
Streaming Server V2.1.0

W-CLOUD

by WAVECOM ELEKTRONIK AG



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Welcome

Congratulations on your purchase of a WAVECOM decoder product. The product that you bought incorporates the latest technology in data decoding together with the latest software release available at the time of shipment.

Please check our website <http://www.wavecom.ch> for software updates.

Always check the latest documentation on the installation CD or on our website.

We thank you for choosing a WAVECOM decoder and look forward to working with you in the future.

Training

WAVECOM provides training on all our products and subjects in digital communication and signal processing. Training can be made at a customer selected location or at our offices in Switzerland.

Revisions

Version	Date	Changes
1.0.00	04-Aug-2012	Pre-release.
1.2.00	20-Dec-2012	First official release.
2.0.00	01-Jun-2013	W-CLOUD supports WinRADIo Virtual Sound Card (VSC). It streams the digital IQ signal directly.
2.0.01	18-Nov-2013	Run W-CLOUD server as user instead of administrator. Take out the "Save" button from the GUI. The settings file moved from ProgramFiles folder to ProgramData folder.
2.0.02	03-Jun-2014	W-CLOUD device driver updated to V7.1.0.
2.1.0	05-Nov-2014	W-CLOUD services runs only when W-CODE, W-PCI and W-PCIe services are not running on the same PC, otherwise there will be device conflicts. W-CLOUD "User Access Control" accepts connections from W-PCI, W-PCIe and W74PC.

W-CLOUD

Introduction

W-CLOUD is a TCP/IP-based application which enables uninterrupted and encrypted transfer of high-quality I/Q data from a remote Wavecom decoder device to a central site located W-CODE instance for final processing (signal analyze, classification and decoding). The application works over any WAN, Internet, Ethernet or Wireless LAN connection with appropriate bandwidth and therefore allows reliable and input signal true decoding from any location in the world ([Figure 1](#)). Together with other Wavecom products W-CLOUD facilitates the construction of monitoring networks with a large-scale geographical coverage. W-CLOUD is a very tiny and stable application based on Windows Embedded Compact. It runs on Windows XP and Windows 7 as well.

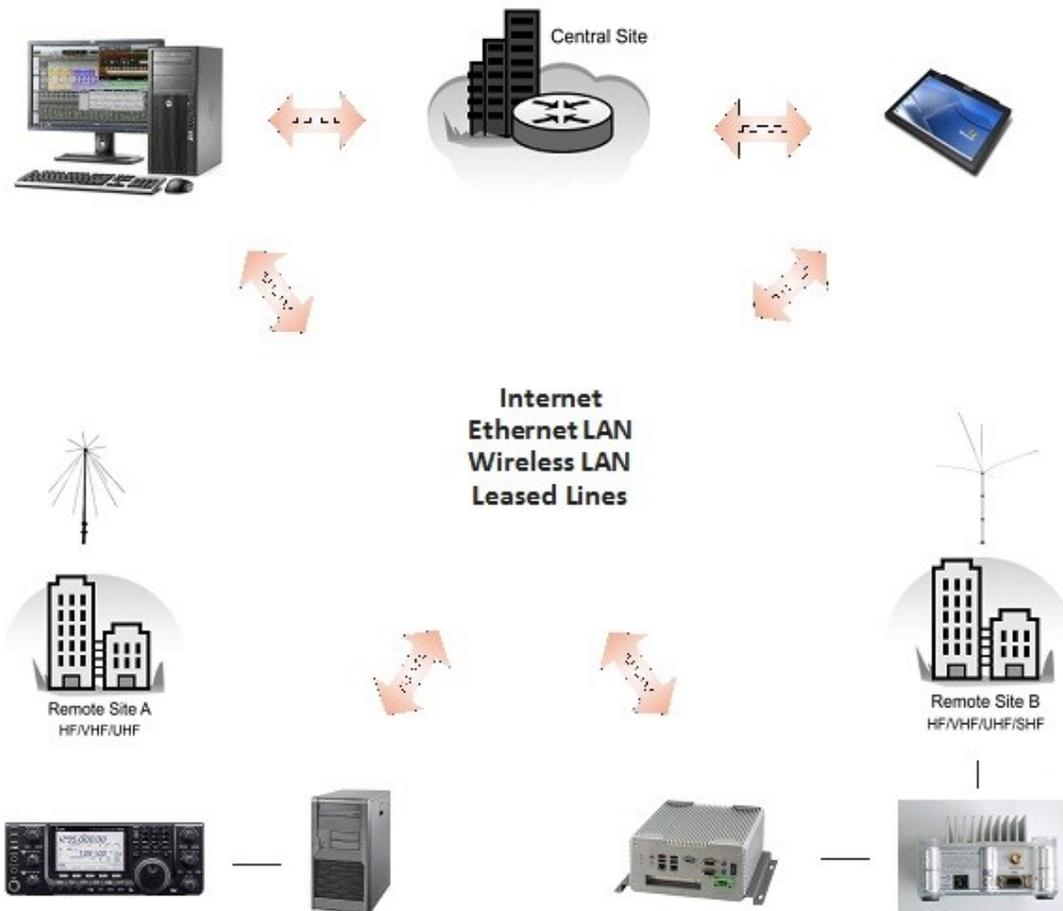


Figure 1 General connections of W-CLOUD decoding.

W-CLOUD is a small TCP/IP server streaming I/Q formatted signals from a W-PCIe, W-PCI card or a WiNRADiO VSC (virtual sound card) to a W-CODE instance over the network. It offers a full frequency range of transfers from AF to IF (50 Hz – 25 MHz) and 70 MHz IF with +/- 17.5 MHz bandwidth of the W-PCIe and W-PCI cards. When the device is a VSC W-CLOUD streams the digital IQ signal directly. As an example, [Figure 2](#) shows how to decode a satellite signal using W-CLOUD (at remote site) and Wavecom decoder (e.g., W-CODE) (at central site). Usually W-CLOUD is installed at a site with all antennae and receivers under proper conditions for signal receiving. W-CODE is run by an operator at the main office site.

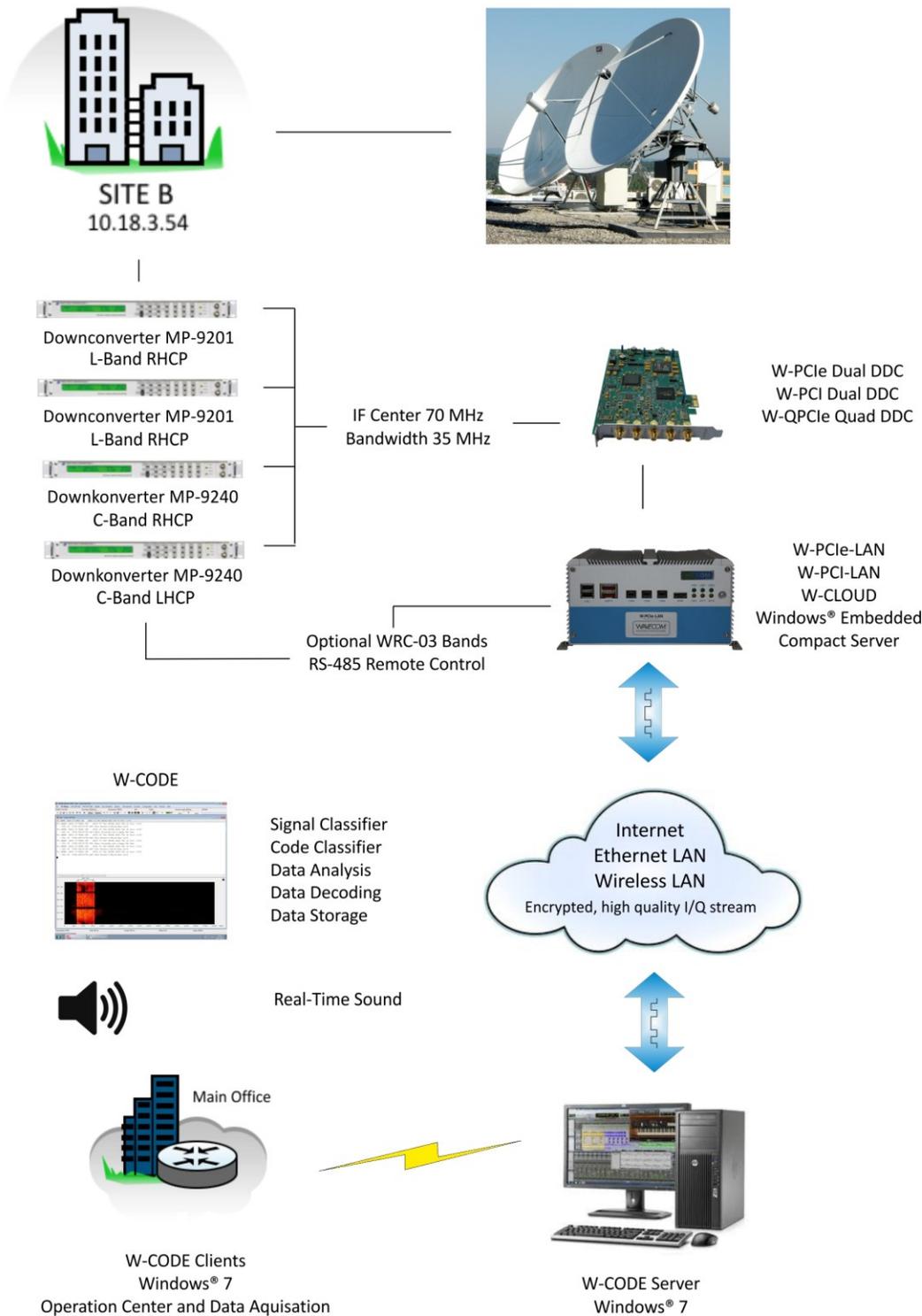


Figure 2 Decode satellite signal using W-CLOUD (at site B) and W-CODE (at main office).

Software Installation and Operation

W-CLOUD is installed as a Windows service. It starts automatically after the installation and can be accessed and operated via the W-CLOUD tray icon.

A graphical user interface (GUI) starts by clicking at the tray icon "Server settings" ([Figure 3](#) and [Figure 4](#)).

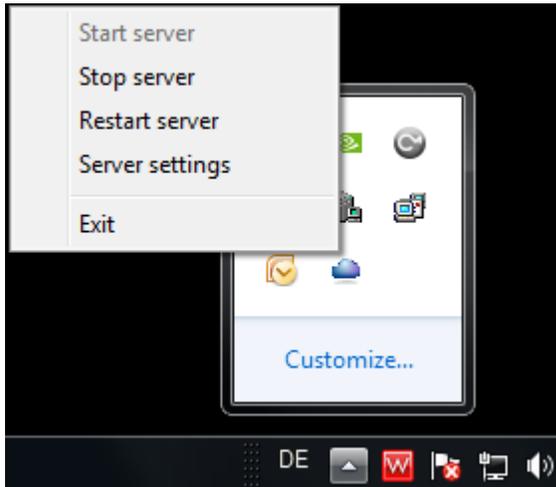


Figure 3 W-CLOUD tray icon.

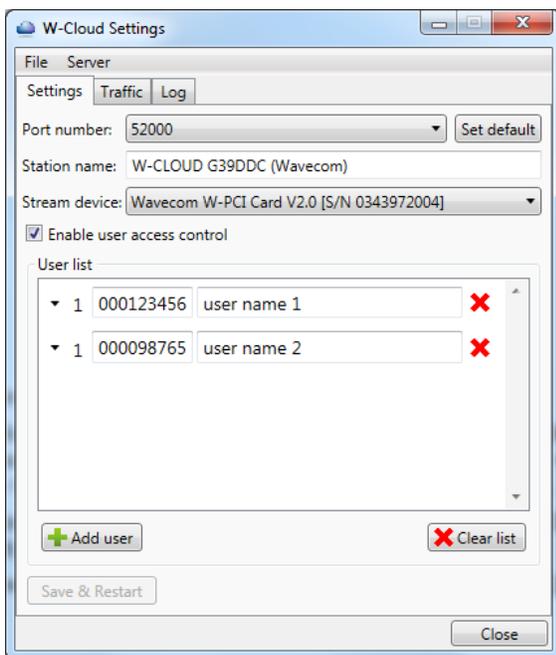


Figure 4 W-CLOUD GUI.

Under the "Settings" tab there are following features:

- W-CLOUD starts a TCP/IP server listening at one of the port numbers between 52000 and 52009 for command (CmdPort). At the same time it listens at the port number CmdPort + 100 for data (DataPort). That means when the CmdPort is 52000, the DataPort is set to 52100.
- A name can be given in the "Station name" field. This name will appear at the W-CODE side when it is connected to the W-CLOUD stream server.
- Under the "Stream device" pull-down list a device can be selected from which the IQ signal should be streamed out.
- The server can use a "user access control" list to grant access to certain users only. When the connecting application is W-CODE, users are identified by their CodeMeter license number. When the connecting application is Wavecom hardware decoder, users are identified by the hardware type: "090303079" for W-PCI; "083113080" for W-PCIE and "083113081" for W74PC.
The server can also lift this restriction by unchecking the "Enable user access control" and allows any connecting instance to access this W-CLOUD server.

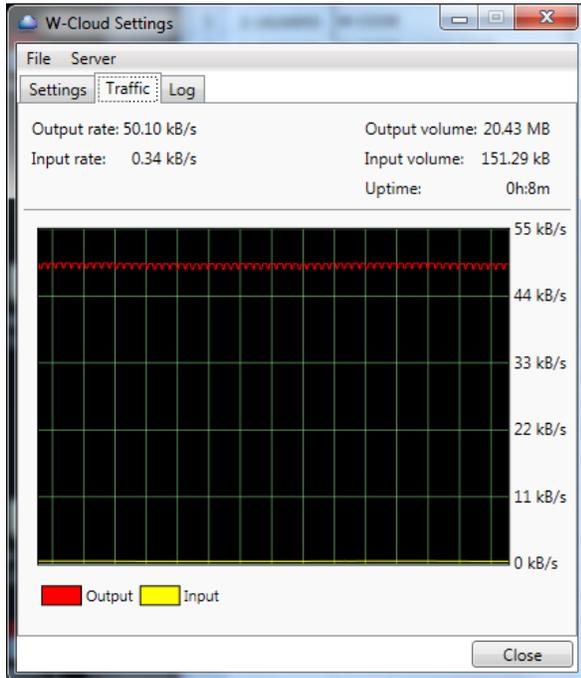


Figure 5 Traffic tab in the W-CLOUD GUI.

The "Traffic" tab in the W-CLOUD GUI ([Figure 5](#)) shows some important network statistics:

- Output and Input rates are the outbound and inbound TCP/IP rates respectively.
- Output and Input volumes are the total outbound and inbound TCP/IP traffic volumes respectively since the connection is up.
- Uptime displays the elapsed time since connection is up.

If a TCP/IP connection is closed ordinarily on request by the client (graceful shutdown), all counters and uptime are reset to zero. If a client keeps the connection, but there is no traffic volume on the line, W-CLOUD server will quit the connection actively after about 7 minutes and get ready for other connection requests. If a client (W-CODE) just crashes or the network is just broken the W-CLOUD server makes a self-restart and is ready for a new connection request.

Network Troubleshooting

W-CLOUD opens its listening port pair (5200x, 5210x) in the Windows firewall on the PC when it is installed. Usually a PC is inside a network and behind a router. To make this W-CLOUD server accessible by clients (W-CODE) outside the network, i.e., at the other side of the router, the network administrator needs to make a port forwarding in the router. Routers vary hugely. [Figure 6](#) gives an example how to set the NAT (Network Access Translation) rule in a router. The router forwards the connection request to W-CLOUD (on port pair 52000 and 52100) from outside to the host computer with the address 192.168.1.34.

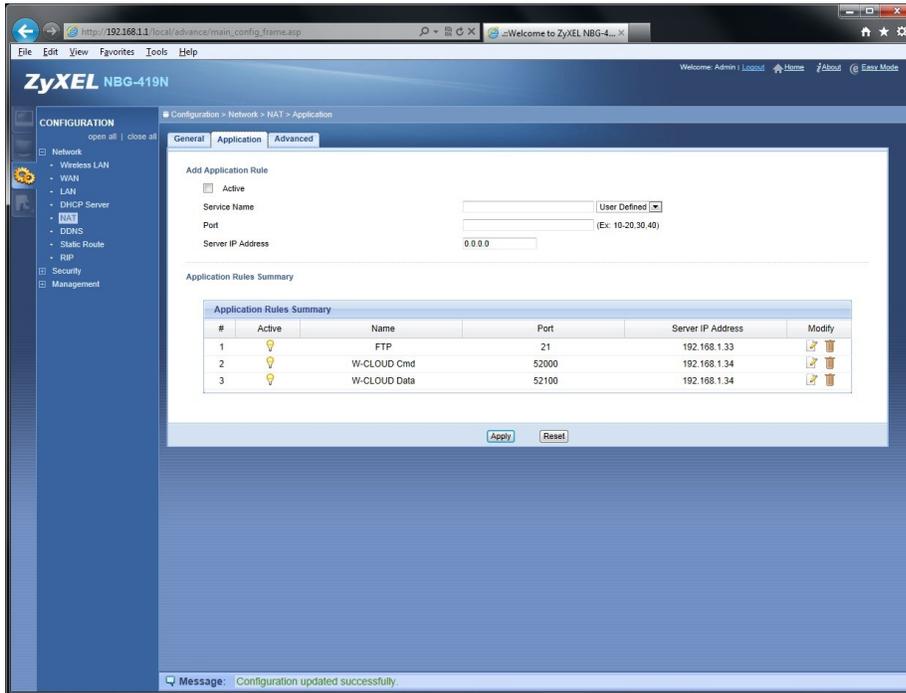


Figure 6 Port forwarding in a router to make W-CLOUD accessible outside of the network.

W-CLOUD and W-CODE

Both W-CLOUD and W-CODE support Wavecom W-PCI and W-PCIe decoder cards. Usually W-CODE and W-CLOUD are not installed or run on the same PC. In case they are installed on the same PC and both start up as PC powered on, W-CLOUD captures the inserted W-PCI or W-PCIe cards and W-CODE can use the card by entering W-CLOUD as the localhost (127.0.0.1) in the "Device Selector" GUI ([Figure 7](#)).

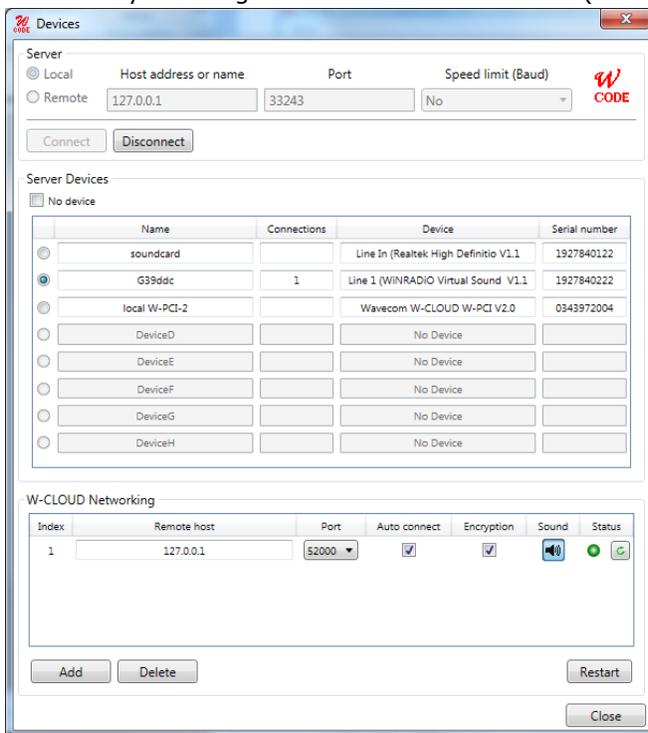


Figure 7 W-CODE Device Selector GUI.

W-CLOUD and W-CODE capture the devices (VSC, W-PCI and W-PCIe) in a mutual exclusive way. That means when one service is running the other one does not capture the card at start up. To make sure that

W-CLOUD captures a device in the host computer, user must first stop W-CODE service (Wavecom Server W-CODE) and restart W-CLOUD service, and vice versa.

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Documentation

W-PCI, W-PCIE, W-CODE Manual V8.2.00
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