

Tech Note 118

Monitoring Communication Between InTouch and a PLC

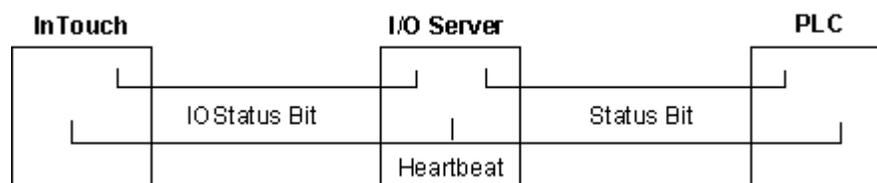
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There are two ways to monitor the communication status between Wonderware® InTouch™ and a PLC. The first way is to use the status bits and IOStatus bits, which are built into the I/O Server. The second way is to create a heartbeat between InTouch and 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.



- l 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.
- l 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.
- l 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.

Add Access Name

Access Name:

Node Name:

Application Name:

Topic Name:

Which protocol to use

DDE SuiteLink

When to advise server

Advise all items Advise only active items

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.

Tagname Dictionary

Main Details Alarms Details & Alarms Members

Tagname: Type:

Group: Read only Read Write

Comment:

Log Data Log Events Retentive Value

Initial Value: On Off

Input Conversion: Direct Reverse

On Msg:

Off Msg:

Access Name:

Item:

Use Tagname as Item Name

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.

Modify Access Name

Access Name:

Node Name:

Application Name:

Topic Name:

Which protocol to use

DDE SuiteLink

When to advise server

Advise all items Advise only active items

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 **tipic**.

Tagname Dictionary

Main Details Alarms Details & Alarms Members

Tagname: Type:

Group: Read only Read/Write

Comment:

Log Data Log Events Retentive Value

Initial Value: On Off

Input Conversion: Direct Reverse

On Msg:

Off Msg:

Access Name:

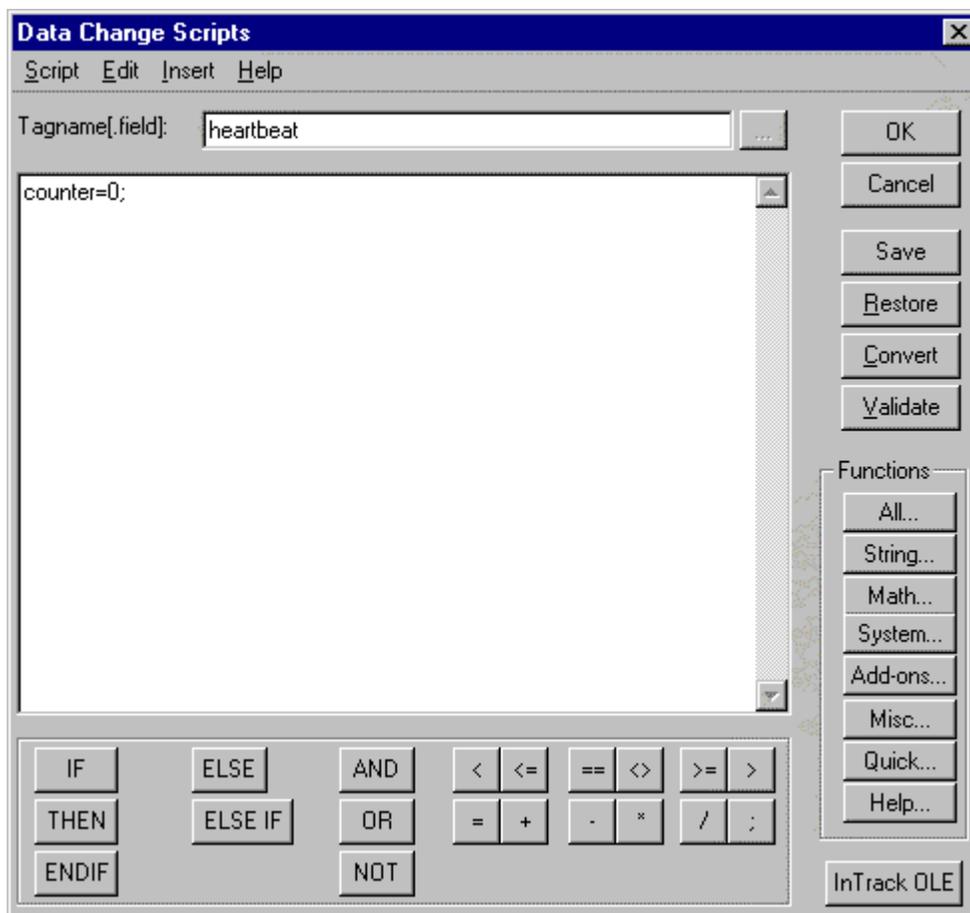
Item:

Use Tagname as Item Name

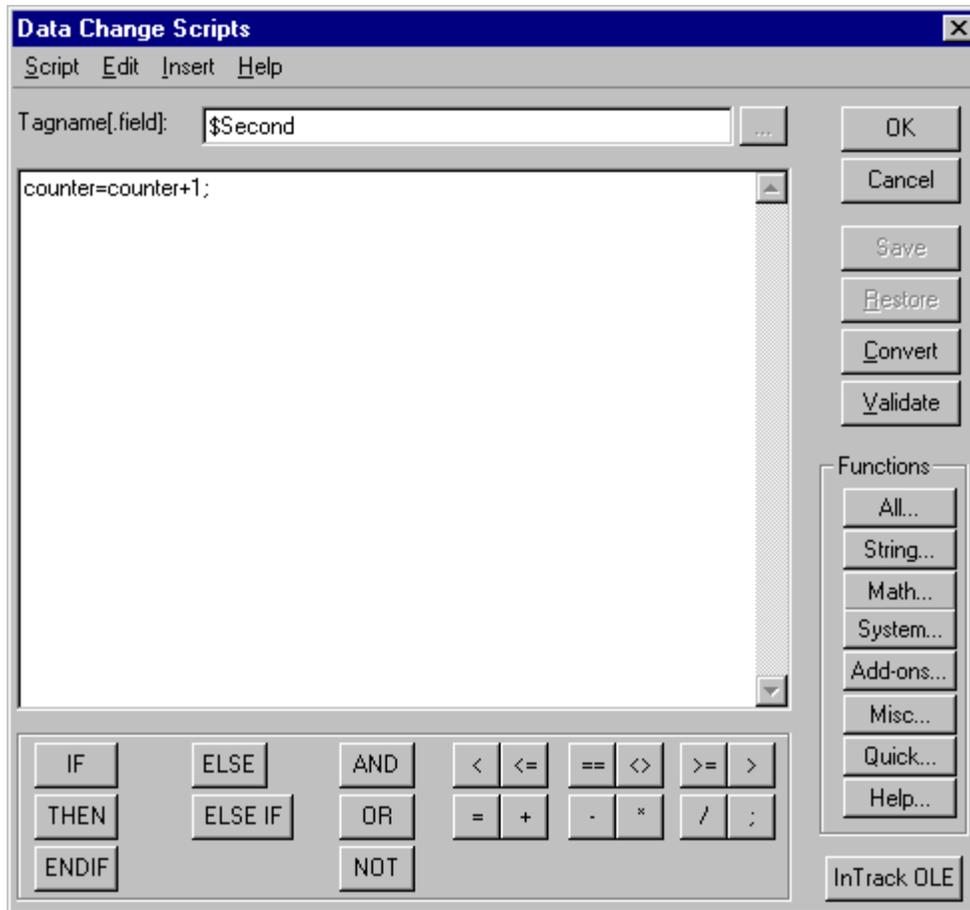
Note It is possible to create an IOStatus bit for every topic that is defined in the I/O Server. Just remember to create a new I/O Discrete tag for each topic and then set the Item name to the proper Access Name that contains that topic in the InTouch application.

Step 3 – Configuring the Heartbeat

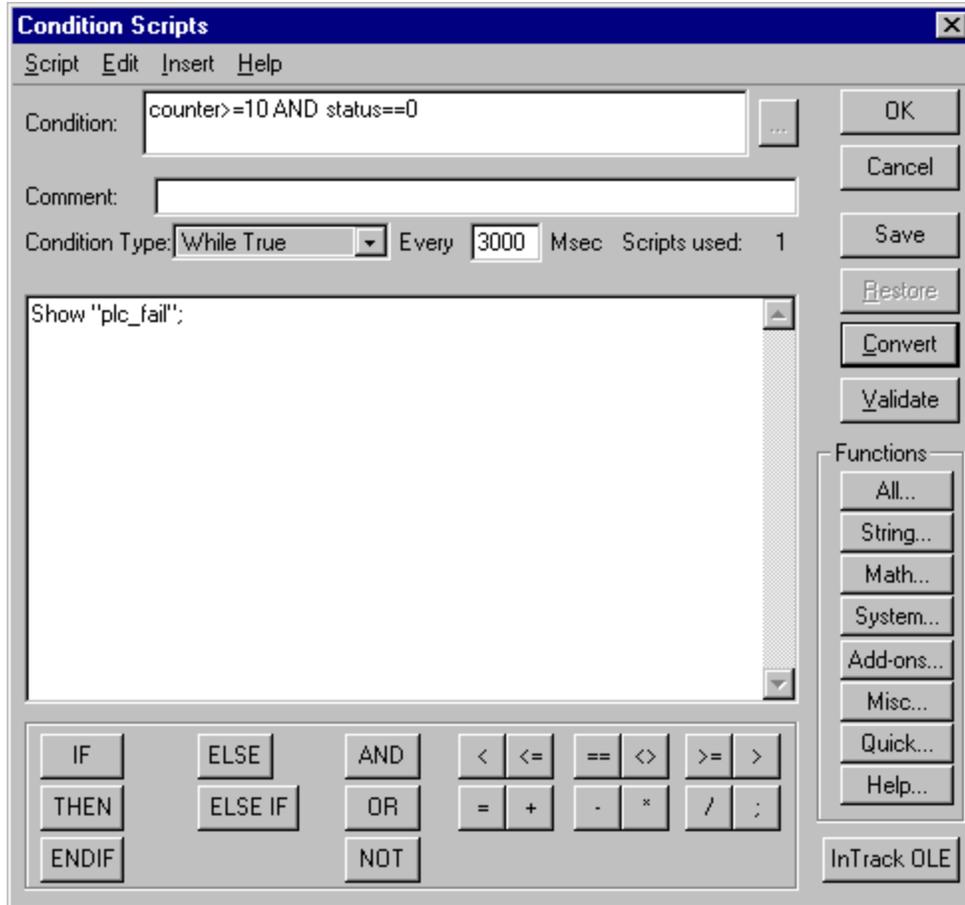
1. In WindowMaker, on the **Special** menu, select **Tagname Dictionary**. Click the **New** button and create an I/O integer tag called **heartbeat**. For the item name, use an internal clock in the PLC, such as **STW143** (STW143 is specific to Texas Instruments PLCs).
2. Create a Memory Integer tag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



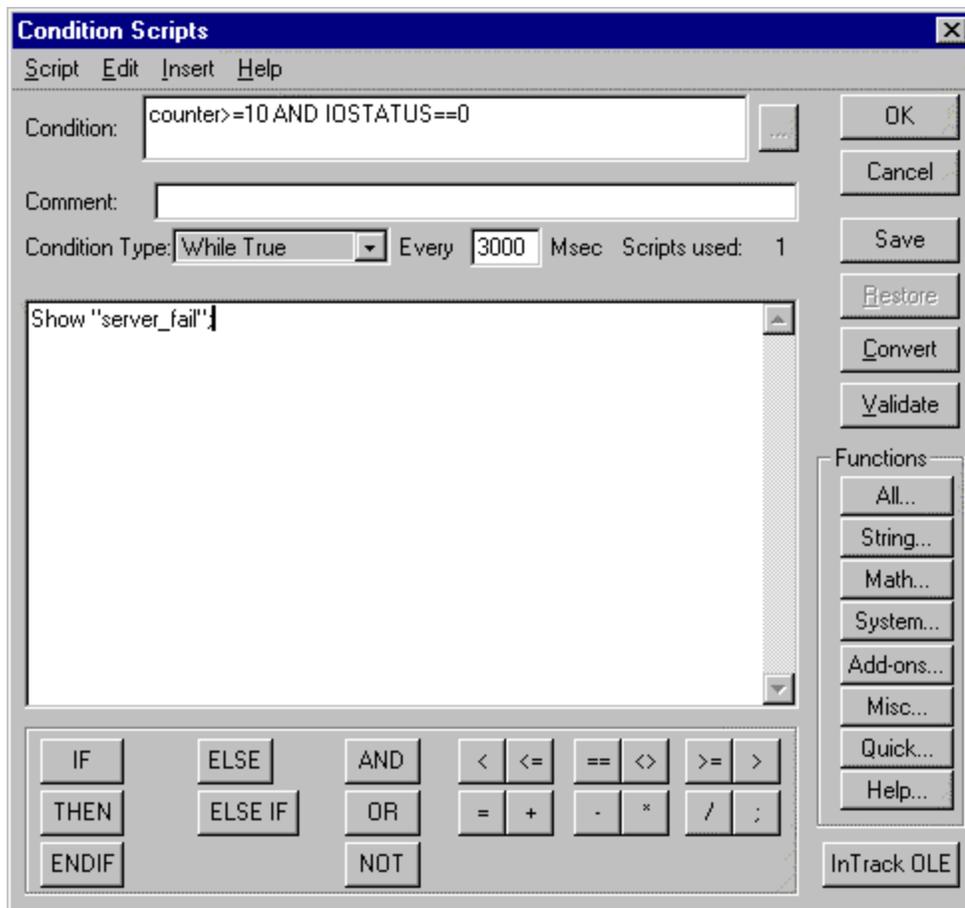
4. Create a data change script for the tag **\$Second** that increments **counter** by one.



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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