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Revision	Description	Date
B	Name change, correct where applicable with document	04/07

P/N 350012 (B)

The Pro-face/Xycom Profibus slave communication module, (from now on referred to as the "COM-DPS"), allows OpenHMI to communicate on a Profibus network supporting up to 255 bytes of I/O to and from the network. The COM-DPS is only capable of solicited communication. This means that the master controller, (PLC), provides information displayed on the OpenHMI screen and requests the information required to interact with the process. The states of inputs and outputs at other nodes are acquired passively, where the master controller issues these states to the COM-DPS. This data gathering function is not automatic. Therefore, logic must be created in the master controller, directing information to both the intended I/O device and the COM-DPS.

This quick start will guide the user through the following processes:

1. Configuring the COM-DPS for the desired number of inputs and outputs
2. Using SyCon, setup the SMSI Server
3. Generate a simple screen in Intouch to graphically display the results

The configuration of the COM-DPS (using SyCon) is done on the Runtime Workstation. Defining Tagnames in the SMSIServer and the Intouch application is typically done in the development system environment.

Let us assume that a block of I/O exists at MacID (node address) 15. This I/O block has 1 byte of input (produced) data and 1 byte of output (consumed) data. The master controller is programmed to read and write data to and from this I/O block in a polled fashion. The controller is also programmed to send the same data previously sent to the I/O block, and the data it reads from the I/O block, to the COM-DPS, at MacID 9, for representation on the screen. In this way, the COM-DPS has an image of the inputs and outputs of the I/O block.

Initial Configuration of Runtime Workstation

The first step is to configure the Slave Module for the correct number of inputs and outputs. This is done using a utility called SyCon (System Configurator). SyCon is provided free of charge as a demo version. The only limitation of demo mode is that only two network nodes can be configured. Since the Slave module is the only node we need to configure for the HMI application, demo mode is sufficient.

Start SyCon by selecting it from the Program Group < SyCon System Configurator > in the Start Menu. From the Toolbar select File - New and from the bus selections pick Profibus. A blank (network configuration) page will appear on the screen. SyCon is designed such that a Master must be present on the network to allow slave devices to be added. For the purposes of configuring the Slave Module, a Profibus master must exist on the network.

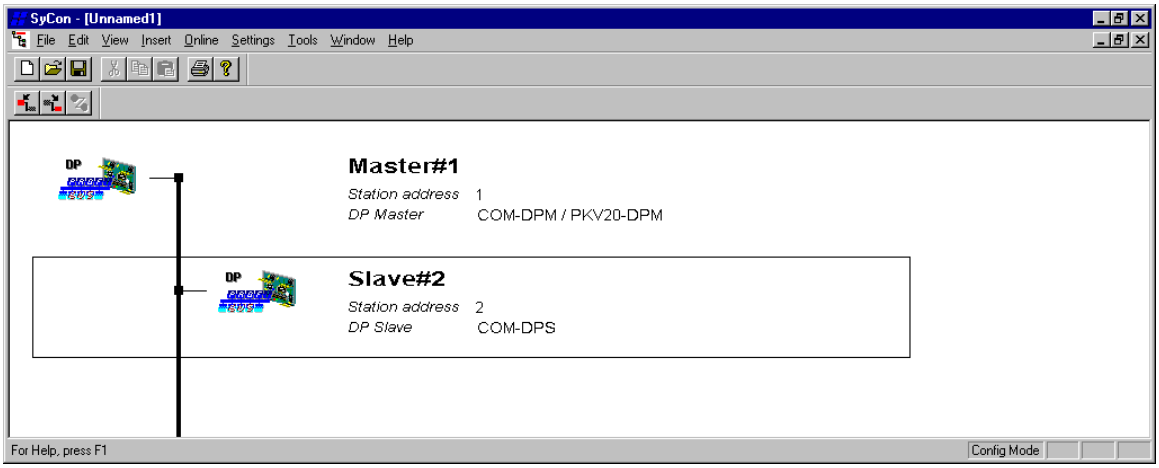
The Tool Button  is used to insert a master.

Move the insertion point to the upper left of the screen and click the left mouse button to place the Master. A selection window will appear containing various master modules. Select “COM-DPM / PKV20-DPM” by clicking on it, then click on Add followed by OK. The Profibus-Master should appear at the top of the display connected to the black vertical bar representing the Profibus network.

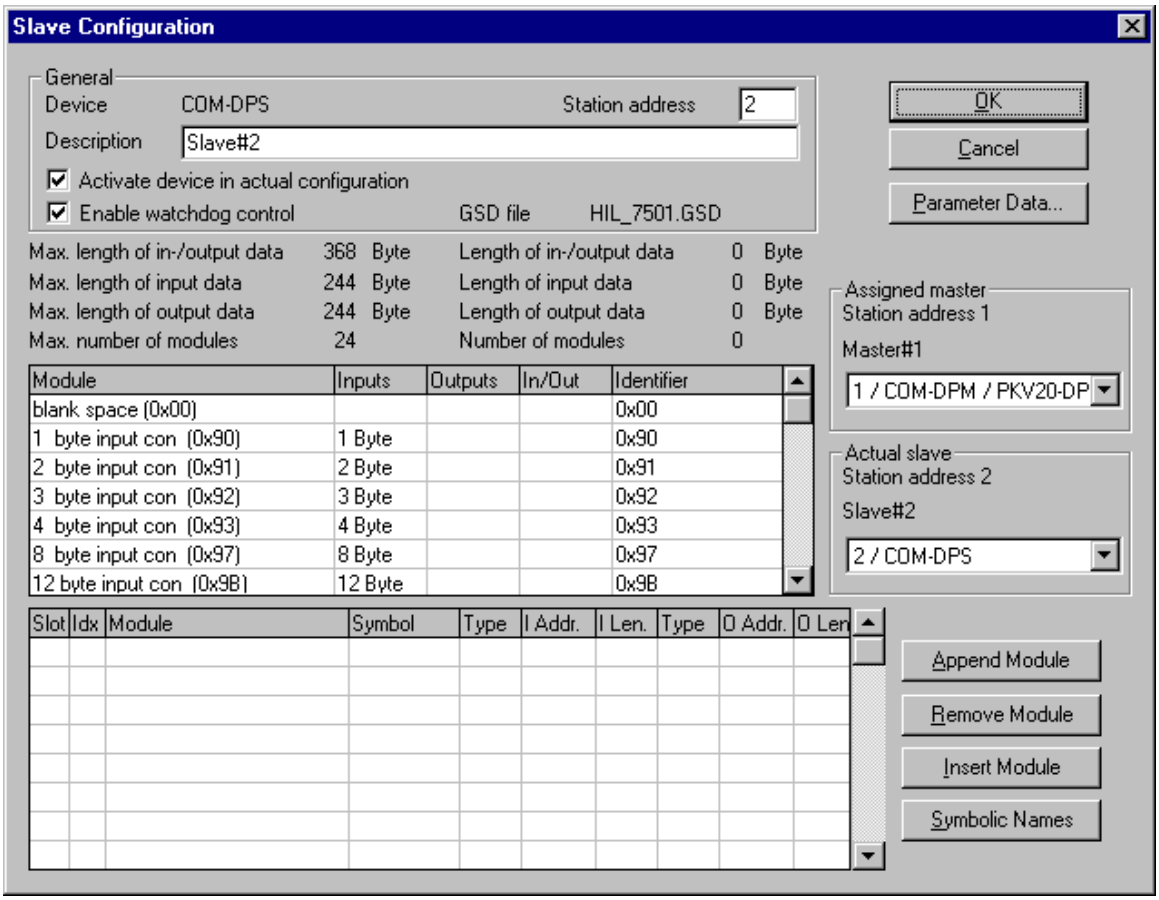
Now the Slave Module can be added to the network. Click on the Tool Button  or use Insert - Slave.

Once done, an insertion point cursor will appear on the screen, representing the target position where the Slave Module will exist on the network. Move the insertion point below the Profibus-Master and click the left mouse button to place the Slave Module. A selection window should appear on the screen containing various types of slave modules. Select COM-DPS by double clicking on it or by single clicking on it, then clicking Add, followed by OK.

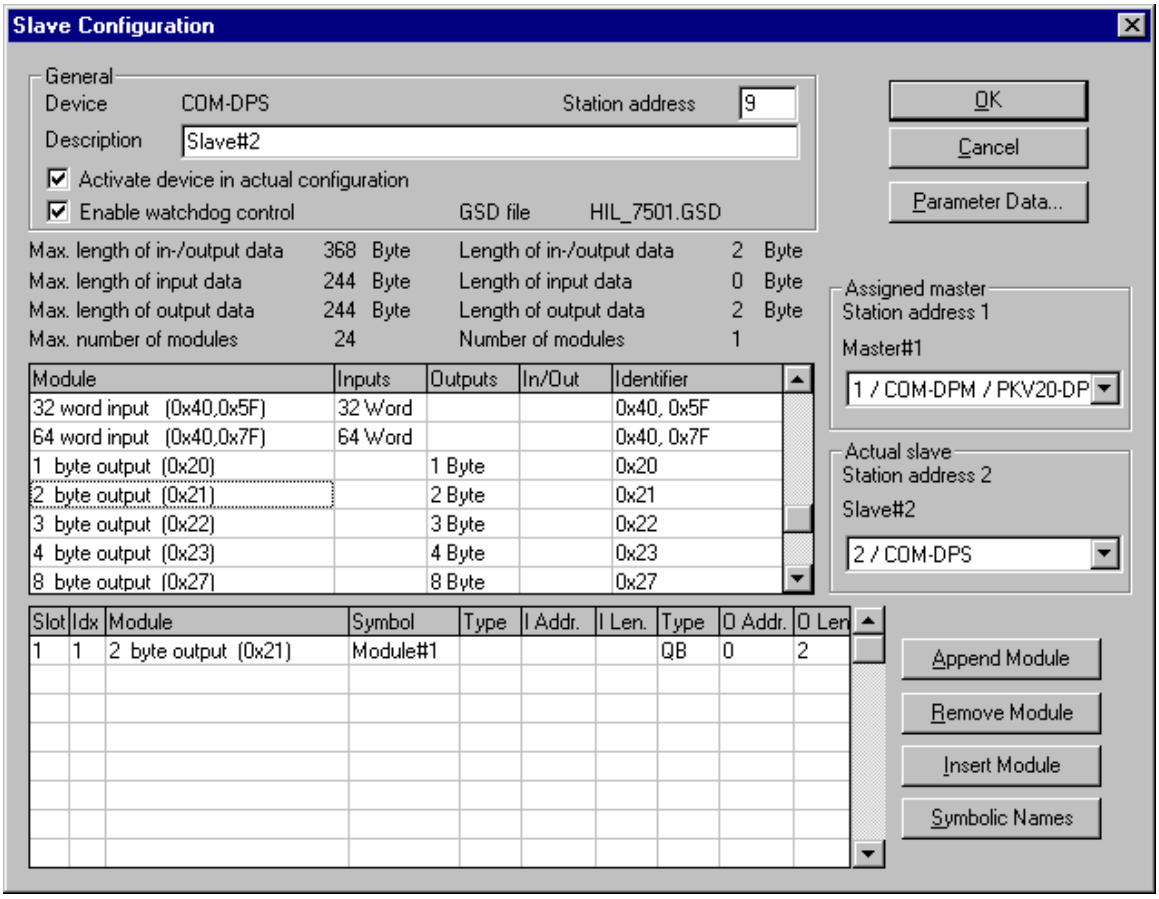
The COM-DPS should appear on the screen connected to the Profibus network as shown below.



Right click on the COM-DPS and then select Slave Configuration, or (optionally) double click on the COM-DPS to bring up the Slave Configuration window.



Change the Station address to 9, (which is what we previously chose for this application). Since the I/O block on the Profibus network, has 1 byte of input and 1 byte of output, the COM-DPS will be set up for 2 bytes of output to allow the master controller to write the input and output images of the I/O block to the COM-DPS. Scroll down the table of available Modules until you find "2 byte output [0x21]". Double click on it or select it and then click on **"Append Module"**, to add this data type to the configured modules in the table below. The changes to the configuration should look like the following screen. Press enter now or click on the OK.

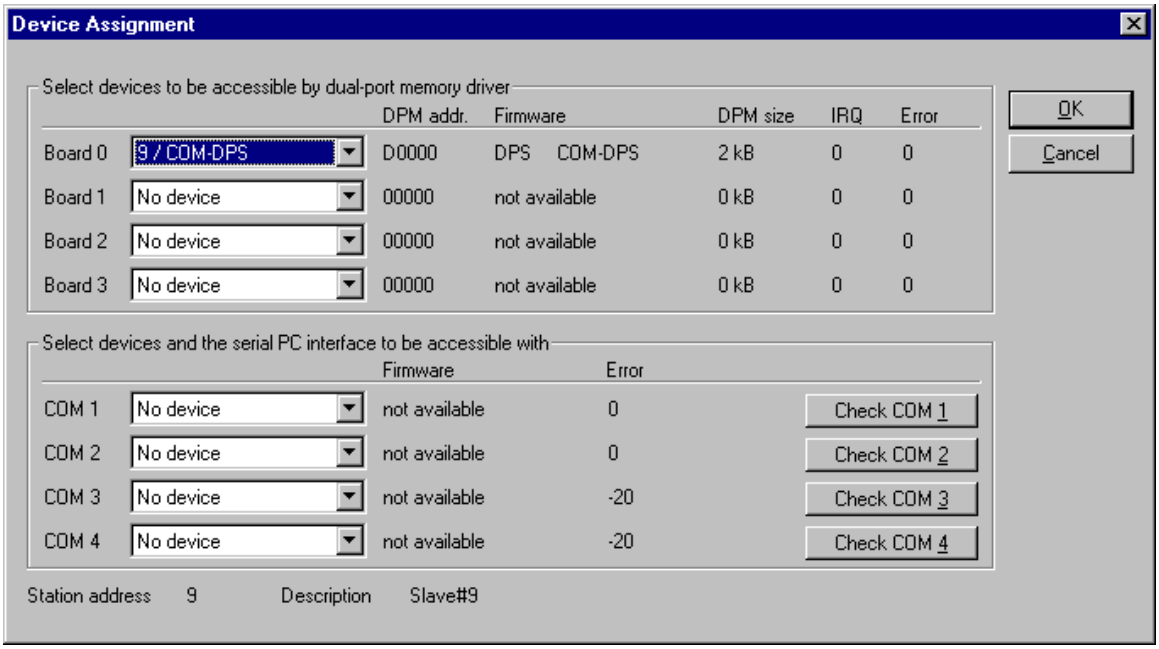


The COM-DPS is now configured for two bytes of output and Station address 9. This configuration must be downloaded to the flash memory within the COM-DPS. Once done, the COM-DPS will always power up running this configuration.

Right click on the **COM-DPS** and click on **"Select as actual slave**" in the pop up window. A blue box should appear around the icon for the COM_DPS. This box indicates that the device plugged into the computer is the actual device to be downloaded to. From the menu, select **Online** then **Download**. A window will pop up asking if you really want to download. Select **Yes**.

A board assignment window will pop up requiring Board 0 to be defined. Pick the pull down menu arrow for Board 0. There should be at least two choices, "No device" and "COM-DPS". Pick **COM-DPS**. Download of the configuration to the COM-DPS should commence.

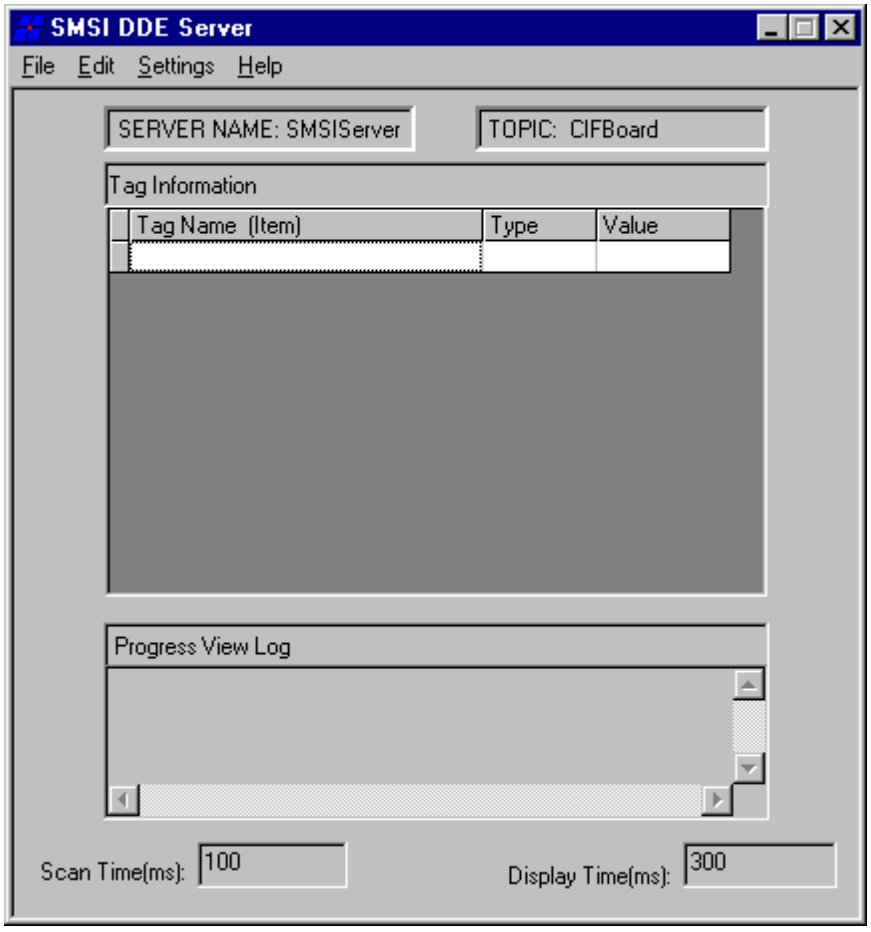
Now that the COM-DPS has been configured, save the session by choosing File - Save from the menu bar.



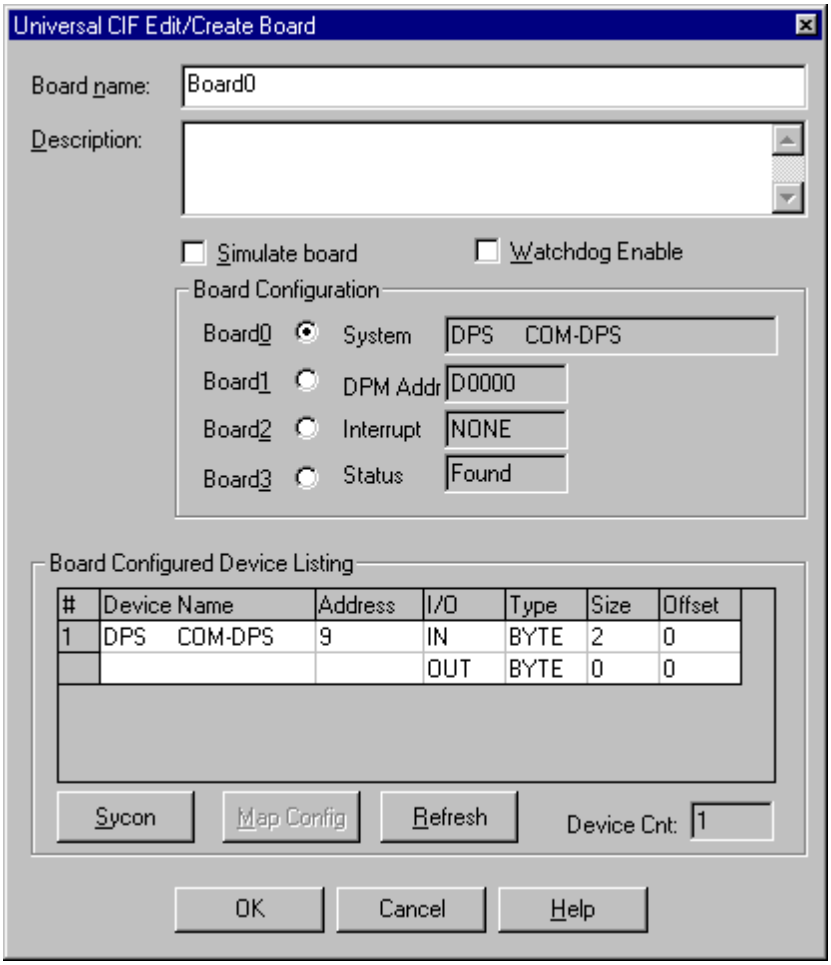
SMSI Server

The SMSI Server is the link between Intouch and the Device Driver for the COM-DPS board. Intouch communicates through a DDE link with the server. The server shares the same Tagname as Intouch and conveys the translation to the proper addresses at the Dual Port Memory on the COM-DPS card. The server must therefore be set up with Tagnames and their appropriate offsets. These Tagnames will likely be pre-established in the development system environment. The SMSI Server must read the COM-DPS directly to gather the configuration information. This information is saved as a file and can be later transferred to and edited in the development system environment.

Invoke the SMSI Server from Start - Programs - SMSIServer - SMSIServer. The following window should appear on the screen.



From the File menu, select New Board to bring up the following window.

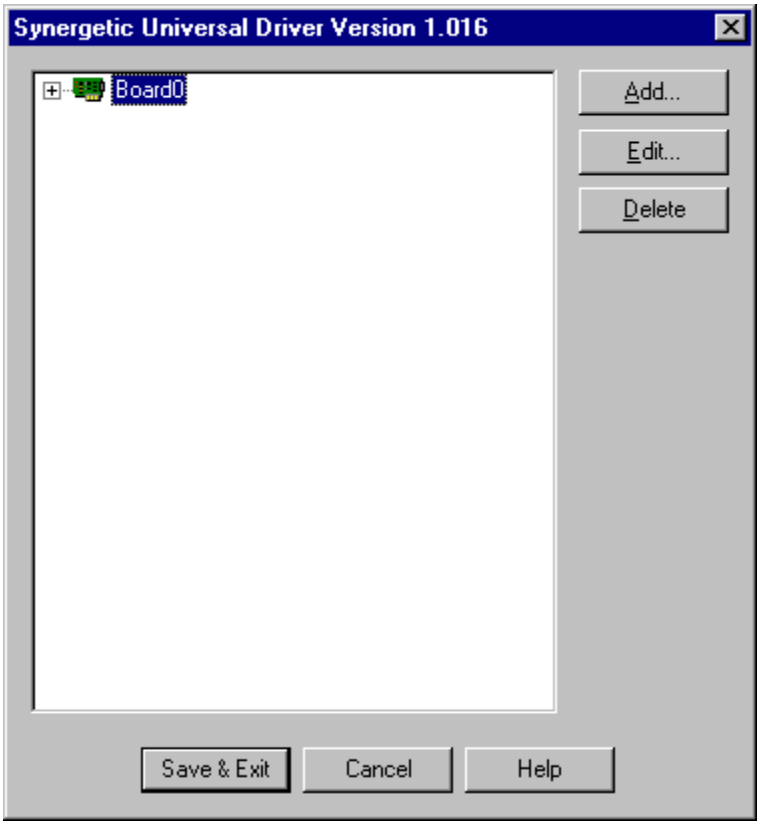


Notice that under the Board Configured Device Listing, the COM-DPS appears in the table. The SMSIServer has automatically interrogated the COM-DPS to determine its configuration. Verify that it is set for Address 9, and that the Inputs are set to two and the outputs are zero.

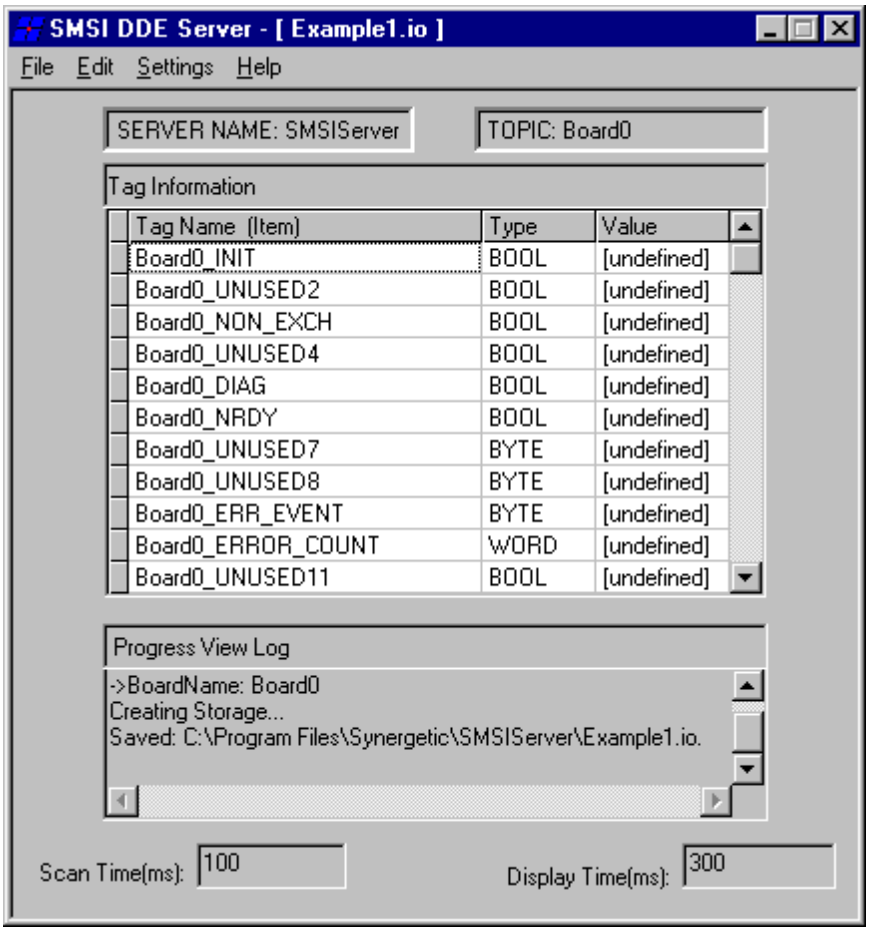
Any data that Intouch receives from the server is considered an input. Data from Intouch to the server is considered output.

Remember that the COM-DPS was configured for two bytes of output. During this configuration, SyCon uses the reference point of the master controller. Therefore, data sent to the COM-DPS from the controller is treated as output. This same data from the Intouch point of view is treated as input data. This is why the server reports that there are two bytes of input, rather than the 2 bytes of output that was previously configured.

Click OK to accept this new board. The following window should appear. Click on Save & Exit to save this configuration to a file. Give it the name Example1.

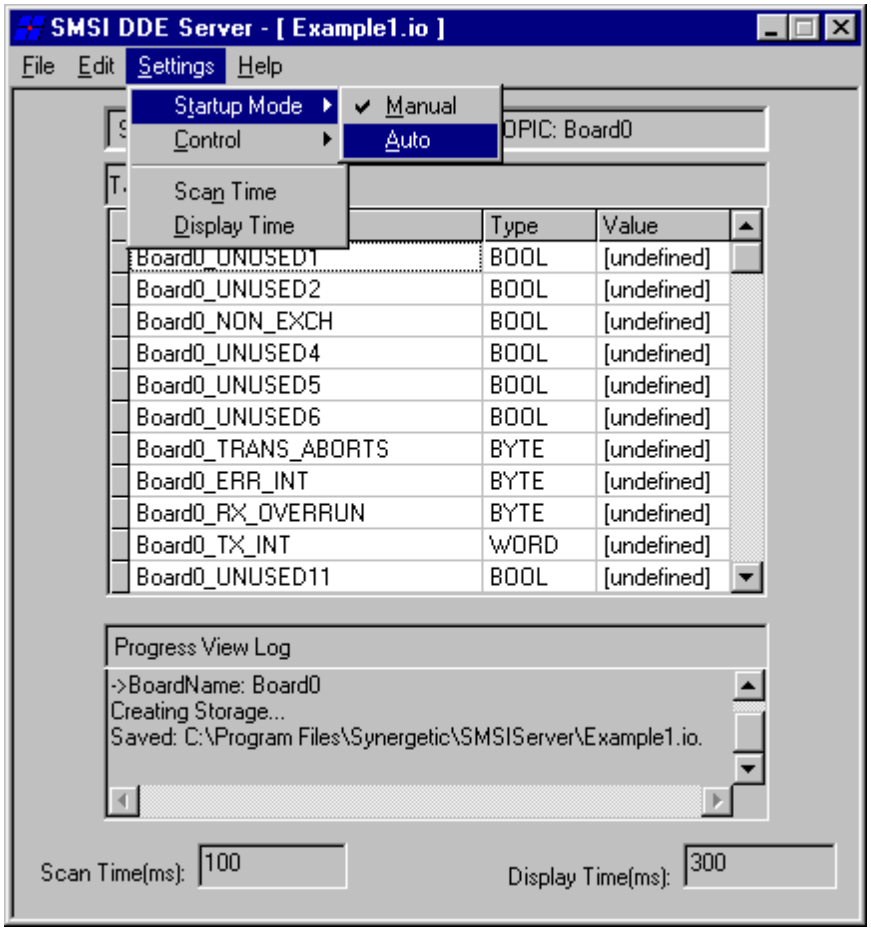


After Saving & Exiting, the screen below will appear. The SMSI Server automatically generates status tags for the board, some of which will say unused if it is inappropriate for the type of communication card plugged in. Definitions for these status tags can be found in the Help menu for the SMSI Server.



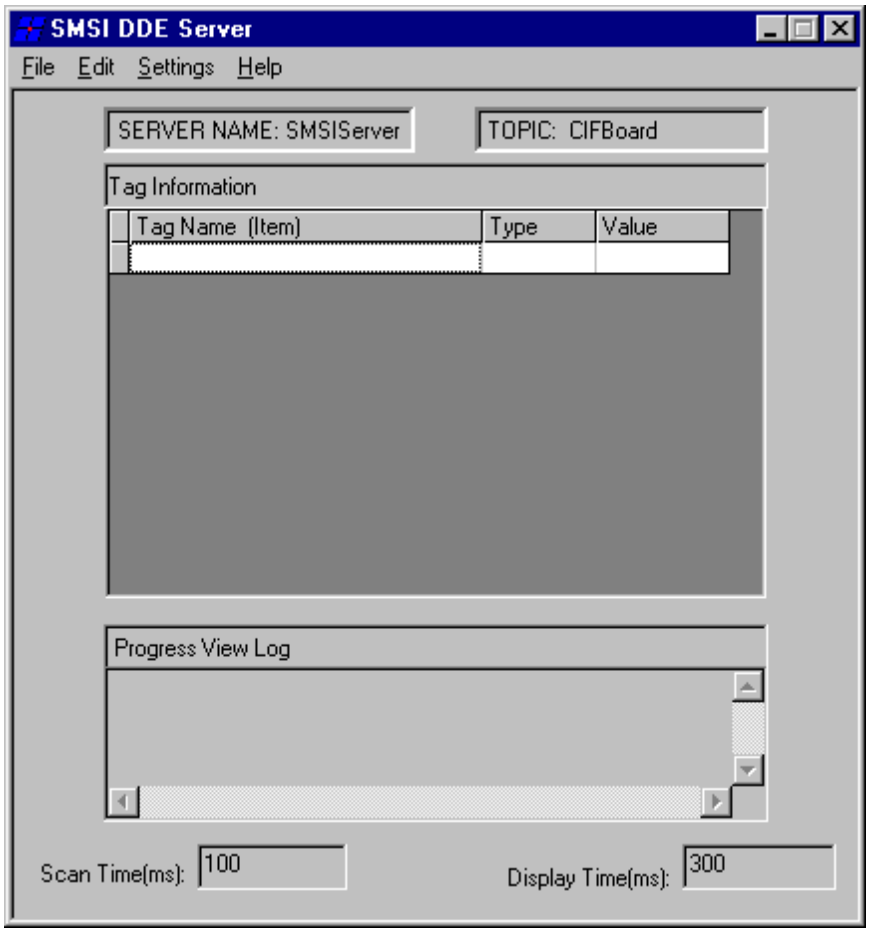
Before exiting the server, it is necessary to set it up to automatically load Example1.io whenever the SMSIServer is launched. This will avoid any manual intervention. Select Settings – Startup Mode – Auto. This automatically loads the last file, (in this case Example1.io). Now exit the server.

The file Example1.io can now be transferred to the development system. On the development system, the file Example1.io should be placed in the folder C:\Program Files\Synergetic\SMSIServer.

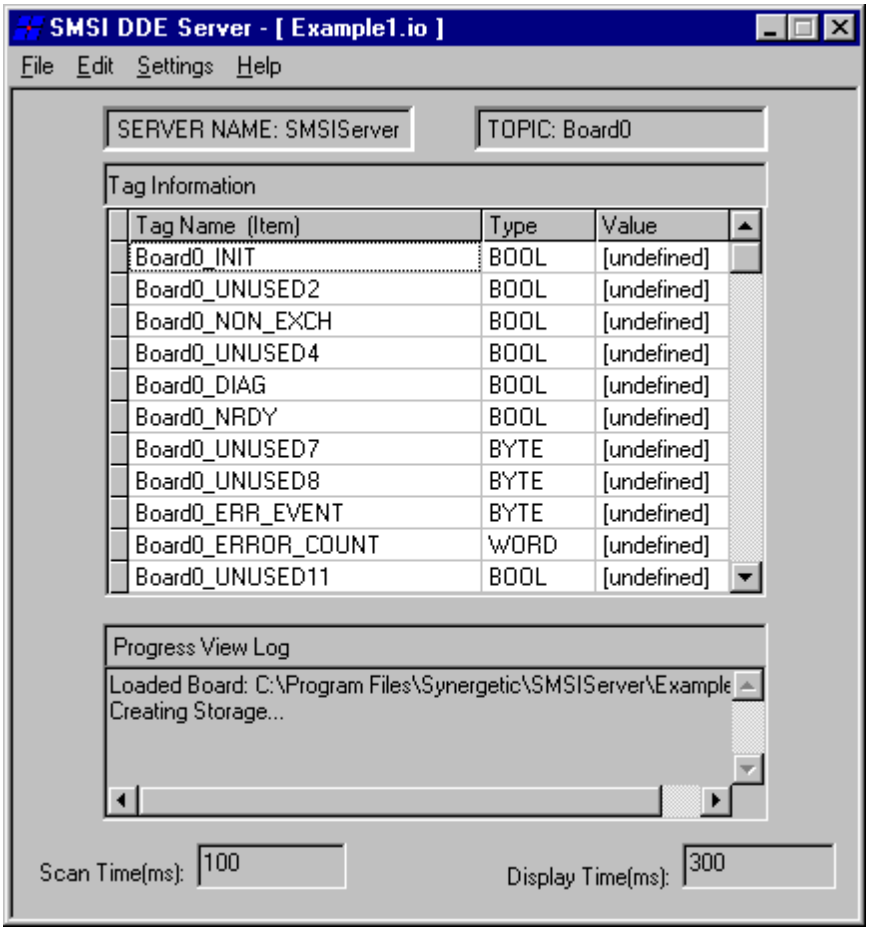


Development System

Invoke the SMSI Server from Start - Programs - SMSIServer - SMSIServer. The following window should appear on the screen.

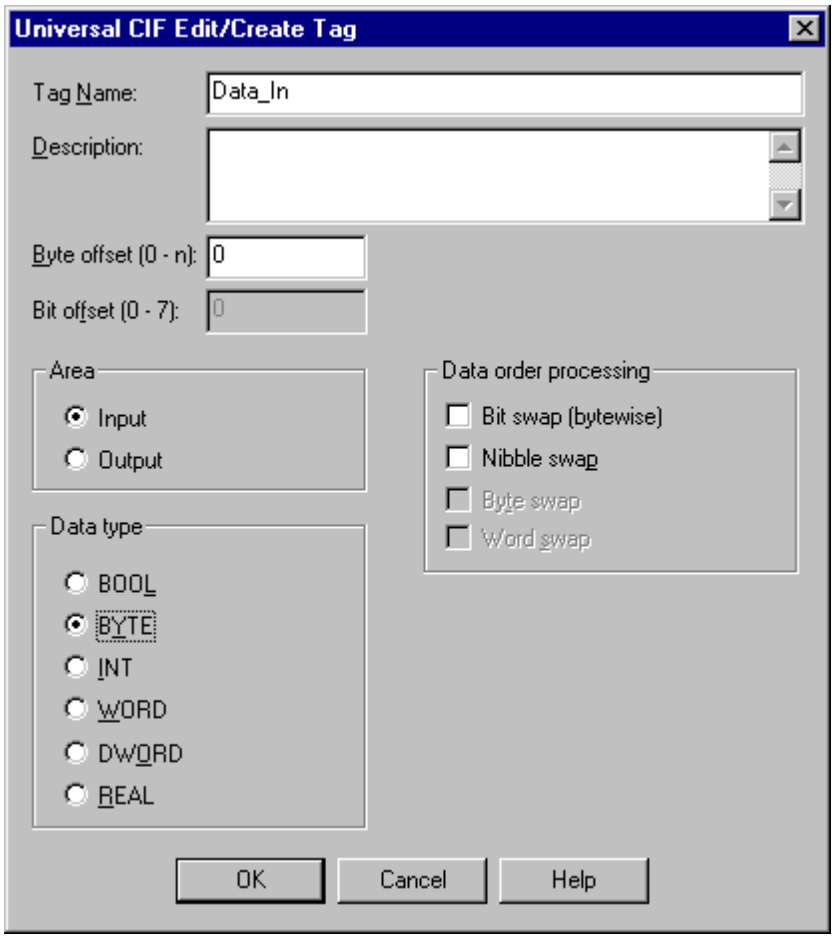


From the File menu, select Open Board and pick Example.io to bring up the following window.



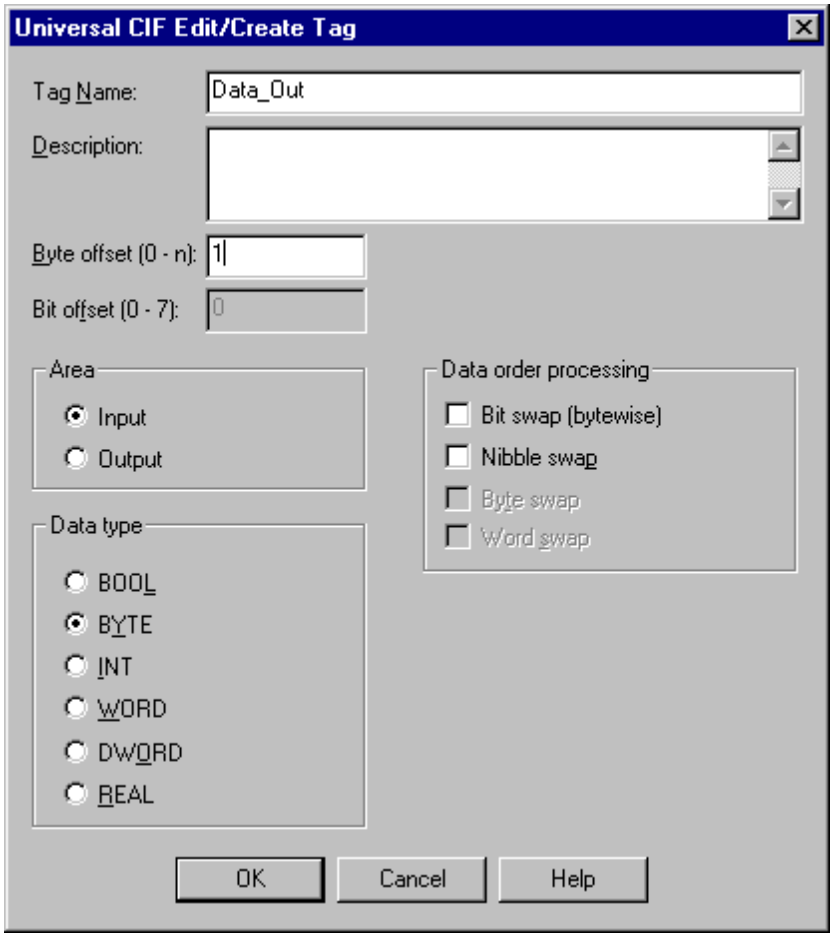
From the Edit menu, select Edit Board. When the window pops up, click on the "+" sign for Board0 to expand the tree as shown below. Addr9 should now be seen, which represents the COM-DPS at Station address 9. Click on the icon for Addr9 to highlight it then select Add.

A "Create Tag" window will appear as shown below.



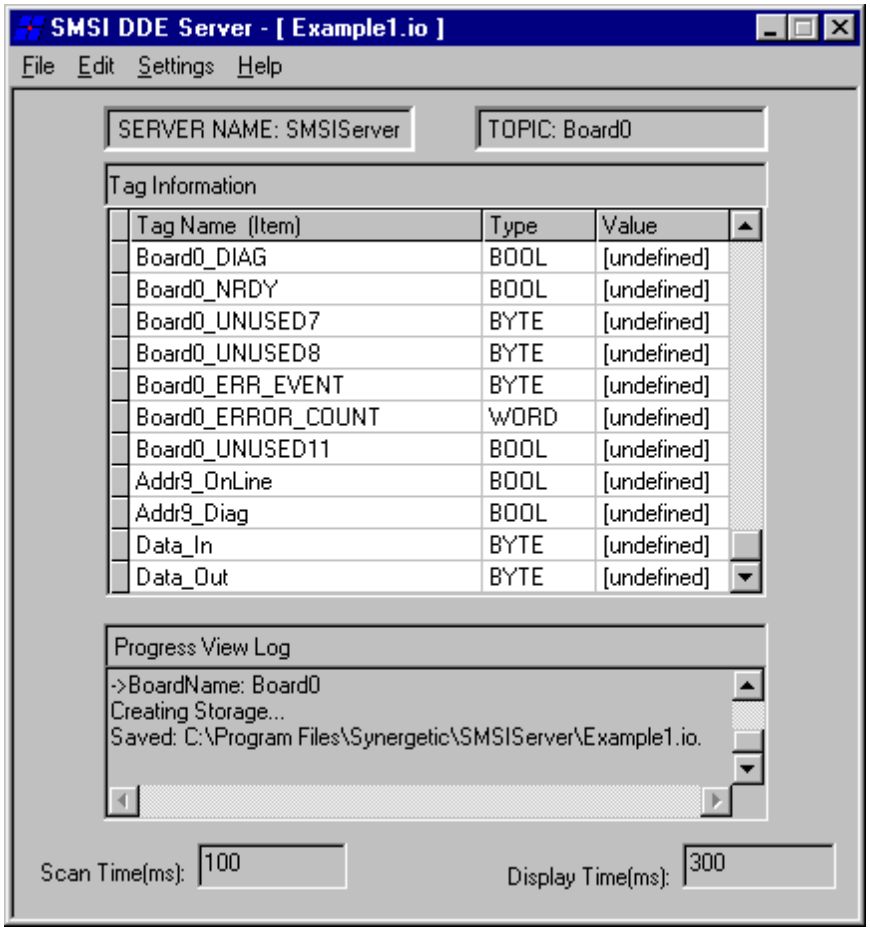
We will call the input data, from the I/O block, "Data_In" and the output data to the I/O block, "Data_Out". Of these images of the I/O block's inputs and outputs both are written to the COM-DPS from the master controller and appear as inputs to Intouch. Type in the first Tag name "Data_In". You can optionally type in a meaningful description for the Tag. Leave the "Area" defaulted to Input, and select BYTE for "Data type". Click OK to accept this new Tag. We should now be back at the Board0 edit window with "Data_In" shown as a Tag under Addr9.

Now click on the Addr9 icon again to highlight it and select "Add" to add the Tag "Data_out". Go through the same process as for the "Data_In" but since this is the second of the two bytes, which will be sent to the COM-DPS, change the "Byte offset" from 0 to 1. If there had been three bytes to be sent to the COM-DNS, the third byte would be Byte offset 2, and so on. Then select OK to accept this Tag.



Now both Tags appear below Addr9. Now click on Save & Exit to save the server's Tags to the Example1 file.

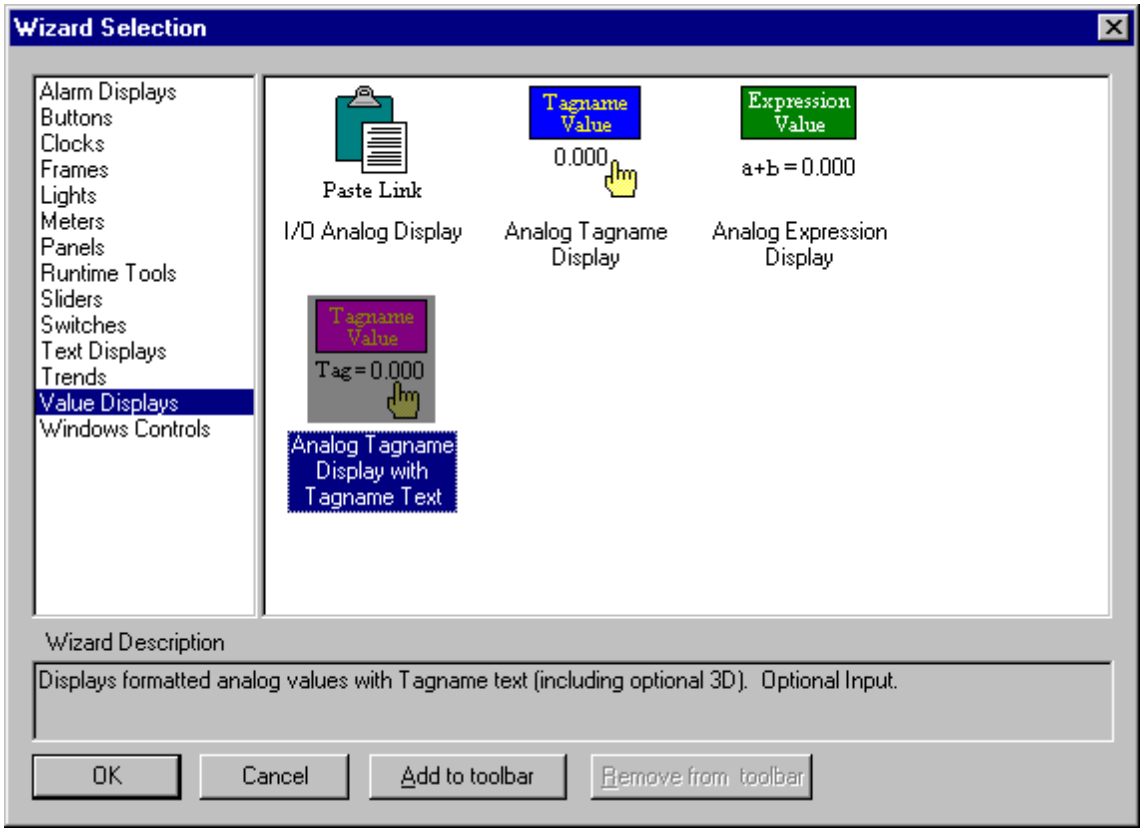
After the Save & Exit the screen shown below appears. Scroll down the list of Tagnames and note that the “Data_In” and “Data_Out” Tagnames just entered appear at the bottom. Now exit the server. The file, Example1.io should be found in the folder C:\Program Files\Synergetic\SMSIServer. This file must be downloaded to the Runtime Workstation system into the folder of the same name, C:\Program Files\Synergetic\SMSIServer.



OpenHMI

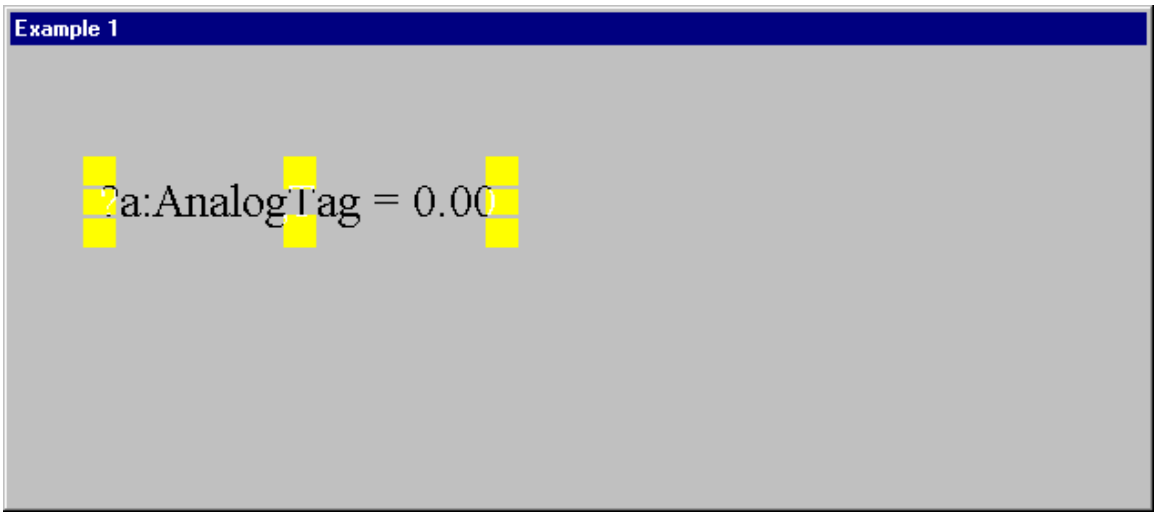
Launch OpenHMI from **Start - Programs - WonderWare FactorySuite - OpenHMI.** Create a new application and start Window Maker. Create a new window by clicking on the new window icon or by selecting "New Window" from the File menu. Choose a name for the window and window color then select **OK**.

Now we will create two value displays in the newly created window by utilizing the "Wizards"  tool.

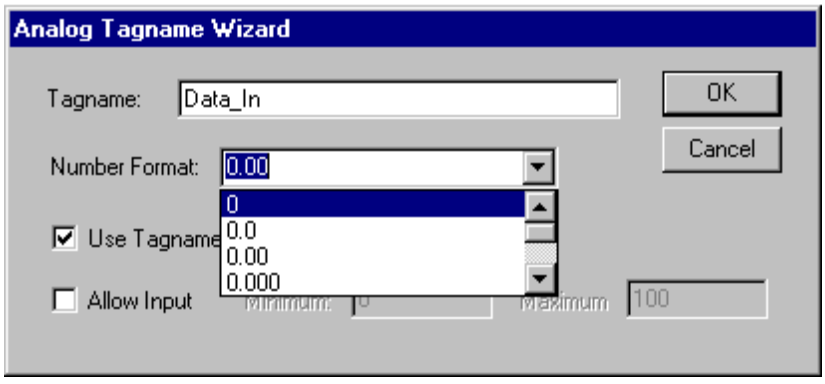


Click on the Wizards tool to bring up the following selections. Choose the "Value Displays" and from the possible selections pick "Analog Tagname Display with Tagname Text" followed by **OK**.

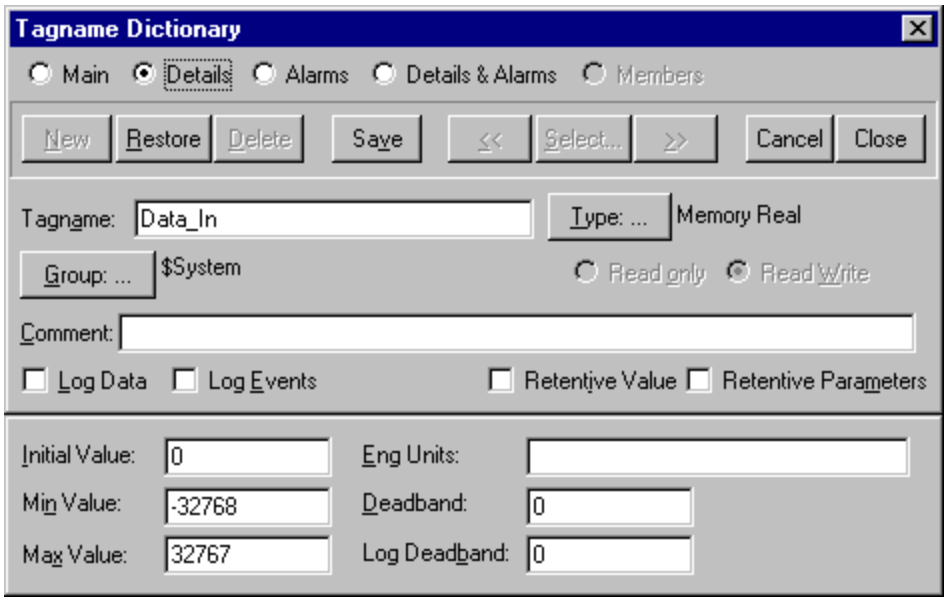
Position the cursor in the application window where you want the Value Display and left click the mouse to place it. Intouch generates a temporary Tagname for the Value Display, which must be changed.



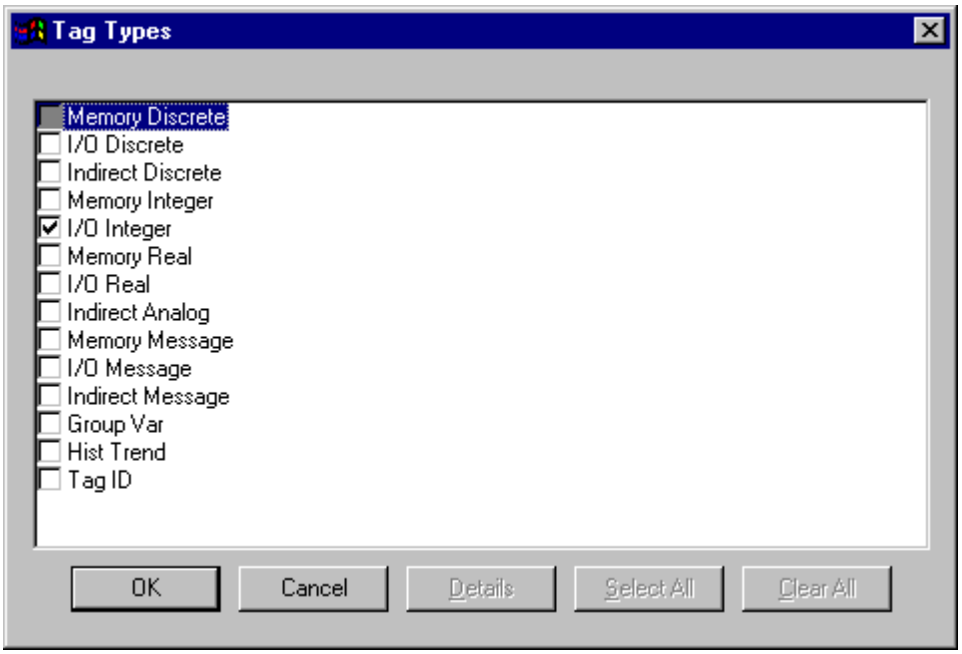
Double click on the temporary Tagname to bring up the following window. Change the temporary tagname to "Data_In", (previously entered into the SMSI Server). The Tagnames are case sensitive and must be entered in **exactly** as they were in the SMSI Server. Otherwise, communication between Intouch and the SMSI Server will be impossible. Change the "Number Format" to an integer value by clicking on the pull down menu arrow and scrolling up to the single "0". Select it and click on OK.



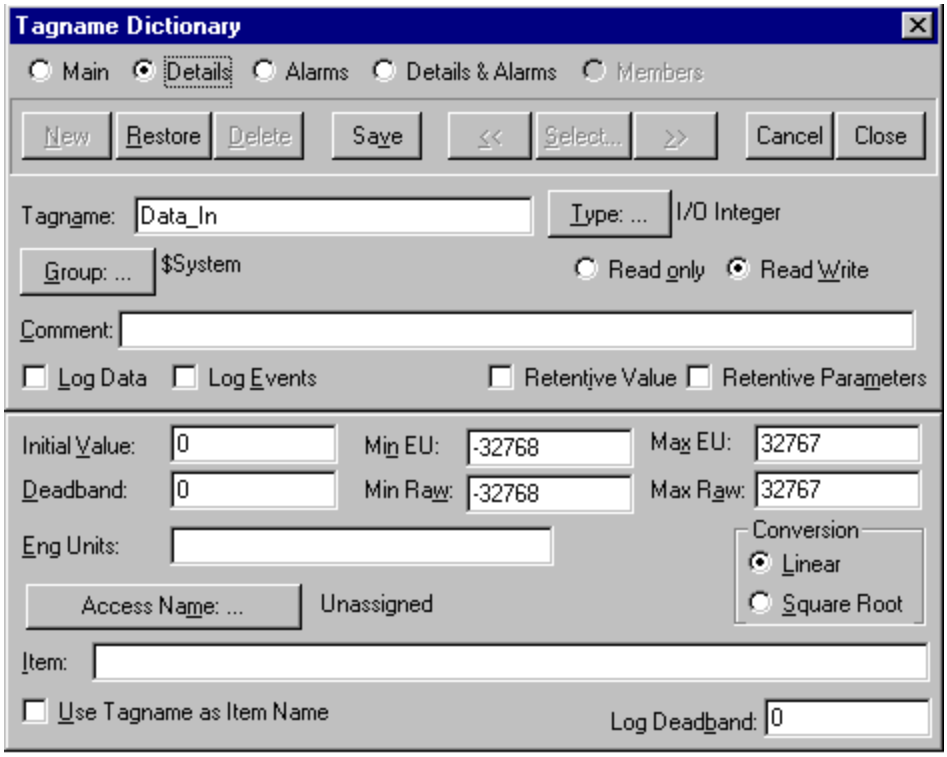
A question will pop up asking if you want to define the Tagname "Data_In". Click OK to bring up the Tagname Dictionary.



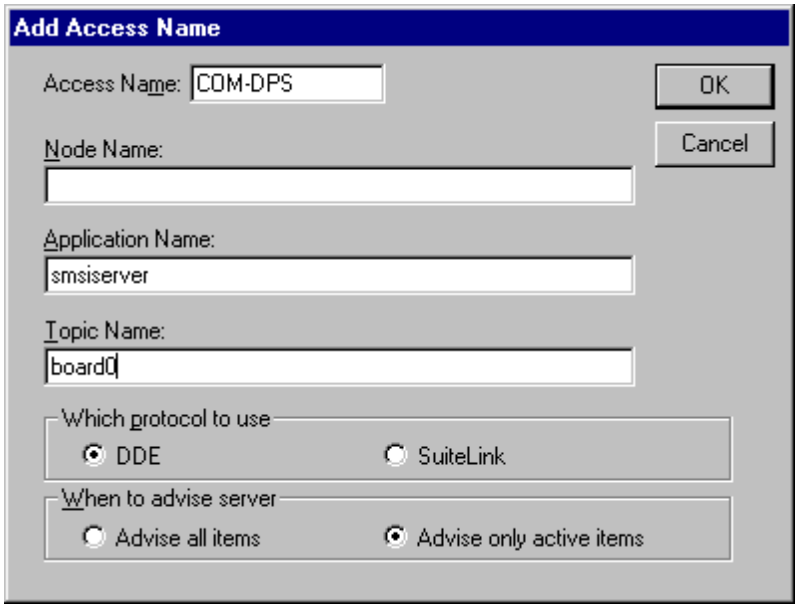
Click on the **Type** button to define the Tag Type. Click on I/O Integer followed by **OK**.



Notice that additional information is now available at the bottom of the Tagname Dictionary window. The Access Name is used by Intouch to reference realtime I/O data from a server such as the SMSI Server.

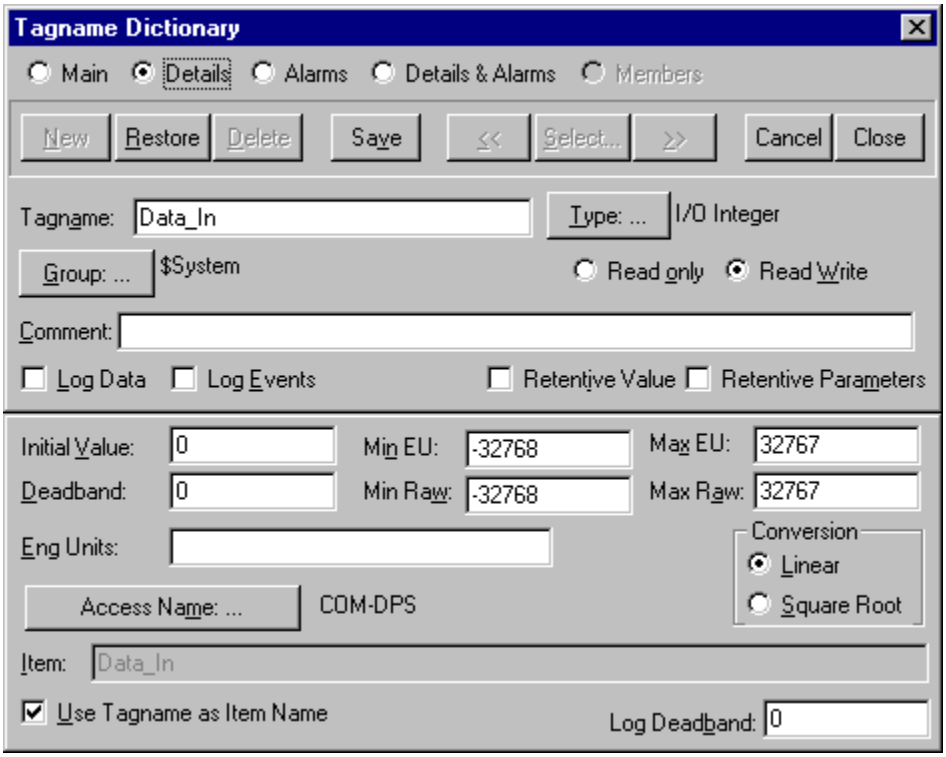


Click on the Access Name button and when the "Access Names" window appears, click on "Add" to bring up the "Add Access Names" window. Type in "COM-DPS" as the Access Name. This name can be arbitrary, but try to make it meaningful by describing the information linked to the Tagnames. Fill in the Application Name with "smsiserver"

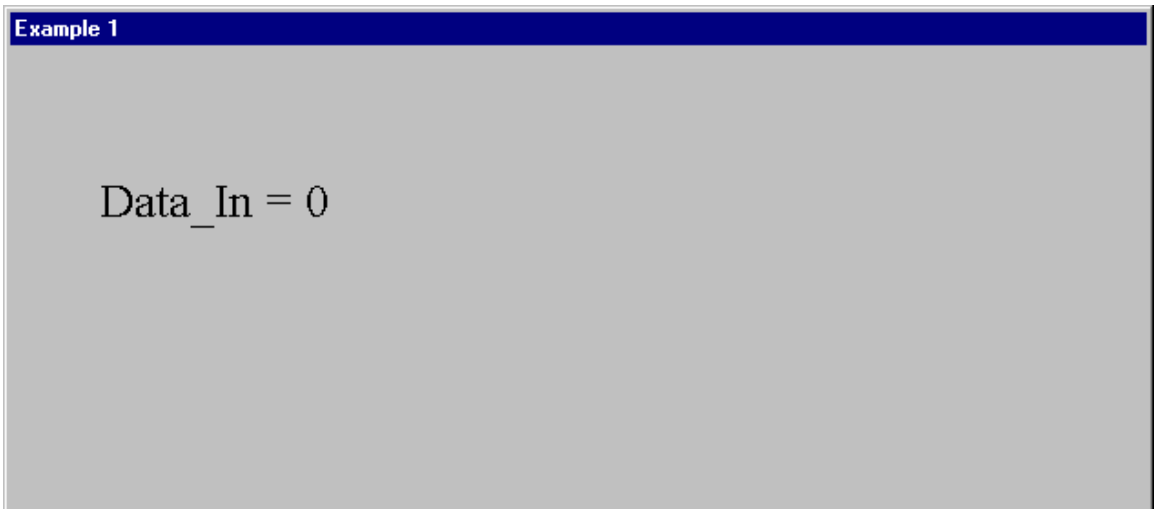


and the Topic Name with "board0" followed by OK. Unlike the Tagnames, the Application Name and the Topic Names are not case sensitive.

Back at the Access Names window click on **Close** to return to the Tagname Dictionary" window. Click on the checkbox, "Use Tagname as Item Name" and note that the Item is filled in automatically with the Tagname from above.

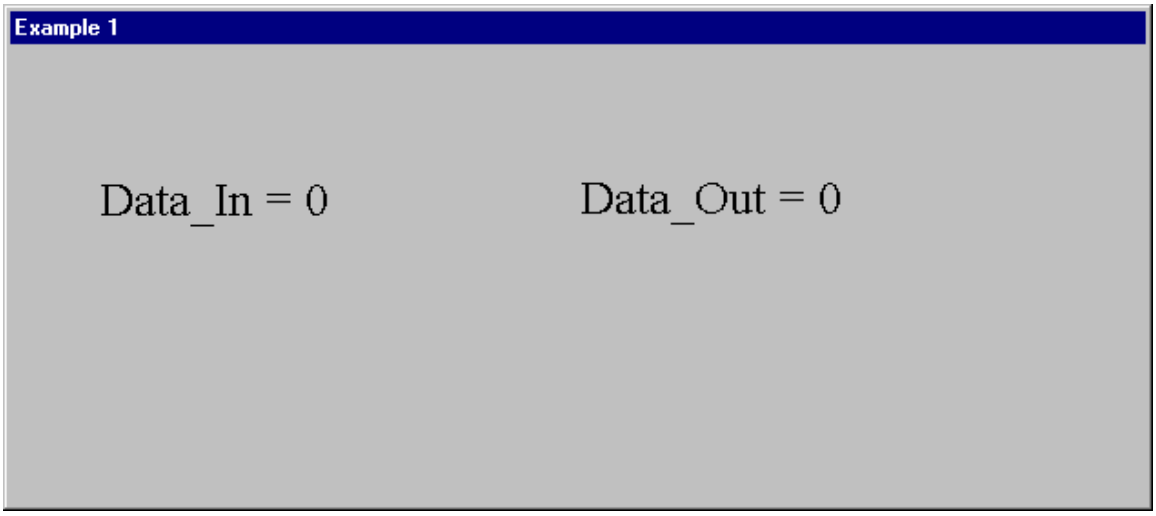


Click on Close to accept all the entries and to exit the Tagname Dictionary. Now notice that the Tagname, which Intouch pre-assigned to the Value Display now, reflects the "Data_In" text.



Create another Value Display as before but give it the Tagname "Data_Out". The Access name in the Tagname Dictionary should already indicate COM-DPS, so no further setup is required. When finished, the application window should look as follows. From the File menu, select Save Window to save the application. Now exit Window Maker. The application can now be transferred to the Runtime Workstation using the techniques previously described.

A batch file must be set up to automatically launch the SMSI Server and WindowViewer.



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