Comprehensive Guide: Setting Up a Private WireGuard VPN Server

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This guide will walk you through creating a private, anonymous VPN setup using WireGuard, from acquiring a VPS anonymously to configuring clients on Android and Linux.

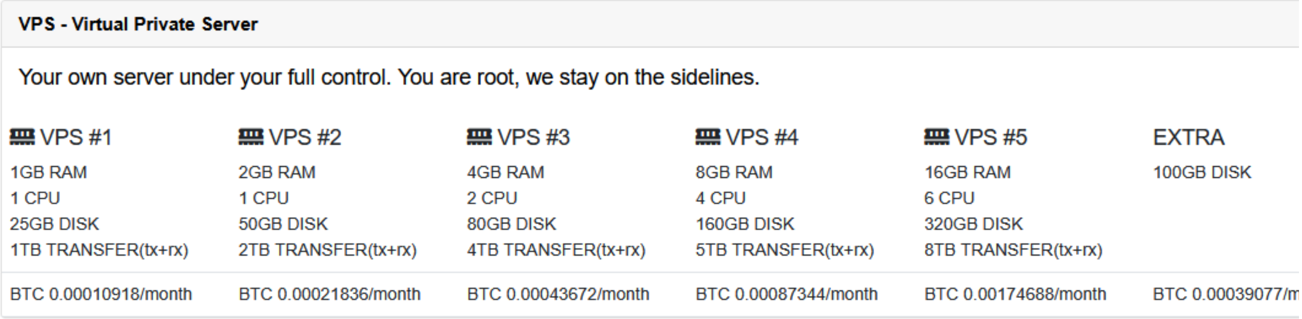
Part 1: Anonymously Acquiring a VPS

Prerequisites

- Tor Browser
- Non-KYC Bitcoin (obtained through peer-to-peer exchanges, Bitcoin ATMs without ID requirements, or decentralized exchanges)
- A secure email address created over Tor (like ProtonMail)

Step-by-Step Process

1. **Install and Launch Tor Browser**
    - Download from https://www.torproject.org/
    - Verify the download signature for authenticity
    - Launch and connect to the Tor network
2. **Find a Bitcoin-Accepting VPS Provider**
    - Through Tor, search for VPS providers that accept Bitcoin payments
    - Recommended providers: 1984 or Njalla



VPS - Virtual Private Server

Your own server under your full control. You are root, we stay on the sidelines.

VPS #1	VPS #2	VPS #3	VPS #4	VPS #5	EXTRA
1GB RAM 1 CPU 25GB DISK 1TB TRANSFER(tx+rx)	2GB RAM 1 CPU 50GB DISK 2TB TRANSFER(tx+rx)	4GB RAM 2 CPU 80GB DISK 4TB TRANSFER(tx+rx)	8GB RAM 4 CPU 160GB DISK 5TB TRANSFER(tx+rx)	16GB RAM 6 CPU 320GB DISK 8TB TRANSFER(tx+rx)	100GB DISK
BTC 0.00010918/month	BTC 0.00021836/month	BTC 0.00043672/month	BTC 0.00087344/month	BTC 0.00174688/month	BTC 0.00039077/m

    - Look for providers that don't require personal information
3. **Create an Account**
    - Use your anonymous email
    - Avoid providing any personal information
    - Use a randomly generated username unrelated to your identity
4. **Select Your VPS Plan**
    - Choose a plan with sufficient resources (minimum 1GB RAM, 10GB storage)
    - Select a server location strategically (consider privacy-friendly jurisdictions)
    - Ensure the provider offers Ubuntu or Debian as OS options
5. **Complete Payment**
    - Select Bitcoin as payment method
    - Transfer funds from your non-KYC Bitcoin wallet
    - Wait for confirmation (may take 30-60 minutes)

Part 2: Setting Up WireGuard Server

Initial Server Setup

1. **Connect to Your VPS**

```
ssh root@your_server_ip
```

2. **Update System and Install Required Packages**

```
apt update && apt upgrade -y
apt install -y wireguard wireguard-tools iptables-persistent
```

3. **Enable IP Forwarding**

```
echo "net.ipv4.ip_forward = 1" >> /etc/sysctl.conf
sysctl -p
```

WireGuard Server Configuration

1. **Generate Server Keys**

```
cd /etc/wireguard
wg genkey | tee server_private.key | wg pubkey > server_public.key
chmod 600 server_private.key
```

2. **Create Server Configuration**

```
nano /etc/wireguard/wg0.conf
```

3. **Add the Following Configuration**

```
[Interface]
PrivateKey = $(cat server_private.key)
Address = 10.0.0.1/24
ListenPort = 51820
SaveConfig = true

# NAT routing
PostUp = iptables -A FORWARD -i wg0 -j ACCEPT; iptables -t nat -A POSTROUTING -o eth0 -j MASQUERADE
PostDown = iptables -D FORWARD -i wg0 -j ACCEPT; iptables -t nat -D POSTROUTING -o eth0 -j MASQUERADE
```

Note: Replace `eth0` with your actual network interface if different (check with `ip a`)

4. **Enable and Start WireGuard**

```
systemctl enable wg-quick@wg0
systemctl start wg-quick@wg0
```

5. **Verify WireGuard is Running**

```
systemctl status wg-quick@wg0
```

Part 3: Creating Client Configurations

Generate Client Keys and Configurations

1. **Generate Client Keys**

   ```
   cd /etc/wireguard
   wg genkey | tee client1_private.key | wg pubkey > client1_public.key
   chmod 600 client1_private.key
   ```

2. **Create Client Configuration File**

   ```
   nano /etc/wireguard/client1.conf
   ```

3. **Add Client Configuration**

   ```
   [Interface]
   PrivateKey = $(cat client1_private.key)
   Address = 10.0.0.2/32
   DNS = 1.1.1.1, 1.0.0.1

   [Peer]
   PublicKey = $(cat server_public.key)
   AllowedIPs = 0.0.0.0/0, ::/0
   Endpoint = your_server_ip:51820
   PersistentKeepalive = 25
   ```

4. **Add Client to Server Configuration**

   ```
   wg set wg0 peer $(cat client1_public.key) allowed-ips 10.0.0.2/32
   wg-quick save wg0
   ```

5. **Generate QR Code for Android**

```
apt install -y qrencode
qrencode -t ansiutf8 < /etc/wireguard/client1.conf
```

Part 4: Client Setup

Android Setup

1. **Install WireGuard App**
   - Download from Google Play Store or F-Droid
   - Launch the app
2. **Import Configuration**
   - Tap the "+" button
   - Select "Scan from QR code" and scan the QR code from your server
   - Alternatively, select "Import from file" if you transferred the configuration file
3. **Connect to VPN**
   - Tap the toggle switch next to your new tunnel to connect
   - Verify connection by checking your IP address (visit ipleak.net)

Linux Desktop Setup

1. **Install WireGuard**

   ```
   sudo apt update
   sudo apt install -y wireguard wireguard-tools resolvconf
   ```

2. **Transfer Configuration File**
   - Securely transfer the client1.conf file to your Linux machine
   - Save it to /etc/wireguard/wg0.conf
3. **Set Proper Permissions**

   ```
   sudo chmod 600 /etc/wireguard/wg0.conf
   ```

4. **Connect to VPN**

   ```
   sudo wg-quick up wg0
   ```

5. **Enable Auto-Connect on Boot (Optional)**

   ```
   sudo systemctl enable wg-quick@wg0
   ```

6. **Disconnect from VPN**

   ```
   sudo wg-quick down wg0
   ```

Part 5: Security Enhancements

Server Hardening

1. **Set Up a Firewall**

   ```
   ufw allow 51820/udp

   ufw enable
   ```

2. **Disable Password Authentication for SSH**

   ```
   nano /etc/ssh/sshd_config
   ```

   - Set `PasswordAuthentication no`
   - Set `PubkeyAuthentication yes`
   - Restart SSH: `systemctl restart sshd`

Privacy Enhancements

1. **Set Up DNS over TLS**
   - Edit client configurations to use privacy-respecting DNS servers
   - Consider using DNS servers like 1.1.1.1 (Cloudflare), 9.9.9.9 (Quad9) or your own DNS server (do you want this guide too? comment on the group!)
2. **Enable Kill Switch on Clients**
   - Android: Enable "Block connections without VPN" in app settings
   - Linux: Add `Table = off` to the client configuration file

Part 6: Maintenance and Troubleshooting

Regular Maintenance

1. **Keep Server Updated**

   ```
   apt update && apt upgrade -y
   ```

2. **Monitor Server Logs**

   ```
   journalctl -u wg-quick@wg0
   ```

3. **Check WireGuard Status**

   ```
   wg show
   ```

Troubleshooting

1. **Connection Issues**
   - Verify server is running: `systemctl status wg-quick@wg0`
   - Check firewall settings: `ufw status`
   - Verify port is open: `nc -vz $your_server_ip 51820`
2. **DNS Issues**
   - Test DNS resolution: `dig @1.1.1.1 example.com`
   - Check client DNS settings
3. **Performance Issues**
   - Test connection speed
   - Consider changing server location or provider

Security and Privacy Notes

- Always access your VPS through Tor when performing maintenance
- Regularly rotate server and client keys for enhanced security
- Consider using a multi-hop setup for additional anonymity
- Avoid using the VPN for activities that could link back to your identity
- Regularly check for IP/DNS leaks using services like ipleak.net

Remember that while this setup provides a good level of privacy, no system is 100% anonymous. Always practice good operational security in addition to technical measures.

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