



## **1747-DPS2 Software Configuration Utility**

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### **About This Publication**

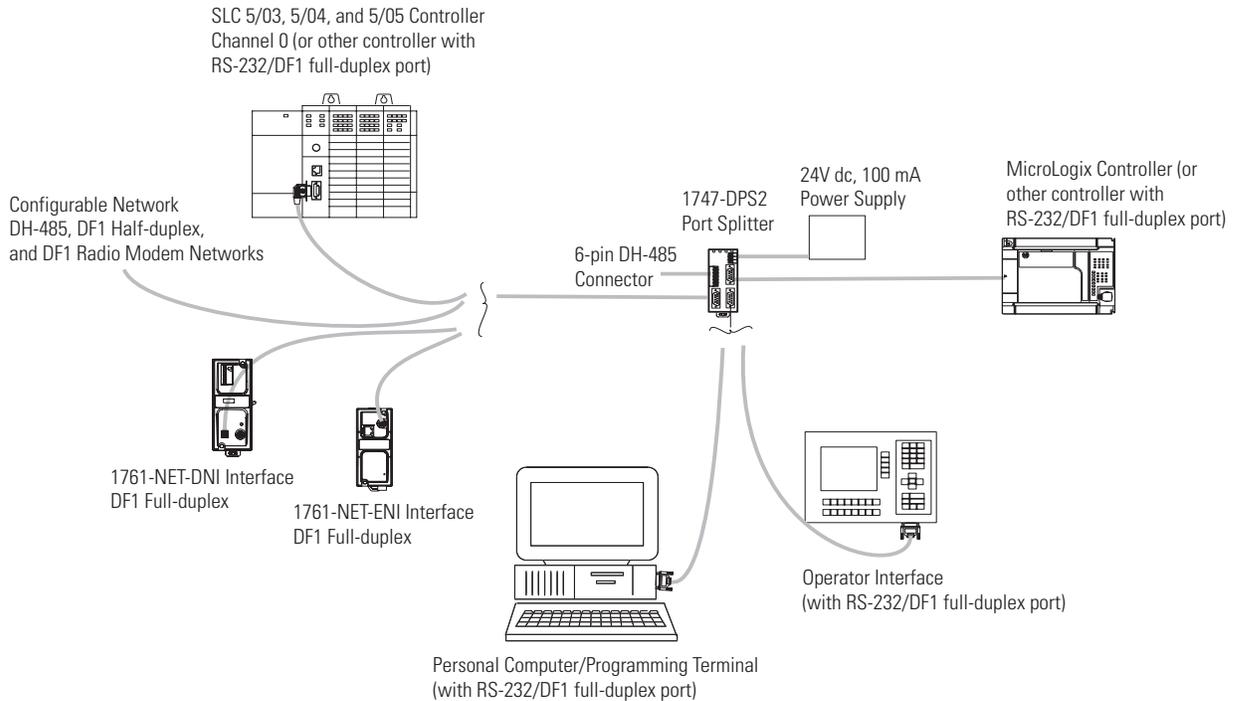
This publication provides information on how to access the 1747-DPS2 software configuration utility settings and parameters.

The configuration utility enables the network port on the 1747-DPS2 port splitter to be configured for communication with DH-485, DF1 half-duplex (master or slave), DF1 full-duplex, or DF1 radio modem networks.

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## Before You Begin

Before you begin, make sure the 1747-DPS2 port splitter is connected to your network. Refer to the Port Splitters Installation Instructions, publication [1747-IN516](#), for installation information.



## Required System Components

You need:

- a 1747-DPS2 port splitter.
- a personal computer to access the 1747-DPS2 configuration utility.
- a 1747-CP3 or equivalent cable to connect the personal computer communication port to the 1747-DPS2 controller port.
- a 24V dc power source to supply power to the 1747-DPS2 port splitter.

## **Install the 1747-DPS2 Configuration Utility**

Follow this procedure to install the configuration utility.

1. Download the configuration utility from <http://www.ab.com/programmablecontrol/plc/slcsystem/downloads.html>.
2. Click the install shield icon and follow the installation steps.

## **Connect the Personal Computer to the 1747-DPS2 Port Splitter**

Follow this procedure to connect the personal computer to the port splitter.

1. Connect the personal computer communication port to the controller port on the 1747-DPS2 port splitter with a 1747-CP3 or equivalent cable.
2. Apply power to the 1747-DPS2 port splitter and verify that the OK status indicator on the port splitter is flashing.

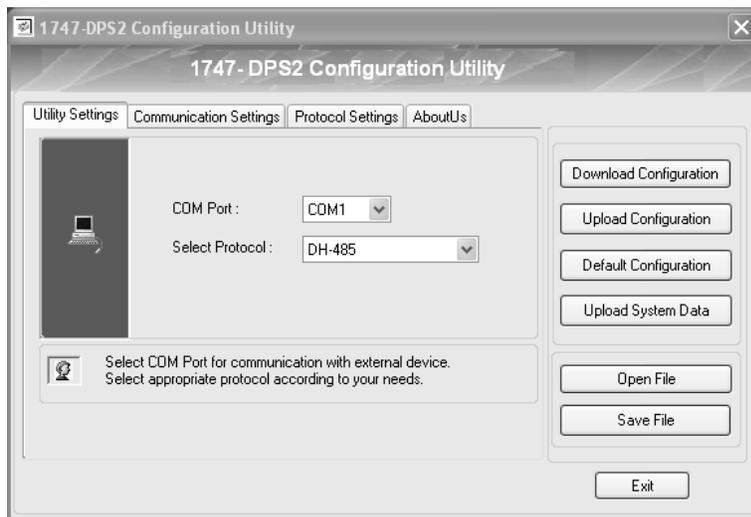
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## Set the Configuration Utility Options

Select various settings based on the communication protocol you choose.

1. Run the configuration utility from start>Programs from your personal computer.

The configuration utility dialog appears.



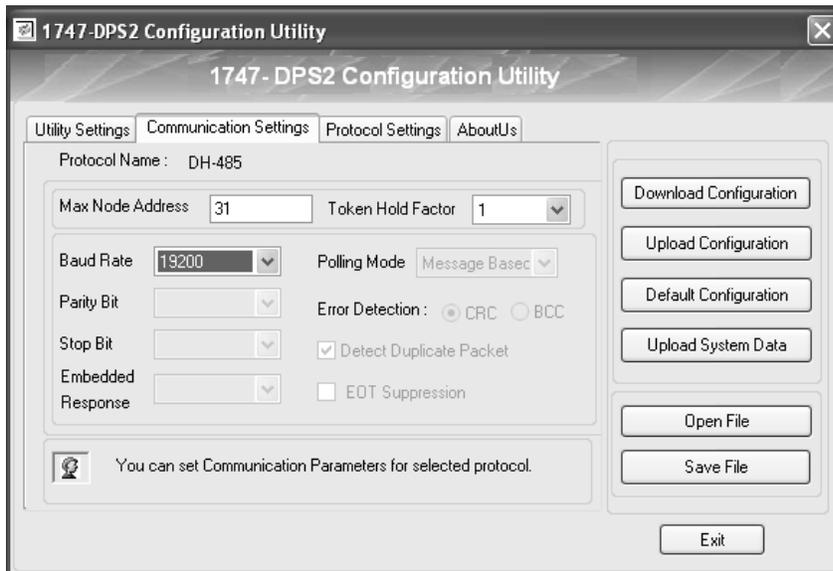
2. Select the personal computer communication port (COM Port) through which you will be communicating to the port splitter.
3. Under Utility Settings, click the arrow next to Select Protocol and chose the appropriate protocol.

The various communication protocol settings that you can choose include:

- DH-485 starting on page 8. This is the default setting.
  - DF1 Full-duplex starting on page 9.
  - DF1 Half-duplex Master starting on page 12.
  - DF1 Half-duplex Slave starting on page 16.
  - DF1 Radio Modem starting on page 20.
4. Click Communication Settings.

The dialog that appears corresponds to the protocol setting listed in step 3.

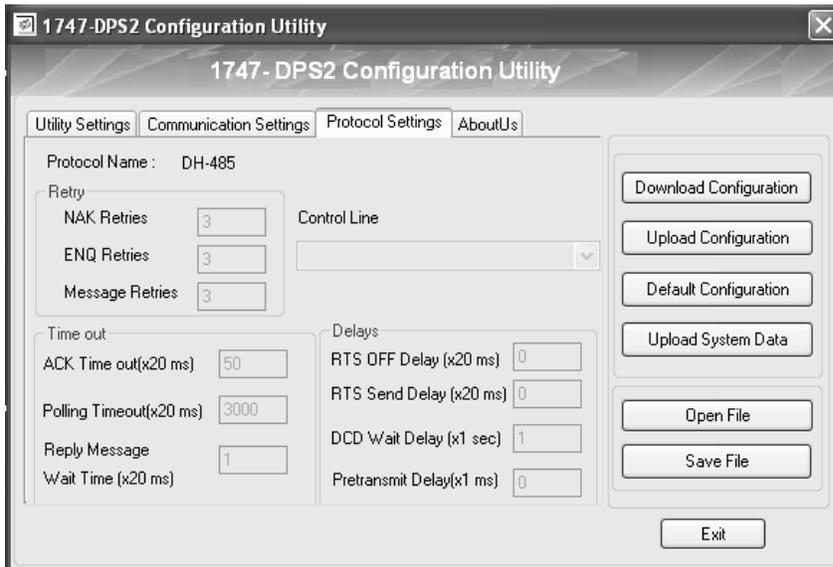
The following dialog appears if you chose DH-485 in step 3.



These settings are enabled or appears dimmed depending on the selected protocol.

5. Click Protocol Settings.

The following dialog appears if you chose DH-485 in step 3.



These settings are enabled or appears dimmed depending on the selected protocol.

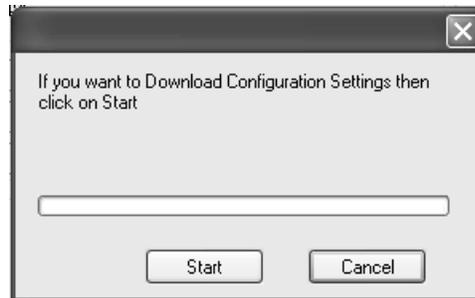
6. Click About Us to determine the configuration utility version.

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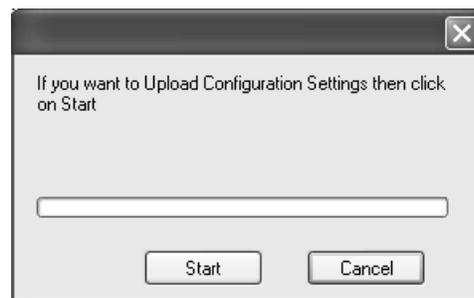
## Configuration Buttons

Once you have chosen the settings appropriate for your application, you need to click one of the following configuration buttons.

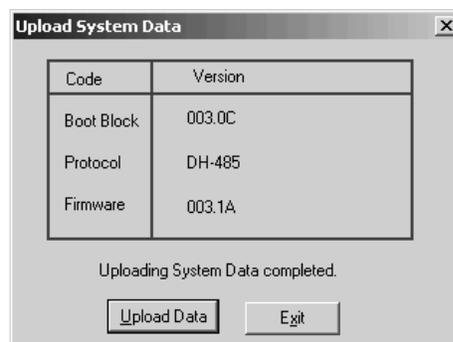
- Use Download Configuration to change the Network port protocol and/or download the configuration settings from your computer to the 1747-DPS2 port splitter.



- Use Upload Configuration to upload the configuration settings from the 1747-DPS2 port splitter to your personal computer.

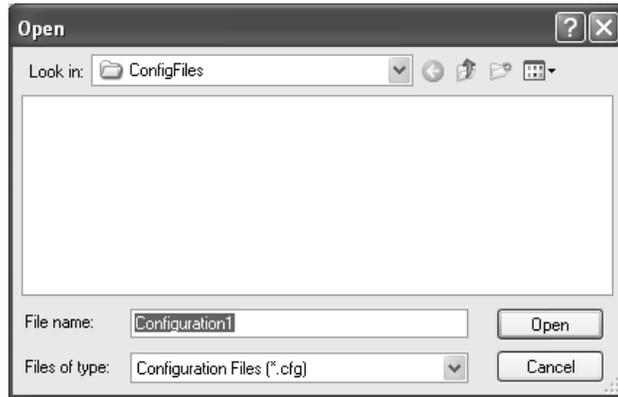


- Use Upload System Data to identify the firmware revisions running in the 1747-DPS2 port splitter.

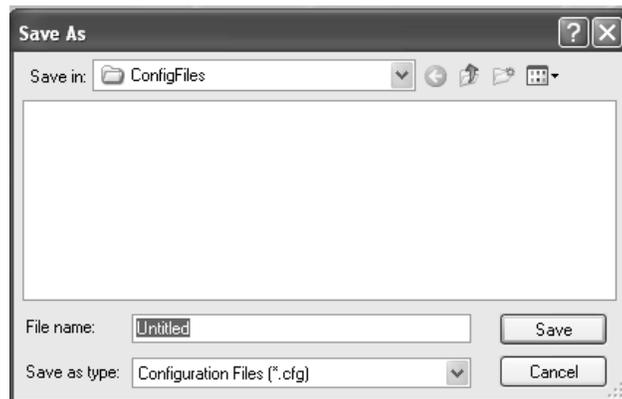


- Use Default Configuration to set the default values (lets you return to initial settings) for each protocol parameter.

- Use Open File to open the existing configuration setting file.



- Use Save File to save the configuration settings to a file location. The software creates a .cfg file when you save the file.

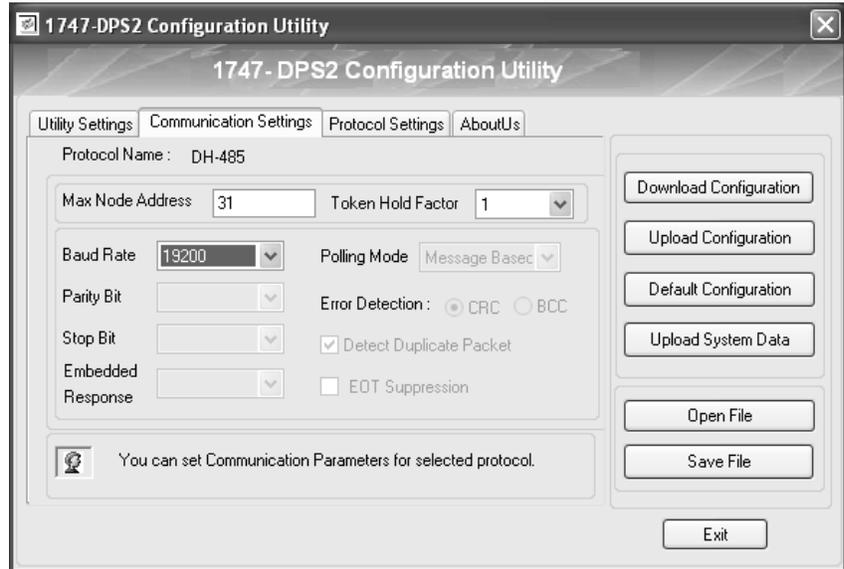


Once you have chosen the protocol and configuration settings, and have downloaded those to the 1747-DPS2 port splitter, the configuration process is complete.

## Communication and Protocol Settings

This section describes the various communication and protocol settings that you can select for each protocol.

### DH-485 Communication Settings



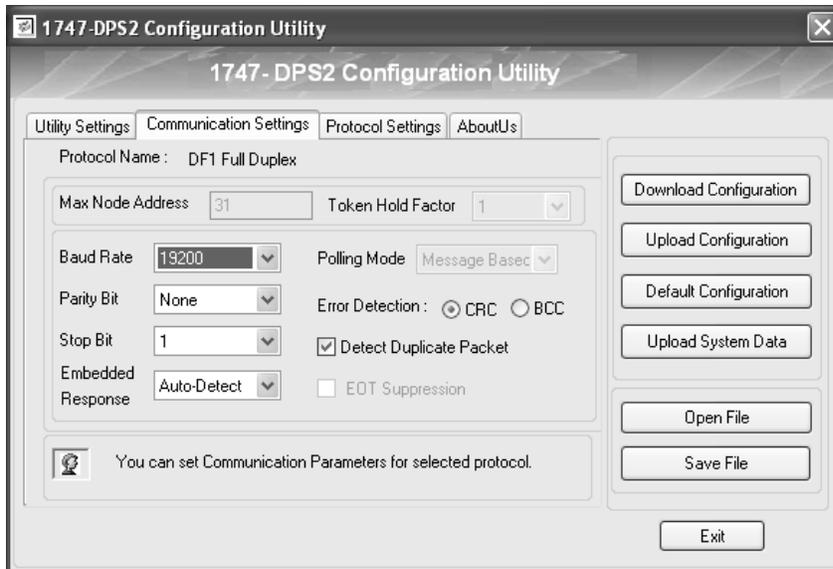
#### Configurable DH-485 Communication Settings

| Setting           | Default | Description   |
|-------------------|---------|---|
| Baud Rate         | 19,200  | Toggles between the communication rate of 1200, 2400, 9600, and 19,200.   |
| Max Node Address  | 31      | This is the maximum node address of an active processor. The valid range is 1...31.   |
| Token Hold Factor | 1       | This parameter determines the number of transactions allowed, in order to make each DH-485 token rotation. Increasing this value lets your processor increase its DH-485 throughput. This also decreases throughput to other processors on the DH-485 link. The valid range is 1...4. |

### DH-485 Protocol Settings

DH-485 protocol has no selectable protocol settings.

## DF1 Full-duplex Communication Settings



### Configurable DF1 Full-duplex Communication Settings

| Setting    | Default | Description  |
|------------|---------|--|
| Baud Rate  | 19,200  | Selects a communication rate supported by all devices in your system. Configure all devices in the system for the same communication rate.               |
| Parity Bit | None    | Parity provides additional message-packet error detection. To implement even parity checking, choose Even. To implement no parity checking, choose None. |
| Stop Bit   | 1       | Matches the number of stop bits to the devices with which you are communicating.   |

**Configurable DF1 Full-duplex Communication Settings**

| <b>Setting</b>          | <b>Default</b> | <b>Description</b>   |
|-------------------------|----------------|--|
| Error Detection         | CRC            | <p>With this selection, you choose how the 1747-DPS2 port splitter checks the accuracy of each DF1 packet transmission.</p> <p>BCC: This algorithm provides a medium level of data security. It cannot detect:</p> <ul style="list-style-type: none"> <li>• transposition of bytes during transmission of a packet.</li> <li>• the insertion or deletion of data values of zero within a packet.</li> </ul> <p>CRC: This algorithm provides a higher level of data security.</p> <p>Select an error detection method that all devices in your configuration can use.</p> <p>When possible, choose CRC.</p> |
| Embedded Response       | Auto-detect    | <p>To use embedded responses, choose Enabled. If you want the 1747-DPS2 port splitter to use embedded responses only when it detects embedded responses from another device, choose Auto-detect.</p> <p>If you are communicating with another Allen-Bradley device, choose Enabled. Embedded responses increase network traffic efficiency.</p>  |
| Detect Duplicate Packet | Enabled        | <p>The Duplicate Detect parameter lets the 1747-DPS2 port splitter detect if it has received a message that is a duplicate of its most recently received message. If you choose duplicate detect, the 1747-DPS2 port splitter will acknowledge (ACK) the message but will not pass it on since it has already passed the original message on.</p> <p>If you want to detect duplicate packets and discard them, check this parameter. If you want to accept duplicate packets and pass them on, leave this parameter unchecked.</p>   |

## DF1 Full-duplex Protocol Settings

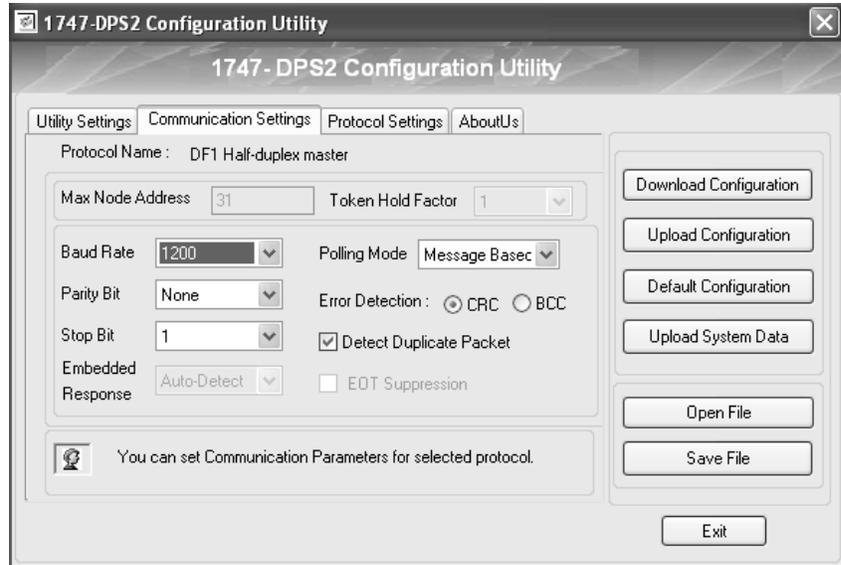
The screenshot shows the '1747-DPS2 Configuration Utility' window with the 'Protocol Settings' tab selected. The 'Protocol Name' is set to 'DF1 Full Duplex'. The 'Retry' section includes 'NAK Retries' (3), 'ENQ Retries' (3), and 'Message Retries' (3). The 'Time out' section includes 'ACK Time out(x20 ms)' (50), 'Polling Timeout(x20 ms)' (3000), 'Reply Message' (1), and 'Wait Time (x20 ms)'. The 'Delays' section includes 'RTS OFF Delay (x20 ms)' (0), 'RTS Send Delay (x20 ms)' (0), 'DCD Wait Delay (x1 sec)' (1), and 'Pretransmit Delay(x1 ms)' (0). The 'Control Line' dropdown is set to 'No Handshaking'. On the right side, there are buttons for 'Download Configuration', 'Upload Configuration', 'Default Configuration', 'Upload System Data', 'Open File', 'Save File', and 'Exit'.

### Configurable DF1 Full-duplex Protocol Settings

| Setting      | Default        | Description   |
|--------------|----------------|---|
| ACK Timeout  | 50             | The amount of time in 20 ms increments that you want the 1747-DPS2 port splitter to wait for an acknowledgment to the message it has sent before sending an enquiry (ENQ) for the reply.  |
| NAK Retries  | 3              | The number of times the 1747-DPS2 port splitter will resend a message packet because the 1747-DPS2 port splitter received a NAK response to the previous message packet transmission.   |
| ENQ Retries  | 3              | The number of ENQs that you want the 1747-DPS2 port splitter to send after an ACK timeout occurs.   |
| Control Line | No handshaking | This parameter defines the mode in which the driver operates.<br><br>Choose a method appropriate for your system's configuration. If you are not using a modem, choose No Handshaking. If you are using full-duplex modems, choose Full-duplex Modem. |

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## DF1 Half-duplex Master Communication Settings



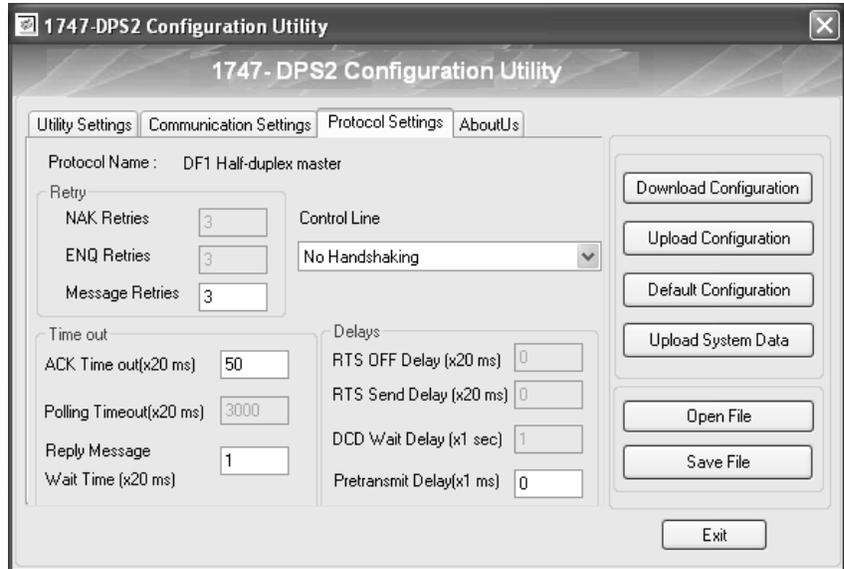
### Configurable DF1 Half-duplex Master Communication Settings

| Setting    | Default | Description  |
|------------|---------|--|
| Baud Rate  | 1200    | Selects a communication rate supported by all devices in your system. Configure all devices in the system for the same communication rate.               |
| Parity Bit | None    | Parity provides additional message-packet error detection. To implement even parity checking, choose Even. To implement no parity checking, choose None. |
| Stop Bit   | 1       | Matches the number of stop bits to the device with which you are communicating.  |

**Configurable DF1 Half-duplex Master Communication Settings**

| <b>Setting</b>          | <b>Default</b> | <b>Description</b>   |
|-------------------------|----------------|--|
| Error Detection         | CRC            | <p>With this selection, you choose how the 1747-DPS2 port splitter checks the accuracy of each DF1 packet transmission.</p> <p>BCC: This algorithm provides a medium level of data security. It cannot detect:</p> <ul style="list-style-type: none"> <li>• transposition of bytes during transmission of a packet.</li> <li>• the insertion or deletion of data values of zero within a packet.</li> </ul> <p>CRC: This algorithm provides a higher level of data security.</p> <p>Select an error detection method that all devices in your configuration can use.</p> <p>When possible, choose CRC.</p> |
| Polling Mode            | Message Based  | <p>Message Based Polling means that only the time that the master polls a slave is after it has initiated a message to that slave. Slave-initiated messages will not work in Message Based Polling Mode. The 1747-DPS2 port splitter does not support Standard Polling Mode.</p>   |
| Detect Duplicate Packet | Checked        | <p>The Duplicate Detect parameter lets the 1747-DPS2 port splitter detect if it has received a message that is a duplicate of its most recently received message. If you choose duplicate detect, the 1747-DPS2 port splitter will acknowledge (ACK) the message but will not pass it on since it has already passed the original message on.</p> <p>If you want to detect duplicate packets and discard them, check this parameter. If you want to accept duplicate packets and pass them on, leave this parameter unchecked.</p>   |

## DF1 Half-duplex Master Protocol Settings



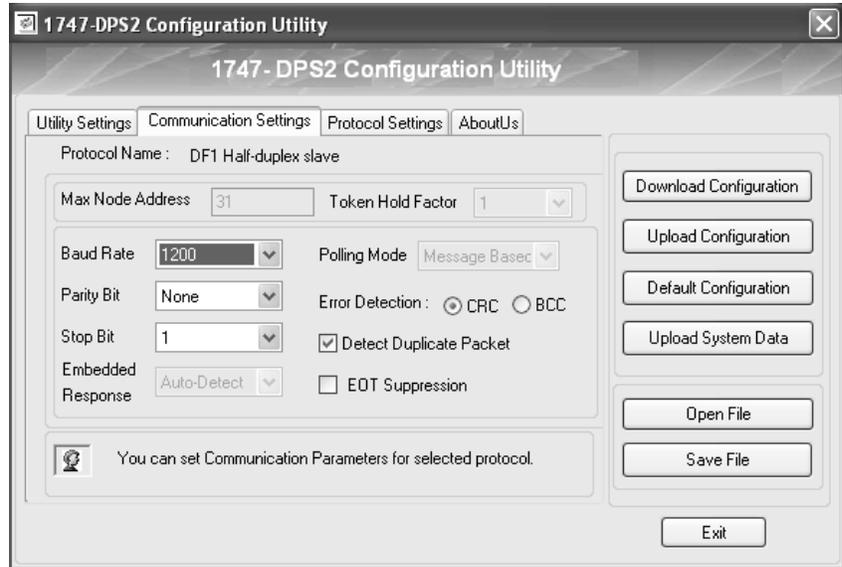
### Configurable DF1 Half-duplex Master Protocol Settings

| Setting       | Default        | Description   |
|---------------|----------------|---|
| Control Line  | No Handshaking | <p>This parameter defines the mode in which the driver operates. Choose a method appropriate for your system's configuration.</p> <p>If you are not using a modem, choose No Handshaking. If the master modem is full-duplex, choose Full-duplex Modem.</p> <p>If all of the modems in the system are half-duplex, choose Half-duplex Without Continuous Carrier.</p> |
| ACK Timeout   | 50             | The amount of time in 20 ms increments that you want the 1747-DPS2 port splitter to wait for an acknowledgment to the message it has sent before the 1747-DPS2 port splitter retries the message or the message errors out. This timeout value is also used for the poll response timeout.  |
| RTS Off Delay | 0              | Defines the amount of time in 20 ms increments that elapses between the end of the message transmission and the de-assertion of the RTS signal. This time delay should normally be left at zero.  |

**Configurable DF1 Half-duplex Master Protocol Settings**

| <b>Setting</b>          | <b>Default</b> | <b>Description</b>  |
|-------------------------|----------------|---|
| RTS Send Delay          | 0              | Defines the amount of time in 20 ms increments that elapses between the assertion of the RTS signal and the beginning of the message transmission. This time lets the modem prepare to transmit the message. The clear-to-send (CTS) signal must be high for transmission to occur.   |
| Pre-transmit Delay      | 0              | Defines the amount of time in 1 ms increments that elapses between when the 1747-DPS2 port splitter has a message to send and when it either asserts the RTS signal (if handshaking is selected) or begins transmitting (if no handshaking is selected).  |
| Message Retries         | 3              | Defines the number of times a master station retries either: <ul style="list-style-type: none"> <li>• a message before it declares the message undeliverable.</li> <li>• or a poll packet to an active station before the master station declares that station to be inactive.</li> </ul> A poll packet is transmitted prior to each message retry.                                       |
| Reply Message Wait Time | 1              | Defines the amount of time in 20 ms increments that the master station will wait after receiving an ACK signal (to a master-initiated message) before polling the slave station for a reply. <p>Choose a time that is, at minimum, equal to the longest time that a slave station needs to format a reply packet. This would typically be the maximum scan time of the slave station.</p> |

## DF1 Half-duplex Slave Communication Settings



### Configurable DF1 Half-duplex Slave Communication Settings

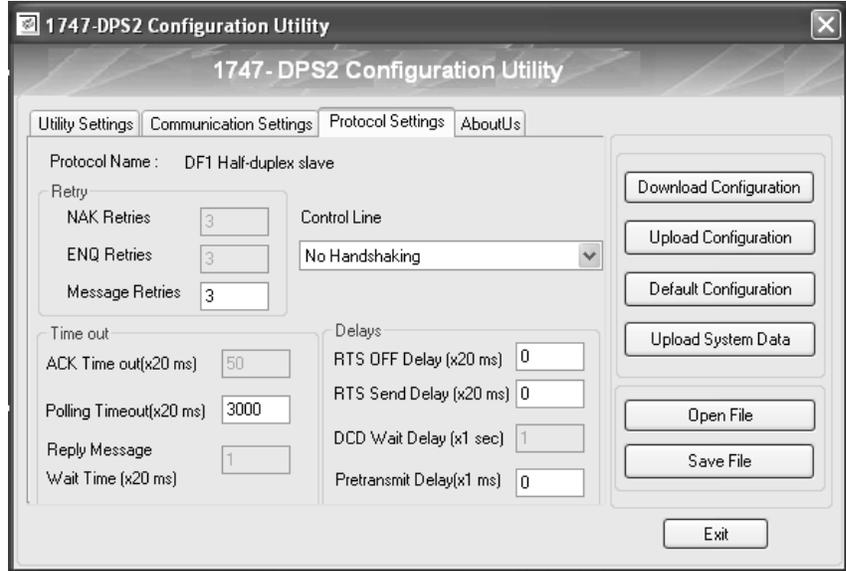
| Setting    | Default | Description  |
|------------|---------|--|
| Baud Rate  | 1200    | Selects a communication rate supported by all devices in your system. Configure all devices in the system for the same communication rate.               |
| Parity Bit | None    | Parity provides additional message-packet error detection. To implement even parity checking, choose Even. To implement no parity checking, choose None. |
| Stop Bit   | 1       | Matches the number of stop bits to the device with which you are communicating.  |

**Configurable DF1 Half-duplex Slave Communication Settings**

| <b>Setting</b>          | <b>Default</b> | <b>Description</b>  |
|-------------------------|----------------|---|
| Error Detection         | CRC            | <p>With this selection, you choose how the 1747-DPS2 port splitter checks the accuracy of each DF1 packet transmission.</p> <p>BCC: This algorithm provides a medium level of data security. It cannot detect:</p> <ul style="list-style-type: none"> <li>• transposition of bytes during transmission of a packet.</li> <li>• the insertion or deletion of data values of zero within a packet.</li> </ul> <p>CRC: This algorithm provides a higher level of data security.</p> <p>Select an error detection method that all devices in your configuration can use.</p> <p>When possible, choose CRC.</p>  |
| Detect Duplicate Packet | Checked        | <p>The Duplicate Detect parameter lets the 1747-DPS2 port splitter detect if it has received a message that is a duplicate of its most recently received message. If you choose duplicate detect, the 1747-DPS2 port splitter will acknowledge (ACK) the message but will not pass it on since it has already passed the original message on.</p> <p>If you want to detect duplicate packets and discard them, check this parameter. If you want to accept duplicate packets and pass them on, leave this parameter unchecked.</p>  |
| EOT Suppression         | Unchecked      | <p>If you want to minimize traffic on the network, you can choose to have the slave station not send EOT packets to the master station. When EOT packets are suppressed, the master station automatically assumes a slave station has no data to give if the slave station does not send a message packet as a response to a poll.</p> <p>A disadvantage of suppressing EOTs is that the master station cannot distinguish between an active station that has no data to transmit and an inactive station.</p> <p>A possible application for suppressing EOTs is conserving power with a radio modem because the radio transmitter does not have to power-up to transmit a DLE EOT packet (no data to give packet).</p> <p>To suppress EOTs, check this parameter. To have the processor send EOTs, leave this parameter unchecked.</p> |

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## DF1 Half-duplex Slave Protocol Settings



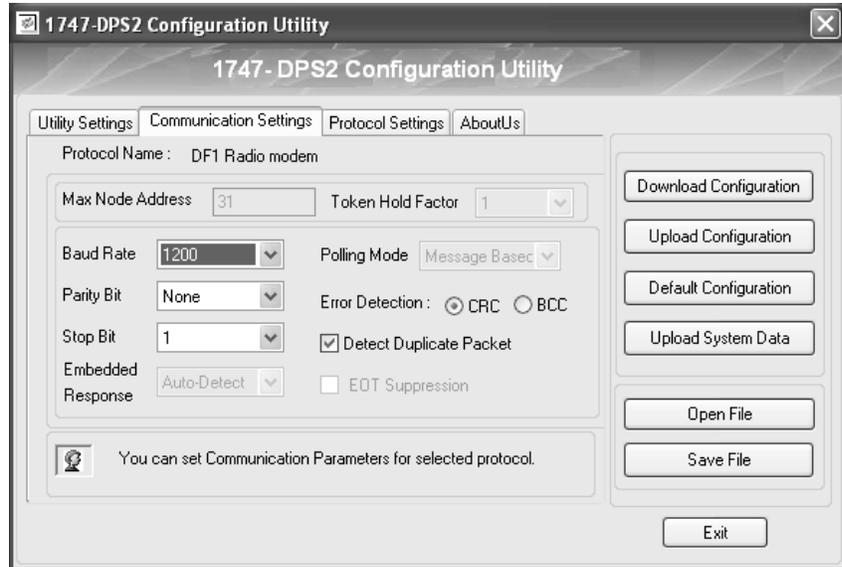
### Configurable DF1 Half-duplex Slave Protocol Settings

| Setting         | Default | Description  |
|-----------------|---------|--|
| Polling Timeout | 3000    | The timer keeps track of how often in 20 ms increments the station is polled. If the 1747-DPS2 port splitter has a message to send, it starts the timer.<br><br>If the poll timeout expires, the 1747-DPS2 port splitter returns an error to the controller.             |
| RTS Off Delay   | 0       | Defines the amount of time in 20 ms increments that elapses between the end of the message transmission and the de-assertion of the RTS signal. This time delay should normally be left at zero.   |
| RTS Send Delay  | 0       | Defines the amount of time in 20 ms increments that elapses between the assertion of the RTS signal and the beginning of the message transmission. This time allows the modem to prepare to transmit the message. The CTS signal must be high for transmission to occur. |

**Configurable DF1 Half-duplex Slave Protocol Settings**

| <b>Setting</b>     | <b>Default</b> | <b>Description</b>   |
|--------------------|----------------|--|
| Message Retries    | 3              | Defines the number of times a slave station resends its message to the master station before the 1747-DPS2 port splitter returns an error to the controller.   |
| Pre-transmit Delay | 0              | Defines the amount of time in 1 ms increments that elapses between when the 1747-DPS2 port splitter has a message to send and when it asserts the RTS signal (if handshaking is selected) or begins transmitting (if no handshaking is selected).  |
| Control Line       | No handshaking | This parameter defines the mode in which the driver operates.<br><br>Choose a method appropriate for your system's configuration. If you are not using a modem, choose No Handshaking. If the master modem is full-duplex and the slave modem is half-duplex, choose Half-duplex With Continuous Carrier. If all of the modems in the system are half-duplex, choose Half-duplex Without Continuous Carrier. |

## DF1 Radio Modem Communication Settings



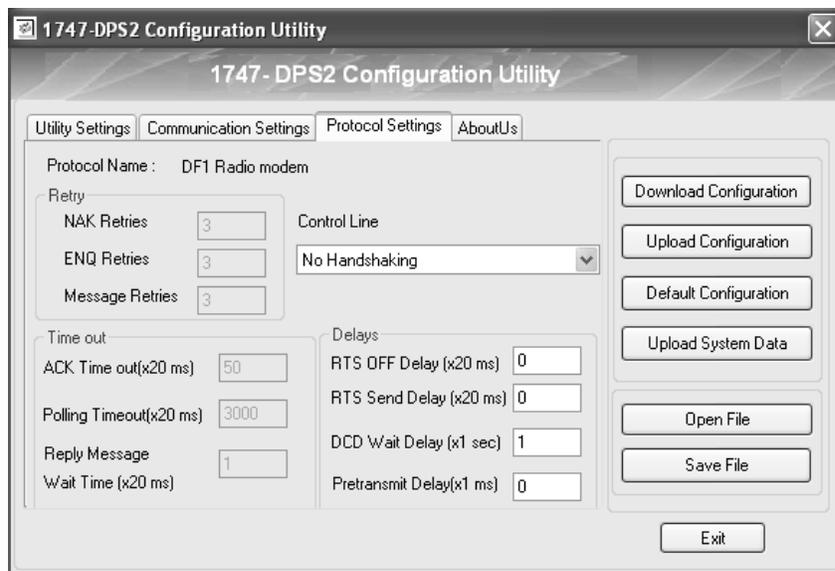
### Configurable DF1 Radio Modem Communication Settings

| Setting    | Default | Description  |
|------------|---------|--|
| Baud Rate  | 1200    | Selects a communication rate supported by all devices in your system. Configure all devices in the system for the same communication rate.               |
| Parity Bit | None    | Parity provides additional message-packet error detection. To implement even parity checking, choose Even. To implement no parity checking, choose None. |

**Configurable DF1 Radio Modem Communication Settings**

| <b>Setting</b>          | <b>Default</b> | <b>Description</b>   |
|-------------------------|----------------|--|
| Stop Bit                | 1              | Matches the number of stop bits to the devices with which you are communicating.   |
| Error Detection         | CRC            | <p>With this selection, you choose how the 1747-DPS2 port splitter checks the accuracy of each DF1 packet transmission.</p> <p>BCC: This algorithm provides a medium level of data security. It cannot detect:</p> <ul style="list-style-type: none"> <li>• transposition of bytes during transmission of a packet.</li> <li>• the insertion or deletion of data values of zero within a packet.</li> </ul> <p>CRC: This algorithm provides a higher level of data security.</p> <p>Select an error detection method that all devices in your configuration can use.</p> <p>When possible, choose CRC.</p> |
| Detect Duplicate Packet | Checked        | <p>The Duplicate Detect parameter lets the 1747-DPS2 port splitter detect if it has received a message that is a duplicate of its most recently received message. If you choose duplicate detect, the 1747-DPS2 port splitter will acknowledge (ACK) the message but will not pass it on since it has already passed the original message on.</p> <p>If you want to detect duplicate packets and discard them, check this parameter. If you want to accept duplicate packets and pass them on, leave this parameter unchecked.</p>   |

## DF1 Radio Modem Protocol Settings



### Configurable DF1 Radio Modem Protocol Settings

| Setting       | Default        | Description   |
|---------------|----------------|---|
| Control Line  | No Handshaking | This parameter defines the mode in which the driver operates.<br><br>Choose a method appropriate for your system's configuration. If you are not using a modem, choose No Handshaking. If you are using a modem, choose either Half-duplex With Continuous Carrier or Half-duplex Without Continuous Carrier. |
| RTS Off Delay | 0              | Defines the amount of time in 20 ms increments that elapses between the end of the message transmission and the de-assertion of the RTS signal. This time delay should normally be left at zero.  |

**Configurable DF1 Radio Modem Protocol Settings**

| Setting            | Default | Description  |
|--------------------|---------|--|
| DCD Wait Delay     | 1       | Only used with Half-duplex Without Continuous Carrier Control Line setting. Defines how long, in seconds, the 1747-DPS2 port splitter will wait for DCD signal to go low so that it can transmit, before giving up and returning an error to the controller.                             |
| Pre-transmit Delay | 0       | Defines the amount of time in 1 ms increments that elapses between when the 1747-DPS2 port splitter has a message to send and when it asserts the RTS signal (if handshaking is selected) or begins transmitting (if no handshaking is selected).  |
| RTS Send Delay     | 0       | Defines the amount of time in 20 ms increments that elapses between the assertion of the RTS signal and the beginning of the message transmission. This time allows the modem to prepare to transmit the message. The clear-to-send (CTS) signal must be high for transmission to occur. |

**Additional Resources**

These documents contain additional information concerning related Rockwell Automation products.

| Resource   | Description  |
|--|--|
| Port Splitters Installation Instructions, publication <a href="#">1747-IN516</a> | Information on installing the 1747-DPS2 port splitter.       |
| SLC 500 Instruction Set Reference Manual, publication <a href="#">1747-RM001</a> | In-depth information on the SLC instruction set.             |
| Allen-Bradley Industrial Automation Glossary, publication <a href="#">AG-7.1</a> | A glossary of industrial automation terms and abbreviations. |

You can view or download publications at <http://literature.rockwellautomation.com>. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

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# Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

## Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running.

|                       |  |
|-----------------------|--|
| United States         | 1.440.646.3434<br>Monday – Friday, 8am – 5pm EST   |
| Outside United States | Please contact your local Rockwell Automation representative for any technical support issues. |

## New Product Satisfaction Return

Rockwell tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning, it may need to be returned.

|                       |   |
|-----------------------|---|
| United States         | Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process. |
| Outside United States | Please contact your local Rockwell Automation representative for return procedure.  |

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