HW VSP3 - Virtual Serial Port

*HW VSP is a software driver that adds a virtual serial port (e.g. COM5) to the operating system and redirects the data from this port via a TCP/IP network to another hardware interface, which is specified by its IP address and port number. HW VSP3 is an updated version of HW VSP that adds support of **NT Services** and **64 bit Windows 7**.*

Previous version of HW VSP is here: HW Virtual Serial Port



Main Features

- Free, unrestricted **Virtual Serial Port** driver for any TCP/IP devices
- Compatible with Windows 2000, XP (Win 98, NT), Windows Vista & even **64 bit Windows 7** NEW
- Runs as a **standalone application**, or as a **NT service** suitable for servers NEW
- Option to **start at Windows startup** and minimize to System Tray
- Single-port (free) and **multi-port** (commercial) version
- Supports **RFC 2217**, allowing to change remote serial port parameters (such as speed, parity, stop bits) over TCP using **NVT**
- VSP driver typically operates as a "**TCP client**"; however, it can also be used as a "**TCP server**" (useful for GPRS applications)
- Configuration stored in an **INI file**
- Configuration protected with a password
- **Supports UAC** (User Account Control – user switching in Windows XP and Vista)
- This software is **FREEWARE**, as long as you comply with the



HW VSP Singleport:

Download version 3.1.2

HW VSP Multiport

Download version 3.1.1

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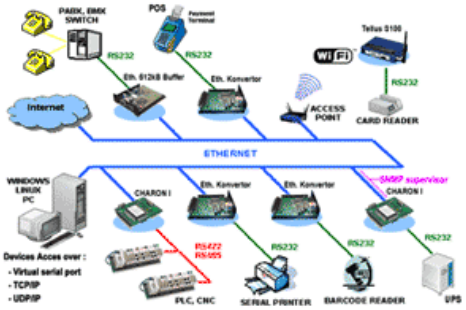
New in HW VSP3



- **Single-port and multi-port version:**
  - **Single-port** version of HW VSP3 is available freely
  - **Multi-port** version is available only for HW group products
- Runs as a **stand-alone application**, or as a **NT service** suitable for servers
- Complete support for **Windows 7**
- Supports all 32-bit Windows systems, including Server versions (support for 64-bit versions is coming soon)
- Configuration is stored in an **INI file** for easy backup or transfer to another PC
- Automatically connects to a previously opened serial port
- Receive buffer cleared when a port is opened
- In the service mode, both versions run as a **client/server application** allowing you to create, reconfigure and remove virtual ports remotely using a client-side part of VSP – useful for multi-port applications
- **Supports UAC** (User Account Control – user switching in Windows XP and Vista)
- VSP in TCP server mode uses 0.0.0.0 as a pre-entered IP address
- **Baudrate emulation** - when no flow control is available

Applications

- Using devices connected via RS-232 with legacy SW, no need to change existing utilities
- Remote PBX management – PBX billing / accounting
- Connecting payment terminals
- Wireless remote serial port – through WiFi
- UPS supervision over SNMP or with proprietary SW
- Connecting a barcode reader to existing SW
- Connecting serial printers and labelers
- Remote control of industrial assembly lines, visualization



Downloads & Links



- **HW VSP Singleport** - Only for one virtual port: Download version 3.1.2
- **HW VSP Multiport** - Up to 100 serial ports, support HWg devices only Download version 3.1.1
- HW VSP3 – **Recommended devices**:
  - **Charon I** – Embedded RS-232 (TTL) / Ethernet converter module
  - **PortBox** – RS-232/485 / Ethernet converter unit
  - **PortStore**, **PortStore2** – RS-232/485 / Ethernet converter with 2048 kB Flash memory buffer for serial line data
  - **I/O Controller** – Binary inputs and outputs + RS-232/485 / Ethernet converter
  - **IP Relay** – 2x relay output + RS-232/485 to Ethernet converter

Description of HW VSP3

HW Virtual Serial Driver is intended primarily for devices produced by HW group, although it can be used for free as a universal driver that creates a virtual remote serial port, which redirects data to a predefined TCP/IP address and port.

In special applications (e.g. involving GPRS devices), the PC with the HW VSP driver can be set to operate in TCP Server mode, enabling the remote device to initialize the connection by sending any data to the remote port. Upon receiving RS-232 data, the converter establishes a connection with the PC and passes the data to the virtual COM port. Therefore, the scenario very closely resembles behavior of a real serial port.

When using HW VSP together with recommended devices produced by HW group, it is possible to change connection speed, parity, and other communication parameters (as well as to control any digital outputs and inputs) remotely on the fly via the RFC-2217 protocol, thus achieving a true remote serial port behavior.

Running as a NT service / in client-server mode

Ability to run as a service has been the main reason for developing the new version. Running HW VSP as a standalone application requires starting it under a logged-in user and therefore prevents autonomous operation on Windows servers. (At this time, HW VSP fully supports Windows 2000 Server and Windows 2003 Server. Support for Windows 2008 Server is being tested.) In this mode, HW VSP consists of a client-side part (setup GUI) and a server-side part (the service itself). Parameters of a VSP running on a remote server can be easily changed from a local PC. However, in order to improve stability, only one user may access the service and change virtual port parameters at a time. Furthermore, since service administration requires administrator privileges, securing a VSP against misuse is as simple as not installing the client-side part.

Note: *From the user point of view, using HW VSP in service mode has many advantages. However, on Windows XP SP2/Vista/2003 Server, it is necessary to manually configure the firewall to enable the appropriate communication ports or the entire application (by default* Program Files\HW group\HW VSP3s\HW_VSP3s_srv.exe *for the single-port version and* Program Files\HW group\HW VSP3\HW_VSP3_srv.exe *for the multi-port one). Firewall dialog control is currently under development.*

Baudrate emulation

In the previous version, HW VSP was fully transparent to the client software and did not restrict the communication flow in any way. Hence, the client SW had to send the data to the serial port using a defined communication speed, or use flow control (handshake). Otherwise, data were sent to the Ethernet / Internet with the maximum speed possible, often in the 10 Mbps range. When the buffers in VSP filled up, data started to be thrown away. Now, it is possible to enable the *Strict Baudrate Emulation* option in the Settings tab to ensure that VSP communicates with the client SW using the speed that is currently selected for the port.

Note: *The Strict Baudrate Emulation option is only available when connected to HW group devices and with NVT support enabled.*

Purging transmit and receive buffers

The option allows to clear Ethernet receive and transmit buffers when the port is opened. This ensures that the client application does not receive any previously received data (e.g. sent in a previous session) that could cause problems.

Automatic connection to previously opened port

This function allows connecting VSP to the port previously created and opened by the client application. This function is useful for servers, where it eliminates the need to close the corresponding virtual port before restarting server or the VSP service.

Configuration stored in an INI file

With the introduction of the multi-port version, VSP configuration is now stored in an INI file instead of the system registry. Therefore, configuration can be easily backed up or restored to another PC or server simply by copying the file and restarting the service. The INI file contains a complete VSP configuration, enabling the user to create a custom graphical interface to generate the INI file. Upon restarting the service, the INI file is loaded and the port parameters are changed - no need to study the complexities of controlling services. WC VSP for WirelesCOM is an example of such a customized application.

Works with Windows Vista

HW VSP 3 now fully supports the 32-bit version of **Windows Vista**. UAC (user switching) support is also fully functional now, including functionality in a domain. When HW VSP is run as a service, all users can control it.



Installing HW VSP3

HW VSP 3 is freeware; you can download it free of charge HERE. The software is available in a single-port and multi-port version (development is in the final stage now). Installation is straightforward, except for **Windows Vista**, where it is necessary to allow the installer to elevate its privileges.

Installation procedure:

- Run the “HW VSP Setup 3.0.23 single.exe” installation program.
- Step 1: The welcome screen is displayed. Click “Next” to proceed to the next step of the installation, or click “Back” to return to the previous step.



- Step 2: The basic product information is displayed.
- Step 3: Select the location where to install the driver.
- Select installation type – Client-Server / Standalone or Custom.
- Step 4: Choose a name for the folder to create in the Start menu.
- Step 5: Select whether you want to create a shortcut on the Desktop.
- Step 6: The entered data are displayed for verification.
- Step 7: Confirm the installation.
- Step 8: HW VSP will prompt you to agree with adding HW VSP to the list of exceptions for Windows Firewall. Permission is necessary for correct operation. If you deny the permission, you will have to add the application and the service to the list of exceptions manually.

If the installation is successful, the following window appears. If you check the “Launch HW_VSP” box, the program is started after completing the installation. It is not necessary to restart the computer after the installation. You can start HW VSP by clicking the “**VSP**” icon (icon with a red arrow).



Note: *When installing HW VSP in Client/Server mode or using it in the Server mode on Windows XP SP2/Vista/2003 Server, it is necessary to manually configure the firewall to enable the appropriate communication ports or the entire service (by default* Program Files\HW group\HW VSP3s\HW_VSP3s_srv.exe *for the single-port version and* Program Files\HW group\HW VSP3\HW_VSP3_srv.exe *for the multi-port version). Firewall dialog control is currently under development.*

Configuring the connected device

Before connecting to the VSP, it is necessary to configure the remote device according to its manual. If you use one of our devices, make sure to check the following parameters.

Most important parameters:

- **IP address** of the remote device
- **IP port**
- **Gateway**
- **Mask**
- **TCP/IP mode -** TCP Server / Passive mode
- **Network Virtual Terminal** (NVT) - On (only for recommended HWg devices)
- Serial port parameters

Security

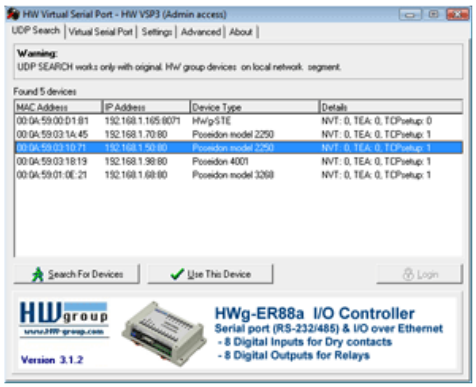
All configuration settings in HW VSP3 are password-protected. To enter the password, press the **Login** button. The default password is "***admin***". You can change your password with the **HW_VSP3s_passwd.exe** application that is available at ***Program Files\HW group\HW VSP3s***.



UDP Search

Run HW VSP and switch to “UDP Search” tab. After clicking **Search modules**, the **Modules MAC List** displays a list of devices found in the local network segment.

Click **Use this IP** to set the IP address and the incoming port number of the selected device as the current device address for HW VSP to work with.



Virtual Serial Port

The main tab displays basic information about establishing the connection and its progress. Here you can create or delete a virtual serial port using the “**Create COM**” and “**Delete COM**” buttons respectively.
Click “**Show Log**” to display the program log that can simplify troubleshooting.

- **VSP** pane
  List of serial port settings.



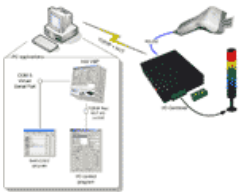
- **LAN** pane
  Displays Ethernet connection status.
- **Counters** pane
  Volume of the data transferred and requests queued.

- **IP Address**
  IP address of the remote serial port. The value can be taken automatically from the UDP tab.

- **Port**
  Incoming port of the remote serial port device. Your PC opens the TCP/IP connection and sends data to this port.

- **Port Name**
  Number of the Virtual Serial Port being created – select a port number from COM2 to COM20.

- **External NVT Commands Port**
  HW VSP opens the specified TCP port on your PC, where it receives NVT control commands for controlling I/O pins and passes them over the connection to the remote device.
  For example, a proprietary utility processes barcode data and your program (e.g. the HWg SDK example) controls I/O pins through VSP and the specified port – see the Block diagram.



If you need to create more virtual serial ports on a single PC, you can use the multi-port version of HW VSP.

Settings

The “Settings” tab allows you to set up all functions supported by the virtual serial port.



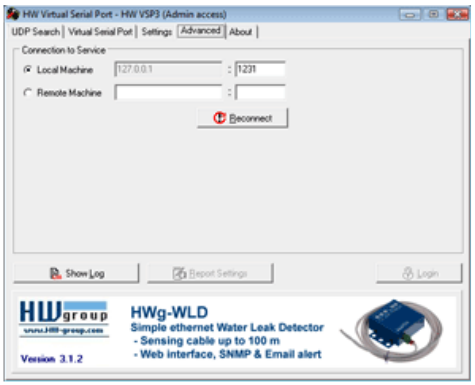
Caution: These settings apply to the **HW VSP utility** only. They do NOT influence the remote device. Remote device properties are set according to its manual (e.g. via the Hercules utility in case of HW group products).

- **Log files enabled**
  Logs all communication to a .log file.
- **Create VSP Port at HW VSP startup**
  If this box is checked, all virtual ports are recreated when HW VSP is started.
- **TCP Server Mode**
  Activates VSP as a TCP/IP server. The driver then behaves as a TCP Client/Server device - this means that the first party to receive any data switches over to Client mode and establishes the connection. In the TCP server mode, IP address is automatically preset to 0.0.0.0 and TCP port is set to current COM port number + 3000 (e.g. COM3 = TCP port 3003). The port can be changed. ***Pay attention to the firewall settings!***
- **Purge Buffers when Port is Opened**
  Clears transmit and receive buffers upon opening the port. This ensures that no leftover data from a previous session are sent or received. However, this also deletes any data received before the port is opened (e.g. during PC startup).
- **Connect to device even if VSP Port is closed**
  If this box is checked, the connection is established immediately after the virtual port is created, even if no application is using the port. As a result, data sent when the port was open but unused will be lost. The device sends data even if you don’t “listen” for them.
- **Use NOP to Keep Connection + Renew automatically**
  Expects a testing NOP to check for module presence. If a module was unreachable and is rediscovered (starts to respond again), the connection is reestablished either immediately (“Renew automatically” checked), or as soon as VSP sends new data to the TCP socket (“Renew automatically” unchecked).
- **NVT**
  Click “**NVT Enable**” to enable RFC2217 support and detection of our remote ports. Remember to activate NVT support on the corresponding device as well. After activating NVT commands, it is possible to activate the following parameters in the same way:
  - **Remote port setup** – sends control information to the remote port according to VSP settings on your PC. If your terminal software (e.g. Hyperterminal) changes the baudrate to 19200Bd and this feature is active, the VSP driver sends a NVT command (according to the RFC2217 standard) to the remote TCP/IP serial port and changes its baudrate, too.
  - **Keep Connection** – your TCP device closes an open TCP/IP connection after 50 seconds of inactivity. This function lets you keep the connection open (transfers 2 bytes every 5

seconds).

- **Strict Baudrate Emulation**
  Limits the application-to-VSP and TCP-to-VSP transfer rate according to the baudrate of the open serial port.
- **Save Settings to INI file**
  Saves current configuration in the INI file.

Advanced



- **Connection to Service**
  Allows you to specify whether the GUI connects to the service running on the same PC, or change IP ports for the communication.
  - **Local Machine** – it is possible to change the port number for the GUI to service communication, e.g. in case of conflicts.
  - **Remote Machine** – Allows the client software to connect to a remote service, e.g. in situations where Remote Desktop is not available or suitable.
- **Reconnect**
  Reestablishes the connection of the client interface to the running service, e.g. when the connection is lost, or establishes the connection of the local client portion to a remote service that runs for instance on a server.
- **Report VSP Setting**
  Displays current configuration of the remote device (if TCP Setup is enabled on the device using the standard port 99).
- **Show Log**
  Displays a logfile of VSP3 activity.

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HW VSP Free Virtual Serial Port to connect any TCP/IP Terminal server to your Windows as a virtual serial port (e.g. COM 7). Produced by www.HW-group.com.	<img src="http://www.HW-group.com/download/hwg_ikona88x31.png" width="88" height="31" hspace="3" vspace="0" border="0" align="right"> HW VSP Free Virtual Serial Port to connect any TCP/IP Terminal server to your Windows as a virtual serial port (e.g. COM 7). Produced by www.HW-group.com.
	<img src="http://www.HW-group.com/download/hwg_ikona88x31.png" width="88" height="31" hspace="3" vspace="0" border="0">
HW VSP - Produced by www.HW-group.com.	HW VSP - Produced by www.HW-group.com.
Note: *You may save the icon image locally where your web is hosted; however, we prefer linking to the image at the HW group website, as the example code shows.*	

FAQ & Support

Q: *Is it possible to use HW VSP to interconnect 2 serial ports on 2 different PCs over the Ethernet?*
A: No. HW VSP only talks to a physical unit – PortBox, IP Relay, etc. Although it is possible to connect two HW VSPs (TCP Client and TCP Server), it is not possible to forward the data to a physical COM port of the PC.

Ordering

HW VSP is available for download free of charge. However, you may order the source code in several variants detailed in table below. Please contact us for pricing and other info.

OID	Versions
free	HW VSP3 **Single** Free version under the licence.
600 314	HW VSP3 **Source codes** Fully documented HW VSP3 single-port sources, manual included.
600 315	HW VSP **Source codes + 3 months support** Fully documented HW VSP3 single-port sources, manual included, 3 months of e-mail support in English.
600 316	HW VSP3 **Source code UPGRADE** Upgrade from HW VSP version 2 (support according to original license).

Note: *HW VSP3 supports a wide range of customizations. Please contact us for details if you are interested.*

DOWNLOAD & Links

- Previous HW VSP versions: HW Virtual Serial Port
- Hercules utility
- **HWg products**
  - **I/O Controller xxxx**
  - **PortStore X**

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