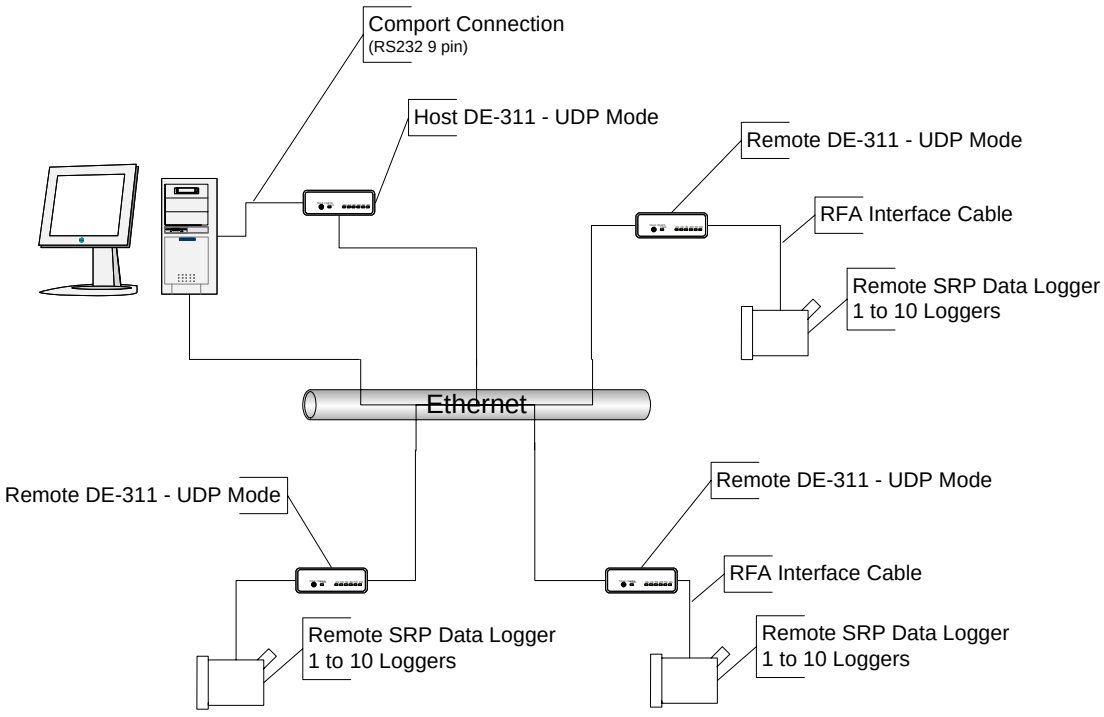
Communicating with ACR SmartReader Plus Data Loggers over a Local Area Network

Communicating with ACR SmartReader Plus (SRP) Data Loggers over a Local Area Network (LAN) using Moxa Ethernet to Serial Devices (ETSD) is a relatively simple task when the proper steps are taken.

This document describes how to use the Moxa devices in UDP mode and is broken down into the following sections:

Connection Diagram



Note:
As you will be connecting devices to your LAN, you should first consult with your IT Department or your Network Administrator. You will need to ask them for “Static IP Addresses” for each ETSD you will be using. Ask for a range of addresses that are sequential if possible.

Terms and Definitions:

SRP	SmartReader Plus
ETSD	Ethernet To Serial Device
LAN	Local Area Network
TR2	TrendReader Standard 2
IP	Internet Protocol
Static IP Address	Fixed address that is not changed by the Network Server
Dynamic IP Address	Non-fixed address that can be changed by the Network Server
UDP	User Datagram Protocol
TCP	Transmission Control Protocol

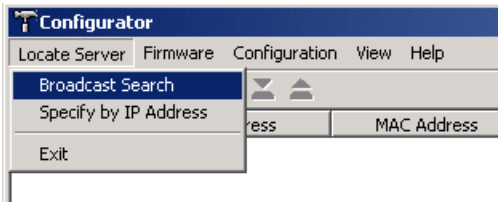
Configure the ETSD

This section describes how to configure the Moxa DE-311s for use in UDP mode. This mode allows you to communicate with several DE-311s using one serial communications port on your PC. UDP mode requires you to use one dedicated DE-311 as a host, connected to your PC, that will transmit data to and receive data from the remote DE-311. Using this mode makes your LAN appear transparent to the SRP Data Loggers and to the TR2 software.

Configure Your Host Unit

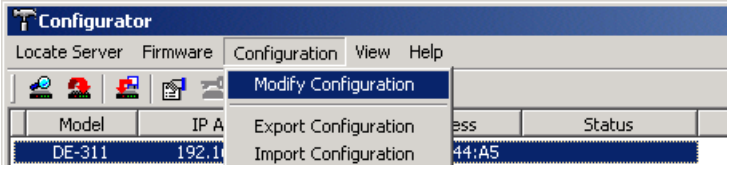
The following steps describe how to configure the Moxa DE-311 for use as the host unit connected to your PC (you will need the “Static IP Addresses” from your IT Department or Network Administrator before going forward):

1. Install the software supplied with the Moxa DE-311. Follow the instructions provided by the manufacturer.
2. Connect the host DE-311 to your LAN using the cable provided with the unit. If you don’t have a free LAN jack to connect the DE-311 to, you can purchase a network hub from any consumer electronics store such as Best Buy.
3. Start the Configurator application under the Nport Management Suite in the Start menu Programs folder.
4. In the Locate Sever menu click the Broadcast Search.

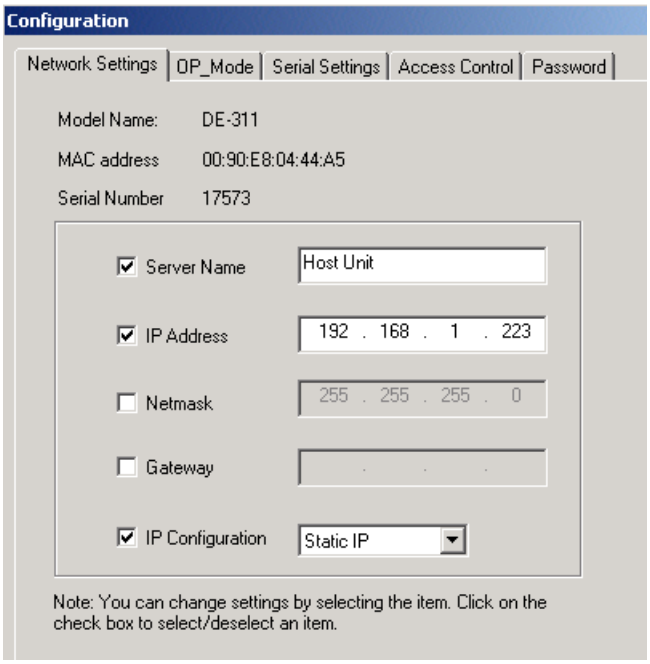


5. When the search is complete the DE-311 you connected to the LAN should be shown in a list below the tool bar.

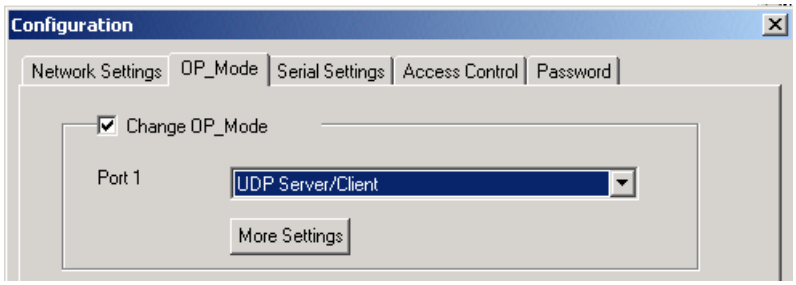
6. Next you need to set the host unit's IP address to one of the static IP addresses provided to you by your IT Department or Network Administrator. In the Configuration menu select: Modify Configuration.



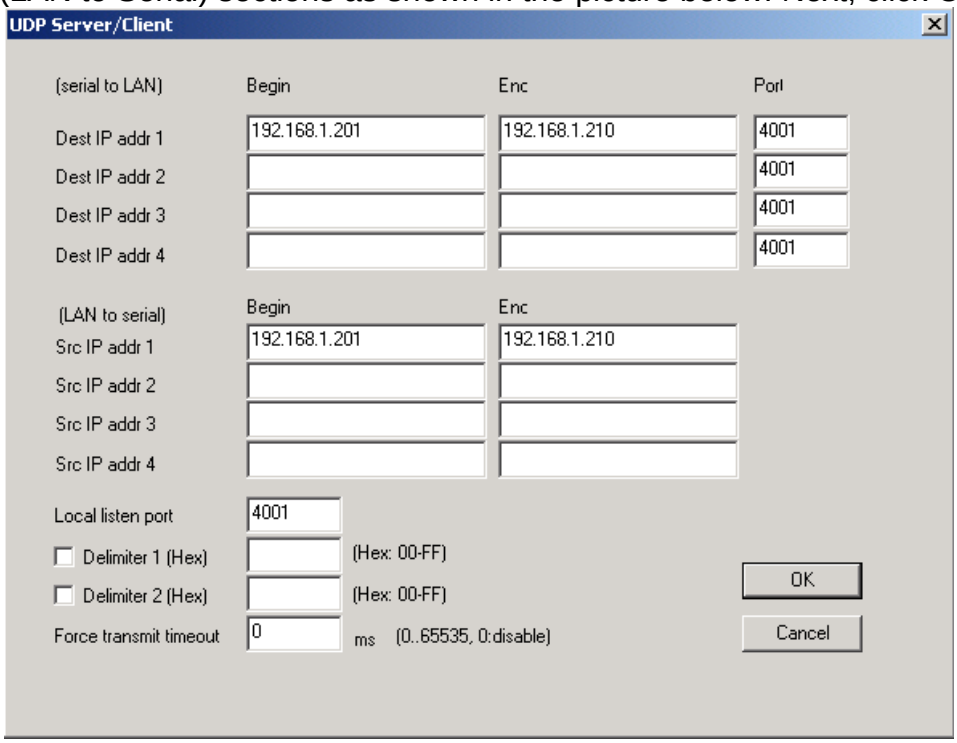
7. On the Network tab in the Configuration form, check the Server Name, IP Address and IP Configuration check-boxes. In the Server Name field, enter a meaningful name for this unit. In the IP Address enter one of the static IP addresses provided to you (use the lowest address). In the IP Configuration list box select: Static IP.



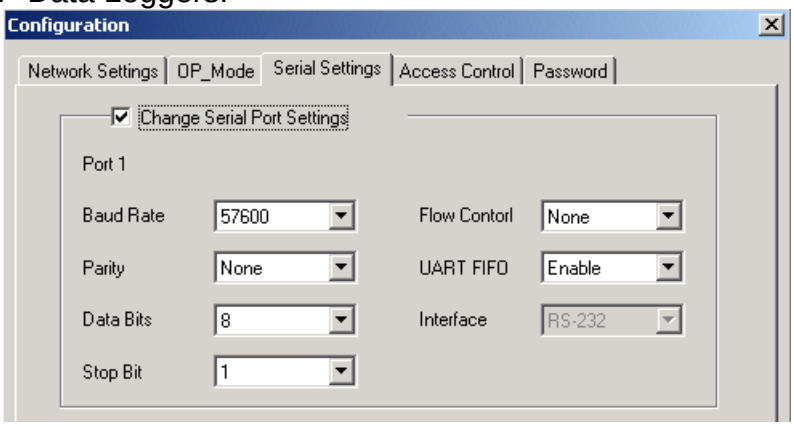
8. On the OP_Mode tab on the Configuration form, check the Change OP_Mode check box. Next select UDP Server/Client in the Port 1 list box.



9. Next, click the More Settings button.
10. You are now going to tell your host unit which IP addresses to send data to and to receive data from. To do this, enter the next lowest static IP address in to the Begin column of the Dest IP addr 1 row on the UDP Server/Client form. Next, enter the highest static IP address in the End column of the Dest IP addr 1 row. Do this for both the (serial to LAN) and (LAN to Serial) sections as shown in the picture below. Next, click OK.



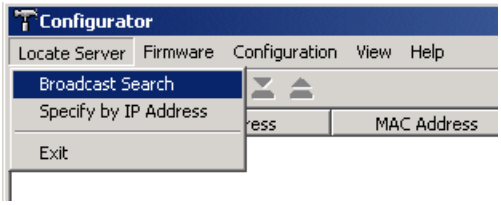
11. Next, set the serial port settings for the host unit to communicate with your PC and the TR2 software. Select the Serial Settings tab on the Configuration form. Check the Change Serial Port Settings check-box. Change all the fields to match the settings in the picture below. Then click on the OK button on the Configuration form. This will save the settings to the DE-311 which is now ready to be used as a host unit for your network of SRP Data Loggers.



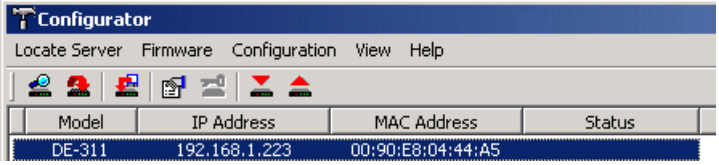
Configure Your Remote Units

The following steps describe how to configure your Moxa DE-311s as remote units that will be connected to your SRP Data Loggers through an RFA interface cable:

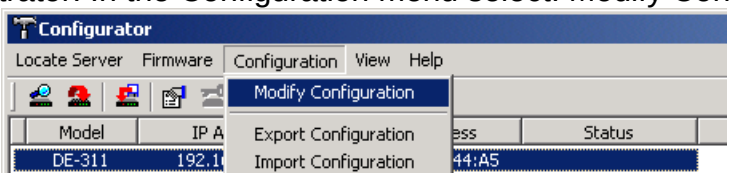
1. Connect the host DE-311 to your LAN using the cable which was provided with the unit. If you don't have a free LAN jack to connect the DE-311 to, you can purchase a network hub from any consumer electronics store such as Best Buy.
2. Start the Configurator application under the Nport Management Suite in the Start menus Programs folder.
3. In the Locate Sever menu, click on the Broadcast Search.



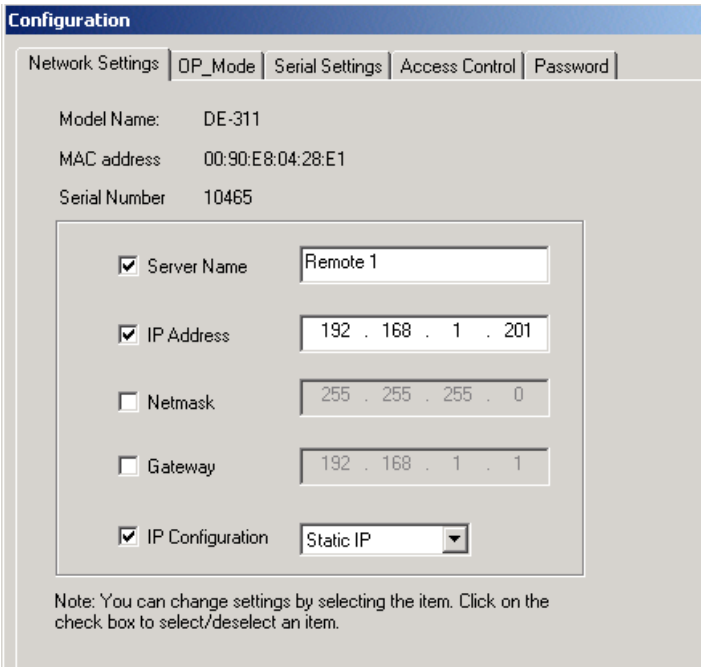
4. When the search is complete the DE-311 you connected to the LAN should be shown in a list below the toolbar.



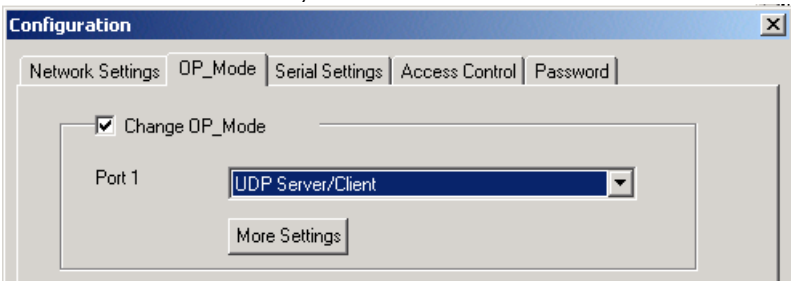
5. Next you need to set the host unit's IP address to one of the static IP addresses provided to you by your IT Department or Network Administrator. In the Configuration menu select: Modify Configuration.



6. On the Network tab in the Configuration form, check the Server Name, IP Address and IP Configuration check-boxes. In the Server Name field enter a meaningful name for this unit. In the IP Address field enter one of the static IP addresses provided to you (do not use an address that you have already assigned to one of the other units). In the IP Configuration list-box select: Static IP.

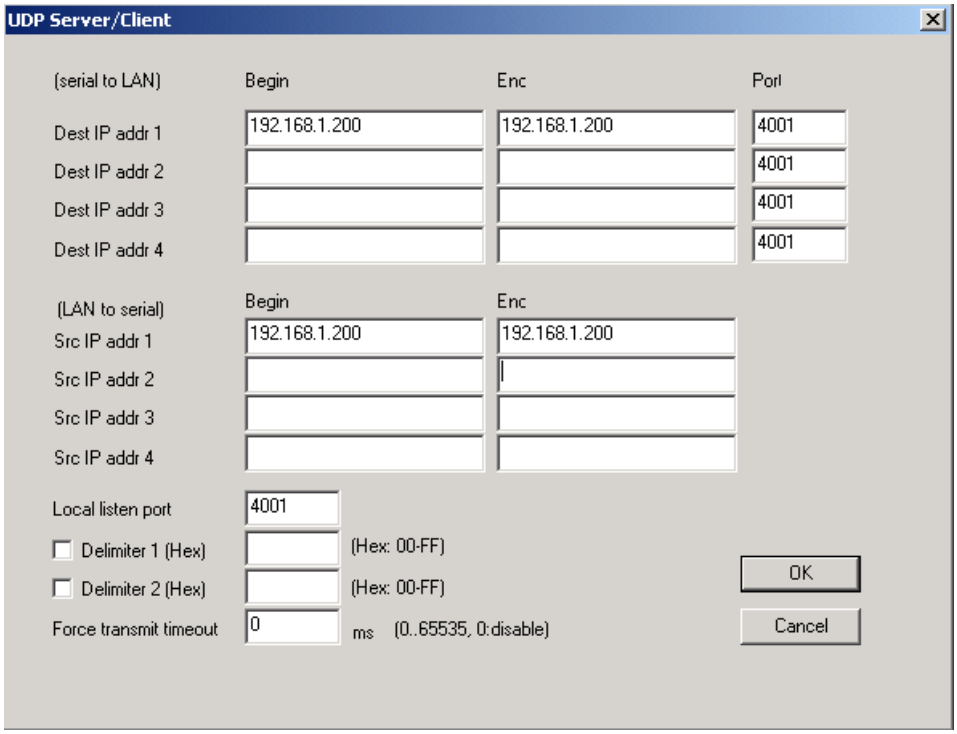


7. On the OP_Mode tab on the Configuration form, check the Change OP_Mode check-box. Next, select UDP Server/Client in the Port 1 list-box.

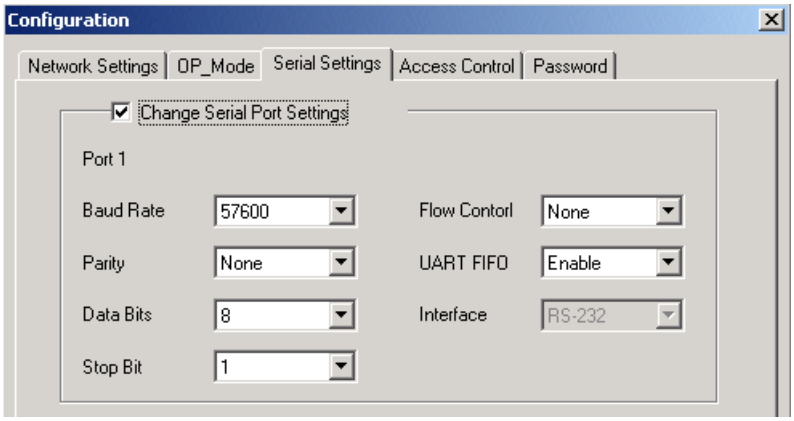


8. Next, click the More Settings button.

9. You are now going to tell your remote unit which IP address to send data to and to receive data from. To do this, enter the host's IP address in the Begin column of the Dest IP addr 1 row on the UDP Server/Client form. Next enter the same IP address in the End column of the Dest IP addr 1 row. Do this for both the (serial to LAN) section and the (LAN to Serial) section as shown in the picture below. Next, press OK. This tells the unit to only send data to and receive data from the host unit. All remote units will send data to and receive data from the host unit; therefore you enter the same IP address in all the remote units.



10. Next, set the serial port settings for the host unit to communicate with your PC and the TR2 software. Select the Serial Settings tab on the Configuration form, check the Change Serial Port Settings check-box. Change all the fields to match the picture below, and then click the OK button on the Configuration form. This will save the settings to the DE-311. It is now ready to be used as a remote unit for your network of SRP Data Loggers.



11. Repeat steps 1 through 10 for each remote DE-311 unit you will be using.

Connecting To Your ETSD

Connecting the Host DE-311 to your PC

The host DE-311 is connected to an unused serial port on your computer using a standard 9-pin serial cable. This is a direct connection and no other adaptors are required.

If you do not have a serial port on your computer you can choose one of two options:

1. Purchase a USB to Serial adaptor. This will create a virtual serial port on your computer when you connect the adaptor to your USB port and install the software. This is the quickest and easiest option but not the most reliable.
2. Purchase a serial card for your PC. This requires you to open your PC case and install the card. This option is the most reliable option as it creates a real, or hardware serial port, instead of a virtual or software serial port.

Both options cost approximately the same.

Connect the Remote DE-311 to the SRP Data Logger

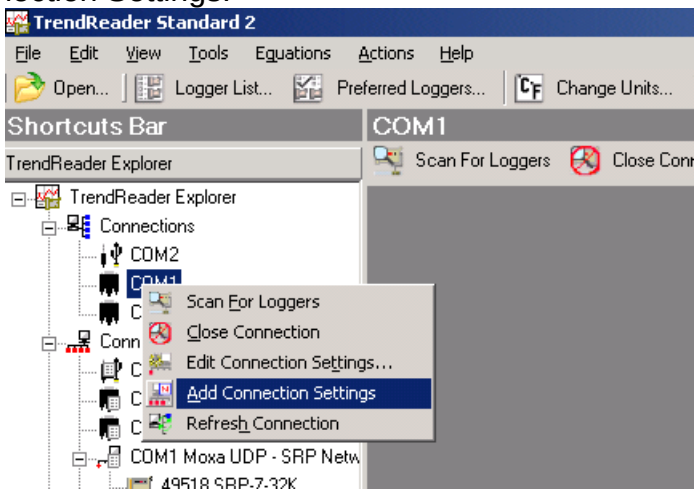
The SRP Data Loggers are connected to your remote DE-311s using an ACR RFA interface cable. This is a direct connection and no other adaptors are required.

Configure you TR2 Connection to communicate with the remote SRP Data Loggers

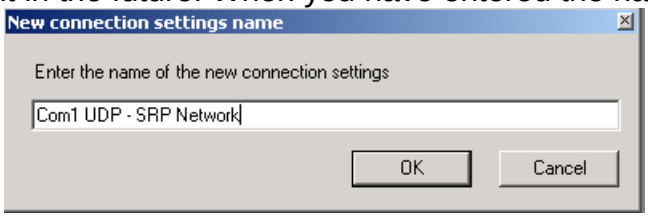
After you have configured your host and remote ETSDs and connected them to the PC and SRP Data Loggers, you are ready to configure the connection in TR2.

When configuring the connection in TR2 you need to let the software know what type of Data Logger you are communicating with and what type of Interface Cable you are using. The following steps will guide you through this process:

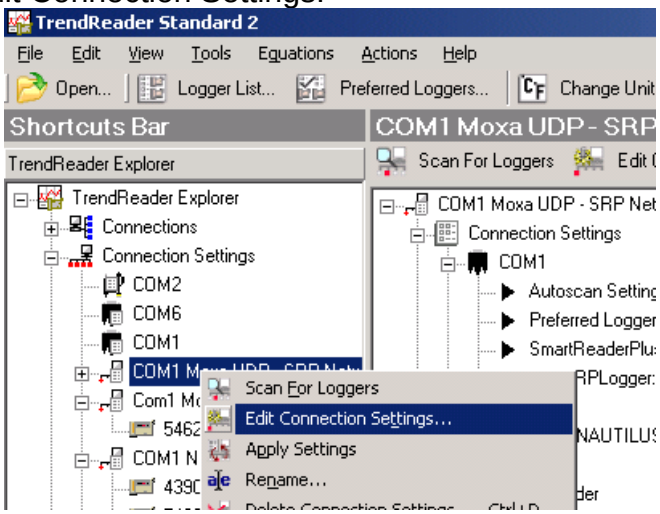
1. In order to make future connection to the loggers easier and more straightforward, start by creating a new connection setting for this network of DE-311's and SRP Data Loggers. To do this, run the TR2 software. Under the Connection node of the TrendReader Explore, right click on the serial port where you have the host DE-311 connected. Next, left click on Add Connection Settings.



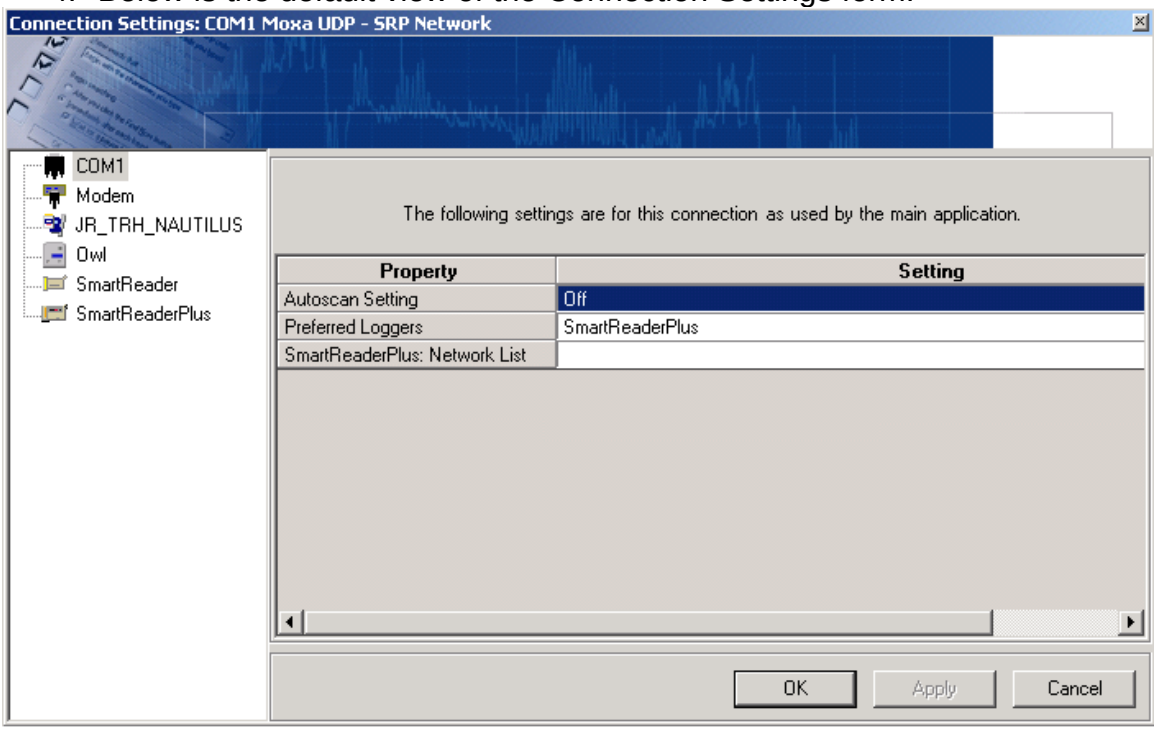
2. The Add Connection Settings form will appear asking you to name this connection. Give this connection a meaningful name so that you will remember it in the future. When you have entered the name, click OK.



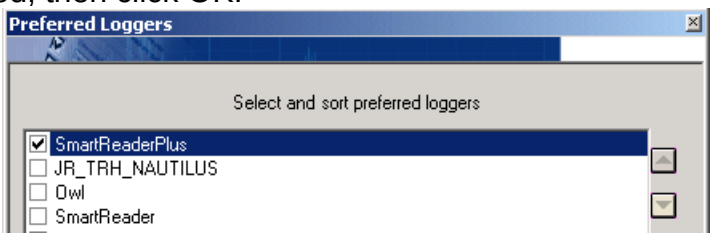
3. Once you have created your connection settings, edit the settings to indicate the type of Data Loggers and Interface Cable you are using. Under the Connection Settings node in the TrendReader Explore tree, right click on the connection settings that you just created, and then left click on Edit Connection Settings.



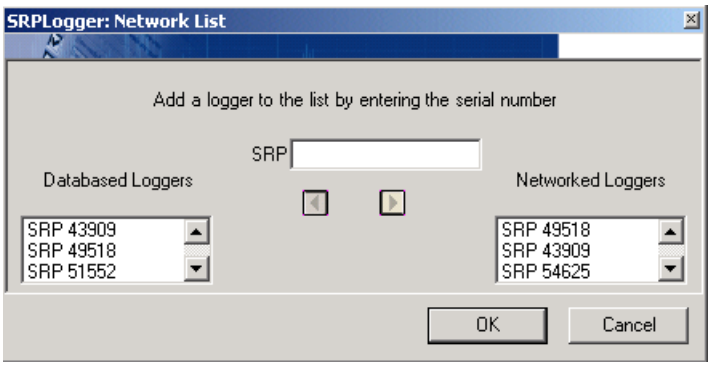
4. Below is the default view of the Connection Settings form.



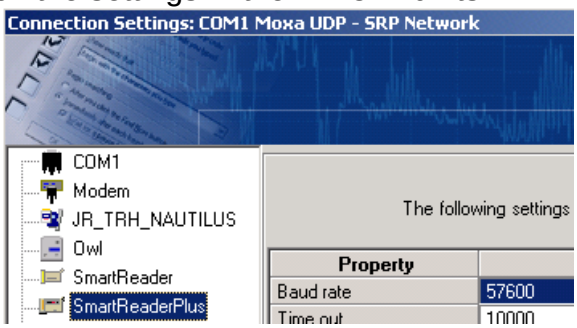
5. In the Connections settings form the serial port node on the left will be selected by default. On the right side, click on the setting column for Preferred Loggers, to select the type of Data Logger you are using. On the Preferred Loggers form make sure that only the SmartReader Plus logger is selected, then click OK.



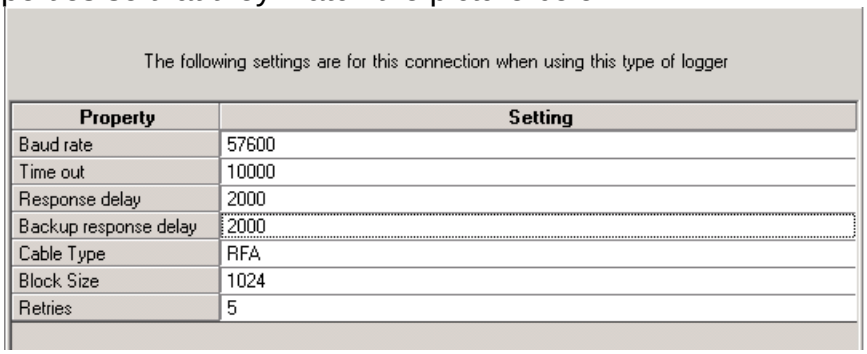
6. Next you need to indicate which SRP Data Loggers you will be communicating with by entering their serial numbers in to the Network List. On the right side, left click on the settings column for the SmartReader Plus: Network List. This will show you the network selection form. If you have previously communicated with your SRP Data Logger, its serial number will show up in the list box on the left. If the serial number you want is in the list, click on that serial number, and then click on the button with the right arrow on it in order to add it to the list on the right. If the serial number you are looking for is not in the list, you can type it in the textbox in the middle of the form, and then click on the button with the right arrow on it in order to add it to the list on the right. Click OK once you have selected or entered all the serial numbers for this network. You must select at least one serial number if more than one SRP Data Logger will be used.



7. Now select SmartReader Plus on the left side of the Connection Settings form in order to select the type of Interface Cable and to set other items so that they match the settings in the DE-311 units.

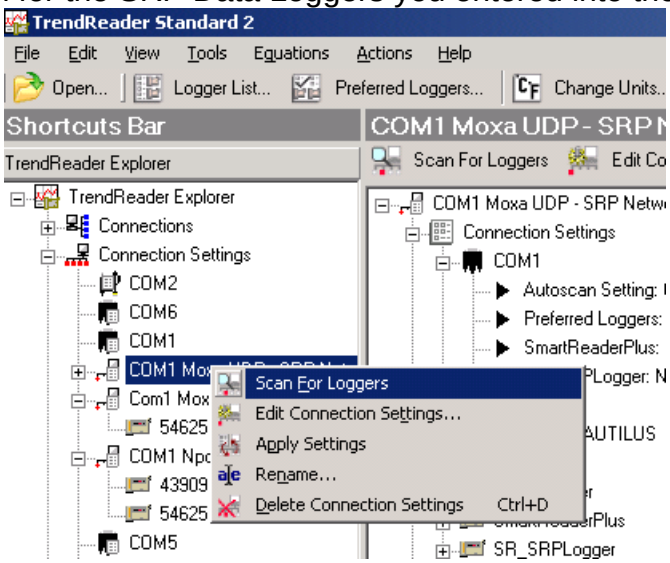


8. On the right side you will see the settings that will be used when communicating with SRP Data Loggers on this connection. Set all the properties so that they match the picture below.



9. You have now finished configuring your new connection to work with the host DE-311, the remote DE-311s and SRP Data Loggers. Click OK on the Connection Settings form to save your settings.

10. In order to connect to your network of SRP Data Loggers, right click on your connection under the Connection Settings node in the TrendReader Explore tree and select Scan For Loggers. TR2 will start to scan the connection for the SRP Data Loggers you entered into the network list.



11. Once the Data Loggers are found, their status information will be displayed in the center panel of the application. Here you will be able to edit the Data Loggers' setup, see real time data, or backup the data and view it as a graph.