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 / 8

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

For CentOS 7 ONLY:

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

# yum install wireguard-dkms wireguard-tools
```

For CentOS 8 ONLY:

```
# yum install epel-release
# yum config-manager --set-enabled PowerTools
```

```
# yum copr enable jdoss/wireguard

# yum install wireguard-dkms wireguard-tools
```

continue here:

```
# 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
```

```
# echo "net.ipv4.ip_forward=1" >> /etc/sysctl.d/99-sysctl.conf
# echo "net.ipv4.conf.all.forwarding=1" >> /etc/sysctl.d/99-sysctl.conf
# echo "net.ipv6.conf.all.forwarding=1" >> /etc/sysctl.d/99-sysctl.conf

# cat /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
```

```
net.ipv4.conf.all.forwarding=1
net.ipv6.conf.all.forwarding=1
```

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

Setup POSTROUTING, do this ONLY if you don't want to setup routing!

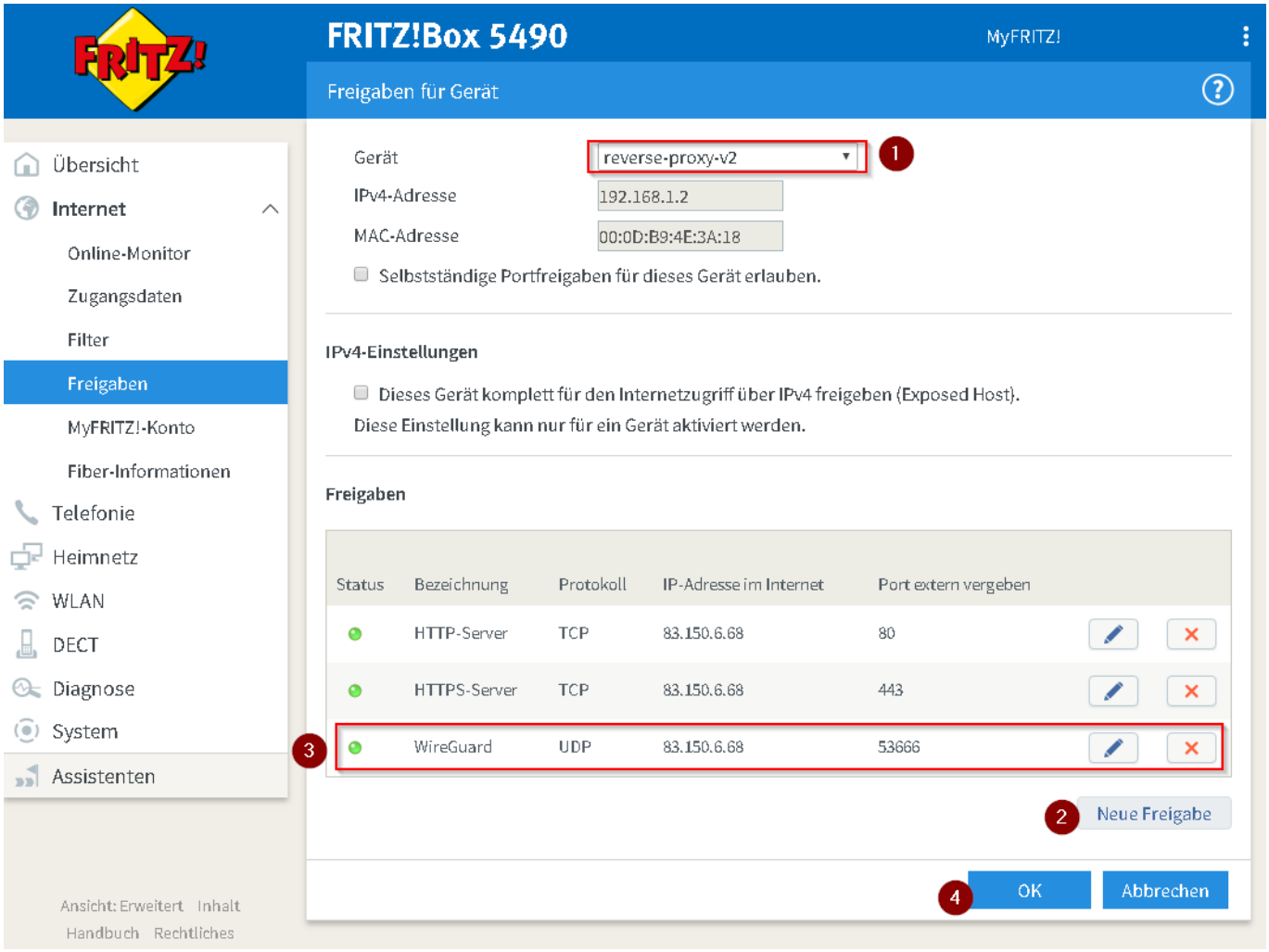
```
# firewall-cmd --permanent --direct --add-rule ipv4 nat POSTROUTING 0 -s
192.168.100.0/24 ! -d 192.168.100.0/24 -j SNAT --to 192.168.1.8
# firewall-cmd --reload
```

```
# wg
```

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

Setup Router Settings

Fritzbox - Port Forwarding Konfigurieren



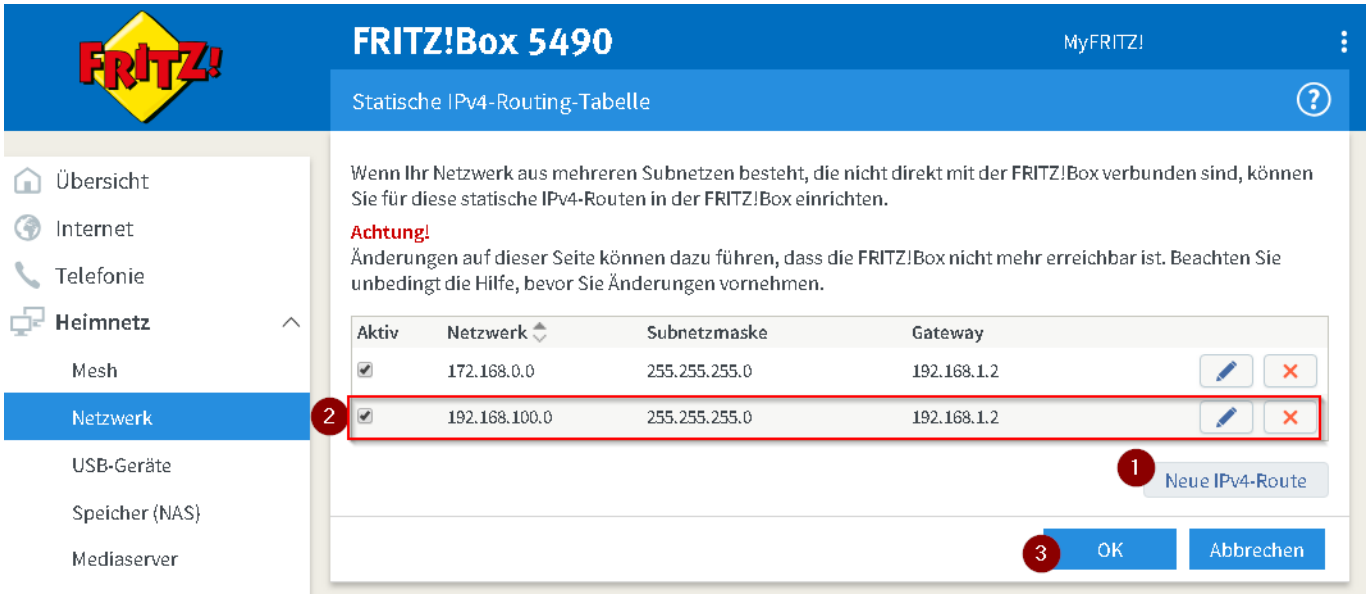
Vorgehen:

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 POSTROUTING als Interface Forewarding 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 Smartpone 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/l6uU3so44XqXErW5en2q74BsSayyEBlA=
AllowedIPs = 192.168.100.10/32
```

- Restart VPN connection deamon:

```
# 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/l6uU3so44XqXErW5en2q74BsSayyEBlA=
  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

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

- Edit VPN configuration-file:

```
# 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/l6uU3so44XqXErW5en2q74BsSayyEBlA=
AllowedIPs = 192.168.100.10/32
```

- Restart VPN connection deamon:

```
# 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/l6uU3so44XqXErW5en2q74BsSayyEBlA=
  allowed ips: 192.168.100.10/32
```

5. **Add Server VPN Peer (Server-Public-Key) on Client:**
6. **Connect & Test:**

Weiteres

- Use Raspberry Pi as WiFi AP and route traffic through Wireguard (port 53)

Last update: **2020/01/31 22:56**