

搭建一个WebSocket + TLS + Web的V2Fly服务器

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服务器的选择

域名的购买

Preparing for server setup

- Switch the yum repo to CentOS Steam

- Enable yum-plugin-fastestmirror plugin

- Update the System and install some necessary software

- Enable Google BBR

- Install cockpit for easy server management

(Optional) Install Shadowsocks-libev

Install V2Fly via official script

Install and configure apache

- Install apache

- Using acme.sh to install SSL cert

- Install cert

- Configure Certs in Apache

- Redirect all http to https

- Configure Reverse Proxy to V2Ray in httpd

- Configure the V2Ray Server

Client's choice

- Windows

- Linux

- Android

- iOS

Afterword

服务器的选择

由于每个地区的网络服务商与网络状况都由区别，这里只推荐几个使用过的比较好用的服务器：

- 糖果云 <https://www.sugarhosts.com/>
 - 香港地区服务器 低延迟
 - 1 vCPU
 - 1GB RAM
 - 20GB storage
 - 20Mbit/s Port (IPv6 is not supported)
 - 300GB bandwidth
 - CN¥99 MONTHLY, Support Alipay payment
- DigitalVM <https://digital-vm.com/>
 - 东京服务器 Storage VM和Power VM均可，黑五等节日有折扣
 - 1 vCPU / 2 vCPU
 - 512MB RAM / 1GB RAM
 - 30GB storage / 20GB storage
 - 1Gbit/s Port / 10Gbit/s Port
 - 5TB bandwidth / 20TB bandwidth

- \$8 MONTHLY / \$13 MONTHLY, Support Alipay payment
- Greencloud <https://greencloudvps.com/>
 - Japan SSD KVM VPS, 黑五等节日有折扣
 - 1 vCPU
 - 1GB RAM
 - 15GB storage
 - 1Gbit/s Port
 - 1TB bandwidth
 - \$6 MONTHLY, Support Alipay payment
- Vultr <https://www.vultr.com/>
 - \$6 MONTHLY
 - 配置类似, 但是重大日子容易被墙
- DigitalOcean <https://www.digitalocean.com/>
 - 没用过, 但是评价不错
- 搬瓦工 <https://bandwagonhost.com/>
 - 没用过, 但是CN2 GIA的评价不错
 - 只支持年付

域名的购买

Considering the reasons for the need for filing, domestic domain name buyers are not recommended. I recommend namecheap, although not cheap at all.

Preparing for server setup

Switch the yum repo to CentOS Stream

CentOS Linux 8 will reach End Of Life (EOL) on December 31st, 2021. The CentOS Linux 8 packages have been removed from the mirrors. So you need to switch the yum repo to CentOS Stream

```

1 # Solutions from the CentOS community
2 rpm -iv --replacepks
   https://vault.centos.org/8.0.1905/BaseOS/x86_64/os/Packages/centos-release-
   8.0-0.1905.0.9.el8.x86_64.rpm
3
4 sed -i 's/mirrorlist/#mirrorlist/g' /etc/yum.repos.d/CentOS-*
5 sed -i
   's|#baseurl=http://mirror.centos.org|baseurl=http://vault.centos.org|g'
   /etc/yum.repos.d/CentOS-*
6
7 dnf --disablerepo '*' --enablerepo extras swap centos-linux-repos centos-
   stream-repos
8 dnf distro-sync

```

Enable yum-plugin-fastestmirror plugin

Add the following to `/etc/dnf/dnf.conf`

```
1 fastestmirror=1
2 max_parallel_downloads=8
```

Update the System and install some necessary software

```
1 yum update -y
2 yum install epel-release -y
3 yum install vim nano htop git -y
```

Enable Google BBR

BBR ("Bottleneck Bandwidth and Round-trip propagation time") is a new congestion control algorithm developed at Google. Congestion control algorithms — running inside every computer, phone or tablet connected to a network — that decide how fast to send data.

```
1 echo "net.core.default_qdisc=fq" >> /etc/sysctl.conf
2 echo "net.ipv4.tcp_congestion_control=bbr" >> /etc/sysctl.conf
3 sysctl -p
```

Verify that BBR is enabled successfully

```
1 sysctl -n net.ipv4.tcp_congestion_control
2 lsmod | grep bbr
```

Install cockpit for easy server management

Install cockpit

```
1 yum install cockpit -y
```

Enable cockpit

```
1 systemctl enable --now cockpit.socket
```

Open the firewall if necessary

```
1 sudo firewall-cmd --permanent --zone=public --add-service=cockpit
2 sudo firewall-cmd --reload
```

After completing the preparations, reboot the system for the next installation

(Optional) Install Shadowsocks-libev

Shadowsocks is an "Internet tool" of the previous generation. When the 80/443 port of the server is blocked, it can be used temporarily. You can get a lot of one-click installation scripts by using search engines, but for the sake of safety, here is a way to make and install Shadowsocks-libev. Better shadowsocks-rust has been released, since shadowsocks is used very rarely, I did not study the installation method of the latest rust version.

Install some necessary software

```
1 yum install gcc gettext autoconf libtool automake make pcre-devel asciidoc  
  xmlto c-ares-devel libev-devel libsodium-devel mbedtls-devel -y
```

Download the source code of shadowsocks-libev

```
1 git clone https://github.com/shadowsocks/shadowsocks-libev.git  
2 cd shadowsocks-libev  
3 git submodule update --init --recursive
```

Start compiling

```
1 ./autogen.sh && ./configure --prefix=/usr && make  
2 make install
```

Configure shadowsocks-libev

```
1 mkdir -p /etc/shadowsocks-libev  
2 vim /etc/shadowsocks-libev/config.json
```

```
1 {  
2     "server":["::0","0.0.0.0"],  
3     "server_port":*PORT*,  
4     "local_port":1080,  
5     "password":"*PASSWORD*",  
6     "timeout":60,  
7     "method":"aes-256-gcm"  
8 }
```

Set up to start automatically

```
1 vim /etc/systemd/system/shadowsocks.service
```

```
1 [Unit]  
2 Description=Shadowsocks Server  
3 After=network.target  
4  
5 [Service]  
6 ExecStart=/usr/bin/ss-server -c /etc/shadowsocks-libev/config.json -u  
7 Restart=on-abort  
8  
9 [Install]  
10 wantedBy=multi-user.target
```

```
1 | systemctl enable shadowsocks
```

Open firewall ports

```
1 | firewall-cmd --permanent --add-port=*PORT*/*(tcp/udp)*
2 | firewall-cmd --reload
```

Shadowsocks is already available, and you can view the service status at the same time

```
1 | systemctl start shadowsocks
2 | systemctl status shadowsocks
```

Install V2Fly via official script

Bash script for installing V2Ray in operating systems such as Debian / CentOS / Fedora / openSUSE that support systemd

It is not recommended to use this project to install v2ray in docker, please use the official image directly. <https://github.com/v2fly/docker>

```
1 | bash <(curl -L https://raw.githubusercontent.com/v2fly/fhs-install-
v2ray/master/install-release.sh)
2 | systemctl enable --now v2ray
```

Install and configure apache

Install apache

```
1 | yum install httpd mod_ssl openssl -y
2 | systemctl enable httpd
```

Using acme.sh to install SSL cert

In this tutorial we install cert in default location. Firstly, make directories and install acme.sh

```
1 | yum install tar socat -y
2 | curl https://get.acme.sh | sh
```

Then we can use acme.sh to issue and renew certs automatically.

Install cert

~~Using ZeroSSL.com CA need register. ZeroSSL doesn't have rate limits. One can issue unlimited TLS/SSL certificate valid for 90 days (ref).~~

```
1 | ~/.acme.sh/acme.sh --register-account -m myemail@example.com
2 | ~/.acme.sh/acme.sh --set-default-ca --server letsencrypt
```

Open port 80/443

```
1 firewall-cmd --permanent --add-port=80/tcp
2 firewall-cmd --permanent --add-port=443/tcp
3 firewall-cmd --permanent --add-port=80/udp
4 firewall-cmd --permanent --add-port=443/udp
5 firewall-cmd --reload
```

```
1 mkdir -p /etc/pki/httpd/private
2 ~/.acme.sh/acme.sh --issue -d example.com --standalone -k ec-256
3 ~/.acme.sh/acme.sh --renew -d example.com --force --ecc
4 ~/.acme.sh/acme.sh --installcert -d example.com --fullchainpath
  /etc/pki/httpd/server.crt --keypath /etc/pki/httpd/private/server.key --ecc
```

Configure Certs in Apache

Edit `/etc/httpd/conf.d/ssl.conf`

Change these following lines

```
1 SSLCertificateFile /etc/pki/httpd/server.crt
2 SSLCertificateKeyFile /etc/pki/httpd/private/server.key
```

Redirect all http to https

Edit `/etc/httpd/conf.d/ssl.conf`

```
1 <VirtualHost *:80>
2     <IfModule alias_module>
3         Redirect permanent / https://keepnaive233.network/
4     </IfModule>
5 </VirtualHost>
```

Configure Reverse Proxy to V2Ray in httpd

Edit `/etc/httpd/conf.d/ssl.conf`

Add the following in `<VirtualHost>`

```
1 <Location "/ray/">
2     ProxyPass "/ray/" "ws://127.0.0.1:10000/ray/"
3     ProxyAddHeaders Off
4     ProxyPreserveHost On
5     RequestHeader append X-Forwarded-For %{REMOTE_ADDR}s
6 </Location>
```

Configure the V2Ray Server

Edit `/usr/local/etc/v2ray/config.json`

```
1 {
2     "inbounds": [
3         {
4             "port": 10000,
5             "listen": "127.0.0.1",
```

```

6      "protocol": "vmess",
7      "settings": {
8          "clients": [
9              {
10                 "id": "*****-****-****-****-*****"
11             }
12         ]
13     },
14     "streamSettings": {
15         "network": "ws",
16         "wsSettings": {
17             "path": "/ray/"
18         }
19     }
20 },
21 ],
22 "outbounds": [
23     {
24         "protocol": "freedom",
25         "settings": {}
26     }
27 ]
28 }

```

For privacy, I hid the UUID. You may generate yours by [Online UUID Generator](#). After configuring, restart V2Ray and httpd.

```

1 /usr/sbin/setsebool -P httpd_can_network_connect 1
2 systemctl restart v2ray httpd

```

Client's choice

For shadowsocks and V2Ray there are many clients that can be used. For PC, I recommend QV2Ray, although the project has stopped maintenance, but this is currently the best client with GUI. For iOS devices, shadowrocket purchased from the US store is the best option.

Windows

- Qv2ray <https://github.com/Qv2ray/Qv2ray>
- clash <https://github.com/Dreamacro/clash>
- V2rayN <https://github.com/2dust/v2rayN>

Linux

- Qv2ray <https://github.com/Qv2ray/Qv2ray>
- clash <https://github.com/Dreamacro/clash>
- v2rayA <https://github.com/v2rayA/v2rayA>

Android

- SagerNet <https://github.com/SagerNet/SagerNet>
- v2rayNG <https://github.com/2dust/v2rayNG>

iOS

- Shadowrocket <https://apps.apple.com/us/app/shadowrocket/id932747118>

Afterword

随着GFW与“上网工具”的对抗，“上网工具”也有版本的迭代。从最开始的ShadowSock到后来的V2Ray VMess，目前更高级的工具包括V2Ray VLESS XTLS和trojan。目前使用的V2Ray即将更新v5版本。“上网工具”的及时更新与迭代时很有必要的。GFW可以看成是一个黑盒，具有某些特征的流量将被阻碍，但目前并不清楚它的“工具”识别原理，现在的做法是将上网流量用tls伪装成对自己域名的访问。