

TEMPUS SOFTWARE

Virtual VP v.1.0.1 April 6, 2006

Virtual VP User Guide

Table of Contents

Overview	2
<i>Major Features</i>	<i>3</i>
<i>Communications</i>	<i>4</i>
Installation & Configuration.....	7
<i>Installation.....</i>	<i>7</i>
<i>Quick Start.....</i>	<i>7</i>
<i>Configuration.....</i>	<i>8</i>
Using VirtualVP	13
<i>Main Form.....</i>	<i>13</i>
<i>Menus.....</i>	<i>14</i>
<i>Tips on Using VirtualVP.....</i>	<i>16</i>
Appendix.....	18
<i>Virtual Serial Port Drivers</i>	<i>18</i>
<i>N8VB_vCOM</i>	<i>18</i>
<i>ComEmulDrv</i>	<i>19</i>
<i>AVSD</i>	<i>21</i>
<i>TCP/IP to Serial Bridge Drivers.....</i>	<i>22</i>
<i>Lantronix Comm Port Redirector</i>	<i>22</i>
<i>HW_VSP</i>	<i>25</i>

Chapter 1

Overview

VirtualVP finally allows you to safely connect multiple weather programs to a single Vantage Pro, Vantage Pro 2, or Envoy device. In the past, this was only possible by using a serial splitter, but that was less than an ideal solution. With more than one program sending commands to the console, the programs would step on each other causing numerous problems. This meant that only one program could control the console, with the rest in “listen only” mode.

Now you don’t have to worry about those limitations. VirtualVP makes a single connection to the console, and is the only program that sends it commands and receives the data it sends. After connecting to the console, it then opens up to four communications ports to which weather programs can connect. Each port can be thought of as a virtual console. VirtualVP listens on each port, and responds to commands it receives just as the console would. Typically, the command is passed on to the actual console, and the resulting data is forwarded to the weather program.

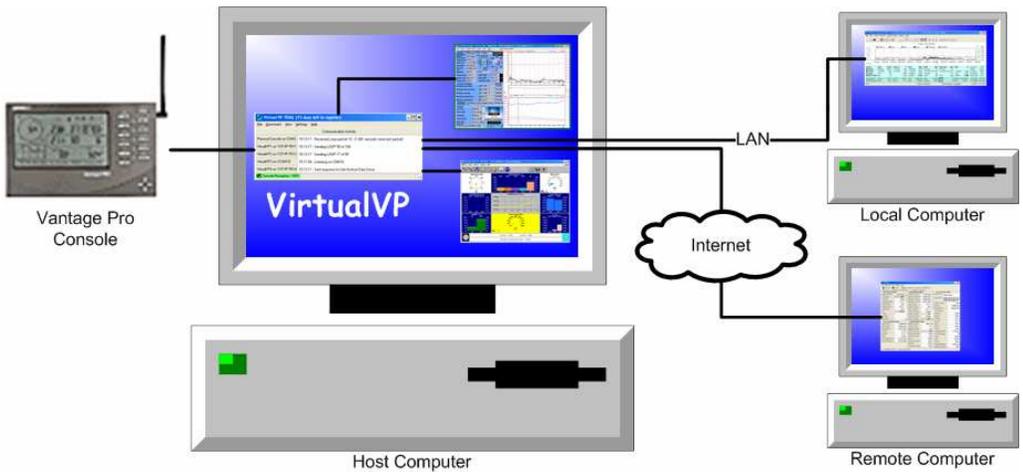


Figure 1 Overview of a VirtualVP system

Because the virtual consoles can be configured to communicate using serial COM ports or TCP/IP ports, a variety of connection possibilities are opened.

Major Features

- Connect up to four separate weather programs to a single console through VirtualVP's virtual consoles.
- Virtual consoles can be configured to use either serial or TCP/IP communications.
- All communications to the console are brokered by VirtualVP, preventing the weather programs from interfering with each other. Each program will think it is connected directly to the console.
- No one wants their weather programs to miss live data packets. They want to catch every gust! VirtualVP has extensive processing logic to insure that commands sent to the console do not cause delays between the live data packets. This means that if one weather program sends a command to get reception information from the console, it will not affect the other programs that are receiving live sensor data.
- Static and infrequently changing data from the console is cached locally within VirtualVP's memory. This allows it to service some of the commands received from the weather programs without even bothering the console.
- Since retrieval of the console's data logger archive data is the most time consuming and potentially disruptive procedure, VirtualVP maintains an exact mirror of the archive data in its memory. The mirror is always kept up to date by detecting when new archive data is logged in the console, and retrieving the new data. This means all weather program requests for archive data are served out of VirtualVP's mirror without any interruption of the console and its feed of live sensor data.
- In addition to mirroring the archive data in memory, it is also mirrored to a disk file. This means that when VirtualVP is started, it only needs to get the archive data logged since the last time it was run, resulting in quick startup.
- Virtual Consoles can be directed to protect the actual VP console from commands that would change or clear data within the console. This added protection is particularly useful when using TCP/IP connections over a public network. It prevents malicious connections from reconfiguring your console, or otherwise changing the console's internal data.
- Minimal impact of CPU and memory resources means you can run it on older PCs without worrying about your existing programs being negatively impacted.

Communications

Many of the communication options are possible because of the availability of several freeware device drivers. While this section will only describe the communication scenarios, details of the various freeware drivers and instructions on their use are located in the Appendix.

An important note to consider is that all but one of the freeware drivers only support 32 bit versions of Windows (Windows 2000, Windows XP, and later). If you have an older version of Windows such as Windows 98, the only freeware option is the HW_VSP TCP/IP to serial bridge. There are commercial drivers available that support older versions of Windows, but they can be pricey (\$99 to \$250).

Serial Communications

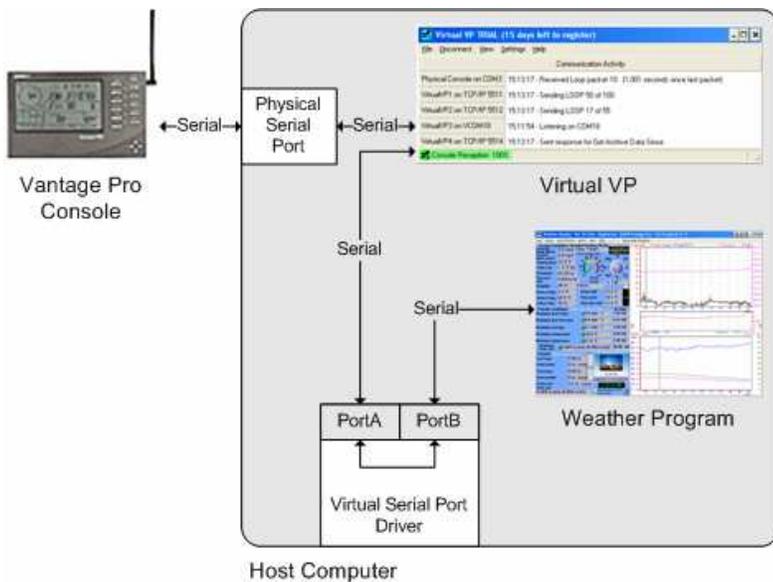


Figure 2 Serial communications with VirtualVP

Pure serial communications with VirtualVP is accomplished using a Virtual Serial Port driver. These types of device drivers create pairs of virtual serial ports and link the two ports in a pair with a virtual null modem. VirtualVp connects to one of the serial ports in the pair, and the weather program connects to the other serial port.

VIRTUAL VP

Serial via TCP/IP Communications

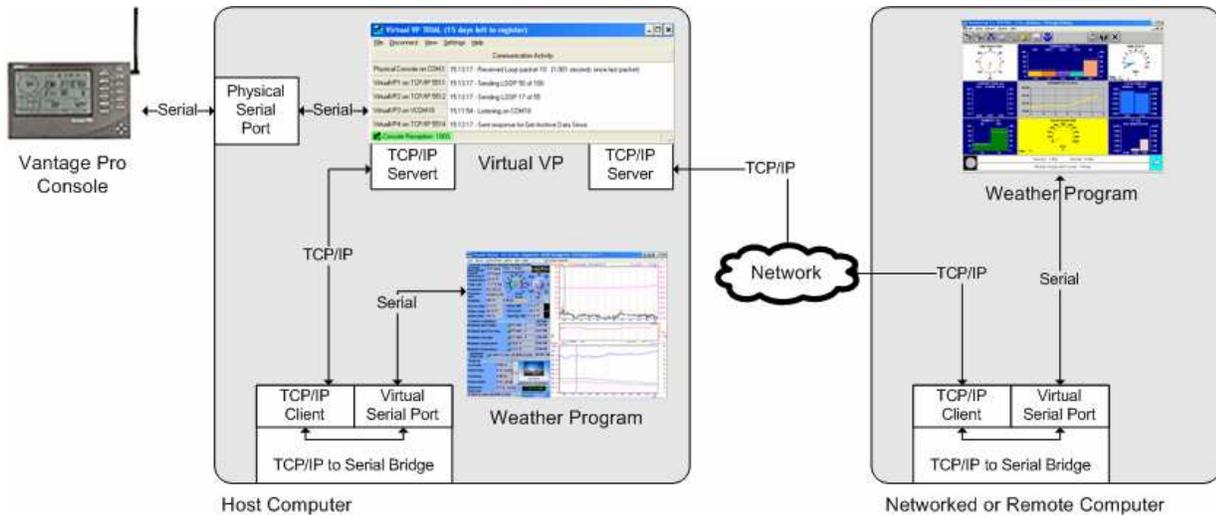


Figure 3 TCP/IP communications with Serial endpoint

Using TCP/IP as the transport mechanism for data allows more options such as connecting to VirtualVP from locally networked computers or even over the internet. Unfortunately, almost all weather programs are currently designed to hook directly to a Vantage Pro console, so they only support serial connections. There are, however, several freeware drivers that provide a bridge between TCP/IP and serial communications. They connect to a TCP/IP server (VirtualVP's virtual consoles can be configured to be TCP/IP servers), and creates a virtual serial port. It routes all data between these two ports. Weather programs can then be directed to connect to the virtual serial port

VIRTUAL VP

Pure TCP/IP Communications

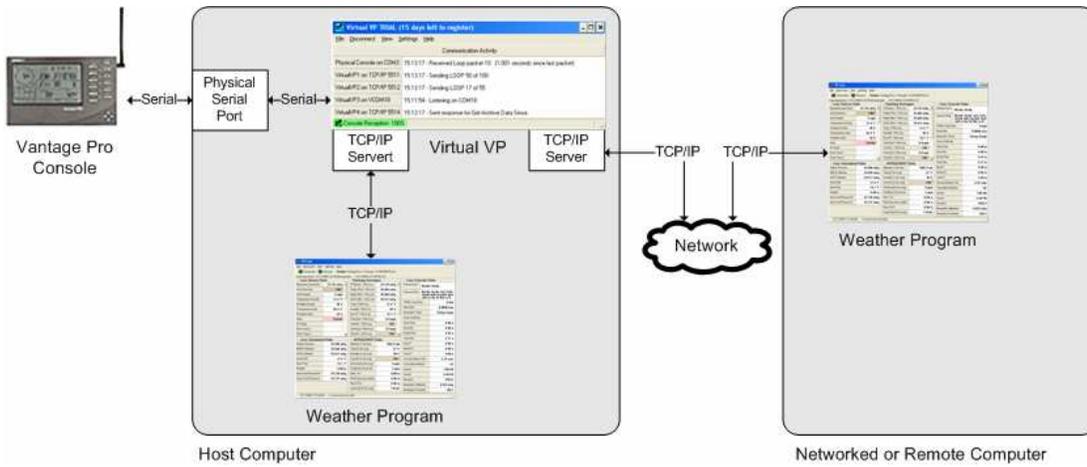


Figure 4 Pure TCP/IP communications

The simplest and most flexible scenario would be pure TCP/IP communications between VirtualVP's virtual consoles and the various weather programs. Currently this is not an option for most weather programs, since they typically only support serial connections. Maybe in the future this will change if new programs are written specifically with VirtualVP in mind. My freeware program VPLive will soon support TCP/IP connections, and I just might have some other freeware Vantage Pro tools on the drawing board that will use TCP/IP as well.

Chapter**2**

Installation & Configuration

VirtualVP itself is simple to install and configure. However, because it relies on communications drivers that can sometimes be baffling to computer users there are other steps outside of VirtualVP that must be performed before you can run VirtualVP successfully. In this section I will cover just those topics specific to VirtualVP. More information on driver installation and configuration can be found in the appendix.

Installation

The order of installation of VirtualVP and any drivers you intend to install is not important. However, you will want to have the drivers you'll use installed and configured before moving on to the step of VirtualVP configuration.

Download and execute the VirtualVPSetup.exe program from www.pensom.org/weather/virtualvp. In order to get this program in your hands quicker, I will not bore you with the install steps you are probably already familiar with. Suffice it to say that you pick a directory, and VirtualVP files will be put there, and a folder will appear in your Start/Programs menu.

VirtualVP uses a simple and lightweight installation model. All the files are placed in one folder. All configuration files are also put in that folder. Apart from the registry entries the install program adds to allow uninstall in the normal Windows fashion, VirtualVP itself does not use the Windows registry at all. If you wanted, you could simply move the folder from one place on your hard drive to another, and you could then run it from there. You would only need to fix up the shortcut in the Start/Program folder.

Quick Start

The quickest way to get started using VirtualVP, involving the least amount of configuration is to use the N8VPvCOM virtual serial port driver. VirtualVP's default configuration settings match the default configuration settings of N8VBvCOM, so most of the configuration is already done for you

In addition to installing VirtualVP, download and install the N8VBvCOM driver. The installation program for this driver can be found at www.pensom.org/weather/virtualvp. The installation program gives the option for installing the driver into Windows. You should make sure this option is selected. After the N8VBvCOM driver is installed it will be ready to use without the need for a reboot.

VIRTUAL VP

After you've installed VirtualVP and N8VBvCOM, run the VirtualVP program. You will need to do a little configuration. Select the Settings/Communications... menu item. This will open the Communication Settings window (described in more detail below). The Virtual Consoles will already be preconfigured to match the default N8VBvCOM configuration, so you should not need to change those settings. At the top of the Communication Settings window is a place for you to select the COM port of your Vantage Pro console. This is usually COM1 if you have a serial data logger or COM3 if you have a USB data logger. After setting the Vantage Pro console COM Port, click the Ok button.

You are now ready to connect VirtualVP. Click on the Connect menu item. If everything is working, you should see VirtualVP connect to the console, and then begin to download the console's historical archive data. It will take a few minutes for the archive download to complete.

Once the archive download is complete, you should see the virtual consoles begin listening for weather programs to connect to them.

You will need to change the configuration of your existing weather programs so they connect to one of VirtualVP's virtual consoles instead of the actual console. Open the weather program's window that lets you set the COM port it should use to connect to the Vantage Pro. Instead of selecting the Vantage Pro COM port, you should select one of the four virtual console COM ports: COM6, COM7, COM8, or COM9.

After configuring your weather program and telling it to connect, you should see communication activity in the VirtualVP main window as it receives and responds to the weather program. The weather program should work as it normally does.

Configuration

There are not a lot of configuration options to worry about, but setting up the communications requires some preliminary work, such as installing any drivers you intend to use. If you are not familiar with the ins and outs of PC communications, this might be a little daunting. Hopefully this manual will ease the pain a little and help you get VirtualVP up and running quickly and successfully.

All configuration options are found under the Settings menu.

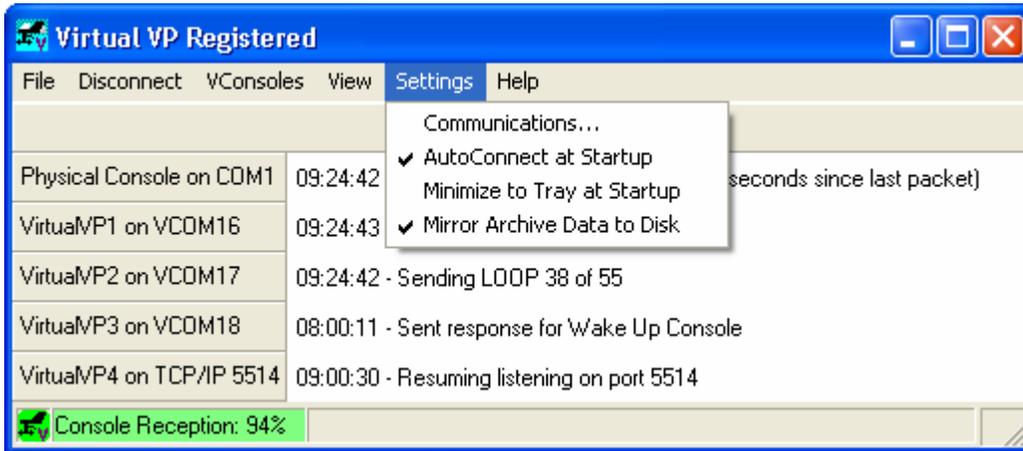


Figure 5 Settings menu

Let's start with the easy stuff.

AutoConnect at Startup

This option will have a check mark beside it when it is in effect. AutoConnect will automatically go through the connection process when the program is started up. First a connection is made to the physical console, and then the virtual consoles are started. This option works just as if it pressed the Connect menu item for you.

This option is off by default. I recommend you leave it off until you are confident you have all the communications configured and working solidly. At that point you might consider turning this option on.

Minimize to Tray at Startup

VirtualVP is a "tray application". That is, when it's running, it displays its icon in the Windows system tray. When it is minimized, its button on the task bar disappears, and only the tray icon is left. You can restore the main window via the tray icon's popup menu.

The Minimize to Tray at Startup option controls whether or not VirtualVP minimizes itself immediately to the tray immediately after startup. Typically this option is used with AutoConnect at Startup to provide for automated startups.

This option is off by default. Like the AutoConnect option, I recommend you leave this off until you are confident you have all the communications working, lest you miss an error message at startup.

Mirror Archive Data to Disk

The very first time VirtualVP connects to a Vantage Pro console after installation, VirtualVP downloads the entire data logger archive into memory. After that, it incrementally keeps the memory archive mirror up to date. By also mirroring the archive data to disk, VirtualVP will not need to read all the archive data again the next time it's started. It will first fill its archive from the mirror on disk, and then request just the new archive data from the console. Since downloading the entire archive from the console can take several minutes, using this

VIRTUAL VP

option can dramatically decrease the time it takes for VirtualVP to start up and begin accepting connections from weather programs.

This option is on by default, and I highly recommend you leave it on unless you simply can't spare the 264 Kb of disk space consumed by the mirror files.

Communications...

Selecting the Communications... menu item opens the Communications Dialog. This dialog contains the meat of the configuration process. It allows you to specify the communication protocol and parameters each virtual console will use to allow for connections from weather programs. Each virtual console is individually configured.

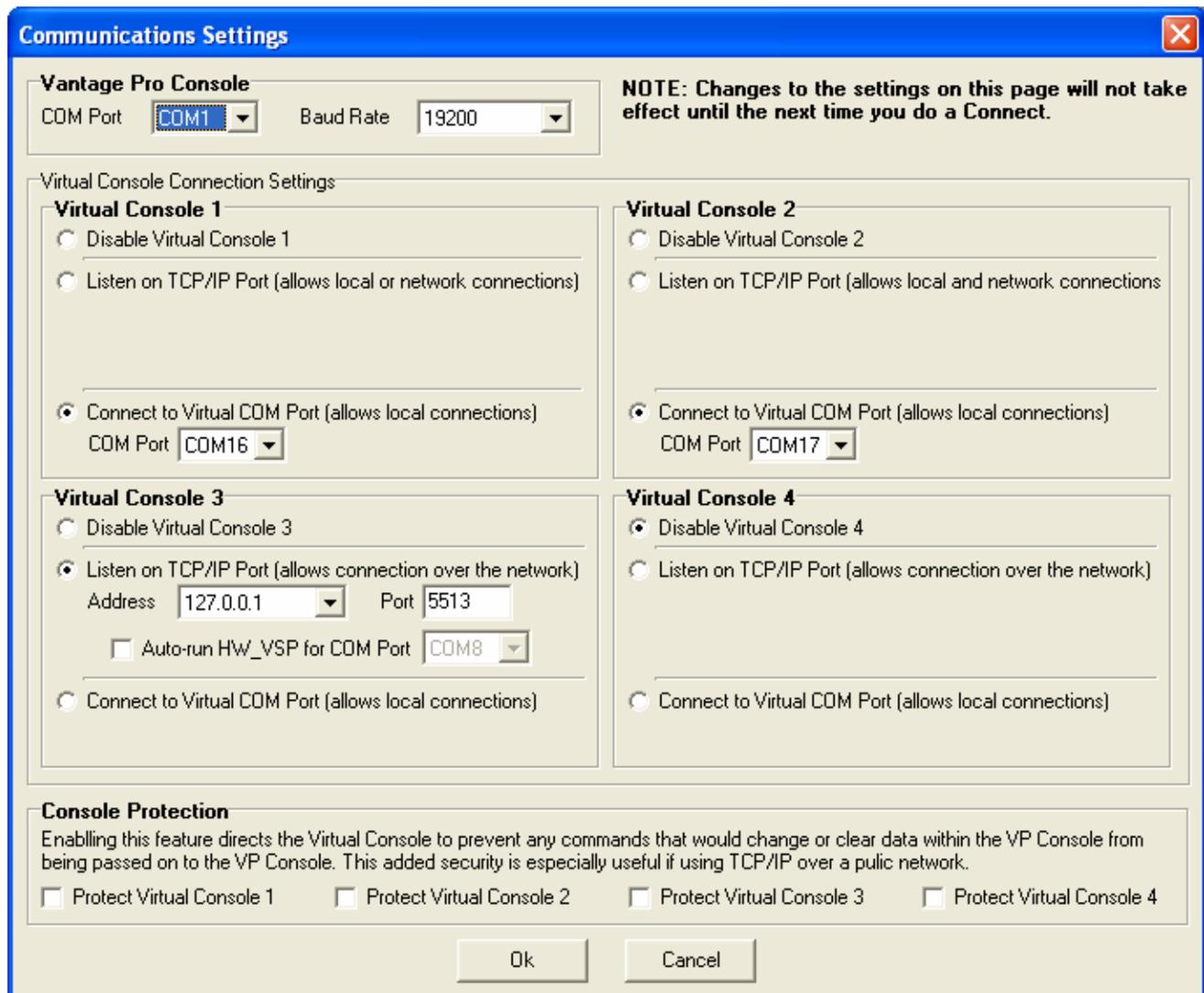


Figure 6 Communications Settings dialog

At the top of the dialog is the Vantage Pro Console section. Here you select the serial port and baud rate VirtualVP should use to connect to the physical Vantage Pro Console.

Each virtual machine has three communications modes to choose from:

- **Disable Virtual Console** – This option basically disables that virtual console. If you know you will have less than four programs connection to VirtualVP, you can use this mode to turn off the unused virtual consoles. This will reduce the CPU and memory usage of VirtualVP by a little bit.
- **Listen on TCP/IP Port** – This option directs the virtual console to act as a TCP/IP server accepting socket connections on the specified IP address and port. Using this option requires either that the connecting weather programs directly use TCP/IP or that you have installed and configured a TCP/IP to serial driver to create a virtual serial port for the weather program to use for connection. This option is the most flexible since the communications can take place over a network. When you select this mode, the following configuration parameters become visible:
 - **Address** – Here you can select the IP address the virtual console will use for connections. The drop down box will be pre-filled for you with the available choices, depending on how many network cards you have installed on your computer. The local address 127.0.0.1 will always be available even if you have no network card, and is the default setting.
 - **Port** – This is the TCP/IP port on which the virtual console will listen for connections. The default values, 5511 to 5514 were picked to avoid conflict with existing TCP/IP services. You should only need to change this if some application on your system is already using those ports. If you select an IP Address that is assigned to a network card connected to a network, you will need to configure any firewall software you have installed to allow VirtualVP to accept connections over the network.
 - **Auto-run HW_VSP** – Some people may not feel comfortable configuring a TCP/IP to serial driver. In this case, you can use this option to tell VirtualVP to automatically run the HW_VSP application. VirtualVP will run HW_VSP and pass it the proper configuration settings to create a serial port whose number you specify. The default values for the serial ports are COM6 to COM9. Unless there is a conflict with an existing device, I recommend you use these default COM port values. Some weather programs may only be able to connect to COM ports In order for this option to work; you must have installed the freeware HW_VSP application. **IMPORTANT:** you must also copy the HW_VSP.exe file from the folder in which it was installed, into the VirtualVP folder.
- **Connect to Virtual COM Port** – This option lets you direct the virtual console to connect to one end of a virtual serial port pair. This requires that you have a virtual serial port driver installed. Available freeware drivers are described in the Appendix. I recommend you use the following virtual pairs: COM6/COM16, COM7/COM17, COM8/COM18, and COM9/COM19. These numbers will be high enough that they're not likely to conflict with existing devices. You should use the COM6 through COM9 ports for your weather programs to connect. Use the COM16 through COM19 ports (the defaults on the Communications dialog) for the virtual consoles to connect.

V I R T U A L V P

Near the bottom of the Communications Settings is an area labeled Console Protection. The check boxes allow you to individually set the Console Protection option for each virtual console. Console Protection provides an extra measure of security by directing the virtual console to prevent changes or clearing of the console's internal settings by not passing through any commands that would have that effect. This is especially useful if you are using TCP/IP communications over a public network. You don't want a malicious connection reconfiguring your VP console or clearing its data.

If you are satisfied with your changes, click on the Ok button. This will save your configuration settings. If you are currently connected, your changes will not take place until the next time you connect. You should not need to exit the program and restart it though.

Clicking on this button discards any changes you've made to the communications settings, and closes the Communications dialog.

Chapter

3

Using VirtualVP

Once you get the program configured and running, it should just do its job without requiring you to interact with it very often. This section describes the main display appearance, menus, and information on using VirtualVP.

Main Form

The purpose of the main form is to display the status of the communications with the console and the weather programs connected to the virtual consoles.



Figure 7 VirtualVP's main form

Most of the VirtualVP form is self-explanatory, but a few items need further explanation.

Menus

These will be described later in this chapter.

Virtual Console Descriptions

The description of each virtual console includes a compact representation of the communications setting being used. If the console is configured for TCP communications plus auto running of HW_VSP to create a virtual serial port bridged to the virtual console's TCP/IP port, then both the TCP/IP port and the serial port will be shown.

Connection Status

This displays the same icon VirtualVP adds to the system tray. When connected, the icon background will display green. When disconnected, the background color will be yellow.

Vantage Pro Console Reception

Every two minutes, VirtualVP requests the status information on the quality of the connection between the Vantage Pro console and the outdoor sensor array. This status area displays this reception information as a percentage (sensor packets received / (sensor packets received + sensor packets missed)). This number is an estimate (the console doesn't know exactly how many sensor packets were missed, because it never got them). In general, any reception value between 95% and 100% can be considered about perfect. When the reception value is 80% or higher, a green background will be displayed. When the reception is in the range of 40% to 79%, a yellow background is displayed, meaning packets are being received, but a fair amount are being missed as well. When the reception falls below 40%, a red background is displayed, meaning too many packets are being missed. When the reception shows red, you may want to check out your Vantage Pro to see if there is something you can do to improve the reception.

Status Messages

This section displays the most recent error or warning messages. These messages describe problems encountered by VirtualVP. Warnings do not always require any action. As an example, at midnight, the Vantage Pro console does a fair amount of beginning of day processing. This may make the console unresponsive for a brief time. This results in VirtualVP to generating a warning that it received no response from a command it sent. That by itself is no cause for worry. However, if you were getting that warning several times a minute it would be a sign that something might be wrong. You can erase the last message by double clicking on the status message.

Communications Activity Messages

Messages here show what is currently going on between VirtualVP and the Vantage Pro console and between the virtual consoles and the weather programs connected to them. Every time something happens, the message is displayed here, along with the time it occurred. This is just for informational purposes, and to show that something is happening.

Menus

File/Exit

Disconnects any connections and closes VirtualVP.

Connect

Opens the connection between VirtualVP and the Vantage Pro console, and then starts up the virtual consoles so they begin listening for requests from weather programs. When connected, this menu item will change to "Disconnect" which you can use to close the connections.

Disconnect

Closes all open connections. After all connections are closed, this menu item will change to “Connect” which you can use to re-open connections.

VConsoles

Expanding this menu item displays menu items for resetting the connection of the individual virtual consoles. VirtualVP contains logic to detect when a virtual console’s communication connection get stuck in a permanent unresponsive state. When this is detected, VirtualVP resets the virtual console’s connection. The menu items for resetting virtual console connections are provided to give a manual means for dealing with the rare situations VirtualVP cannot detect. This allows you to reset an individual virtual console without disrupting the other virtual consoles or breaking the connection with the VP console.

View/Activity Log

This opens the activity log window, which shows a log of all this is going on. Check boxes at the bottom of the window allow you to control which types of message will be added to the window. When the window first opens, it will show all the errors and warnings that have occurred since VirtualVP was started up.

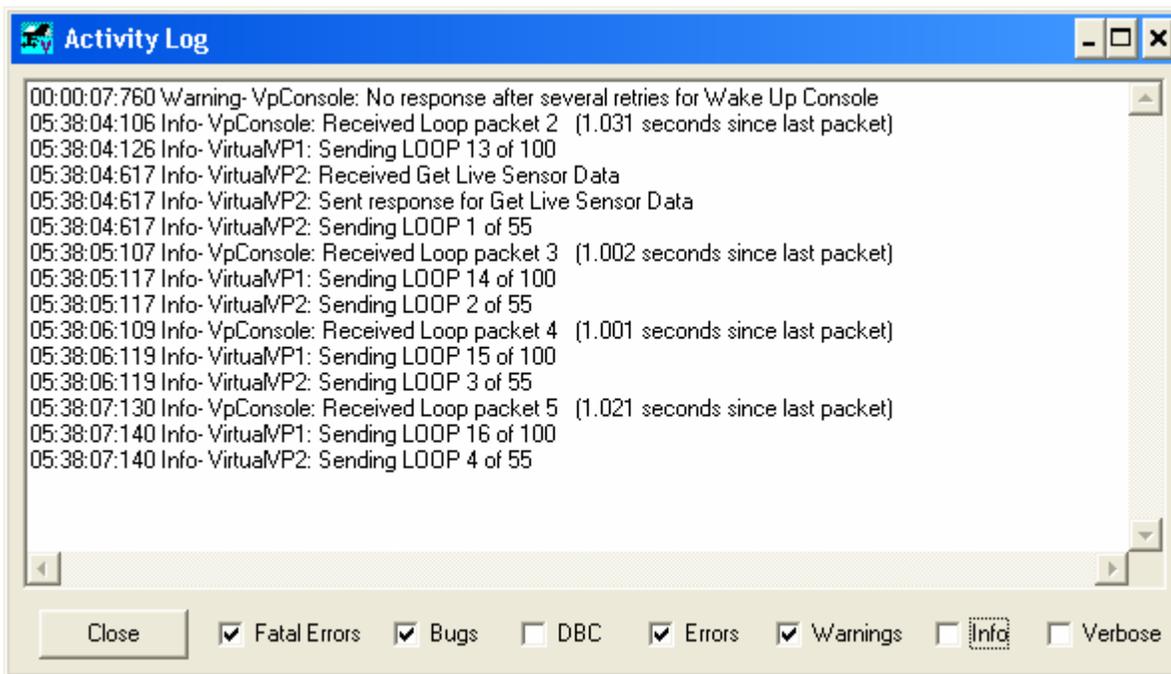


Figure 8 Activity Log window

After a number of messages have been written to the display, VirtualVP will begin discarding the oldest messages as it adds new ones. This prevents the window from consuming too much memory if you leave it open for a long time.

The activity log is for diagnostic and informational purposes. All error, bug, and warning messages are also written to a “log.txt” file in the VirtualVP folder. VirtualVP avoids the problem of the log.txt file growing indefinitely by erasing the contents whenever it reaches the maximum size of 250 Kilobytes. If

you encounter problems, the log.txt file can be a useful tool to help me track down bugs. If you report a bug, you should send the log.txt file as well.

Settings

This menu item is described earlier in the Installation & Configuration chapter.

Help/User Guide

This opens this User Guide. The User Guide is a PDF file, so you will need Adobe Acrobat Reader or another PDF viewer on your computer.

Help/Release Notes

This opens a window showing the release notes. This includes notes on using your version of VirtualVP, known issues, and a revision log.

Help/Register

This opens a dialog window that allows you to enter registration information. If you purchase VirtualVP, you will be sent a serial number and a registration key. After you enter those values in the Registration dialog, and the values are verified, your VirtualVP will change from being a 15 day trial version to being a registered copy.

Help/About VirtualVP

This opens the VirtualVP about box. This window displays version, copyright, and registration information. It also has links for support email, the VirtualVP website, as well as links to websites of 3rd parties that make useful freeware virtual serial port drivers and TCP/IP to serial bridge drivers.

Tips on Using VirtualVP

Vantage Pro Command Support

VirtualVP supports almost all the console commands documented by Davis Instruments. There are a few commands that are not currently supported by VirtualVP:

- CALFIX – sends a block of temperature and humidity sensor values used for calibration. This command is probably only rarely used. If you need to use this command, you should disconnect VirtualVP's communications, and connect your weather program directly to the console to do this form of calibration.
- DMP - retrieves all the archive data. Most weather programs don't use this command, using the DMPAFT command instead (which VirtualVP does support).
- EERD - retrieve EEPROM data in textual form.
- STRMON - turn on streaming of raw sensor data. This is not the command most weather programs use to obtain live data.
- EEBWR - write binary data to console's EEPROM. This command is probably only rarely used. If you need to use this command, you should disconnect VirtualVP's communications, and connect your weather program directly to the console.

If you find that the lack of any of these commands hampers your use of VirtualVP please let me know and I will add support for them. The same applies to any undocumented console commands your weather programs may use.

There are a number of infrequently used commands that VirtualVP supports, but whose use can be problematic when you have multiple weather programs connected to the console. These include:

- **BAR=** - this command sets the console's barometer calibration and elevation. Some weather programs may retrieve this information when they start, and rely on it during their operation. If these values are changed while they are running, they will not get the new values until they are closed and restarted.
- **Clearing Commands** – this group of commands allows weather programs to tell the console to clear all the archive data, alarms, temperature and humidity calibration, console graph points, historical rain and ET values, daily/monthly/yearly high and low values, and current sensor data values. Using these commands while multiple weather programs are connected could confuse those programs. In addition, clearing all the console's archive data could be a problem to VirtualVP itself. If you need to use these commands, it may be best to have only one weather program connected. If you need to clear the archive data, it would be best to close VirtualVP and connect your weather program directly to the console for that operation. Most people will never need to use command.
- **BAUD** – this command changes the baud rate the console uses for its serial connection. Needless to say, using this command while VirtualVP is connected to the console could interrupt its connection.
- **SETPER** – this command changes the console's archive interval. A side effect of this command is the clearing of all archive data. All the caveats about clearing the archive data given above apply to this command as well.
- **STOP** – directs the Vantage Pro console to stop writing data to the archive. This can cause problems. I can't imagine why someone would wish to use this command.

VirtualVP Tray Icon

If you right click on the VirtualVP tray icon, a popup menu will appear allowing you to restore the main form, minimize the application to the tray, connect/disconnect, or exit the program.

Appendix

This chapter contains information on obtaining and configuring useful freeware drivers.

Virtual Serial Port Drivers

This type of driver creates pairs of virtual serial ports, with the pair connected by a virtual null modem cable. Windows only allows one program to connect to a particular serial port. If you have two programs that expect a serial connection, and you want to connect those programs to each other, a virtual serial port driver provides just what you need to connect them. Each program can connect to one of the serial port pairs, and then they will be able to communicate with each other.

There are three freeware virtual serial port drivers that I have found and tested.

N8VB_vCOM

Who

This driver is made by Phil Covington.

Where

You can obtain this driver directly from the VirtualVP website, <http://www.pensom.org/weather/virtualvp/index.html>. The most recent version is build 226.

What

N8VB_vCOM is straightforward virtual serial port driver. I have used this driver quite extensively and it seems quite reliable. This is the virtual serial port driver I use and recommend.

The N8VB_vCOM driver now comes packaged with an installer program that performs the file installation, installs the driver into Windows, and creates links to the configuration tool and uninstaller. A reboot of Windows is NOT required after installation.

The configurations of the default N8VB_vCOM and VirtualVP installations are synchronized to work together without the need for additional configuration. To change the N8VB_vCOM settings, you can use the included configuration program VComConfigurator.

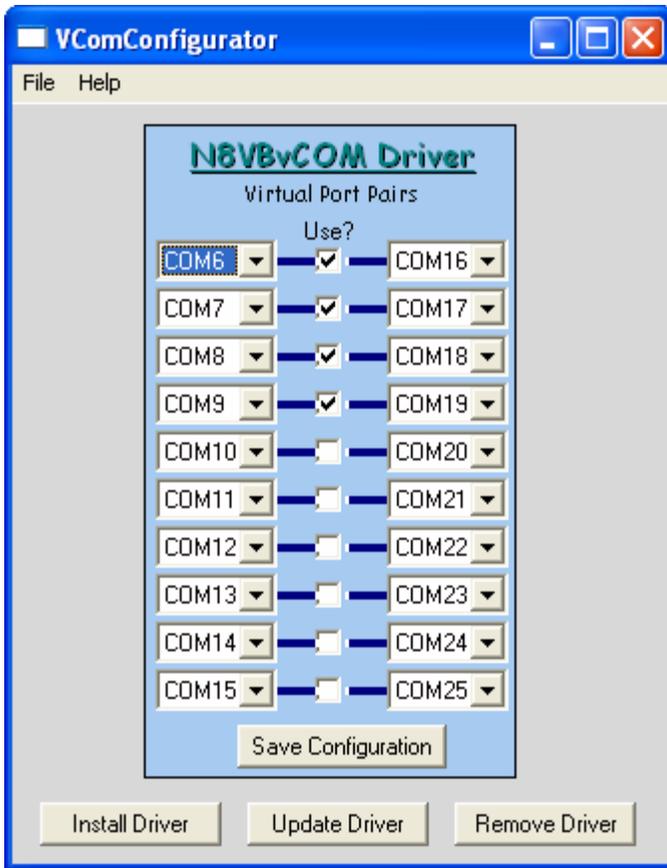


Figure 9 VComConfigurator tool for configuring the N8VBvCOM driver

Advantages

This driver is small and compact and does what it's supposed to do. It comes with an installer and configuration tool

Disadvantages

This driver only works on 32 bit windows (Windows 2000, Windows XP, and later). It will not work on Windows 98 or earlier.

ComEmulDrv

Who

This driver is made by the MixW folks.

Where

You can obtain this driver from <http://www.mixw.net/related.htm#tncemu>. The most recent version is ComEmulDrv3.

What

ComEmulDrv is a straightforward virtual serial port driver.

NOTE: Testing has shown that some weather programs cannot connect successfully to virtual ports created by this driver.

To install, create a folder, and unzip the contents of the zip file into that folder. The folder contains a ReadMe.txt file containing instructions for installing and configuring the driver. Please refer to that file.

To configure, you need to open the device manager window, find the ComEmulDrv driver, and double click on it. This will open a window that has a tab allowing you to configure the virtual serial port pairs.

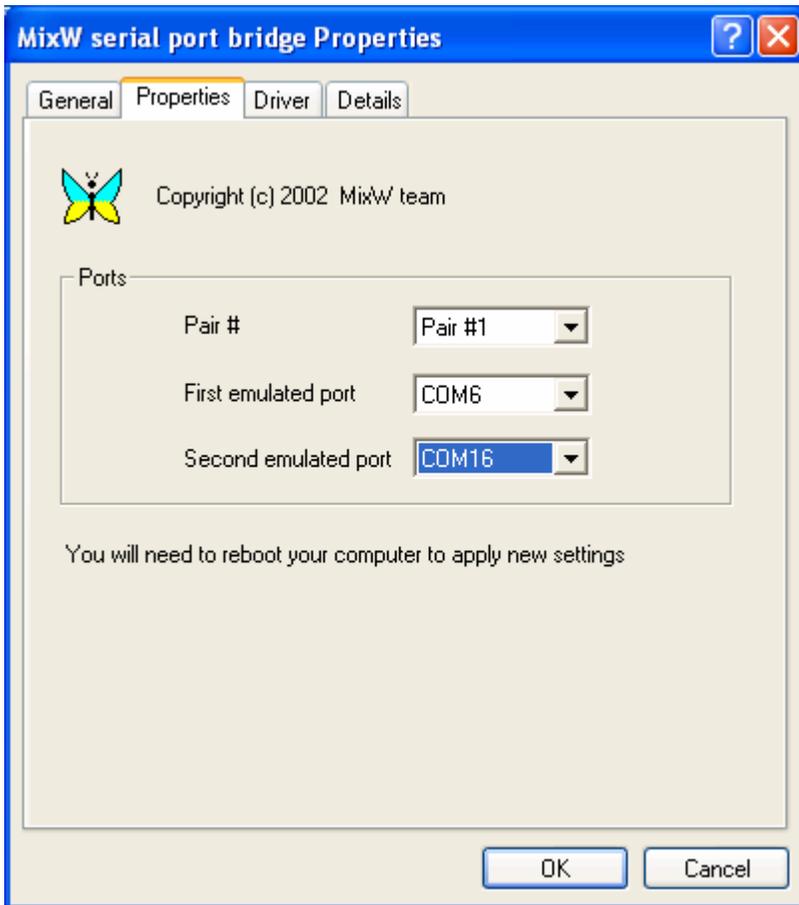


Figure 10 ComEmulDrv configuration

Using the configuration screen shown above, you can define up to 10 pairs of virtual serial ports. I recommend you use the following virtual pairs: COM6/COM16, COM7/COM17, COM8/COM18, and COM9/COM19.

Advantages

This driver is small and compact.

Disadvantages

Testing has shown that some weather programs cannot connect successfully to virtual ports created by this driver.

This driver only works on 32 bit windows (Windows 2000, Windows XP, and later). It will not work on Windows 98 or earlier.

There is no installation program. Although there is a configuration screen, it is not convenient to get to.

AVSD

Who

This driver is made by IntelliDriver.

Where

You can obtain this driver from http://www.intelldriver.com/products.2.14_Demo.html. In order to obtain the installation file, you need to click the Demo button on that web page, and jump through a simple registration hoop. You will then be given a link to the file. It's a little confusing, but apparently this product used to be a product that you had to pay for, but they switched it to freeware. The help file still contains references on how to register the product, but those parts of the application are no longer present.

What

AVSD is a commercial virtual serial port driver.

NOTE: Testing has shown that some weather programs cannot connect successfully to virtual ports created by this driver.

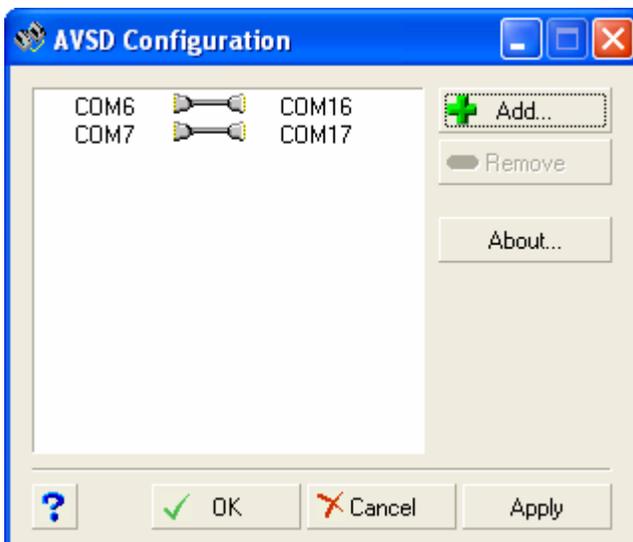


Figure 11 AVSD Configuration window

AVSD includes an installer. Once installed, it provides a nice configuration program as well as a bare bones help file. I have encountered an annoying but not serious problem with the configuration program. If you click on the Remove button to delete a pair you have added, it appears to remove it. However, it often only removes one of the ports in the pair. If you close the configuration program and then re-open it, you will see the orphaned port, which you can then delete.

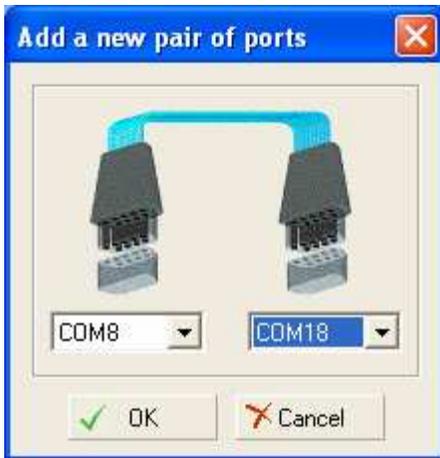


Figure 12 AVSD form for adding a new virtual serial port pair

Advantages

Nice configuration tool.

Disadvantages

This driver only works on 32 bit windows (Windows 2000, Windows XP, and later). It will not work on Windows 98 or earlier.

Testing has shown that some weather programs cannot connect successfully to virtual ports created by this driver.

TCP/IP to Serial Bridge Drivers

This type of driver creates a virtual serial port, and then routes its communication to a specified TCP/IP address and port. These drivers are very handy as they allow you to make serial devices available over networks.

There are two freeware virtual serial port drivers that I have found and tested.

Lantronix Comm Port Redirector

Who

This driver is made by the Lantronix Company.

Where

You can obtain this driver from <http://www.lantronix.com/device-networking/utilities-tools/com-port-redirector.html>.

What

The Lantronix Redirector is a good piece of software, and is the TCP/IP to serial bridge I use and recommend. It is a commercial quality TCP/IP to serial bridge.

Be sure to also download the Redirector User Guide pdf file. Refer to the Lantronix documentation for installation instructions.

There are some tips I can pass along that can help the rather daunting task of configuring the Redirector.

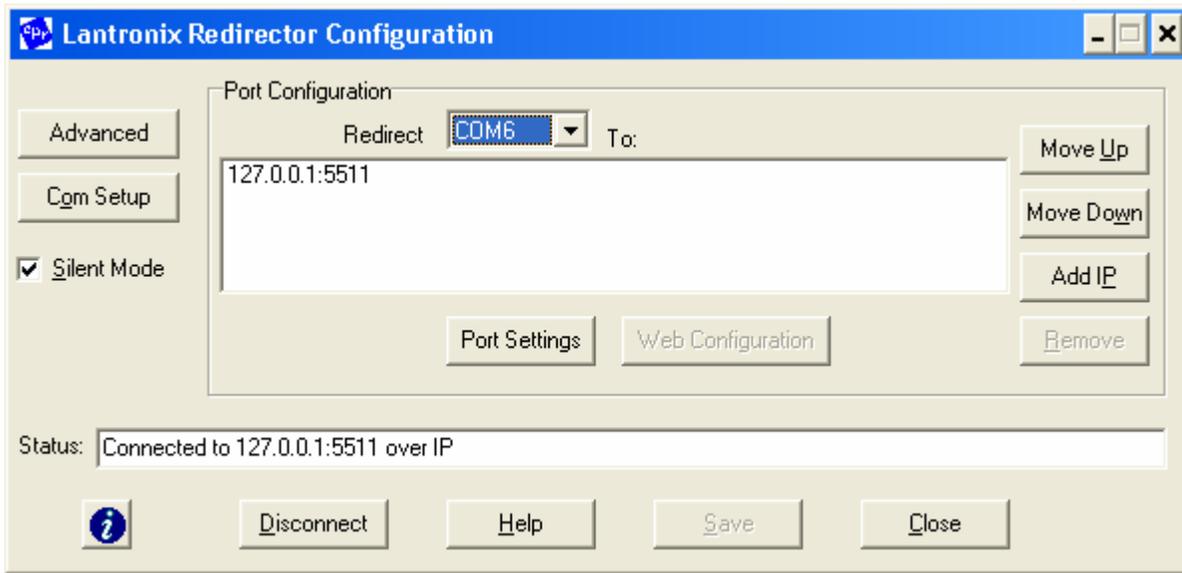


Figure 13 Lantronix Redirector configuration form

Although it's not obvious from this screen, you can configure multiple TCP/IP to serial bridges. The "Redirect" dropdown list at the top of the screen lets you select from the bridges you've configured. After selecting one from this list, its information is displayed on the form, and you can change the configuration of that bridge. I recommend you check the Silent Mode check box. It will prevent annoying messages from popping up every time a connection is made or closed.

To specify the bridgeable virtual serial ports the Redirector will create, click on the Com Setup button.

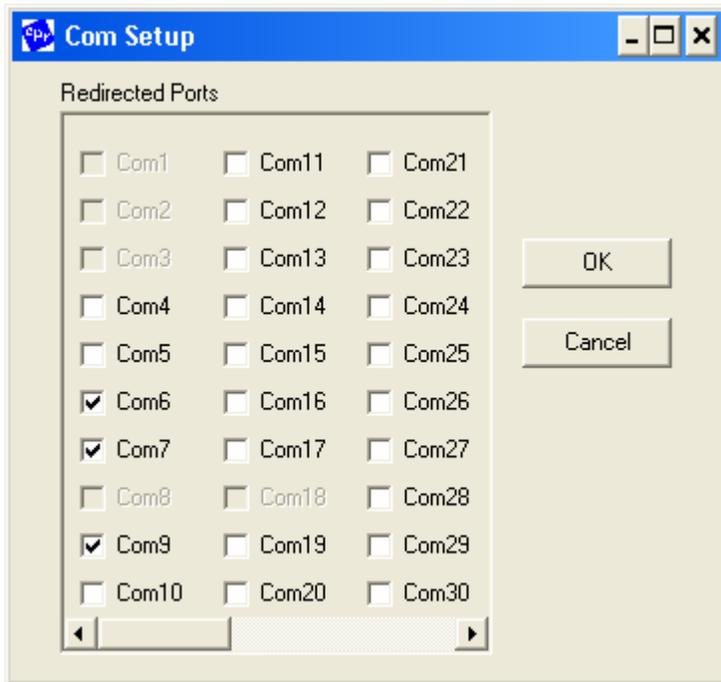


Figure 14 Lantronix Redirector dialog for specifying virtual serial ports

I recommend you use COM6 through Com9 for virtual consoles 1 through 4.

On the main configuration screen you can click on the Port Settings button to bring up the Port Settings dialog. This lets you configure the options used for the selected virtual serial port. The image below shows the settings I used.

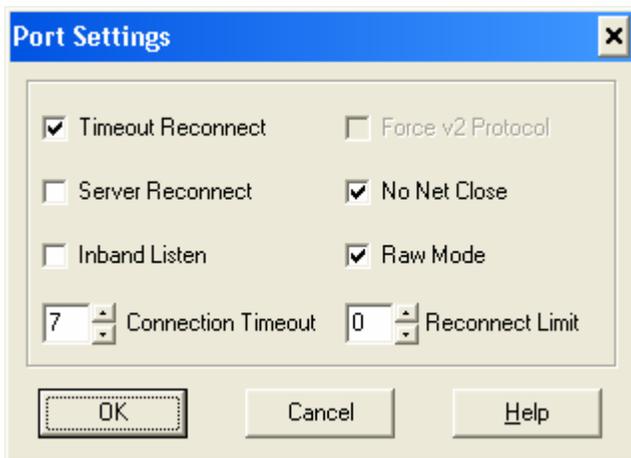


Figure 15 Lantronix Redirector Port Settings dialog

Advantages

This driver is the most professional of the freeware TCP/IP to serial drivers that I have found. I only recently discovered this driver, so I have not had a chance to extensively test it, but given its polish, I suspect it works as advertised.

Redirector can be run as a Windows service for automatic and innocuous startup.

Good installation program, extensive user guide, and full featured configuration program

Disadvantages

As is the case with most of these drivers, this driver only works on 32 bit windows (Windows 2000, Windows XP, and later). It will not work on Windows 98 or earlier.

The configuration tool is not especially intuitive.

HW_VSP

Who

This driver is made by the HW Group <http://www.HW-group.com>.

Where

You can obtain this driver from http://www.hw-group.com/products/hw_vsp/index_en.html.

What

The HW Virtual Serial Port program is a commercial quality TCP/IP to serial bridge. It has its quirks, but because of some of its features, it can be a compelling solution. For example, of all the drivers I've described so far, HW_VSP is the only one that works on older versions of Windows such as Windows 98. Another important feature is that the virtual serial ports are created on the fly, and can be created by running the HW_VSP program with the appropriate configuration parameters. This allows VirtualVP to handle configuring HW_VSP for you, relieving you from that job.

If you use HW_VSP on remote machines for networked connections to VirtualVP, you will need to know how to configure it properly since VirtualVP can only do this for you on the host computer. The first thing to note is that the HW_VSP program must be run for each virtual serial port you want to create. The settings of the last one you configured will be the default configuration values each time you run HW_VSP. So, if you are running multiple instances, you will have to configure them each time you run them. If you are only running one instance of HW_VSP, such as when you are using it to allow a single weather program on a remote computer to connect to VirtualVP, then you will only need to configure it once.

If you are comfortable with writing batch files or editing the properties of shortcuts, you can create batch files or shortcuts to invoke individual instances of HW_VSP. This will free you from having to enter the configuration settings each time you run it if you are running more than one instance on your computer. The following is an example of the command line parameters with the settings used by VirtualVP when it auto runs HW_VSP: In this example, HW_VSP will connect to virtual console 1, and create a COM6 virtual serial port.

```
HW_VSP.exe -i192.168.0.3:5511 -c6 -S0 -s5511 -N0 -H1 -P1 -F0 -L0 -W1
```

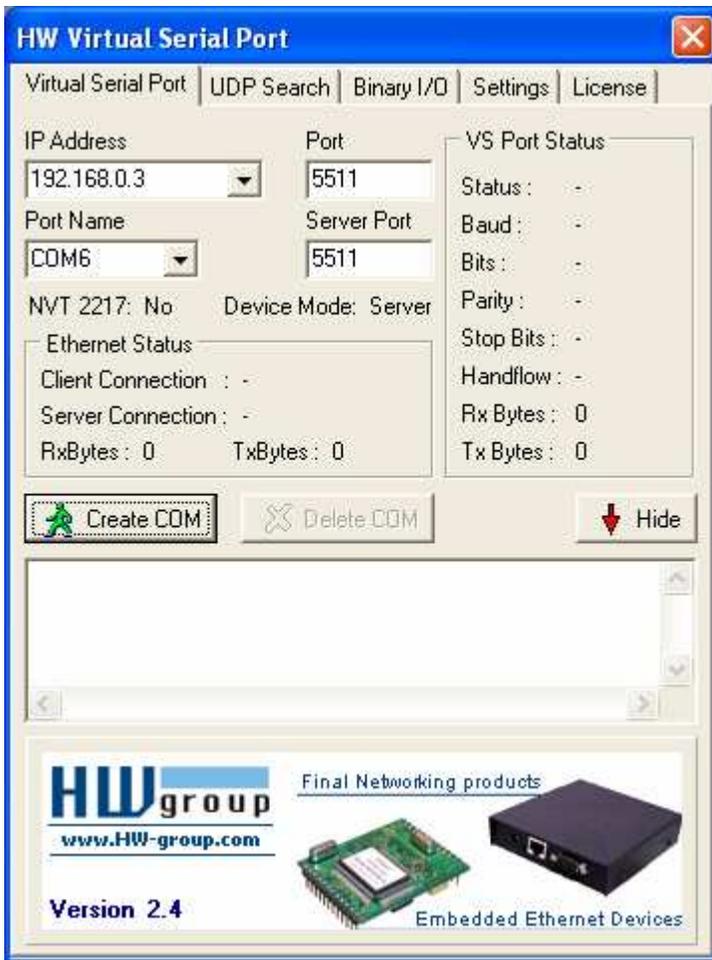


Figure 16 HW_VSP main form

The main screen is used to enter the IP Address of the computer on which VirtualVP is running, the port of the virtual console you wish to use, and the virtual serial port number you want HW_VSP to create. In the picture above, I've configured HW_VSP to connect to VirtualVP's virtual console 1.

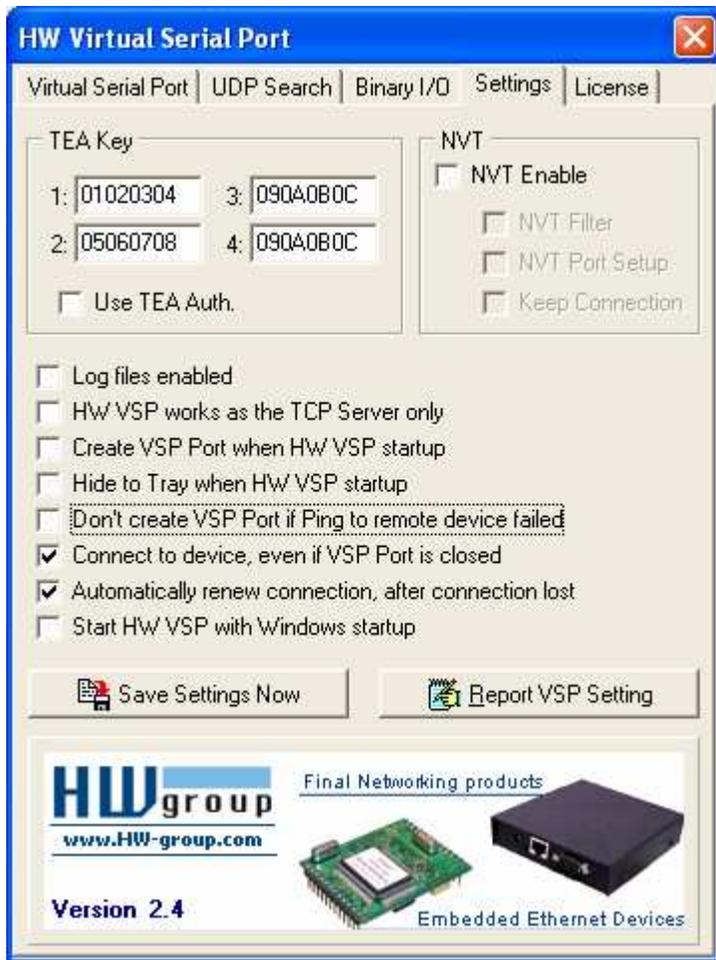


Figure 17 HW_VSP communication settings

The Settings tab contains some important options you need to set. Most importantly, you should uncheck “NVT Enable”, “Log files enabled”, and “HW VSP works as the TCP Server only”, and you should check “Use TEA Auth.”, “Connect to device, even if VSP Port is closed”, and “Automatically renew connection, after connection lost”.

If you will only be running one instance of HW_VSP on the computer, you can consider checking the “Create VSP Port when HW VSP startup”, and “Start HW VSP with Windows startup”.

Advantages

HW_VSP is a commercial quality driver.

It creates the virtual serial ports on the fly, so no pre-configuration of the driver is required, and no reboot is necessary.

It's the only freeware virtual port driver that supports older version of Windows such as Windows 98.

Disadvantages

Unlike all the other drivers, a separate instance of HW_VSP must be run for each virtual serial port you want to create. If you are running multiple instances, each instance will have a separate icon crowding your system tray.

The HW_VSP application consumes more memory than other the other drivers.

HW_VSP can sometimes behave in a quirky manner, but despite these quirks, it is definitely a useable solution.