Technical Note

Using the SST Data Highway Plus OPC Server with Intellution Fix 32 under Windows NT

Data Highway Plus OPC Server

The Data Highway Plus OPC Server allows users to connect to the Allen-Bradley Data Highway Plus network.

About this Technical Note

This technical describes the following:

- Installing and configuring the 5136-SD card
- Setting up the OPC Server
- Using the OPC PowerTool
- Troubleshooting
- Contact SST

This technical note assumes that:

- you have no previous experience with SST products or Intellution's FIX 32 software

Hardware used

☒ PLC	Allen-Bradley's SLC 5/04 or SST-PLC-5
☒ Interface card	5136-SD
☐ Key for server	none required (key required for developing an Intellution FIX 32 project, but not to run the OPC PowerTool)
☒ Physical I/O	None
☒ Any other hardware	Belden "blue hose" cable, 2--150ohm terminating resistors. Connectors are provided with the SLC 5/04 and the 5136-SD card.

Software used

☒ Operating system	Windows NT 4.0 service pack 3
☒ Programming software used	RSLogix 500
☒ Other software required	32-bit Windows software for the 5136-SD card
☒ OPC Server version	*SSDhpOpc.dll* (OPC Server v1.0.1 with DHP+ driver, v1.1.5)

Installing and Configuring the 5136-SD card

1. Turn off your PC and install the 5136-SD interface card following the instructions for cabling, termination, etc. found in the *5136-SD User's Guide*.
2. Install Intellution's *FIX32* software.
3. Install the *OPC PowerTool* software from Intellution.
4. Install the SST 32-bit Windows software if you did not do so already, and restart your computer.
5. Open the *Interface card Configuration*.

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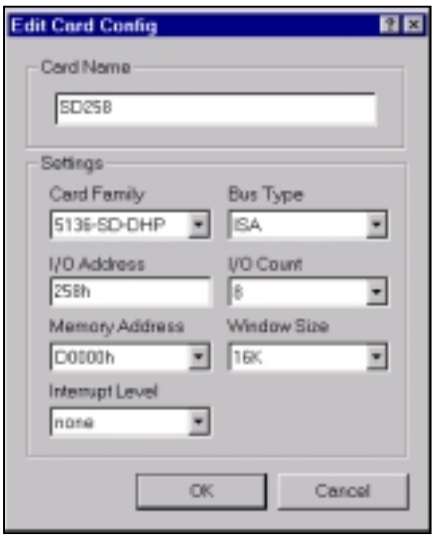
6. Click on the *Cards* tab in the *Direct-Link Configuration*. Select your card configuration, and click the *Properties* button. This opens the *Edit Card Config* dialog box.

7. The resources specified in the *Edit Card Config* dialog box must not be in use by any other device in your PC. If you choose resources that are unavailable you will get a resource conflict and the interface card will not initialize (the red LED on the card will be solid).

   It is possible to have more than one card configuration therefore you must select/create the one for your card. The settings in the fields below may not be the correct ones for your application. Your settings depend on available resources in your computer.

   The *Card Name* can be anything. The only other fields that may need to change (from default, seen below) are the *I/O Address* and the *Memory Address*.

   The *Window Size* can be either 16K or 32K; 32K is preferable if there are enough available resources in your computer.



Once you have made all of the proper entries click *OK*. If you are asked to restart do so.

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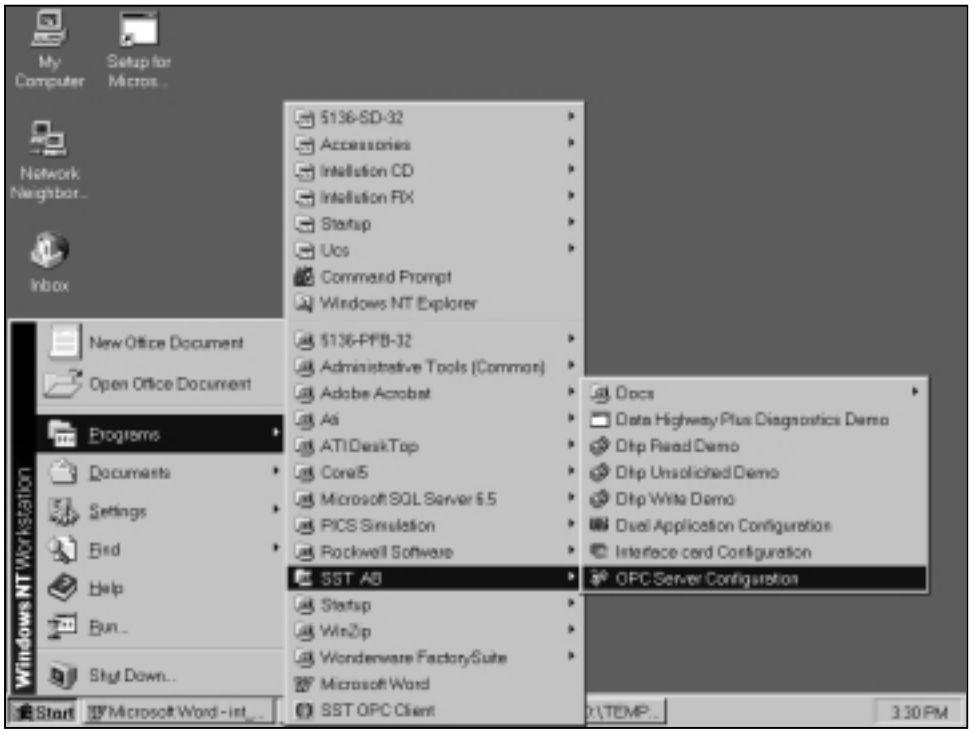
Setting up the OPC Server

1. Open the *OPC Server Configuration*.

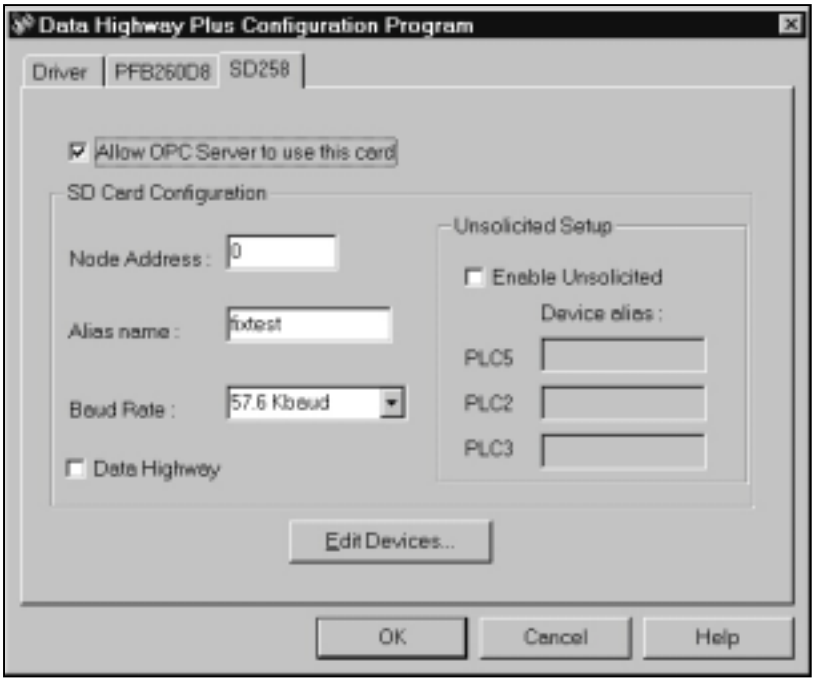


2. Select the tab with the name of your card configuration. Enable *Allow OPC Server to use this card*.

   The *Node Address* is the station address the 5136-SD card shows up as on the network. Make sure the station address is not in use by any other station on the network. All other parameters are specific to each application and must be set according to that application. In the Alias name box enter any name you wish. Make note of the *Alias name*; it is used to create the database tags in the Intellution *FIX 32* software.

   Under *SD Card Configuration*, if *Data Highway* is not enabled then Data Highway Plus operation is assumed.

   Once everything matches your specific setup click on the *Edit Devices* button.



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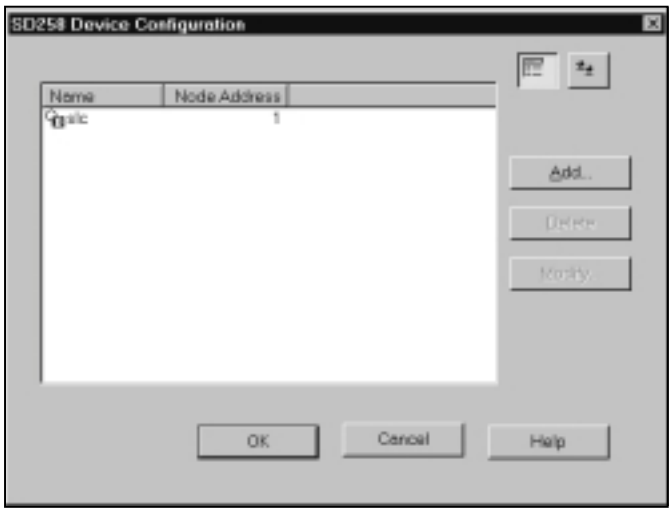
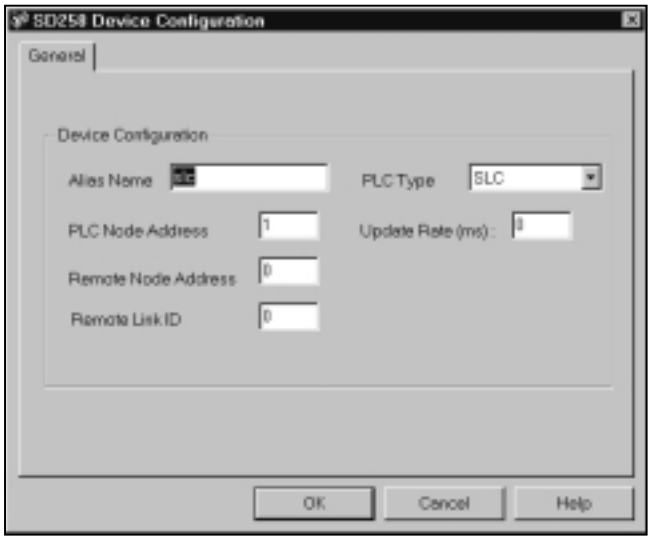
3. Click on the *Add* button. There is already an entry in the dialog box below, but when you do this for the first time there should be no entries.

   If there is an entry you can either click on *Add* to create a new configuration for any new devices (i.e. PLC) or edit an existing configuration if its parameters change or that device no longer exists (i.e. station address on the DH or DH+ network).



4. Ensure entries in all fields are correct for the PLC being connected to.

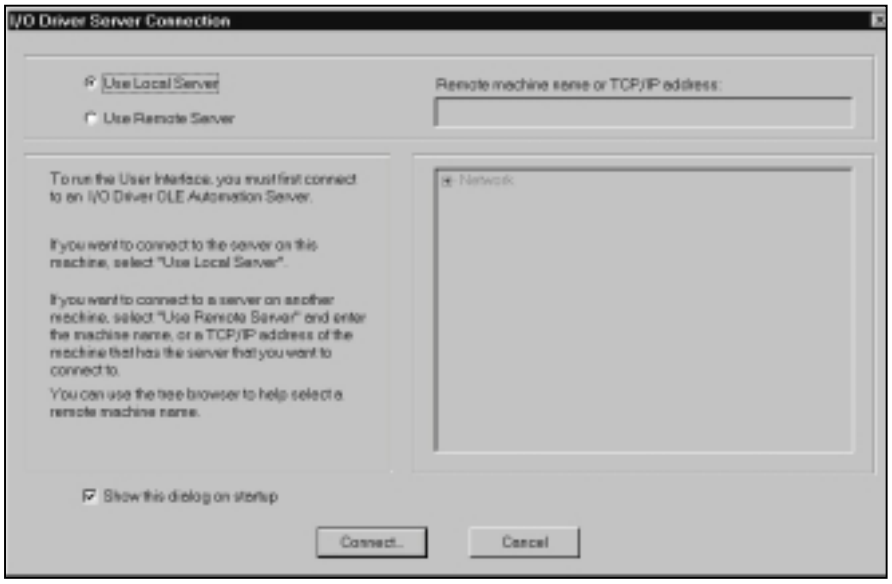
   Make note of the *Alias Name;* it is used to create the database tags in the Intellution FIX 32 software. *Remote Node Address*, *Remote Link ID* and *Update Rate* can all be left at default. Click on *OK*.



Using the OPC PowerTool

1. Open the Intellution FIX *OPC PowerTool*.

2. Enable *Use Local Server* and click on the *Connect* button.



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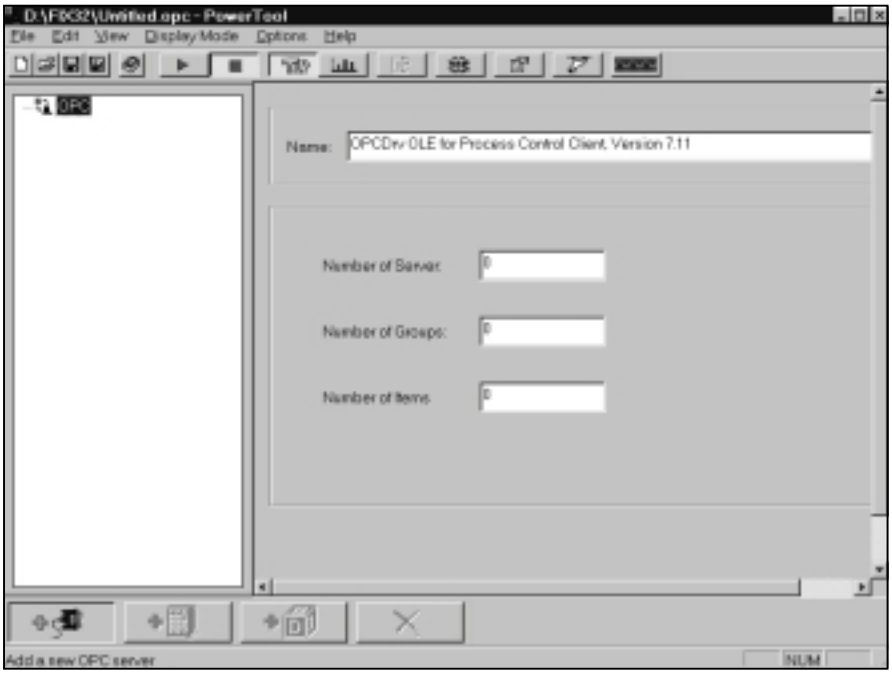
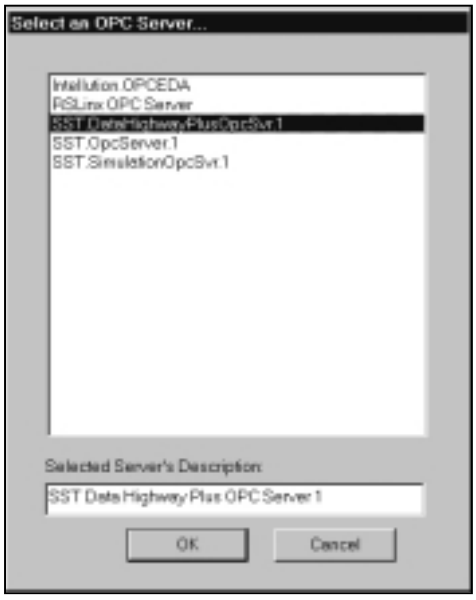
3. Once the client (*OPC PowerTool*) is successfully connected, click on the *Add a new OPC server* button; the first button in the bottom left corner of the *PowerTool* window.

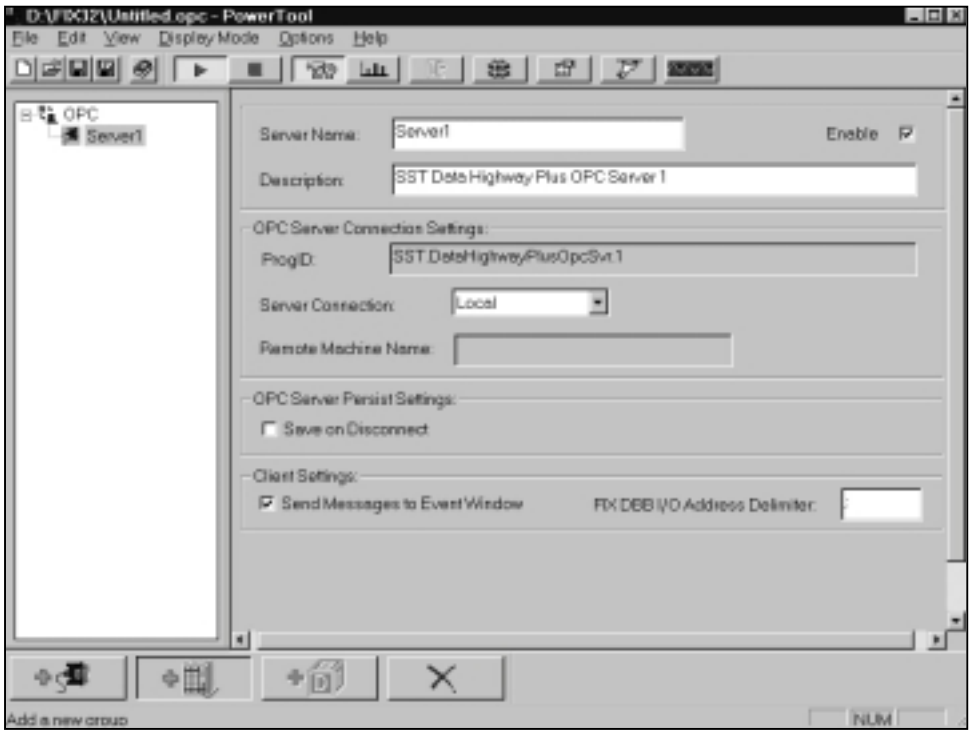


4. Select the *SST.DataHighwayPlusOpcSvr.1* server from the list. Click on *OK*.



5. Once the OPC server is added select *Enable* in the upper right corner of the window. As each component of the configuration is added (i.e. OPC Server, Group and Item(s)) you must select *Enable* for each one. When *Enable* is selected in the OPC Server window, the communication link goes active (i.e. activates the green DH+ LED). This may take a few seconds. If it does not go active refer to the *Troubleshooting* section near the end of this technical note.

   Add a new group. To do this, click on the *Add a new group* button; the second button in the bottom left corner of the window. Accept the defaults for all of the available fields and click on *OK*.



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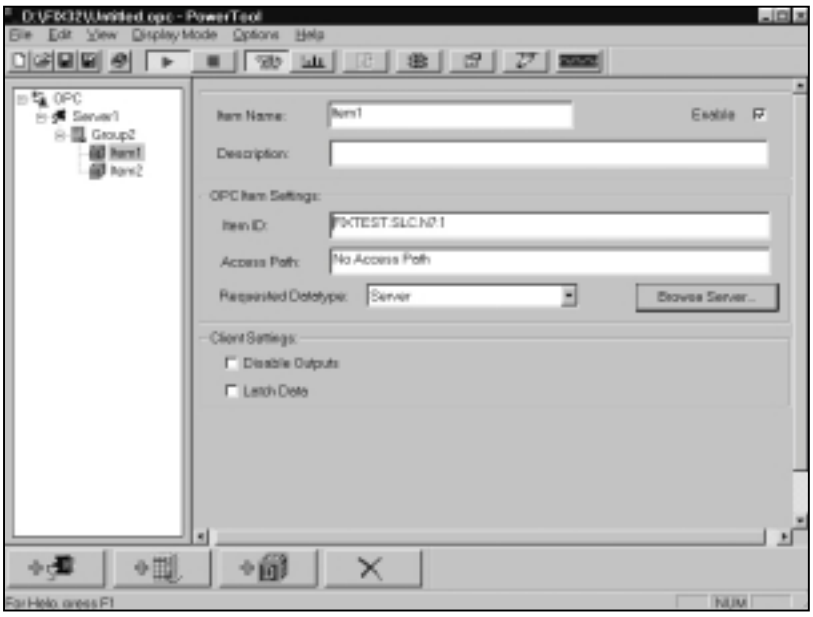
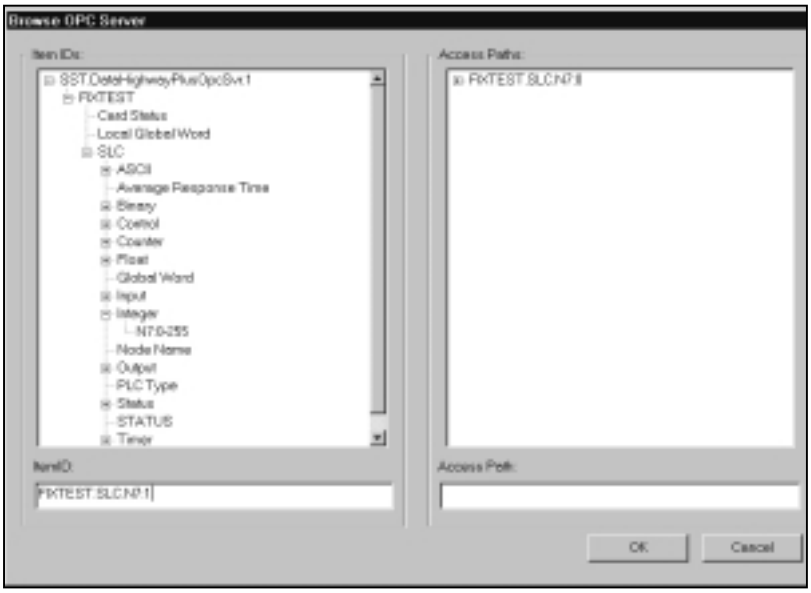
6. Add items. To do this, click on the *Add the Item(s)* button; the third button in the bottom left corner of the window. It is possible to manually enter the *Item ID*. However, it is suggested you use the *Browse Server…* button because errors due to mistyping etc. are less likely.



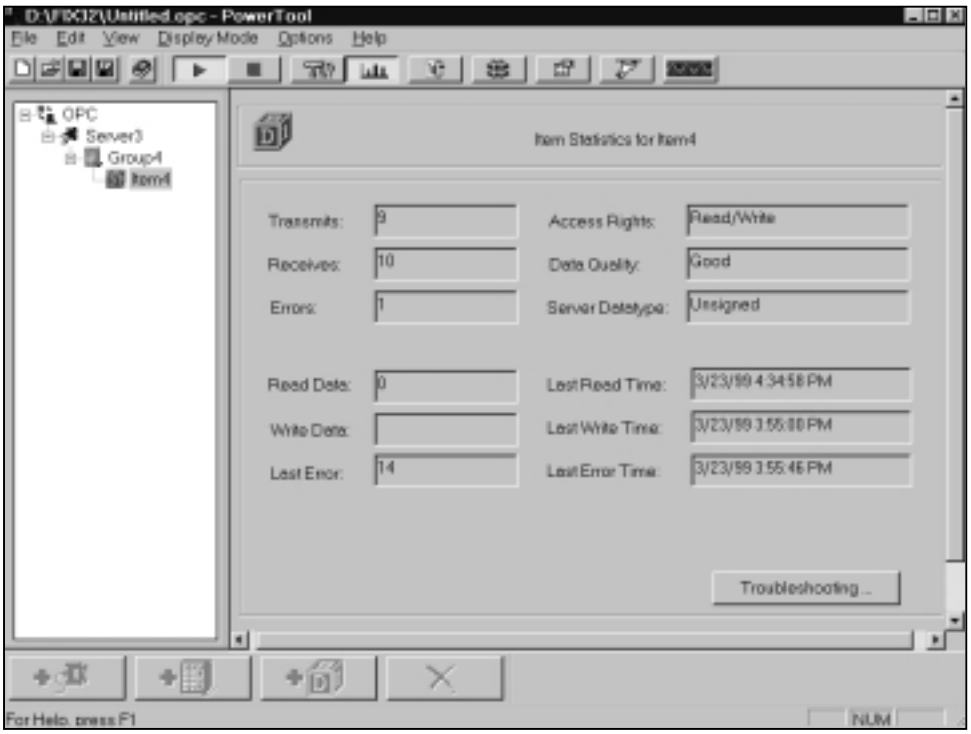
7. Click on *Browse Server…*. Expand the directory structure on the left and select the specific data point you want to access. Click on *OK*. Your entry is put in the *ItemID* field. The default value for the *ItemID* is N7:0. In this example it was changed to N7:1.



8. With a configured item you can now check communications by clicking the *START* button (right arrow) and then the *STATISTICS* button (small bar graph) on the toolbar. If communication is good and you referenced a data point that exists in the PLC, *Data Quality* should be *Good* and *Transmits* and *Receives* should increment.

   If this does not happen see the *Troubleshooting* section near the end of this technical note.

   Once everything is configured to this point (interface card, OPC Server *SST.DataHighwayPlusOpcSvr.1* and the OPC client), the final step is to create the FIX 32 project.



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Troubleshooting

If the OPC client is not communicating and does not show the data quality as *Good*, check the following:

- Improper network cabling. Did you use termination? If so, what value of resistors are you using? Are they placed at each of the physical ends of the network cable? If they are not at each physical end of the network cable, communication problems are likely to occur. Be sure you do not have the communication wires the wrong way around. When you connect to the Data Highway Plus network make sure whatever colour of wire is furthest from the LEDs, on the back of the card, is on the top of the connector on the PLC (SLC 500 or PLC 5). The shield wire should always be in between the blue and the clear wire (refer to the card manual for details).
- Wrong baud rate. Does the baud rate of the OPC server match the baud rate of the device you are communicating to (i.e. PLC)?
- Incorrect Setting. Does the PLC station address, specified in the setup of the OPC server, match what the PLC is actually set to? Check this by connecting to the PLC with the PLC programming software.
- Address does not exist. The address the OPC server is trying to access (i.e. N7:200) may not exist in the PLC. Use the PLC programming software to make sure the file exists. If it does ensure you do not extend beyond the end of the file in the PLC.

Technical Support

Technical support is available during regular business hours by telephone, fax or email from any SST office, or from the company Web site at www.sstech.on.ca.

Documentation and software updates are available on our Web site.

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