DNSCrypt Windows Guide

Securing Communications

I. Introduction

DNSCrypt is a software application (tool) for securing communications between a client (YOUR PC) and a DNS resolver (THEIR Server).

What's wrong with DNS queries? For one, they're not encrypted. That opens the door to:

- **Spying**: Attackers use DNS to spy on Internet users' online activity via DNS replay, observation, and timing attacks.
- **Man-in-the-middle attacks**: When an attacker intercepts the communication stream and impersonates both the local and remote station.
- **Resolver impersonation**: Intermediaries hijack DNS traffic destined for trusted naming servers, rerouting them to malicious name servers; which in turn, provide fraudulent query responses.

When you type a name in the URL field of a web browser, you expect to go to the appropriate web site. But if something or someone is messing with the DNS query, that may not be the case. For example, instead of going to your bank's website, you may be sent to a very good copy of the actual website specifically to steal your banking credentials.

This guide describes how to install and configure DNSCrypt on your Windows PC.

II. Specifications and Requirements (2013-09-15)

1. DNSCrypt Site: http://dnscrypt.org
2. Download Page: http://download.dnscrypt.org/dnscrypt-proxy
3. dnscrypt-proxy-win32-full-1.3.3.zip 766KB MD5: AD85A550B011369FAC9AA478E2B3B8A3
4. Windows XP SP3, Vista, 7, 8, 8.1

III. DNSCrypt Installation and Configuration

1. Download dnscrypt-proxy-win32-full-1.3.3.zip and confirm the MD5 hash integrity for authenticity by using HashTab. It's a free Windows Explorer extension that adds a "File Hash" Tab.

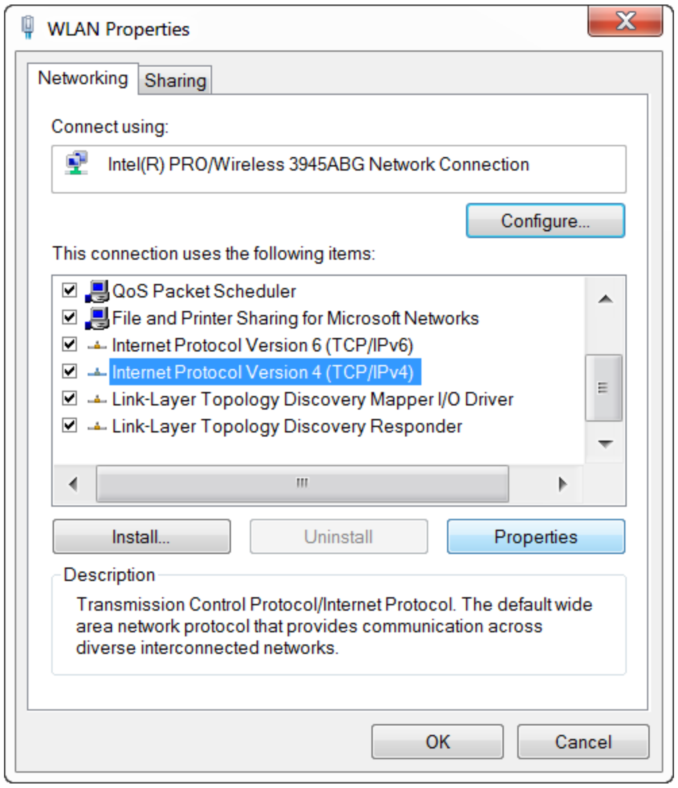
2. Under the Program Files\ directory create the following DNSCrypt folder. Then copy or move the following files into this folder you just made; dnscrypt-proxy.exe, libldns-1.dll, libsodium-4.dll.

3. Next open a terminal (run cmd.exe) and type (you may need to specify the full path to the file): dnscrypt-proxy.exe --install (if later you want uninstall use dnscrypt-proxy.exe –uninstall)

4. Change your DNS settings to 127.0.0.1 for IPv4 and ::1 for IPv6.

   To do that go to the following location;

   Control Panel\Network and Internet**Network Connections** and right click over the network adapter (RJ-45 Ethernet and or WLAN) that your wanting to use DNSCrypt with by selecting "properties". On the networking tab scroll down and right click over IPv4 selecting "properties" and enter 127.0.0.1 as the preferred DNS server address.



WLAN Properties

Networking | Sharing

Connect using:

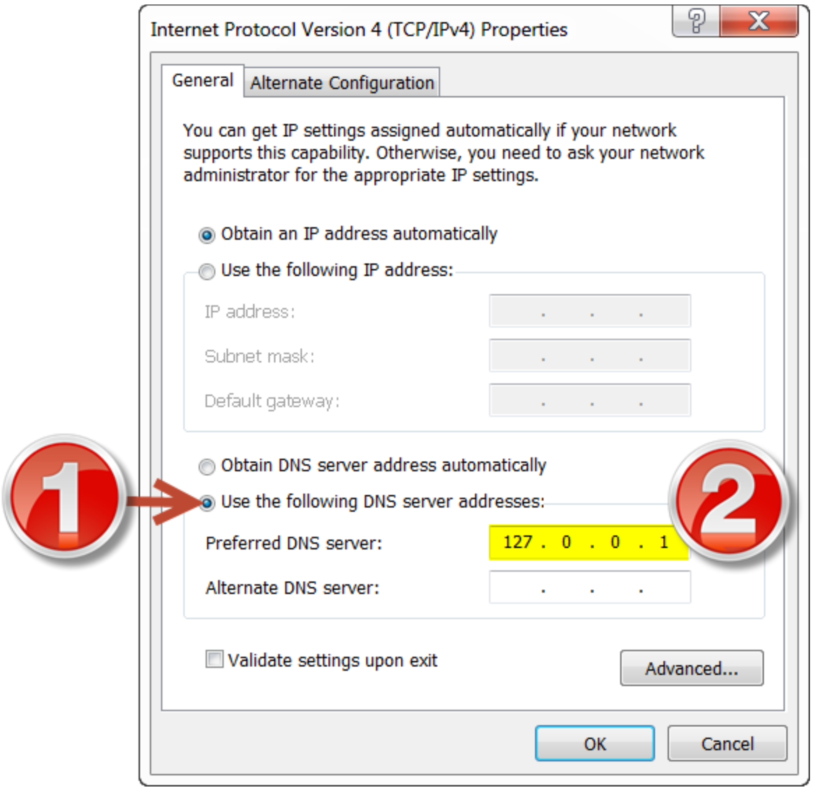
Intel(R) PRO/Wireless 3945ABG Network Connection

This connection uses the following items:

☑ QoS Packet Scheduler
☑ File and Printer Sharing for Microsoft Networks
☑ Internet Protocol Version 6 (TCP/IPv6)
☑ Internet Protocol Version 4 (TCP/IPv4)
☑ Link-Layer Topology Discovery Mapper I/O Driver
☑ Link-Layer Topology Discovery Responder

Description

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.



Internet Protocol Version 4 (TCP/IPv4) Properties

General | Alternate Configuration

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

● Obtain an IP address automatically
○ Use the following IP address:

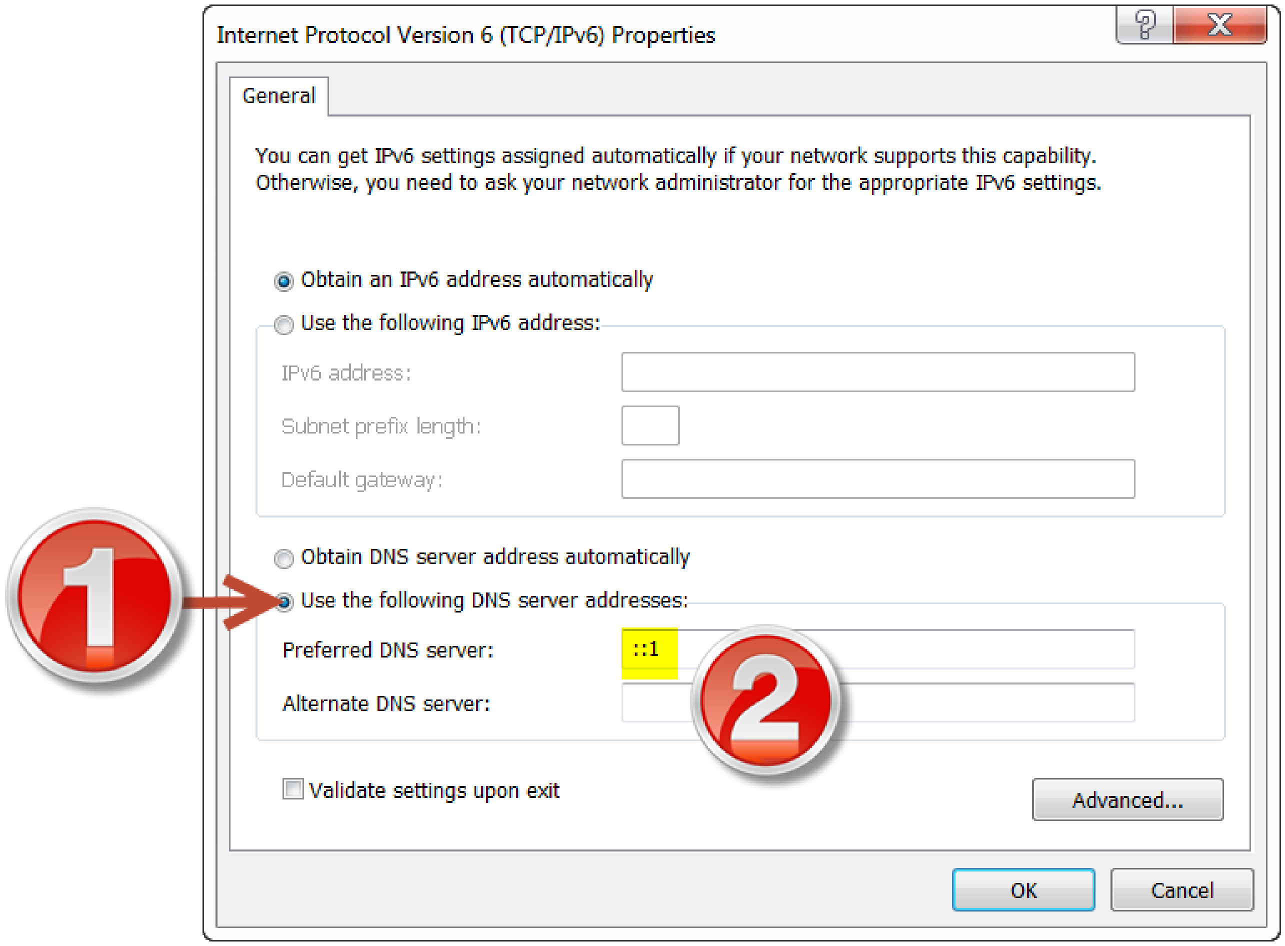
IP address: . . .
Subnet mask: . . .
Default gateway: . . .

○ Obtain DNS server address automatically
● Use the following DNS server addresses:

Preferred DNS server: 127 . 0 . 0 . 1
Alternate DNS server: . . .

☐ Validate settings upon exit

Then do the same for IPv6 except enter ::1 as the preferred DNS server address.



Internet Protocol Version 6 (TCP/IPv6) Properties

General

You can get IPv6 settings assigned automatically if your network supports this capability.
Otherwise, you need to ask your network administrator for the appropriate IPv6 settings.

● Obtain an IPv6 address automatically

○ Use the following IPv6 address:

IPv6 address:

Subnet prefix length:

Default gateway:

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: ::1

Alternate DNS server:

□ Validate settings upon exit

5. DNSCrypt v1.1.3 comes setup by default to use the OpenDNS service for the DNS resolving server. However, you can easily insert any other DNScrypt-enable resolver address such as DNScrypt.EU.

6. Copy the following text (below) into a text file (txt) and rename the file extension from "txt" to "reg" so later you can MERGE the parameter values into the registry or manually import them yourself.

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\dnscrypt-proxy\Parameters]
"ProviderKey"="67C0:0F2C:21C5:5481:45DD:7CB4:6A27:1AF2:EB96:9931:40A3:09B6:2B8D:1653:1185:9C66"
"ProviderName"="2.dnscrypt-cert.dnscrypt.eu"
"ResolverAddress"="176.56.237.171:443"
"LocalAddress"="127.0.0.1"
```

After importing the REG file reboot the PC. Then check https://www.dnsleaktest.com to see if everything is working correctly after you've set it up.

IV. Current List of FREE DNSCrypt-enabled resolvers

DNSCrypt.eu (no logs)
Holland Server address: 176.56.237.171:443
Provider name: 2.dnscrypt-cert.dnscrypt.eu
Public key: 67C0:0F2C:21C5:5481:45DD:7CB4:6A27:1AF2:EB96:9931:40A3:09B6:2B8D:1653:1185:9C66

OpenDNS
San Francisco, U.S. Server address: 208.67.220.220:443
Provider name: 2.dnscrypt-cert.dnscrypt.org
Public key: B735:1140:206F:225D:3E2B:D822:D7FD:691E:A1C3:3CC8:D666:8D0C:BE04:BFAB:CA43:FB79

CloudNS (no logs)
Canberra, Australia
Server address: 113.20.6.2:443 or gc2tzw6lbmeagrp3.onion:443
Provider name: 2.dnscrypt-cert.cloudns.com.au
Public key 1971:7C1A:C550:6C09:F09B:ACB1:1AF7:C349:6425:2676:247F:B738:1C5A:243A:C1CC:89F4

Sydney, Australia
Server address: 113.20.8.17:443 or l65q62lf7wnfme7m.onion:443
Provider name: 2.dnscrypt-cert-2.cloudns.com.au
Public key: 67A4:323E:581F:79B9:BC54:825F:54FE:1025:8B4F:37EB:0D07:0BCE:4010:6195:D94F:E330

OpenNIC (no logs)
Japan Server address: 106.186.17.181:2053
Provider name: 2.dnscrypt-cert.ns2.jp.dns.opennic.glue
Public key: 8768:C3DB:F70A:FBC6:3B64:8630:8167:2FD4:EE6F:E175:ECFD:46C9:22FC:7674:A1AC:2E2A

V. Have a suggestion to improve this Guide?

What to know more about DNScrypt?

1) http://shinobi.dempsky.org/~matthew/dnscurve.org-20090517/index.html
2) http://www.opendns.com/technology/dnscrypt

You may find it interesting to discover the video documentary "Paradise or Oblivion" and "Thrive".