

WireGuard VPN Setup

WireGuard is an extremely simple yet fast and modern VPN that utilizes state-of-the-art cryptography. It aims to be faster, simpler, leaner, and more useful than IPSec, while avoiding the massive headache. It intends to be considerably more performant than OpenVPN.



WireGuard is designed as a general purpose VPN for running on embedded interfaces and super computers alike, fit for many different circumstances. Initially released for the Linux kernel, it is now cross-platform and widely deployable.

Install VPN-Server on CentOS 7.x

For the **Debian** installation Tutorial klick [here](#)

Ausgangslage:

- **LAN Network**=192.168.1.0/24
- **VPN Network**=192.168.100.0/24
- **VPN Port**=53666/UDP

```
# curl -Lo /etc/yum.repos.d/wireguard.repo
https://copr.fedorainfracloud.org/coprs/jdoss/wireguard/repo/epel-7/jdoss-wireguard-epel-7.repo
```

```
# yum update
# yum install wireguard-dkms wireguard-tools
# mkdir /etc/wireguard && cd /etc/wireguard/
```

```
# umask 077
# wg genkey > wg0.conf
```

```
# vim /etc/wireguard/wg0.conf
```

```
[Interface]
Address = 192.168.100.1/24
SaveConfig = true
PostUp = iptables -I FORWARD -i wg0 -j ACCEPT; iptables -I FORWARD -o wg0 -j
ACCEPT
PostDown = firewall-cmd --reload
ListenPort = 53666
PrivateKey = INVH3hPTDtaQVB7TkGy/qLMeEgbiiUjV2PbPF0B4+ns=
```

```
# firewall-cmd --zone=public --add-port=53666/udp --permanent
# firewall-cmd --reload

# sysctl net.ipv4.ip_forward=1
```

```
# vim /etc/sysctl.d/99-sysctl.conf
```

```
# sysctl settings are defined through files in
# /usr/lib/sysctl.d/, /run/sysctl.d/, and /etc/sysctl.d/.
#
# Vendors settings live in /usr/lib/sysctl.d/.
# To override a whole file, create a new file with the same in
# /etc/sysctl.d/ and put new settings there. To override
# only specific settings, add a file with a lexically later
# name in /etc/sysctl.d/ and put new settings there.
#
# For more information, see sysctl.conf(5) and sysctl.d(5).
net.ipv4.ip_forward=1
```

```
# sysctl -p
# systemctl start wg-quick@wg0.service
# systemctl enable wg-quick@wg0.service
```

```
# wg
```

```
interface: wg0
  public key: g5C+DlBfxAzk+QHU6wSDC9PGKoSHTf5j9NC9fBQcrks=
  private key: (hidden)
  listening port: 53666
```

Setup Router Settings

Fritzbox - Port Forwarding Konfigurieren

The screenshot shows the Fritz!Box 5490 web interface. The top navigation bar includes the Fritz! logo, the device name 'FRITZ!Box 5490', and 'MyFRITZ!'. The left sidebar contains navigation options: Übersicht, Internet, Online-Monitor, Zugangsdaten, Filter, Freigaben (highlighted), MyFRITZ!-Konto, Fiber-Informationen, Telefonie, Heimnetz, WLAN, DECT, Diagnose, System, and Assistenten. The main content area is titled 'Freigaben für Gerät' and contains the following sections:

- Gerät:** A dropdown menu showing 'reverse-proxy-v2' (marked with a red circle 1).
- IPv4-Adresse:** Input field with '192.168.1.2'.
- MAC-Adresse:** Input field with '00:0D:B9:4E:3A:18'.
- Selbstständige Portfreigaben für dieses Gerät erlauben.
- IPv4-Einstellungen:**
 - Dieses Gerät komplett für den Internetzugriff über IPv4 freigeben (Exposed Host). Diese Einstellung kann nur für ein Gerät aktiviert werden.
- Freigaben:** A table listing existing port forwarding rules. A new rule for 'WireGuard' is highlighted with a red box (marked with a red circle 3):

Status	Bezeichnung	Protokoll	IP-Adresse im Internet	Port extern vergeben	
●	HTTP-Server	TCP	83.150.6.68	80	
●	HTTPS-Server	TCP	83.150.6.68	443	
●	WireGuard	UDP	83.150.6.68	53666	
- Buttons:** 'Neue Freigabe' (marked with a red circle 2), 'OK' (marked with a red circle 4), and 'Abbrechen'.

At the bottom left, there is a footer: 'Ansicht: Erweitert Inhalt Handbuch Rechtliches'.

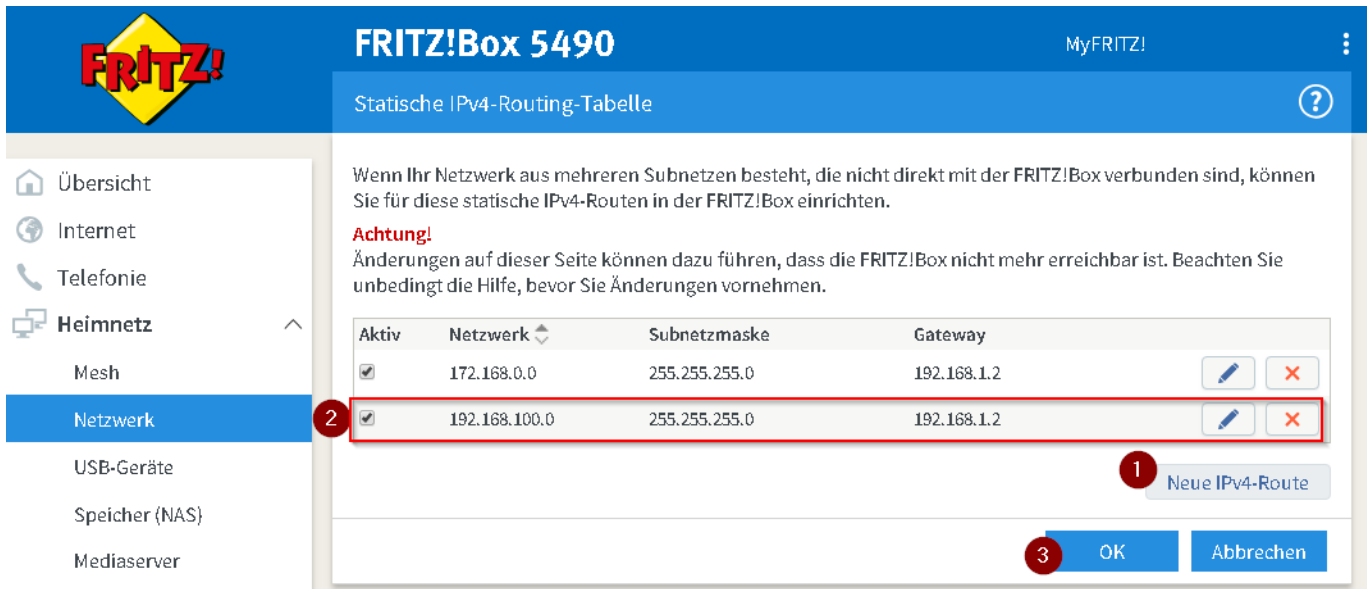
Vorgehen:

Unter: **“Internet”** → **“Freigaben”** → **“Freigaben für Gerät hinzufügen”**

1. Auswählen des Gerätes auf welchem der VPN-Server installiert wurde
2. Neue Freigabe
3. Neuer Service - WireGuard Port 3x hinterlegen UDP und Service hinzufügen
4. Bestätigen und speichern

Fritzbox - Routing Konfigurieren

Nur falls kein Masquarading als Interface Forwarding eingesetzt wird. (So wie in diesem Tutorial)



Vorgehen:

Unter: **“Heimnetzwerk”** → **“Netzwerk”** → **“Statische IPv4 Routing-Tabelle bearbeiten”**

1. Neue IPv4-Route
2. **Erstellen von LAN Routing in VPN Netzwerk (192.168.100.X)** - Der Gateway ist hierbei die LAN IP des Servers auf welchem WireGuard installiert ist.
3. Bestätigen und speichern

Connect Android Smartphone with VPN

1. **Install WireGuard App** on Smartphone:
2. **Create new WireGuard Tunnel:**
3. **Generate Private-Key and Public-Key for Smartphone:**
4. **Add static IP Adress and DNS to Smartphone VPN connection:**
5. **Stop Server and add Client VPN Peer (Client-Public-Key) to Server:**

- Edit VPN configuration-file on Server:

```
# systemctl stop wg-quick@wg0.service  
# vim /etc/wireguard/wg0.conf
```

```
[Interface]  
Address = 192.168.100.1/24  
SaveConfig = true  
PostUp = iptables -I FORWARD -i wg0 -j ACCEPT; iptables -I FORWARD  
-o wg0 -j ACCEPT  
PostDown = firewall-cmd --reload  
ListenPort = 53666
```

```
PrivateKey = INVH3hPTDtaQVB7TkGy/qLMeEgbiiUjV2PbPF0B4+ns=  
  
[Peer]  
PublicKey = 9RaYFNNWSk/l6uU3so44XqXErW5en2q74BsSayyEB1A=  
AllowedIPs = 192.168.100.10/32
```

- Restart VPN connection daemon:

```
# systemctl start wg-quick@wg0.service
```

- Print WireGuard information:

```
# wg
```

```
interface: wg0  
  public key: g5C+DlBfxAzk+QHU6wSDC9PGKoSHTf5j9NC9fBQcrks=  
  private key: (hidden)  
  listening port: 53666  
  
peer: 9RaYFNNWSk/l6uU3so44XqXErW5en2q74BsSayyEB1A=  
  allowed ips: 192.168.100.10/32
```

6. Add Server VPN Peer (Server-Public-Key) on Client:

7. Connect & Test:

Connect Windows PC with VPN

1. Install [WireGuard App](#) on Computer:

TO DO

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2. **Generate Private-Key and Public-Key for Smartphone:**
3. **Add static IP Address and DNS to Smartphone VPN connection:**
4. **Stop Server and add Client VPN Peer (Client-Public-Key) to Server:**

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PostDown = firewall-cmd --reload
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[Peer]
PublicKey = 9RaYFNNWSk/l6uU3so44XqXErW5en2q74BsSayyEB1A=
AllowedIPs = 192.168.100.10/32
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  private key: (hidden)
  listening port: 53666

peer: 9RaYFNNWSk/l6uU3so44XqXErW5en2q74BsSayyEB1A=
  allowed ips: 192.168.100.10/32
```

5. Add Server VPN Peer (Server-Public-Key) on Client:

6. Connect & Test:

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