

# Vijeo Citect 6.1: My First Project

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|-------------|---|
| <b>Goal</b> | The goal of this document is to help the Vijeo Citect 6.1 new user to design his first project. |
|-------------|---|

|                                     |  |
|-------------------------------------|--|
| <b>Features of Vijeo Citect 6.1</b> | <p>Vijeo Citect 6.1 proposes a native tool to establish a direct and native link between Vijeo Citect 6.1 and Unity Pro.</p> <p>This tool, the Unity Fastlinx Dynamic, creates tags directly from a Unity Pro stu file.</p> <p>The communication link between Vijeo Citect 6.1 and the Unity PLC is handled through OFS.</p> <p>Of course, advanced users can still define other communication architectures according to their needs.</p> |
|-------------------------------------|--|

|   |  |
|---|--|
| <b>Steps described in this tutorial</b> | <p>These steps are described in this tutorial:</p> <ul style="list-style-type: none"><li>- Vijeo Citect 6.1 installation;</li><li>- Creation of a new project, and PC configuration in order to run it;</li><li>- Creation of an I/O device, and variables definition from the variables file;</li><li>- Alarms definition;</li><li>- Trends definition;</li><li>- Page definition;</li><li>- User definition;</li><li>- Introduction to Genies;</li><li>- Introduction to Device.</li></ul> |
|---|--|

|                   |  |
|-------------------|--|
| <b>Tools used</b> | <p>To following tools are used:</p> <ul style="list-style-type: none"><li>- Vijeo Citect 6.1;</li><li>- Unity Pro 2.2.</li></ul> |
|-------------------|--|

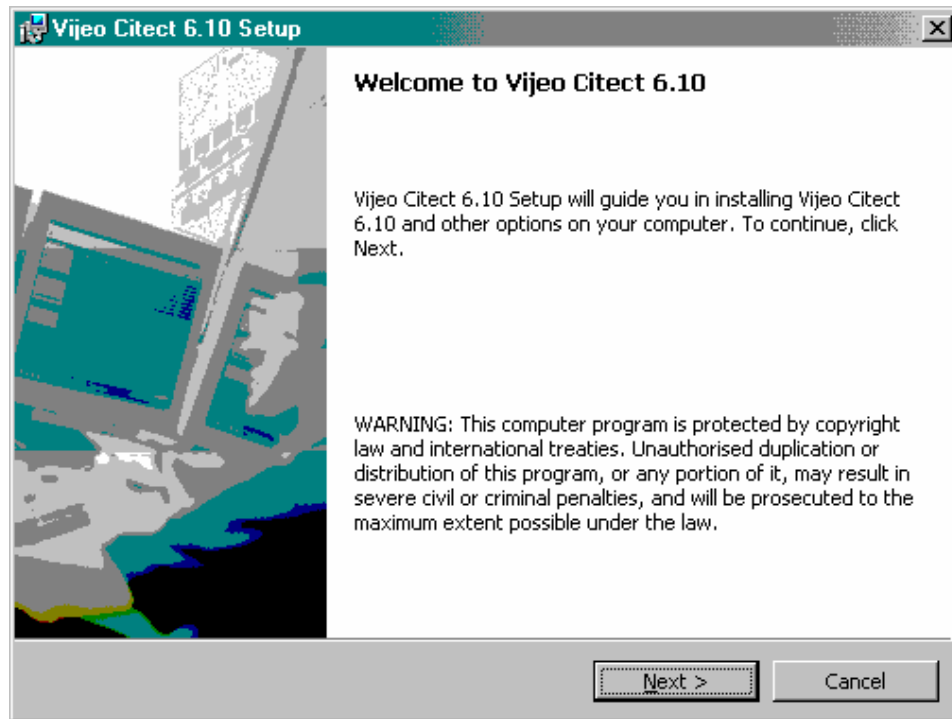
To be continued

# Vijeo Citect 6.1: My First Project, continued

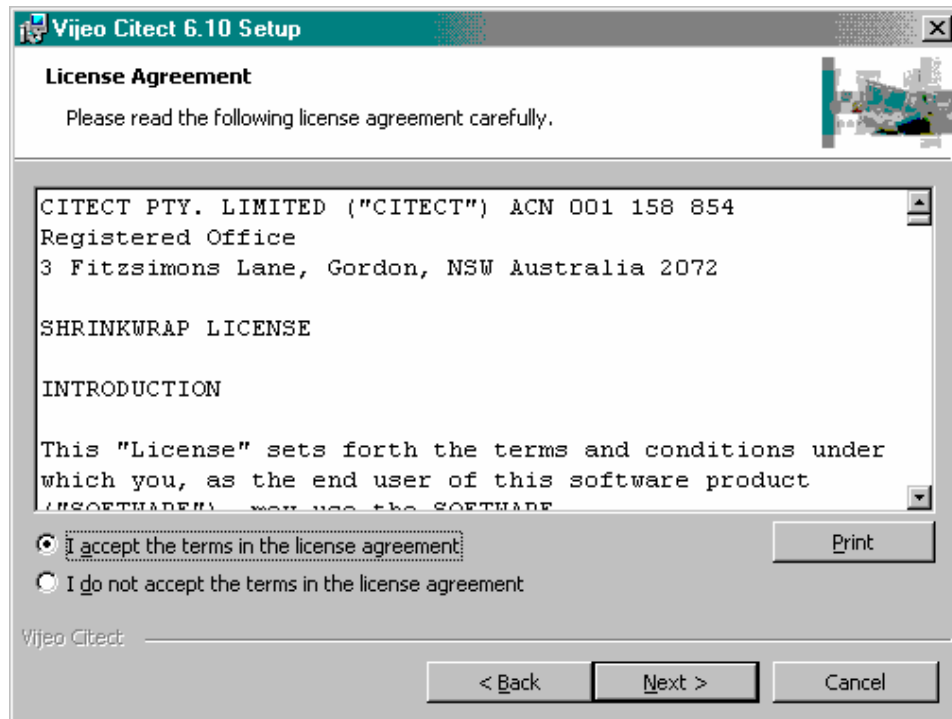
## Step 1

### Installation, license agreement

Run the Setup.exe file:



Accept the license agreement:



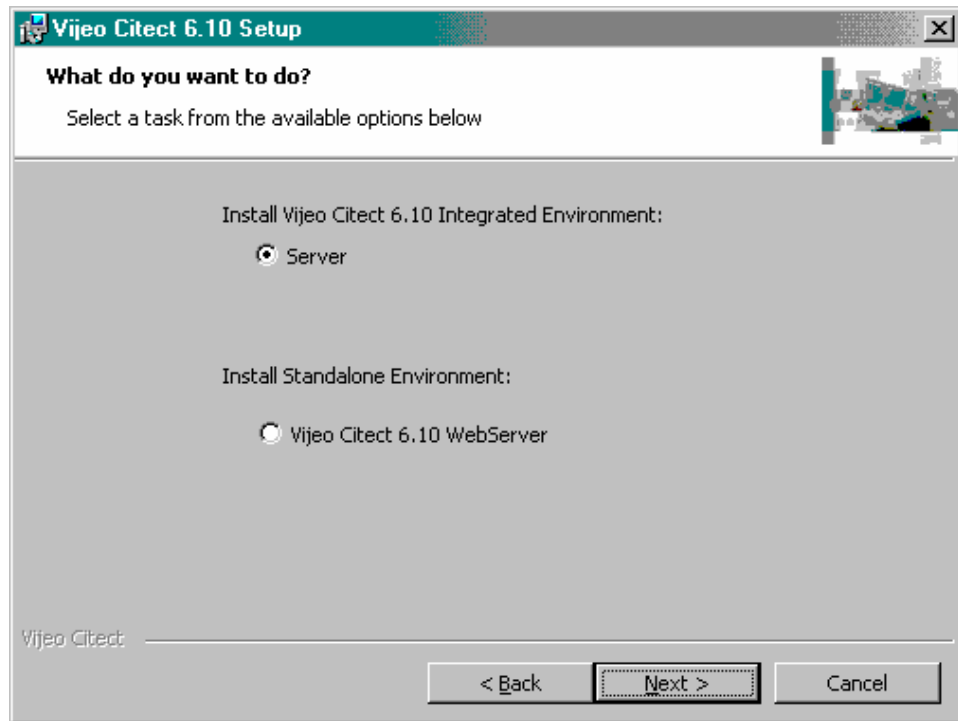
To be continued

# Vijeo Citect 6.1: My First Project, continued

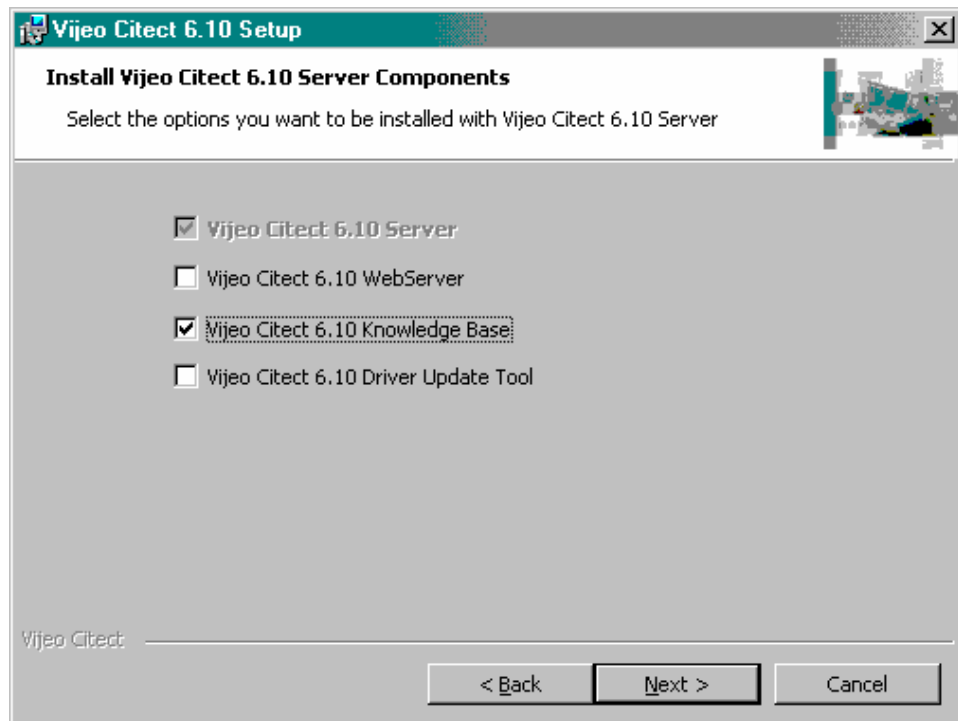
## Step 1

### Installation, options

Select <Server> installation option:



Select <Knowledge Base> option:

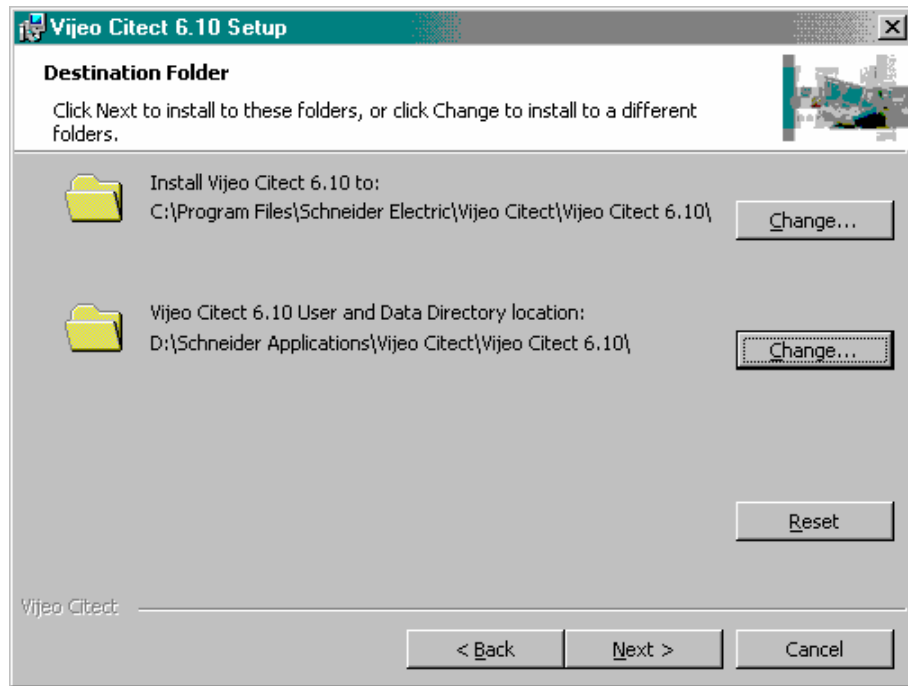


To be continued

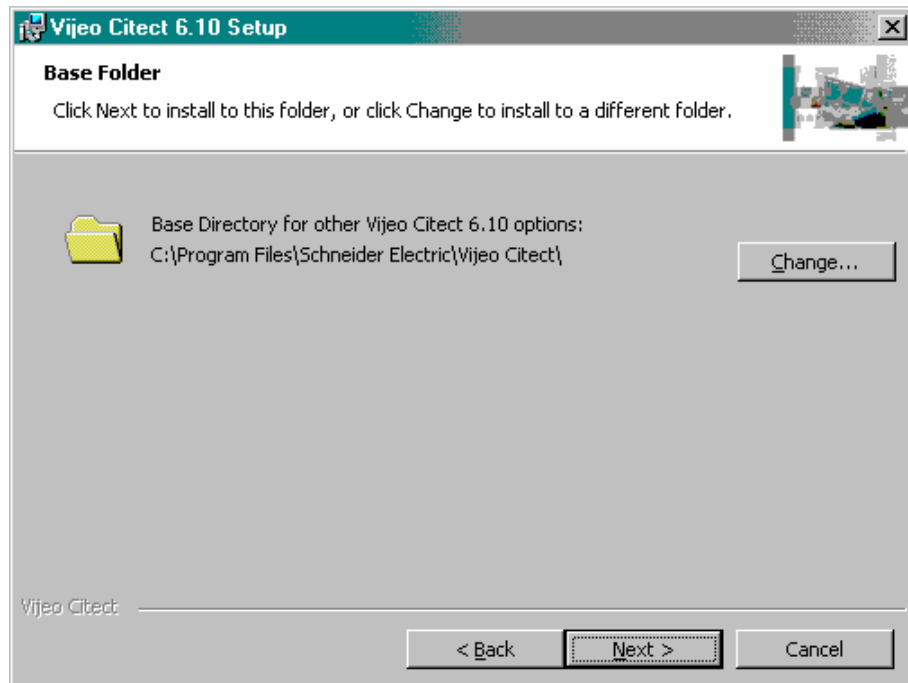
# Vijeo Citect 6.1: My First Project, continued

## Step 1 Installation, folders

You can keep the default folder for the software files, select another drive for the project files:

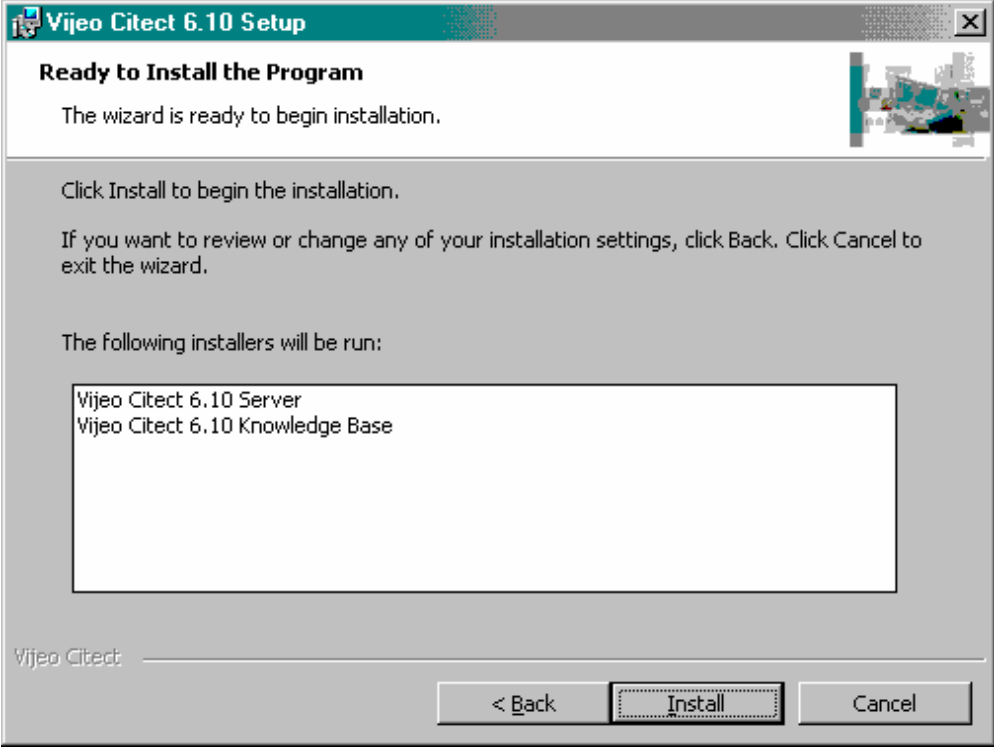


Keep the default folder for the options:



To be continued

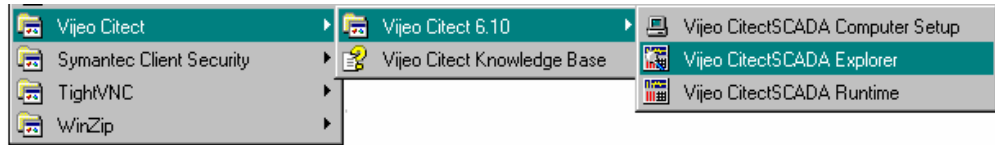
# Vijeo Citect 6.1: My First Project, continued

|   |   |
|---|---|
| <p><b>Step 1</b></p> <p><b>Installation,<br/>ready to start</b></p> | <p>The installation can start now:</p>  |
|   |  |

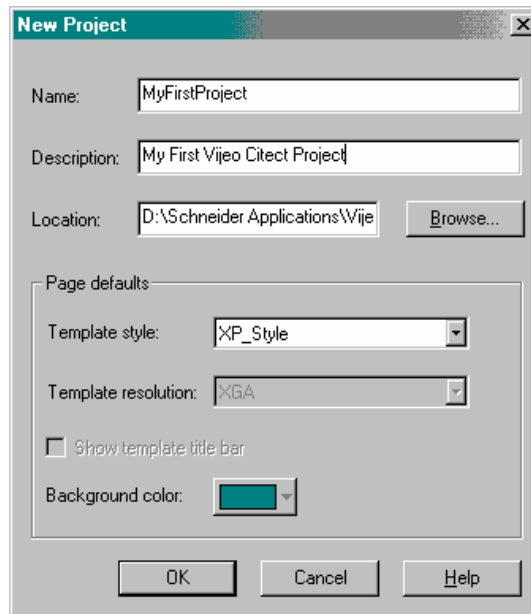
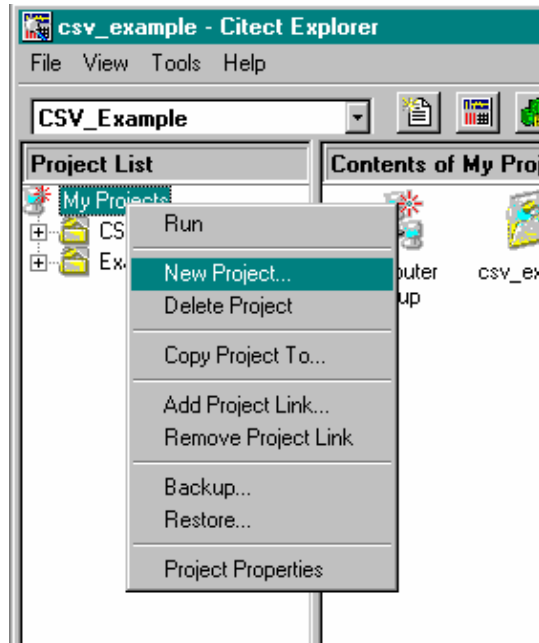
To be continued

# Vijeo Citect 6.1: My First Project, continued

Run the Vijeo Citect Explorer:



Right click on <My Projects>, select <New Project> then enter the project properties:

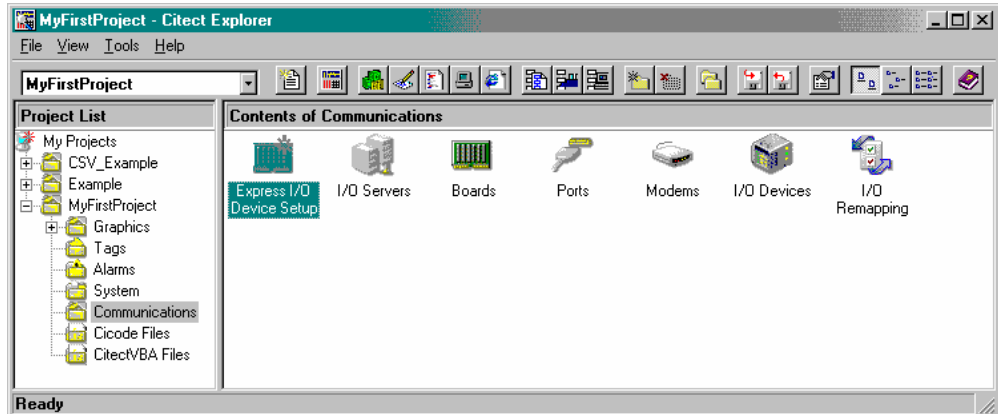


**Step 2**  
**New project, creation**

To be continued

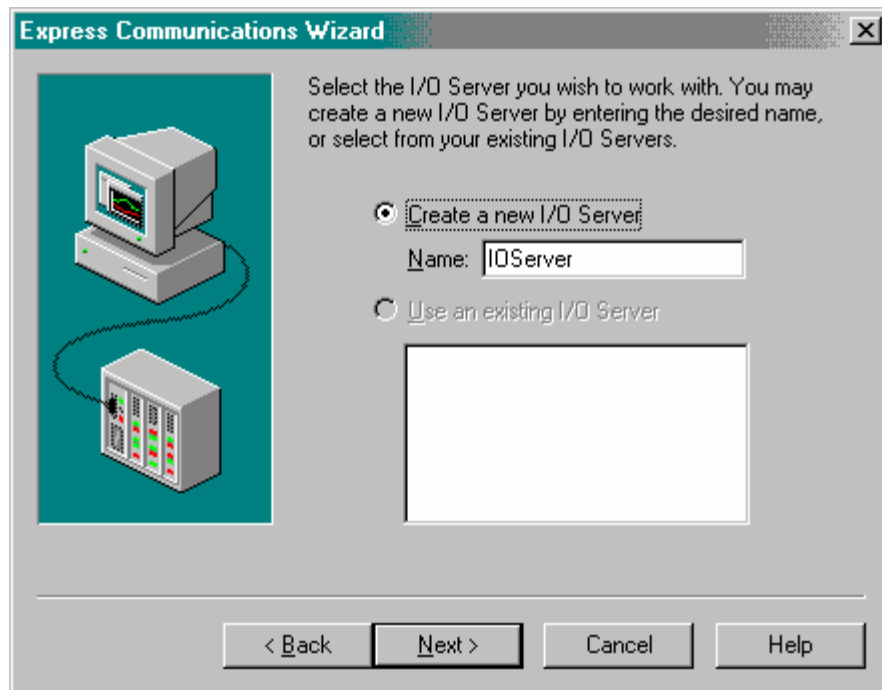
# Vijeo Citect 6.1: My First Project, continued

From the <Communications> tab, click on <Express I/O Devices Setup>:



Create a new IO Server, then click <Next>:

**Step 3**  
**New I/O Device,**  
**creation**



To be continued

# Vijeo Citect 6.1: My First Project, continued

## Step 3

New I/O Device,  
external I/O  
device

Create a new I/O Device, then click <Next>:



Select <External I/O Device> option, then click <Next>:

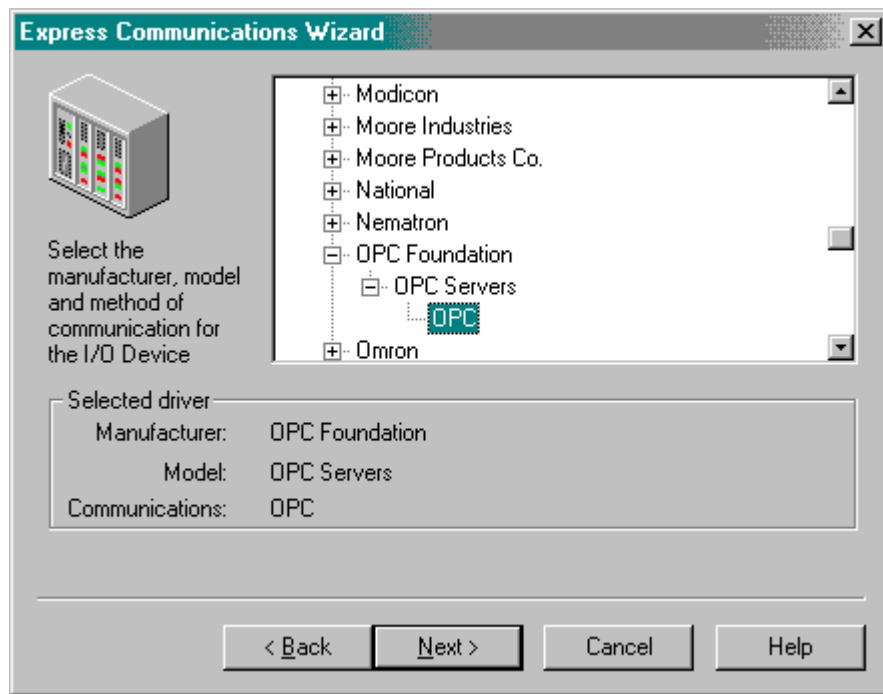


To be continued



## Vijeo Citect 6.1: My First Project, continued

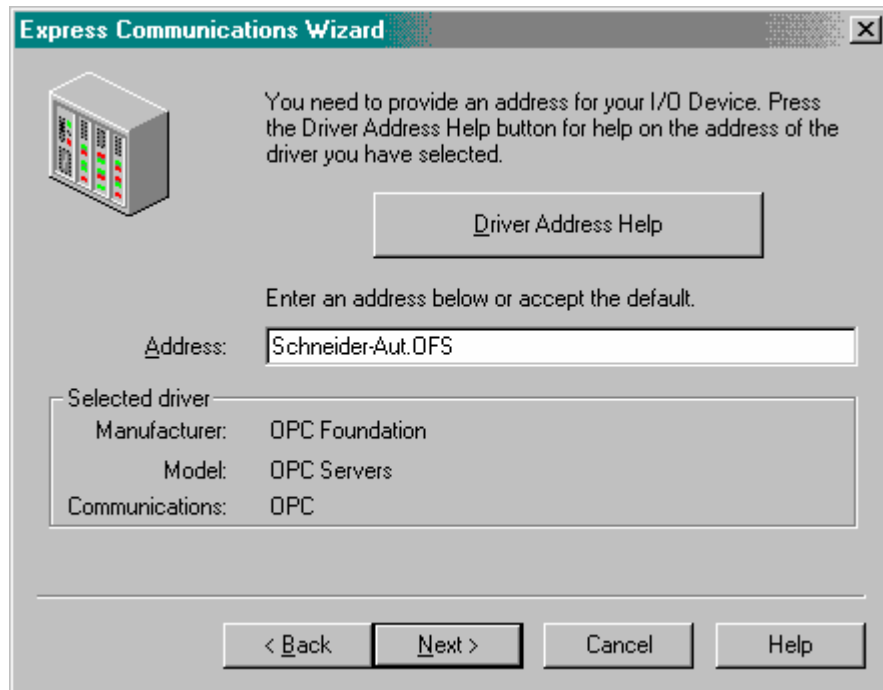
For the type of communication, select <OPC Foundation>→<OPC Servers>→<OPC>, then click <Next>:



### Step 3

New I/O Device,  
OPC link

Enter “Schneider-Aut.OFS” for the <Address>, then click <Next>:



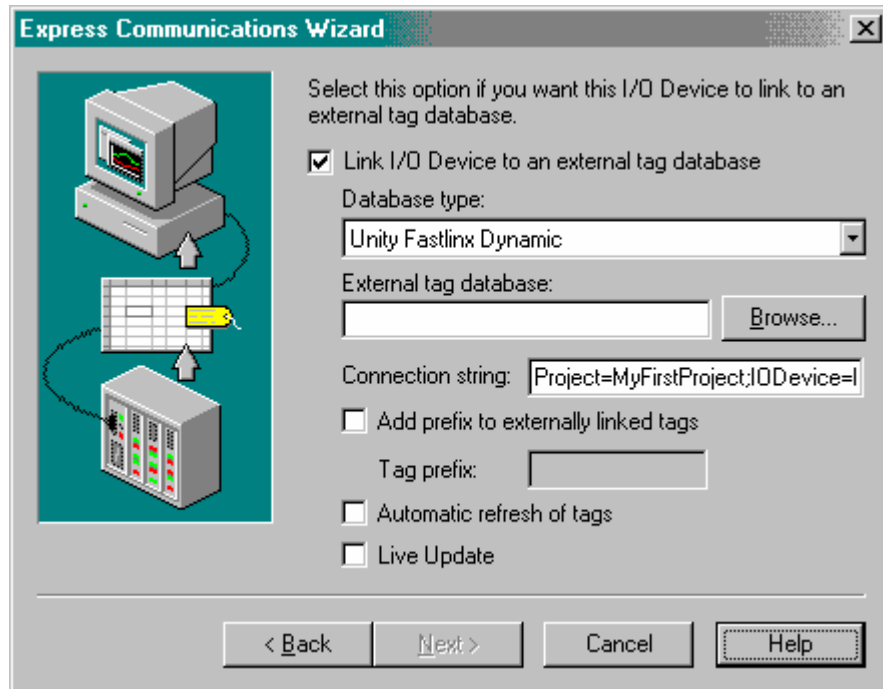
To be continued

## Vijeo Citect 6.1: My First Project, continued

### Step 3

### New I/O Device, Unity Fastlinx

Tick the option <Link I/O Device to an external tag database>, select <Unity Fastlinx Dynamic> type, then click <Next>:



Then click on <Browse> to select the stu file located on the same PC.

To be continued

# Vijeo Citect 6.1: My First Project, continued

**Step 3**  
**New I/O Device,**  
**Unity stu file**

Click <Validate>, then click <OK>:

**Unity Link Configuration**

Unity Database

Project File

XML File

Unity Profile

User Name   Enable

Password

DCOM

Server Name   Enable

User Name

Password

Protocol Driver

Protocol Driver  This is the same as the protocol selected in the I/O Device

Logging

Log File Path

Logging Level

Summary  Detail  Verbose Detail

Purge on New Link

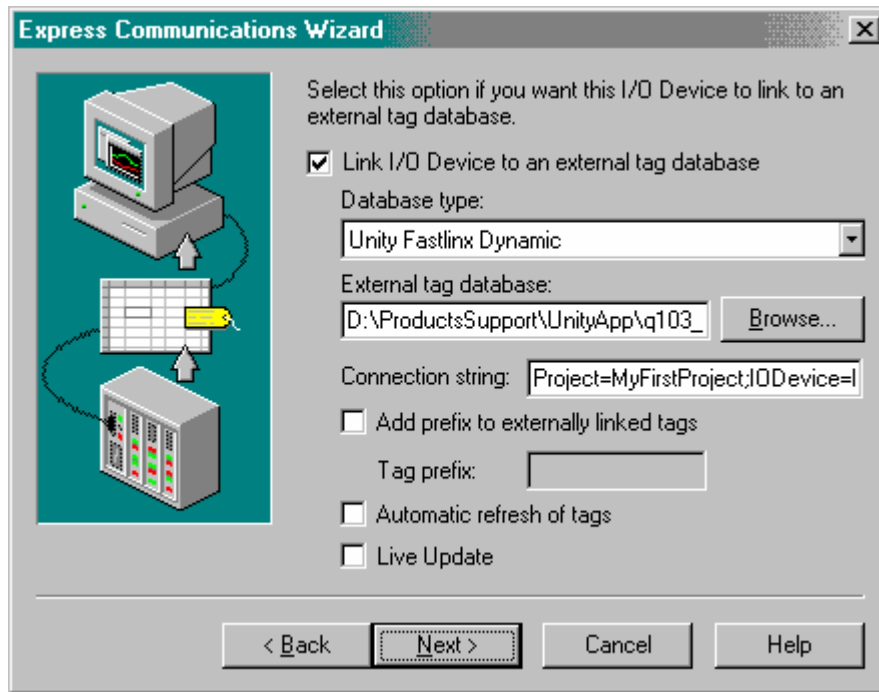
Log Pool Size (10 - 100)

Check settings to enable OK button

To be continued

## Vijeo Citect 6.1: My First Project, continued

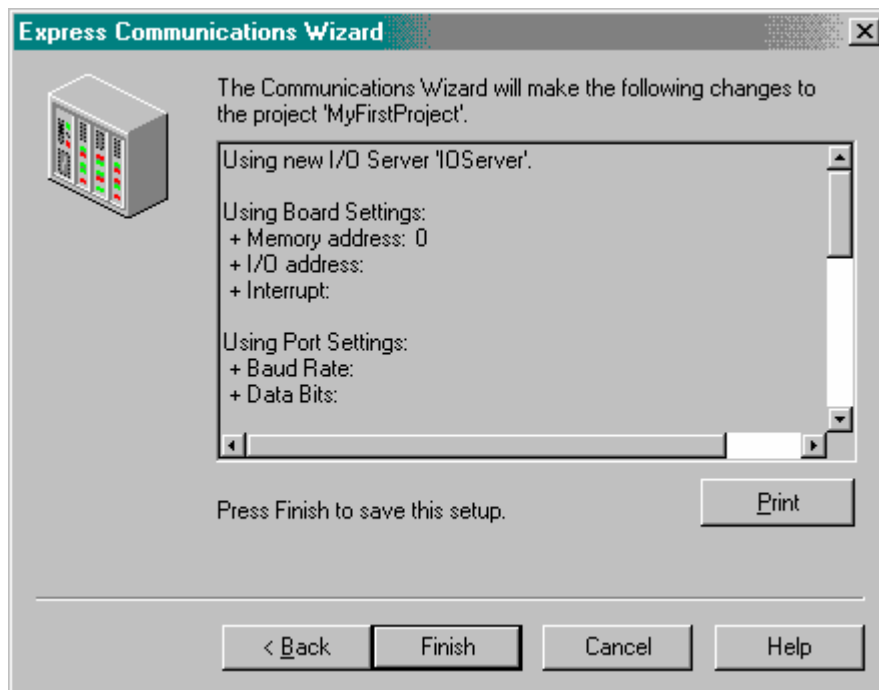
Then click <Next>:



### Step 3

**New I/O Device,  
ready to import  
tags**

Add a prefix for the tags if needed, unselect the <Automatic refresh of tags> and <Live Update> options, then click <Finish>:



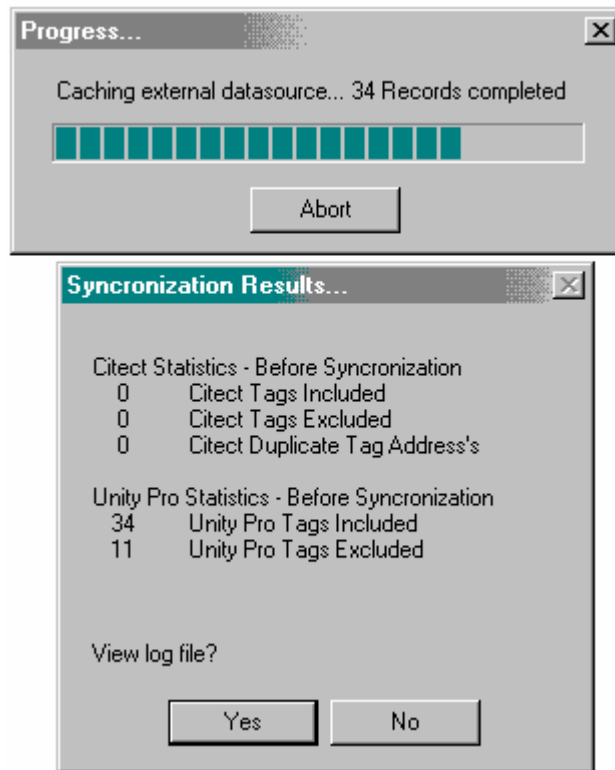
To be continued

## Vijeo Citect 6.1: My First Project, continued

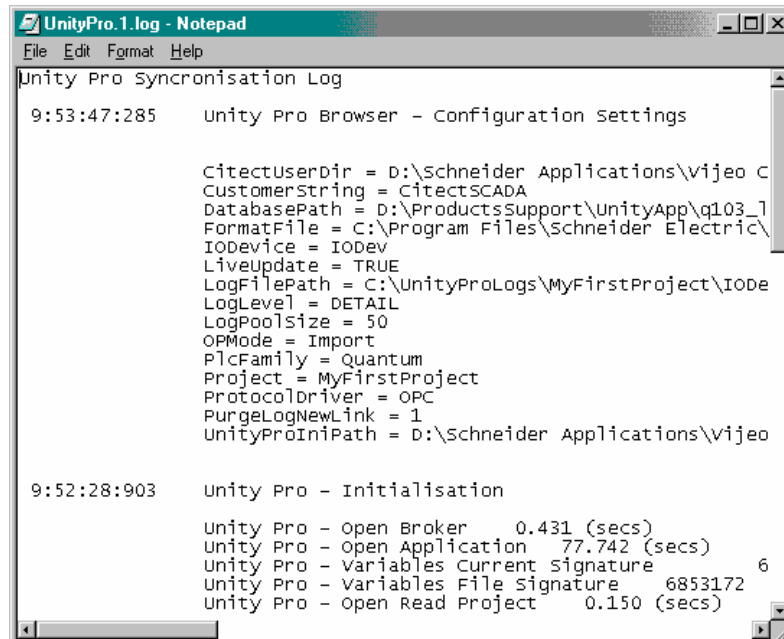
### Step 3

New I/O Device,  
tags imported

Wait for the synchronisation results:



You can consult the logs file:



To be continued

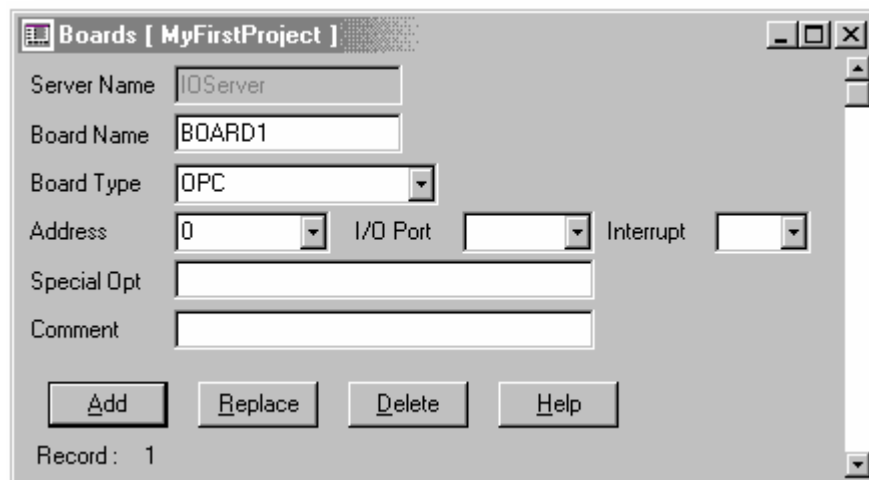
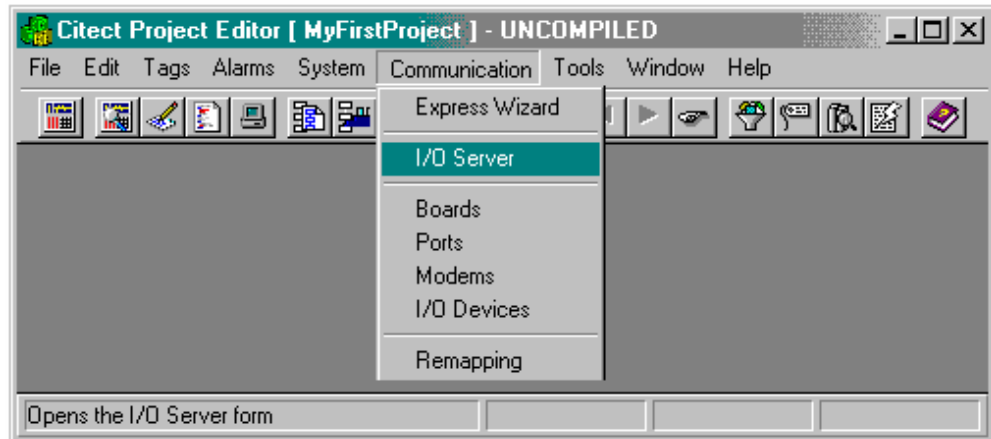
## Vijeo Citect 6.1: My First Project, continued

From the Citect Project Editor, in the <**Communication**> menu, open the windows for:

- **I/O Server**
- **Boards**
- **Ports**
- **I/O Devices**

### Step 3

New I/O Device,  
communication  
organisation



To be continued

# Vijeo Citect 6.1: My First Project, continued

## Step 3

New I/O Device,  
data exchange  
rate

The screenshot shows the 'Ports [ MyFirstProject ]' dialog box. It contains the following fields and controls:

- Server Name: IO Server
- Port Name: PORT1\_BOARD1
- Port Number: 1
- Board Name: BOARD1 (dropdown)
- Baud Rate: (dropdown)
- Data Bits: (dropdown)
- Stop Bits: (dropdown)
- Parity: (dropdown)
- Special Opt: (text field)
- Comment: (text field)
- Buttons: Add, Replace, Delete, Help
- Record: 1

The screenshot shows the 'I/O Devices [ MyFirstProject ]' dialog box. It contains the following fields and controls:

- Server Name: IO Server
- Name: IODev
- Number: 1
- Address: Schneider-Aut.OFS
- Protocol: OPC (dropdown)
- Port Name: PORT1\_BOARD1 (dropdown)
- Comment: (text field)
- Buttons: Add, Replace, Delete, Help
- Record: 1

The system considers the communication settings in the same order. When OPC is used, the <Address> parameter for the <Board> defines the OPC group rate (in ms). Change it for 1000:

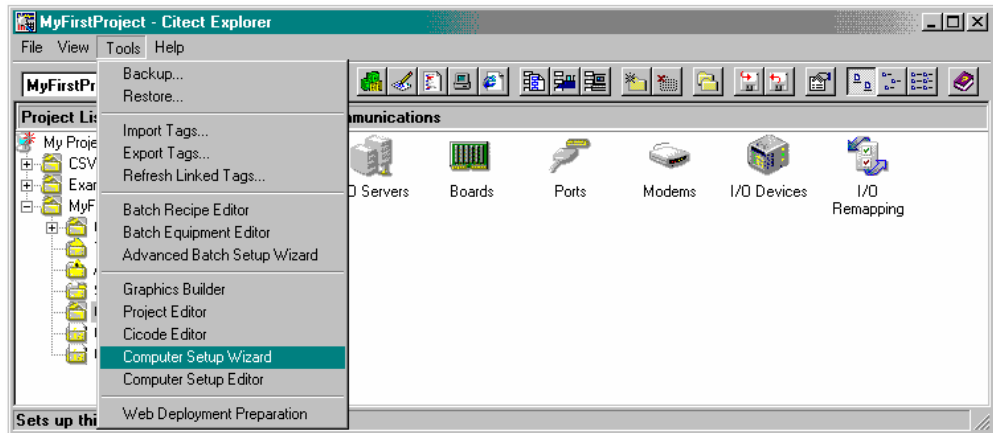
The screenshot shows the 'Boards [ MyFirstProject ]' dialog box. It contains the following fields and controls:

- Server Name: IO Server
- Board Name: BOARD1
- Board Type: OPC (dropdown)
- Address: 1000 (dropdown)
- I/O Port: (dropdown)
- Interrupt: (dropdown)
- Special Opt: (text field)
- Comment: (text field)
- Buttons: Add, Replace, Delete, Help
- Record: 1

To be continued

# Vijeo Citect 6.1: My First Project, continued

From the Project Explorer, run <Tools>→<Computer Setup Wizard>:



The <Computer Setup Wizard> defines the roles of the PC for this project.

## Step 4

### Computer Setup

Select the <Express Setup> option, then click <Next>:



To be continued

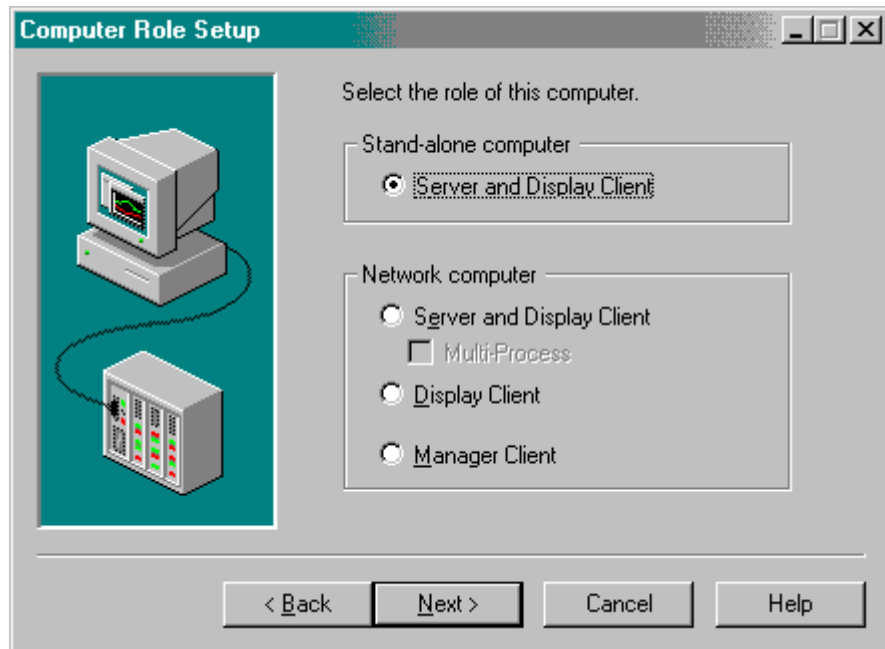


## Vijeo Citect 6.1: My First Project, continued

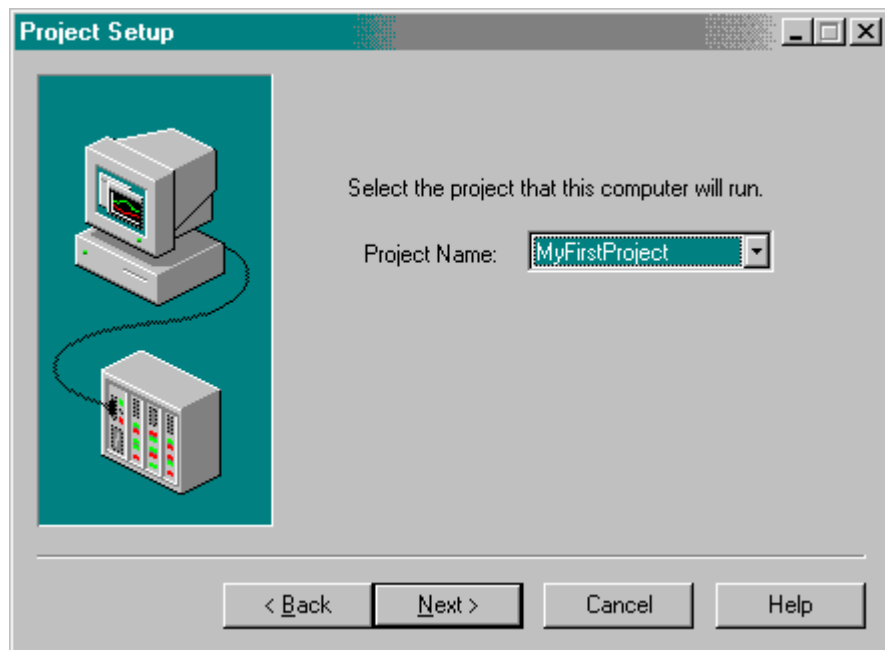
### Step 4

### Computer Setup, server and display client

Select <Server and Display Client> role, then click <Next>:



Select the project to run, then click <Next>:



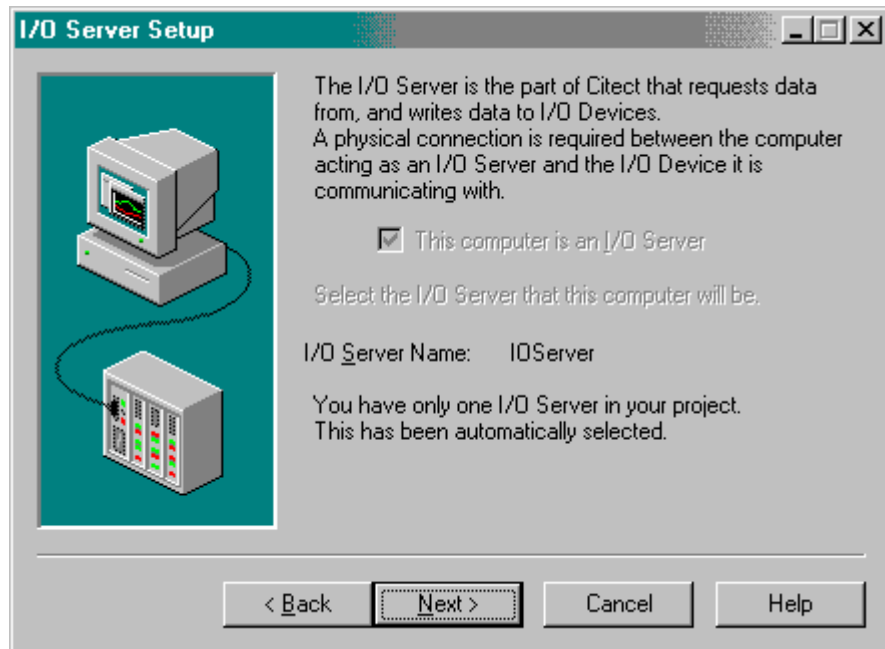
To be continued

## Vijeo Citect 6.1: My First Project, continued

### Step 4

### Computer Setup, ready to set

Click <Next>:



Click <Finish>:

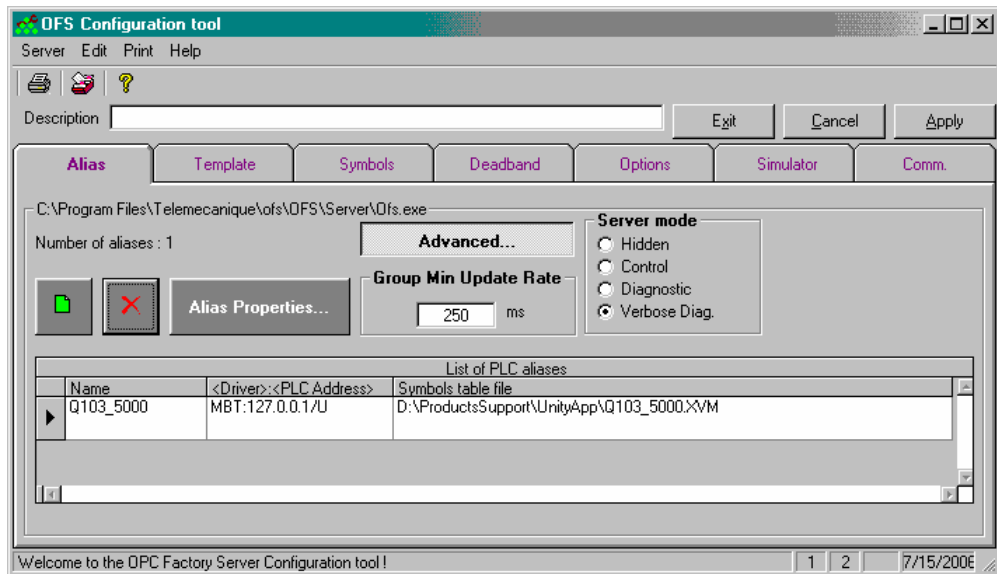


The PC is now ready to run the project!

To be continued

# Vijeo Citect 6.1: My First Project, continued

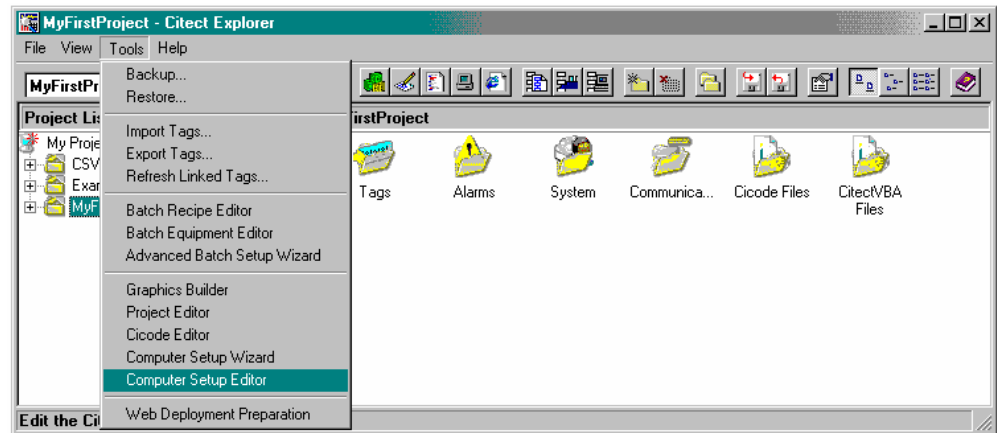
Run the **OFS Configuration Tool**, and create a new alias bound to the local host that uses the XVM file generated by Unity Pro.



## Step 5

### OFS configuration tool

From the **<Tools>** menu of the Citect Explorer, run the **<Computer Setup Editor>**:



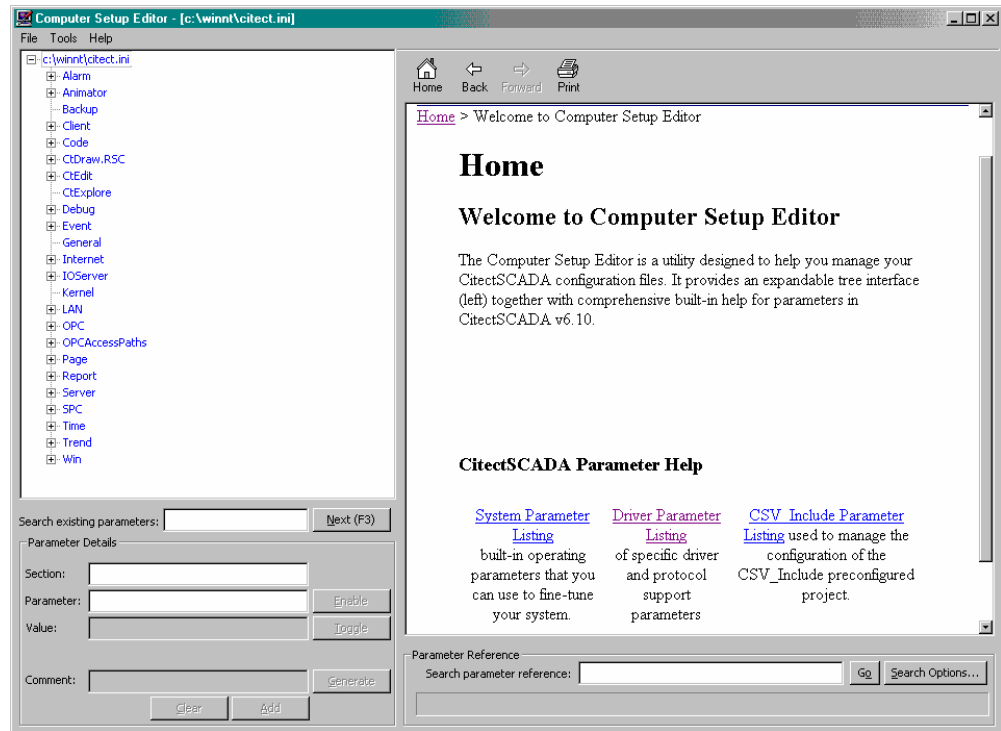
This tool allows easy modifications (chapter by chapter and field by field) in the Citect.ini file located in the Windows folder.

To be continued

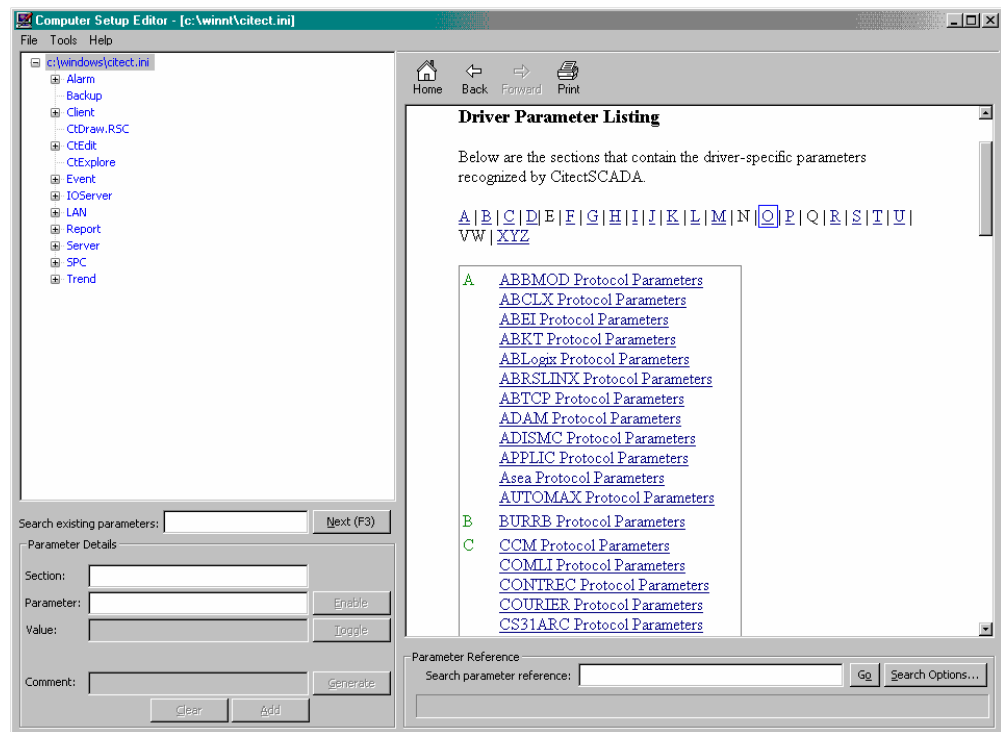
# Vijeo Citect 6.1: My First Project, continued

## Step 6 Computer Setup, OPC configuration

Click on Driver Parameter Listing:



Click on letter "O":

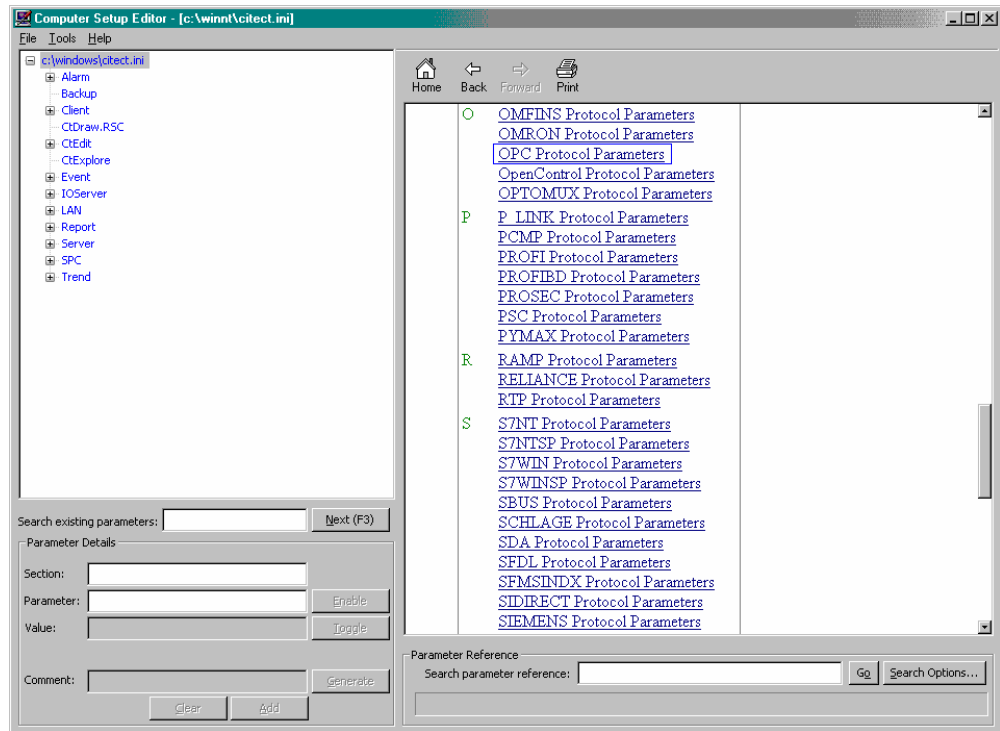


To be continued

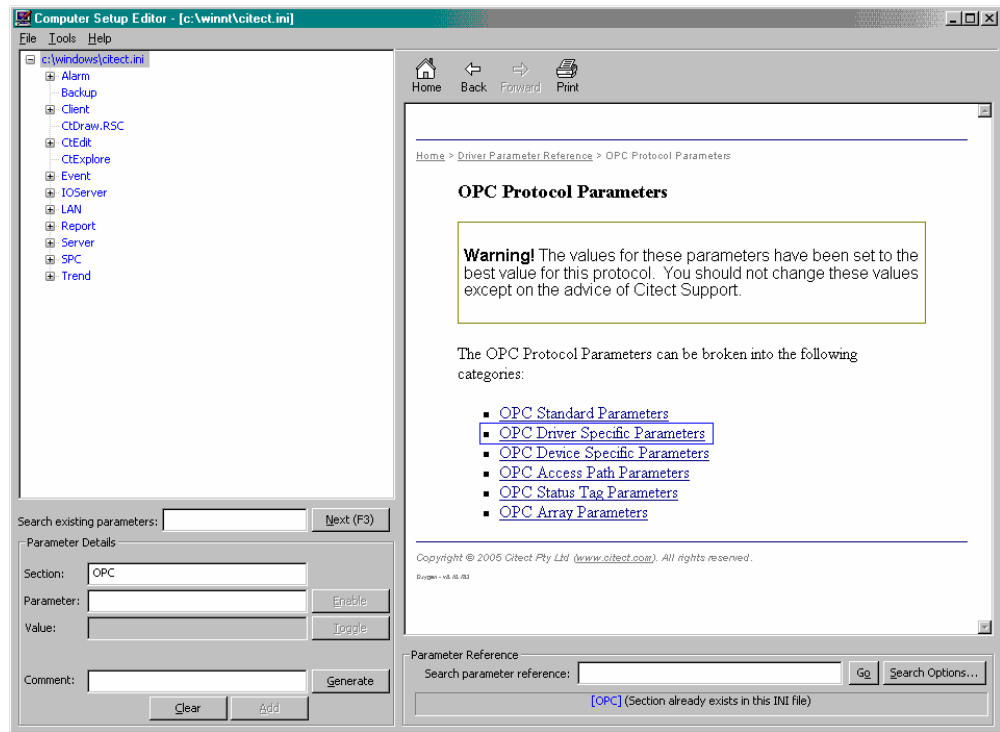
# Vijeo Citect 6.1: My First Project, continued

## Step 6 Computer Setup, OPC driver parameters

Click on OPC Protocol Parameters:



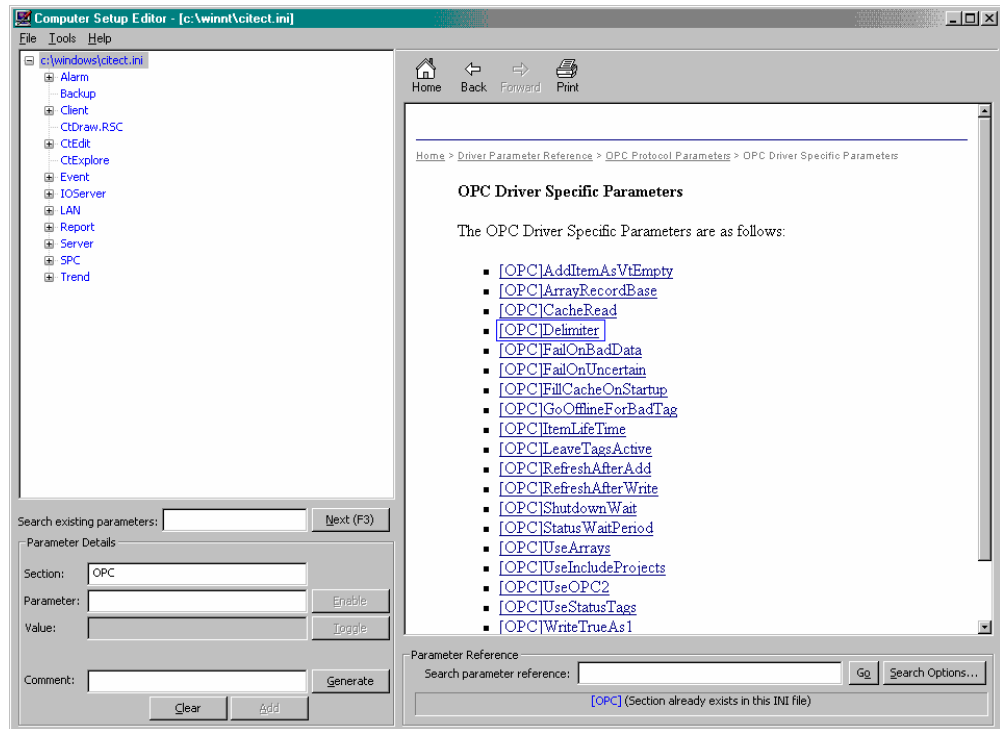
Click on OPC Driver Specific Parameters:



To be continued

# Vijeo Citect 6.1: My First Project, continued

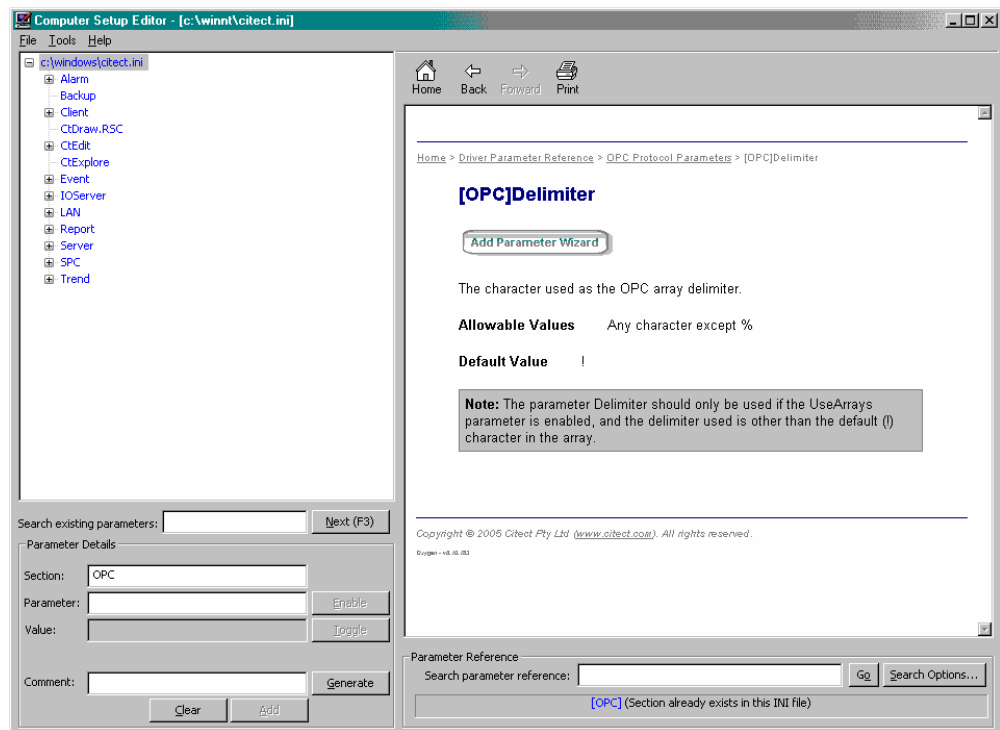
Click on [OPC]Delimiter, that is used in the OPC item definition syntax:



## Step 6

## Computer Setup, OPC delimiter

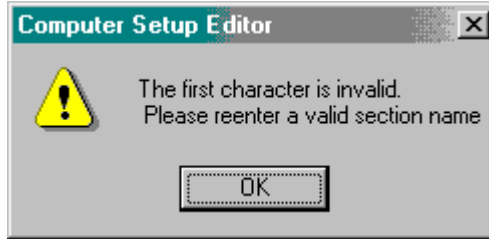
Add the new parameter:



To be continued

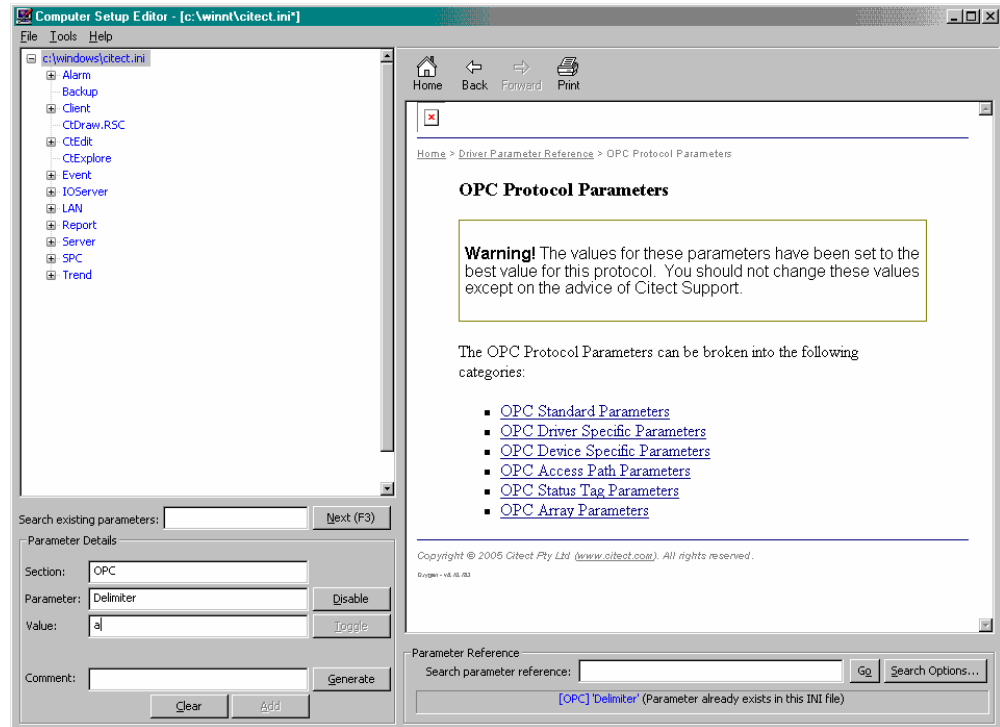
# Vijeo Citect 6.1: My First Project, continued

If you try to validate the default delimiter that is ”!”, you will obtain:



At this step, enter any value, “a” for instance:

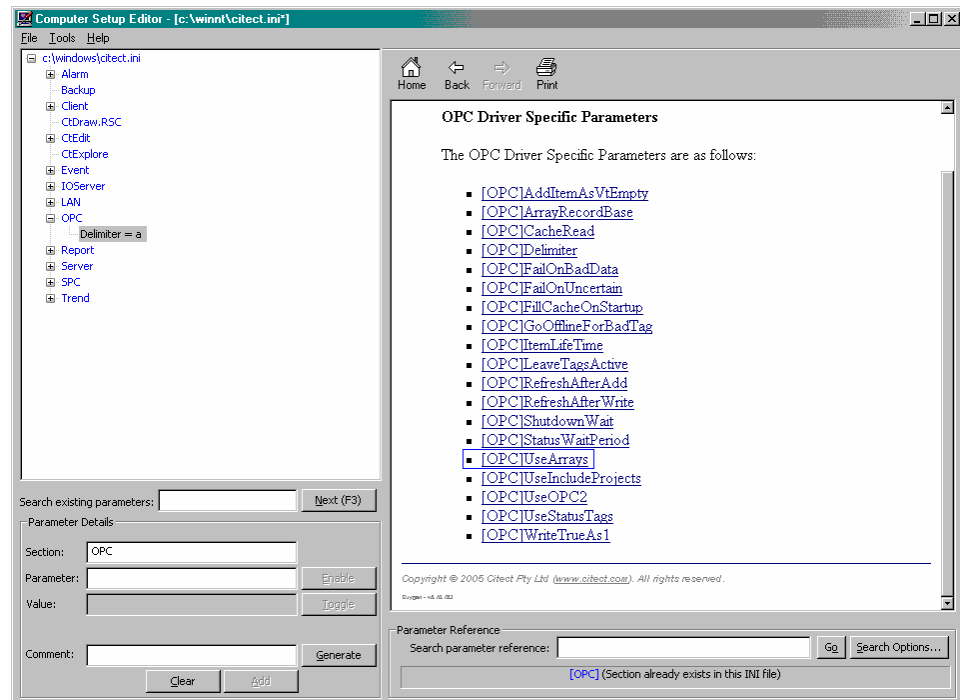
## Step 6 Computer Setup, manual input



To be continued

# Vijeo Citect 6.1: My First Project, continued

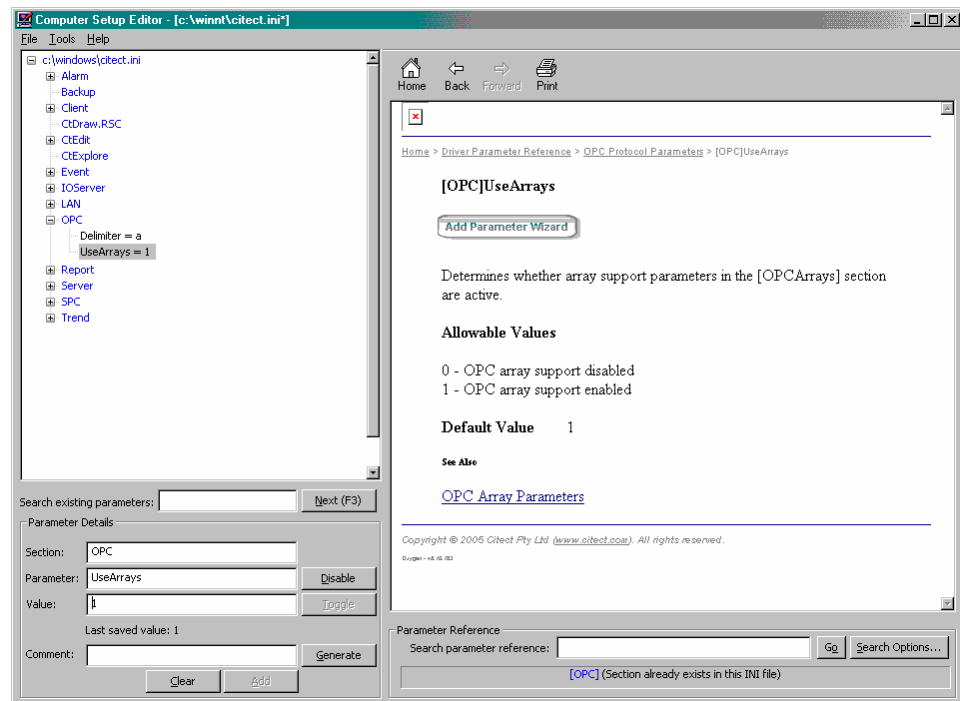
From OPC Driver Specific Parameters, click on [OPC]UserArrays (to use array times in the project):



Step 6

Computer Setup, OPC array items

Add the parameter:

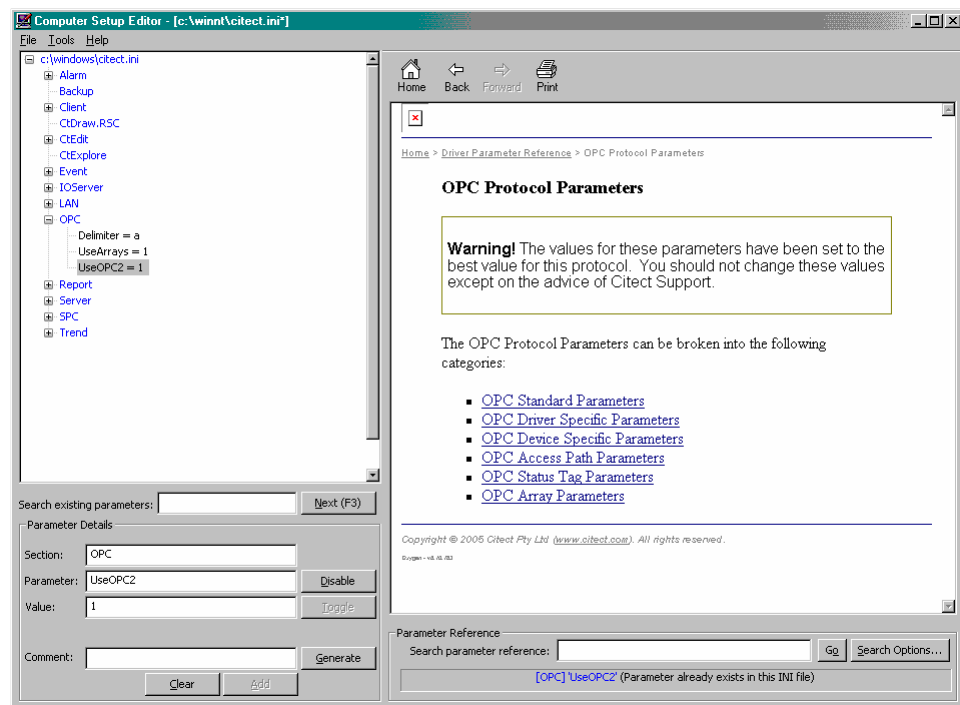


To be continued



# Vijeo Citect 6.1: My First Project, continued

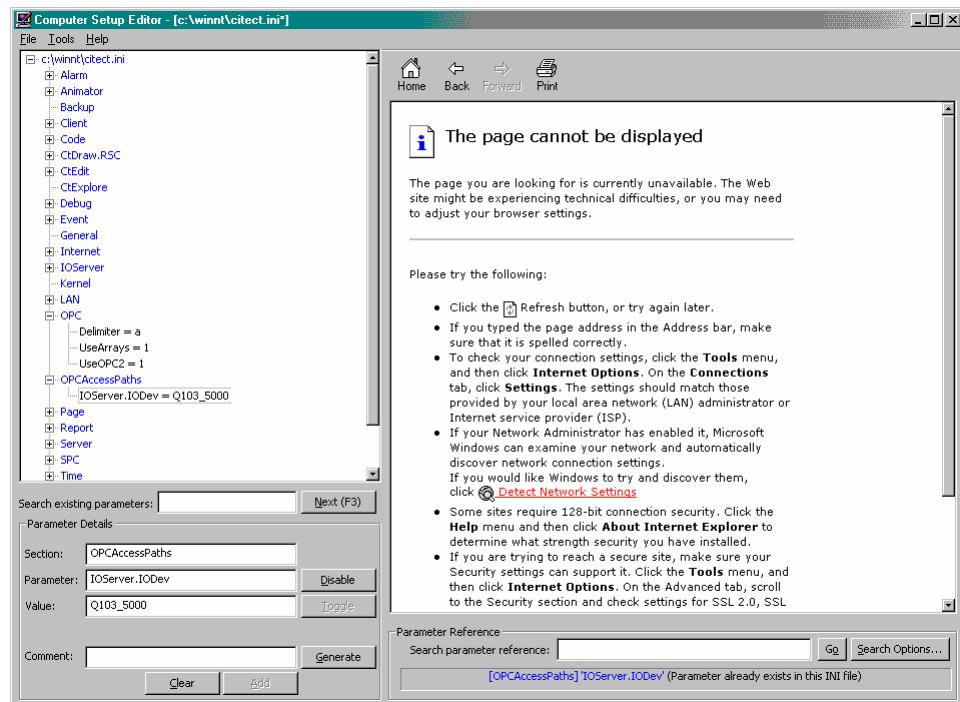
From OPC Driver Specific Parameters, click on [OPC]UseOPC2, add the parameter and assign it the value 1 (to use OPC2 resources):



## Step 6

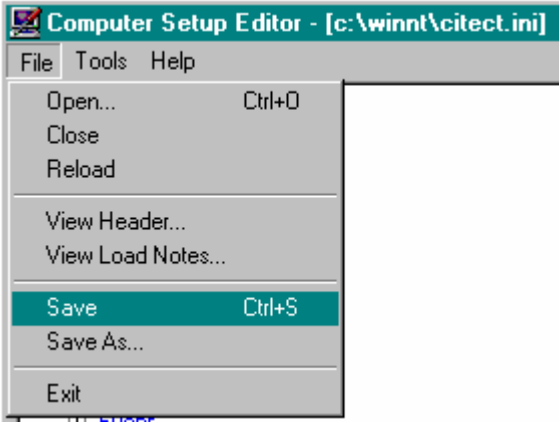
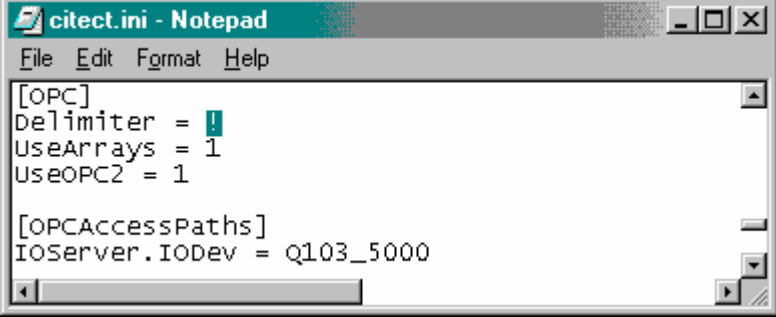
## Computer Setup, OPC alias

Manually, add the <OPCAccessPaths> section, the <IOServer.IODev> parameter, and assign it the value of the OFS alias:



To be continued

## Vijeo Citect 6.1: My First Project, continued

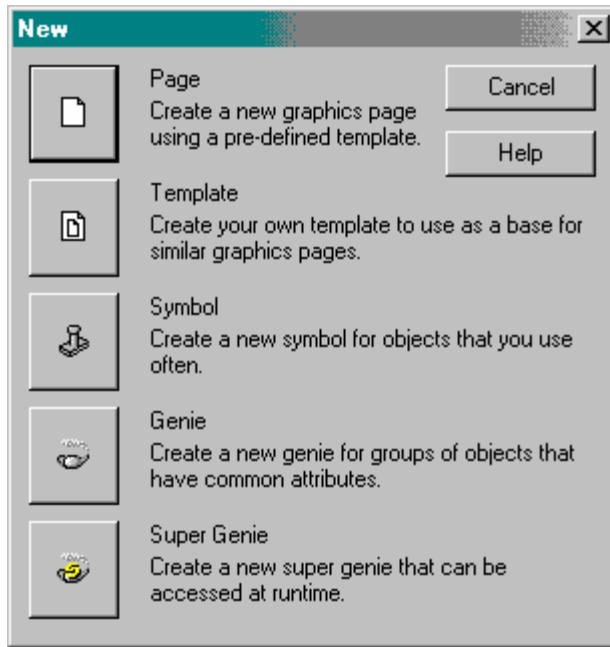
|   |  |
|---|--|
| <p><b>Step 6</b></p> <p><b>Computer Setup, manual check</b></p> | <p>Save the file and close the tool:</p>   |
|   |  <p>Using Notepad, open c:\winnt\citect.ini and set the [OPC]Delimiter parameter to “!”, then save the file:</p>  <p>At this step, the project is set, and we can start creating graphic pages!</p> |

To be continued

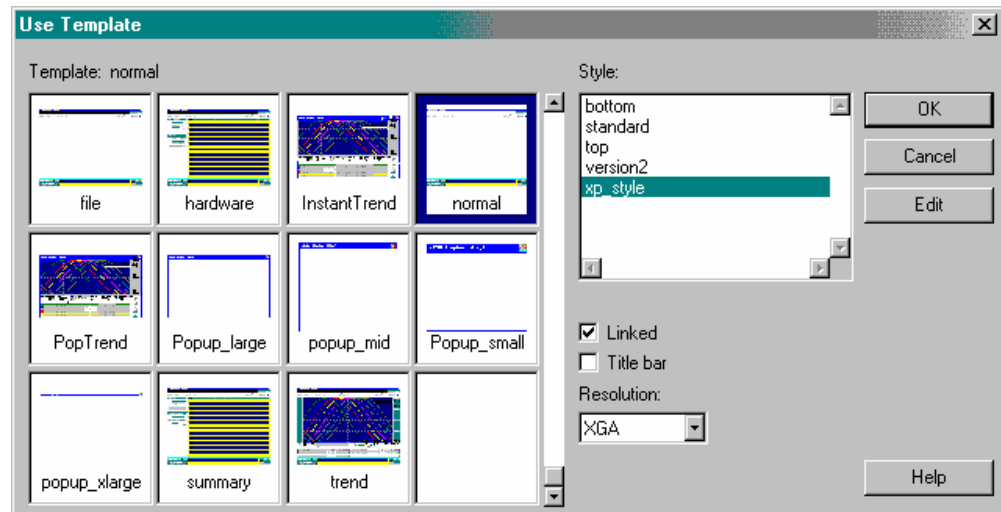
# Vijeo Citect 6.1: My First Project, continued

## Step 7 Graphic Page, new page

From the Graphics Builder, Main Menu → File → New → Page:



Use the <Normal> template with <XP\_Style> style:



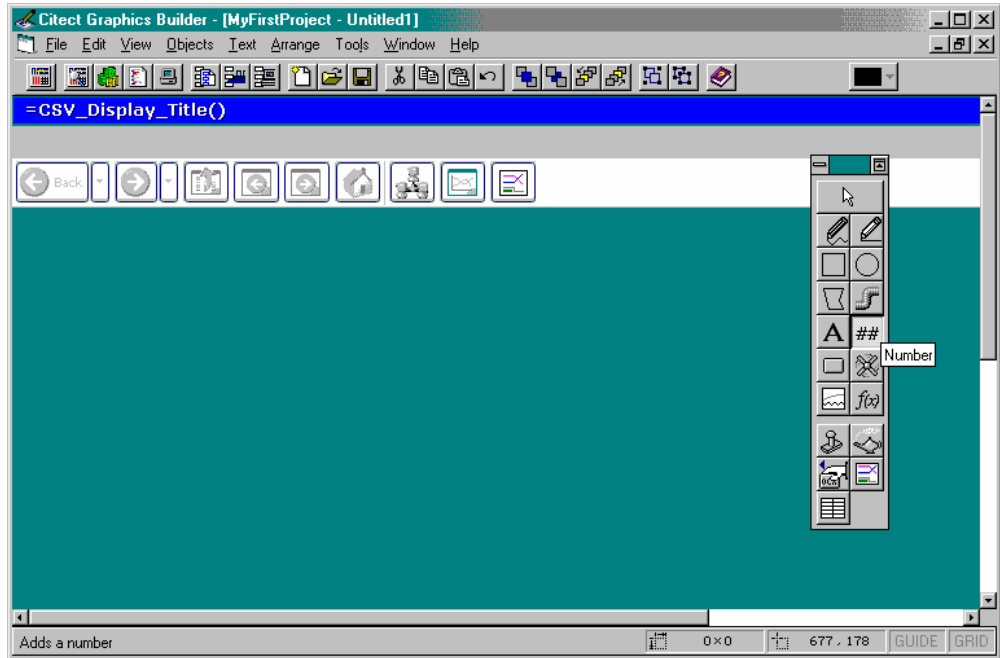
To be continued

# Vijeo Citect 6.1: My First Project, continued

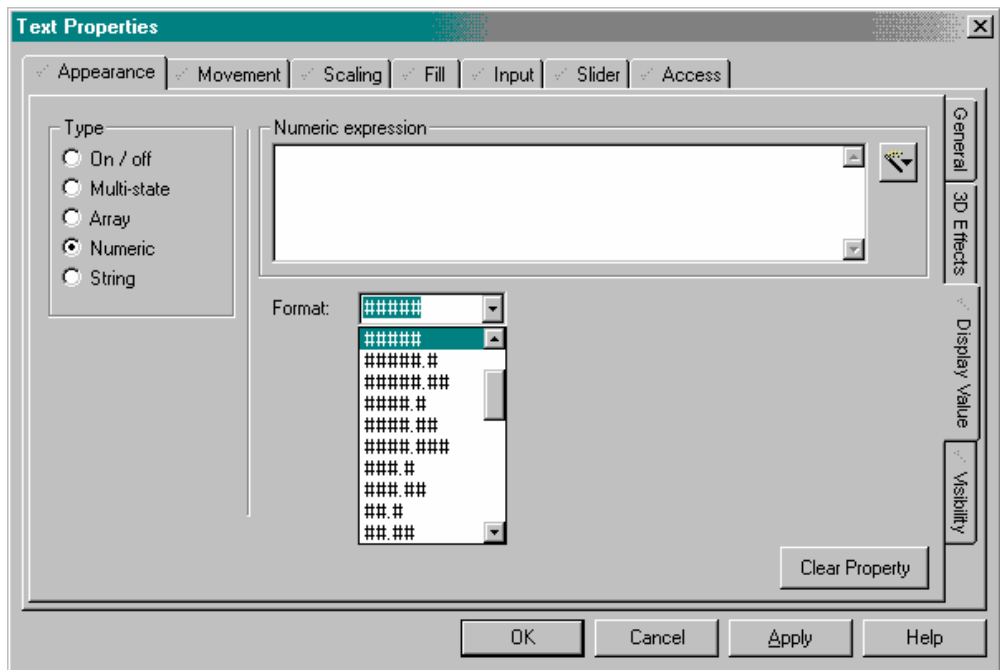
## Step 7

### Graphic Page, new animation

Select <Number> object:



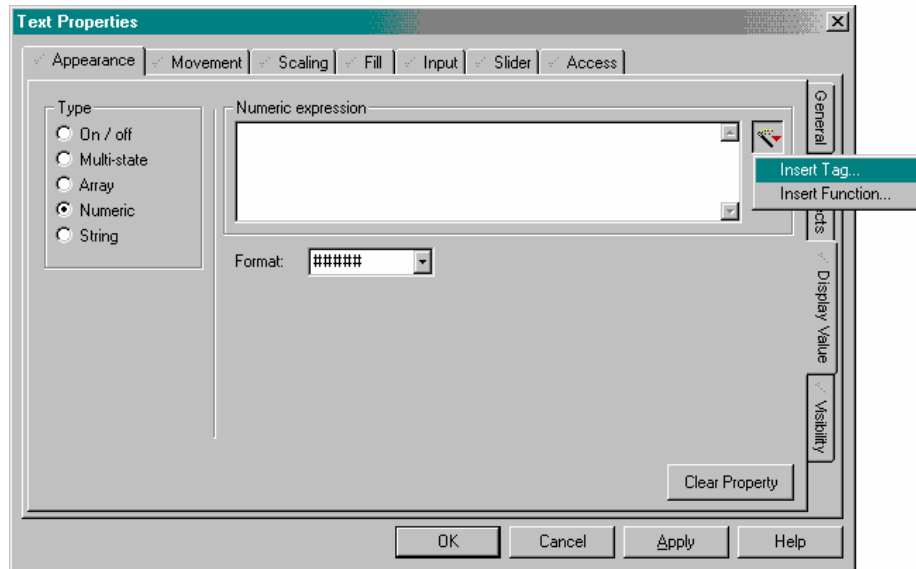
Select the format for a numeric display:



To be continued

# Vijeo Citect 6.1: My First Project, continued

Click on the <Browse> button and select <Insert Tag>:

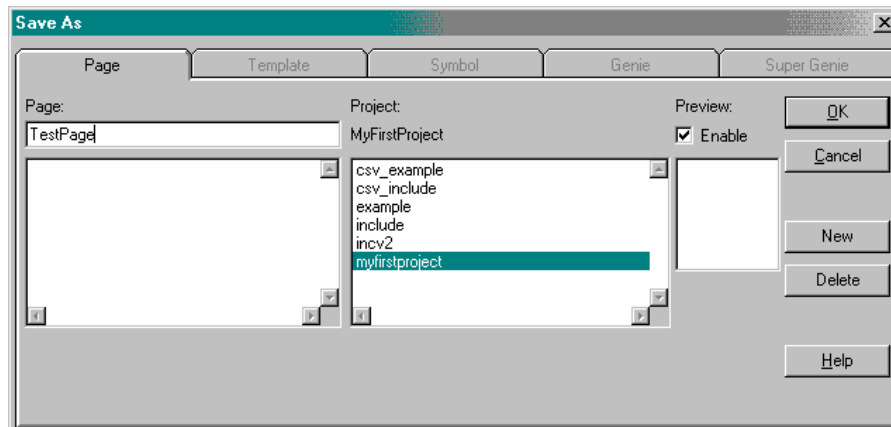


Select the tag you want to animate, then click on <OK> to close the <Insert Tag> popup window:

**Step 7**  
**Graphic Page,**  
**tag link**

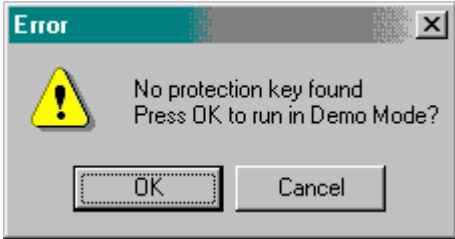
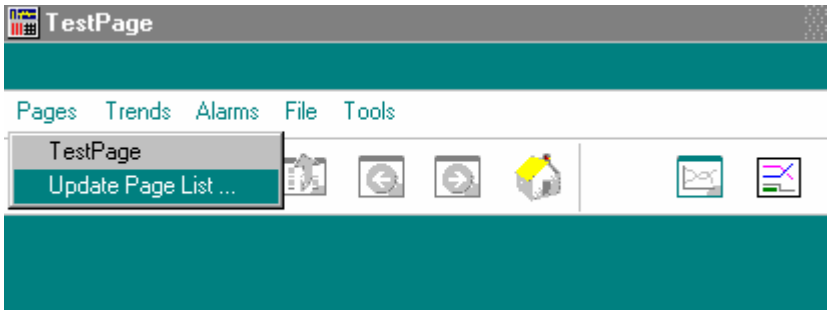
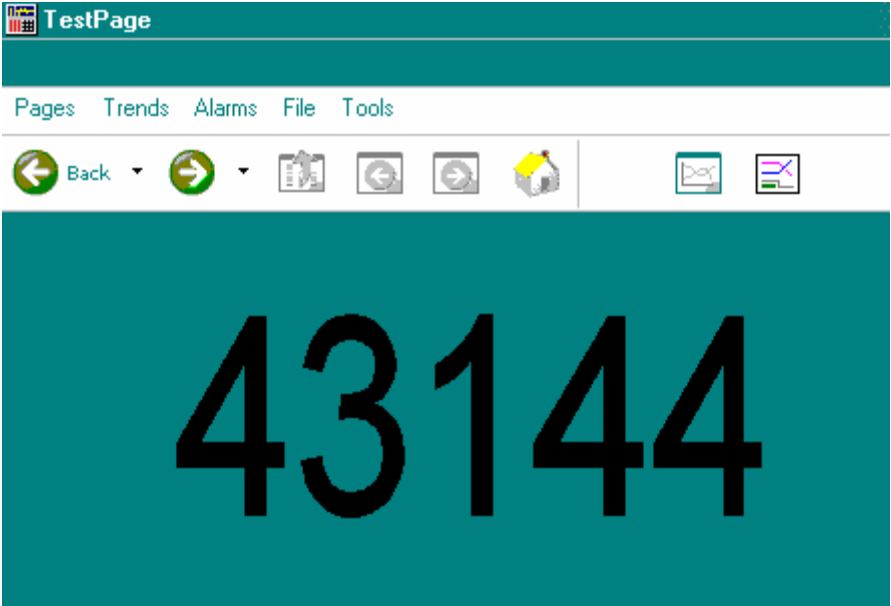


Click on <OK> to close the <Text Properties> window, then press <F5> to compile and run the project, you will be prompted to save the page:



To be continued

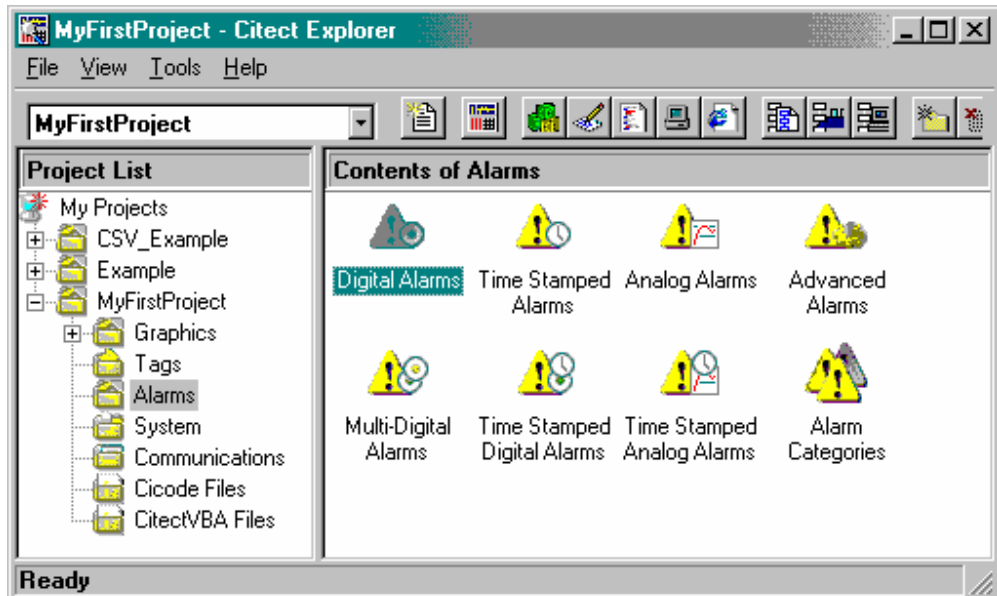
## Vijeo Citect 6.1: My First Project, continued

|   |  |
|---|--|
| <p><b>Step 7</b></p> <p><b>Graphic Page, run time</b></p> | <p>If no product key is detected, accept to run the project in Demo Mode:</p>  <p>The Demo Mode will run during 15 minutes.</p> <p>Click on Main Menu→Pages→Update Page List to display the last saved pages.</p>  |
|   | <p>Once the name of the page is displayed, select it:</p>  <p>Done!</p>  |

To be continued

# Vijeo Citect 6.1: My First Project, continued

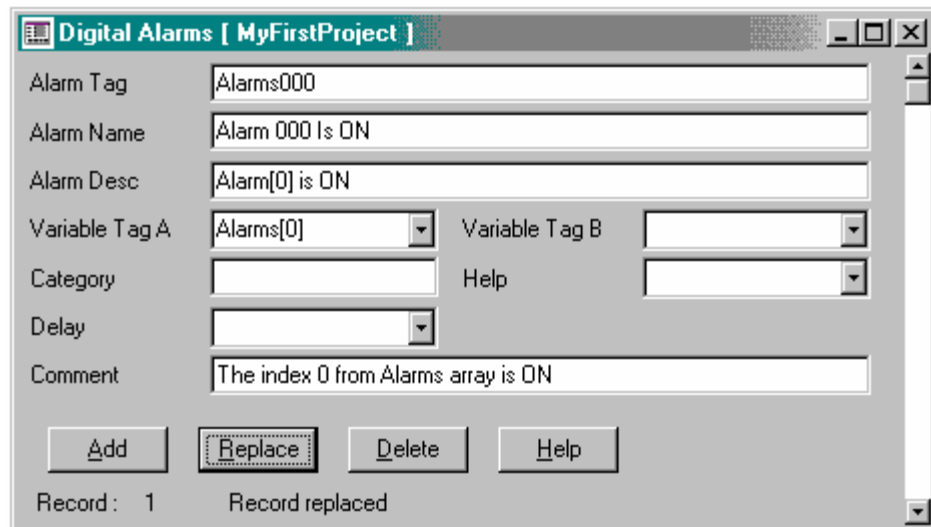
From the project Explorer, click on <Digital Alarms>:



## Step 8

### Configuring digital alarms

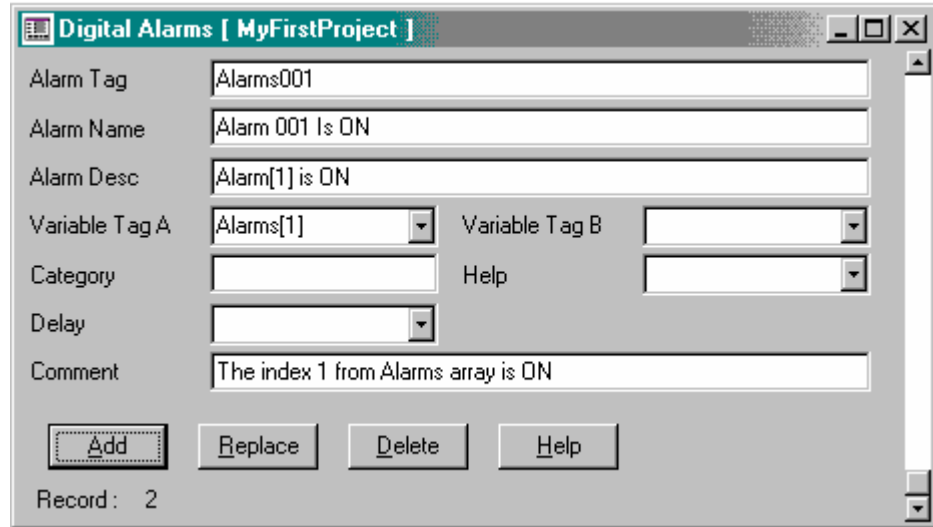
The Project Editor is moved to front, and the Digital Alarms window is displayed ; fill the fields as shown to define a basic alarm based on a single digital tag, then click on <Add>:



To be continued

# Vijeo Citect 6.1: My First Project, continued

Add a second alarm as shown then run the project:

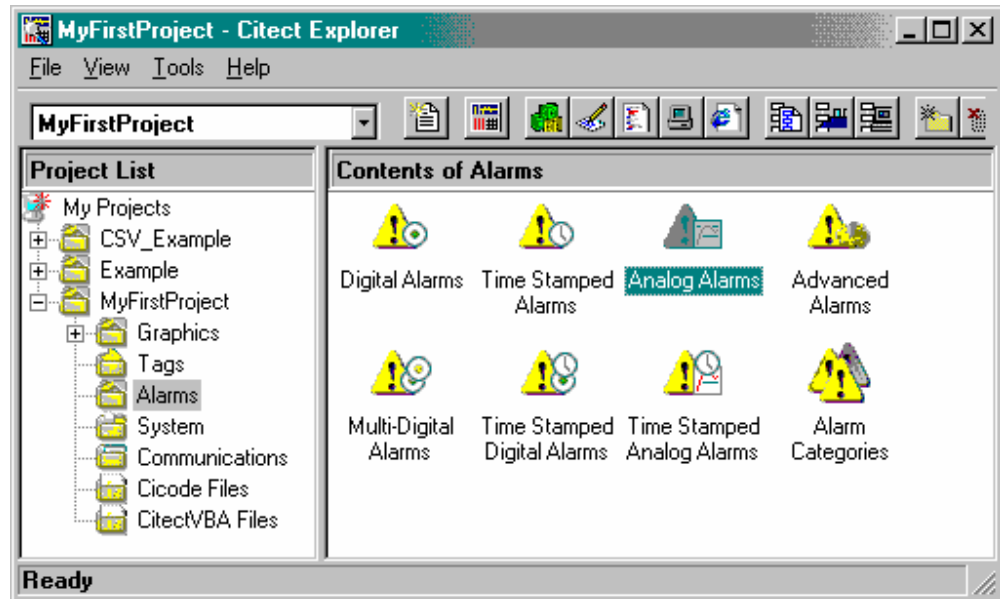


## Step 8

### Configuring analog alarms

From the PLC application, set/reset the bits to see the results in the Alarms page then stop the application.

From the project Explorer, click on <Analog Alarms>:



To be continued



# Vijeo Citect 6.1: My First Project, continued

Define an Analog Alarm based on an integer tag with a set of [Very High, High, Low, Very Low] thresholds and click on <Add>:

**Analog Alarms [ MyFirstProject ]**

Alarm Tag: AnalogAlarm000

Alarm Name: Analog Alarm 000

Variable Tag: INT\_0001 Setpoint: 50

High High: 90 High: 75

High High Delay: High Delay:

Low: 25 Low Low: 10

Low Delay: Low Low Delay:

Deviation: Rate:

Deviation Delay: Deadband: Format:

Category: Help:

Comment: Integer 0001 is out of bounds

Record : 1

## Step 8

### Configuring analog alarms, thresholds

Define a second Analog Alarm by the same way:

**Analog Alarms [ MyFirstProject ]**

Alarm Tag: AnalogAlarm001

Alarm Name: Analog Alarm 002

Variable Tag: INT\_0002 Setpoint: 5000

High High: 9000 High: 7500

High High Delay: High Delay:

Low: 2500 Low Low: 1000

Low Delay: Low Low Delay:

Deviation: Rate:

Deviation Delay: Deadband: Format:

Category: Help:

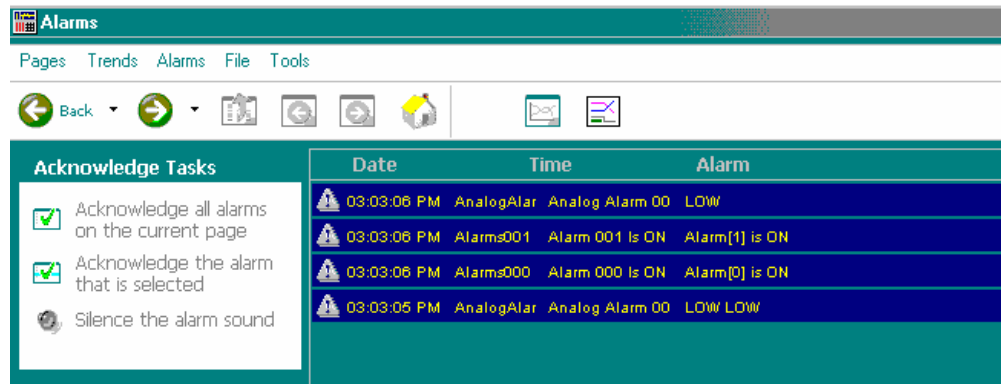
Comment: Integer 0002 is out of bounds

Record : 2

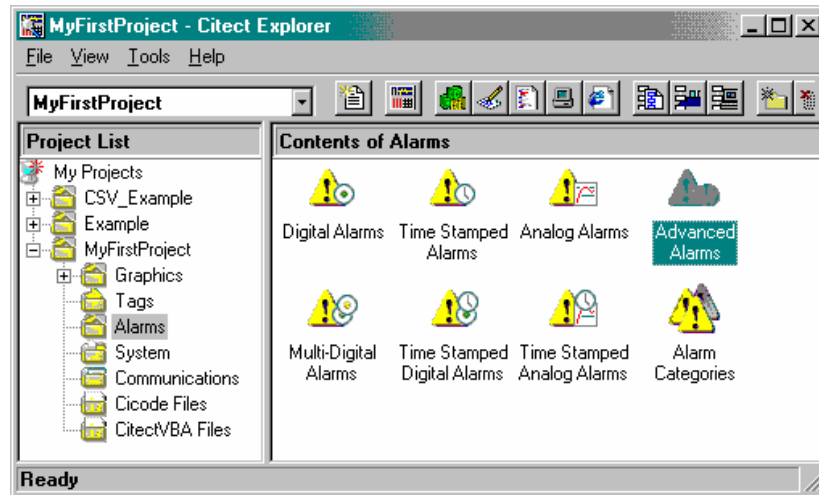
To be continued

# Vijeo Citect 6.1: My First Project, continued

Run the project and change the PLC values to see the result in the Alarms page:

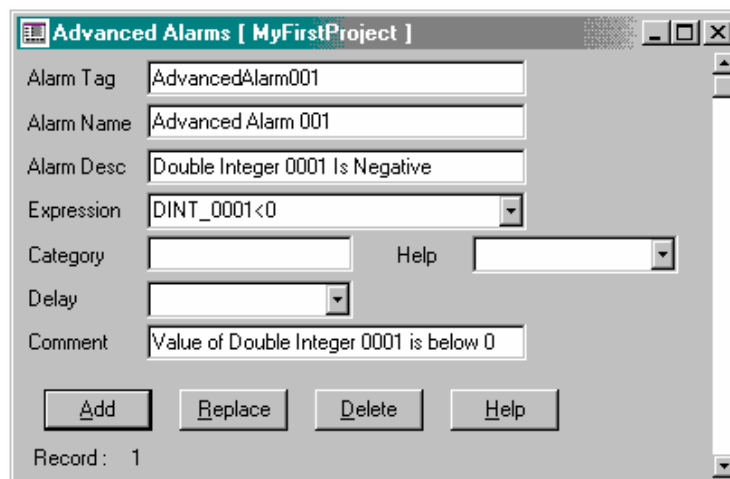


Stop the project, then click on <Advanced Alarms> in the:



## Step 8 Configuring advanced alarms

Define an advanced alarm based on an expression:

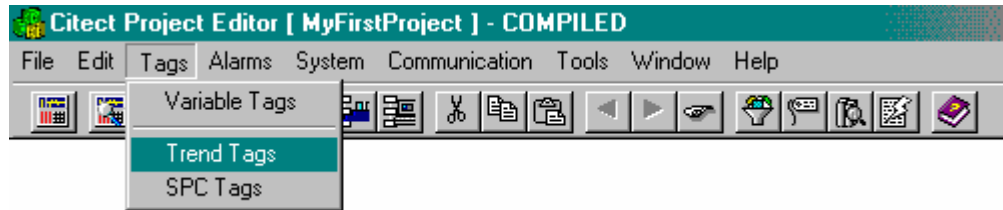


To be continued

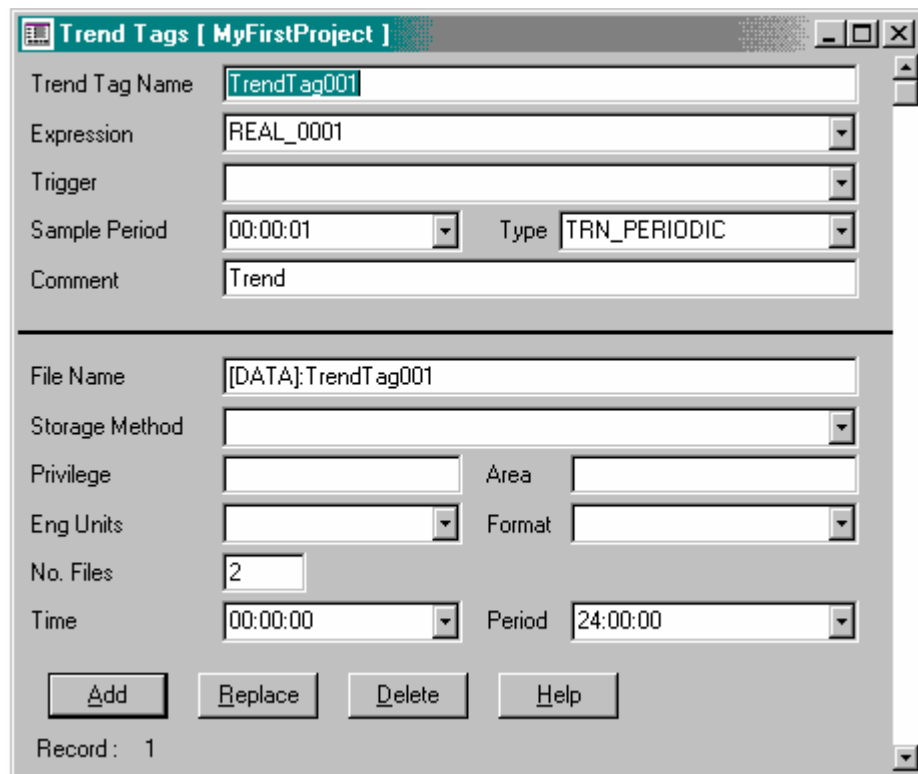
# Vijeo Citect 6.1: My First Project, continued

Run the project and change the PLC values to see the result in the Alarms page then stop the project.

From the project Editor, click on Main Menu → Tags → Trend Tags:



Press <F2> to display the lower half of the form, then define a trend as shown:

The screenshot shows the 'Trend Tags [ MyFirstProject ]' configuration dialog box. It is divided into two sections. The top section contains fields for 'Trend Tag Name' (TrendTag001), 'Expression' (REAL\_0001), 'Trigger', 'Sample Period' (00:00:01), 'Type' (TRN\_PERIODIC), and 'Comment' (Trend). The bottom section contains fields for 'File Name' ([DATA]:TrendTag001), 'Storage Method', 'Privilege', 'Area', 'Eng Units', 'Format', 'No. Files' (2), 'Time' (00:00:00), and 'Period' (24:00:00). At the bottom are buttons for 'Add', 'Replace', 'Delete', and 'Help'. A 'Record : 1' indicator is at the very bottom.

## Step 9 Configuring Trends, periodic sampling

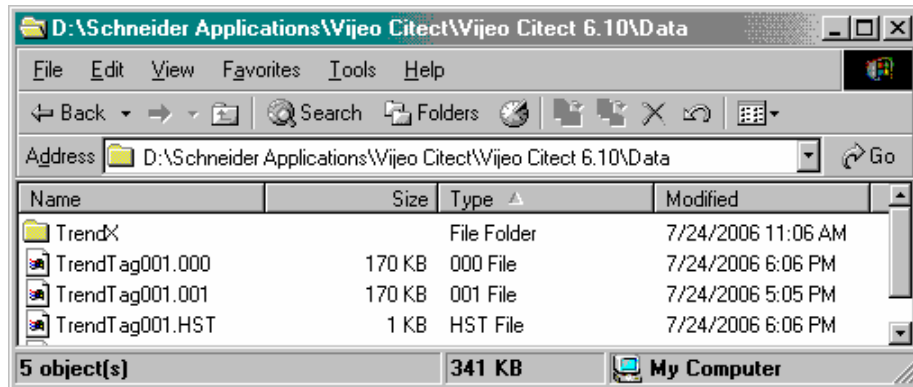
This defines the trend tag TrendTag001:

- Based on the OPC tag REAL\_0001;
- with a 1 second periodic sampling;
- That fills 2 TrendTag001 external files in 24 hours (circular buffers).

To be continued

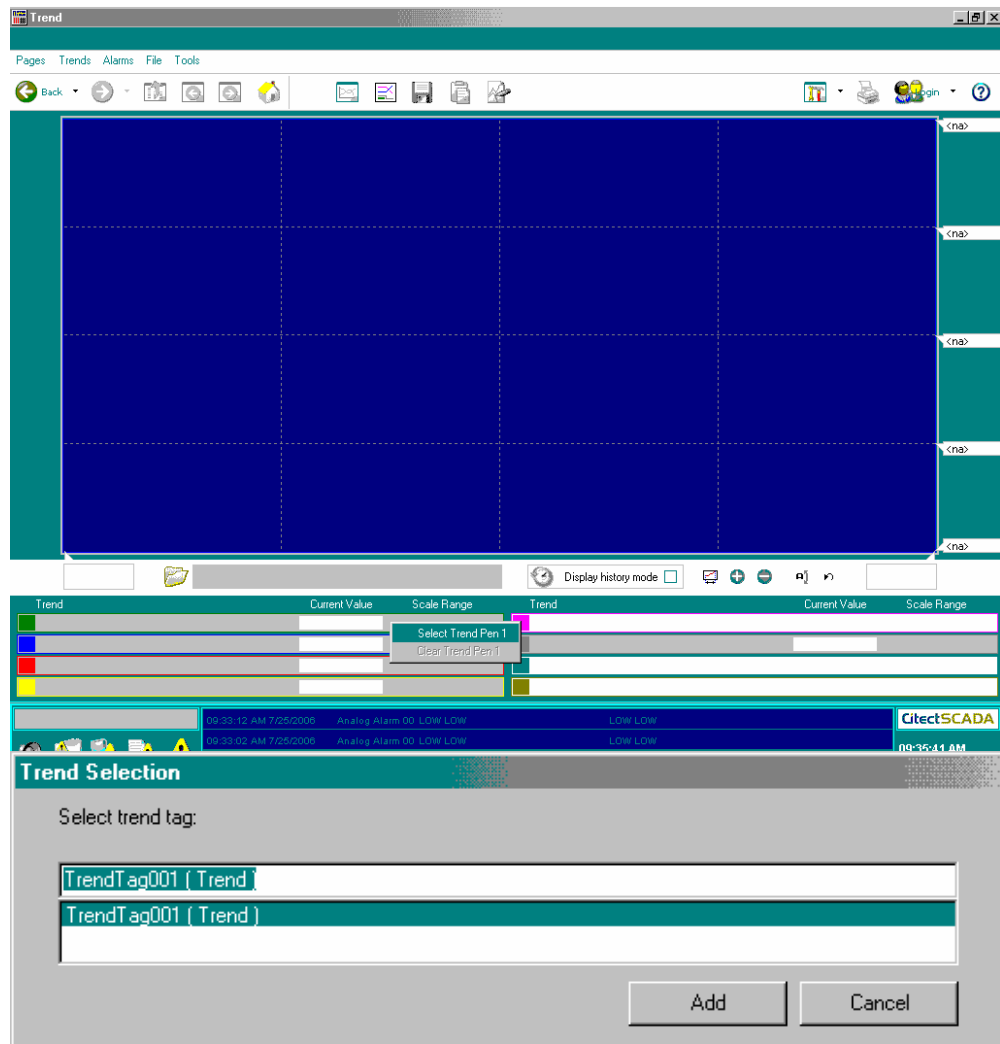
# Vijeo Citect 6.1: My First Project, continued

Run the project and check the data folder.



The 2 files now exist!

Open the <Single Trend> page and right click on the first pen to select it:

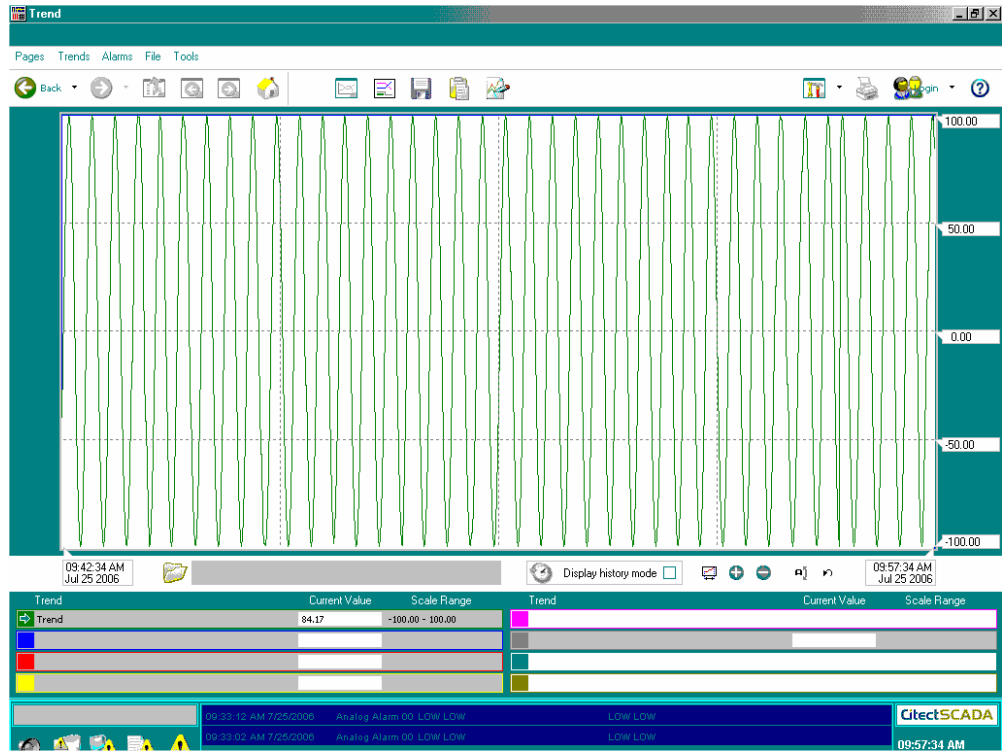


To be continued

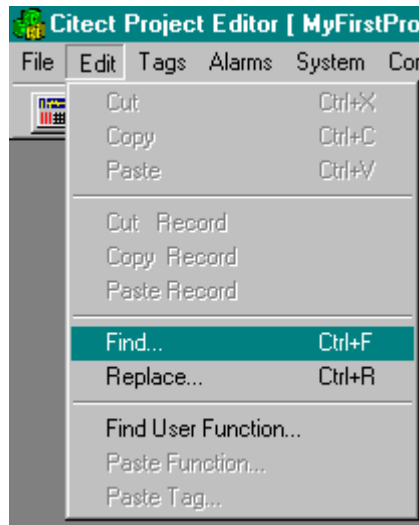
# Vijeo Citect 6.1: My First Project, continued

## Step 9 Configuring Trends, defining scale

In this case, the PLC value is a sinus function computed between [-100,+100] ; to display this range, the tag must be define in the same way:



From the Project Editor, run the <Find> tool:



To be continued

# Vijeo Citect 6.1: My First Project, continued

## Step 9 Configuring Trends, searching and modifying objects

Search for <REAL\_0001> tag, which is the trend source:

| Project        | Item          | Field      | Location | Context   |
|----------------|---------------|------------|----------|-----------|
| MyFirstProject | Trend Tags    | Expression | 1        | REAL_0001 |
| MyFirstProject | Variable Tags | Name       | 2002     | REAL_0001 |
| MyFirstProject | Variable Tags | Address    | 2002     | REAL_0001 |

Double click on the second line to open the tag editor at the REAL\_0001 tag position:

Record: 2002      Linked: Yes

Define the RAW scale (values from PLC) and the ENG scale (values used in the SCADA application) then click on <Replace>.

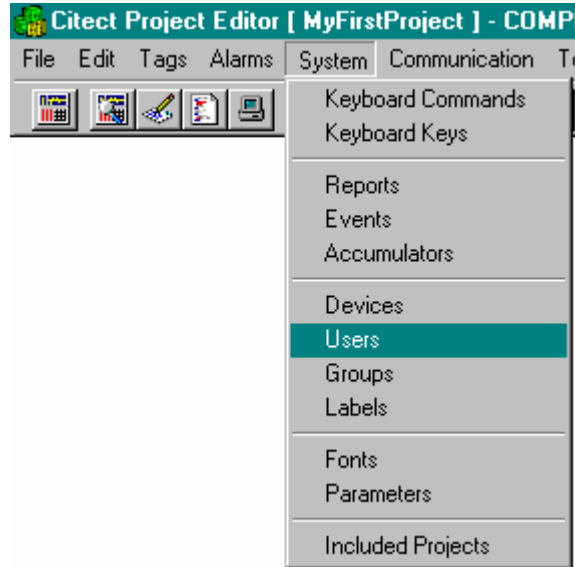
This must be done for the tags used as signed values trends.

To be continued

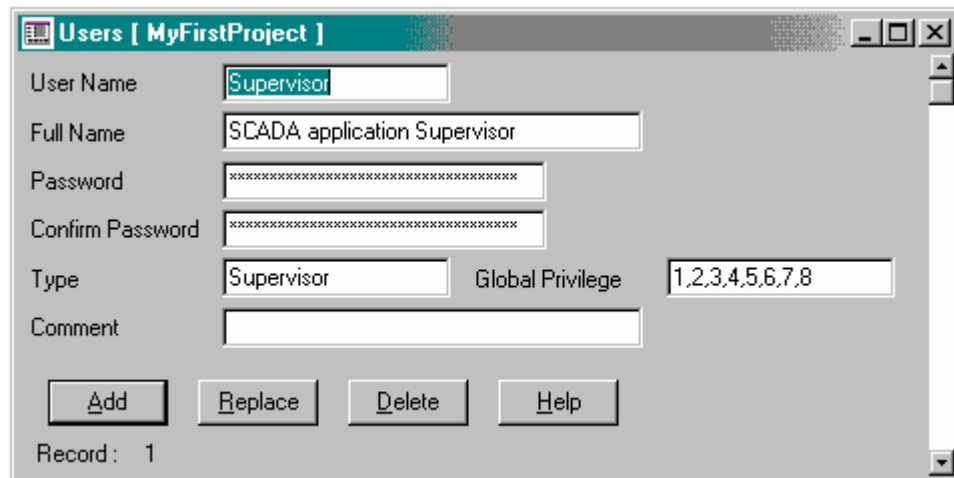
# Vijeo Citect 6.1: My First Project, continued

## Step 10 Creating users

From the project editor, select Main Menu → System → Users:



Define a <Supervisor> with a password and all the 8 distinct privileges:



The <Supervisor> user will browse the project with no restriction.



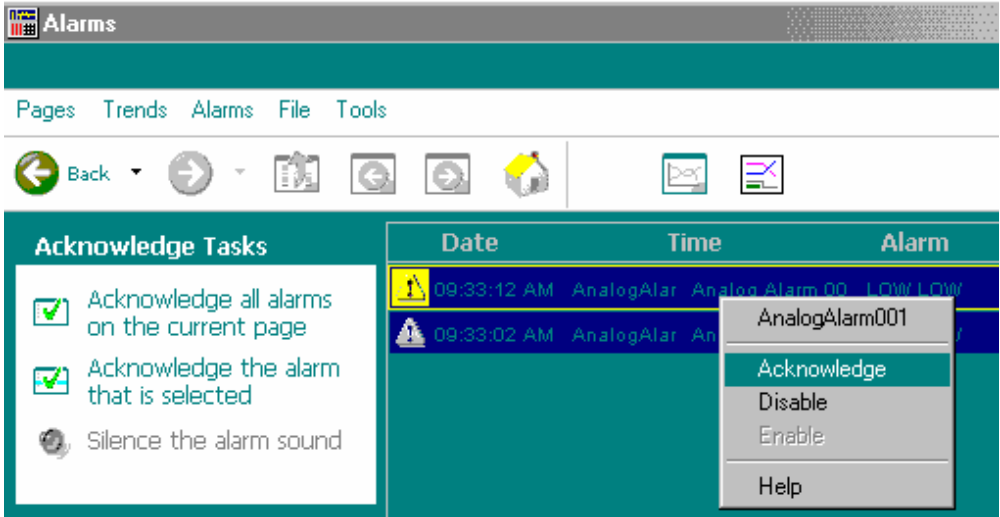
Run the project, log on as <Supervisor>:

To be continued

# Vijeo Citect 6.1: My First Project, continued

**Step 10**  
**Using user's privileges**

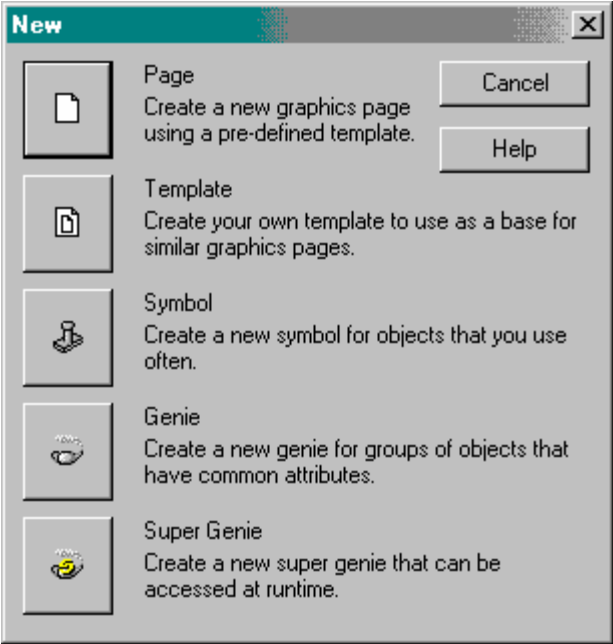
Right click on an alarm to acknowledge it:








| Acknowledge Tasks  | Date        | Time       | Alarm                   |
|--|-------------|------------|-------------------------|
| <input checked="" type="checkbox"/> Acknowledge all alarms on the current page | 09:33:12 AM | AnalogAlar | Analog Alarm 00 LOW LOW |
| <input checked="" type="checkbox"/> Acknowledge the alarm that is selected     | 09:33:02 AM | AnalogAlar | Analog Alarm 00 LOW LOW |
| <input type="checkbox"/> Silence the alarm sound                               |             |            |                         |

**Step 11**  
**Introduction to Genies**

A Genie is a combination of several objects grouped and saved as a single object to be reused from a library. You can define a Genie when you plan to use a lot of times the same group of object. From the Graphics Builder, select <NEW< then <Genie>:



| Icon  | Option      | Description   |
|---|-------------|---|
|  | Page        | Create a new graphics page using a pre-defined template.              |
|  | Template    | Create your own template to use as a base for similar graphics pages. |
|  | Symbol      | Create a new symbol for objects that you use often.                   |
|  | Genie       | Create a new genie for groups of objects that have common attributes. |
|  | Super Genie | Create a new super genie that can be accessed at runtime.             |

To be continued



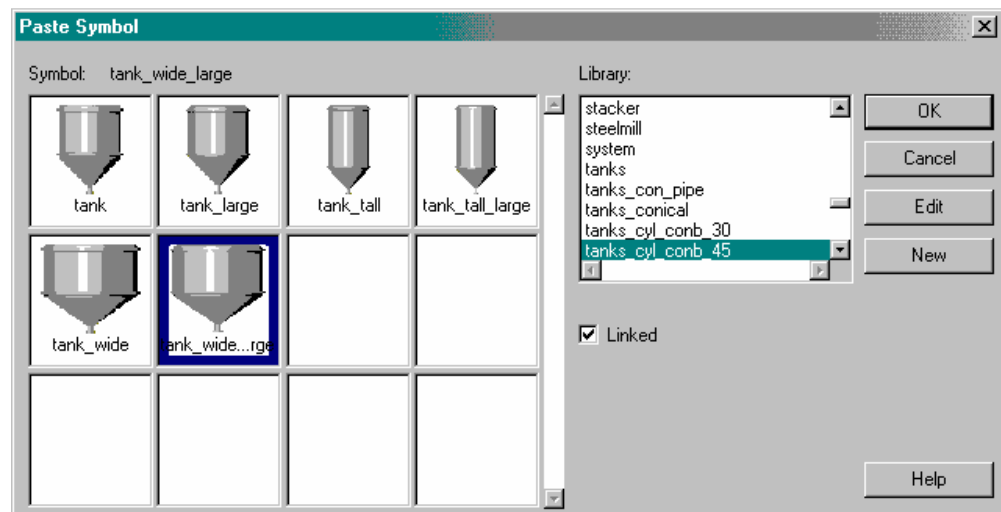
# Vijeo Citect 6.1: My First Project, continued

## Step 11 Introduction to Genies, insert a graphic

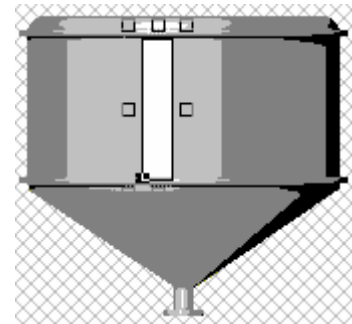
Once in the Genie Editor, paste a symbol:



Select a tank, “tank\_wide...rge” from the tanks\_cyl\_conb\_45 library for instance:



Draw a rectangle on the blank part of the tank:



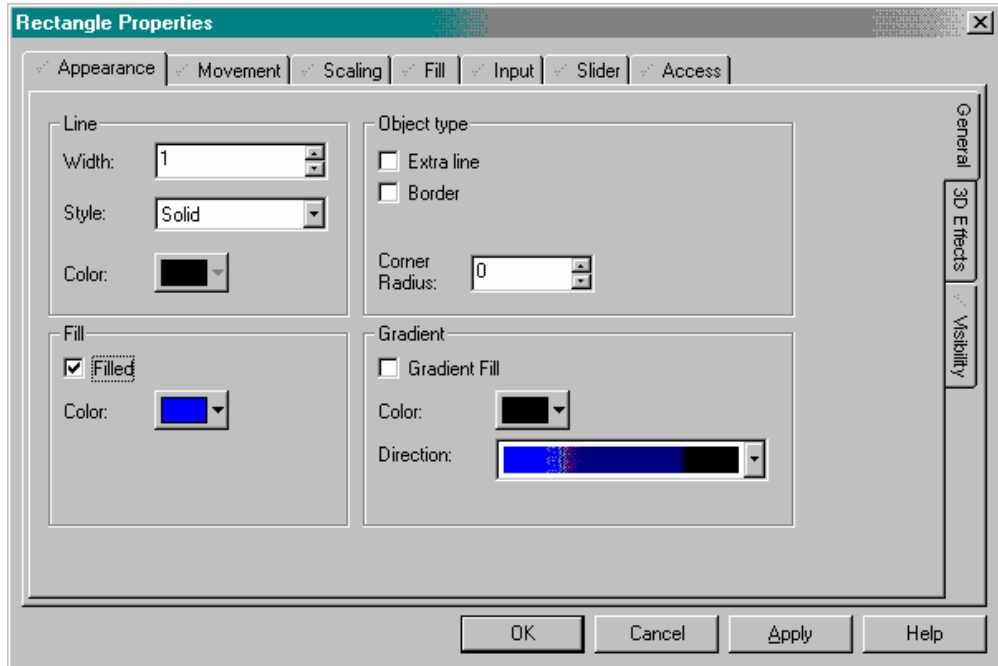
To be continued

# Vimeo Citect 6.1: My First Project, continued

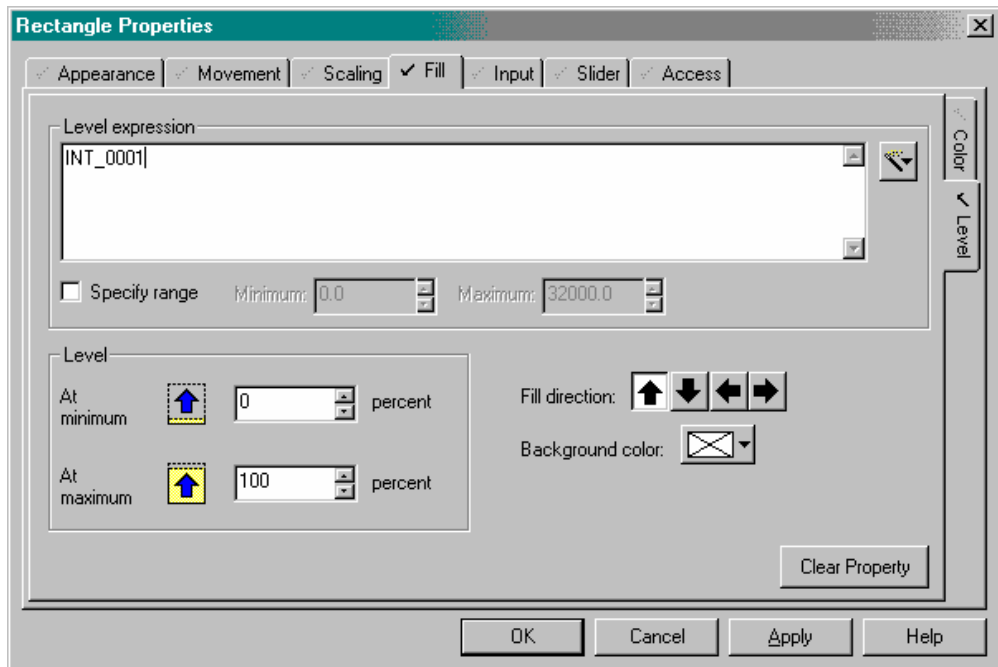
## Step 11

### Introduction to Genies, add a rectangle

Select <Filled> option and the colour for the bar graph animation:



Select a tag from the list:

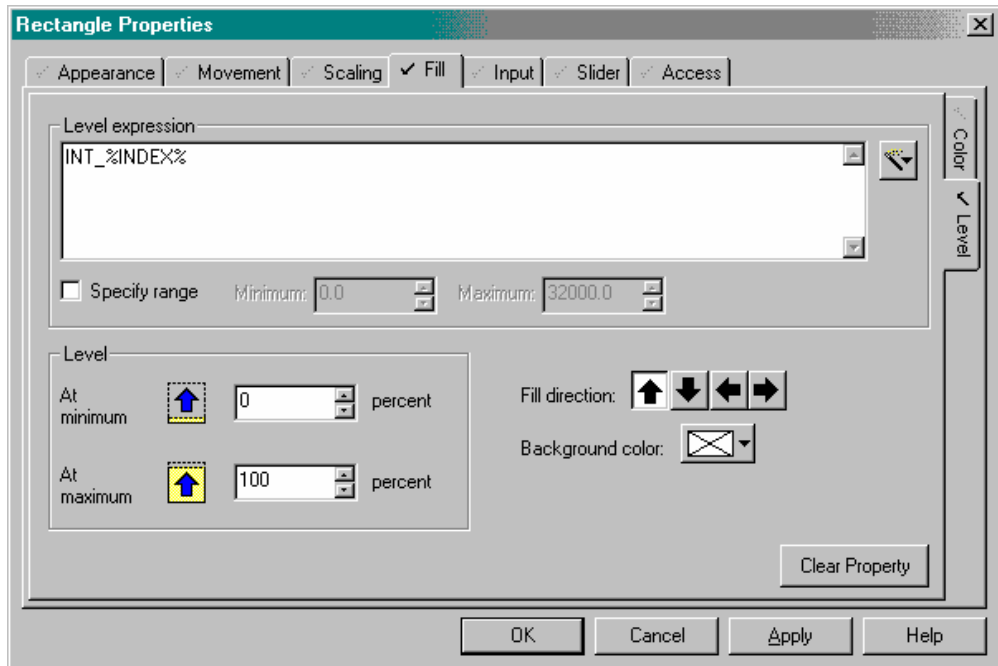


To be continued

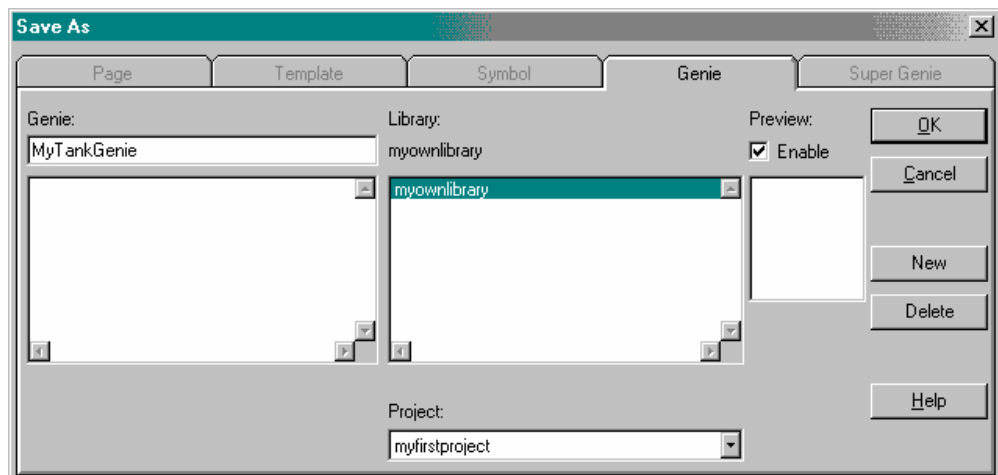
# Vijeo Citect 6.1: My First Project, continued

## Step 11 Introduction to Genies, define a “generic” tag

Delete the “index” part of the tag name and define it as a “generic part”:



Then save the Genie:



To be continued

# Vijeo Citect 6.1: My First Project, continued

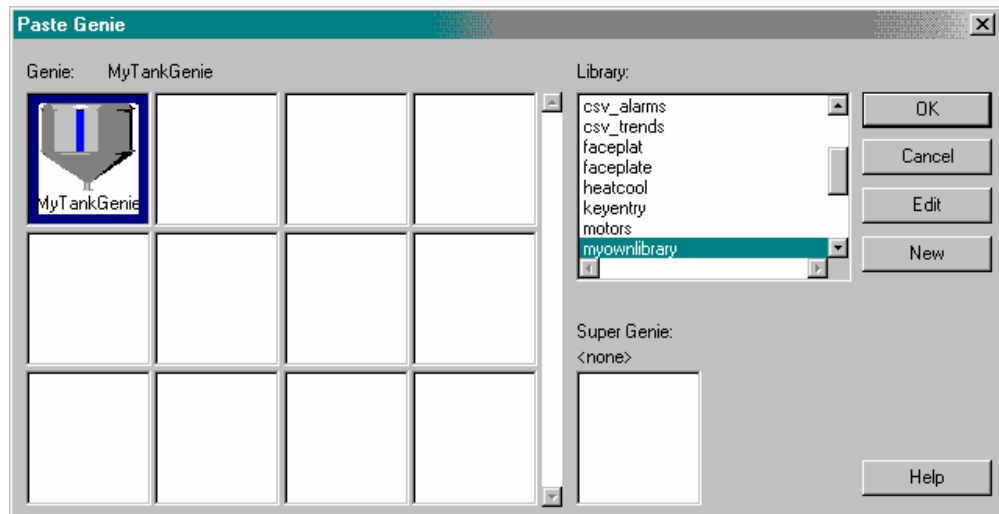
Open a page and insert a genie:



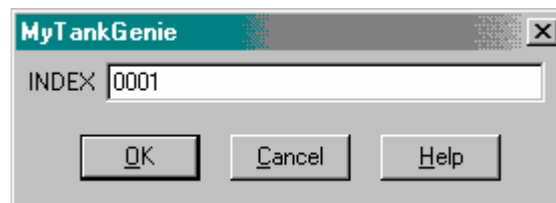
## Step 11

Introduction to Genies, create an instance

Select <MyTankGenie> from <MyOwnLibrary>:



A popup window requests you to redefine the %INDEX% part of the tag:



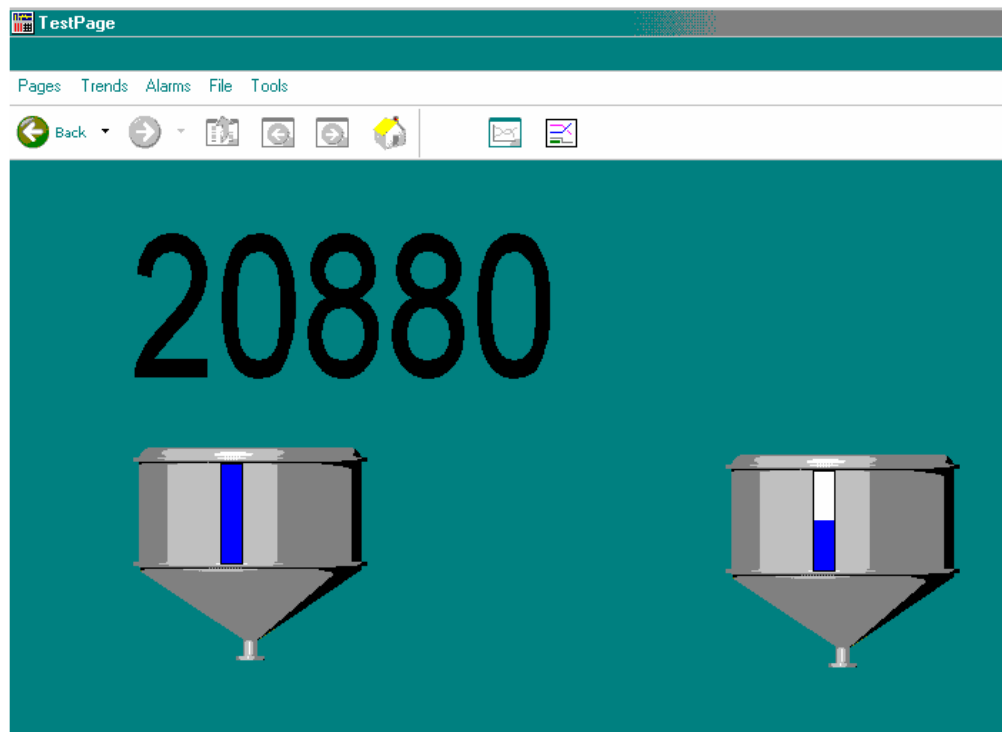
To be continued

# Vijeo Citect 6.1: My First Project, continued

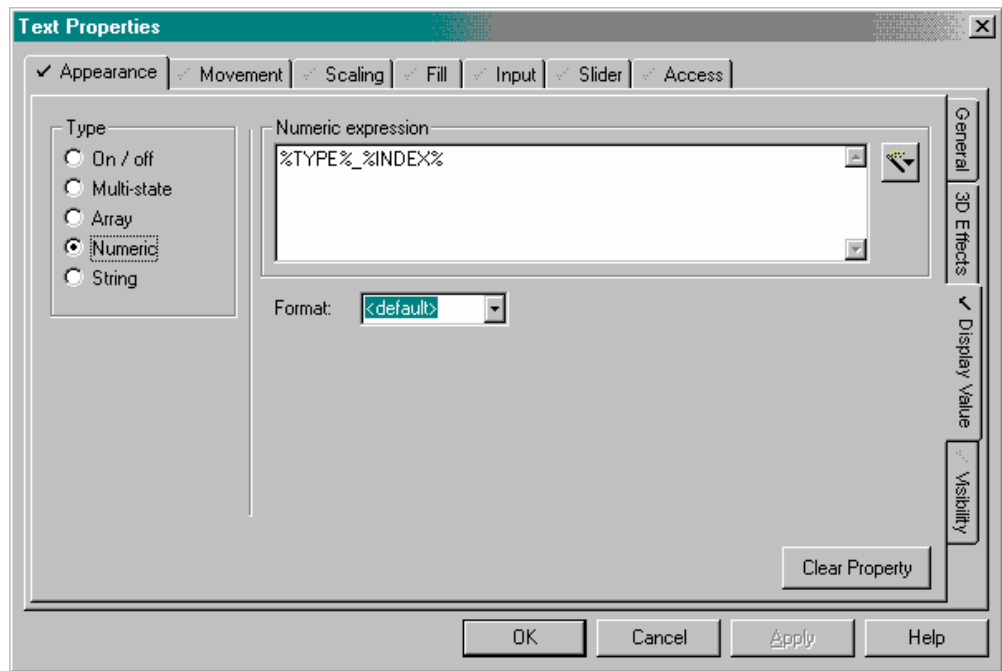
## Step 11

### Introduction to Genies, multiple substitution strings in design

Insert a second instance and select "0002" for %INDEX%, save the page and then run the project:

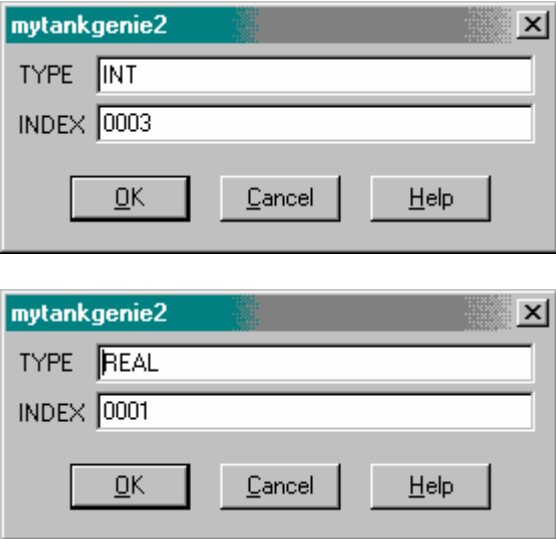


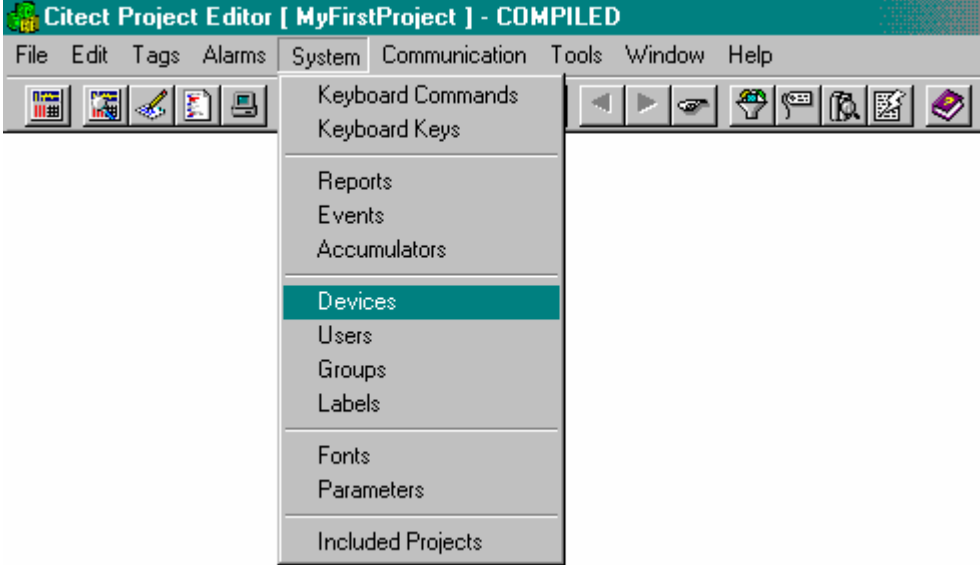
The Genie also accept multiple substitution strings, as :



To be continued

## Vijeo Citect 6.1: My First Project, continued

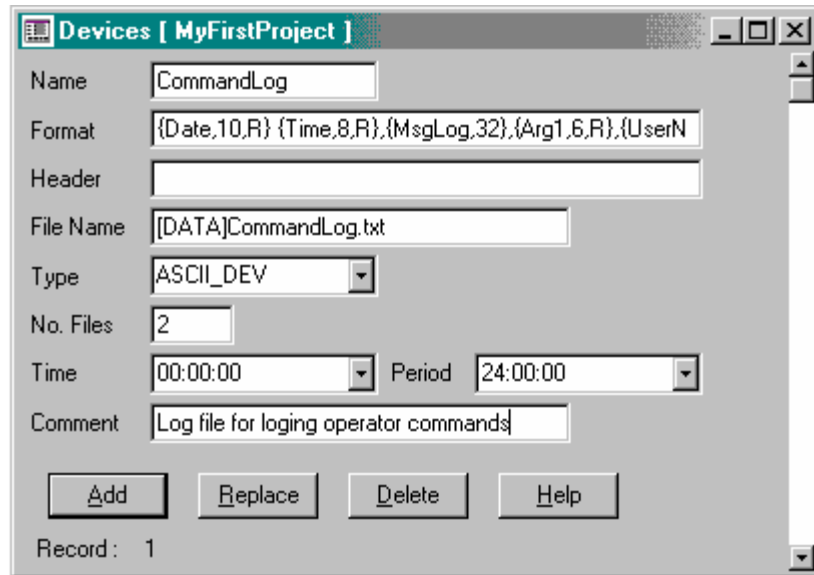
|  |  |
|--|--|
| <p><b>Step 11</b></p> <p><b>Introduction to Genies, multiple substitution strings in instantiation</b></p> | <p>When instantiating such an object, you are prompted to fill 2 fields:</p>  <p>The first screenshot shows a dialog box titled 'mytankgenie2' with two input fields: 'TYPE' containing 'INT' and 'INDEX' containing '0003'. Below the fields are three buttons: 'OK', 'Cancel', and 'Help'.</p> <p>The second screenshot shows the same dialog box with 'TYPE' containing 'REAL' and 'INDEX' containing '0001'.</p> |
|--|--|

|   |  |
|---|--|
| <p><b>Step 12</b></p> <p><b>Introduction to Devices</b></p> | <p>Mouse or keyboard input can trigger a message to be sent to a log device via the MsgLog. The log device must also be defined with MsgLog as one of the format fields. From the Project Editor, open the Devices Editor:</p>  <p>The screenshot shows the Citect Project Editor interface. The title bar reads 'Citect Project Editor [ MyFirstProject ] - COMPILED'. The menu bar includes 'File', 'Edit', 'Tags', 'Alarms', 'System', 'Communication', 'Tools', 'Window', and 'Help'. The 'System' menu is open, showing options: 'Keyboard Commands', 'Keyboard Keys', 'Reports', 'Events', 'Accumulators', 'Devices' (highlighted), 'Users', 'Groups', 'Labels', 'Fonts', 'Parameters', and 'Included Projects'.</p> |
|---|--|

To be continued

# Vijeo Citect 6.1: My First Project, continued

Define a text device as shown here under:

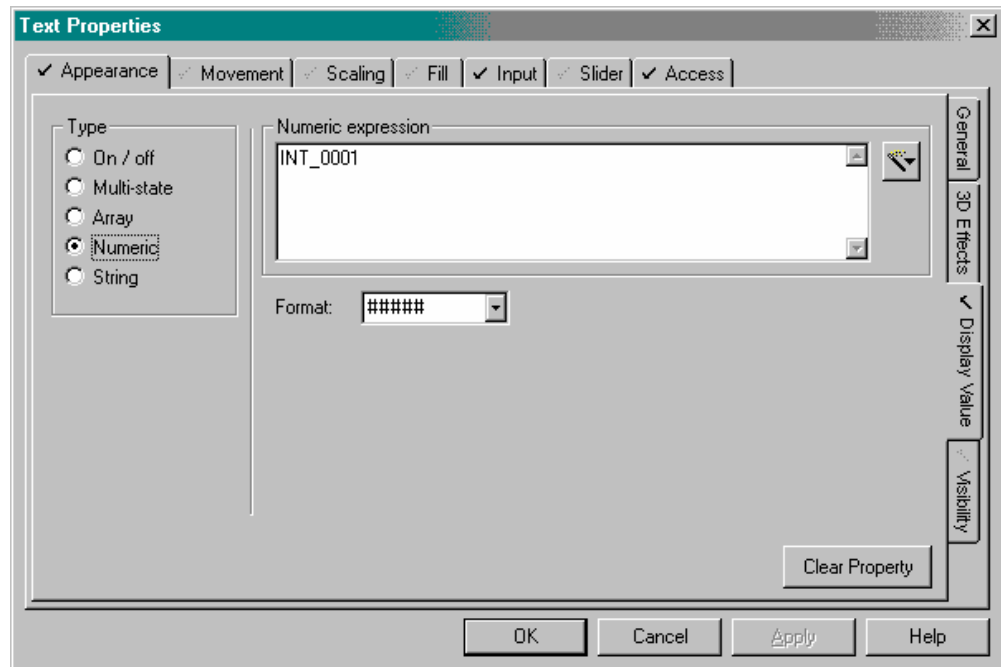


## Step 12

Introduction to  
Devices, create  
an ASCII device

**Format: {Date,10,R} {Time,8,R},{MsgLog,32},{Arg1,6,R},{UserName,16},{Page,16}**

Add a text object in the page and define a numeric display:



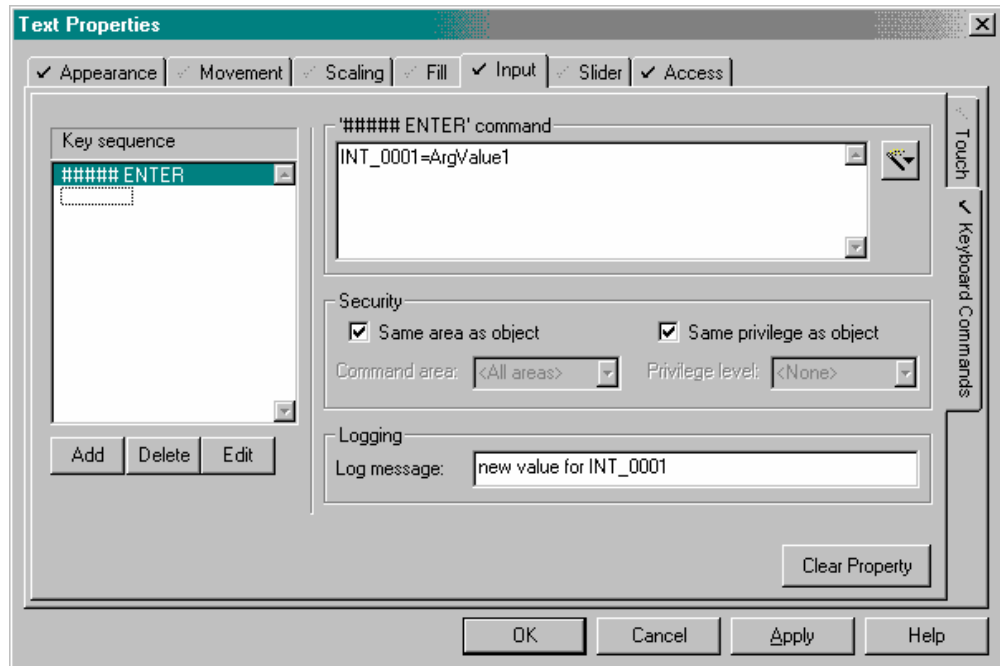
To be continued

# Vijeo Citect 6.1: My First Project, continued

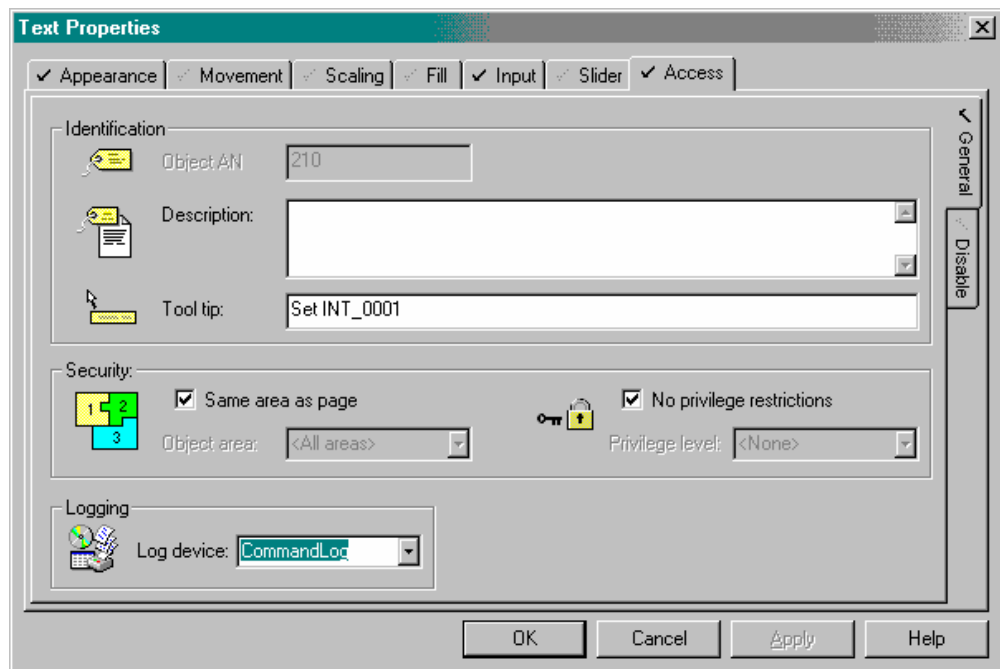
## Step 12

### Introduction to Devices, log a user input

Define an <Input> command for the tag, with a log message:



In the <Access> tab, define a tool tip text and the logging device:



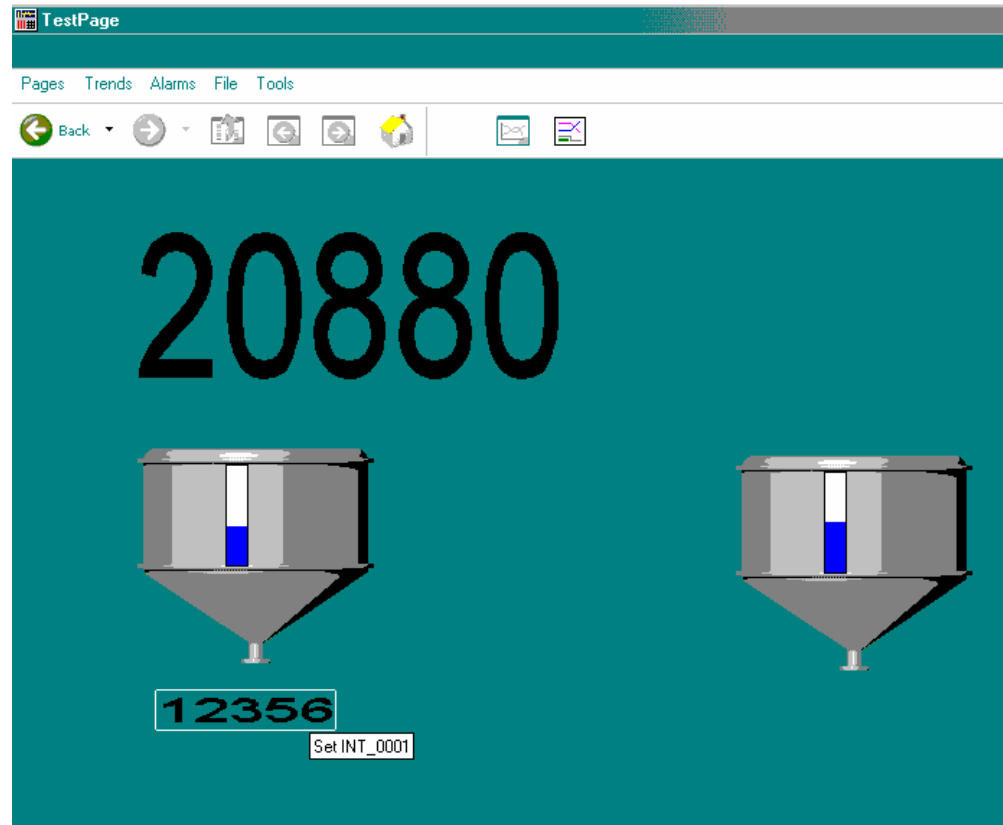
To be continued



# Vijeo Citect 6.1: My First Project, continued

## Step 12 Introduction to Devices, set a tag value

Run the project, load as <Supervisor> then set the tag value:



Open the log file:

