

2-4-1 OpenVPN

You Want a VPN

But a SIMPLE One
and IPsec is Not Simple

OpenVPN

Open Protocol
Open Source Tools
Not Known to be Pwned
by the NSA, GCHQ, ...

Easy to Install
Free Server(s)

Easy to Install
Free Clients

They Interoperate!

OpenVPN Server

Sense COMMUNITY EDITION System ▾ Interfaces ▾ Firewall ▾ Services ▾ VPN ▾ Status ▾ Diagnostics ▾ Gold ▾ Help ▾

Status / Dashboard

System Information

Name	pfs0.sea.rg.net
System	pfSense Serial: 5a9d09f4-f598-11e6-a03b-65155a9e9cb3
Version	2.3.2-RELEASE-p1 (i386) built on Tue Sep 27 12:13:32 CDT 2016 FreeBSD 10.3-RELEASE-p9 The system is on the latest version.
Platform	pfSense
CPU Type	QEMU Virtual CPU version 2.1.2
Uptime	02 Hours 46 Minutes 06 Seconds
Current date/time	Sat Feb 18 7:53:56 UTC 2017
DNS server(s)	<ul style="list-style-type: none">127.0.0.1147.28.0.15147.28.0.3
Last config change	Fri Nov 11 6:52:23 UTC 2016
State table size	0% (29/99000) Show states
MBUF Usage	3% (760/26584)
Load average	0.00, 0.00, 0.00
CPU usage	0%
Memory usage	14% of 991 MiB
SWAP usage	0% of 2048 MiB
Disk usage (/)	18% of 5.8GiB - ufs
Disk usage (/var/run)	3% of 3.4MiB - ufs in RAM

Services Status

Service	Description	Action
✓ dpinger	Gateway Monitoring Daemon	C O
✓ ntpd	NTP clock sync	C O
✓ openvpn	OpenVPN server: RGnet Westin UDP	C O
✓ sshd	Secure Shell Daemon	C O
✓ unbound	DNS Resolver	C O

Interfaces

Interface	IP Address	MAC Address
WAN	147.28.0.32	2001:418:1::32

Traffic Graphs

In 13 Kbps Out 5 Kbps 2/18/2017 14:54:05 [Switch to bytes/s](#) [AutoScale \(up\)](#) Graph shows last 1200 seconds

150 Kbps
100 Kbps
50 Kbps

OpenVPN

RGnet Westin UDP UDP:443

Name/Time	Real/Virtual IP
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VPN Server

[System ▾](#)[Interfaces ▾](#)[Firewall ▾](#)[Services ▾](#)[VPN ▾](#)[Status ▾](#)[Diagnostics ▾](#)[Gold ▾](#)[H ▾](#)

VPN / OpenVPN / Servers

[IPsec](#)[L2TP](#)[OpenVPN](#)[Servers](#)[Clients](#)[Client Specific Overrides](#)[Wizards](#)[Client Export](#)[Shared Key Export](#)

OpenVPN Servers

Protocol / Port	Tunnel Network	Description
UDP / 443	10.0.1.0/24	RGnet Westin UDP

Configuration!

VPN / OpenVPN / Servers / Edit

Servers Clients Client Specific Overrides Wizards Client Export Shared Key Export

General Information

Disabled

☐ Disable this server
Set this option to disable this server without removing it from the list.

Server mode

Remote Access (SSL/TLS)

Protocol

UDP

Device mode

tun

Interface

WAN

Local port

443

Description

RGnet Westin UDP
A description may be entered here for administrative reference (not parsed).

Cryptographic Settings

TLS authentication

☒ Enable authentication of TLS packets.

Key

2048 bit OpenVPN static key

-----BEGIN OpenVPN Static key V1-----
4af648f42e6f785c1cc4e50b35651b37
842f23512663df42d67d04cbeacd2e9c
Paste the shared key here

Peer Certificate Authority

OpenVPN Root

Peer Certificate Revocation list

No Certificate Revocation Lists defined. One may be created here: [System > Cert. Manager](#)

Server certificate

OpenVPN Server crt/key (Server: Yes, CA: OpenVPN R...

DH Parameter length (bits)

2048

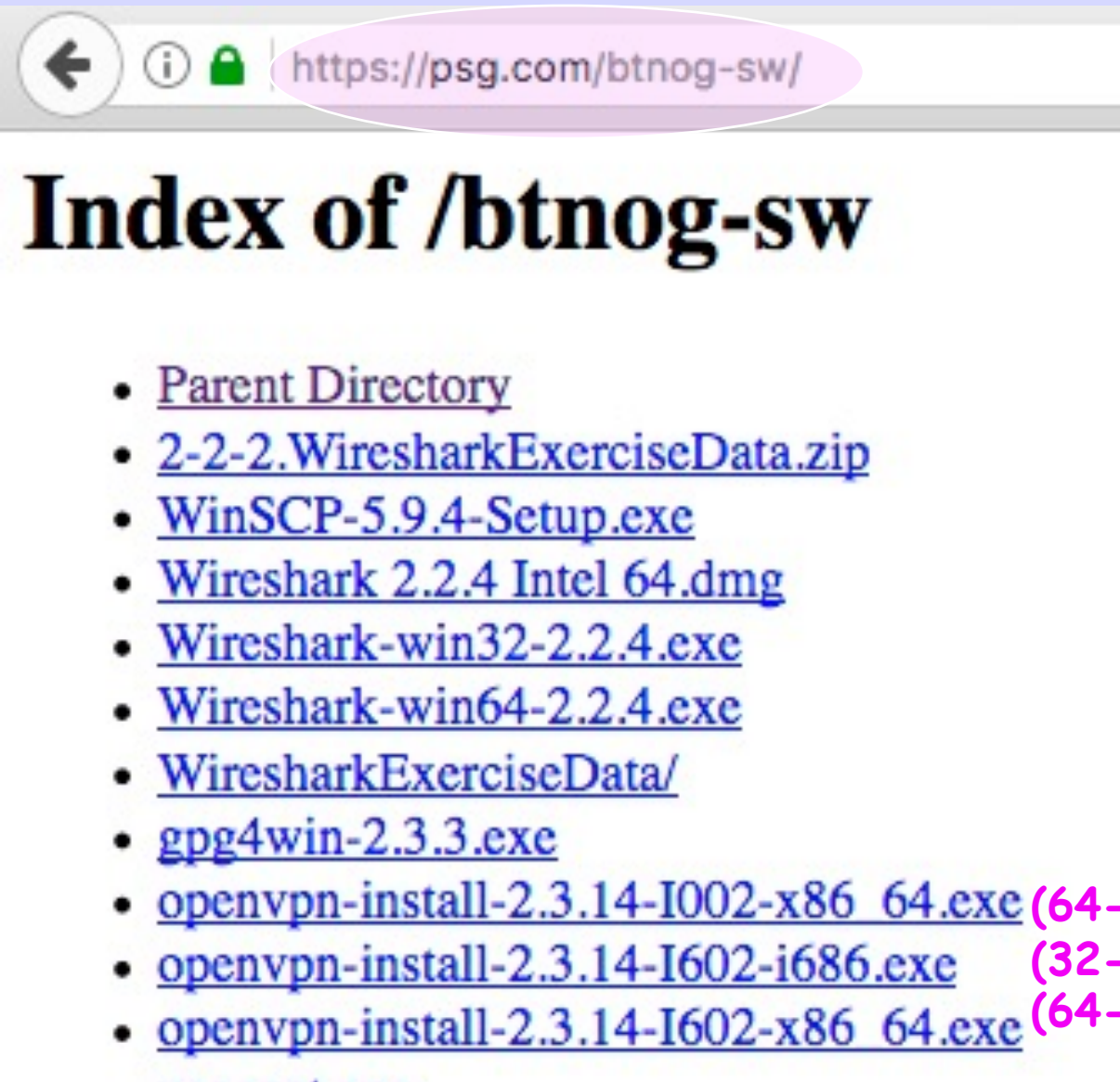
Encryption Algorithm

BF-CBC (128-bit)

Select a Client

<http://psg.com/1.html>

Or Get One Here



(64-bit), Windows XP
(32-bit), Windows Vista and later
(64-bit), Windows Vista and later

OpenVPN Clients for Various Platforms

OpenVPN Community Client - Binaries for Windows, Source for other platforms.

OpenVPN For Android - Recommended client for Android

FEAT VPN For Android - For older versions of Android

OpenVPN Connect: Android (Google Play) or iOS (App Store) - Recommended client for iOS

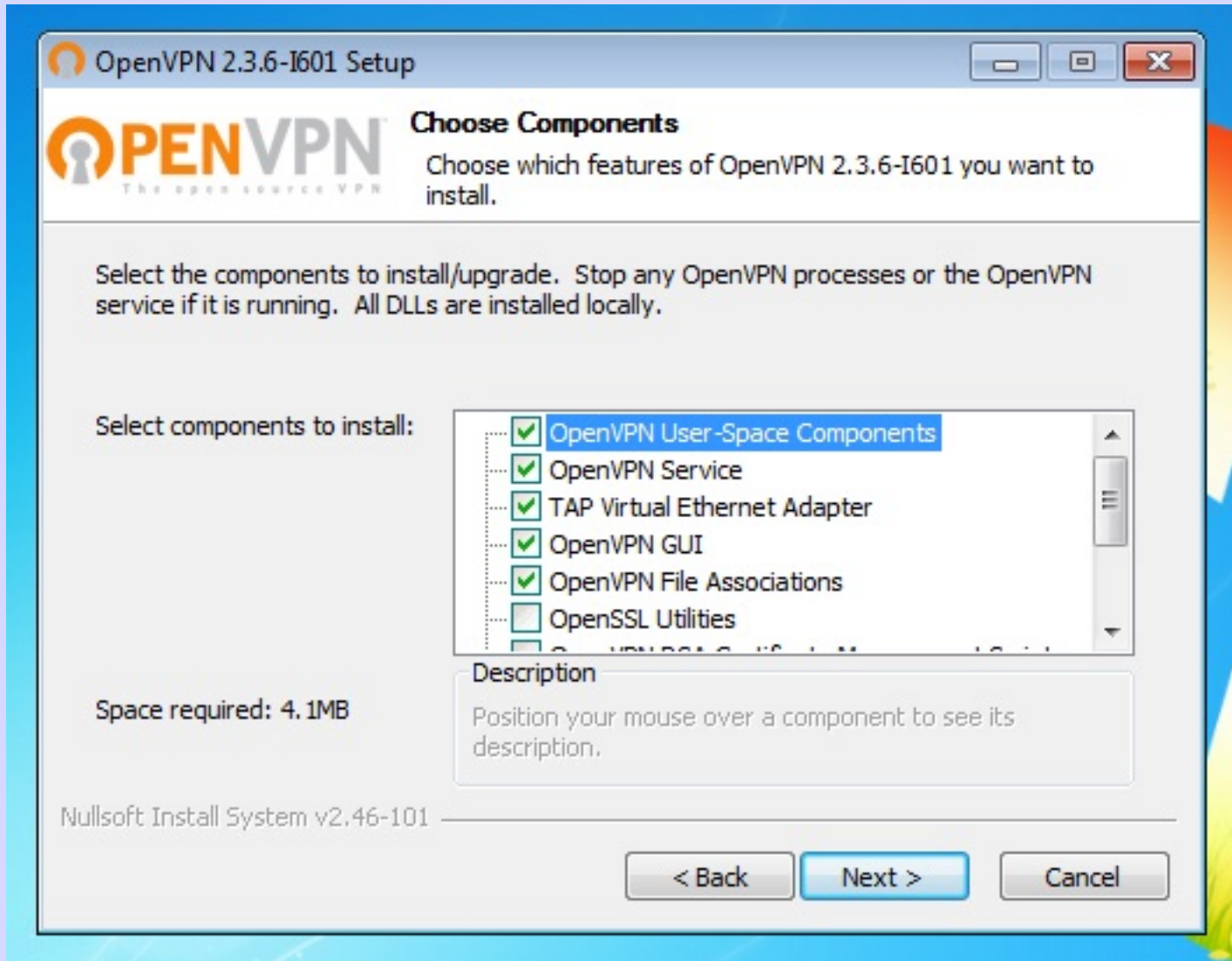
Viscosity - Recommended GUI client for Mac OSX \$\$

Tunnelblick - Free client for OSX

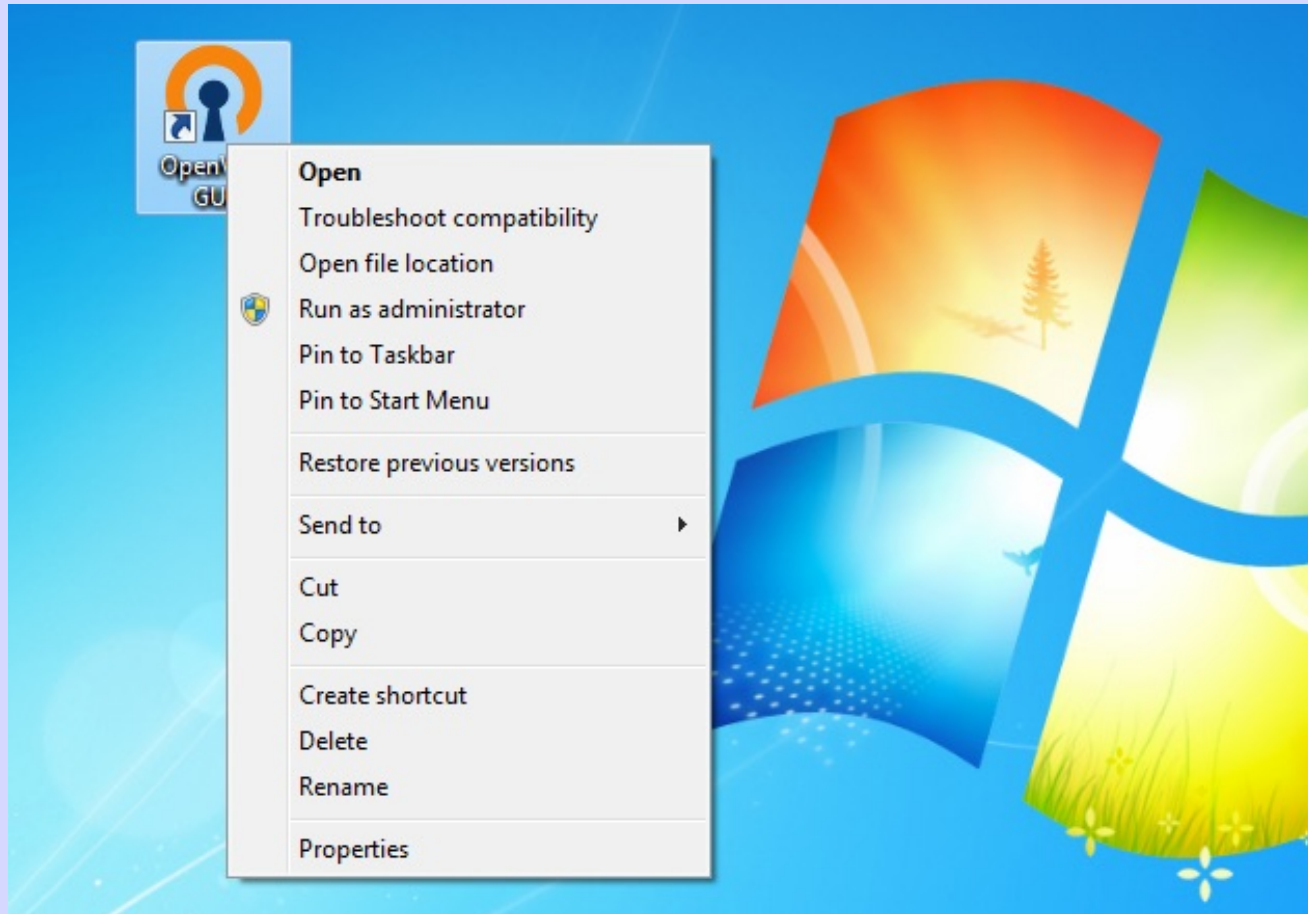
Download Installer



Run Installer

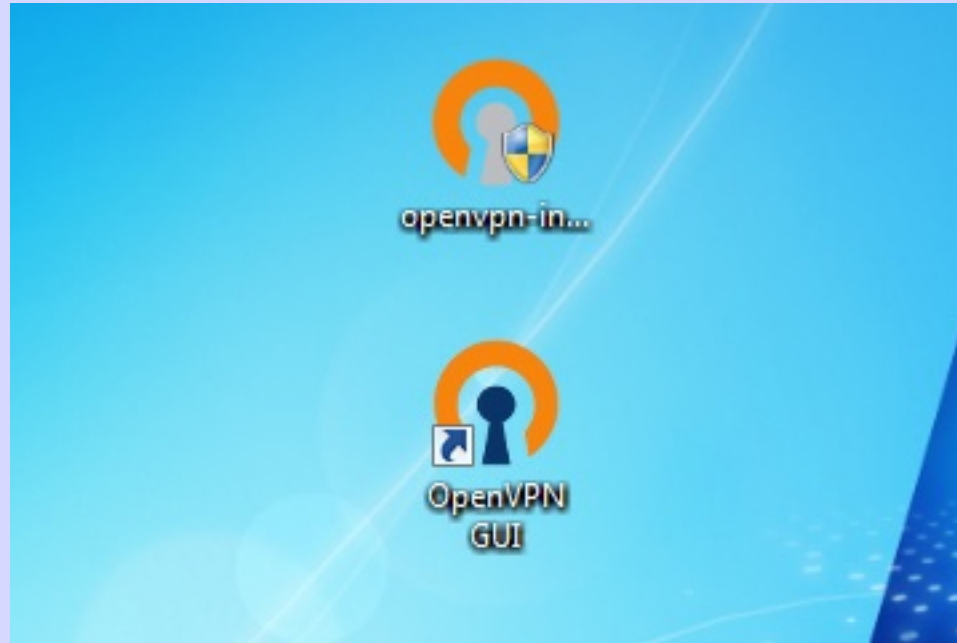


Set RunAsAdmin



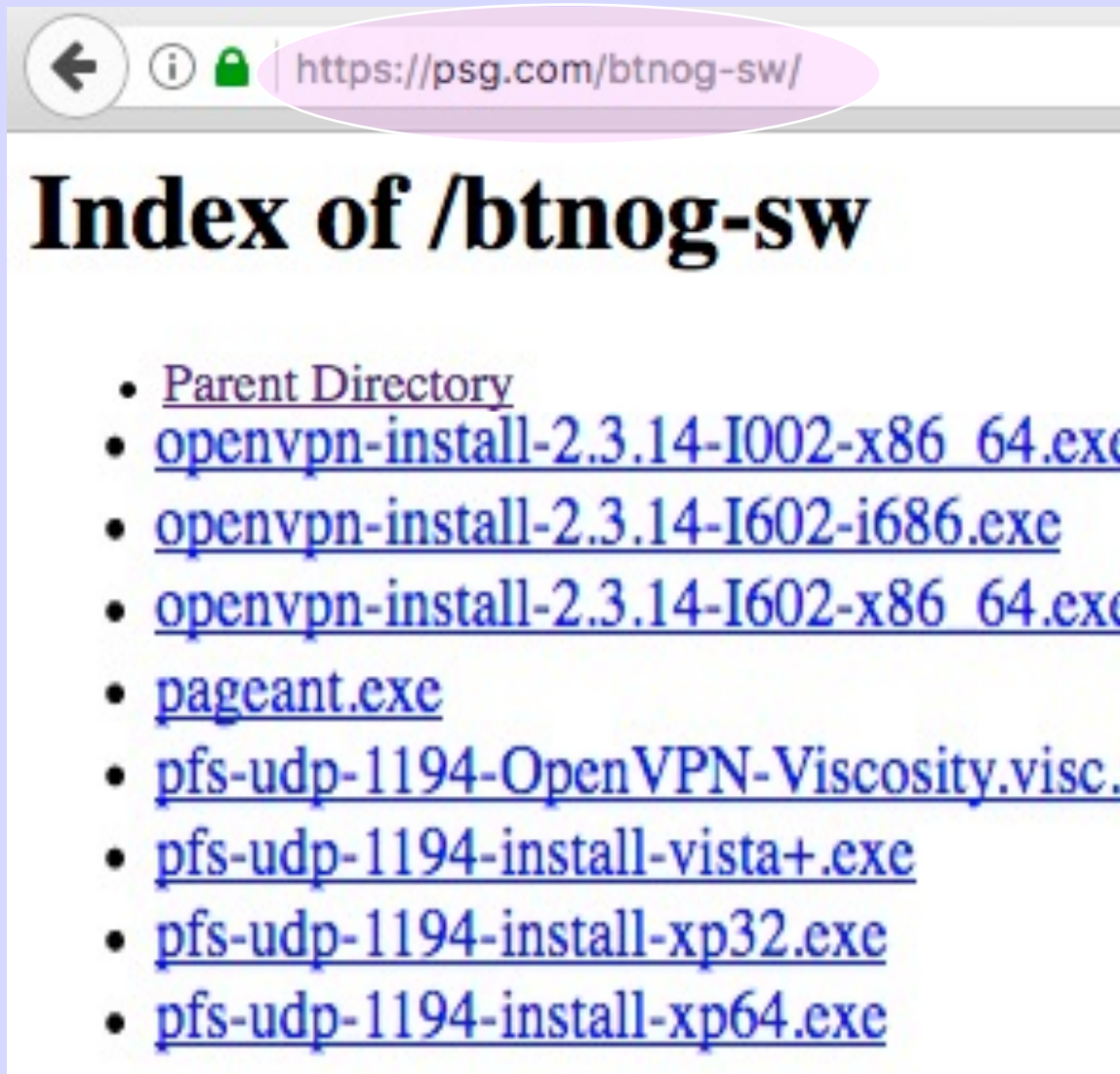
So Client Can Install Routes

Open GUI (invisible)



You Can Delete Installer

Get Credentials



The screenshot shows a web browser window with the address bar containing the URL <https://psg.com/btnog-sw/>. The page title is "Index of /btnog-sw". Below the title, there is a list of files for download:

- [Parent Directory](#)
- [openvpn-install-2.3.14-I002-x86_64.exe](#)
- [openvpn-install-2.3.14-I602-i686.exe](#)
- [openvpn-install-2.3.14-I602-x86_64.exe](#)
- [pageant.exe](#)
- [pfs-udp-1194-OpenVPN-Viscosity.visc.zip](#)
- [pfs-udp-1194-install-vista+.exe](#)
- [pfs-udp-1194-install-xp32.exe](#)
- [pfs-udp-1194-install-xp64.exe](#)

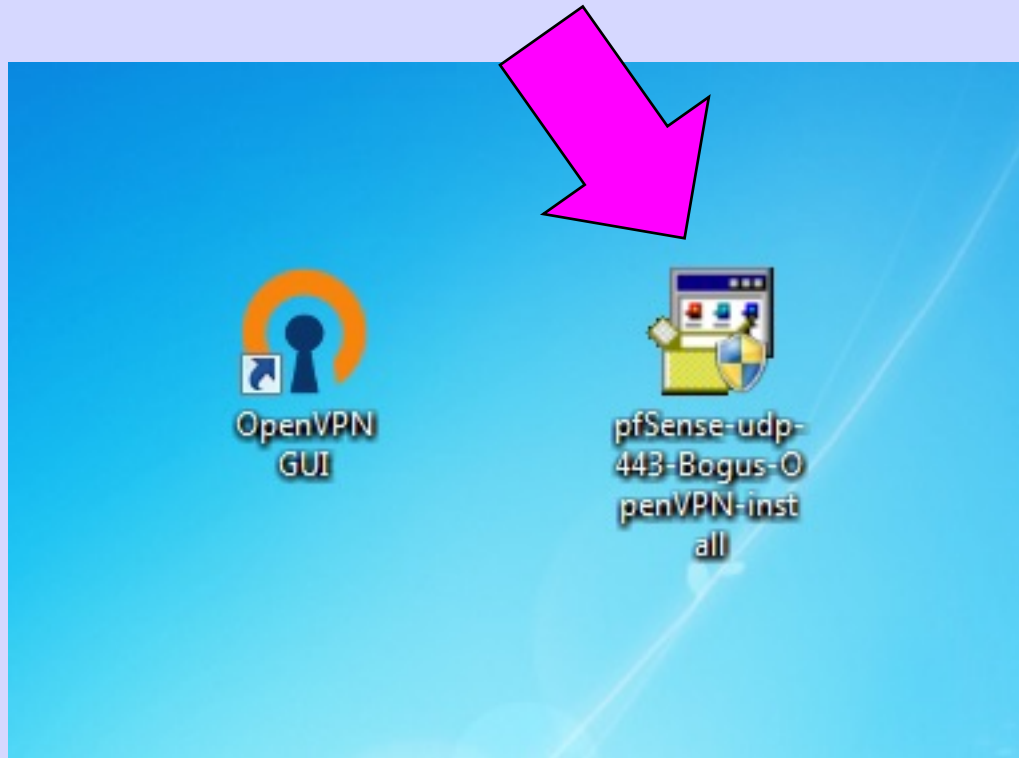
MacOS

Windows Vista and later

(32-bit), Windows XP

(64-bit), Windows XP

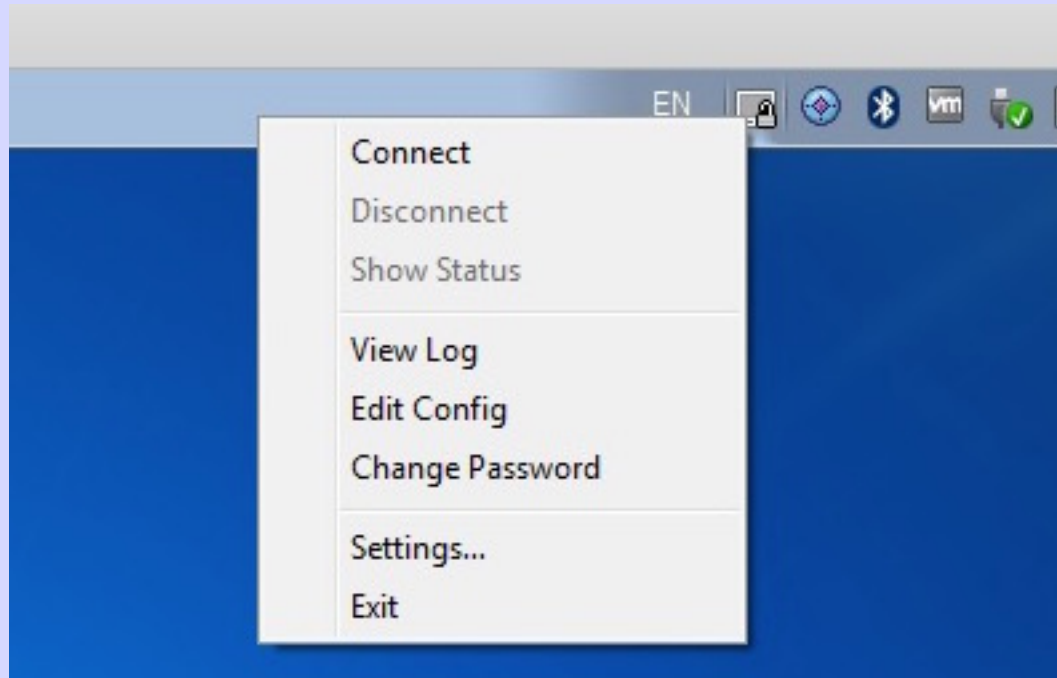
Execute Credential EXE



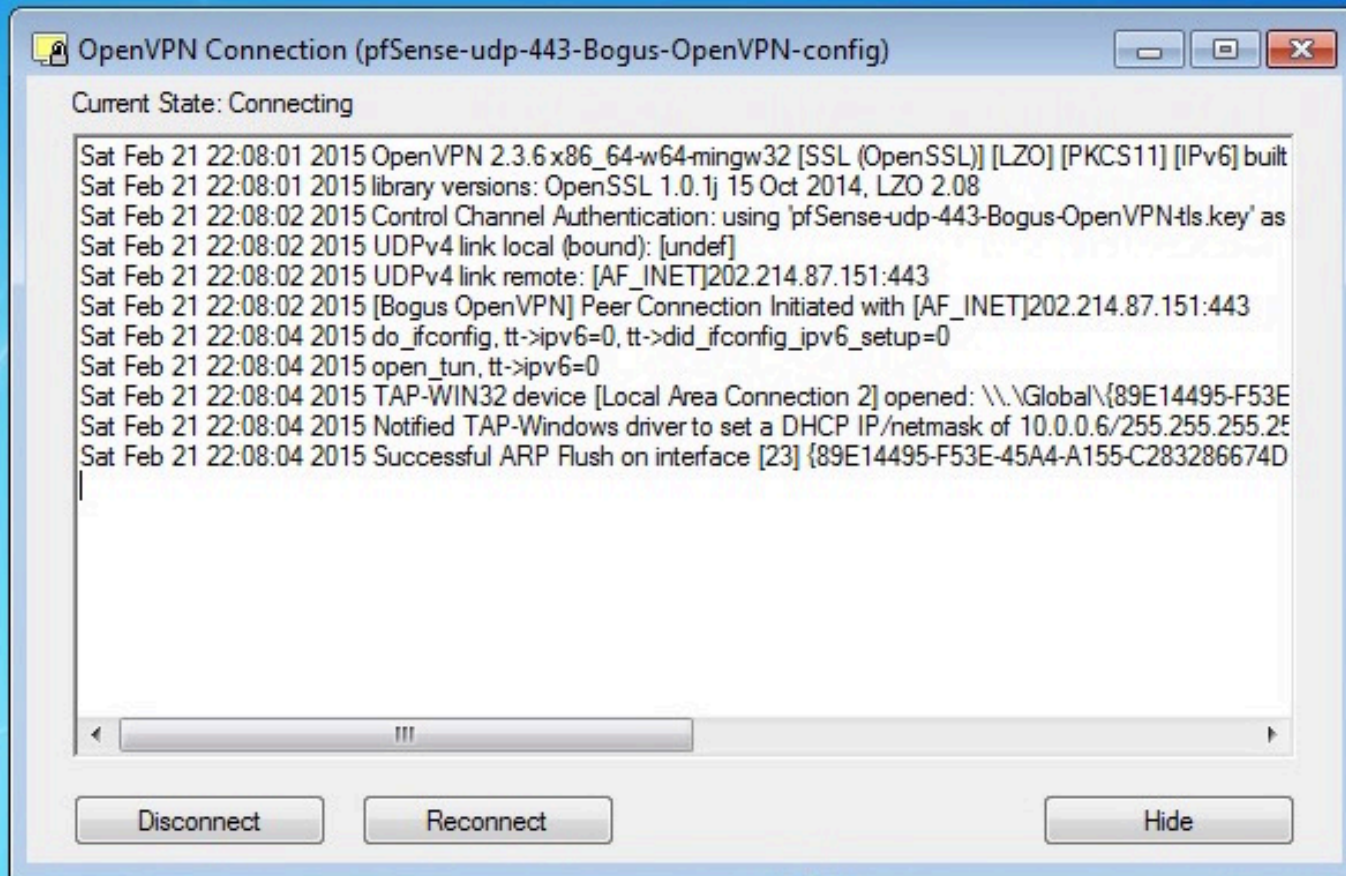
Install Credentials



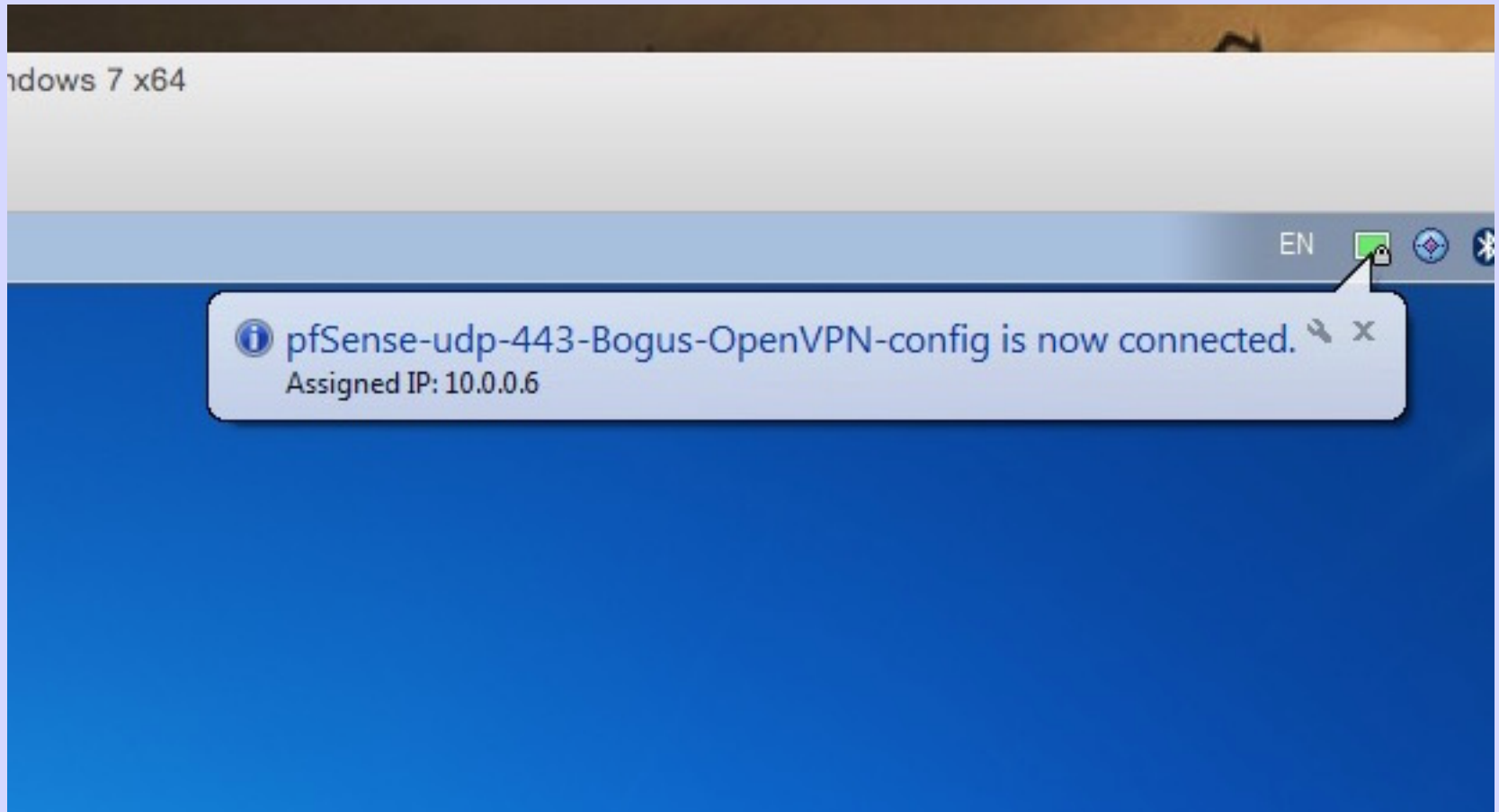
Connect



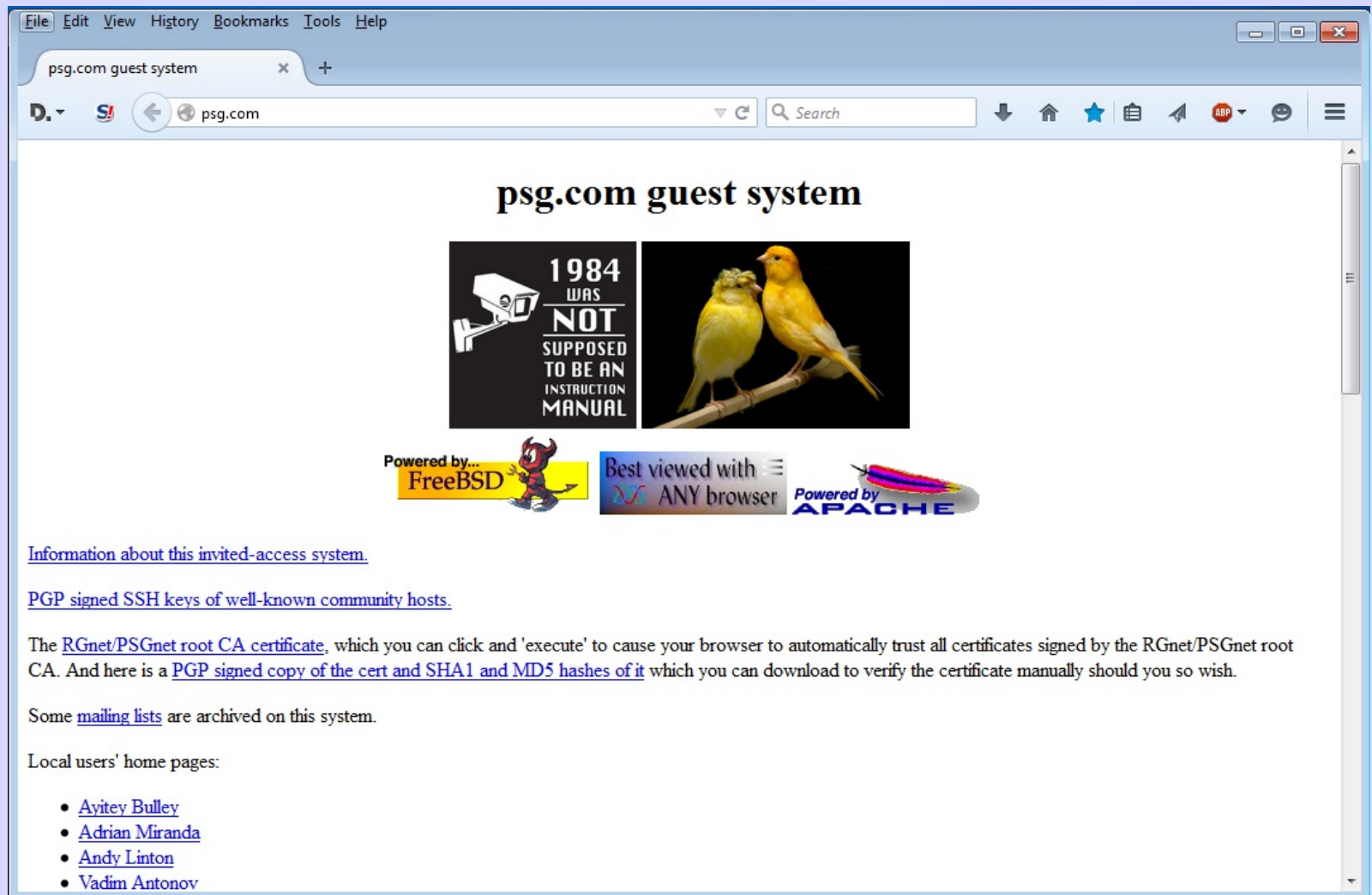
Connecting



You're Connected!



Try It - Browse



But How Do You Know It Works?

Is your traffic encrypted?

Use Wireshark!

Where are you?

traceroute psg.com

Without VPN

```
ryuu.psg.com:/Users/presenter> traceroute psg.com
traceroute to psg.com (147.28.0.62), 64 hops max, 52 byte packets
 1 252.151.dhcp.conference.apricot.net (220.247.151.252) 1343.693 ms 1.342 ms 1.108 ms
 2 ci53.23-213.netnam.vn (101.53.23.213) 1.390 ms 1.635 ms 1.551 ms
 3 172.20.1.2 (172.20.1.2) 1.625 ms 1.587 ms 1.734 ms
 4 1-43_2313.r0.409.mi.hk.iptp.net (103.6.131.174) 66.879 ms 51.207 ms 53.409 ms
 5 63-218-211-141.static.pccwglobal.net (63.218.211.141) 266.357 ms 207.636 ms 224.782 ms
 6 hundredge0-5-0-0.br02.hkg08.pccwbtn.net (63.223.29.198) 54.618 ms 52.381 ms 51.697 ms
 7 63-218-205-86.static.pccwglobal.net (63.218.205.86) 52.479 ms 56.466 ms 52.707 ms
 8 ae-12.r24.osakjp02.jp.bb.gin.ntt.net (129.250.2.223) 104.518 ms * 105.996 ms
 9 ae-4.r20.sttlwa01.us.bb.gin.ntt.net (129.250.2.39) 180.351 ms 182.174 ms
   ae-12.r24.osakjp02.jp.bb.gin.ntt.net (129.250.2.223) 104.324 ms
10 ae-4.r20.sttlwa01.us.bb.gin.ntt.net (129.250.2.39) 182.066 ms
   ae-29.r05.sttlwa01.us.bb.gin.ntt.net (129.250.2.89) 211.749 ms
   ae-4.r20.sttlwa01.us.bb.gin.ntt.net (129.250.2.39) 184.729 ms
11 ae-29.r05.sttlwa01.us.bb.gin.ntt.net (129.250.2.89) 209.519 ms
   ae-28.r05.sttlwa01.us.bb.gin.ntt.net (129.250.2.45) 208.254 ms
   ae-29.r05.sttlwa01.us.bb.gin.ntt.net (129.250.2.89) 209.292 ms
12 psg.com (147.28.0.62) 216.953 213.717 218.281
```


With VPN

ryuu.psg.com:/Users/presenter> traceroute psg.com

traceroute to psg.com (147.28.0.62), 64 hops max, 52 byte packets

```
1 10.0.1.1 (10.0.1.1) 1773.479 ms 103.112 ms 103.036 ms
2 202.214.87.130 (202.214.87.130) 104.809 ms 104.118 ms 103.963 ms
3 210.138.9.201 (210.138.9.201) 109.969 ms 105.199 ms 103.556 ms
4 tky009ipgw11.iij.net (58.138.112.53) 104.284 ms 106.700 ms 104.392 ms
5 tky009bb01.iij.net (58.138.112.157) 104.760 ms 104.872 ms 105.114 ms
6 sea001bb00.iij.net (58.138.88.230) 236.930 ms 239.763 ms *
7 six (206.81.80.23) 237.853 ms 237.146 ms 237.147 ms
8 147.28.0.62 (147.28.0.62) 216.686 ms 211.543 ms 210.681 ms
```