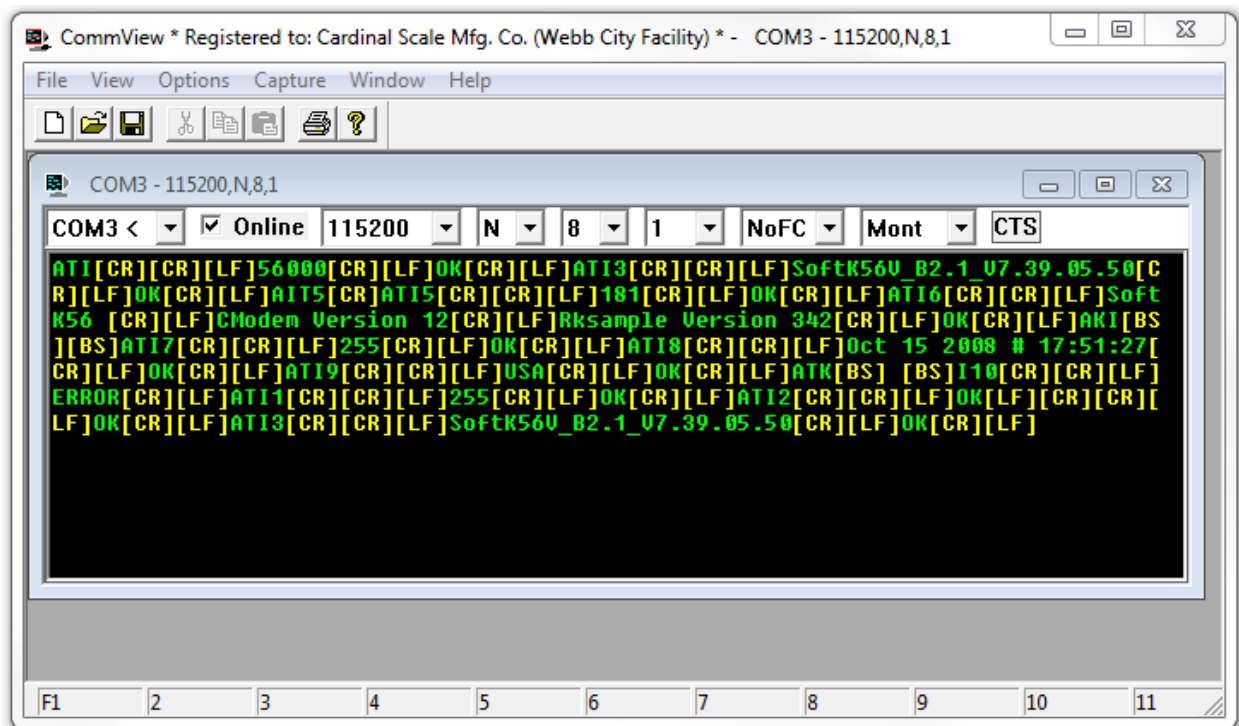


CommView SCTU 3.0

1/9/2012

CommView SCTU (Serial Communications Test Utility) provides many useful features for engineers, technicians, programmers, or anyone who works with serial communications devices.

Incorrect serial connections can damage computer equipment and peripherals. Only qualified electronics technicians should perform serial port cabling and communications testing. Wilsonware.com will assume no responsibility for damages due to use or misuse of the CommView SCTU program or documentation.



FEATURES:

- Displays multiple simultaneously active terminal windows.
- Terminal windows may be selected for serial ports, TCP/IP client, or TCP/IP server operation.

- Serial monitor mode displays received control characters, for example, carriage return = [CR]
- Status of handshake lines are shown in real-time on all ports.
- Programmable function keys allow easy interaction with various devices: bar-code readers, ASCII terminals, etc. Repeat interval may be specified to automatically send a command repeatedly.
- Intercept cable can be built to allow monitoring both receive and transmit channels of the serial communications flow between two devices .
- Port merge window displays data received from all ports in sequence. Timing display may be enabled to show time interval, for example milliseconds between a request for data and a reply.
- Data received from any port or the merge window may be captured to a file.

SYSTEM REQUIREMENTS:

- IBM PC or compatible with 64M RAM
- Windows XP, 2000, Vista, or Windows 7.
- Communications device with proper driver installed for the version of Windows being used, such as a serial port or network card to allow for TCP/IP communications.

INSTALLATION:

All program functions are integrated into a single executable file, "CommView.exe" This program may be run from a CD, USB flash drive, or any drive location on your PC such as the desktop.

There is no setup required before using Commview SCTU.

The program will start with default configuration settings. When the program is exited an additional file "commview.ws9" will be created that contains the current configuration settings. When the program is started again the "commview.ws9" file is read to recall the previous settings.

OPERATION:

To start the program double-click the "CommView" icon wherever it may be. For example, if CommView as copied to the desktop double-click the "CommView" icon on the desktop. If CommView is on a CD use "Start" and "My Computer" to browse to the CD drive letter and double-click the CommView icon.



If your version of CommView is unregistered the "Please Register CommView" popup box will appear:



To proceed to use the software for your evaluation period click the “Register later” button.

If the computer has an internet connection and web browser installed you may click the “Register Online” button. This will open a browser page to the wilsonware.com web site where registration may be performed online.

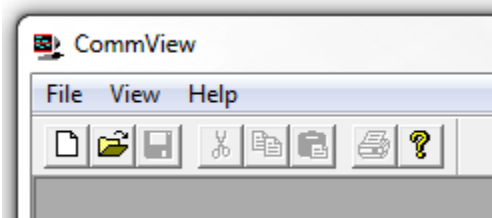
Click the “Register by mail” button to display an input form.

A screenshot of a "Registration Information" dialog box. It contains several input fields for user information: "Name:", "E-mail:", "Company:", "Address:", "City:", "State/Province:", "Zip/Postal Code:", and "Country:". Below these is a "Comments:" section with two lines of text input. At the bottom, there is a section for "Number of copies to register:" with a value of "1" and "at US \$20 each. Total:" with a value of "20.00". At the very bottom are two buttons: "Cancel" and "Print Form to Mail".

Fill out the appropriate information and click “Print Form to Mail”. A dialog box will appear to select your printer. Select the printer to print the form. This can be mailed to wilsonware.com, PO Box 45,

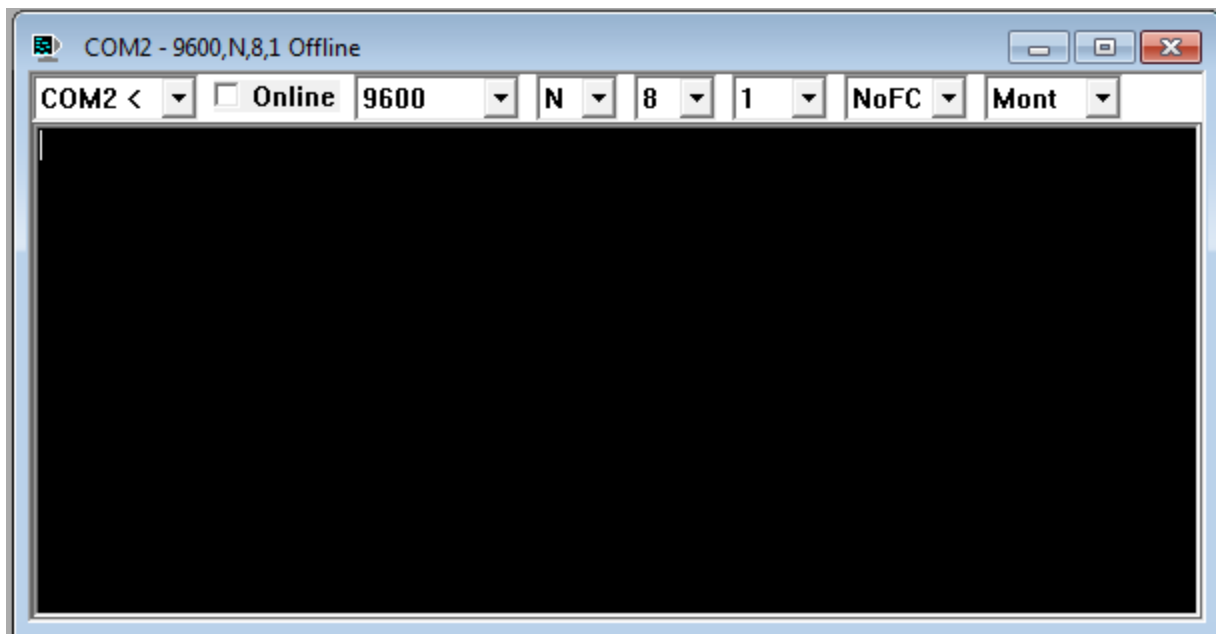
Lamar, MO 64759 along with payment. A valid email address is required to have registration information emailed to you. Otherwise, a CD may be mailed to the specified address. CDs will only be mailed within USA.

Menu Bar/Tool Bar



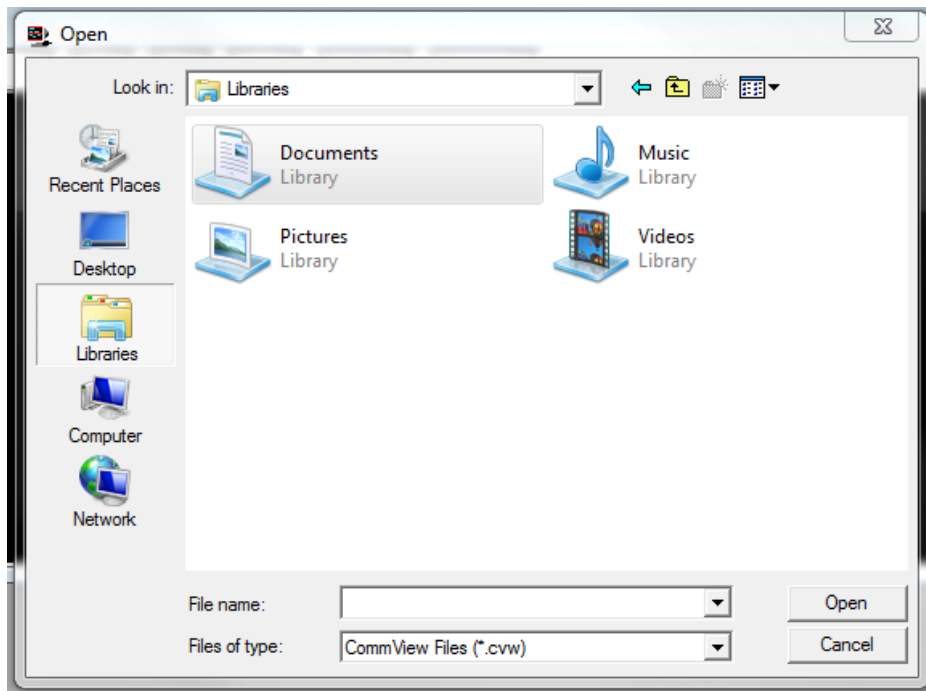
New Communications Window

To open a new communications window click “File” and “New”, or click the blank sheet of paper icon.



Open a Saved Communications Window

To open a previously saved communications window along with its configuration such as function key definitions click “File” and “Open...”, or click the open folder icon.



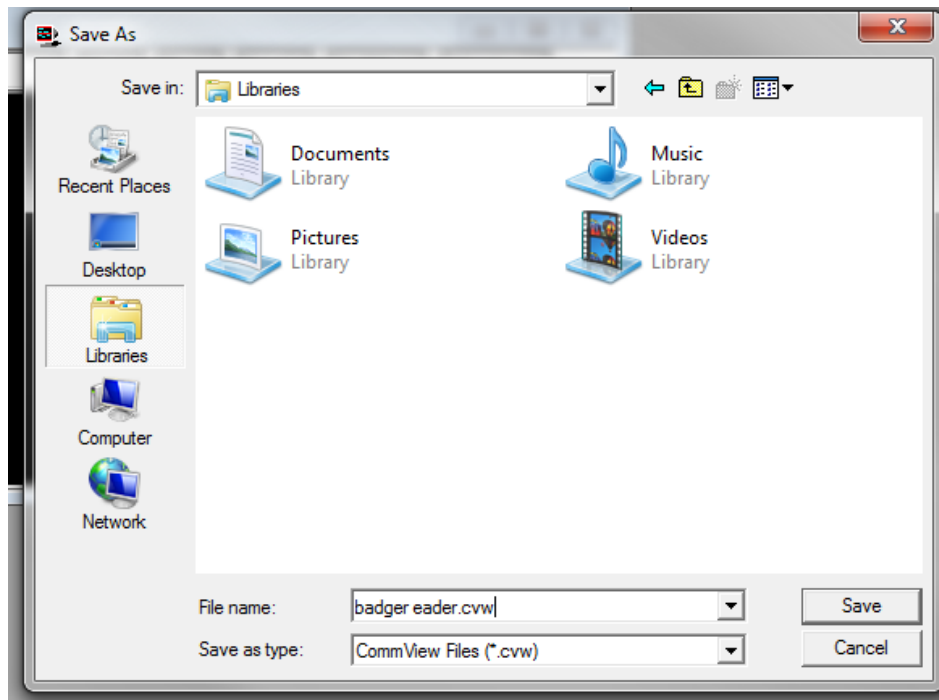
Browse to the CommView communication window file that you want to open select the file and click the “Open” button.

Save a Communications Window

To save the currently open communications window configuration such baud rate and function key definitions click “File” “Save”, or click the floppy disk icon on the tool bar. If the communications windows has not yet been saved the operation will become a “Save As” operation and prompt for the file name.

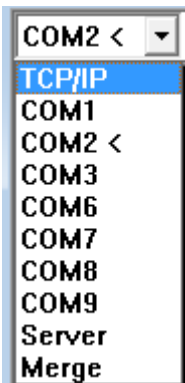
Save a Communications Window to a New File Name

To save the communications window configuration to a new file name click “File” “Save As...”. A dialog box will appear. Browse to the desired location to save the file and specify a descriptive file name.



Communications Window

Each communications window has a title bar showing the currently selected parameters. The drop down box at the upper left allows selecting the type of communications.



Serial Communication

Select the desired COM port from the drop down list.

The handshake line status will also be shown on the tool bar at the top of the communications window.



CTS is shown when the Clear To Send line is active

DSR is shown when the Data Set Ready line is active

RING is shown when the Ring Indicator line is active

CD is shown when the Carrier Detect line is active



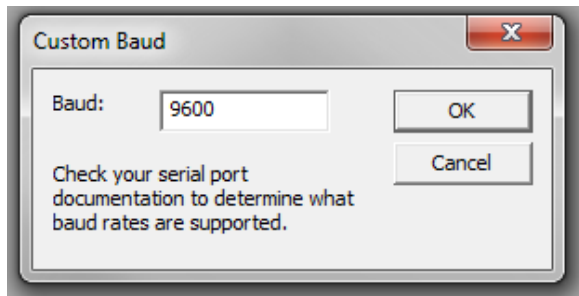
Online – The “Online” check box enables/disables the communications with the COM port. Only one software program at a time may have as specific COM port online.

Baud – The baud selection drop down is used to select the desired baud rate.



Standard baud rates are specified in the list. Not all computer serial ports will support all of the baud rates, especially baud rates above 115200.

The “Custom” option allows a custom baud rate to be specified for computer serial ports that may support some other baud. When this is selected an additional dialog box will appear.



Type the desired baud rate and click the “OK” button to accept it.

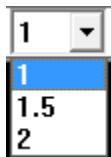
Parity – The parity drop down allows parity “N” = “None” “O” = “Odd”, or “E” = “Even” to be selected.



Data Bits – The data bits drop down list allows selecting “7” or “8” data bits.



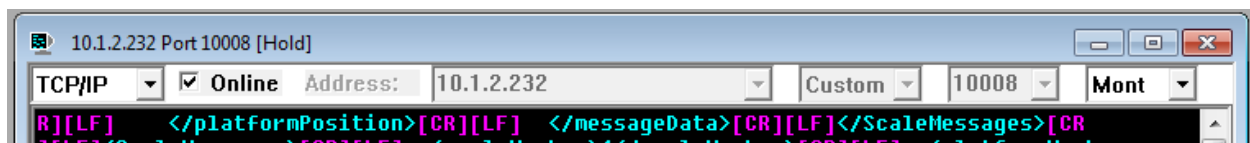
Stop Bits – The stop bits drop down list allows selecting “1”, “1.5”, or “2” stop bits.



Flow Control – The flow control drop down list allows selecting “NoFC” = “No flow control”, “XON” = “XON/XOFF” flow control, or “DTR” = “DTR/CTS” hardware flow control.

Display Mode – The display mode drop down list allows selecting the display mode “Mont” = “Debug monitor (control characters are shown)”, “Text” = “Text display”, or “Hex” = “Hexadecimal display”.

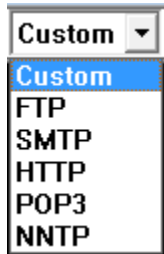
TCP/IP Client



Online – The “Online” check box enables/disables the communications with the TCP/IP server.

Address – The address box allows typing in the IP address of the server to connect to.

Common Ports – The common ports drop down allows selecting the port as a common TCP/IP protocol port, “FTP” = “21”, “SMTP” = “25”, “HTTP” = “80”, “POP3” = “110”, “NNTP” = “119”.



Port – The port input box allows any port to be specified.

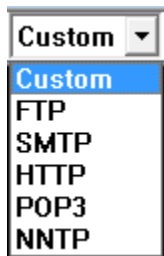
Display Mode – The display mode drop down list allows selecting the display mode “Mont” = “Debug monitor (control characters are shown)”, “Text” = “Text display”, or “Hex” = “Hexadecimal display”.

TCP/IP Server



Online – The “Online” check box enables/disables the TCP/IP server.

Common Ports – The common ports drop down allows selecting the port as a common TCP/IP protocol port, “FTP” = “21”, “SMTP” = “25”, “HTTP” = “80”, “POP3” = “110”, “NNTP” = “119”.



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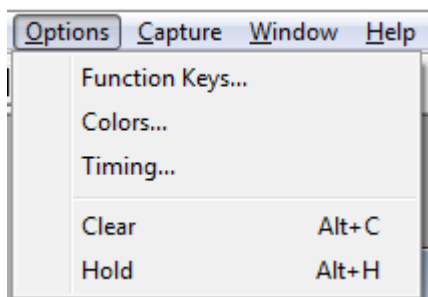
Communications Merge Window



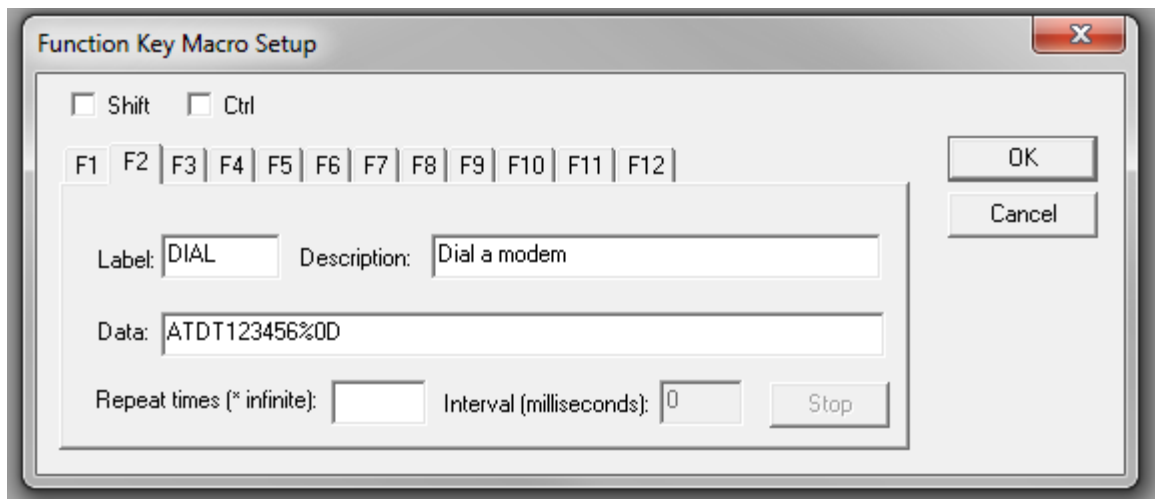
Display Mode – The display mode drop down list allows selecting the display mode “Mont” = “Debug monitor (control characters are shown)”, “Text” = “Text display”, or “Hex” = “Hexadecimal display”.

Options

The “Options” selection on the menu bar allows various settings to be specified for the currently selected communications window.



Function Keys...



The “Function Key Macro Setup” dialog box allows function keys to be configured to send commands.

F1 – F12 – The tab control is used to select the function key to be configured or edited.

Label – The label specifies the text to appear at the bottom of the screen. This should be short.

Description – Description allows a more lengthy description to be entered.

Data – Data is the data to be sent when the function key is pressed, or the label button is clicked. Control characters may be typed such as ^E for CTRL-E, or any character may be specified in hexadecimal by using the percent sign (%) followed by two hexadecimal characters. The hexadecimal characters must be specified with upper case letters “A” though “F”. For example “%0D%0A” would specify output of a carriage return and line feed.

Repeat times (* infinite) – Repeat times may be used to specify that the output should be sent more than once. If this is blank the output data will be sent once for each time the function key is pressed. A number may be specified to instruct the output to happen multiple times. An asterisk may be entered to specify an indefinite number of times until the output is stopped.

Interval (milliseconds) – If the repeat times prompt is not blank an interval may be specified in milliseconds for the time duration between outputs.

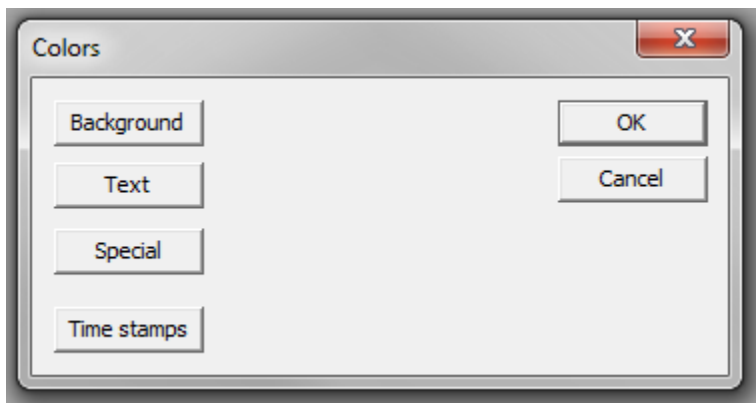
Stop – If a repeat operation is in process for the selected function the stop button may be clicked to stop the output.

The status bar will show the configured function keys. The keyboard function key may be pressed (Make sure CommView has the keyboard focus) or the status bar buttons may be clicked to activate the output.

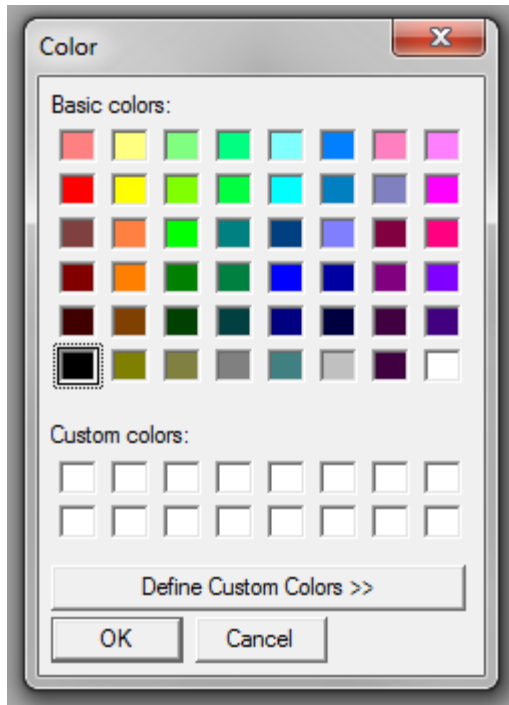
F1	2 DIAL	3 HANGUP	4	5	6	7	8	9	10	11	12
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Colors...

The “Colors” dialog box is used to specify the colors to be used on the display. The default CommView configuration provides different colors that are suitable for most purposes. The merge window will use the colors assigned to the ports being merged to make it easier to distinguish the source of the data.



Background – Click the “Background” button to specify the color to be used for the communications window background.



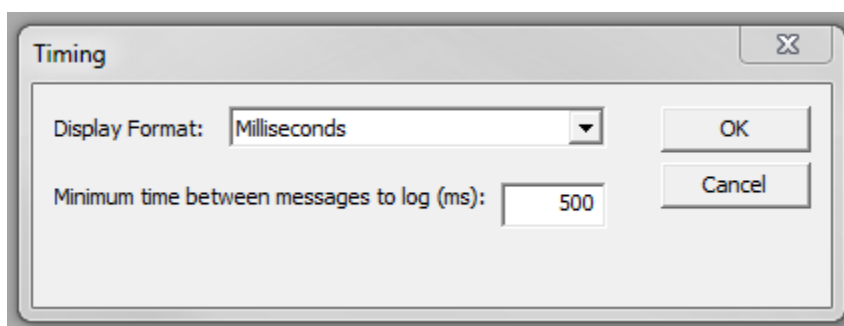
Text – Click the “Text” button to specify the color to be used for normal text.

Special – Click the “Special” button to specify the color to be used for special characters such as carriage return “[CR]” in debug monitor mode.

Time Stamps – Click the “Time Stamps” button to specify the color to be used for time stamps.

Timing...

The timing dialog box allows timing to be configured.



Display Format – The display format allows the time display format to be specified, “Off”, “Milliseconds”, “Seconds in tenths”, “Seconds”, or “Minutes and seconds”.

Minimum time between messages to log (ms) – This prompt is used to enter the minimum number of milliseconds spacing to be required before a timing interval is displayed. If this value is low you may see

time intervals between individual characters of a data messages. It is usually preferable to see timing values between messages without regard for individual characters.

Clear – Alt-C

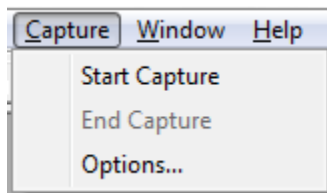
The “Options” “Clear” menu selection may be clicked, or “Alt-C” may be pressed to clear the currently selected terminal window.

Hold – Alt-H

The “Options” “Hold” menu selection may be clicked, or “Alt-H” may be pressed to freeze the currently selected terminal window. While the window is in the hold mode new data arriving will not be displayed. If the port is being captured to a file received data will still be written to the file. It may be useful when looking at a continuous output from some device to put the window in hold mode to stop the display from scrolling.

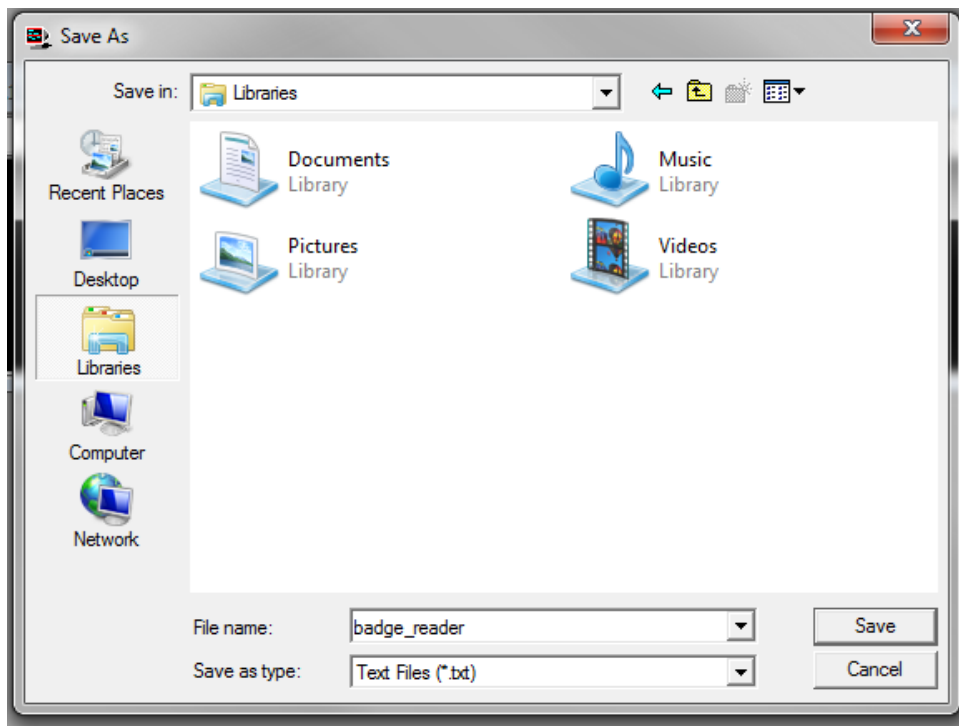
Capture

The “Capture” selection on the menu bar allows data from the currently selected window to be captured to a file.



Start Capture

Click “Start Capture” to start capturing the currently selected window data to a file. A file path and filename will be prompted for.



Browse to the desired location for the capture file. Type the filename and click “Save” to start the capture to file.

End Capture

Click “End Capture” to stop capturing the currently selected window data.

Options...



Automatically begin capture – Check this box to have CommView automatically start capturing when the currently selected terminal window is opened.

Filename – If “Automatically begin capture” is checked type the path and filename for the capture file.

Loopback Tester

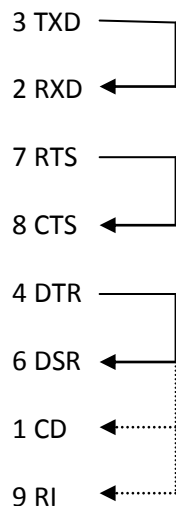
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A useful test device can be built for identifying and testing unknown serial ports for IBM compatible computers. Most operating systems software refers to these serial ports as COM1, COM2... These connections are usually located on the back of the computer. These ports are usually 9-pin male. Some serial option cards contain one large connector which is then split out with an octopus cable into several 9-pin serial ports.

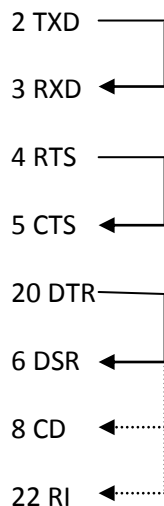
It is common for a computer to have serial port connections with no identifying markings. Most serial port software can be selected to operate any particular serial device on various COM ports.

A loopback tester sends any output from the serial port it is plugged into directly back into that same serial port. Diagrams for constructing this device for the two common serial ports follow:

9-Pin



25-Pin



RI and CD are rarely used so these connections are optional.

Parts Required: A 9-pin or 25-pin female connector. Small wires to solder to it. A connector shell is also helpful to make the assembly easier to handle.

The actual data loop-back is accomplished with only one wire, the wire between pins 2 and 3. This ties together the transmit data and the receive data lines. The other jumpers are for handshake checking. Some serial ports have these handshake lines jumpered internally so these connections are not necessary. It is generally best to provide the handshake lines so the loopback will work on any serial port.

If the serial ports on a particular computer do require handshake lines it makes it easy to identify an unknown port with the loopback test.

For loopback testing any baud rate, parity, data bit, and stop bit settings will do fine. For testing serial ports for use with particular devices it is desirable to set the parameters as they will normally be used.

Simply plug the loopback tester into the COM port in question. The CTS and DSR handshake lines will show as active for the appropriate terminal window of the CommView SCTU program. Make sure the correct window is selected for keyboard output using the up or down cursor movement keys.

Type on the keyboard. Any characters typed should show up in the terminal window because they are being sent out of the serial port and immediately returned to the computer through the loopback tester. Remove the loopback tester and again type on the keyboard. The characters typed will not show in the terminal window because they are not returning to the serial port. If a serial port being tested does not work the screen may show different characters from the ones being pressed on the keyboard or not show any characters with the loopback attached.

PERIPHERAL TESTING AND OPERATION

The CommView SCTU program can be used to test and operate various serial devices. For example, a computer with a Hayes compatible modem installed internally or attached to a serial port can be controlled using CommView SCTU. Simply select the appropriate port address and interrupt for one of the terminal windows. Type "AT" and ENTER. The modem should respond with "OK[CR]" or something similar.

Peripheral devices should always be connected to the computer using the appropriate cables provided by or recommended by the peripheral manufacturer.

Bar code readers and other serial input devices may be attached to the computer. The appropriate terminal window when properly configured will show data received from the device. Commands may be issued to the device simply by typing at the terminal window. The programmable function keys are useful to maintain complex commands which can then be sent to the device with a single keystroke.

ASCII terminal units can be tested easily. Any character keys typed at the CommView SCTU terminal window should appear on the ASCII terminal unit. Any character keys typed at the ASCII terminal unit should appear in the CommView SCTU terminal window.

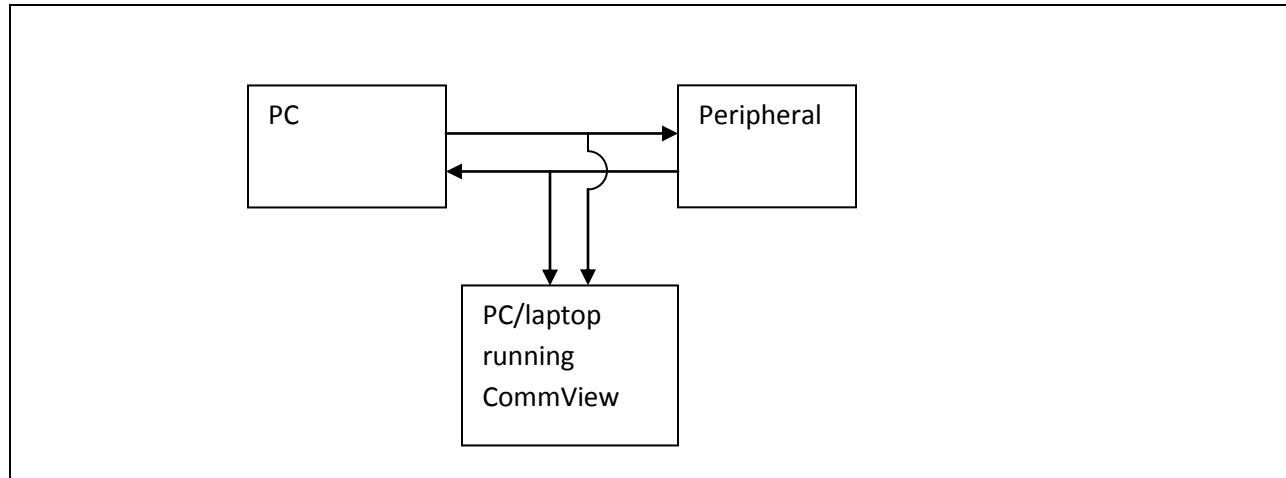
Serial printers can also be tested. Serial printers normally buffer data received so the printer may not print each character as it is typed in the CommView SCTU terminal window. Pressing carriage return or linefeed, Ctrl-J, will normally cause a serial printer to printout everything in its buffer.

Serial printers also normally manipulate the handshake lines to provide indications for various conditions such as off-line and paper out. The handshake indicators on the status bar of the terminal window can be observed to verify that the printer is providing these signal changes when the paper is removed and the printer is placed off-line.

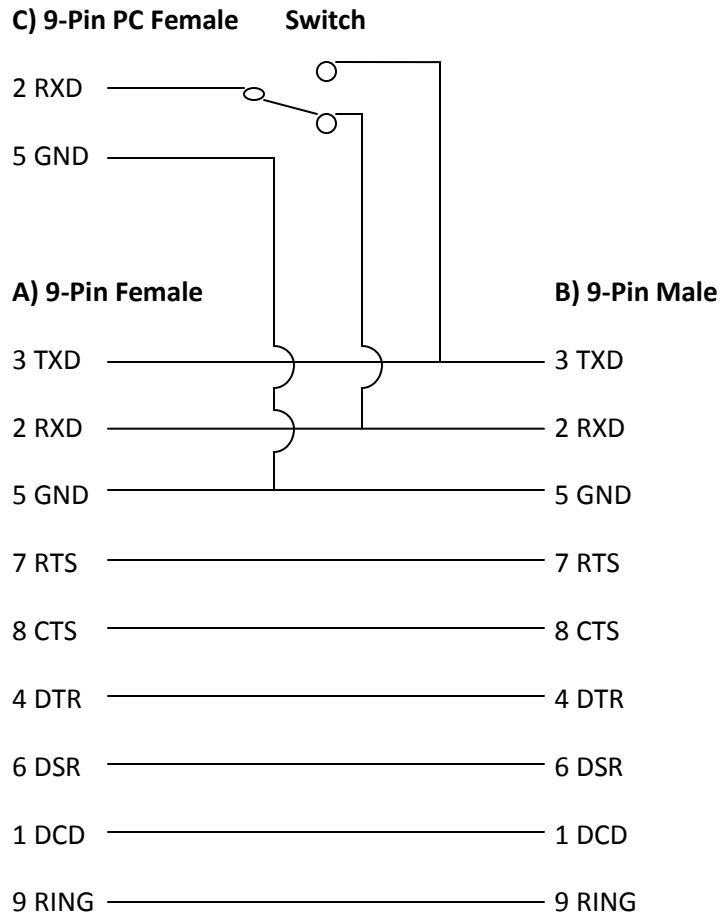
Other devices such as weight indicators or temperature monitors may provide serial outputs that are either continuous or provided when some condition initiates it. If a the device provides a continuous output the output can monitored in the CommView SCTU terminal window. As the window fills up with data the display will scroll. Some devices may have an output port, such as a printer port, which is normally idle but outputs data when a button is pressed on the device. This can be observed by watching the CommView SCTU window as the print button is pressed. The output data will show up on the terminal window. Some devices may operate in on-demand mode. A code such as Ctrl-E can be pressed at the terminal window to initiate the output. The data will then be sent to the computer.

INTERCEPT TESTING

It is often very useful to analyze the communications between two serial devices as they are operating together. This can be accomplished with an intercept cable. A separate computer, not involved in the communications in question, must be available to run CommView SCTU. The block diagram below illustrates this operation.



The PC running CommView SCTU can be used to observe the data flow between the two devices. One end of the existing cable can be unplugged. The A and B connectors are inserted to provide the connection between the two devices while also providing the output to the C connectors for a PC running CommView SCTU. The existing cable between the two devices must still be used. A switch at the C connector allows CommView to monitor either direction of communication between the two devices.



This cable allows using only one of the terminal windows to monitor both data received by and data transmitted from the peripheral. However, only one side of the conversation may be viewed at a time. The switch on the cable allows the selection of which side of the conversation is to be viewed. CommView SCTU allows a more versatile monitoring approach.

C) 9-Pin Female

2 RXD
5 GND

D) 9-Pin Female

2 RXD
5 GND

A) 9-Pin Female

3 TXD
2 RXD
5 GND
7 RTS
8 CTS
4 DTR
6 DSR
1 DCD
9 RING

B) 9-Pin Male

3 TXD
2 RXD
5 GND
7 RTS
8 CTS
4 DTR
6 DSR
1 DCD
9 RING

This approach requires two COM ports on the PC running CommView SCTU. As before the A and B connectors are used to intercept the data flow between the two devices. The existing cable between the two devices must still be used. The C and D connectors are connected to two separate serial ports on the computer or laptop running CommView. This allows both sides of the conversation with the peripheral to be viewed simultaneously in separate terminal windows. The port merge window may be opened to show both sides of the conversation in one window in the proper sequence. The timing option may be enabled to show the time elapsed between messages in the merge window.