Tech Note 118

Monitoring Communication Between InTouch and a PLC

Topic#: 000726
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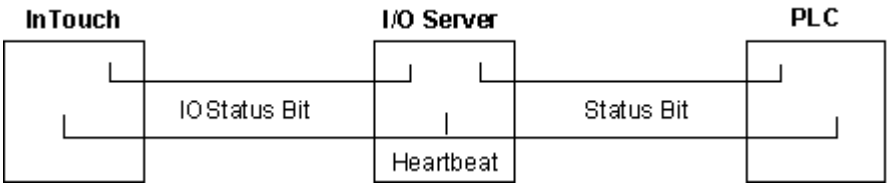
There are two ways to monitor the communication status between Wonderware® InTouch™ and a PLC. The first way is to use the status bits and IOStatus bits, which are built into the I/O Server. The second way is to create a heartbeat between InTouch and the PLC using the InTouch scripting engine. This *Tech Note* describes how to use a combination of both methods to produce the most reliable results.

Note This application is developed with InTouch 7.0, a TI Direct I/O Server, and a Texas Instruments TI555 PLC. For previous versions of InTouch, use DDE instead of I/O. For different PLC types, use the proper I/O Server.

The illustration below shows how the status bit, IOStatus bit, and heartbeat monitor the communication status between InTouch, the I/O Server, and the PLC.



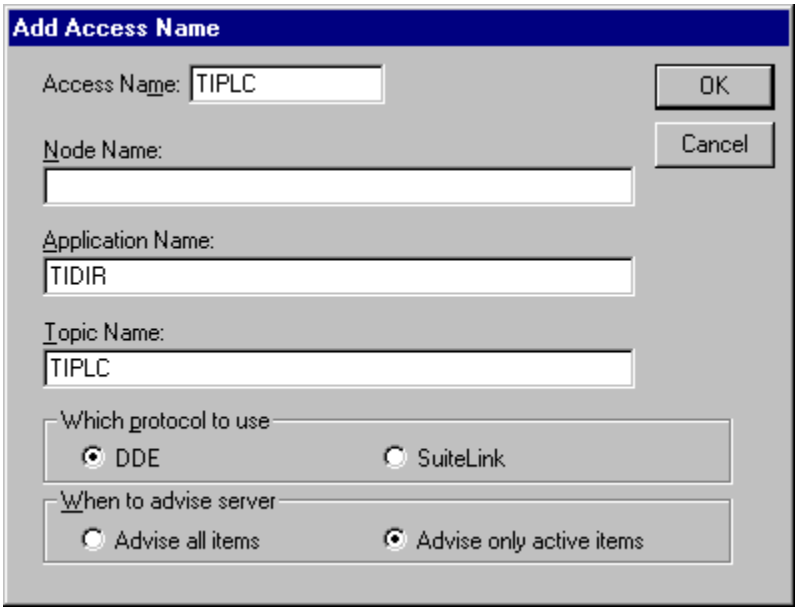
- **The status bit is built into the I/O Server. It monitors the communication status between the I/O Server and the PLC. A status bit is available for each I/O topic that is configured in an I/O Server.**
- **The IOStatus bit is also built into the I/O Server. In the illustration above, it is monitoring the communication status between InTouch and the I/O Server. It can also monitor the communication status between two InTouch nodes or between InTouch and another DDE-aware program, such as Microsoft® Excel™. Each I/O Access Name that is defined in an InTouch application has its own IOStatus bit. The value of the bit will be 1 when there is an active conversation or 0 when the communication is lost.**
- **The heartbeat monitors the communication status between InTouch and the PLC. The heartbeat is created by writing a script in InTouch.**

Procedure

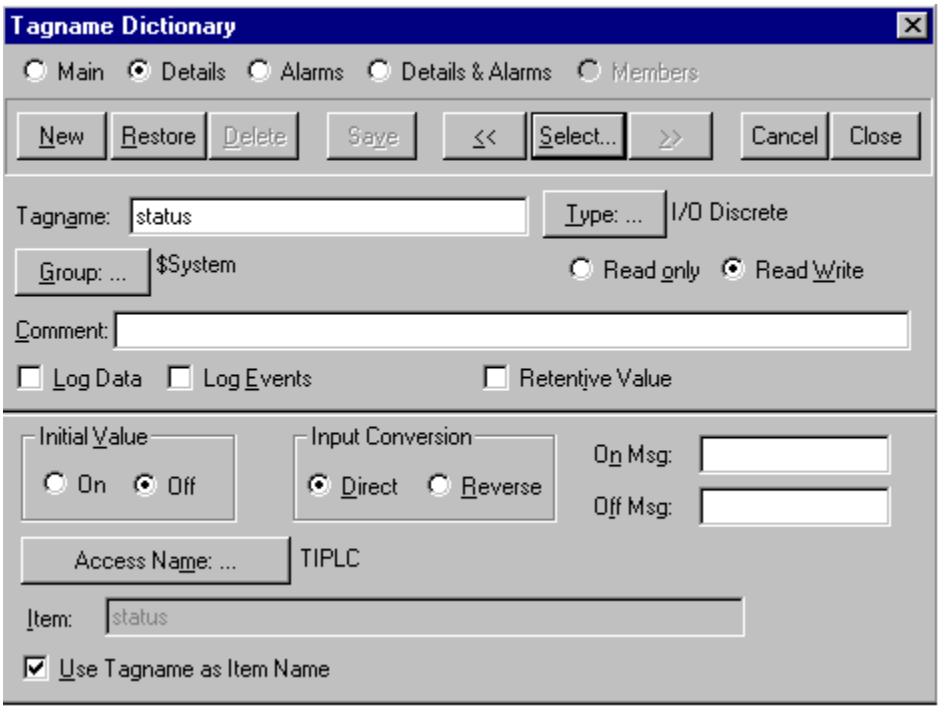
In this example, we have used a Texas Instruments PLC with a TI Direct I/O Server. The application name and the I/O items will differ depending on what I/O Server is used. Follow these steps to set up the status bit, IOStatus bit, and heartbeat so that they can monitor the communication status between InTouch and a PLC.

Step 1 – Configuring the Status Bit

1. **In WindowMaker, on the Special Menu, select Access Names. Click the Add button and create an Access Name called TIPLC. Type TIDIR for the Application Name and type TIPLC for the Topic Name. Click the OK button.**

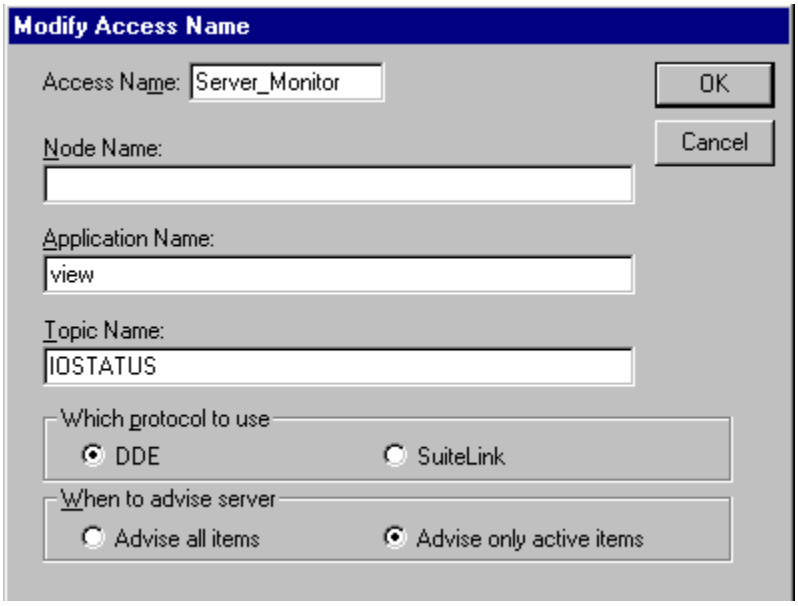


2. **Next, on the Special menu, select Tagname Dictionary. Click the New button and create an I/O Discrete tag called status. Set the Access Name to TIPLC and select the box Use Tagname as Item Name. Configure the tag as shown below.**

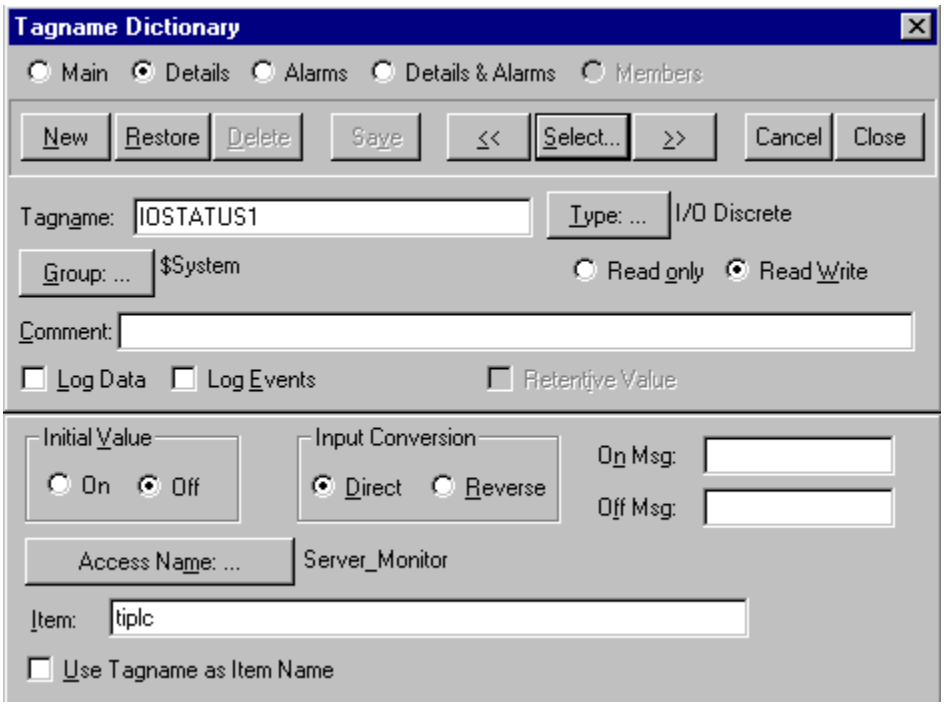


Step 2 – Configuring the IOStatus Bit

1. **In WindowMaker, on the Special Menu, select Access Names. Click the Add button and create an Access Name called Server_Monitor. Type view for the Application Name and type IOStatus for the Topic Name.**



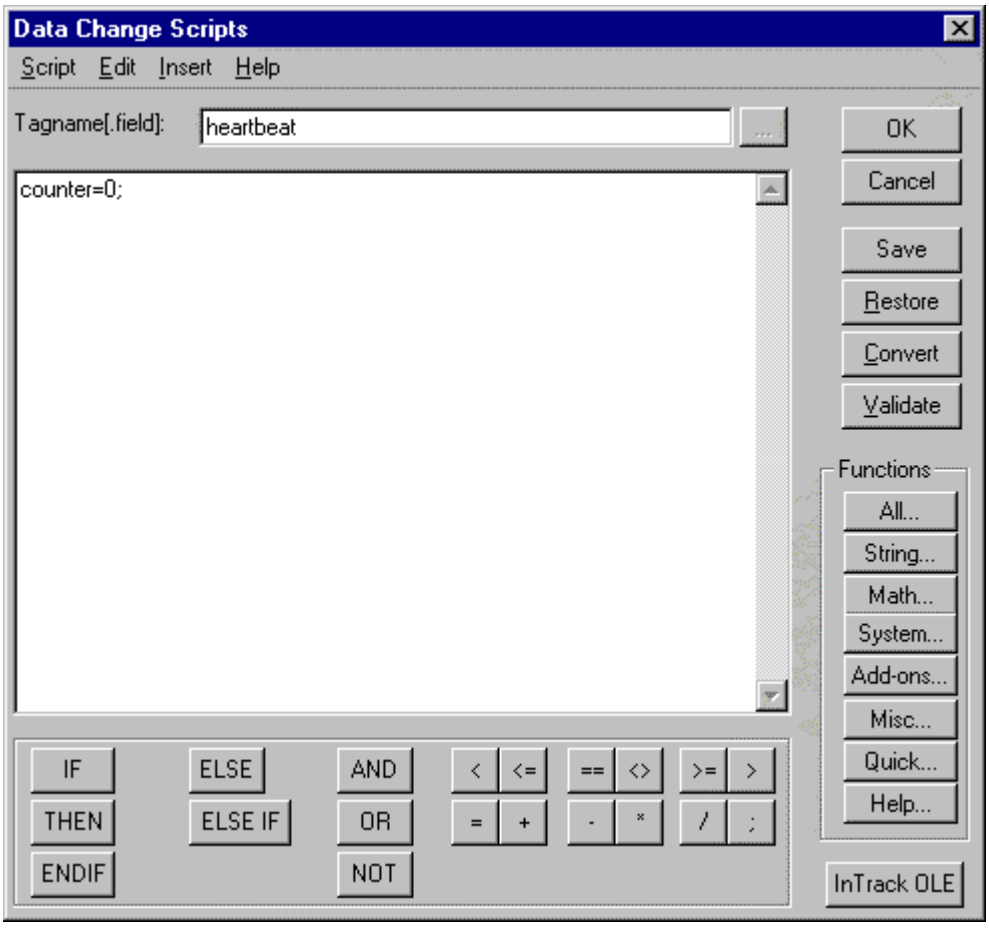
2. **Next, on the Special menu, select Tagname Dictionary. Click the New button and create an I/O Discrete tag called IOSTATUS1. Set the Access Name to Server_Monitor. For the Item, type the name of the conversation you want to monitor. In this example, the item is tiplc.**



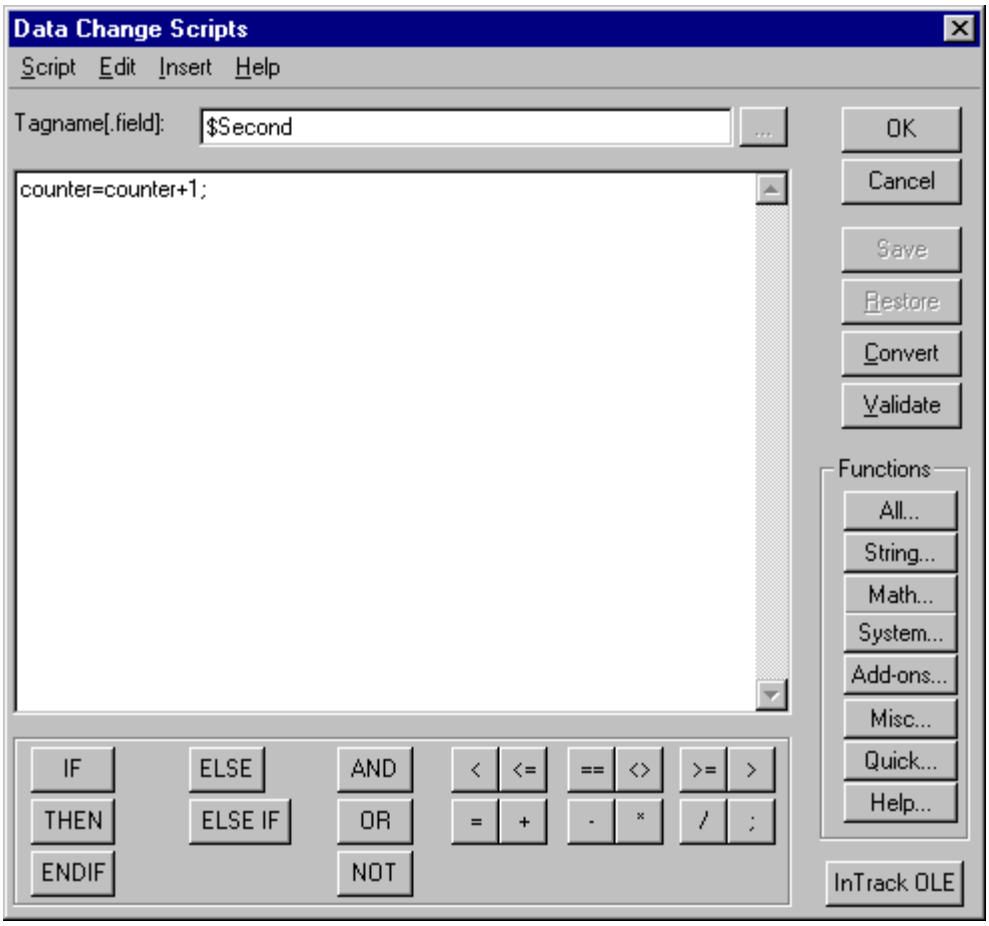
Note It is possible to create an IOStatus bit for every topic that is defined in the I/O Server. Just remember to create a new I/O Discrete tag for each topic and then set the Item name to the proper Access Name that contains that topic in the InTouch application.

Step 3 – Configuring the Heartbeat

1. In WindowMaker, on the Special menu, select Tagname Dictionary. Click the New button and create an I/O integer tag called heartbeat. For the item name, use an internal clock in the PLC, such as STW143 (STW143 is specific to Texas Instruments PLCs).
2. Create a Memory Integer tag called counter.
3. Select Special / Scripts / Data Change Scripts. Create a data change script for the tag heartbeat that resets counter to zero.

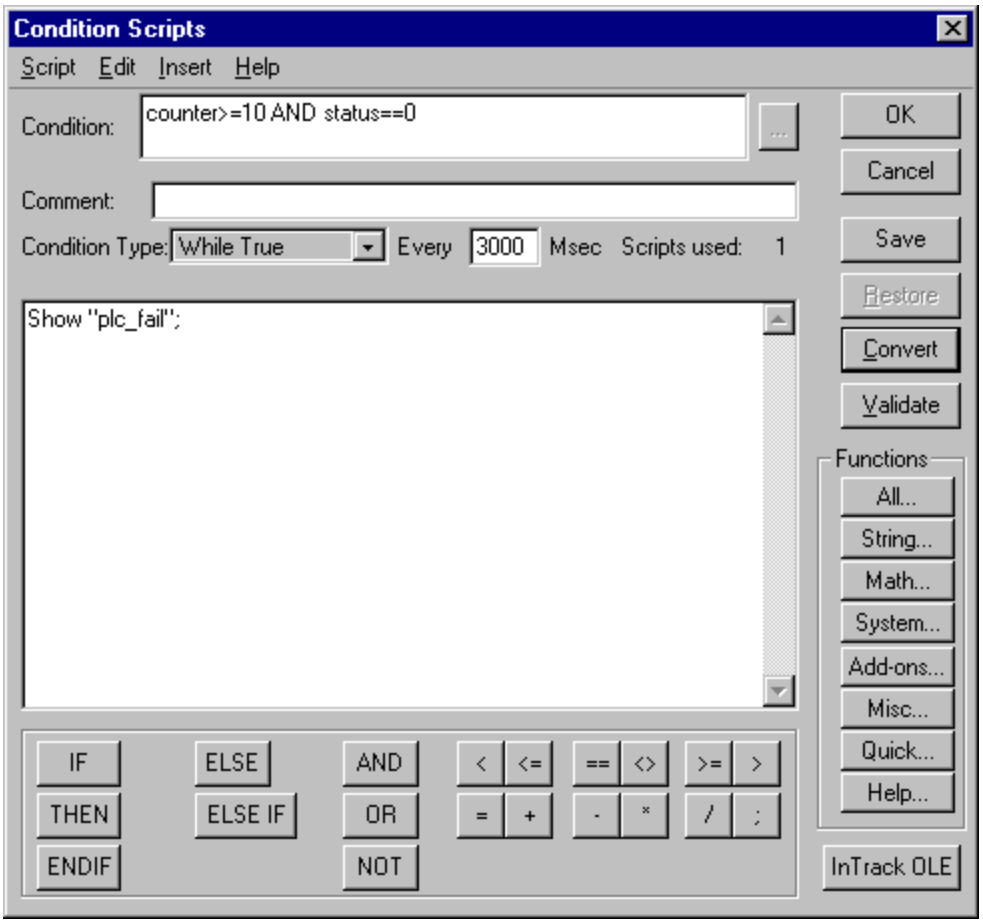


4. Create a data change script for the tag $Second that increments counter by one.



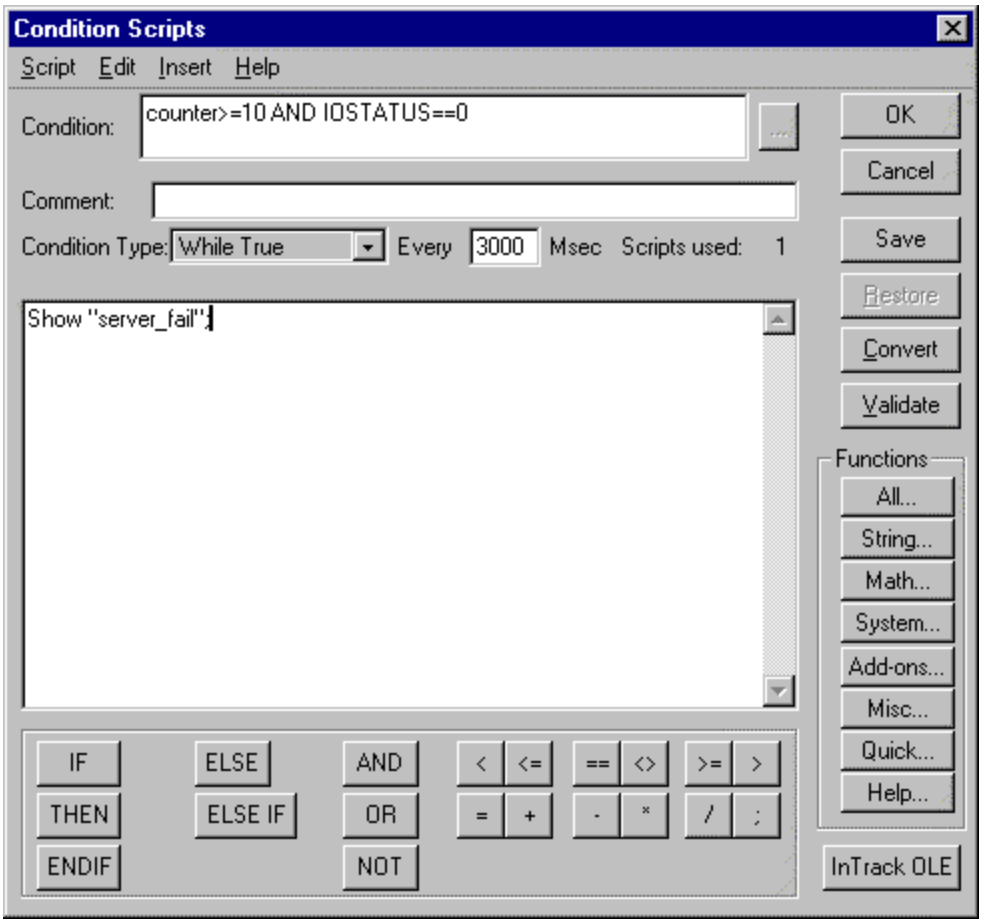
5. **Create a popup window called plc_fail that contains a simple text message, such as "The PLC has failed."**

6. **Create a condition script that will make the window plc_fail popup every 3 seconds if the counter value is greater than ten and the tag status is equal to zero.**



7. **Create another popup window called `server_fail` that contains a simple text message, such as "The server has failed."**

8. **Create a condition script that will make the window `server_fail` pop up every 3 seconds if the counter value is greater than ten and the tag `IOSTATUS1` is equal to zero.**



After you set up the status bit, IOStatus bit, and the heartbeat according to these steps, one of the popup windows you created will appear whenever there is communication trouble between InTouch, the PLC, or the I/O Server.

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The *Tech Note* is published occasionally by Wonderware Technical Support. Editors: Sabrina Abercromby and Kelly Hauser; Publisher: Wonderware Corporation, 100 Technology Drive, Irvine CA 92618. There is also technical information on our software products at www.wonderware.com/support/mmi, our WonderFax fax-on-demand system at (949) 450-5050, and the Comprehensive Support Knowledge Base.

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