

Using OPC90 with Citect SCADA

It is relatively easy to configure Citect to exchange data with OPC90 Server. This document provides a general overview on how to setup Citect SCADA to communicate with OPC90.

For the purpose of this exercise, it is presumed that the reader will have at least basic skills, in the configuration and use of Windows, OPC90 and Citect SCADA.

First correctly install both the OPC90 and Citect SCADA applications. The Citect OPC driver is included in the normal Citect installation. The example described in this appendix is based on OPC90 and Citect being installed on the same computer. If they are installed on separate PCs, make sure DCOM is correctly configured.

Citect SCADA is divided into two separate parts, **Configuration** and **Runtime**. The Citect **Configuration** environment consists of a set of tools that are used to build the runtime system. **Citect Explorer**, **Project Editor** and the **Graphics Builder** are the tools that will be used in this exercise. Please consult the Citect help for details on using these tools.

The following steps will be required to set up the new Citect Project,

- 1.) Create a new Citect project
- 2.) Configure the Citect Communication Settings
- 3.) Add Variable Tags
- 4.) Create a Graphic's Page
- 5.) Compile the Project
- 6.) Modify the Citect.ini file
- 7.) Run Computer Setup
- 8.) Create a simple OPC90 Server Configuration
- 9.) Run the Citect Project

Step 1 – Create a New “OPC_Test” Citect Project

Use standard windows procedures to open Citect Explorer from the desktop start menu. When you start Citect Explorer, the Project Editor and Graphics Builder will also be automatically started.

From Citect Explorer, select “New Project” from the “File” dropdown menu and enter the “OPC_Test” project details as shown in Figure 1 below.

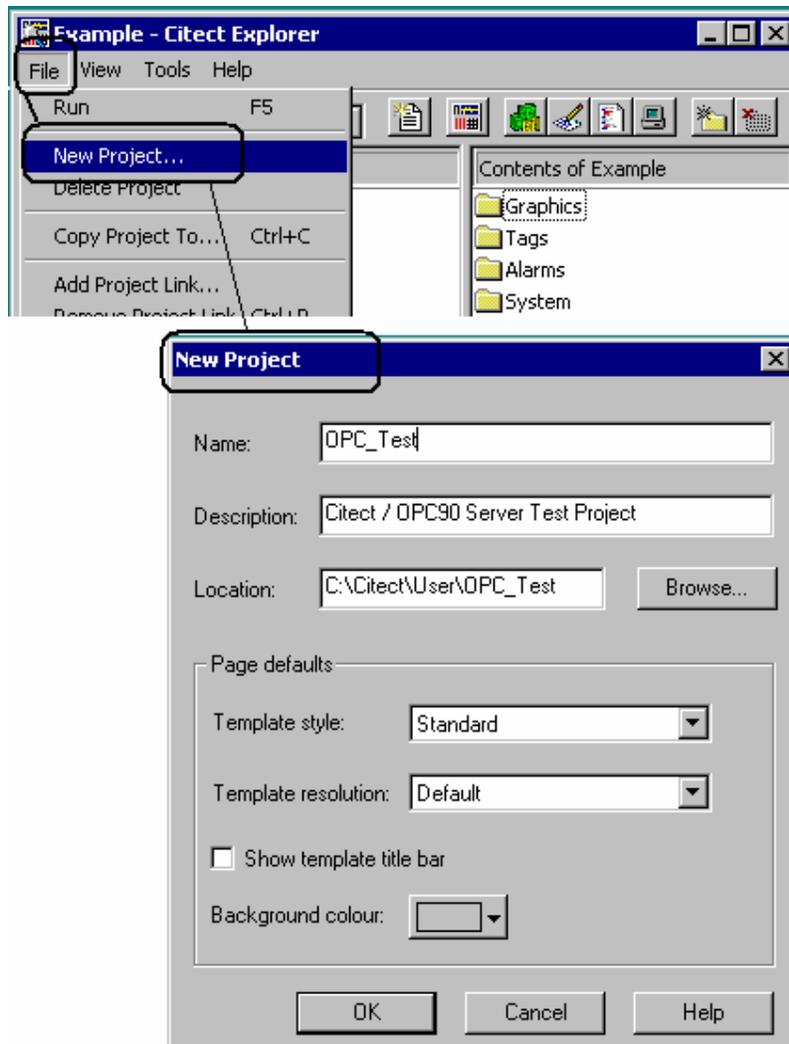


Figure 1 - Create a New Project

Click on the OK button to create the project tree as shown in Figure 2 below.

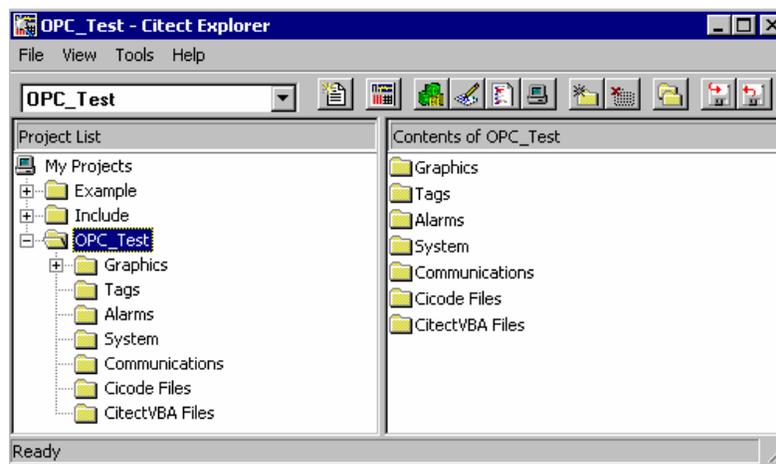


Figure 2 - New Project "OPC_Test"

Step 2 – Configure the Citect Communication Settings

Open the Project Editor and from the “Communication” menu, individually select the I/O Server, Boards, Ports & I/O Devices Dialog Forms. Fill in each individual form with the details as shown in Figure 3 below.

Note the “period” in the “RoviSys.OPC90Server” address field of the I/O Devices Form.

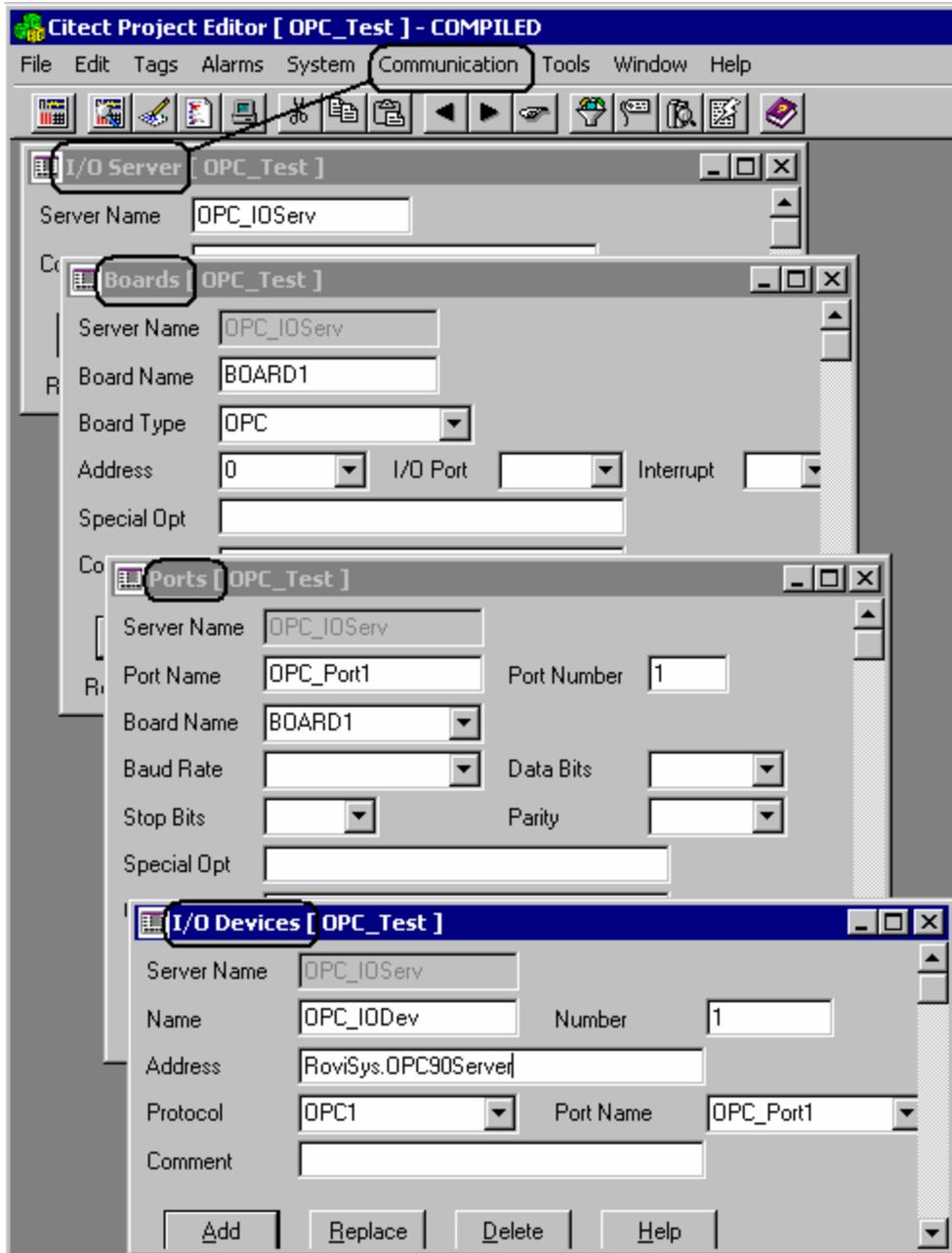


Figure 3 – Citect Communication Settings

Step 3 – Configure the Variable Tags

Open the Project Editor and click on the “Tags” option. Selecting “Variable Tags” from the dropdown menu opens the Variable Tag dialog Form. Add the digital and real variable tags as shown in the next table and Figure 4 below. After completing the form details, click on the “Add” button to enter each record into the variable tag database.

Tag Name	I/O Device	Data Type	Address	Raw Zero	Raw Full	Eng Zero	Eng Full
DIGITAL_Tag	OPC_IODev	DIGITAL	CIU_A.Dig_Tag.OUT	n/a	n/a	n/a	n/a
REAL_Tag	OPC_IODev	REAL	CIU_A.Real_Tag.OUT	0	100	0	100

Notes:

- The “period” used in the address field name e.g. CIU_A.Dig_Tag.OUT
- The Real Tag Eng Units and format field entries are not really required for this exercise, they shown for information purposes only.

If any tags are deleted be sure and run the “Pack” option from the “File” dropdown menu.

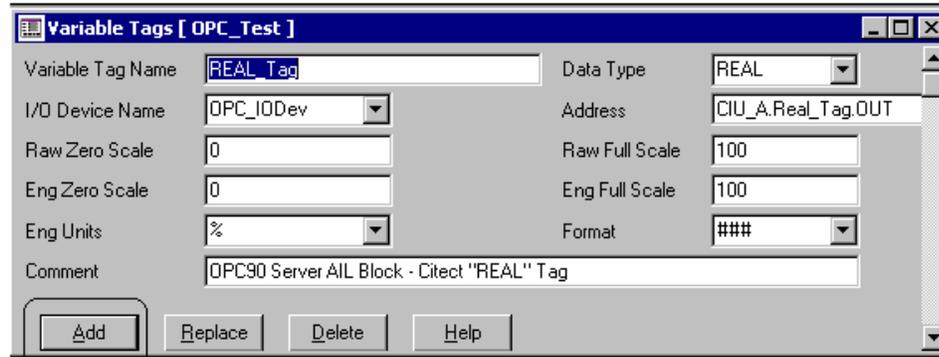
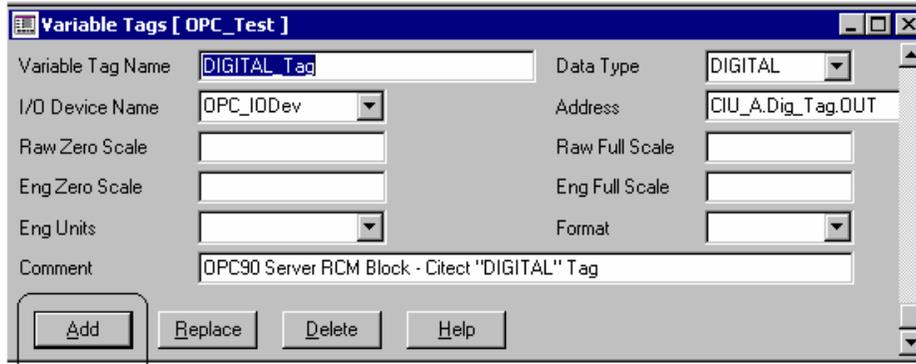


Figure 4 - Create Variable Tags

Step 4 – Create a Graphics Page

To create a simple graphics page, first open the Graphics Builder tool. Select the "New", from the "File" dropdown menu, then from the resulting dialog, click on the "Page" icon. Select Normal Template & Standard Style on the "New"_"Template" Form, as shown in Figure 5 below. Click OK to create the new page.

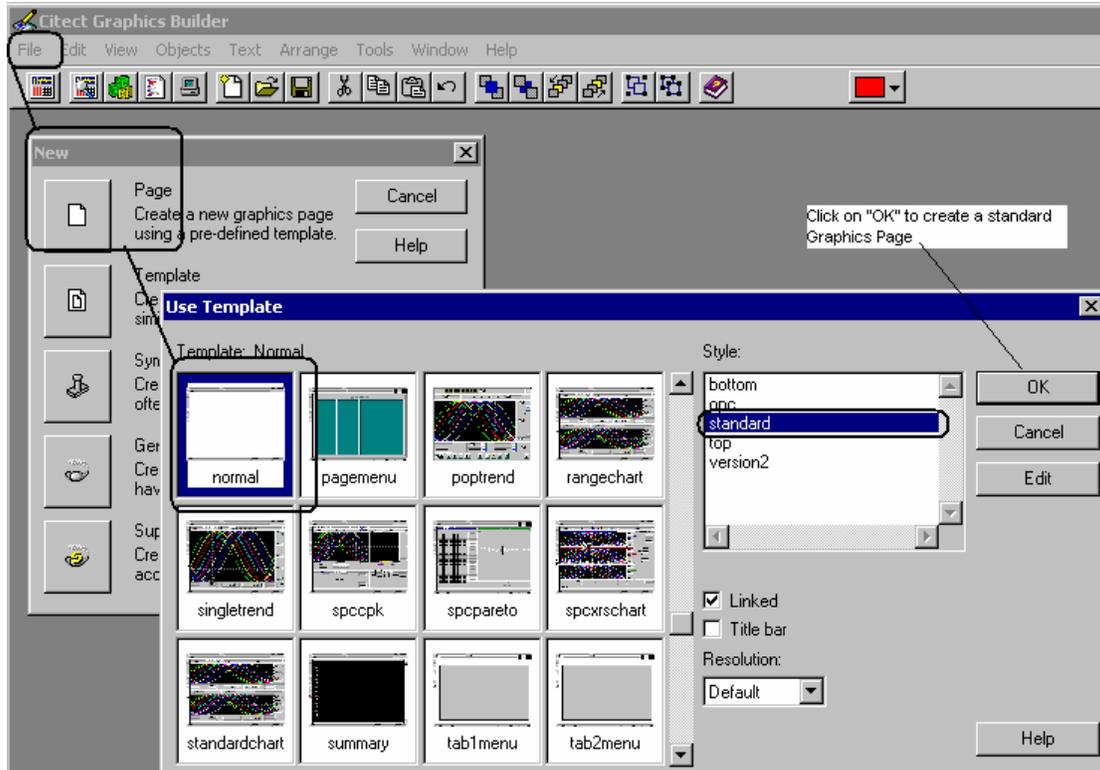


Figure 5 - Create a New Graphics Page

Select the “Save as” form from the “File” dropdown menu and enter the details as shown in Figure 6. Enter the new page name as “OPC_TestGraphic”, and ensure the “opc_test” project is selected. Click on the OK button to save the new page.

NOTE: - It is good practice to regularly “Save” the graphic during the development stage.



Figure 6 - Save the New Graphic

The next step is to add a digital symbol to the newly created graphic. From the “Objects” dropdown menu, select “Symbol Set”, and then click on the page to locate the symbol. A symbol set properties dialog form will now appear. The default symbol is the light, but can easily be changed if required. Enter the tag (Digital_Tag) into the properties box as shown in Figure 7. Click on “Apply” to save the change.

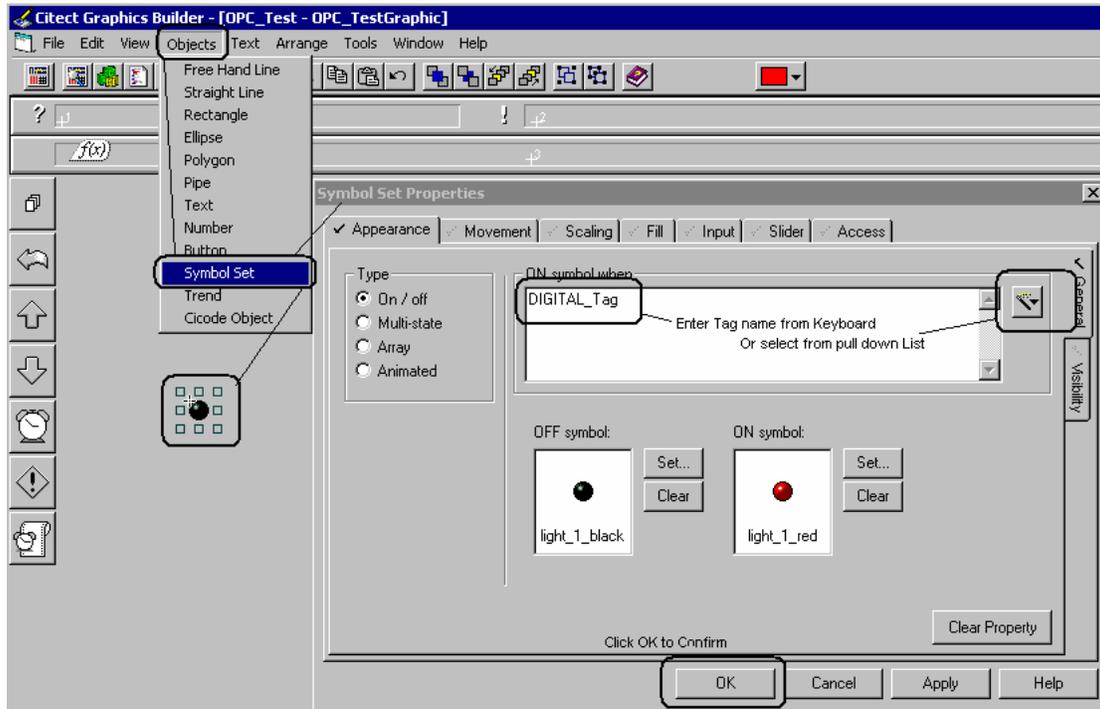


Figure 7 - Adding a Digital Symbol

Click on the Input & Touch tabs of the Symbol Set Properties Form. Set the “Up” box and enter the up command details “Digital_Tag = NOT Digital_Tag” as shown in Figure 8. This setting will enable the digital variable to be toggled from Citect in runtime.

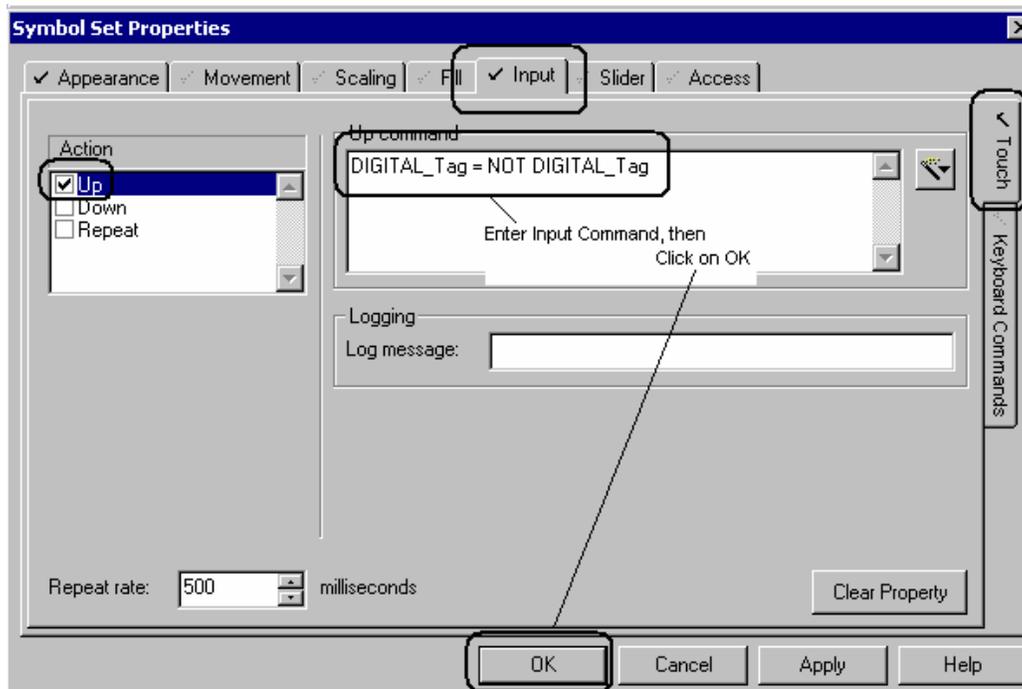


Figure 8 - Configure the Digital Symbol to Toggle on Mouse Click

The next step is to add a real number to the newly created graphic. From the "Objects" dropdown menu, select "Number", and then click on the page to locate the number. A text properties form will now appear.

Enter the tag (Real_Tag) into the properties box as shown in Figure 9. The font size and color options are available under the "General" Tab. Click on the OK button to confirm the details once entered.

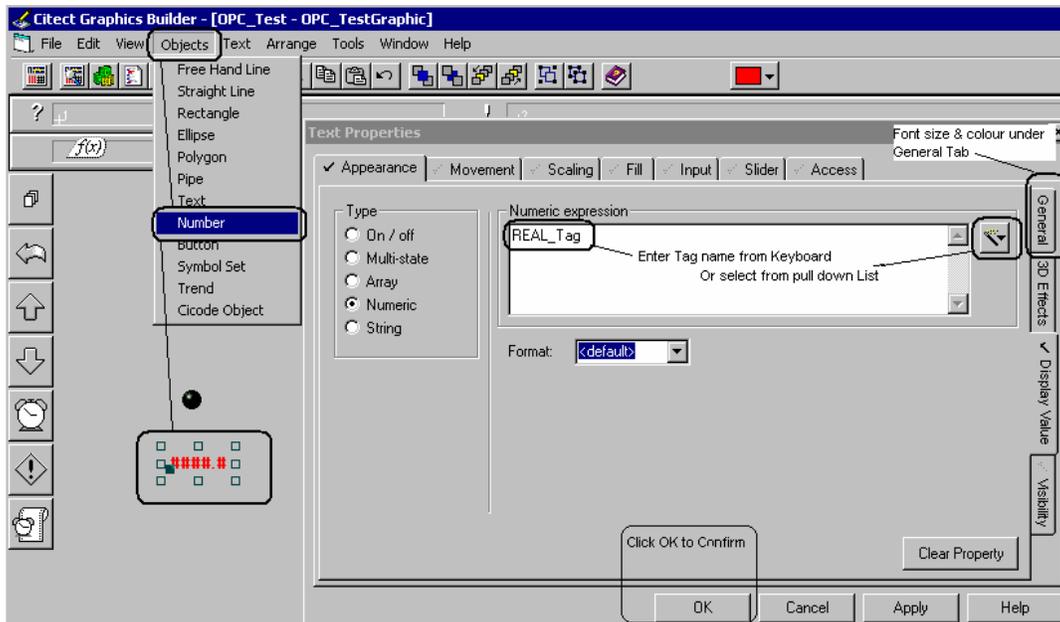


Figure 9 - Adding a Number

Figure 10 shows the newly configured graphics page. Windows click and drag can be used to move the symbols around the graphic. Remember to save the page regularly and close when completed.

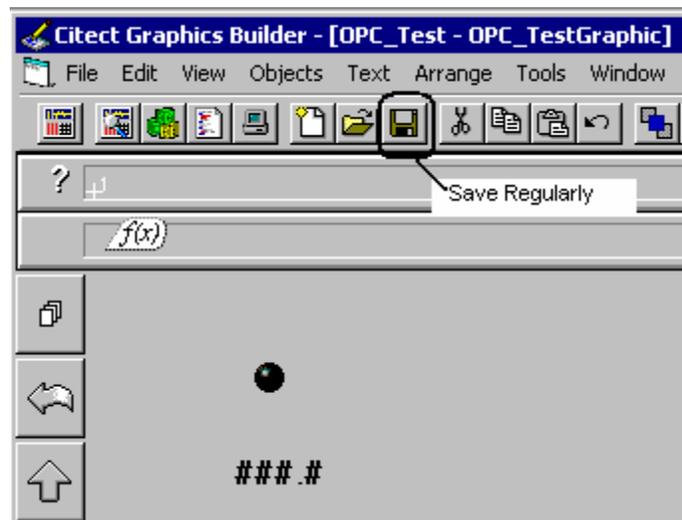


Figure 10 - Configured Page

Step 5 – Compile the Project

A very basic project called “OPC_Test” has now been created. Before the project can be run, the compilation process must be completed to check the project for errors.

Open the Project Editor and select “Compile” from the “File” dropdown menu or use the compile icon on the toolbar as shown in Figure 11. A popup dialog will

appear when the compilation is successful. Refer to Citect help if any errors are encountered.

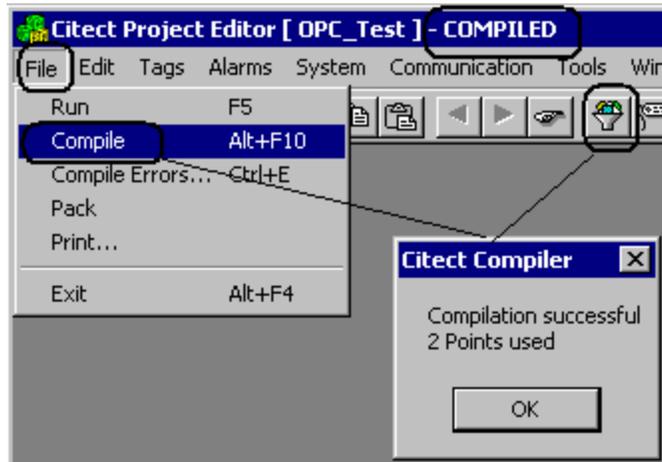


Figure 11 - Compile the Project

Step 6 – Modify the Citect.INI file

The Citect.ini file resides in the Windows root directory (typically WINNT or WINDOWS). The file contains the settings required for Citect when it starts up at runtime. A copy of this file should be saved before making any changes to it.

Several OPC parameters will be required to optimize a large project. For the purpose of this exercise adding the one parameter “WriteTrueAs1=1” shown in Figure 12 is the only one that should be required. Save the file once the changes have been completed.

Note that additional Citect OPC Client Driver specification documentation is available on the Citect web site at www.citect.com.

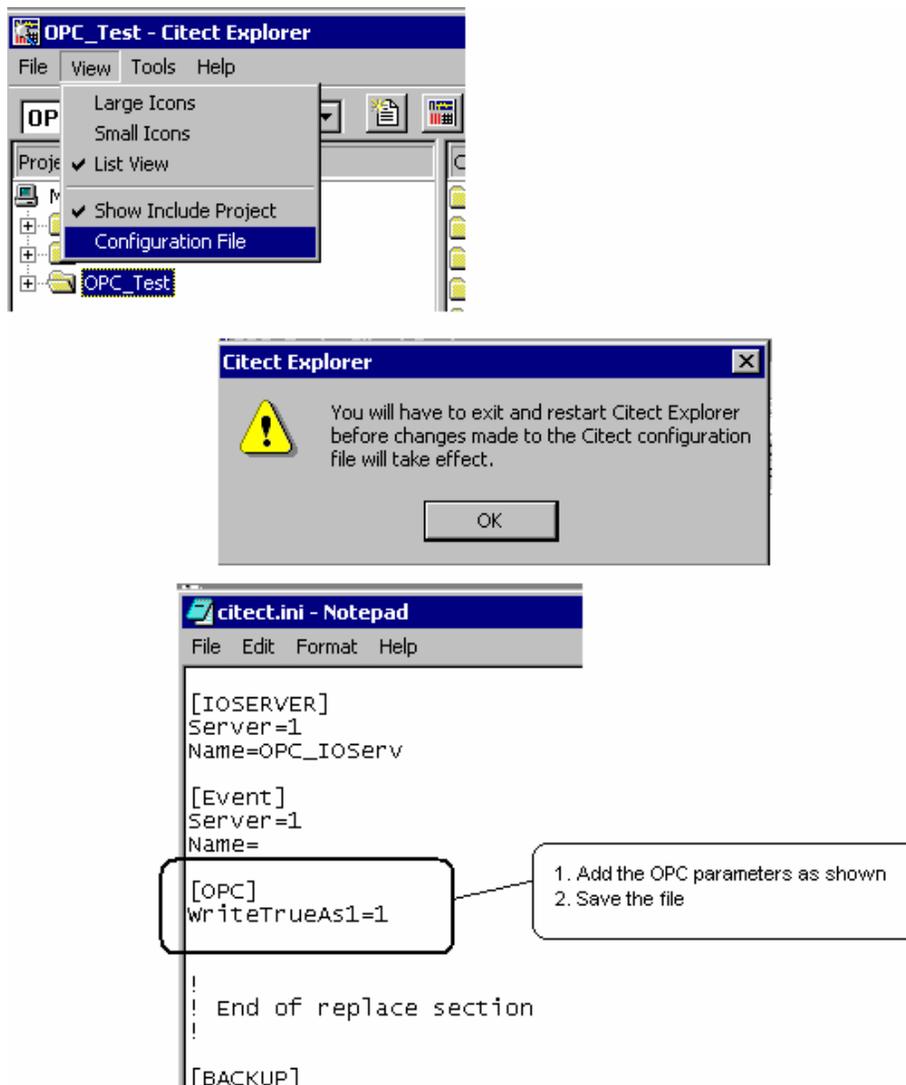


Figure 12 - Modify the Citect.INI file

Step 7 – Run the Computer Setup

The Computer Setup Wizard enables you to quickly setup the PC for use with Citect. Running the wizard is the last thing to do before starting the Citect SCADA system.

Open Citect Explorer and Select “Computer Setup” from the “Tools” dropdown menu. Follow the steps as shown in Figure 13. The “Express Setup” option is normally all that is required, but if the computer has been previously configured for another Citect project, use the “Custom Setup” option to ensure default settings are configured.

After running the computer setup, the project should be recompiled. See Step 5 and Figure 11 for details.

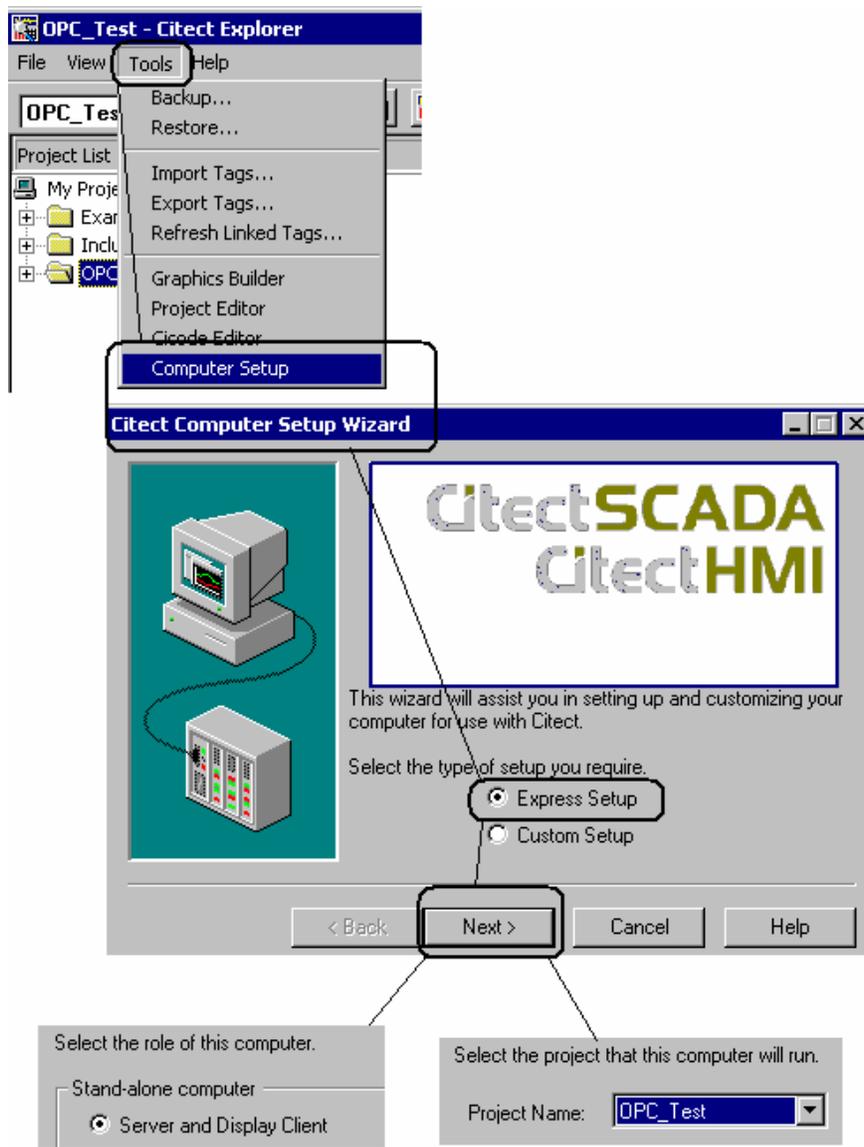


Figure 13 -- Computer Setup Overview

Step 8 – Create an OPC90 Server Configuration

Create a new OPC90 Configuration (CitectOPC90_Test) with two blocks as shown in Figure 14 below,

- “Dig_Tag” is an RCM Block
- “Real_Tag” is an AIL Block

Refer to the OPC90 Server manual for details on how to run the configuration in simulation mode if not attached to an actual Bailey system. Also activate the OPC90 monitor function and set the Real_Tag.OUT attribute simulation properties to ramp.

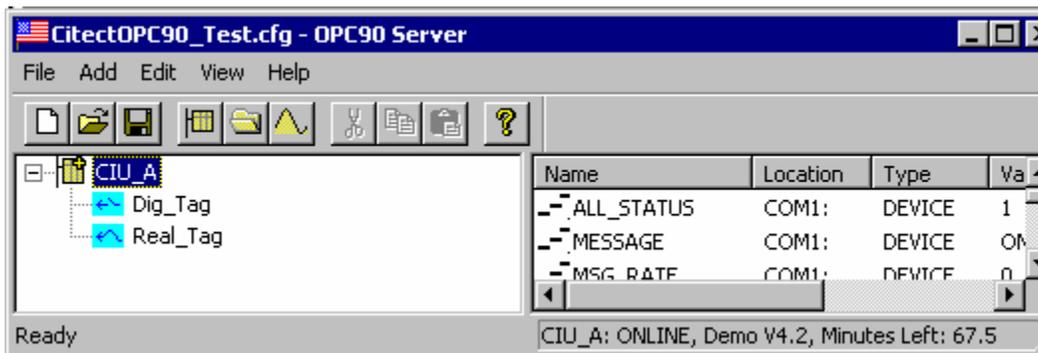


Figure 14 - Create a New OPC90 Server Configuration

Step 9 – Run the “OPC_Test” Project

With OPC90 now configured and running, the Citect runtime can now be run. Figure 15 shows how to select “Run” from the Citect Explorer “File” dropdown menu.

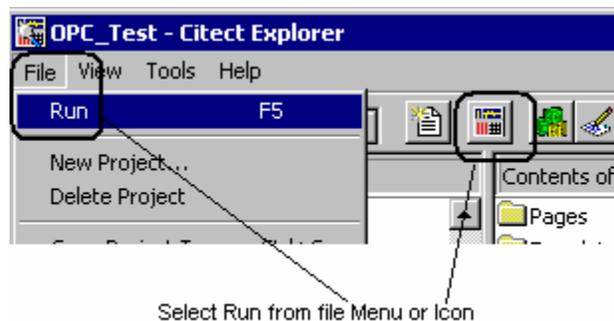


Figure 15 - Run Citect

Citect will run in demo mode for approximately 20 minutes if no license key is available. The default Citect menu page will open as shown below in Figure 16. Click on the “OPC_TestGraphic” button to open the Graphics Page.

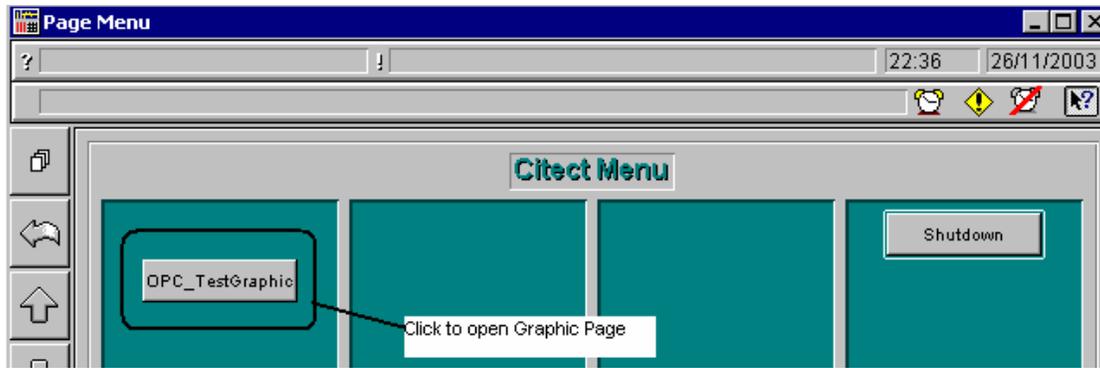


Figure 16 - Default Citect Start-up Menu Page

The “OPC_TestGraphic” will now open showing the light symbol and the number as configured in Step 4. See Figure 17 below for details.

The number should be ramping between 0 and 100 (when using OPC90 simulation). By placing the mouse pointer over the light symbol, a white highlight box will be activated. Left clicking on this box will toggle the status of the symbol and associated tag.

This change of state of the “Dig_Tag.OUT” attribute can be monitored and written to OPC90.

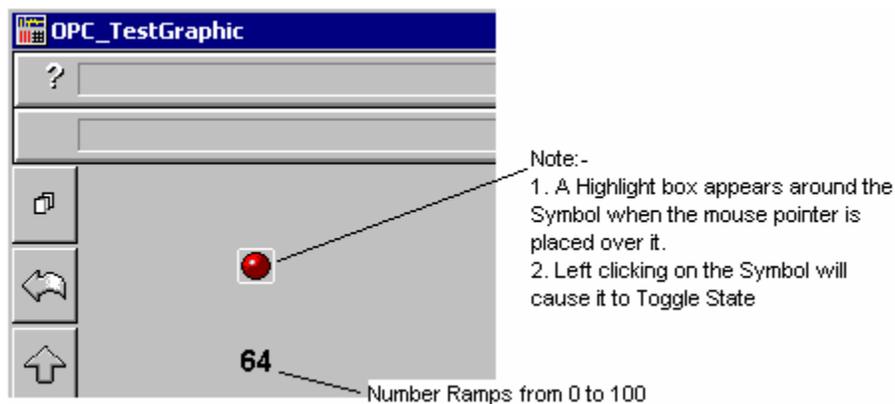


Figure 17 - Portion of Runtime Graphics Page