Configuring Scheduled Sends and Receives with a PLC-5 using the SST ControlNet Configuration Tool

Topic Overview

Before you can use an SST ControlNet card to scan I/O, you must configure the network parameters and I/O configuration and download the configuration to the card. The SST ControlNet Configuration Tool is used to build the configuration and download it to the card.

About this Technical Note

This technical note describes the steps in using the SST ControlNet Configuration Tool to configure an SST ControlNet card to exchange data with a ControlNet PLC-5, using scheduled sends and receives.

This technical note assumes that:

You are familiar with constructing a ControlNet network, and that you are familiar with programming Allen-Bradley PLC-5s.

Hardware used

☒	Interface card	SST 5136-CN-ISA, 5136-CN-104, 5136-CN-PCI or 5136-CN-VME
☒	Physical I/O	Allen-Bradley PLC-5C

Software used

☒	Operating system	Windows NT 4
☒	Any other software required (network configuration software)	SST ControlNet Configuration Tool
		RSNetWorx if there are any Allen-Bradley PLCs on the same network. We used version 1.80.38.0
		RSLogix 5 to program the PLC-5C. We use version 2.0.47.0
		RSLinx to communicate with the PLC-5C

Procedure

Setting the ID Object on the Card

If you use RSNetWorx 1.8 or below to schedule the network, you must change the ID object on the card to make it look like a KTCS card, so that RSNetWorx can recognize it. Run *Start/Program Files/SST CN/CN Card Utilities*. Select *IdObj/Display/Edit*. Click the Edit button, then click the *KTCS Emu* button. Click the *Update* button to save the change to Flash memory on the card. You must reload the card after you change the ID Object.

If you are using RSNetWorx 2.0 or above, you do not need to update the ID Object on the card. Use the EDS Wizard in RSNetWorx to register the EDS file 0008000Cxxxx0101.EDS (where xxxx is the 0001 for the ISA card, 0008 for the PC/104 card, 000B for the VME card and 017B for the PCI card) so that RSNetWorx can recognize the card. You must restart your computer after you run the EDS wizard. When you run RSLinx and RSNetWorx, they will recognize SST cards. (An SST directory has been created in the left window in RSNetWorx main screen.)

Creating a Configuration File

Use the following steps to create a scheduled receive using the SST ControlNet Configuration Tool:

1. If you haven't already done so, create a new network and add a scanner. Double click on The Network and set the network properties. Double click on the scanner. On the *Scanner* tab, set the MAC ID. On the *Connections* tab, set the *Card Type* to the appropriate type (usually *Standard*).

2. Drag the appropriate (model and revision) PLC-5C from the Programmable Logic Controller section of the EDS library to the scanner.

3. Double click on the adapter (receive from PLC-5) to configure it.

4. On the General tab, you can optionally set the name and description for the PLC-5 connection.

5. Set the MAC ID for the PLC.

6. Set the *O=>T RPI* and *T=>O RPI* to the required update time. This time is shown in microseconds. For example, if you want it to update every 30 ms, enter 30000 for both values. The default values for the RPIs is the network update time (NUT).

7. Set the *T=>O Size* to the length of the receive in words. This must match the length of the send you configure in the PLC.

8. On the *Parameters* tab, set the *Consume Buffer ID* value to match the message number of the send in the PLC.

9. Click *OK* to accept the configuration.

10. Double click on the scanner, select the *Connections* tab, and configure appropriate *Rx Start* and *Tx Start* addresses.

11. Download the configuration to the module and put the module online.

Use the following steps to create a scheduled send in the Configuration Tool.
1. If you haven't already done so, create a new network and add a scanner. Double click on The Network and set the network properties. Double click on the scanner. On the *Scanner* tab, set the MAC ID. On the *Connections* tab, set the *Card Type* to the appropriate type (usually *Standard*).

2. If you are using RSNetWorx 1.8 or below, drag an SST-CN KTCS Send from the Communication Adapters section of the EDS library to the scanner. If you are using RSNetWorx 2 or above, drag an

SST CN ISA (VME, 104, etc.) Send from the Communication Adapters section of the EDS library to the scanner.

3. Double click on the send to configure it.

4. On the *General* tab of the dialog box that appears, you can optionally set the name and description of the send.

5. Set the *T=>O Size* to the length of the send in words. This must match the length of the corresponding receive in the PLC.

6. On the Parameters tab, set the *Produce Buffer ID* value to match the message number of the corresponding receive in the PLC. Each send on a node must have a unique Produce Buffer ID (message number).

7. Click *OK* to accept the configuration.

8. Download the configuration to the module and put the module online.

Use the following steps to create scheduled sends and receives in the PLC-5 using RSNetWorx. These steps are based on RSNetWorx version 1.80.
1. Start RSNetWorx and select *Network/New* to create a new network.

2. Go Online so that RSNetWorx can read the network configuration. RSNetWorx may ask you to select a path to the network.

3. Enable Edits.

4. Right click on the PLC-5 and select *ControlNet Configuration*. RSNetWorx opens the PLC-5 Map Editing Tool.

5. Assign the Data Input, Data Output, Status, Diagnostic and Configuration Files to the file numbers you want to use in the PLC.

6. To insert a Receive Scheduled message, right click on the PLC and select *Insert Receive Scheduled Message*. In the dialog box that appears:

   - Set the *Node Number* to that of the card from which the PLC is receiving the scheduled data.

   - Set the message number to be the *Produce Buffer ID* of the corresponding send in the card.

   - Set the *Requested Packet Interval* to the update time, in ms, for this receive.

   - Set the *Message Size* to the length of the send in the card.

   - Click *OK* to accept the configuration for the receive.

7. To insert a Send Scheduled message, right click on the PLC and select *Insert Send Scheduled Message*. In the dialog box that appears:

   - Set the *Message Number* to match the Consume Buffer ID for the corresponding receive in the card.

   - Set the *Message Size* to match the T=>O size for the corresponding receive in the card.

   - Click *OK* to accept the configuration for the send.

8. Select *Configuration/Auto Map/All Entries* from the main menu so the Map Editing Tool can assign addresses for the scheduled sends and receives you have configured.

9. Perform a *Network/Save*. RSNetWorx builds a network schedule and writes it to the nodes on the network.

Each time you change the network configuration using the Configuration Tool, you must re-run RSNetWorx and do a *Network/Save* to reschedule the network.

Downloading over ControlNet using an SST Card

If the computer you are running the SST ControlNet Configuration Tool on has an SST ControlNet card that is online on the network (even if it is not running RSLinx), you can use it to download the configuration over ControlNet.

From the ControlNet Configuration Tool, right click on the scanner and select *Send Config Through SST CN Card*. If necessary, select the path to the network. The Configuration Tool downloads the configuration to the selected SST card and notifies you of its success or failure.

If you right click on *The Network* and select *Send Config Through SST CN Card*, the Configuration Tool downloads the configuration to all SST cards on the network.

Downloading over ControlNet using RSLinx

NOTE: To download the configuration using RSLinx, you must have either the full (9355-WAB) or OEM (9355-WABOEM) version of RSLinx installed on your computer. You cannot download using RSLinx Lite.

Start RSLinx and establish a connection to the network. From the ControlNet Configuration Tool, right click on the scanner and select *Send Config Through RSLinx*. If necessary, select the path to the network. The Configuration Tool downloads the configuration to the selected card and notifies you of its success or failure.

If you right click on *The Network* and select *Config Through RSLinx*, the Configuration Tool downloads the configuration to all SST cards on the network.

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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.

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