

User's Guide



WedgeLinkTM
Lite - Standard

*Transfer Data from Serial Devices
into Windows Applications like Excel*

MICRORIDGE
*Measurement Collection Technology
For Today & Tomorrow!*
www.microridge.com

WedgeLink

Software Keyboard Wedge

User's Guide

Transfer RS232 Data
Directly into Windows Applications

MicroRidge Systems, Inc.
Sunriver, Oregon

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QUICK START

Want to quickly get started using *WedgeLink*? The steps shown below should get you moving in the proper direction. Be sure to refer to this User's Guide and the items in the help system.

This Quick Start procedure deals with serial communications and data parsing. If you are using *WedgeLink Lite*, skip the steps that reference data parsing.

In order to use *WedgeLink* to collect data from the serial port and send this data to an application or file, you need to determine the following:

- What serial port is your device connected to?
- What baud rate and communications parameters does your serial device need?
- What Windows application or file do you want to send the data to?
- What format do you need for the data that is being sent to the application or written to the file?

The general steps you should follow in setting up a *WedgeLink* configuration are given below. Depending upon your knowledge of your serial device and the amount of data parsing that must be performed; you may be able to skip some of these steps.

- Use the *Communications Test* dialog to verify serial port, communications parameters and determine format of data output from your serial device. This dialog is available from the *Test/Serial Port* menu.
- Set up the serial port from the *Setup/Input Serial Port* menu item.
- Set up the data parsing, if needed, from the *Setup/Parsing* menu item (*WedgeLink Standard*).
- Test the data parsing with the data parsing test dialog. This dialog is part of the *Parsing Setup & Test* dialog and is available from the *Test* tab and the *Test/Parsing* menu item (*WedgeLink Standard*).
- Select the target application or file. You can bring up the appropriate dialog by double clicking the *Target application* or *Target file* read-only edit controls on the main *WedgeLink* screen. These dialogs can also be accessed from the *Target* menu item.
- If you are sending data to a Windows application, you need to manually start the application. You should then set the input focus to the first location that will receive data from *WedgeLink*.
- Enable the serial port, target application (or file) and send data from your serial device.

- Document the purpose of the current configuration in the *Label* tab of the *Parsing Setup & Test* dialog.
- Save the *WedgeLink* configuration for later use by pressing the save button on the toolbar or selecting the *File/Save* menu item.

INTRODUCTION

WEDGELINK EDITIONS

WedgeLink is available in 2 different editions. Each edition was designed to meet a specific set of user requirements.

- *WedgeLink Lite*.
- *WedgeLink Standard*.

The differences between the 2 editions of *WedgeLink* can best be summarized by comparing the input sources, data parsing and output targets.

WedgeLink Lite

WedgeLink Lite is a subset of *WedgeLink Standard*. The Lite Edition is intended for users that do not need to perform any data parsing on the input packets.

- Input Sources: RS232 serial port (COM1 to COM16).
- Data Parsing: None.
- Output Targets: Windows application and disk file.

WedgeLink Standard (The original WedgeLink)

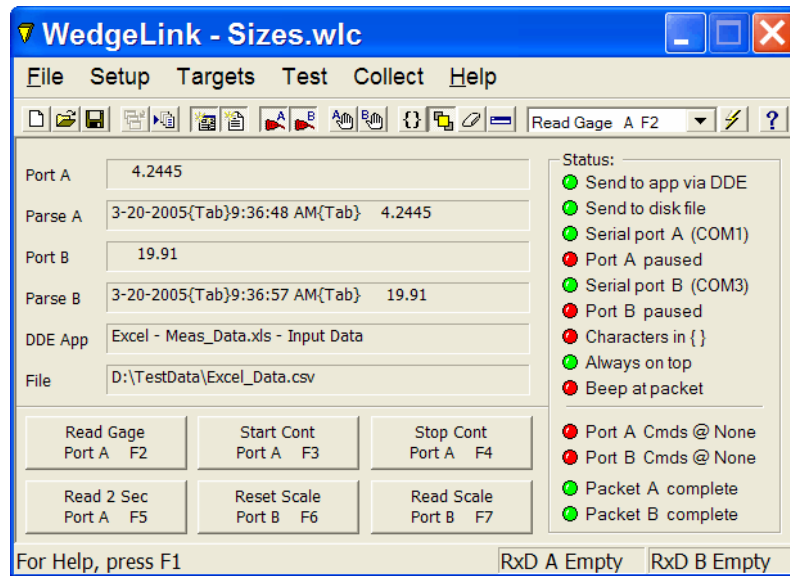
- Input Sources: RS232 serial port (COM1 to COM16).
- Data Parsing: Extensive parsing capabilities.
- Output Targets: Windows application and disk file.

USER'S GUIDE ORGANIZATION

This user's guide covers all *WedgeLink* editions. If a section or item only refers to a particular edition it will be noted.

PROGRAM OVERVIEW

Main WedgeLink Screen



WedgeLink is a software keyboard wedge program that allows you to do the following:

- Transfer information from the serial port to applications such as Microsoft Excel.
- Use with any 32-bit Windows application that accepts keyboard input.
- Make your application think that the information coming from the serial port is actually being entered through the keyboard.
- Parse the serial port data so that only the information that you need gets sent to your application (*WedgeLink Standard*).
- Send the serial port data to a disk file in addition to an application.

In many cases, the only setup you will have to do is select your target application and configure the serial port. It will be necessary for you to refer to the documentation for your serial device so that you can select the baud rate and communications for the serial port.

If you would like additional functionality added to *WedgeLink*, please let us know your requirements. Refer to the Help/Contact menu item or the “Contact Info” button within the *WedgeLink* program for phone numbers and web address.

System Requirements

The system requirements for *WedgeLink* are as follows:

- 3 MB of free disk space
- 1 or more available serial ports
- Windows 98, 2000, XP or later
- Approximately 97K of disk space for each configuration file

WedgeLink is a 32-bit application and will not run on Windows 3.1x.

Program Limits

The following limits have been used in the development of *WedgeLink*. If you find that you need larger limits, please let us know. Refer to the Help/Contact menu item or the “Contact Info” button within the *WedgeLink* program for phone numbers and web address.

- Maximum length of the prefix string = 50 characters
- Maximum length of the suffix string = 50 characters
- Maximum length of the match string = 50 characters
- Maximum length of insert string for parsing mask = 15 characters
- Maximum number of insert strings for parsing mask = 25
- Maximum length of the mask string = 500 characters
- Maximum number of replacement strings = 5
- Maximum length of a replacement string = 50 characters
- Maximum length of the user supplied description = 1,000 characters

EVALUATION PROGRAM

If this is an evaluation copy of *WedgeLink*, you will have a limited time period to use the program to see if it meets your requirements. All of the features contained in the single machine license version of *WedgeLink* are also contained in the evaluation version. The evaluation version of *WedgeLink* is clearly identified when the program is started and in the About box

The evaluation period starts when the program is first run. You cannot extend the evaluation period by uninstalling and then reinstalling *WedgeLink*. If you decide you want to upgrade to a single machine license, refer to the Help/Contact menu item or the “Contact Info” button within the *WedgeLink* program for phone numbers and web address.

There is a color copy of this manual contained on the installation disks. This manual is in the Adobe Acrobat format and has the filename *WedgeLink.pdf*.

INSTALLATION

WedgeLink is a 32-bit application and requires Windows 98, 2000, XP or later. *WedgeLink* cannot be run on Windows NT 3.x. The complete installation will require about than 3MB of disk space.

PROGRAM INSTALLATION

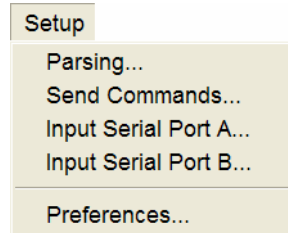
To install *WedgeLink*, run the program Setup_WedgeLink_x.msi and follow the instructions on the screen. The x in the filename represents the program version number. For the initial installation of *WedgeLink Lite & Standard*, the setup program will perform the following steps if the user selects the default options.

- The *WedgeLink* program will be installed in C:\Program Files\MicroRidge Systems\WedgeLink
- The sample configuration files will be installed in C:\Program Files\MicroRidge Systems\WedgeLink\Config
- A copy of this manual in Adobe Acrobat format (WedgeLink.pdf) will be placed in C:\Program Files\MicroRidge Systems\WedgeLink
- A *WedgeLink* program group will be added to the Programs Start menu.
- A shortcut to the *WedgeLink* program will be placed on your desktop.

When *WedgeLink* is installed, it gets installed in the Evaluation mode. To convert the Evaluation mode to a Single Machine License select the “WedgeLink Registration” button on the initial startup dialog and enter your Registration ID. If you have purchased a Single Machine License copy, this Registration ID was included with the materials sent you or it was e-mailed directly to you.

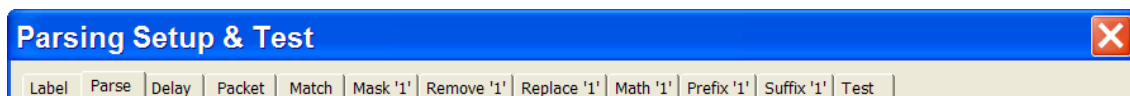
If you are using an evaluation version of *WedgeLink* and would like to purchase a *WedgeLink* license, refer to the Help/Contact menu item or the “Contact Info” button within the *WedgeLink* program for phone numbers and web address.

SETUP



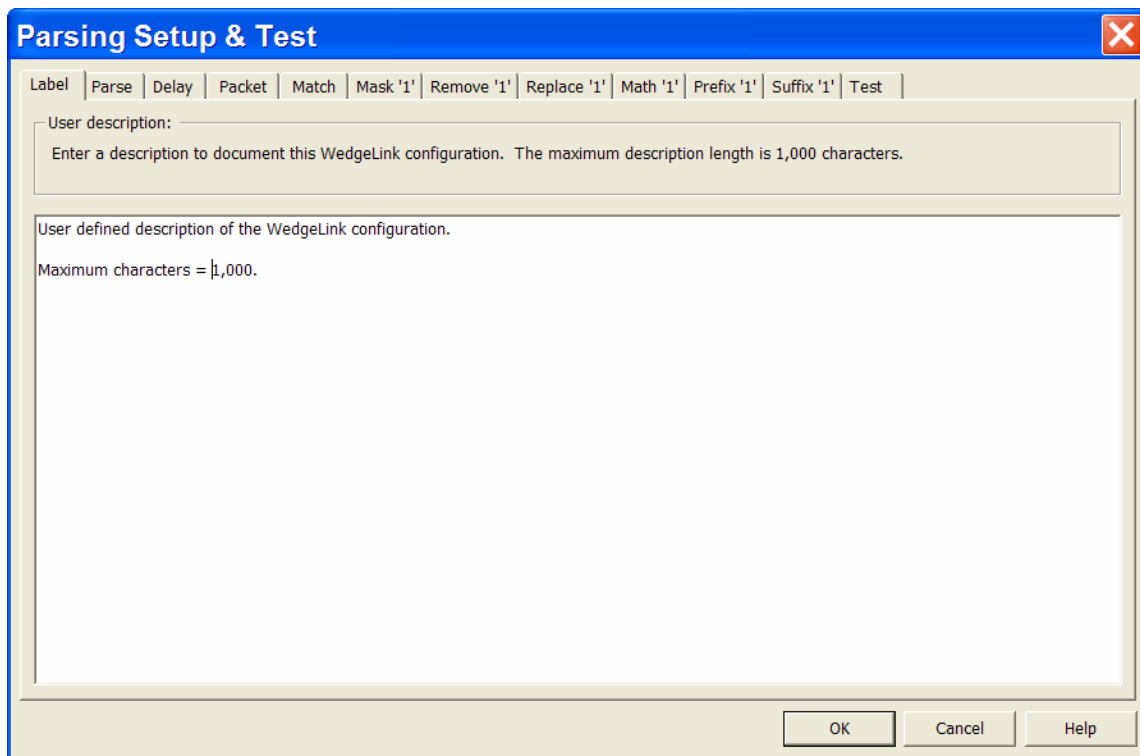
The setup required for *WedgeLink* is performed from the Setup menu. In many cases, the only setup required will be to select the proper serial port, baud rate and communications parameters. After completing your setup you can save the configuration to a file for later use. If you are using multiple configurations, it is recommended that you make use of the parsing description to help document the purpose and operation of a particular configuration.

DATA PARSING



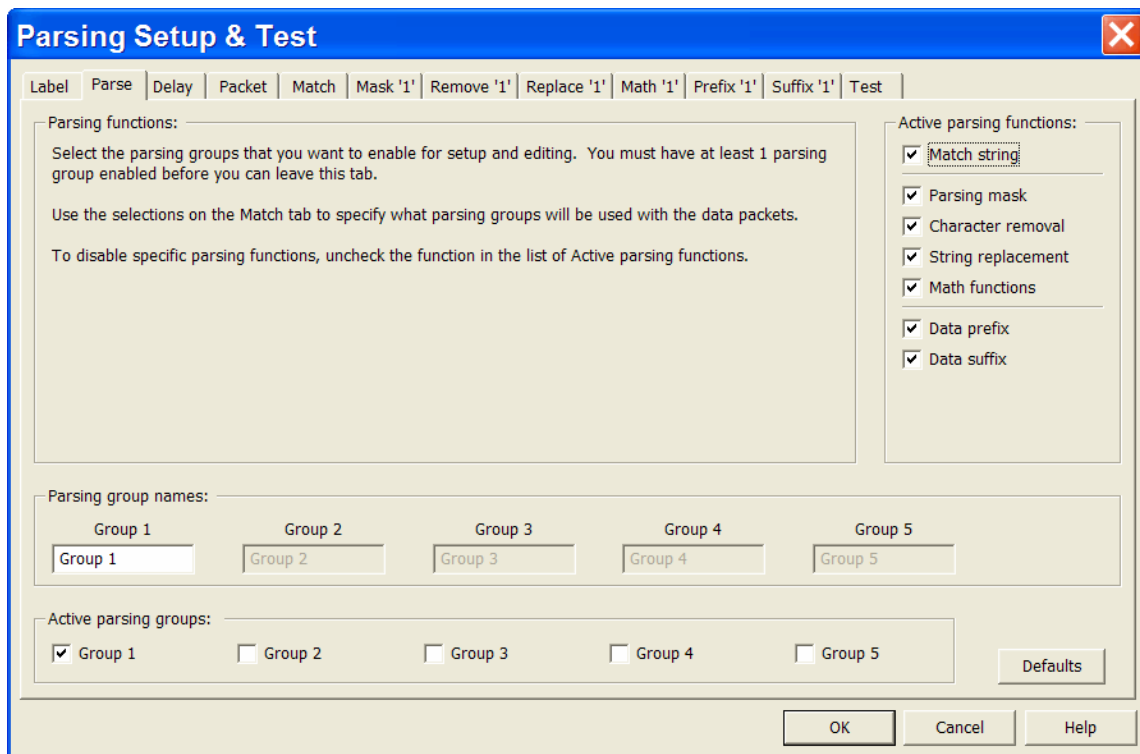
The parsing setup is accessed from several tabs in a tabbed dialog box and allows you to remove unwanted characters or add characters to the serial port string. In many cases you will not have to do any parsing. An example of removing unwanted characters would be removal of all blanks in the string. If you are transferring the string to a spreadsheet, you may want to add tab and/or cursor keystrokes to the string. Once you have set up your parsing, you can use the Test tab in the parsing dialog to test and fine tune your parsing scheme. Several sample parsing setups have been included with the program.

Parsing Description (Label Tab)



The Label Tab allows you to document the current *WedgeLink* configuration. If you are using multiple configurations or have implemented complex parsing schemes, it is recommended that you document the purpose and operation of the configuration. The maximum number of characters that can be used in a description is 500.

Parsing Functions (Parse Tab)



The Parsing Functions tab allow you to enable and disable parsing functions, select what parsing groups are active and define unique parsing group names. The default settings for a new configuration file are all parsing functions active and only parsing Group 1 active.

By having 5 parsing groups, you actually have 5 different prefixes, suffixes, etc. that can be defined. The multiple parsing groups in conjunction with the setup on the , gives you a lot of control on parsing complex packets and provides the ability to use different parsing schemes for each input port.

Active Parsing Functions

This group of checkboxes controls which parsing functions are enabled. If a parsing function is not checked, that function will not be used on the serial port data. If a parsing function is disabled, you will not be able to modify any of the parsing features for that particular function. Please refer to the Important Rules paragraph on the Match tab description for information about how parsing Group 1 is applied under certain situations. The parsing functions that are available are:

The process that *WedgeLink* follows when parsing an input packet is as follows.

- The input packet is checked against the selections on the Match tab. If it is determined that parsing needs to be performed, the following steps will be applied to the packet.
- The instructions defined in the Mask tab are applied.
- The instructions defined in the Remove tab are applied.
- The instructions defined in the Replace tab are applied.
- The instructions defined in the Math applied.
- If a prefix is defined, it is added to the front the packet.
- If a suffix is defined, it is added to the end of the packet.
- The resulting packet is sent to the application or the file.

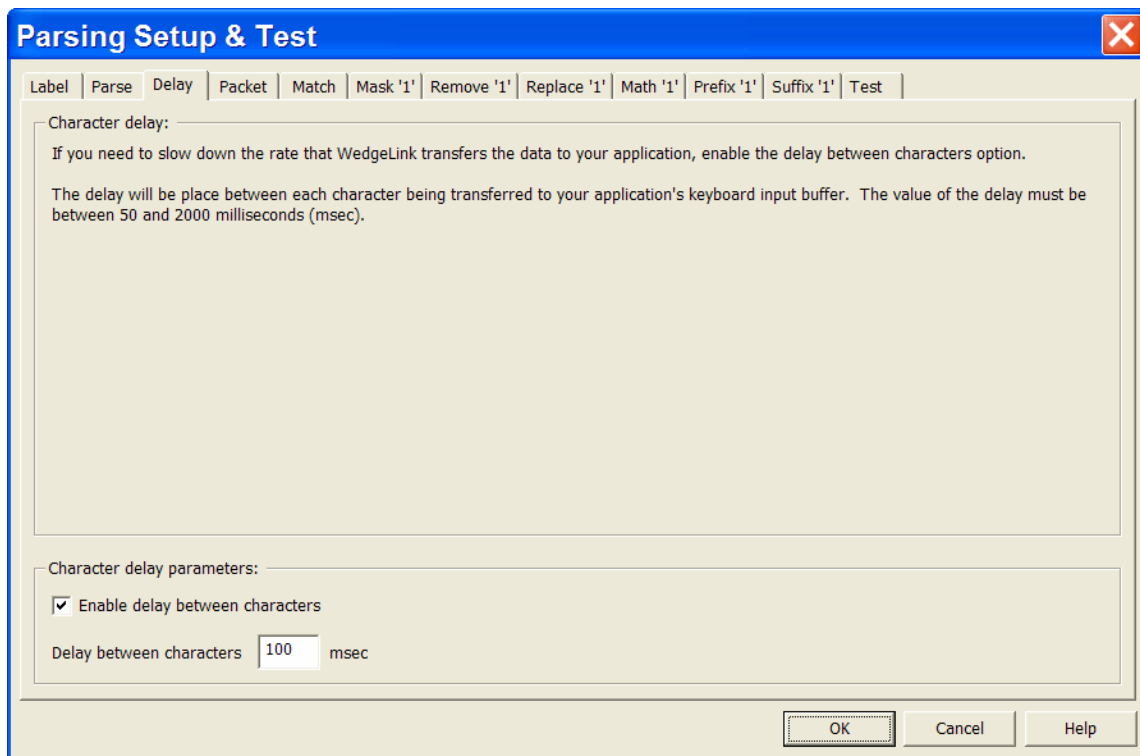
Parsing Group Names

The default parsing group names are Group 1, Group 2, etc. The user can change these names to something that may be more meaningful. For example, assume that you are using Group 1 to parse data from input port A and Group 2 to parse data from port B. You may want to rename Group 1 and 2 to Port A and Port B.

Active Parsing Groups

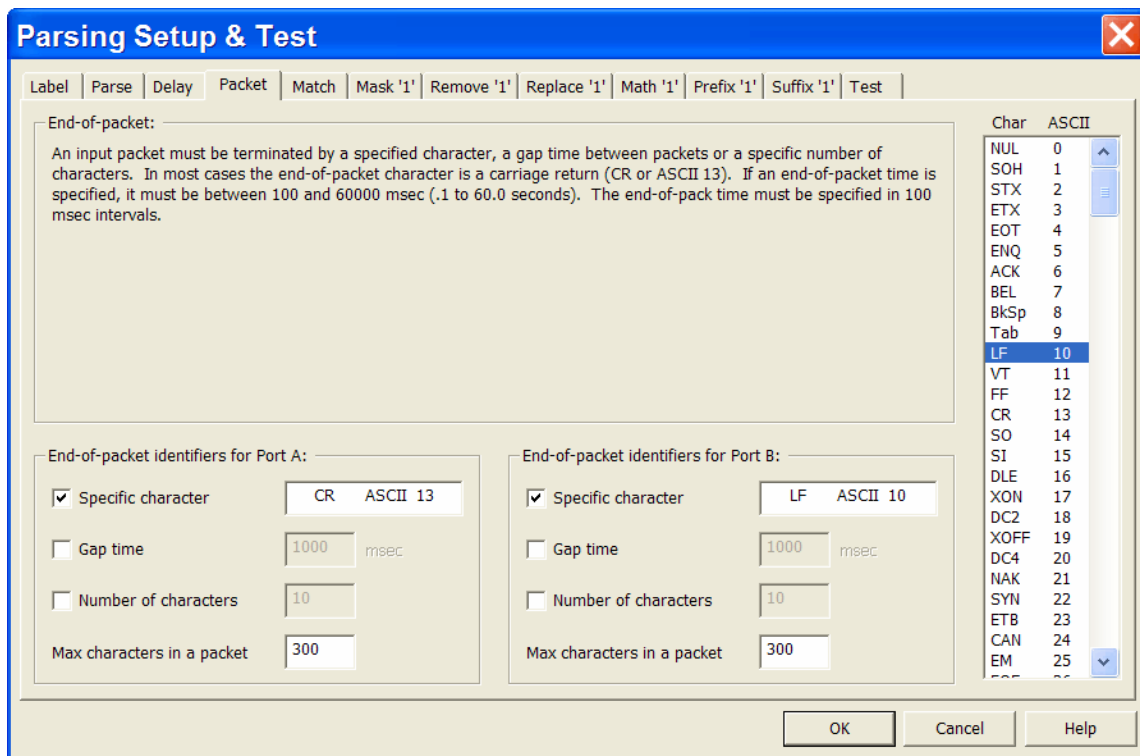
The active parsing group checkboxes allow you to enable and disable individual parsing groups. If a parsing group is not checked, it will not be used in the parsing, even if it is selected on the Match tab.

Character Transfer Delay (Delay Tab)



If you need to slow down the rate that *WedgeLink* transfers the data to your application, check the “Enable delay between characters” option. This delay will be place between each character being transferred to your application's keyboard input buffer. The value of the delay must be between 50 and 2000 milliseconds (msec).

Parsing End-of-Packet (Packet Tab)



WedgeLink collects information from the serial port and does not process it until the end of the data packet is encountered. The end-of-packet identifier can be a specific character, specific number of characters or a time gap. You need to specify an end-of-packet for both Ports A and B. Port B will be disabled if the port is disabled in the Serial Port Setup dialog

Specific Character

For most serial devices, the end-of-packet character will be a carriage return (CR or ASCII 13). In some cases the serial device will end its output packet with a carriage return and linefeed combination (CR/LR). In this case, you should select the LF (ASCII 10) character as the end-of-packet character. Select the end-of-packet character by dragging it from the list box on the right-hand side of the dialog box.

Gap Time

If your serial device does not place a specific character at the end of the packet, you can use a gap time to detect a packet. When using the gap time, *WedgeLink* waits for a period of time when no data is received from the serial port. Once this gap time period exceeds the specified gap time, *WedgeLink* will consider the information received as a packet and process it per the parsing setup.

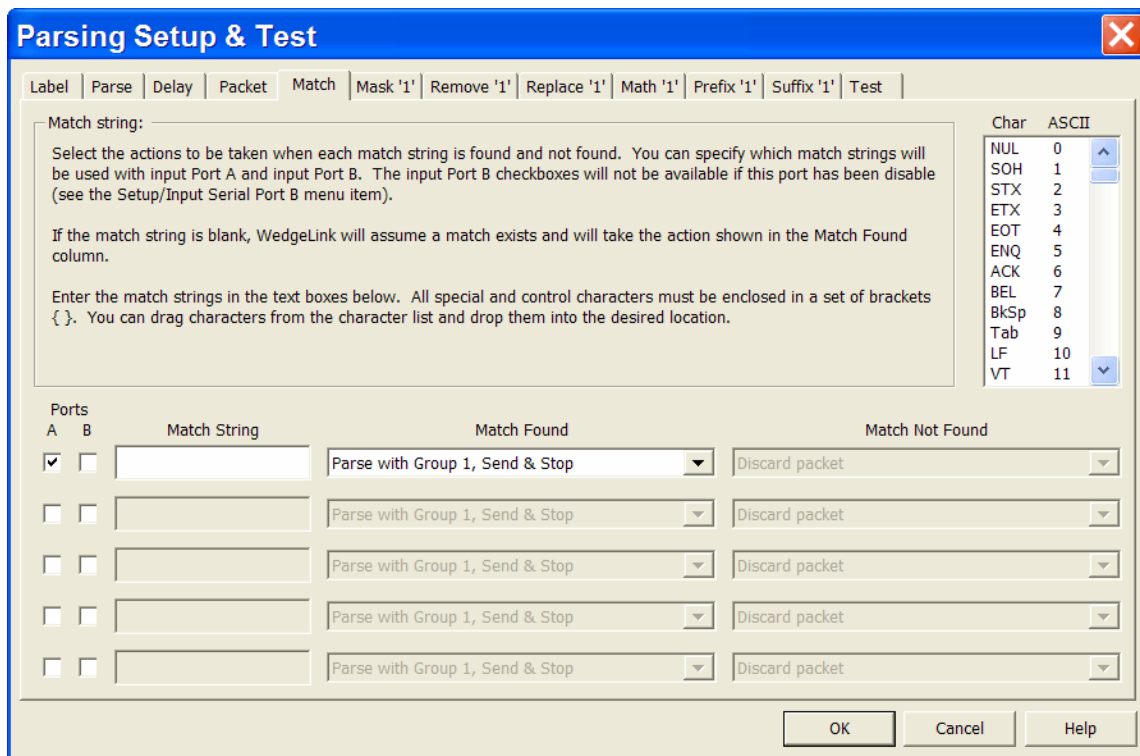
Number of Characters

The number of characters can also be used to identify a packet. An example could be that your serial device sends out a string of 30 characters and this string is actually made up of 3 10 character packets with no unique character at the end of each packet. In this case you would set the number of characters to 10. The maximum number of characters is 4,000.

Maximum Characters in a Packet

The maximum number of characters in a packet must also be specified. If *WedgeLink* receives more characters than are allowed in a packet, the characters are discarded and *WedgeLink* saves the next character as the first character in a new packet. Normally this value can be set to the default value of 300. The acceptable range is from 5 to 4,000.

Parsing Match String (Match Tab)



The Match Tab controls when the parsing groups are applied and to what ports the parsing groups are applied. If a parsing group is not checked as active on the Parse tab, the parsing group will not be used in the parsing, even if it is specified in the Match Found or Match Not found columns.

Important Rules

There are a couple of important rules that are applied to determine what parsing groups are applied to an input packet. It is important that you understand these rules when configuring parsing Group 1 and the Match tab.

- If the Match tab is disabled on the Parsing tab, parsing Group 1 will be used for all input packets.
- If the Match tab is enabled on the Parsing tab, but no ports are selected on the Match tab, parsing Group 1 will be used for all input packets.

Ports A & B

Use the first 2 columns of checkboxes to specify what ports should be used with a parsing match row. If you are receiving data from a port and that port is not checked on any of the parsing rows, the data packet from that port will be sent to the target application or file without parsing.

Match String

Enter the match string that you want to search for in a data packet from a port. If a match is found, the instructions indicated in the Match Found column will be preformed. If no match is found, the instructions indicated in the Match Not Found column will be preformed. If you do not enter a match string, it will always be assumed that a match has been found and the instructions indicated in the Match Found column will be preformed. The match string is case sensitive, therefore the string “Chan A” is not the same as “chan A”.

Match Found

If a match is found, the instructions in this column will be preformed.

Match Not Found

If a match is not found, the instructions in this column will be preformed.

Example

To help you understand how you might setup the match options, let’s consider the example shown below. In this example we are using 2 input ports and we want to use different parsing schemes for each port.

| Ports | | Match String | Match Found | Match Not Found |
|-------------------------------------|-------------------------------------|--------------|---------------------------------|------------------|
| A | B | | | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Weight | Parse with Group 1, Send & Stop | Go to next match |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Tare | Parse with Group 2, Send & Stop | Discard packet |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Chan A | Parse with Group 3, Send & Stop | Go to next match |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Chan B | Parse with Group 4, Send & Stop | Discard packet |
| <input type="checkbox"/> | <input type="checkbox"/> | | Parse with Group 1, Send & Stop | Discard packet |

The packets we receive from Ports A & B could be as follows:

Port A

Weight, 134.56 oz
Tare, 1.34 oz
Reset complete

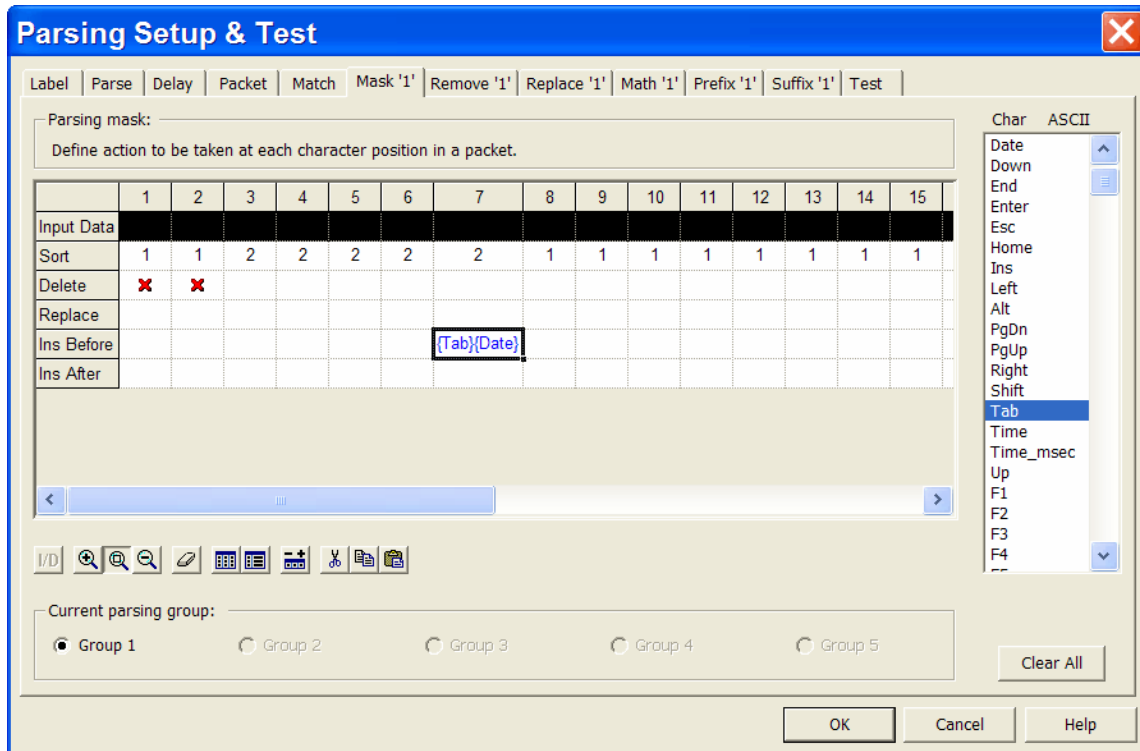
Port B

1.2455, Chan A
23.45, Chan B

The following would happen when the above data packets were received.

- The first packet from Port A contains the string *Weight* and would find a match with the first row in the match string table. This packet would be parsed with Group 1.
- The second packet from Port A contains the string *Tare*. Since this packet came from Port A it would be checked against the match string *Weight*. Since *Tare* does not match *Weight*, the instructions in the Match Not Found column would be followed. The instructions say "Go to next match" and *WedgeLink* would find a match with the match string on the next row (row 2). This packet would be parsed with Group 2.
- The third packet from Port A does not match any of the match strings for Port A and would be discarded.
- The first packet for Port B would be tested against the match string in row 3 of the table. A match would be found and the packet parsed per the instructions in Group 3.

Parsing Mask (Mask Tab)



The parsing mask allows you to define a set of actions to be taken at each character position. The parsing mask is limited to 500 characters. It is rare that you will run into data packets from the serial port that exceeds this 500-character limit. The functions that can be performed at each character position are as follows:

- Sort or move the character
- Delete the character
- Replace the character with a string
- Insert a string before the character
- Insert a string after the character

The grid will not respond to the mouse or user input if the Parsing mask has not been selected on the Parse tab. The list box can only be used if the input cell is on the Input Data, Replace, Insert Before or Insert After rows.

Limits

There are limits that you should be aware of before starting to set up the parsing mask.












- Maximum number of character positions in the mask = 500
- Sort codes = 1 to 9

- Total number of strings that can be used (Replace + Insert Before + Insert After) = 25
- Maximum length of a string = 15 characters


Toolbar



The toolbar provides zoom, erase, display and edit functions. Some of these functions are not available when the input cell is on the Sort or Delete rows. Tooltips are displayed when the mouse pointer is placed on a button.

-  Transfer the data from the Input data section on the Test tab to row 1 of the grid
-  Show fewer grid cells (Zoom in and make cells larger)
-  Set grid cells to the default size
-  Show more grid cells (Zoom out and make cells smaller)
-  Clear grid data. When this button is pressed, a dialog box appears and allows you to reset any of the rows to the default values.
-  Set the grid columns to the default width
-  Set grid column widths to show all data in the cells
-  Change the number of columns in the grid
-  Cut the contents from the marked area in a cell to the clipboard
-  Copy the contents from the marked area in a cell to the clipboard
-  Paste the clipboard to the marked area in a cell

Input Data Row

The input data row allows you to display a sample of your input packet. It may be much easier to setup the parsing mask with a reference copy of the input packet. You can enter characters into the cells by typing or dragging the items from the list box. If the Test tab input data window contains data, you can also copy this Test data into this row by pressing the  toolbar button.

Sort Row

Characters in the input string can be sorted or moved to a different position. Do not confuse an alphanumeric sort with the sorting that can be performed here. What is provided here is the ability to move blocks of information to specified positions. This is easiest to explain through an example. Assume you have the following serial port input string with the sort row set to the default value of 1.

Sort row 11111111111111111111

Input String 12, 1.8725, 13.678

If you change the sort row to the following values, the output string will be as shown.

Sort row 22211111111113333333

Input String 12, 1.8725, 13.678

Output String 1.8725,12, 13.678

What the sort numbers indicate is what is the first block of characters to send, what is the second block, what is the third, etc. The sort values can range from 1 to 9. If all of the sort numbers are set to the same value, no sorting will occur.

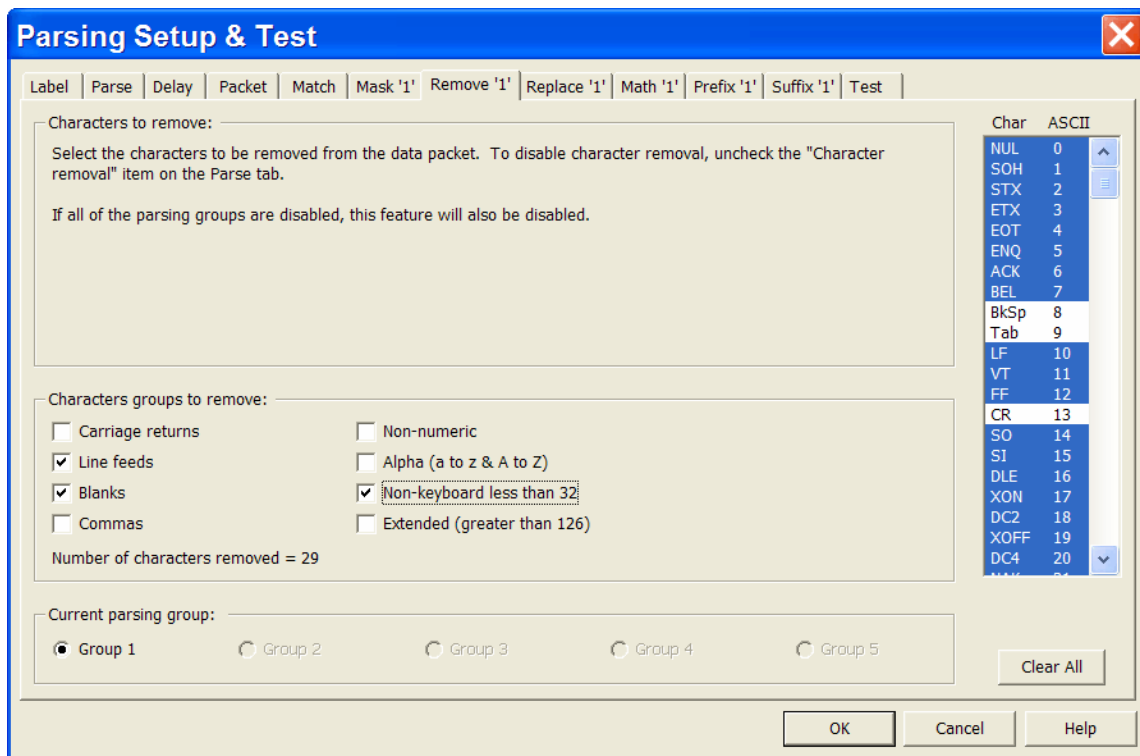
Delete Row

The character at a character position will be deleted if an ✖ appears in the delete row. The ✖ can be toggled by double clicking the cell or pressing the space bar or X key.

Replace, Insert Before & Insert After Strings

The strings for these rows can be constructed by dragging items from the list box or by typing the strings directly into the cell. If an invalid string is entered into a cell, the string will turn red when the cell loses the focus. You must correct all invalid strings before leaving the mask tab. To edit a cell start typing when the cell has the focus, double click the cell or press key F2.

Parsing Character Removal (Remove Tab)



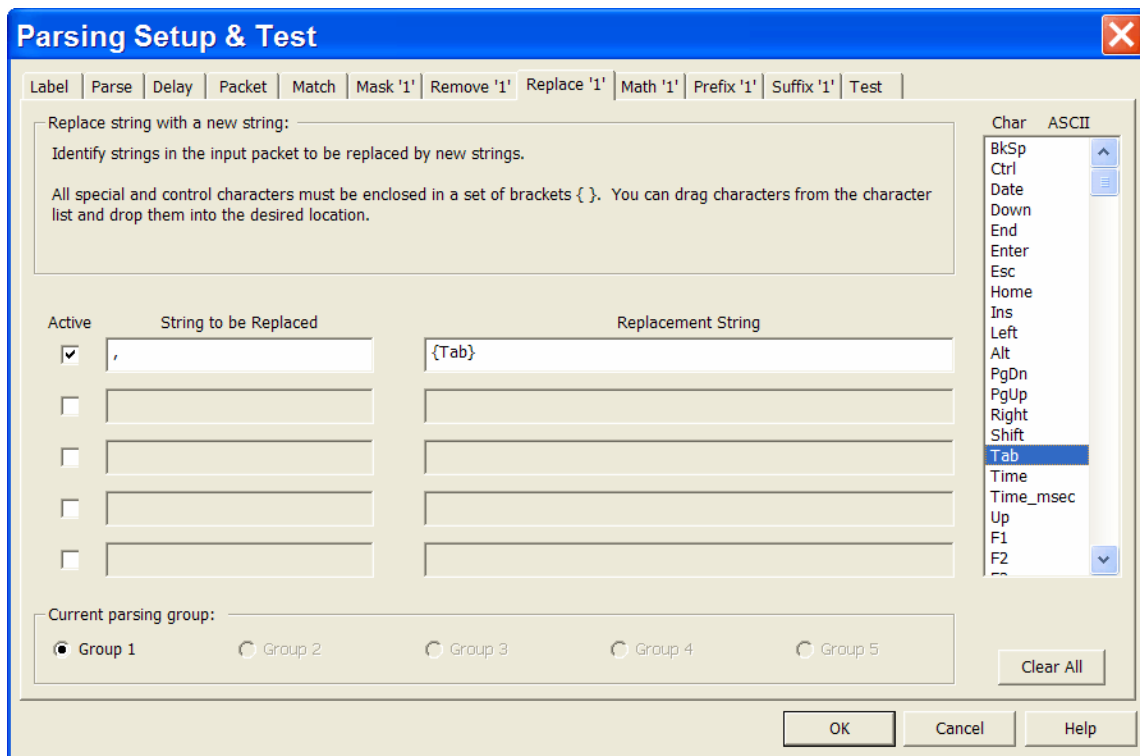
This tab specifies what characters from the input string should be removed. The mask tab allows you to specify a character at a particular position to be removed or deleted. This function is applied globally to the string and will remove all occurrences of a character. For example, you may need to remove all the blanks from the input string before sending it to your application.

If you are sending the data to an application, certain characters are always removed. The only characters that can be sent to an application are those characters that appear on the standard keyboard. The following characters will always be removed if the data is going to an application.

- Control characters from ASCII 0 to ASCII 31 except BkSp (ASCII 8), Tab (ASCII 9), CR (ASCII 13) and Esc (ASCII 27)
- Extended characters from ASCII 127 to ASCII 255

If you are sending the data to a disk file, no characters are automatically removed. If you want specific characters removed, you must specify them.

String Replacement (Replace Tab)



The replace tab allows you to replace all occurrences of a string with another string. Each string can be up to 50 characters in length. You can specify up to 5 replacement sets.

A typical example might be that your input string has commas separating the data fields and you want to transfer the data to Microsoft Excel. You could replace each occurrence of a comma with a tab.

Math Functions (Math Tab)

Parsing Setup & Test

Label | Parse | Delay | Packet | Match | Mask '1' | Remove '1' | Replace '1' | **Math '1'** | Prefix '1' | Suffix '1' | Test

Math functions:
Select the math functions to be used with the value obtained from the input packet. The selections along the left edge of the dialog are listed in the order that they will be processed. Refer to the help for a complete description of the math functions.

Find numeric value: Find first (must contain a decimal point) Find in positions 1 to 12

If no value found: Send nothing to target(s) Send to target(s) No value

Minimum acceptable value 1.564000 If low, send to target(s) Low value

Maximum acceptable value 2.143 If high, send to target(s) High value

Convert to absolute value

Equation: $y = a + bx + cx^2$ a = b = c =

Decimal places 6 (0 to 20)

Current parsing group:
 Group 1 Group 2 Group 3 Group 4 Group 5

Clear All

OK Cancel Help

The functions in the Math tab allow you to perform some basic manipulations on numeric values. The process of extracting a number value from the input packet is the last step in the parsing process. Remember that this step is performed before the prefix or suffix is added to the output string.

Find Numeric Field

This first step in the process is to find a numeric value. You can have *WedgeLink* look for the first numeric field or you can specify the position within the input string where the numeric value is located. If you have *WedgeLink* find the first numeric field the following rules will be applied.

- A number field must contain at least 3 characters.
- The first character can be a space, minus sign or plus sign
- The field must contain a decimal point
- The rest of the field must be numbers from 0 to 9

Examples:

Input string = 01MUX 1.3485INCH

Output string = 1.3485

Input string = A, 8-6-1998, 12:23:51, 165.3 grams

Output string = 165.3

If you use the “Find in positions” option, the value does not have to contain a decimal point.

Minimum Acceptable Value

You can specify a minimum acceptable value. If the value determined in the above process is less than this minimum value, the packet will not be sent to the designated targets. If a low value is identified, you can have *WedgeLink* send a predefined string to the targets.

Maximum Acceptable Value

The maximum value function operates the same as the minimum value function.

Absolute Value

The absolute value function will convert a negative value to a positive value. If the value is already positive, no changes to the value will be made.

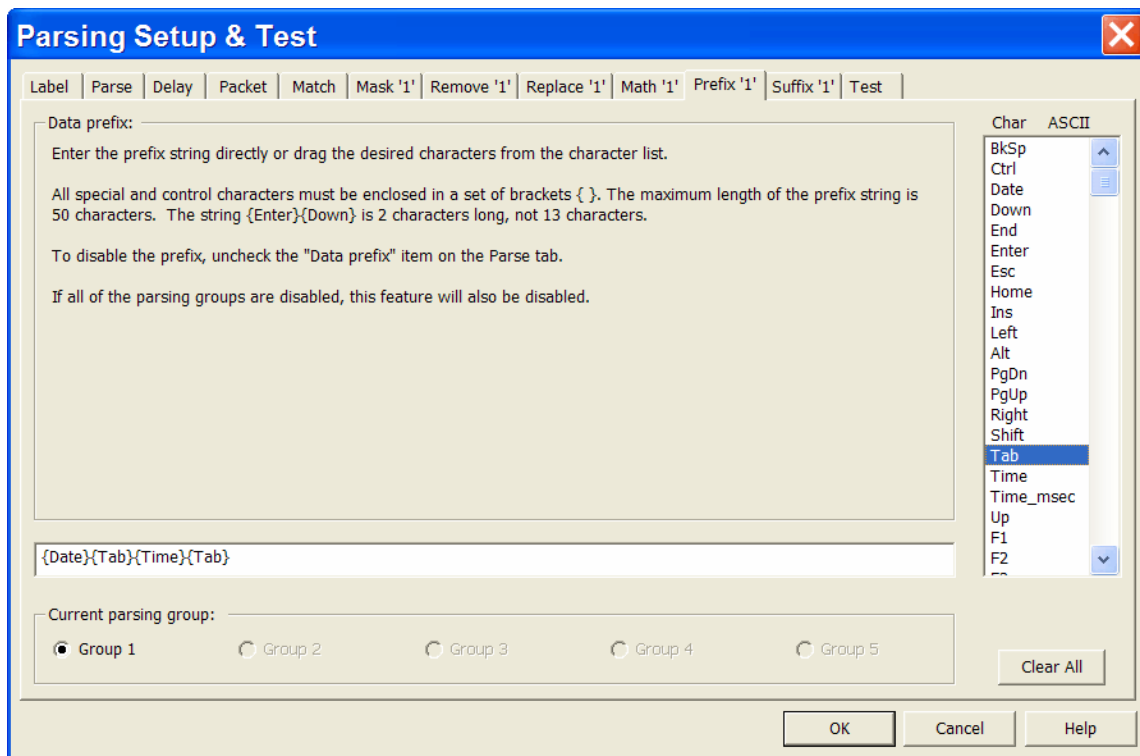
Equation

The numeric value can be modified with an equation of the form of $y = a + bx + cx^{**2}$.

Decimal Places

You can specify the number of places to the right of the decimal to be from none to 20.

Parsing Prefix (Prefix Tab)



The parsing prefix allows you to add a string to the beginning of the string that will be sent to an application or written to a file.

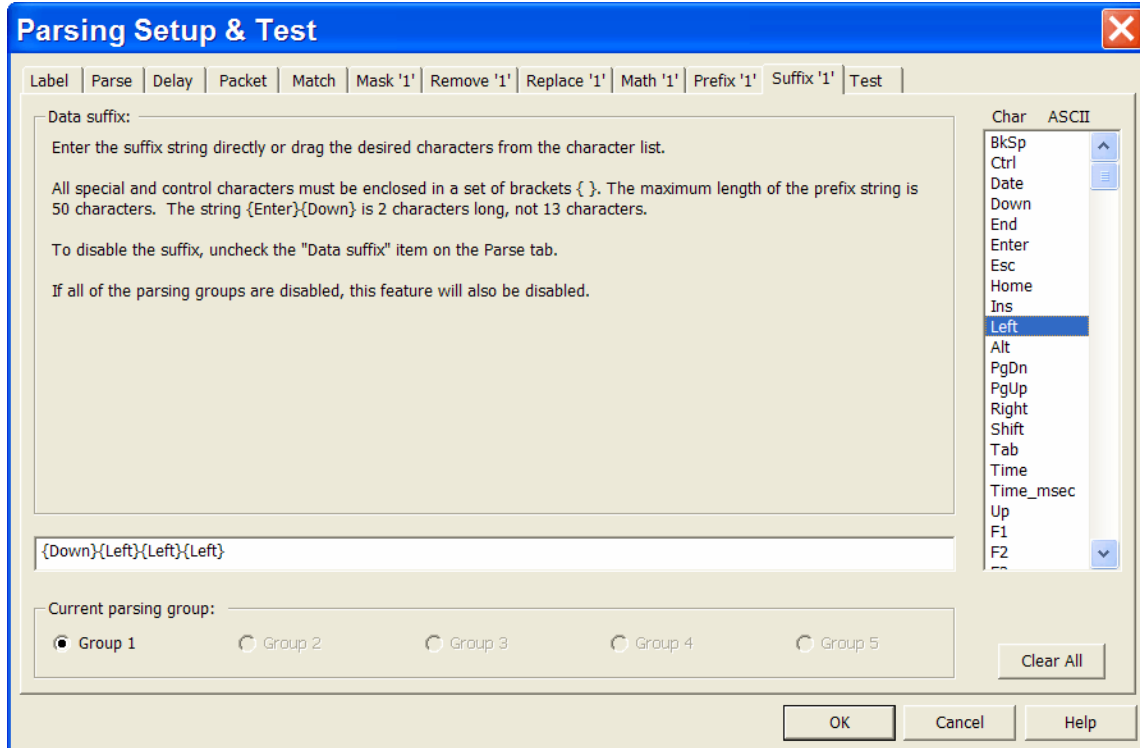
Example

If you are sending your data to Microsoft Excel and you want to precede the data with the current date and time you could use the following prefix string.

```
{Date}{Tab}{Time}{Tab}
```

This prefix will put the current date in the first cell and the time in the next cell to the right. The tab character moves the input cell 1 position to the right.

Parsing Suffix (Suffix Tab)



The parsing suffix allows you to add a string to the end of the string that will be sent to an application or written to a file.

Example

If you are sending your data to Microsoft Excel and you used the following prefix string:

```
{Date}{Tab}{Time}{Tab}
```

If your data consisted of a single field, you may want to add the following string to position the input cursor on the next row.

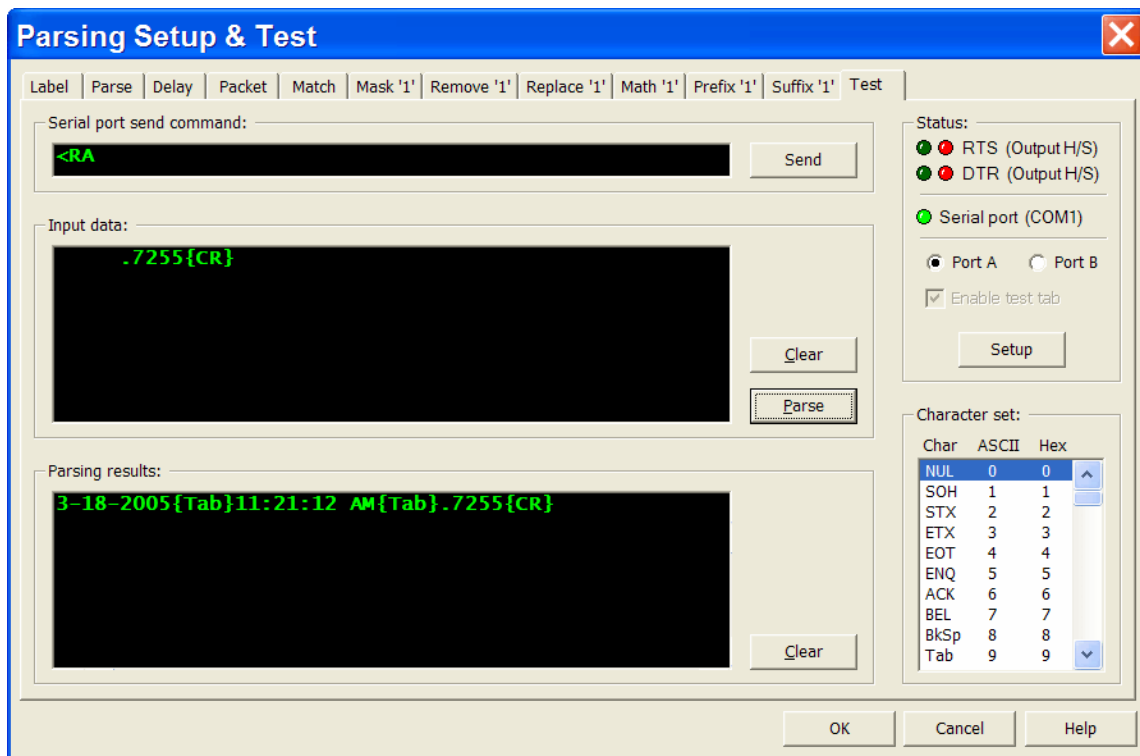
```
{Left}{Left}
```

The complete string sent to Microsoft Excel might appear as follows:

```
{Date}{Tab}{Time}{Tab}1.3850{CR}{Left}{Left}
```

The above string assumes that a carriage return (CR) or Enter key moves the input cell down 1 row.

Parsing Test (Test Tab)



After you have developed your data parsing, you can use the parsing test functions to see how the parsing will modify your data. When performing the parsing tests, you can manually enter the data that will come from your input device or you can have your input device send data to the Test tab.

Modes of Operation

There are several modes of operation and initial states possible when you enter this tab.

- If an input port is enabled in the main window, this test function will be in a read-only mode. All of the data coming from the input port will be displayed in the input data area. If both input ports are being used, you can switch between the ports by clicking on Port A or Port B. If you click on “Enable test tab”, *WedgeLink* will stop sending data to the target application and file, and will enable all of the functions on the Test tab.
- If no input ports are enable on the main window, all test functions will be available. Initially all input ports will be off in this mode. To turn on a port, click on Port A or Port B and then click the Serial port button to the right of the LED. status indicator.

Serial Port Send Command

You can enter a command here to be sent to your input device. If the background color of this box is dark blue, the send feature is disabled.

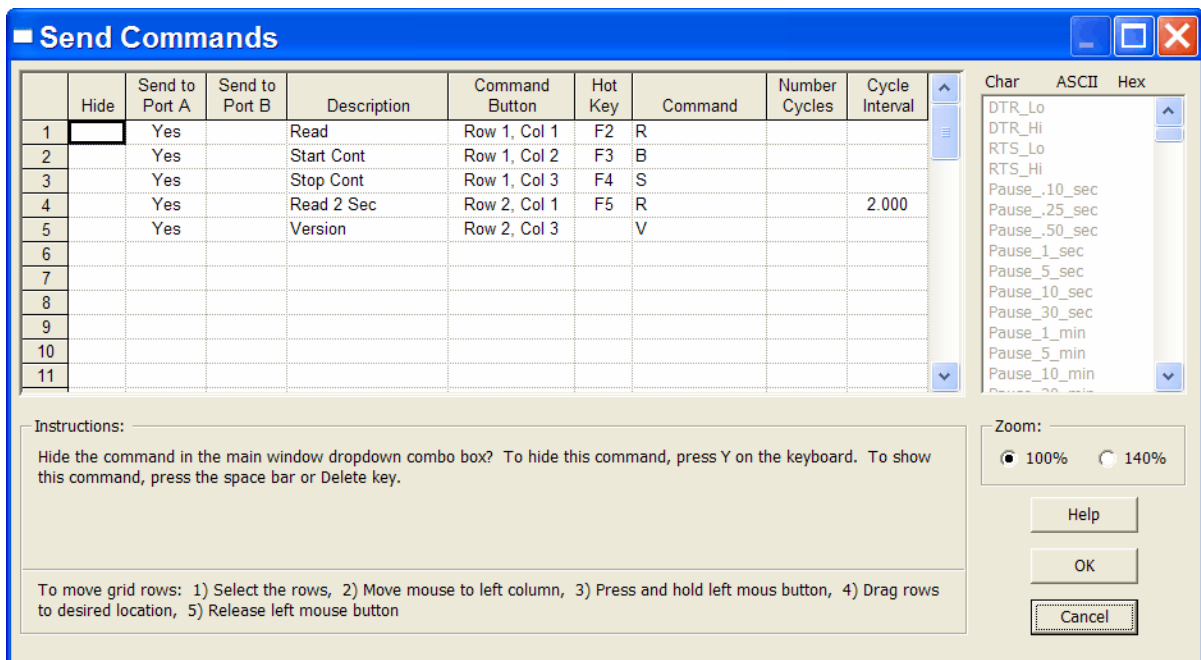
Input Data

The input data from your device or manually entered data is displayed in this box. If you press the parse button this data will be parsed based upon your current parsing setup. The data displayed in this box can be transferred to row 1 of the [Mask tab](#) to assist you in setting up the mask functions.

Parsing Results

The results of parsing the input data are shown here.

SEND COMMANDS DIALOG



This dialog box allows you to set up commands to be sent to the device connected to your serial ports. The descriptions for the commands that have been entered are shown in the dropdown list box on the toolbar. To send a command, press the hotkey Ctrl+Z or press the button to the right of the command description. Commands can only be sent if the serial port is enabled. You can also assign a command to one of the 6 control buttons on the main window or tie a command to the F2 to F8 function keys.

Hide

Do not show the command in the command combo box. To hide the command, press Y (Yes). To unhide the command (remove the Yes), press the delete key or the space bar.

Send to Port A

Do you want this command sent to serial port A? Press Y (Yes) to have this command sent to port A.

Send to Port B

Do you want this command sent to serial port B? Press Y (Yes) to have this command sent to port B.

Description

Description of the command to be sent. This description is used in the command combo box and on the control buttons.

Cmd Button

Do you want this command displayed on a command button? Enter a number from 1 to 6 to select the button position. See the instructions at the bottom of the Send Commands Dialog for more detail.

Hot Key

Do you want to use a hot key for this command? The hot keys available are F2 to F8.

Command

Command to be sent. Each command can be up to 100 characters in length. Commands within { } such as {Esc} or {CR}, use a single character position. If you enter an invalid command string, the string will be shown in red when you leave the cell. All invalid command strings must be corrected before the commands can be saved. To transfer a command from the list box to the command column, drag and drop the command to the desired location. It is suggested you set the zoom lever to 140% when using the command drag and drop.

Number Cycles

A command can be repeated or continuously sent a specified number of times. In order for this value to be used the "Cycle Interval" field must also be defined. If this field is blank and the "Cycle Interval" field is defined, the command will be repeated continuously. The maximum value for this field is 60,000.

Cycle Interval

The interval between each command cycle. This value can range from 0.01 seconds to 86,400 seconds. A single day is equal to 86,400 seconds.

SERIAL PORT

In order to use *WedgeLink*, you must properly configure and enable the serial port. Serial devices communicate at a variety of baud rates (9600, 4800, etc.) and can use several different sets of communications parameters (N-8-1, E-7-2, etc.). You will need to refer to the operations manual for your serial device in order to determine the proper baud and communications parameters settings. If you have trouble getting *WedgeLink* to communicate with your serial device, refer to the Troubleshooting section for some tips.

9-Pin Serial Port Connector

The pinouts for a standard 9-pin PC serial port are listed below. The standard 9-pin serial port uses a male D-Sub connector on the PC.

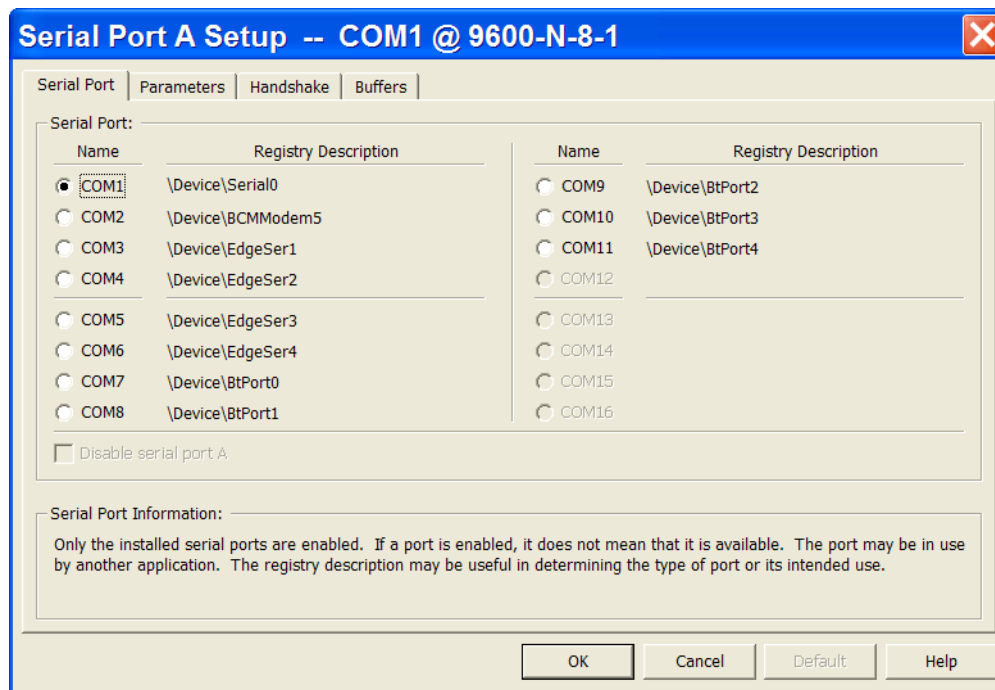
- 1 Carrier detect (CD)
- 2 Receive data (RxD)
- 3 Transmit data (TxD)
- 4 Data terminal ready (DTR)
- 5 Ground (GND)
- 6 Data set ready (DSR)
- 7 Request to send (RTS)
- 8 Clear to send (CTS)
- 9 Ring indicator (RI)

25-Pin Serial Port Connector

The pinouts for a standard 25-pin PC serial port are listed below. Only 9 of the 25 pins are typically used. The standard 25-pin serial port uses a male D-Sub connector on the PC.

- 2 Transmit data (TxD)
- 3 Receive data (RxD)
- 4 Request to send (RTS)
- 5 Clear to send (CTS)
- 6 Data set ready (DSR)
- 7 Ground (GND)
- 8 Carrier detect (CD)
- 20 Data terminal ready (DTR)
- 22 Ring indicator (RI)

Serial Port & Communications Parameters (Serial Port Tab)

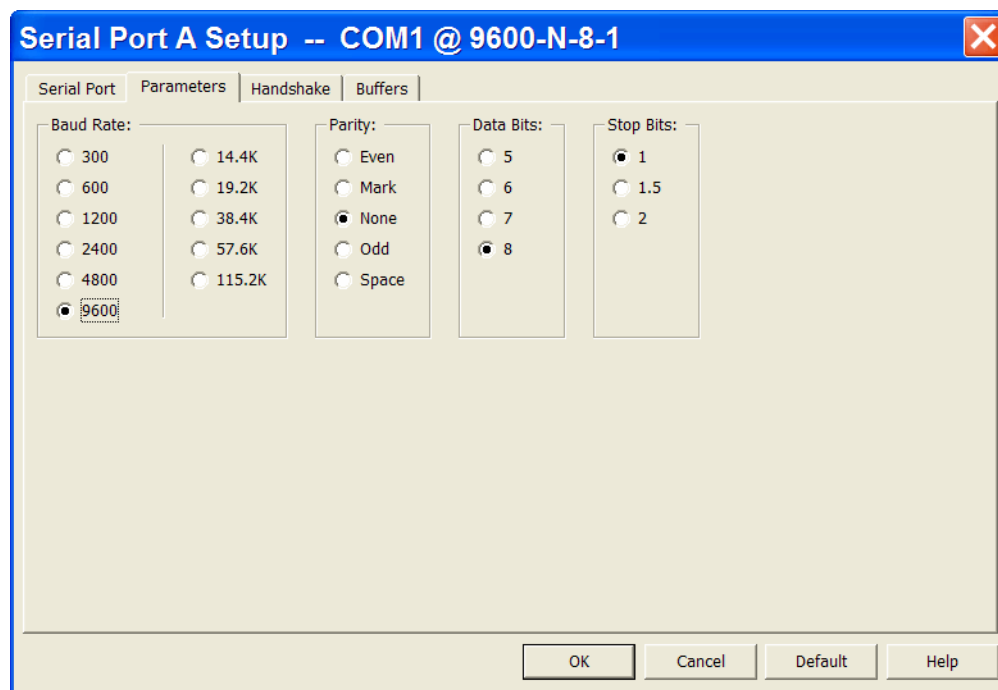


The Serial Port tab is used to select the input port for Port A or Port B. *WedgeLink* supports COM1 to COM16 and the list of ports reflects those ports installed on the computer. If a port shows as enabled, it is installed, however it may not be available. The Registry Description shown to the right of the port name can be useful in determining the type of port and what equipment is using the port. A sample of what might be seen for installed ports is shown below.

| Name | Registry Description | Comments |
|------|----------------------|--|
| COM1 | \Device\Serial0 | Serial port installed on the motherboard |
| COM3 | \Device\GTWModem5 | Modem installed in expansion slot |
| COM4 | \Device\BtPort1 | Bluetooth serial port |

If this tab is being displayed for Port B, you have the option of enabling or disabling the port. Port A cannot be disabled.

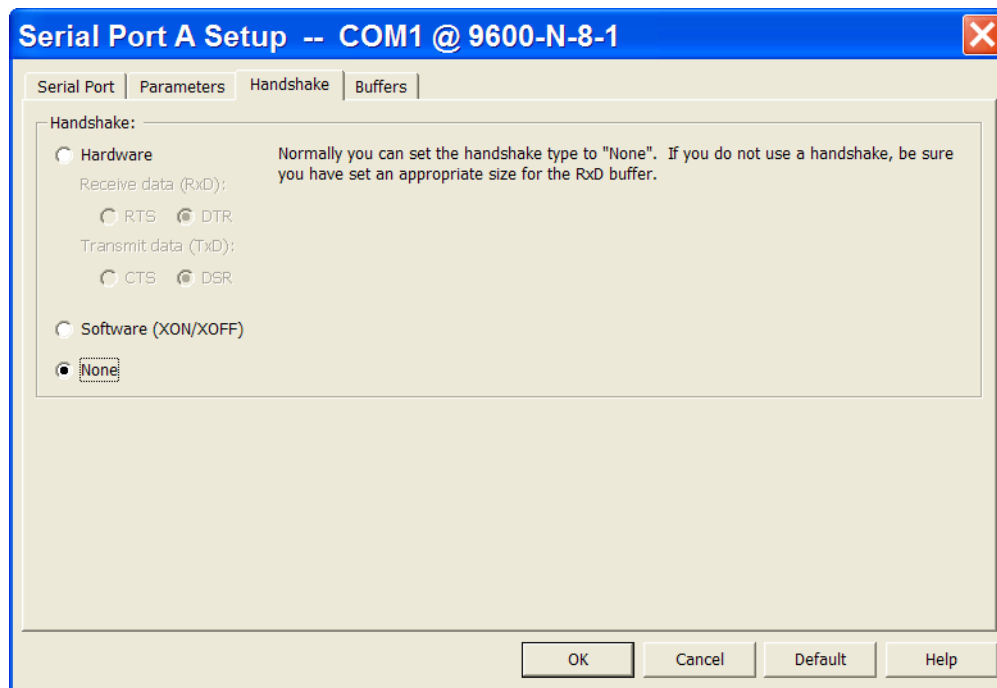
Communication Parameters (Parameters Tab)



The Parameters tab is used to select the communications parameters. The default settings for these values are 9600-N-8-1. These default values will be selected when the *Default* button is pressed.

The required communications parameters are dictated by in the input serial device. You should refer to the serial device operations manual for the proper settings

Serial Port Handshake (Handshake Tab)



The serial port handshake is used to control the flow of information between the serial device and your PC. The only time you may need a *Software* or *Hardware* handshake is when you are sending very large amounts of data from the serial device to the computer. In most cases the handshake type should be set to *None*.

Hardware Handshake

If this handshake is selected you must also select the lines for the transmit (TxD) and receive (RxD) data. The default RxD handshake line is DTR. The default TxD handshake line is DSR. You will need to refer to the operations manual for your serial device to determine what control lines to use.

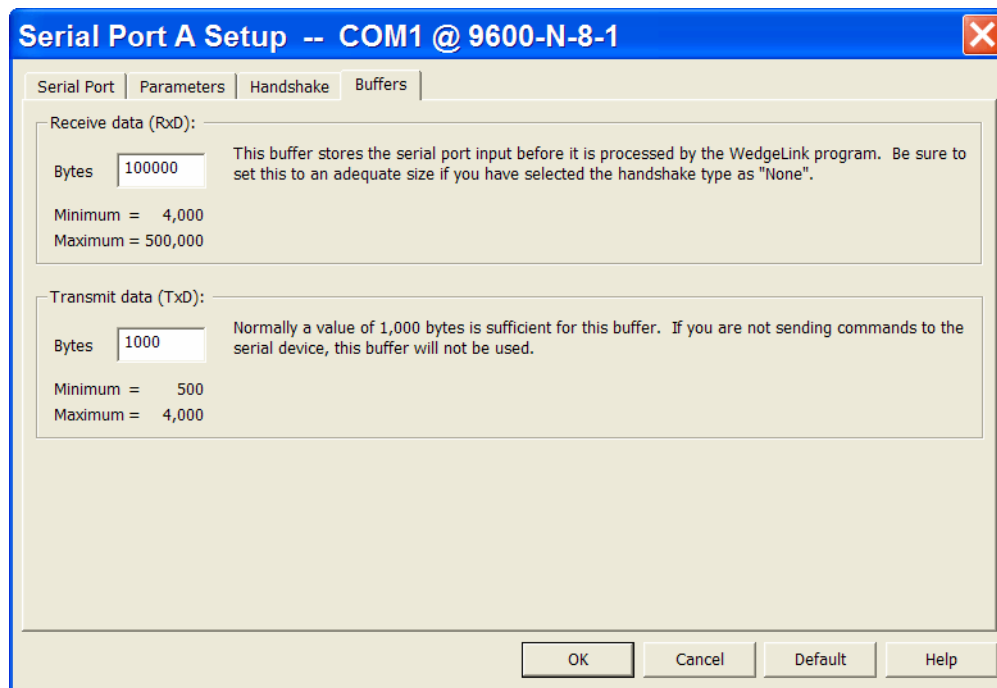
Software (XON/XOFF) Handshake

The software handshake uses the XON (ASCII 17) and XOFF (ASCII 19) characters to control the data flow.

None (No Handshake)

This is the most common handshake type. When using this handshake, be sure to set an appropriate RxD buffer size.

Serial Port Buffers (Buffers Tab)



The serial port buffers control how much data can be stored before being processed by *WedgeLink* or sent to the serial device. Typically the default values of 4,000 bytes for the RxD buffer and 1,000 bytes for the TxD buffer should be sufficient.

Receive Data (RxD)

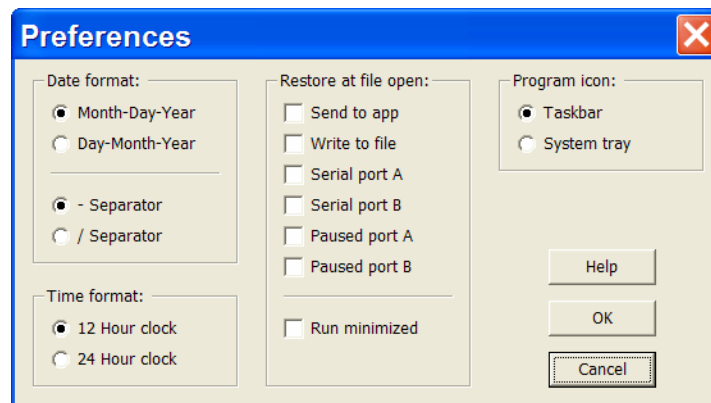
This buffer stores the serial port input before it is processed by the *WedgeLink* program. Be sure to set this to an adequate size if you have selected the handshake type as "None".

If your serial device sends a data packet consisting of 50 bytes and this packet is processed by *WedgeLink* before the next packet is sent, you will never use more than 50 bytes of the RxD buffer. This type of packet transmission and processing is typical. Therefore, you may be able to leave the RxD buffer size at its default value.

Transmit Data (TxD)

Normally the default value of 1,000 bytes is sufficient for this buffer. If you are not sending commands to the serial device, this buffer will not be used.

PREFERENCES DIALOG



Date & Time

The preferences dialog allows you to set the format for the date and the time. You can also specify the separator character for the date. The date and time can be added to the output packets through the parsing setup.

Date Format

The date format can be Month-Day-Year (5-14-1998) or Day-Month-Year (14-5-1998). A date separator of dash (-) or slash (/) can also be specified. If your computer properly handles the year 2000 dates, *WedgeLink* will also properly handle these dates.

Time Format

The time can be specified in a 12 (2:48:14 PM) or 24 (14:48:14) hour format.

Restore at File Open

The state of most functions (Characters in { }, Always on top, etc.) are set to the values defined in the .WLC configuration file. However, there are some items that the user may not want to set to their previous state. These items are as follows:

- Send to app
- Write to file
- Serial port A
- Serial port B
- Paused port A
- Paused port B

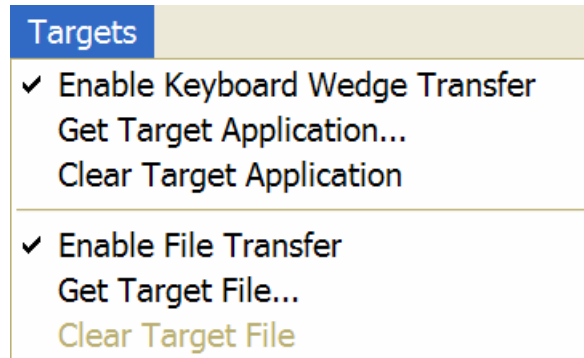
If any of the above items are checked, they will be restored to the state that existed when the configuration file was last saved. Any items not checked will be set to the off (●, red indicator) state.

You can also have *WedgeLink* minimize itself to an icon after a configuration file is opened. To automatically minimize *WedgeLink*, check the run minimized option. Be sure to save your configuration file after selecting this option.

Program Icon

The program icon can be placed in the task bar (default location) or the system tray. If the icon is in the system tray and you try to close *WedgeLink*, you will be required to acknowledge that you really want to close the program.

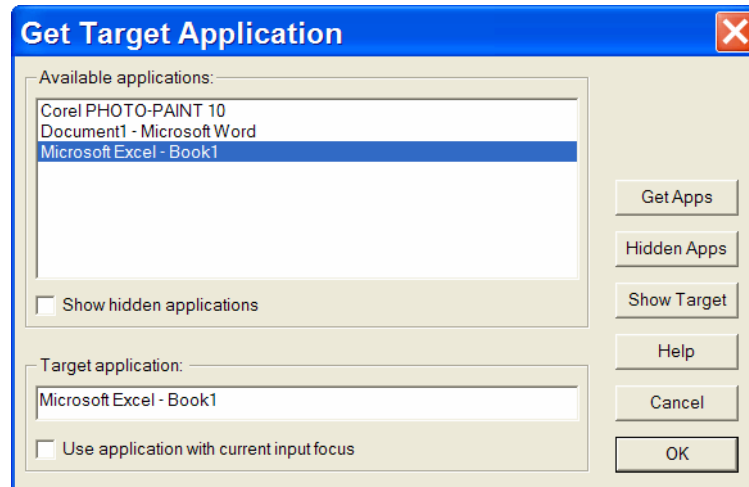
TARGET FILE & APPLICATION



Data from the serial port can be written to a disk file and sent to an application. Data parsing can be applied to the data whether it is going to a file, an application or a serial port. However, there are a couple of differences that you should be aware of:

- The end-of-packet characters for a disk file are typically a carriage return (ASCII 13) and a linefeed (ASCII 10). The end-of-packet characters for an application are typically a carriage return (ASCII 13) or a tab (ASCII 9).
- All ASCII characters (0 to 255) can be used when writing to a disk file. Only those characters found on the standard keyboard can be used when sending data to an application. The valid characters for an application are as follows:
 - ✓ Backspace (ASCII 8)
 - ✓ Tab (ASCII 9)
 - ✓ Enter or carriage return (ASCII 13)
 - ✓ Esc (ASCII 27)
 - ✓ Standard characters in center portion of keyboard (ASCII 20 to ASCII 126)

SELECTING TARGET APPLICATION



The Get Target Application dialog box is used to identify the application to the parsed data packet when you are using the keyboard wedge mode to transfer the data.

The Get Target Applications dialog can be accessed from the Targets menu or by double-clicking K/B App edit control.

In order to send keystrokes to an application, you must first identify the application that is to receive the input data. You cannot identify a specific window in an application to receive the data. The data will always be sent to the active window in the application. The target application can be selected from the list of *Available applications* or the application name can be entered into the *Target application* edit box.

To refresh the list of *Available applications*, press the *Get Apps* button.

Available Applications

The list of available applications shows the applications currently running on your PC. The list does not show the list of all applications installed on your PC. Certain currently running applications can be hidden from this list. If the *Show hidden applications* checkbox is not checked, some of the applications will not be shown. The reason for hiding some of the applications is that there are applications that you will never send data to and it is easier for the user to work with the list of applications that may receive serial port data. To transfer an application to the *Target application* edit box, double click the application name. After transferring the application name to the edit box, you may want to edit the application name as described below.

Target Application

The application that will receive the data from the serial port must be entered here. You must be careful how you identify the application. *WedgeLink* takes the text string that you have entered and attempts to locate that string in the list of available applications. It is normally better to use only a portion of the application name.

Example

You have started Microsoft Excel and it has a blank sheet as the active window. The name shown in the *Active applications* list is Microsoft Excel – Book 1. If you enter Microsoft Excel – Book 1 into the *Target application*, *WedgeLink* will only find this application if Book 1 is the active window. If you change the active window or spreadsheet to gage_data.xls, *WedgeLink* will not be able to locate the target application. Therefore, it is usually better to only use the application name without any filename or active window name. In this example, any of the following *Target applications* names would be recommended.

- Microsoft Excel
- microsoft excel
- Excel
- excel

If you used just the word Microsoft, *WedgeLink* might find Microsoft Excel or perhaps Microsoft Word. The application name is not case sensitive so there is no difference between Excel and excel.

Use Application with Current Input Focus

Rather than selecting a specific application to use as the target application, you can tell *WedgeLink* to use the active window of the current application as the target. This allows you to move from window to window or application to application and still get the data from *WedgeLink* into the application. When this option is selected, most of the selection options in the *Get Target Application* dialog are disabled.

Where Do I Put the Cursor

You should place the cursor on the target sheet in the location you want the data entry to start. *WedgeLink* will reposition the cursor after each data packet is transferred to Excel.

Hidden Applications

Application names can be hidden from the *Get Target Application* dialog box. There are certain applications that you will never send data to and you can identify those applications

in this dialog box. For example, you would not send data to Windows Explorer (Exploring) or Microsoft Office Shortcut Bar.

To enter a new application name, press the *New* button. To edit or delete an existing application name, doubleclick the name in the list box.

SELECTING TARGET FILE

The target file is selected with a standard file open dialog box. Select the appropriate subdirectory and filename. If the file does not exist, it will be created the first time it is written to.

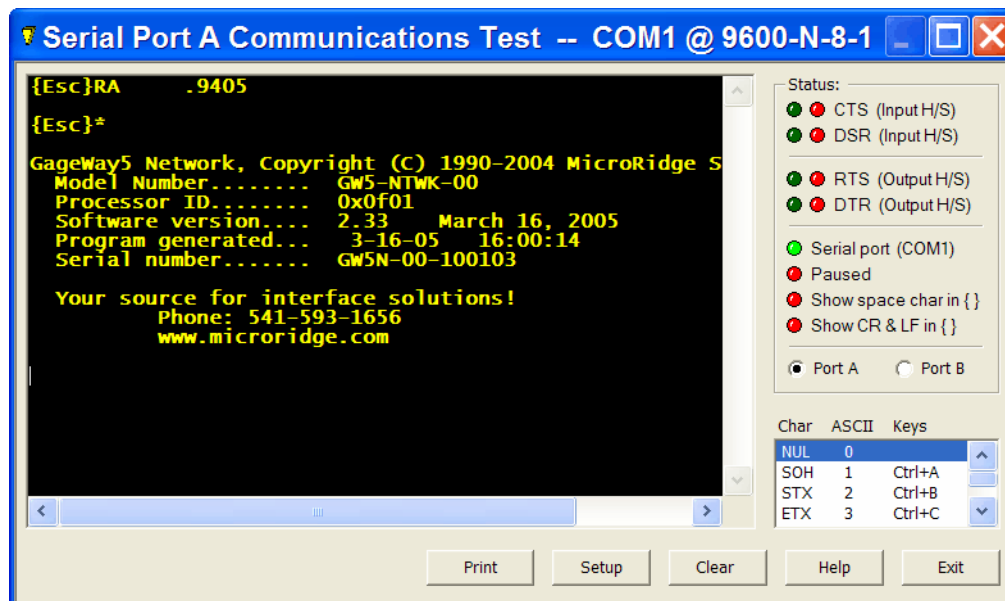
TESTING

Testing functions are built into *WedgeLink* that allow you to test the serial communications and parsing setup. In setting up *WedgeLink*, the first step is to understand what serial ports you have available on your PC and what information is really coming from your serial device. After understanding the output of your serial device, you will be ready to set up any parsing that may be needed for your data.

TECHNICAL SUPPORT


The testing features are included in *WedgeLink* to assist you in understanding your serial device and to allow you to see the results of data parsing. If you are having problems with setup and testing of *WedgeLink*, you can contact technical support. However, if it is appropriate to use the testing functions, you must try these functions before calling technical support.

RS232 COMMUNICATIONS TEST PROGRAM



The communications test program allows you to test the communications with your serial device. This test program is often necessary so that you can understand what is actually being sent from your serial device and how this device responds to commands sent to it.

This dialog box has a sizeable window. Use the mouse to grab a corner or edge to adjust the dialog to the desired size.

Certain characters are shown within a set of { }. For example, if you press the Esc key on the keyboard, {Esc} will appear on the screen. The string {Esc} is not sent, only the Esc character (ASCII 27). You can force other characters to be shown within { } if the *Show space char in { }* and the *Show CR & LF in { }* are set to  (green indicator).

Status

Several indicators and buttons are available in the status area. If the text in the status area responds to the mouse being placed over it, this indicator also serves as a button.

The first 4 items (CTS, DSR, RTS and DTR) reflect the state of the input and output handshake lines. The indicators for these handshake lines show the same type of information that is shown on the breakout or line status indicator box.

Character List Box

The character list box enables you to send control and extended characters to your serial device. To send one of these characters, double-click the desired character.

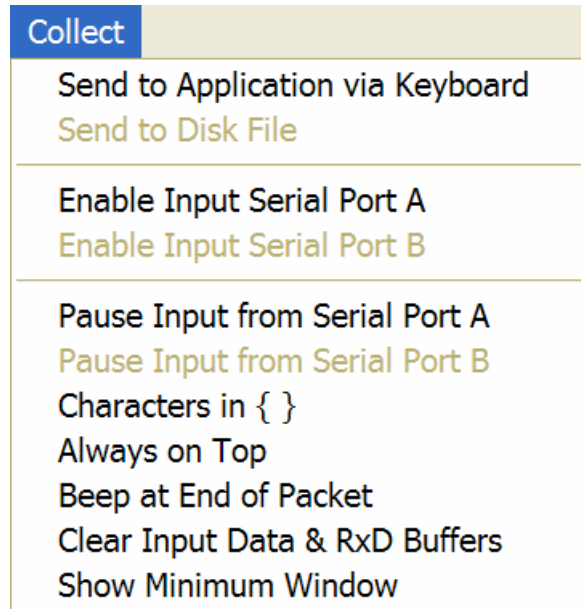
Printing

The contents of the RxD/TxD screen can be printed. However, you can only print a maximum of 1 page. To identify the area to be printed, mark it using the cursor and press the *Print* button. If you do not mark an area, the information that fits on the first page will be printed.

TESTING DATA PARSING

After you have developed your data parsing, you can use the parsing test functions to see how the parsing will modify your data. When performing the parsing tests, you can manually enter the data that will come from your serial device or you can have your serial device send data to the parsing test. Refer to page 26 for additional details.

DATA COLLECTION

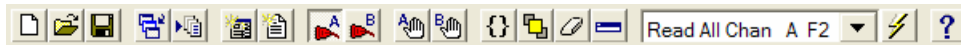


The collecting of the serial port data and sending it to an application or writing it to a file is controlled by Collect menu, the toolbar and the status controls. Many of the collection control functions are duplicated in these 3 areas.

In order to collect and save data to an application or a file, there are certain steps you must perform. This process is fairly simple and in most cases you should be able to start your data collection after configuring a few basic setup parameters.
















- Be sure you understand what information is being sent by your serial device (use the Communications Test Program if necessary)
- Set up the data parsing (if any) that will be required for your data
- Select a target application or target file
- Configure the serial port
- If you are sending the data to an application, start the application and position the cursor where you want the data to be sent
- Enable your target (Send to app or Write to file)
- Enable the serial port
- Start collecting your data
- Use the features on the toolbar and status controls to control the data collection process

TOOLBAR





Most of the collection process can be controlled from the toolbar. You may find it useful to keep the *WedgeLink* on top and show the window at a minimum height. Using these 2 features, keeps *WedgeLink* visible and keeps its size to a minimum.

The function of each toolbar button is described below.

-  Create a new *WedgeLink* configuration. If you have not save the current configuration, you will be asked if you want to save it.
-  Open an existing *WedgeLink* configuration. If you have not saved the current configuration, you will be asked if you want to save it.
-  Save the current *WedgeLink* configuration
-  Select a target application
-  Select a target file
-  Send keystrokes to the target application
-  Write data to the target file.
-  Enable input Port A
-  Enable input Port B
-  Pause Port A inputs and outputs
-  Pause Port B inputs and outputs
-  Show certain characters in { }. These { } strings are not sent to the application or written to the file, only the actual character is sent or written.
-  Keep *WedgeLink* on top of all other windows
-  Clear the serial port input buffer, and the input and output strings shown on the main *WedgeLink* window.
-  Show the main *WedgeLink* at a minimum height. This button will hide all but the title bar, menu items, toolbar and control buttons.

Read All Chan A F2 ▾

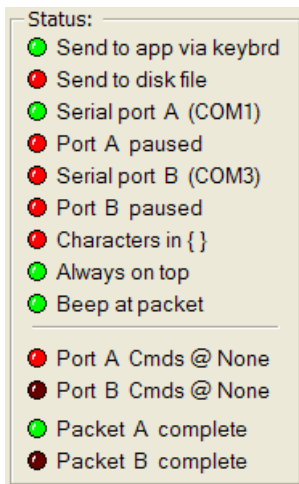
Commands that can be sent to the serial port. These commands are configured in the Setup/Send Commands menu item

-  Send command string to the serial port
-  Help

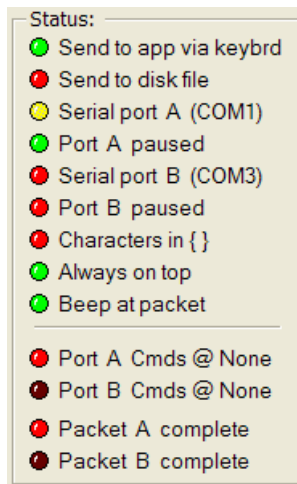
STATUS CONTROLS

The status controls allow you to quickly see the state of various *WedgeLink* control items and to set the state of several of the items. The items that can be set in the status controls will respond to the mouse being moved over the item. If the text becomes grayed when the mouse is over an item, this item is currently disabled and cannot be changed. An example of a disabled item will occur for the *Send to app* if no target application has been identified.

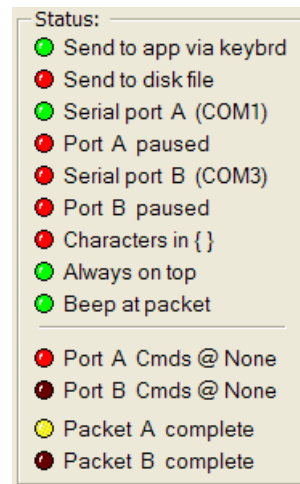
Status Indicators (*Lite & Standard Editions*)



Typical Status for
Normal Operation



Serial Port is Paused



No End-of-Packet
Character Received

The indicators can be green, yellow, red or dark red.

- Green indicator. The function is active or a complete data packet has been received.
- Yellow indicator. This color is associated with the *Paused* function being active and *Packet complete*. When *Paused* is active, the green indicators for *Send to app*, *Write to file* and *Serial port* will turn yellow. If *Packet complete* is yellow, characters have been received for the current packet, however the end-of-packet character has not been received.
- Red indicator. The function is disabled. In the case of *Packet complete*, this means that nothing has been received since enabling or clearing the serial port.
- Dark red indicator. The function is disabled.

TROUBLESHOOTING TIPS

Troubleshooting *WedgeLink* usually falls into 1 of the 3 following areas.

- Serial communications
- Data parsing
- Sending data to an application

Most of the time that people experience difficulties, it is with serial communications. The other two areas listed generally do not present problems that are difficult to solve.

Serial Communications

One of the biggest problems in troubleshooting serial communications problems is due to the difficulty in seeing what is actually happening on the serial lines. This problem of determining the state of the serial lines can be eliminated with a device known as a data line monitor. We have known people spending hours (and in some cases days) trying to figure why they could not get serial communications to work. Typically if they had invested less than \$40.00 for a data line monitor, they could have solved their problem in a matter of minutes. These data line monitors can be obtained from a variety of sources such as Specialized Products Company (800-866-5353, www.specialized.net) and B&B Electronics (815-433-5100, www.bb-elec.com).

A data line monitor will contain a red and green LED for each signal line. When the monitor is connected to a serial line, a high signal (+ voltage) will be shown with the red LED and a low signal (- voltage) will be shown with the green LED (some monitors may reverse these colors). With the monitor connected, you will be able to determine the following:

- Is your serial device sending any data? If it is sending data, you will see the LED's for the PC received pin changing from red to green.
- Are the handshake lines properly set?
- Can your PC send commands to your serial device? If your PC can send commands, you will see the PC transmit LED's change colors. You should try to send commands to your serial device even if your serial device does not need a command to send data. If you do not see the PC transmit line changing state, you may have selected the wrong serial port, have an improperly configured serial port or have a defective serial port.

Data line monitors are available in both 9 and 25 pin configurations. Some monitors use a dual color single LED rather than 2 separate LED's for each line. We have tried some of these single LED models and feel they are of a lower quality than the dual LED models.

The following is a checklist of things to do when troubleshooting serial communications:

- Purchase a data line monitor.
- Is your serial cable wired correctly? Check the Serial Port Overview for the standard pinouts on a 9-pin and 25-pin PC serial port.
- Is your serial device connected to the serial port on your PC? The standard serial ports are a 9-pin male or a 25-pin male D-Sub connector. If you are trying to connect to a 25-pin female connector, you are probably connecting to a parallel printer port.
- Does your serial port work with other devices or other applications?
- Have you enabled the serial port in *WedgeLink*?
- Do you have the proper baud rate and communications parameters set?

Data Parsing

If you are having problems with the data parsing, try using the procedures described below:

- Do you really know what your serial port input packets look like? Have you used the Communications Test Program to verify the serial input?
- If you are having problems with the data parsing, you should go to the *Test* tab on the data parsing dialog (Test/Parsing menu item). With the parsing test functions available, you should be able to determine how your input data is being modified by the parsing functions.
- It may be useful to turn off some of the parsing functions so that you can see how each parsing function is modifying your input data. The parsing functions can be turned on and off on the Parse tab in the *Parsing Setup & Test* dialog (Setup/Parsing menu item)

Sending Data to an Application

The following tips may help with problems associated with sending the data to an application:

- Have you started the application? Have you activated the proper display in the application and have you placed the cursor where you want the data to be transferred to?
- Do you know the correct name for the application? Are you looking for Microsoft Excel – Book 1, when you really should be looking for Microsoft Excel?

SUPPORT

CONTACT INFORMATION

Refer to the Help/Contact menu item or the “Contact Info” button within the WedgeLink program for phone numbers and web address.

The “Contact Info” button only appears on the “WedgeLink Product Registration & Evaluation Restart” dialog box. This dialog box can only be accessed from the startup splash screen in the evaluation version of WedgeLink

TECHNICAL SUPPORT

Full technical support is provided for *WedgeLink*. The *WedgeLink* license is a single machine license. If you are calling for support for multiple installations, you must have purchased a license for each machine. To make your support assistance call the most productive for both you and the technical support team, please perform the following steps before calling.

Troubleshooting You Can Do Before Calling for Support Assistance

- Check the documentation.
 - ✓ Check online “Help”.
 - ✓ Check the User’s Guide.
 - ✓ Review troubleshooting tips (see page 47).
- Get the version number for the *WedgeLink* program.
- If the problem appears to be a serial communications problem:
 - ✓ Determine if any recent changes have been made to your computer.
 - ✓ Use a data line monitor to determine if data is being transmitted or received on the serial port lines. A data line monitor is a tool that can save you hours of frustration. The monitor provides a visual indication of what is happening on the serial port lines. See the troubleshooting tips for more details (see page 47).
- If you are having problems with the data parsing, you should try to use the testing function (see page 26).
- Have a phone by your computer.

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