle to place the symbol set on the page.

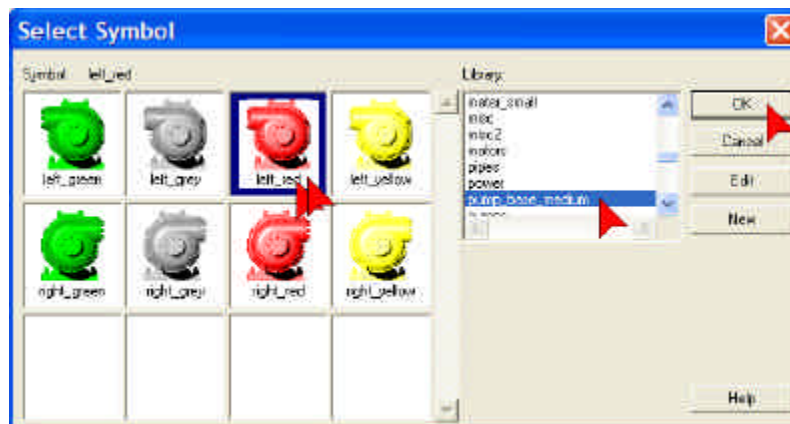
Click on the **Set** button next to the **Off Symbol** edit box to change the Off symbol from a black light to a red pump.

Quickstart Tutorial

Creating Graphics Pages, Pumps & Piping Continued...



In the **Library** list, use the **scroll bars** to scroll down and then **click** on **pump_base_medium**. In the **Symbol** window, **Double Click** on the **left_red** symbol.



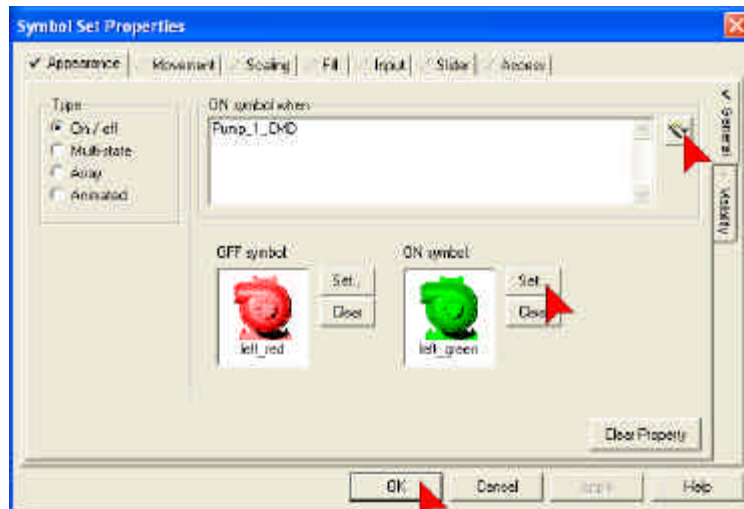
Click on the **Set** button next to the **On Symbol** edit box to change the On symbol from a red light to a green pump.

Using the same technique as above, locate the **left_green** pump then **Double Click** on it.

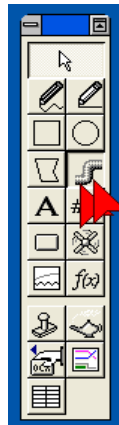
Use the **Insert** button to insert the tag **Pump_1_CMD**. **Click OK**.

Quickstart Tutorial

Creating Graphics Pages, Pumps & Piping Continued...



Configuration of the pump's animation is now complete. We now need to add incoming and outgoing pipework to the pump to complete the page.



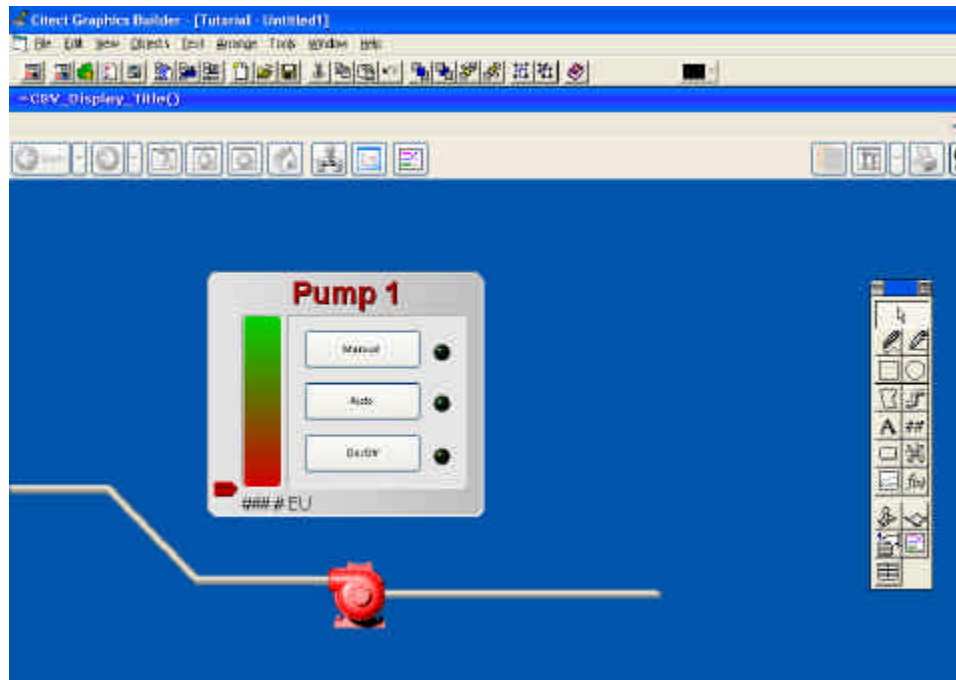
Click on the **Pipe Tool** in the **ToolBox**.

Pipes are 3D rendered polylines with node points that identify bends or junctions. Pipes can be color filled the same as any other drawing object in CitectSCADA, and will render the flooded color in 3D.

We will now draw the following pipework (see next page):

Quickstart Tutorial

Creating Graphics Pages, Pumps & Piping Continued...




To draw the left hand pipe:

1. **Hold** down the **Ctrl Key** (Forces only horizontal and vertical lines to be drawn).
2. Place cursor on top of the Pump, hold down left mouse button and move mouse sideways. **Release mouse** key when you have moved far enough to draw the first leg of the pipe.
3. **Move mouse** diagonally to the left (release the **Ctrl Key** to allow diagonal pipes), and click again to create another bend in the pipe.
4. Continue until you are satisfied with your pipe's route and **Double Click** to end the pipe.

Release the **Ctrl Key**. Select a pipe highlight colour of light grey, then **click OK** to close the property dialog.

Repeat this process to create a straight pipe on the right-hand side of the pump. Don't worry if you add a small section to one end of the pipe when you double-click as the pump or tank symbol will conceal it.

Select both pipes by **Holding** down the **Ctrl Key** and **clicking** on each pipe. **Release** the **Ctrl Key**.

Click the **Group** button  on the **tool bar** (or select **Group** from the **Arrange** menu).

Click the **Send to Back** button  on the **tool bar** (or select **Sent to Back** from the **Arrange** menu).

When items are grouped, double-clicking on them will only access the group configuration.

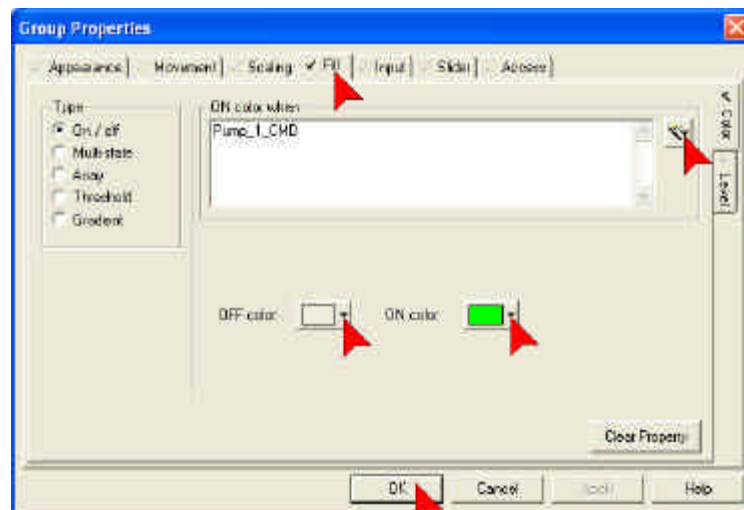
To access the individual objects within the group, hold the CTRL key down while double-clicking the object.

Quickstart Tutorial

Creating Graphics Pages, Pumps & Piping Continued...

Double Click on either of the **pipes** that you have drawn. You will notice that the configuration dialog displayed is for **Group Properties** rather than Pipe Properties. All configuration you now perform will apply to all objects contained within the group, in this case, the two pipes.

Click on the **Fill** Tab. Insert **Pump_1_CMD** tag into the **ON color** edit box. Make sure the **Off Color** is grey and set the **On Color** to Green. **Click OK**.



Your configuration of the pipework is now complete. We just need to add a Tank to the page, and our graphics configuration is complete.

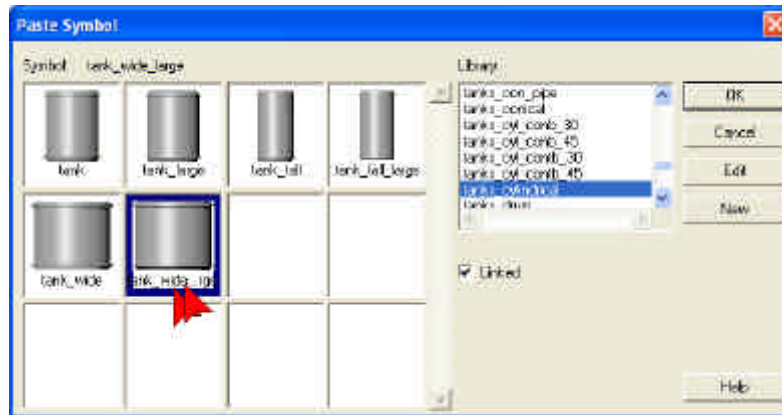


Click on the **Static Symbol Tool** in the **ToolBox**.

Using the scroll bars, locate the **tanks_cylindrical** symbol library, and then **Double Click tank_wide_large**. **Click** and **drag** the tank to position it over the end of the right-hand pipe.

Quickstart Tutorial

Creating Graphics Pages, Pumps & Piping Continued...



Save the page.

Your graphical configuration for this tutorial is now complete. You can test this by running the project again, and then continue to the following sections which address color management, alarm handling, and trending, as well as customizing the navigation menu and Administration Tools.

If you'd like to practice the skills you have just learned, try adding a bar graph to the tank to indicate level (you can add a slider to simulate a level transmitter).

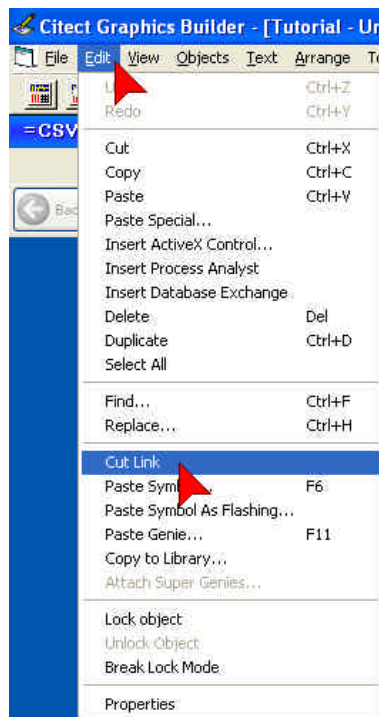
Quickstart Tutorial

Creating Graphics Pages, Managing True Colors

CitectSCADA comes with two excellent tools for adjusting colors, making it very easy to manipulate images from shades of red to green to yellow and so on, even for very complex true-color images.

We will manipulate a simple image in this example, but the same principles apply to any true color image that you create or import to the application.

Click on the **Slider** symbol to select it.



From the **Edit** menu, select **Cut Link**. This will sever the symbols link with the library and allow us to manipulate it as a stand-alone object. If we did not sever this link, then we would have to modify the object in the library rather than on the page, which would distribute the change to all instances of the object throughout the project.

From the **Tools** menu, select **Swap Colors**.



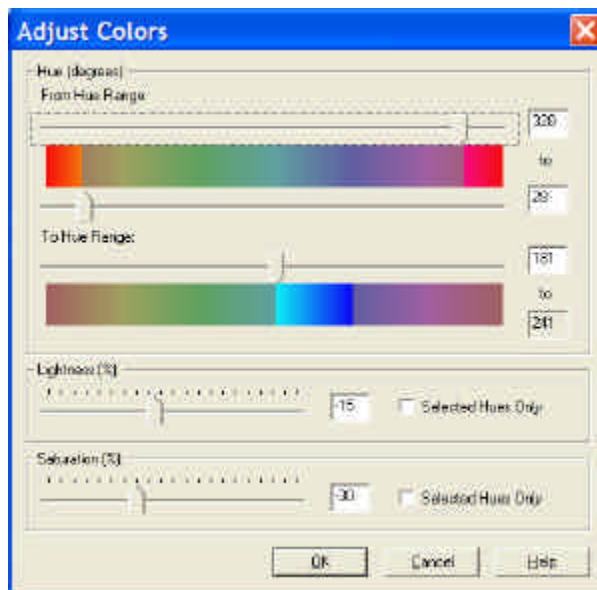
Making sure that the **Swap Range** option is selected, select any shade of red for the **From Color**, and any shade of blue for the **To Color**, then **click OK**. The slider should now be a fully-tinted blue variation of the original red object.

Quickstart Tutorial

Creating Graphics Pages, Managing True Colors Continued...

For more flexible color management, you can use the **Adjust Colors** tool, also available from the **Tools** menu. This tool allows you to select from a flexible range of colors for migrating from one hue to another, as well as adjusting saturation and darkness at the same time. This can be very useful when one color range does not translate well to another.

The parameters shown below will generate a similar result as the above Swap Colors for changing the red slider to a blue one.



Quickstart Tutorial

Accessing Alarm and Trend Display Pages

CitectSCADA comes with a number of pre-built pages. If you do not specifically define these pages in your project to create your own look and feel, then CitectSCADA will use its defaults instead. This includes:

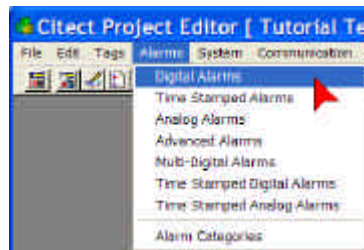
- *Alarm*
- *Summary Alarms*
- *Disabled Alarms*
- *Hardware Alarms*
- *Trends*
- *Double Trends*
- *Popup Trends*
- *Instant Trends*
- *Administration Tools*

These pages provide comprehensive functionality and can be accessed directly from the navigation menu provided at the top of each page, or via the alarm icons at the bottom left of each page. However to make these pages useful, we must first define some alarm and trend tags in the project.

Configuring Alarms

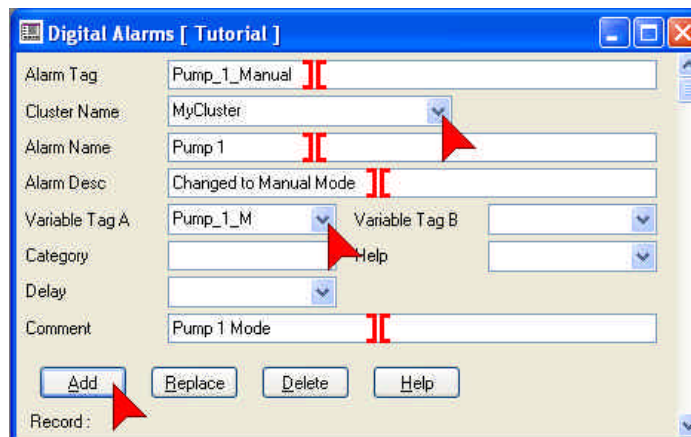
Switch to **Citect Project Editor** (click on the  icon or use **Alt+Tab** keys).

On the **Project Editor** Menu, click on **Alarms** then click on **Digital Alarms**



Fill in the **Digital Alarms** form for a single alarm as shown below. Remember it is better to use the drop downs to ensure data is entered correctly. When the form is complete press **Add**.


Remember that pressing **Enter** will add another record to your alarm list, so make sure the form is complete first, or use the **Add** button.

A screenshot of the 'Digital Alarms' form in the Citect Project Editor. The form contains several fields: 'Alarm Tag' (Pump_1_Manual), 'Cluster Name' (MyCluster), 'Alarm Name' (Pump 1), 'Alarm Desc' (Changed to Manual Mode), 'Variable Tag A' (Pump_1_M), 'Variable Tag B' (empty), 'Category' (empty), 'Delay' (empty), and 'Comment' (Pump 1 Mode). At the bottom, there are buttons for 'Add', 'Replace', 'Delete', and 'Help'. A red arrow points to the 'Add' button. The 'Record' label is at the bottom left.

Click on the  icon to close the Digital Alarms form.

Quickstart Tutorial

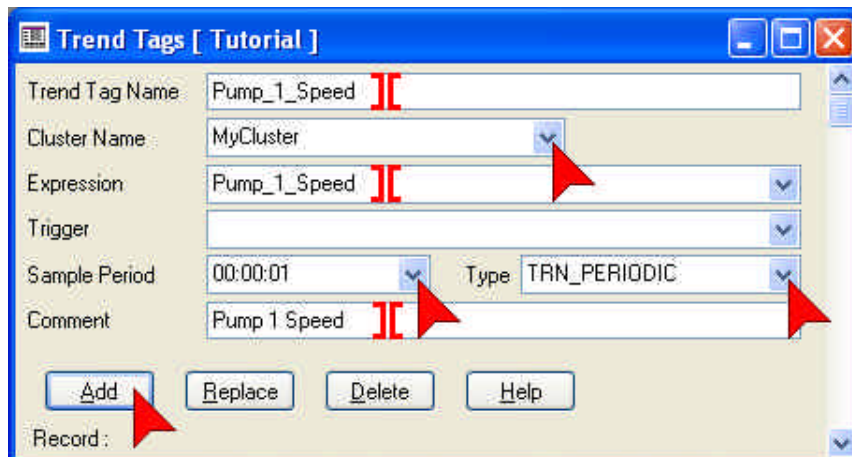
Configuring Trends

Now we need to configure a trend tag to store trend data. Switch to **Citect Project Editor** (click on  icon or use Alt+Tab keys).


On the Project Editor Menu, **click on Tags** then **click on Trend Tags**



Fill in the Trend tag form as below then **click Add**. Remember to use drop downs where possible.

A screenshot of the 'Trend Tags [Tutorial]' dialog box. It contains the following fields and controls: 'Trend Tag Name' with text 'Pump_1_Speed' and a red 'II' icon; 'Cluster Name' with a dropdown menu showing 'MyCluster'; 'Expression' with text 'Pump_1_Speed' and a red 'II' icon; 'Trigger' with a dropdown menu; 'Sample Period' with a dropdown menu showing '00:00:01'; 'Type' with a dropdown menu showing 'TRN_PERIODIC'; and 'Comment' with text 'Pump 1 Speed' and a red 'II' icon. At the bottom are buttons for 'Add', 'Replace', 'Delete', and 'Help'. A 'Record:' label is at the bottom left. Red arrows point to the 'Add' button, the 'Cluster Name' dropdown, the 'Expression' field, the 'Sample Period' dropdown, the 'Type' dropdown, and the 'Comment' field.

There are many more trend features available in Citect. Press F2 with this form open to see some of the advanced possibilities. Pressing F2 again will return you to the basic menus.


Click on the  icon to close the Trend Tags dialog.

Quickstart Tutorial

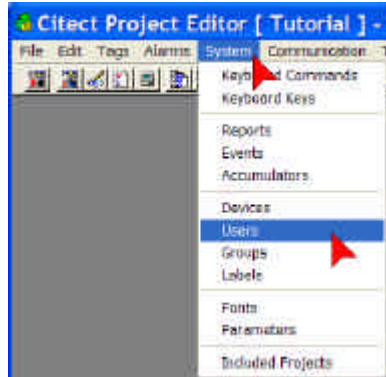
Privilege levels are unique, not hierarchical. This means that a user with privilege level 6 does not automatically get access to level 5 functions.

If you want your users to have access to more than one privilege level, then you must include all of those levels in the privilege field as shown.

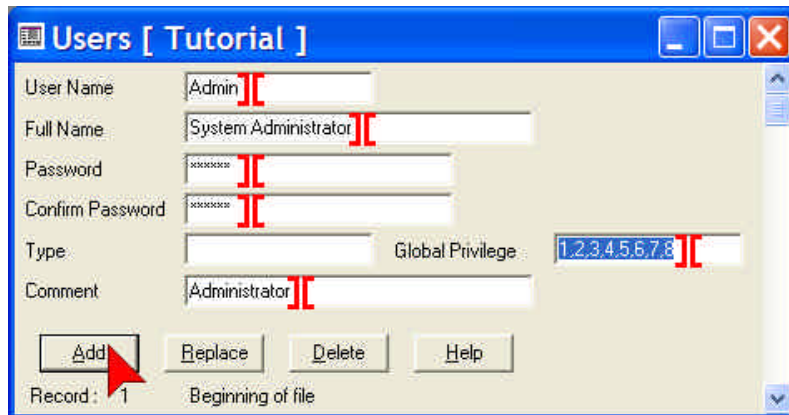
Configuring Security

Lastly, we need to define security login credentials to access all of the functionality available from the built-in pages. Switch to **Citect Project Editor** (click on  icon or use Alt+Tab keys).

On the Project Editor Menu, **click on System then click on Users.**



Fill in the User form as below then **click Add.**

A screenshot of the 'Users [Tutorial]' form in the Citect Project Editor. The form contains the following fields: 'User Name' with the value 'Admin', 'Full Name' with the value 'System Administrator', 'Password' and 'Confirm Password' fields both containing asterisks, 'Type' field, 'Global Privilege' field with the value '1,2,3,4,5,6,7,8', and 'Comment' with the value 'Administrator'. At the bottom, there are buttons for 'Add', 'Replace', 'Delete', and 'Help'. A red arrow points to the 'Add' button. The status bar at the bottom indicates 'Record: 1' and 'Beginning of file'.

The password fields contain “*” to hide passwords from prying eyes. Do not type *, instead type **cipect** into this field. The asterixes or hidden characters will appear as you type.

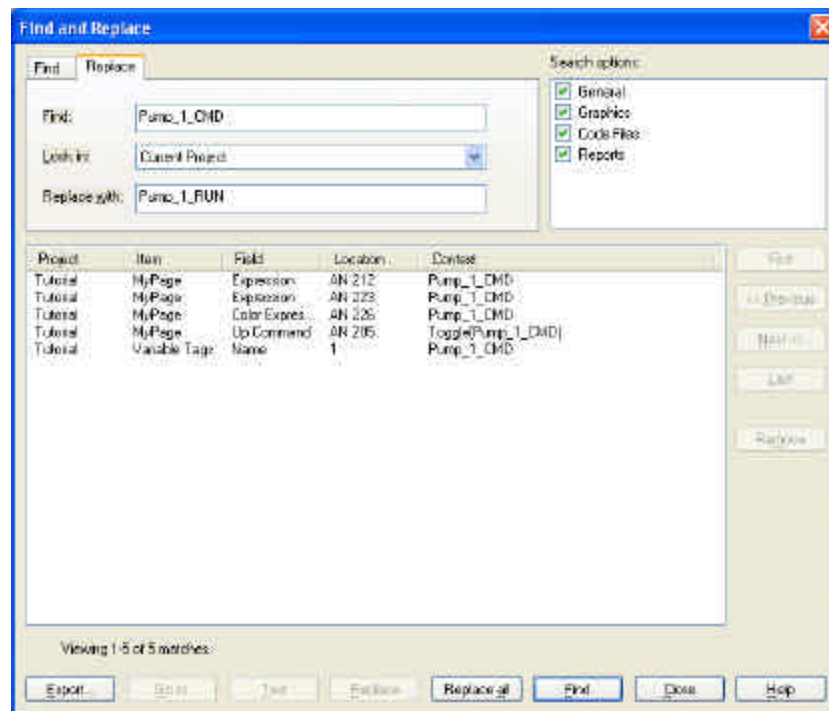
This user has been configured for maximum security privileges throughout the project and will be able to access the advanced tools available from the navigation bar.

Quickstart Tutorial

Using Find and Replace

Finally, we are going to change the Pump_1_CMD tag to Pump_1_RUN to better represent its function. Rather than searching the entire project for each place this tag is used, we are going to use the project search and replace feature to perform this exchange for us.

Switch to **Citect Project Editor** (click on  icon or use Alt+Tab keys). On the Project Editor Menu, **click on Edit then click on Replace** (or use Ctrl-R).



You can replace individual instances of found items by clicking on them and selecting Replace.

TIP: Changes made to graphics pages require you to manually save the page after the replace has been performed.

Type **Pump_1_CMD** in the **Find** box, and **Pump_1_RUN** in the **Replace with** box. Make sure **Current Project** is selected, along with all search options checked.

Click Find.

The utility will display a list of all locations where the Pump_1_CMD tag is found. **Click Replace all**. Confirm the replace when prompted, and switch to the graphics builder to **save** changes to your page.

Congratulations. You have completed the offline configuration portion of this tutorial. The following sections show you how to configure the online portions of the project.

Quickstart Tutorial

Use the back button at runtime to go back through the pages that you have visited.

Runtime

Now it's time to run your project and test it to make sure that you have completed the tutorial correctly.

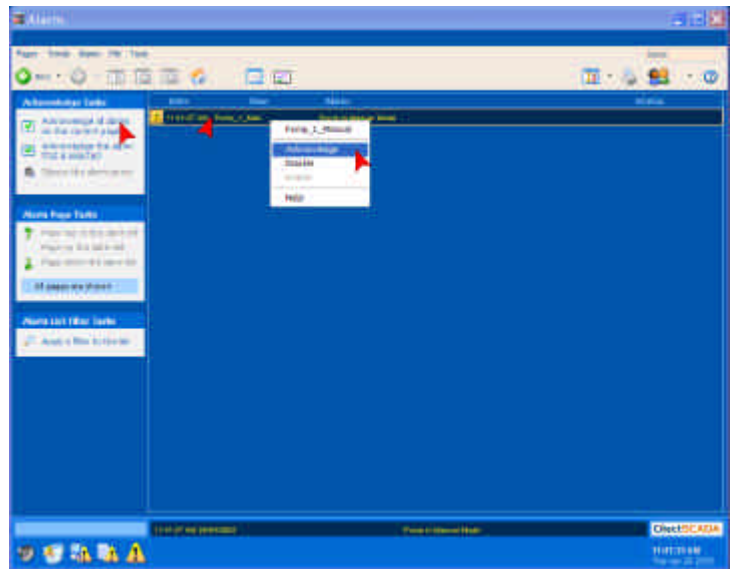
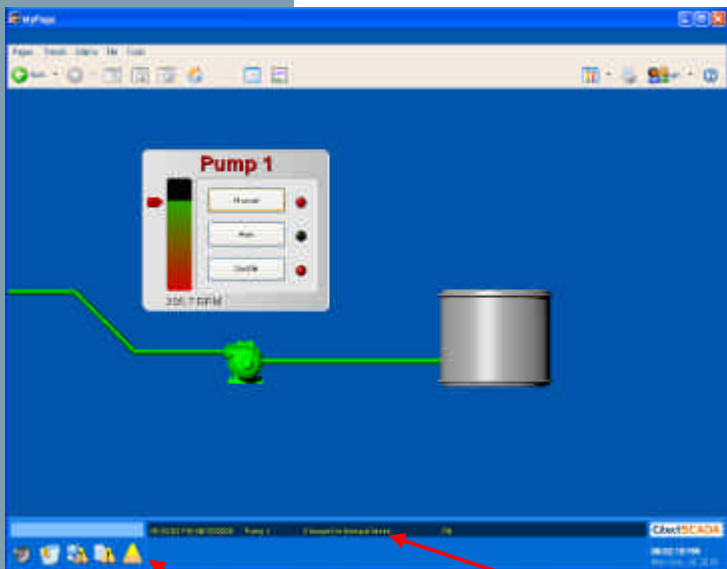


Click on the **Runtime** icon.

Use the navigation menu to access your graphics display called **MyPage**.

Click on **Auto** button then click On **Manual**. Click **On/Off**.

You will see that both pipes change color as the group properties you configured will be applied to everything in the group, in this case both pipes.



You will also see an alarm is generated and displayed on the alarm bar at the bottom of the page when you switch to Manual mode. The Alarm icon at the bottom left will flash to indicate that you have new, unacknowledged alarms. Click on this **Alarm icon** to view the Alarm page.

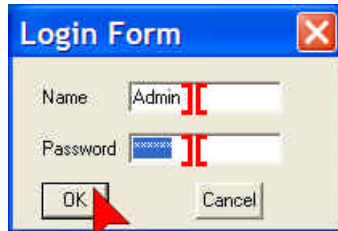
If you try to acknowledge the alarm from the alarm menu at the top of the screen, or by right-clicking on an alarm, you will notice that you do not have access to these features. By default you require a privilege level of 1 to use these features.



Click on the **Login** button or pull-down menu on the navigation bar. This will produce a Login form in which you can enter your user name and password as shown below:

Quickstart Tutorial

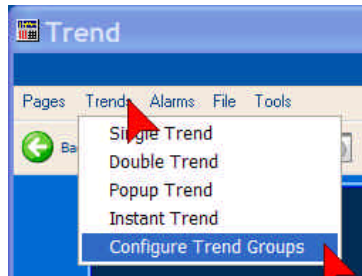
Runtime Continued...




Once logged in, try accessing the alarm acknowledgement features again. This time they will work.


You will notice that the alarm changes color once acknowledged, and disappears when you return the pump to automatic. If the pump returns to automatic and you have not acknowledged the alarm, it will remain on the screen until you do acknowledge it. This ensures that the operator never misses an alarm incident.

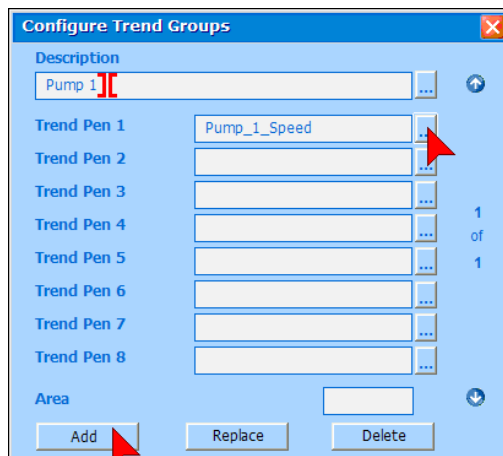
Runtime, Trends



From the navigation menu, select **Configure Trend Groups** from the **Trends** navigation menu.

Type in a name for your first trend group, nominally **Pump 1**. Then use the build buttons  to add Pump_1_Speed to the group.


When you are finished, **click Add**, then close the window by clicking on the  icon

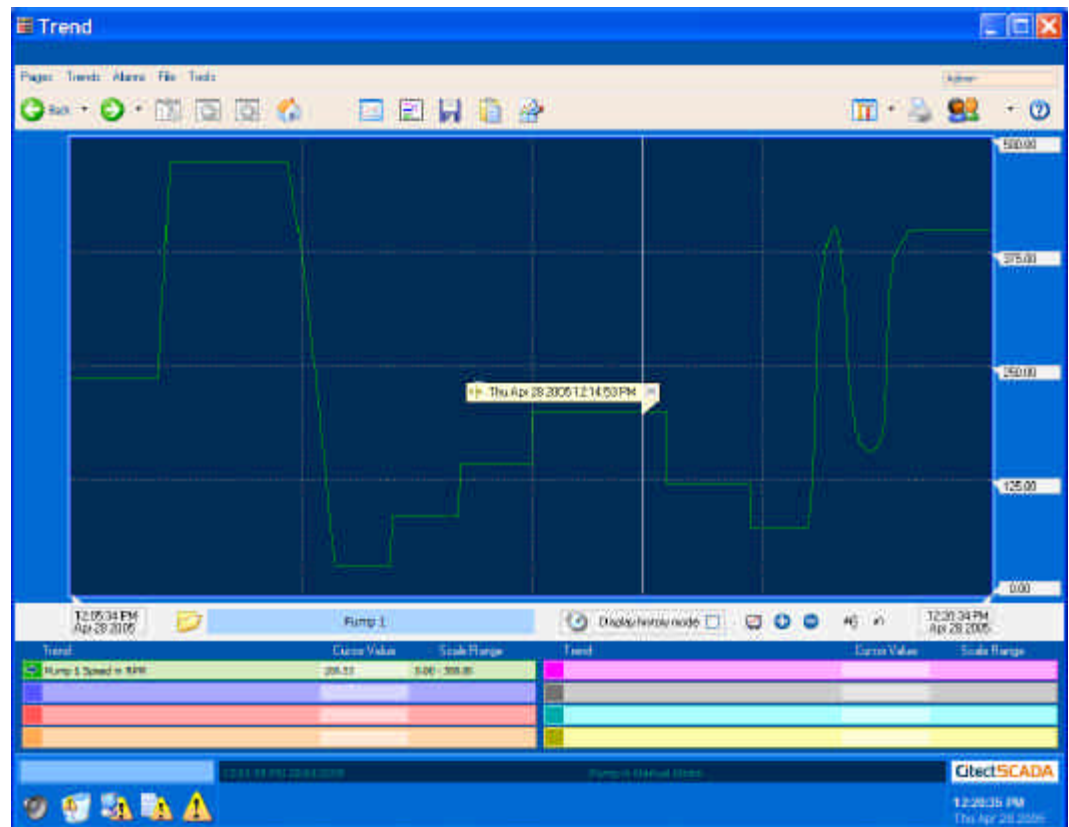


Trend Groups configuration can also be accessed from the **Admin Tools** option under the **Tools** menu.


Quickstart Tutorial

Runtime, Trends Continued...

Now select **Single Trend** from the **Trends** navigation menu. Use the **Trend Groups** button  to select a trend group for display. By manipulating the pump speed via the slider on MyPage, you should now see the trend value changing on the graph.



There are many powerful features available on this page, including:

- Trend cursor Click and slide along the graph to locate the cursor which displays tool-tips to describe each pen at that location
- History mode Allows you to quickly and easily access historical data
- Zoom in/out Allows you to quickly and easily zoom the trend graph by highlighting an area and pressing the zoom  button
- Scaling Allows you to change the minimum and maximum ranges for each pen
- Export Allows you to export raw time-stamped data to the clipboard or a file

Take some time to get used to these features as they are key components to assisting you in analyzing and interpreting your production information.


Quickstart Tutorial

The Process Analyst can have many display panes. Each pane supports both digital and analogue pens.

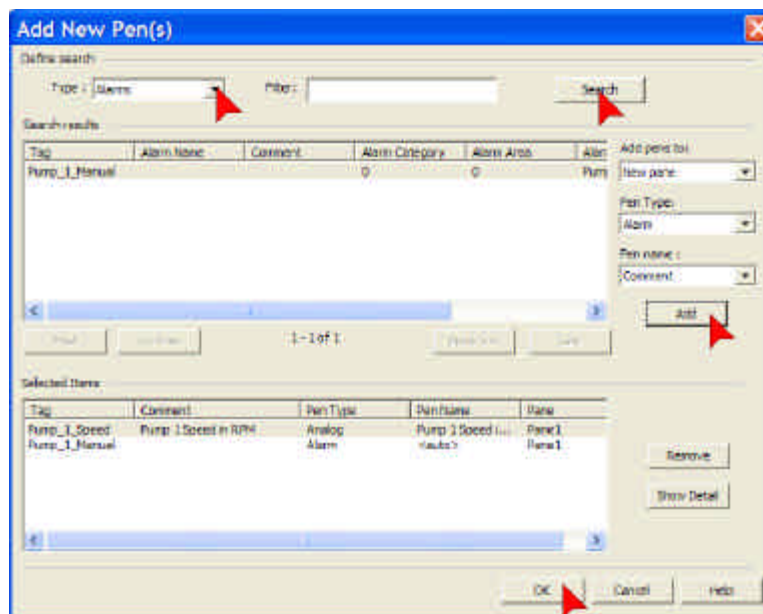
To create multiple panes, you will need to customize the toolbar so that the **Add Panes** button is available to you (see the Online Help). Alternatively, you can create a new pane each time you are selecting new pens for display.

Runtime, Process Analyst

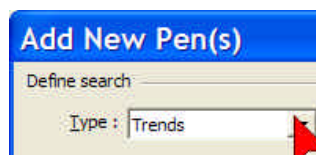
CitectSCADA has facility for viewing trends and alarms. The Process Analyst is an ActiveX object that can be embedded on your own page, or you can use the default page provided.

Click on the **Process Analyst**  button to display this page. Initially this is an empty container ready to be configured.

Click on the **Add Pens**  button.



Click on **Search** to find all configured trend pens. Select the **Pump_1_Speed** pen and click **Add**.



Now change the **Type** from Trends to **Alarms**. Repeat your search and select **Pump_1_Manual** from the alarm list. Click **Add** then, when you are finished, click **OK**.

A new display pane will be added to the page displaying both the Pump_1_Speed analogue pen as well as the Pump_1_Manual digital alarm pen. If the gridlines do not appear, click on the graph area and it will refresh the display.

Experiment with some of the control buttons (described on the next page), or click-and-drag on the graph itself to move through history.

Quickstart Tutorial

Runtime, Process Analyst Continued...



Display/remove pen cursor. Once displayed, click and drag the cursor to reposition it on the graph.



Display/remove pen cursor labels. Once displayed, click and drag them to reposition them on the graph.



Toggle the object pane at the bottom of the page which lists display pens. This creates more room for the graph pane.



Toggle Auto-Scroll.



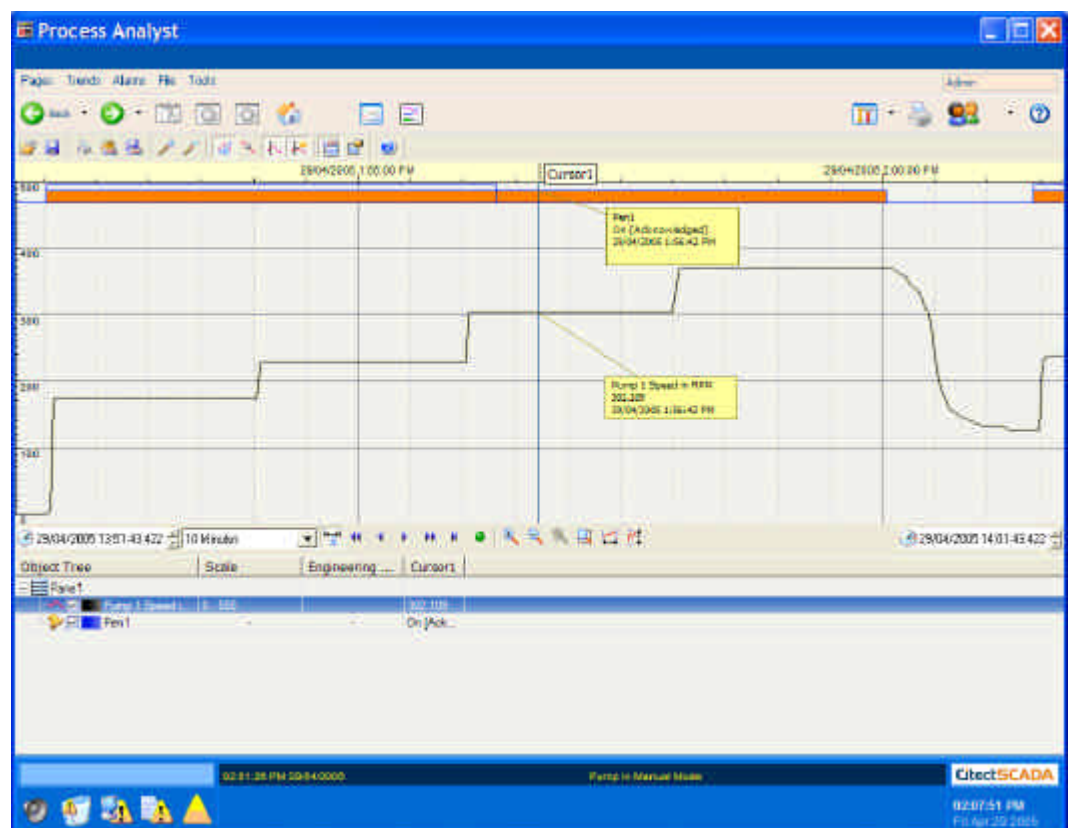
Zoom in 50%




Zoom out



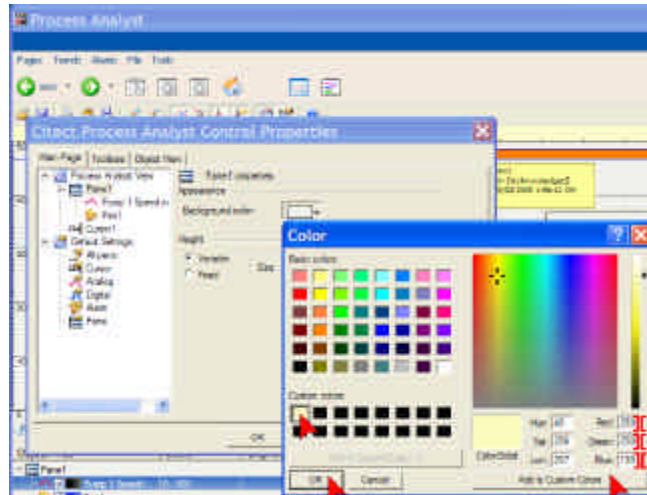
Zoom using a click-and-drag zoom box



We will now modify the appearance of the Process Analyst display. **Click** on the **Properties**  button.

Quickstart Tutorial

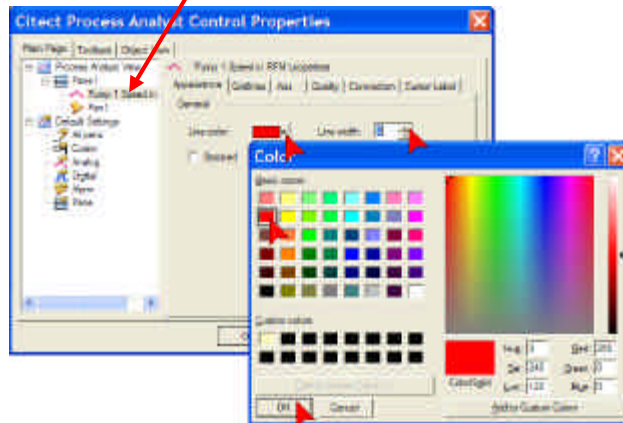
Runtime, Process Analyst Continued...



Expand the tree to **Pane 1** and modify the background colour. You can select from the colour palette, or create new palette items by entering the Red, Green and Blue values directly.

In this case, enter **250, 250, 190**, then **click Add to Custom Colours**. Select this new colour and **click OK** to record the change. **Click Apply** to see the effect on your Process Analyst view.

Now select **Pump 1 Speed in RPM** beneath Pane 1 in the properties tree.

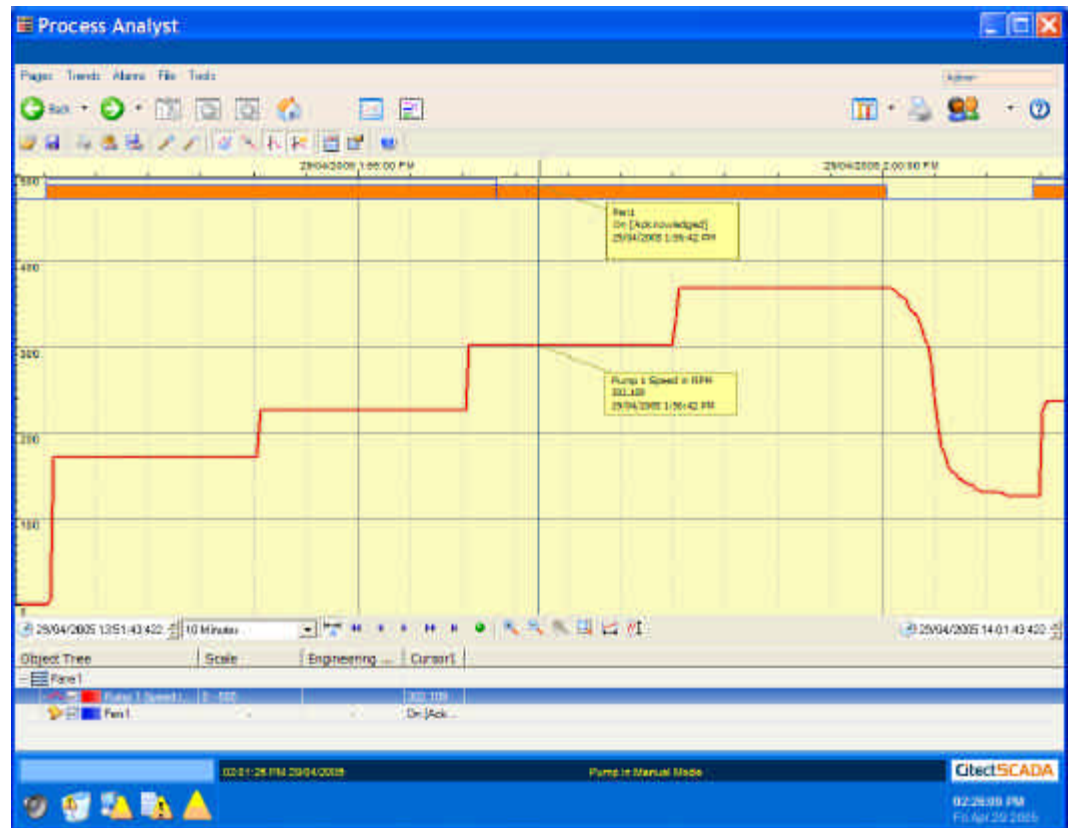



Change the line color to bright red and the width to 2. **Click OK** to see the effect on your Process Analyst view and close the properties window.

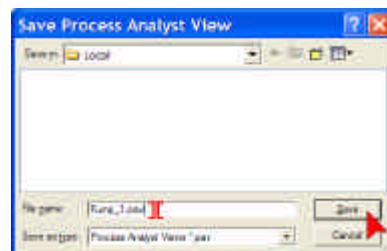
Finally, resize the Object pane to maximize the graph pane while still showing the list of pens.

Quickstart Tutorial

Runtime, Process Analyst Continued...



Your Process Analyst view is now complete, but before you leave the page, **click** on the **Save**  button. This will allow you to save the Process Analyst configuration you have just entered, and retrieve it again later on.



Fill in the file name and **click Save**. This will allow you to return to this view quickly at a later time using the **Load View**  button.

Quickstart Tutorial

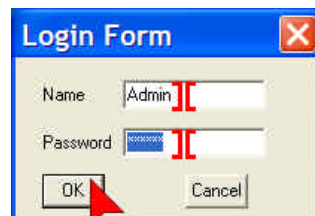
Understanding the CitectSCADA Kernel and other advanced debugging utilities are covered in the CitectSCADA training courses.

Administrative Tools

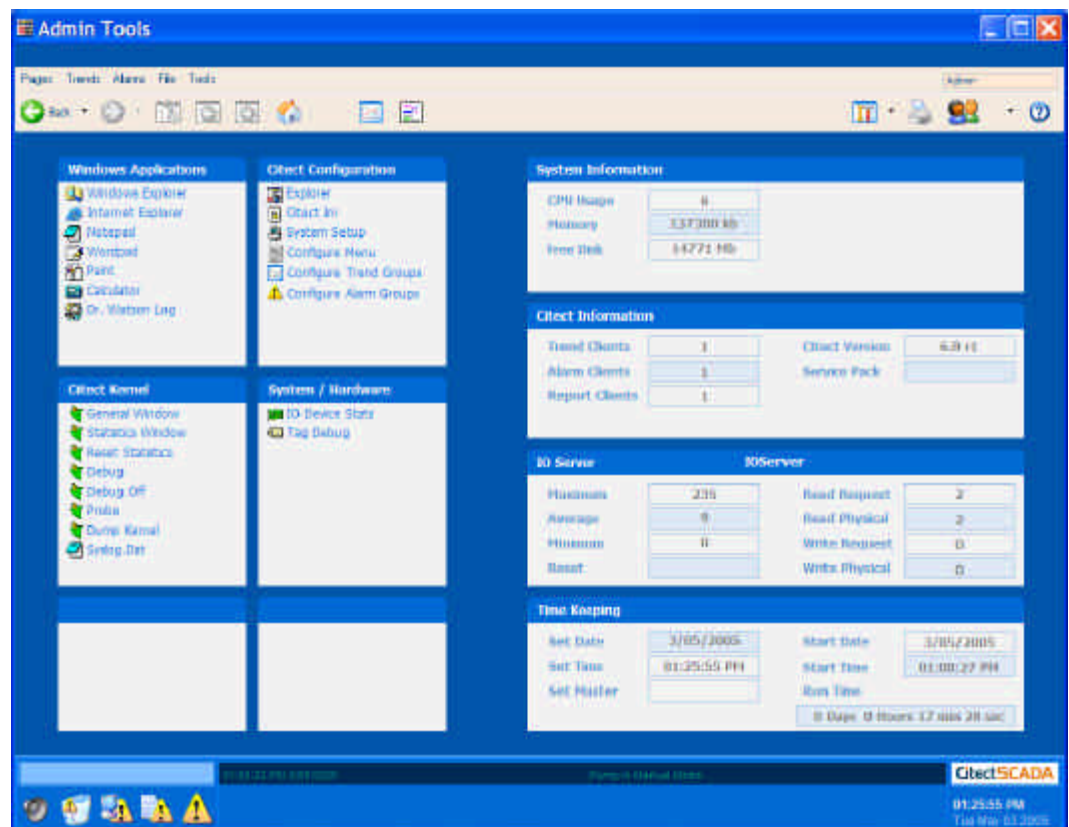
CitectSCADA comes with a number of commonly used administrative and debugging tools built into its default menu.

Select **Admin Tools** from under the **Tools** menu. If you are not logged in, the menu options will be greyed out and inaccessible.

If required, login as the Administrator as shown previously.



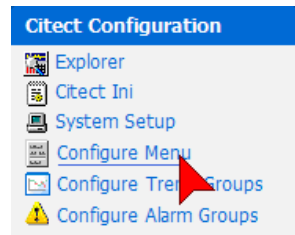
Once logged in with the appropriate privilege level, the Admin Tool menu will change colour to blue and become accessible. As well as access to common applications and file management tools, this page also allows access to System Setup (The Computer Setup Wizard), runtime and communications statistics, and online menu configuration.



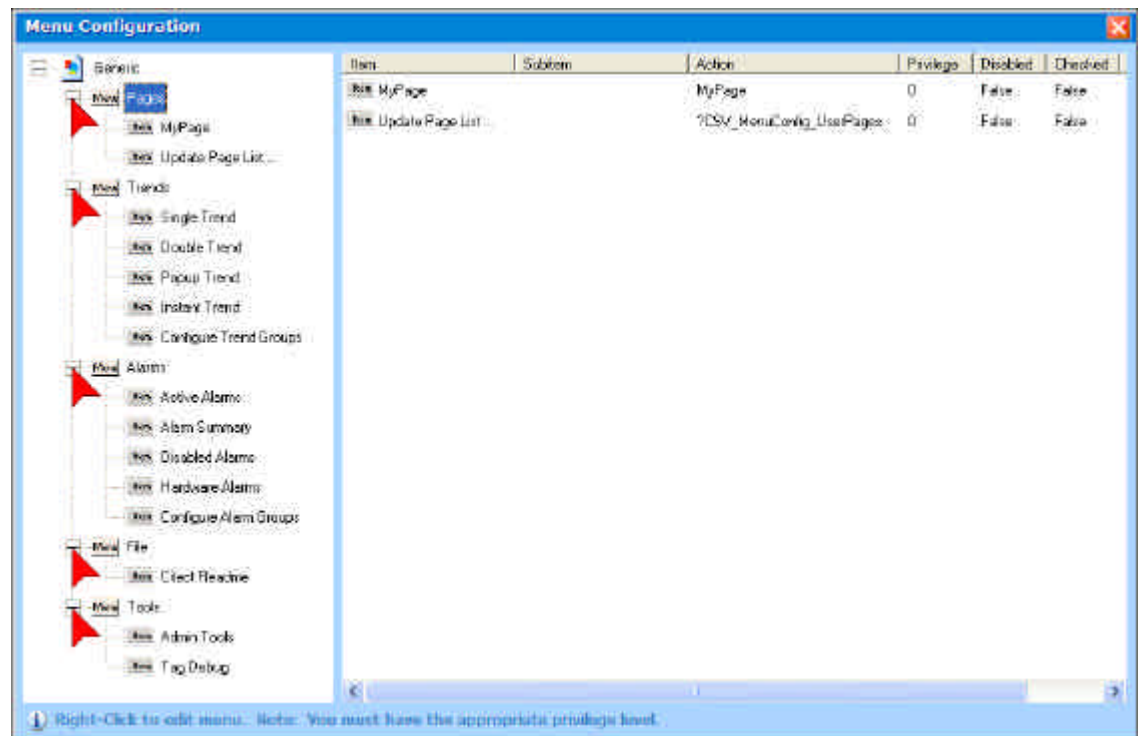
Quickstart Tutorial

Administrative Tools, Configuring the Menu

In the **Citect Configuration** box, select **Configure Menu**.

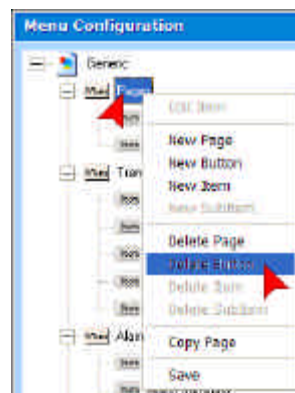


Expand the menu system by **clicking** on each + item. Each menu Button is a separate pull-down menu on the navigation bar. By right-clicking on each item, you can modify the items in its pull-down menu.



Right-click on **Pages** under the Generic node.

Select **Delete Button** from the available options. This will remove the entire Pages pull-down menu. We will now create our own Pages menu.



Quickstart Tutorial

The Menu Configurator allows the following types of items to be added to the menu:

New Page

Items under new Pages will only be available when the user is looking at a page of the same name. This allows menu items to be hidden unless on a particular page.

New Button

Adds another button to the navigation bar across the top, allowing additional pull-down menus to be created.

New Item

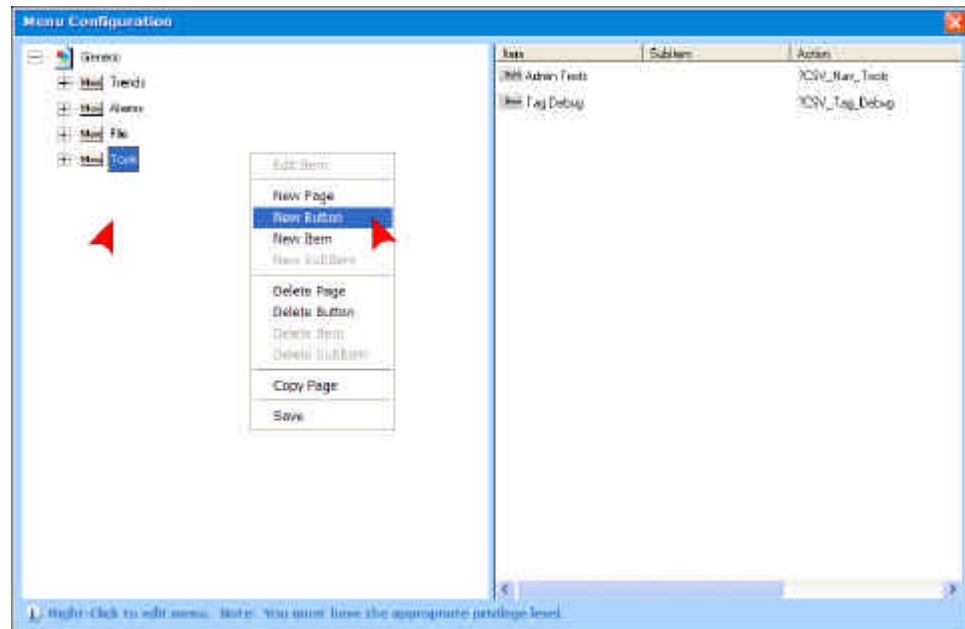
Adds an item into the pull-down menu under a Button.

New Sub-Item

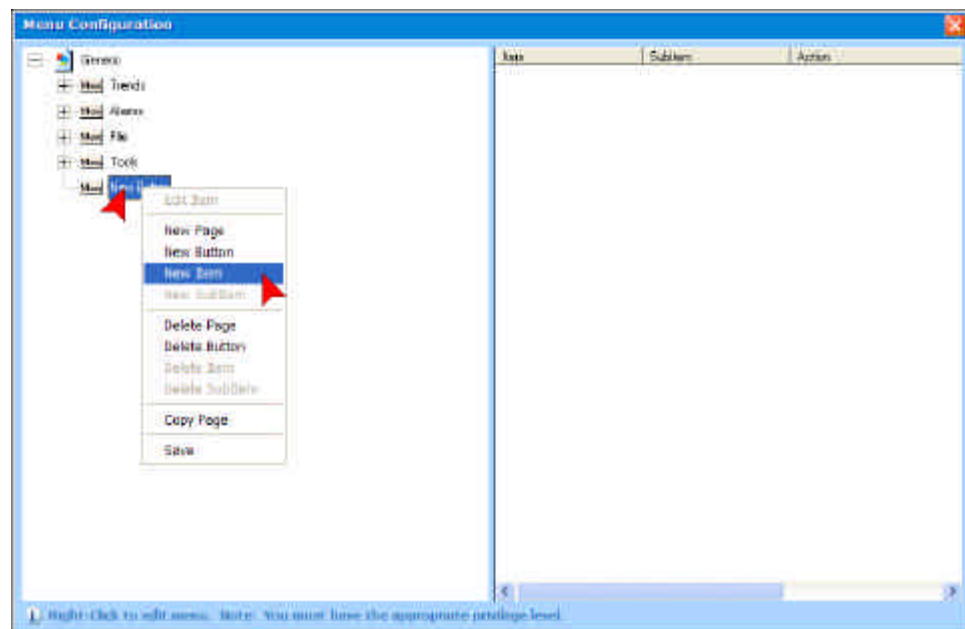
Extends pull-down menus to have child-menus.

Administrative Tools, Configuring the Menu Continued...

Right-click anywhere in the left-hand pane and select **New Button** from the available options.



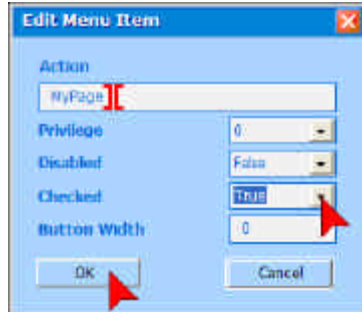
Right-click on this new Button and select **New Item** from the available options.



Quickstart Tutorial

Administrative Tools, Configuring the Menu Continued...

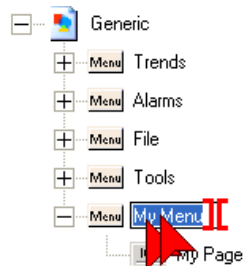
Right-click on this new Item and select **Edit Item** from the available options.
Type MyPage as the Action, and select **True** from the pull-down list for the **Checked** option.
Click OK.




Actions must refer either to the name of a page to display or a Cicode function.

If specifying a Cicode function, it must be prefixed by a question mark ("?").

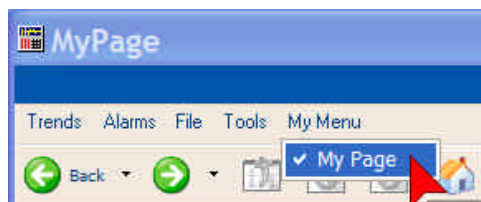
This pull-down item is now configured to display MyPage when it is selected from the navigation bar.



Double-click on the **New Item**, and change its name to **My Page**.
Double-click on the **New Button**, and change its name to **My Menu**.

Click on the  icon to close the Menu Configuration dialog. When prompted, make sure you save the changes you have made.

These changes will take effect when you next change pages. Select a new page from the navigation bar, and verify that your new menu appears with the new page as shown below.

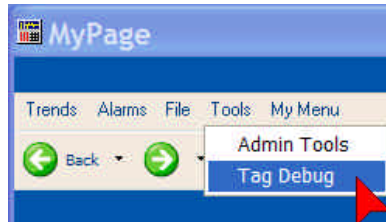


Quickstart Tutorial

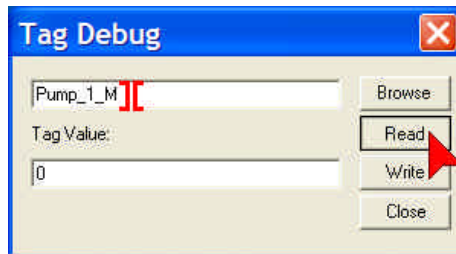
Administrative Tools, Tag Debug

Finally we will look at an extremely useful testing and commissioning tool – the Tag Debugger.

Select **Tag Debug** from the **Tools** menu.



In the dialog provided, **type** in **Pump_1_M** (alternatively use the Browse feature to navigate and select the same tag), and then **click Read**.



If the pump is currently in Manual, the Tag Value should return a “1”. If it is Automatic it should return a “0”. Verify that the correct value was returned by checking the state of the lights on My Page.

Change the value to the opposite state by **typing** a **1** or **0** into the Tag Value to replace the value that was read. **Click Write**.

Verify that the new value was written to the tag both by clicking Read again, and by checking the state of the lights on MyPage.


WARNING

Tag Debug is a powerful utility that can access any tag in the CitectSCADA system and both verify its state/value as well as change it. As such, it should be used with caution, especially when changing values for tags which control equipment!

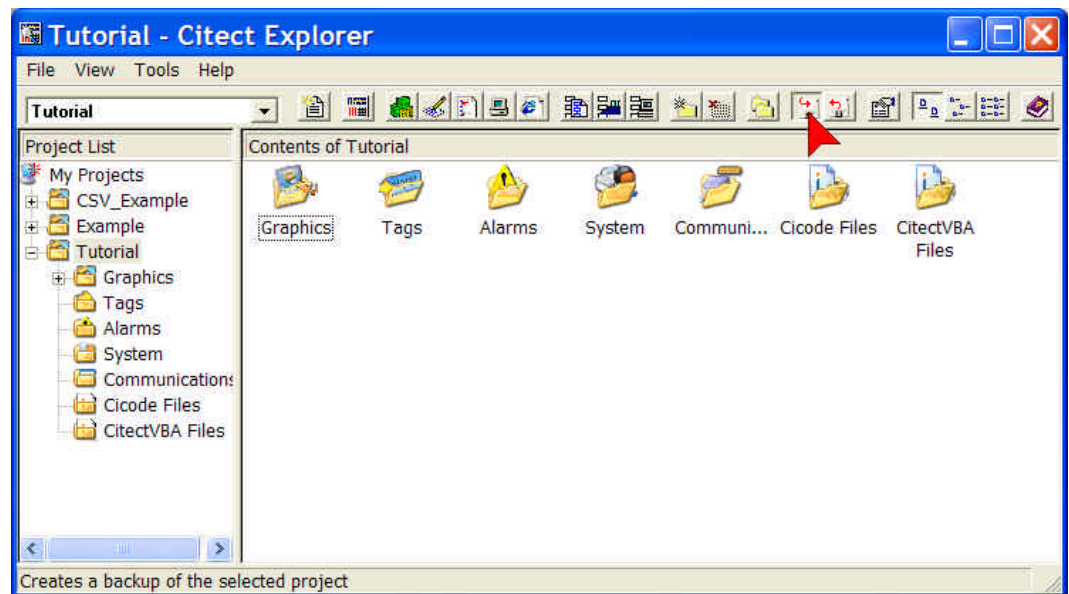
Quickstart Tutorial

Backing Up Your Project

It is important to keep backup copies of your project, so that you can always recover from a disaster with minimum effort.

Make sure you are in the **Citect Explorer** and have the **Tutorial** project selected. (click on the  icon or use Alt+Tab).

Click on the **Backup** icon.



Use the **Browse** button to locate a directory where you want to save your files to. Alternately you can type the directory and filename into the **Backup File** edit box. If the directory does not exist CitectSCADA will automatically create it for you when it saves the file.

Click OK and when the Backup Complete message pops up, click OK on that also.

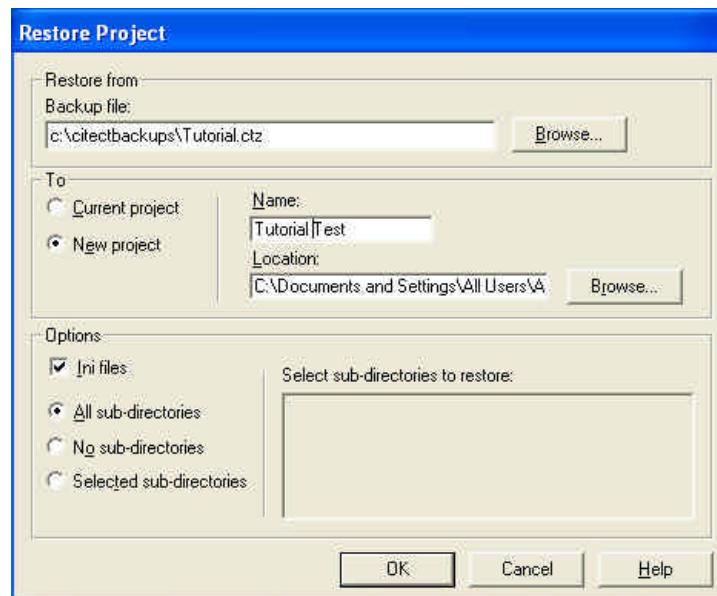


Quickstart Tutorial

Restoring Your Project

With any software, it is good practice to check and make sure you can restore from your backup copies. It is very rare to experience problems restoring from a CitectSCADA backup but the time taken to check is a tiny fraction compared to the time it would take to recreate the project from scratch.

Click on the **Restore** icon (it is next to the backup icon) or on the menu bar **click Tools** then **Restore**.



Click on the **Browse** button to locate your backup file.

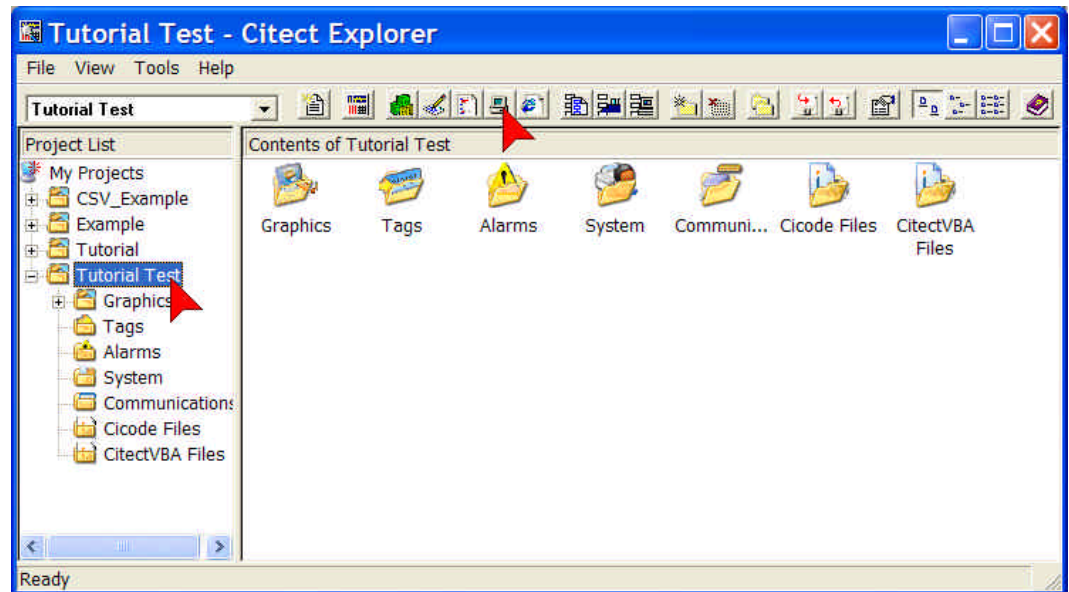
We will restore to a New project, test it, then delete it, as this is a much better test than restoring over the existing project and less chance of anything going wrong (eg; what if the power fails half way through restoring over the top of your existing project or your backup has a fault in it?).


Make sure **New Project** is checked. In the **Name** edit box type a name for the new project eg; **Tutorial Test** then **click OK**.

When the restore is completed (click OK on the Restore Complete Dialog), **click** on the **Tutorial Test** project to switch to that project, then change to the **Citect Project Editor** to **compile** the project before clicking on the **Computer Setup Wizard** and repeating the Setup steps identified earlier in this tutorial to configure the computer to run the Tutorial Test project in stand-alone mode.

Quickstart Tutorial

Restoring Your Project Continued...



Click on the **Citect Runtime** icon  to make run your project and prove your backup and restore operation was successful.

To delete the **Test_tutorial** project, click **File** on the Citect Explorer menu, then click **Delete Project**.

Congratulations! By now you should have a basic working knowledge of CitectHMI/SCADA software. If you are keen to build your level of competency we recommend that you attend a Citect Training Course. Details of training courses can be found at www.citect.com or by contacting your local Citect office or distributor.

Quickstart Tutorial

Troubleshooting.

If you experience results that are different to what you see in the tutorial...

1. Go back and double check what you have done. Most likely you have done something different from the instructions.
2. The tutorial largely assumes CitectHMI/SCADA is freshly installed and default settings haven't been changed. By taking a closer look at the screens in the tutorial you may be able to identify any differences.
3. If problem is in Runtime, shutdown runtime and restart it.
4. Read the Online Help. Most dialog boxes have a help button that provides context sensitive help with just a mouse click.
5. Read the CitectHMI/SCADA knowledgebase. This is available on the CitectHMI/SCADA software CD or from our website www.citect.com.
6. Worst case, start again, just create a new project and call it Tutorial2. The upside to this is the extra practice will make you more proficient.

If nothing appears to happen when you press a button, do not press it repeatedly in the hope that something will happen – chances are your PC is busy trying to do what you've already asked it to do.