

VPN-Connection Remote Station «Rigi» for Windows 11 and iPhone Standard VPN-Client

Raspberry Pi 3

IP: 192.168.2.235 (fix)

SoftEther VPN Server v4.41

Start / Stop VPN Server:

```
sudo vpnservice start
sudo vpnservice stop
```



192.168.2.235 (fix)

Flexradio 6700



192.168.2.200 (fix)

Bintec RS123 Firewall VPN Rules:

Port 1701 UDP (I2tp)
Port 500 UDP (ipsec)
Port 4500 UDP (ipsec-nat)

192.168.2.1



Other LAN-Devices:

- Node Red Dashboard
- Relay control
- Temp control
- Rotor control
- PA control
- etc.

Advantages of the VPN-Solution:

- Independent from Flexradio SmartLink Server Service (AWS-Cloud)
- Fast & reliable
- Under own control
- Low maintenance
- No SmartLink Login anymore

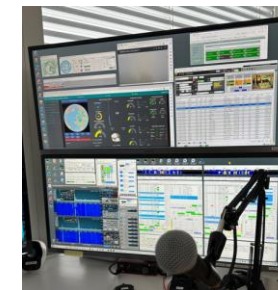
HB9RYZ / HB9CQK mobile



4G/5G, WiFi

VPN-Tunnel

HB9RYZ, Home-Shack



High-End PC
AMD Ryzen 9 7900
64 GB Ram



Local LAN: 192.168.1.x

VPN-Tunnel

HB9CQK, Home-Shack



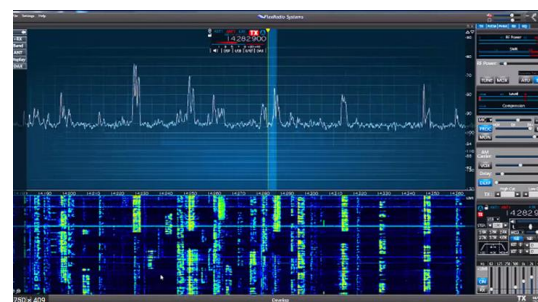
High-End PC
AMD Ryzen 9 7900
64 GB Ram

Local LAN: 192.168.1.x

VPN-Tunnel



SmartSDR Software v3.4.23



VPN-Connection with the Windows 11 Standard VPN-Client

VPN-Verbindung bearbeiten

Die Änderungen werden bei der nächsten Verbindung wirksam.

Verbindungsname

Servername oder IP-Adresse

VPN-Typ

Vorinstallierter Schlüssel

Anmeldeinformationstyp

Benutzername (optional)

Speichern Abbrechen

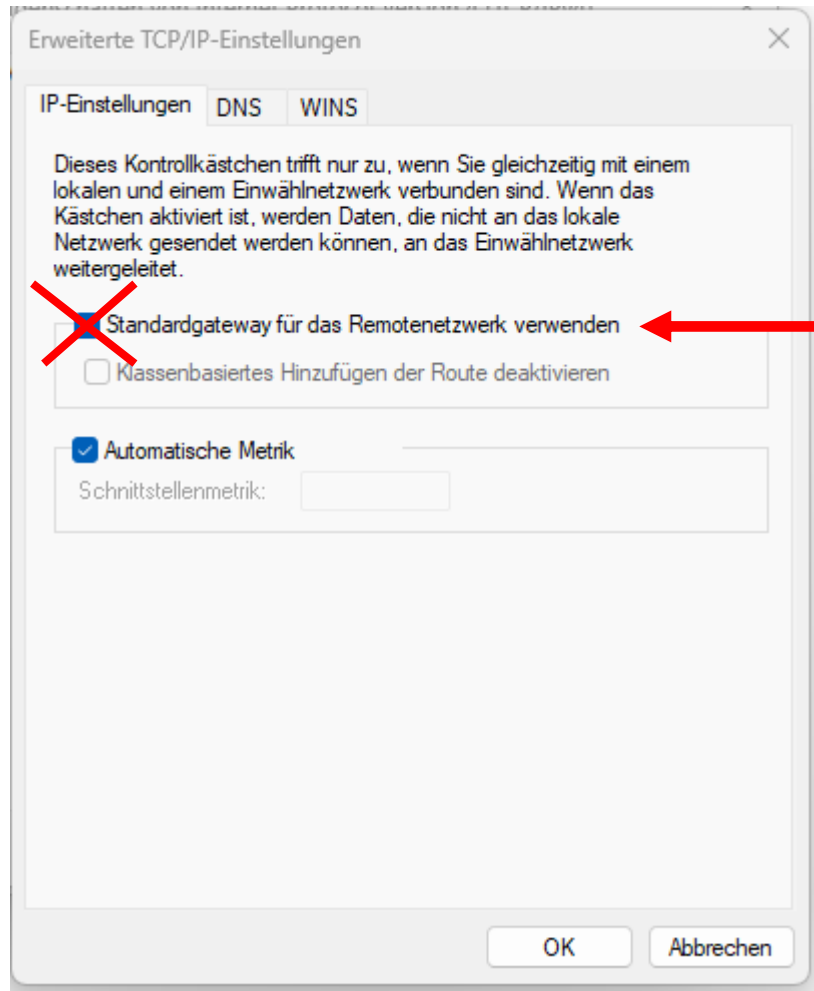
External IP-Address of the remote Flexradio location

Pre-defined Pre-Share Key: «Your password»

Users for the VPN-Client Identification

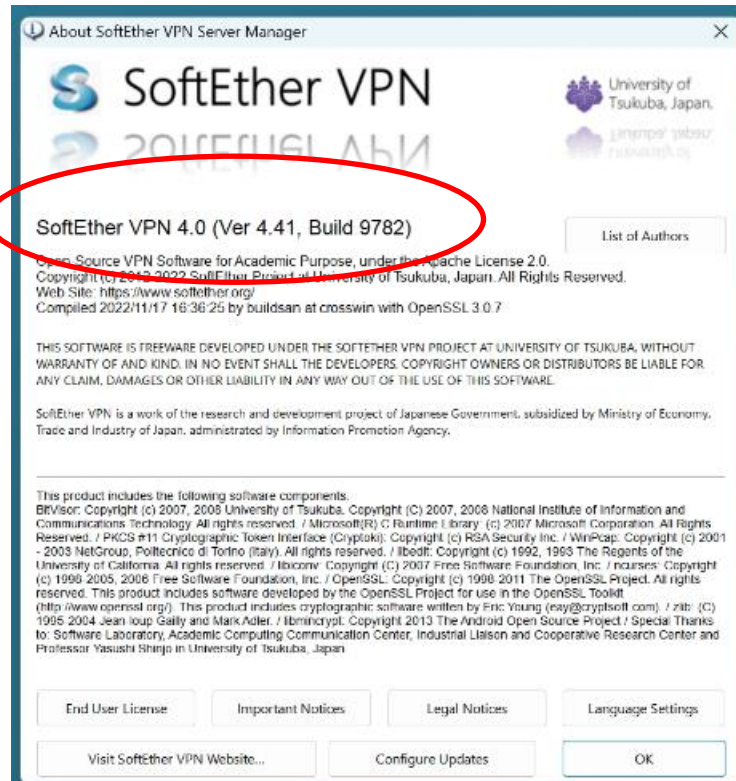
Click on safe

Windows 11 VPN Client IPv4 Settings



Remove the checkmark from "Use default gateway for remote network".

Softether VPN Konfiguration



SoftEther VPN Server based on Raspberry Pi3

Softether Download Link: www.softether.org

To manage the VPN-Server installed on the Raspberry Pi3 or Pi4, you need to install the «**SoftEther VPN Server Manager for Windows**» in order to use the Windows 10/11 built-in VPN-Client.

1. Install SoftEther VPN Server on your Raspberry Pi3 or Pi4
2. Start SoftEther VPN Server Manager for Windows to configure the VPN-Server
3. Configure the VPN-Ports (4500 UDP, 4500 UDP, 1701 UDP on the Firewall where your VPN-Server is installed)
4. Establish the VPN-Connection from your Windows 10/11 PC

Select Software

SoftEther VPN (Freeware) ▾

Select Component

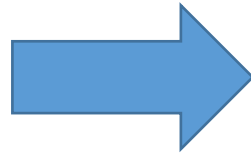
SoftEther VPN Server Manager for Windows ▾

Select Platform

Windows ▾

Select CPU

Intel (x86 and x64) ▾



SoftEther VPN Setup Wizard (Version 4.34.9745) [X]

Select Software Components to Install

- SoftEther VPN Server
- SoftEther VPN Bridge
- SoftEther VPN Server Manager (Admin Tools Only)**

About SoftEther VPN Server Manager (Admin Tools Only)

Only the VPN Server Manager will be installed. The VPN Server service program will not be installed. You can use the VPN Server Manager to connect and manage remote VPN Servers and VPN Bridges on other computers which can be run on Windows, Linux, Mac OS X, Solaris and FreeBSD.

< Zurück Weiter > Abbrechen

SoftEther VPN Server based on Raspberry Pi3

Softether Version: v4.41

The screenshot shows the main window of the SoftEther VPN Server Manager. The title bar reads "SoftEther VPN Server Manager" and "University of Tsukuba, Japan.". The main area is titled "SoftEther VPN Server Manager" and contains a section for "Connection Settings for VPN Server:". Below this is a table with columns for "Setting Name", "VPN Server Hostname", and "Operation Mode". The table contains one entry: "RIGI-VPN" with hostname "192.168.2.235" and operation mode "Entire VPN Server". Below the table are buttons for "New Setting", "Edit Setting", "Delete Setting", and "Connect". At the bottom, there are buttons for "Make a Certificate", "Smart Card Manager...", "Select Smart card...", "About SoftEther VPN...", and "Exit SoftEther VPN Server Manager".

Setting Name	VPN Server Hostname	Operation Mode
RIGI-VPN	192.168.2.235	Entire VPN Server

The screenshot shows the "Edit RIGI-VPN" dialog box. It contains several sections for configuration:

- Setting Name:** RIGI-VPN
- Destination VPN Server:** Specify the host name or IP address, and the port number and the Virtual Hub on the destination VPN Server.
 - Host Name: 192.168.2.235
 - Connect to Localhost
 - Port Number: 443 (ICP Port)
- Proxy Server as Relay:** You can connect to a VPN Server via a proxy server.
 - Proxy Type: Direct TCP/IP Connection (No Proxy), Connect via HTTP Proxy Server, Connect via SOCKS Proxy Server
 - Proxy Server Setting button
- Select Administration Mode and Enter Password:** You can connect to VPN Server using either Server Admin Mode or Virtual Hub Admin Mode.
 - Server Admin Mode (selected) allows you manage entire VPN Server and all Virtual Hubs.
 - Virtual Hub Admin Mode allows you manage only one Virtual Hub for which you hold privileges.
 - Virtual Hub Name: VPN
 - Password: [masked]
 - Do not Save Admin's Password

Buttons for "OK" and "Cancel" are at the bottom.

SoftEther VPN Server based on Raspberry Pi3 – VPN Server Manager

Start «SoftEther VPN Server Manager (Admin Tools Only)».

Raspberry Pi3 with VPN-Server installed

Virtual Hub Name	Status	Type	Users	Groups	Sessions	MAC Tables	IP Tables
VPN	Online	Standalone	2	0	2	13	18

Port Number	Status
TCP 443	Listening
TCP 992	Listening
TCP 1194	Listening
TCP 5555	Listening

Enable L2TP Server Function (L2TP over IPsec)

Enable L2TP Server Function (Raw L2TP with No Encryptions)

Enable EtherIP / L2TPv3 over IPsec Server Function

IPsec Pre-Shared Key: Rigi2023!

SoftEther VPN Server based on Raspberry Pi3 – VPN Server Manager

Start «SoftEther VPN Server Manager (Admin Tools Only)».

Manage VPN Server "192.168.2.235"

Virtual Hub Name	Status	Type	Users	Groups	Sessions	MAC Tables	IP Tables
VPN	Online	Standalone	2	0	2	13	18

Management of Listeners:

Port Number	Status
TCP 443	Listening
TCP 992	Listening
TCP 1194	Listening
TCP 5555	Listening

VPN Server and Network Information and Settings:

- Encryption and Network
- View Server Status
- About this VPN Server
- Clustering Configuration
- Clustering Status
- Show List of TCP/IP Connections
- Edit Config

Local Bridge Setting, Layer 3 Switch Setting, IPsec / L2TP Setting, OpenVPN / MS-SSTP Setting, Dynamic DNS Setting, VPN Azure Setting

Current DDNS Hostname: **rigi2.softether.net**

IP-Address of your remote site

Dynamic DNS Function

This VPN Server has a Built-in Dynamic DNS Function.

The Dynamic DNS assigns a unique and permanent DNS hostname for this VPN Server. You can use that hostname to specify this VPN Server on the settings for VPN Client and VPN Bridge. You need not to register and keep a domain name.

Also, if your ISP assigns you a dynamic (not-fixed) IP address, the corresponding IP address of your Dynamic DNS hostname will be automatically changed. It enables you to keep running the VPN Server by using only a dynamic IP address. Therefore, you need not any longer to keep static global IP addresses with expenses monthly costs.

Moreover, this VPN Server version supports 'NAT-Traversal' function. If the VPN Server is inside the NAT and is assigned only a private IP address, you can connect to that VPN Server from the Internet side without any special settings on the NAT beforehand.

Current Status:

Assigned Dynamic DNS Hostname: [Redacted] Hint

Global IPv4 Address: [Redacted]

Global IPv6 Address: Unable to reach the IPv6 DDNS Server.

DNS Key: MKzf0NcIaRyOCmczXD6k/WNrDU= Hint

Modify the Settings:

Change the Dynamic DNS Hostname: [Redacted].softether.net

Hostnames with only alphabets numeric, and dashes '-'. Three letters at least. You can change it any time later.

Set to Above Hostname, Restore

Disable Dynamic DNS Function, Connect via Proxy Server..., Exit

SoftEther VPN Server based on Raspberry Pi3 – VPN Server Manager

Start «SoftEther VPN Server Manager (Admin Tools Only)».

Very important: Set «Local Bridge Mode»

RIGI-VPN - SoftEther VPN Server Manager

Manage VPN Server "192.168.2.235"

Virtual Hub Name	Status	Type	Users	Groups	Sessions	MAC Tables	IP Tables
VPN	Online	Standalone	2	0	2	13	18

Management of Listeners:

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VPN Server and Network Information and Settings:

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- Edit Config

Local Bridge Setting (circled in red)

Dynamic DNS Setting

Current DDNS Hostname: rigi2.softether.net

Local Bridge Settings

Local Bridge can establish a Layer 2 bridge connection between a Virtual Hub on this VPN server and a physical Ethernet Device (Network Adapter). It is also possible to create a tap device (virtual network interface) and establish a bridge connection with a Virtual Hub. (Tap is supported on Linux versions only)

Number	Virtual Hub Name	Network Adapter or Tap Device Name	Status
1	VPN	eth0	Operating

New New Local Bridge Definition:

Select the Virtual Hub to bridge.

Virtual Hub: []

Type to Create:

- Bridge with Physical Existing Network Adapter
- Bridge with New Tap Device

Select the Ethernet device (network adapter) for the bridge destination.

LAN Adapter: eth0

New Tap Device Name: [] (Maximum 11 Characters)

Note: Although it is possible to establish a bridge using any operating network adapter, in high load environments, you should prepare a network adapter dedicated for bridging.

If a network adapter doesn't appear which is recently added on the system, reboot the computer and re-open this screen.

SoftEther VPN Server based on Raspberry Pi3 – VPN Properties

Properties of VPN

Virtual Hub Name: VPN

Security Settings:

Administration password for this Virtual Hub.

Password: [Redacted]

Confirm: [Redacted]

No Enumerate to Anonymous Users

Virtual Hub Status:

Set the Virtual Hub status.

Online Offline

Virtual Hub Options:

Limit Max VPN Sessions

Max Number of Sessions: [] sessions
(Will not count sessions on server side that are generated by Local Bridge, Virtual NAT or Cascade Connection.)

You can configure more advanced settings on the Virtual Hub Extended Option List.

Edit Virtual Hub Extended Option List

Set Clustering:

Currently the server is operating in Standalone Mode. This Virtual Hub is operating as a Standalone Hub.

Static Virtual Hub Dynamic Virtual Hub

Virtual Hub Admin Option:

Display and edit the Virtual Hub administration options.

Virtual Hub Admin Option

Source IP Address Limit List:

Allow or deny VPN connections to this Virtual Hub according to the client computer's IP address.

IP Access Control List

Show Message when Client Connects:

Shows a message on the screen of a user when a VPN Client connects to this Virtual Hub.

Set the Message

OK Cancel

Admin Password

SoftEther VPN Server based on Raspberry Pi3 – VPN Server Manager

Start «SoftEther VPN Server Manager (Admin Tools Only)».

VPN-User Password

Create New User

User Name: HB9RYZ
Full Name: HB9RYZ
Note: HB9RYZ

Group Name (Optional):

Set the Expiration Date for This Account
04/03/2023 00:00:00

Auth Type:
 Anonymous Authentication
 Password Authentication
 Individual Certificate Authentication
 Signed Certificate Authentication
 RADIUS Authentication
 NT Domain Authentication

RADIUS or NT Domain Authentication Settings:
 Specify User Name on Authentication Server
User Name on Authentication Server:

Security Policy
 Set Security Policy

Password Authentication Settings:
Password:
Confirm Password:

Individual Certificate Authentication Settings:

Signed Certificate Authentication Settings:
 Limit Common Name (CN) Value
 Limit Values of the Certificate Serial Number
Note: Enter hexadecimal values. (Example: 0155ABCDEFF)

Manage Users

Virtual Hub "VPN" has the following users.

User Name	Full Name	Group Name	Description	Auth Method	Num Logins	Last Login
HB9RYZ	Wolfgang	-	HB9RYZ	Password Authen...	4	2023-03-08 (Wed)
HB9CQK	Frederic	-	HB9CQK	Password Authen...	0	(None)

Important: keep all other settings «Default» as it is!

Do not use!

OK, to create the User

SoftEther VPN Server based on Raspberry Pi3 – VPN Server Manager

Start «SoftEther VPN Server Manager (Admin Tools Only)».

Virtual Hub Name = RIGI

Virtual Hub Admin Password

The screenshot shows the 'New Virtual Hub' configuration window. The 'Virtual Hub Name' field is set to 'RIGI'. Under 'Security Settings', the 'Administration password for this Virtual Hub' section has 'Password' and 'Confirm' fields, both containing masked characters. The 'Virtual Hub Status' section has 'Online' selected. The 'Virtual Hub Options' section has 'Limit Max VPN Sessions' unchecked. The 'Set Clustering' section shows 'Static Virtual Hub' selected. The 'OK' and 'Cancel' buttons are at the bottom right.

SoftEther VPN Server based on Raspberry Pi3 – VPN Windows 10/11 Client

Encryption and Network Settings

You can view or change settings related to encryption, communication and security for this VPN Server.

Encryption Algorithm Settings:
Specify the encryption algorithm for SSL applied to the connection between this VPN Server and VPN Clients. The encryption algorithm must be compatible with SSL Version 3.
Encryption Algorithm Name: **AES128-SHA**

Server Certificate Settings:
Specify the X509 certificate and private key to be presented to clients by this server.
Server Certificate:
Issued to: vpn703368782.softether.net
Issuer: vpn703368782.softether.net
Expiration: 2037-12-31 (Thu)
Buttons: New, Import, Export, View

Syslog Send Function:
You can transfer the entire VPN Server / Bridge Logs, Virtual Hub Administration Logs, or Virtual Hub Packet Logs by using syslog protocol instead of writing to a local disk.
Disable Syslog Send Function
Syslog Server Host Name:
Port: 514

Keep Alive Internet Connection:
For environments where Internet connections will automatically be disconnected when idle, you can keep alive the Internet connection by sending dummy packets to any host on the Internet.
 Use Keep Alive Internet Connection
Host Name: **keepalive.softether.org**
Port: 80 Send Interval: 50 seconds
Protocol: TCP/IP Protocol UDP/IP Protocol
Packets sent to keep alive the Internet connection have random bits. No personal information is sent.

Administrator Password:
You can modify an administrator password of the administrator for all Virtual Hubs and this entire VPN Server.
Change Admin Password

VPN over ICMP / DNS Server Function
You can establish a VPN only with ICMP or DNS packets even if there is a firewall or routers which blocks TCP/IP communications.
VPN over ICMP / DNS Settings

Update Notify Setting... OK Cancel

VPN Azure Service Settings

VPN Azure Cloud

Enable VPN Azure

Penetrates Firewall

VPN Session is Relayed

Establish a SSTP VPN

Use Built-in Windows VPN Client

Your PC with VPN Server

Office

Private Network

No Need Net Admin Privileges

No Need Global IP

No Need Open Ports

Windows Vista / 7 / 8 / RT

Home

VPN Azure Cloud VPN Service (Free)

VPN Azure makes it easier to establish a VPN Session from your home PC to your office PC. While a VPN connection is established, you can access to any other servers on the private network of your company.

You don't need a global IP address on the office PC (VPN Server). It can work behind firewalls or NATs. No network administrator's configuration required. You can use the built-in SSTP-VPN Client of Windows in your home PC.

VPN Azure VPN Azure is a cloud VPN service operated by SoftEther VPN Project. VPN Azure is free of charge and available to anyone. Press the right button to see details and how-to-use instructions.

VPN Azure Setting

Enable VPN Azure
Status: Not Connected

Disable VPN Azure

How to Use VPN Azure (Visit the Web)

OK

SoftEther VPN Server based on Raspberry Pi3 – VPN Windows 10/11 Client

As soon you are connected with the VPN-Server, you can start **SmartSDR v3.4.23**



As soon as there are two VPN connections or one VPN connection and one SmartLink connection, "multiFLEX" appears at the bottom of the SmartSDR taskbar.

We need the stable SmartSDR version v3.4.23 for concurrent multiuser operation to avoid audio jitter in the signal using SSB or FT8

