Technical Documentation





OpenVPN Installation

PENVPN® Connection to SECON-Server



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1 Overview

1.1 SECON-X system components

SECON-X is a hardware-software network system which comprises several components (see figure below) and performs the following tasks:

- Global data access with web interface to SECON clients (VISY, VAPORIX)
- Remote diagnostics
- Remote display, evaluation and data storage
- Universal data format



SECON-X Components

Figure 1: SECON-X system and components

1.2 About this document

This documentation describes how to install the software OpenVPN for an encrypted and secure VPN connection of user clients to the SECON-Server. For installation and operation of further SECON devices, see:



SECON-Client, technical documentation, art. no. 350076

SECON-Lev Administrator, technical documentation, art. no. 350136

SECON-Lev User Manual, technical documentation, art. no. 350111

SECON-Vap Administrator, technical documentation, art. no. 350134

SECON-Vap User Manual, technical documentation, art. no. 350113



1.3 Connection to the SECON-Server

The connection of the user clients to the SECON-Server (see Figure 1) is established by a secure encrypted Internet connection (VPN Virtual Private Network).

- (1) For the encrypted Internet connection the VPN software **OpenVPN** need to be installed on the used PC, mobile phone or tablet (user clients). OpenVPN is open-source software (free software) with GNU General Public License.
- (2) **Key and configuration files** are required, which are provided by the FAFNIR company.
- (3) For remote access, "Mozilla Firefox", "Opera", "Chrome" or "Safari" are the **preferred web browsers**.



Remote access is currently not possible with Internet Explorer.

1.4 Safety instructions

For use of open source software, the guidelines and safety advice listed applies.



Operator / administrator must ensure regular installation of updates in order to ensure the security of data transmission.



2 **OpenVPN Software Installation**

2.1 Installation for Windows Operating system (32/64 bit)



- (1) Open the **OpenVPN website** at <u>https://openvpn.net/</u>
- (2) The OpenVPN software is located in the community section in the download area.
- (3) Once there, select a valid OpenVPN version for your operating system and save it to your PC.

ervice	VPN Solution	Community	Downloads		Search	Q
Downl	bads					
OpenVi	N 2.3.5 released on	2014.10.28 (Chang	<u>je Log</u>)			
This Oper one additi	VPN release fixes a serious i onal problem in the tap-windo	nteroperability issues wit ws6 driver. In addition a	h OpenVPN and the <mark>ta</mark> fair number of other bu	<u>p-windows6 driver</u> g fixes and small	: Windows installer I602 fixes enhancements are included.	
If you find first, eithe take a loo irc.freenoo	a bug in this release, please r using the <u>openvpn-devel ma</u> k at our official <u>documentation</u> de.net).	file a bug report to our <u>T</u> allinglist or the developer <u>a, wiki, forums, openvpn-</u>	rac bug tracker. In unc IRC channel (#openvp <u>users mailing list</u> and u	ertain cases pleas n-devel at irc.free ser IRC channel (se contact our developers enode.net). For generic help #openvpn at	
Source Ta	ball (gzip)	openvpn-2.3.5.tar.gz	GnuP	<u>G Signature</u>		
Source Ta	rball (xz)	openvpn-2.3.5.tar.xz	GnuP	<u>G Signature</u>		
Source Zij	,	openvpn-2.3.5.zip	GnuP	<u>G Signature</u>		
Installer (3	2-bit), Windows XP and later	openvpn-install-2.3.5-1001-i6	<u>GnuP</u>	<u>G Signature</u>		
Installer (6	4-bit), Windows XP and later	openvpn-install-2.3.5-1001-x	86_64.exe <u>GnuF</u>	<u>G Signature</u>		
Installer (3	2-bit), Windows Vista and later	openvpn-install-2.3.5-I602-i6	<u>GnuF</u>	<u>G Signature</u>		
Installer (6	4-bit), Windows Vista and later	openvpn-install-2.3.5-I602-x	86_64.exe GnuP	<u>G Signature</u>		
					J	

Figure 2: Windows OpenVPN

(4) *Install OpenVPN with the default settings* preferably not in the default directory, but in a new installation directory (e.g. C:\OpenVPN).



(5) Confirm installation of the "TAP Window adapter", see the following figure:



Figure 3: TAP Window Adapter

(6) The successful installation is confirmed with the following message:

n OpenVPN 2.3.5-1602 Setu	p	
OPENVPN	Installation Complete Setup was completed successfully.	
Completed		
Completed		*
Nullsoft Install System v2.46-1	01	Cancel

Figure 4: Installation note

(7) Finish the installation by clicking on <Finish>.



Figure 5: Complete installation



(8) Open the "properties" menu by right-clicking the mouse onto the OpenVPN icon and confirm "Run the program as administrator" for all users, see the following figures:

Security	Details	Previous Versions		
General	Shortcut	Compatibility		
If you have probler an earlier version o matches that earlie	ns with this program f Windows, select th r version.	and it worked correctly on ne compatibility mode that		
Help me choose	the settings	openvpn-gui Properties 🗧		
- Compatibility moo	le gram in compatibility	Compatibility for all users		
Windows Vista		If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version.		
Settings		Compatibility mode		
Run in 256	colors	Run this program in compatibility mode for:		
Run in 640 :	< 480 screen resolut	Windows Vista 👻		
Disable visu	al themes			
📃 Disable desl	<top composition<="" td=""><td>Settings</td></top>	Settings		
Disable disp	lay scaling on high [PPI Run in 256 colors		
- Privilege Level-		Run in 640 x 480 screen resolution		
Bun this pro	gram as an administ	Disable visual themes		
	gran de an danimier	Disable desktop composition		
Change settin	gs for all users	Disable display scaling on high DPI settings		
		Privilege Level		
	OK	Run this program as an administrator		

- (9) Open the OpenVPN installation directory (e. g. C:\OpenVPN)
- (10) Copy the OpenVPN key and configuration files provided by FAFNIR to the "config" sub-directory of the installation directory (e. g. C:\OpenVPN\config):

```
"ca.crt"
"SECON-VPN-Client.ovpn"
"USER-AAA-BBBB.crt" (AAA-BBBB represents a USER ID)
"USER-AAA-BBBB.key" (AAA-BBBB represents a USER ID)
```



If you are not using the FAFNIR server, you must enter the IP address of your server within the file "**SECON VPN Client.ovpn**" instead of the FAFNIR IP address. Copy the modified file as a backup file.



- (11) Start OpenVPN by a double-click on the **OpenVPN GUI** link. Now the OpenVPN icon is displayed in the info area of the task bar.
- (12) OpenVPN connection / disconnection

Right-click on the OpenVPN icon and select "*Connect*" for connection or "*Disconnect*" for disconnection.



Figure 7: OpenVPN connection / disconnection

After successful connection, the colour of the icon will change to **green**.

(13) Open your web browser and enter the SECON-Server address in the address bar (in this example, the FAFNIR SECON-Server <u>http://10.0.8.1</u>):



Figure 8: SECON-Server startup screen



2.2 Installation for Mac OS X operating system

For installation, administrator rights are required.

- (1) Open the Tunnelblick Homepage <u>https://code.google.com/p/tunnelblick</u>
- (2) The OpenVPN open source software for Mac OS "Tunnelblick" is a current stable version available in the tab "Downloads" under "Tunnelblick Stable Release".
- (3) There, select the OpenVPN version suitable for your Mac OS operating system and save it to install on your Mac.



Figure 9: Macintosh OpenVPN (Tunnelblick)

- (4) Run the downloaded file
- (5) Start the installation by double-click on "Tunnelblick" and enter the following confirmation prompt, see the following figure ...



00		Tunnelblick	
		Tunnelblick.app Double-click to	Online Documentation.webloc
	Tuni Intern Do Tuni Chrom dca3.c	nelblick.app" is an applicati net. Are you sure you want on't warn me when opening a elblick.app" is on the disk image the.app downloaded this disk image dl.sourceforge.net.	on downloaded from the to open it? pplications on this disk image Tunnelblick_3.3.dmg". Google a today at 5:20 AM from superb-
Tunnelblick	·		

Figure 10: Confirmation prompt

(6) The successful installation will be confirmed by a message, see the following figure. Start Tunnelblick by clicking on <Launch>:



Figure 11: Launching Tunnelblick



- (7) Key and configuration files provided by FAFNIR are required for connecting to the SECON-Server.
- (8) Confirm the following prompt with "I have configuration files":

Welcome to Tunnelblick There are no VPN configurations installed. Tunnelblick needs one or more installed configurations to connect to a VPN. Configurations are installed from files that are usually supplied to you by your network manager or VPN service provider. The files must be installed to be used.
Configuration files have extensions of .tblk, .ovpn, or .conf.
(There may be other files associated with the configuration that have other extensions; ignore them for now.)
Do you have any configuration files?
Quit I DO NOT have configuration files

Figure 12: Configuration files prompt

(9) Confirm the following prompt with "OpenVPN configuration"

	Which Turns of Configuration Do You Haus?					
	There are two types of configuration files:					
Tunnelblick VPN Configurations (.tblk extension)						
	OpenVPN Configurations (.ovpn or .conf extension)					
	Which type of configuration file do have?					
	Back OpenVPN Configuration(s) Tunnelblick VPN Configuration(s)					

Figure 13: Query of the type of configuration files

(10) Save the OpenVPN key and configuration files provided by FAFNIR to your Desktop or a FAT formatted USB stick:

```
"ca.crt"
"SECON-VPN-Client.ovpn"
"USER-AAA-BBBB.crt" (AAA-BBBB represents a USER ID)
"USER-AAA-BBBB.key" (AAA-BBBB represents a USER ID).
```



(11) Drag the OpenVPN key and configuration files to the folder "Empty Tunnelblick VPN Configuration"

FAVORITES	Name	▲ Date Modified	Size	Kind		
All My Files	Ca.crt	Yesterday, 10:40 PM	1 KB	certificate		
AirDrop	client.crt	Yesterday, 10:40 PM	4 KB	certificate		
Applications	🕒 client.key	Yesterday, 10:40 PM	891 bytes	Keynote		
May Applications	client2.conf	Yesterday, 10:40 PM	180 bytes	Document		
Desktop						
Documents		000	Empty Tunnel	blick VPN Configura	ation	H
Ownloads				- 4-		
Movies						and the second second
JI Music		FAVORITES		-		
Pictures		all My Files	ca.crt			
		💮 AirDrop	client.crt			
SHARED		Applications	🕒 client.key			
R8000 ▲		Desktop	client2.conf			
readyshare		Documents				
📃 supportla		Documents				
		Downloads				
		Movies				
auro 14· V/DN	configuration folde	J Music				
Jule 14. VFIN	configuration folde	Pictures				
		SHARED				
		■ R8000 ▲				
		readyshare				
		supportlab				_

- (12) Open the file with the extension .ovpn and confirm the selection.
- (13) Confirm the following installation query for "All Users" respectively "Only me":

Install Configura	tion For All User:	s?
Do you wish to instal	I the 'vpn' configurat	ion so that all
users can use it, or se	o that only you can u	se it?
All Users	Cancel	

Figure 15: Installation for "All Users"

You may need to enter a username and password.

(14) Enter the installation prompt with "OK".

CANNO CANNO	Tunnelblick VPN Configuration Installation One Tunnelblick VPN Configuration was installed successfully.
	ОК

Figure 16: VPN configuration prompt



- (15) After successful installation and configuration the Tunnelblick icon is displayed in the top menu bar, which allows you to open the Tunnelblick window.
- (16) Start/Stop the VPN connection with the "Connect"/"Disconnect" button:



Figure 17: Start of VPN connection

(17) Open your web browser and enter the SECON-Server address in the address bar (in this example, the FAFNIR SECON-Server <u>http://10.0.8.1</u>):

If you use your own server, the configuration files and the server address in the browser bar must be changed accordingly.

(18) It opens the SECON-Server with the startup screen:



Figure 18: SECON-Server startup screen



2.3 Installation for the iOS operating system

(1) On your iPhone / iPad look for the **OpenVPN Connect** app in the **Apple App Store** and install it:

R	OpenVP *****	VPN Connect (14) N Technologies > (39)	Û
	Details	Rezensionen Zugehörig	
Dpost/PH	2	District Control of the second	Diposition Diposition
OpenVPN Connect		OpenVEN Connect	OpenVPN Connect
Profile @ critilisademo yonak.net/cripip		Prode Reminda preservent join	Profile Di Stridiford
Unier ID an		Server amph/2 youk not	Status 😪 Connected
PK Password Save C	ee).	Certificate 👷 met	Connection
Password Save To	(F)	Quer ID et al.	Committee Denaits
Status (E) Enclosurected		Password essentence O Save	Duration (200.17 Lest pack
Connection (TOPT)		Challenge 🚡 Please enter PDI 🛛 👘	Byles in 4.05 KB B
Miner Seven Open WWW Territorial comm.		Response 3485	VPN IPv6 2001.608.3 814,1000 V
P Your Secure and Private Path to the Internet		Status 😸 Dactorected >	User D
VPN Solution for your Business		Connection	Server THEW, 143,117 S
		More trust thereway Tactinologies.	
		2 Your Secure and Private Path to the Internet	New Servers and Drives Date 1
		VPN Solution for your Business	
			-16

Figure 19: iOS OpenVPN

(2) Confirm the access rights and open OpenVPN Connect:

Open OpenVP *****	VPN Connect 4 N Technologies > (39)	Û
Constraints and the second sec	Rezensionen Zugehörig	OpenTVN Caseset Finder OpenTVN Caseset Finder Conset Finder Conset Conset
Your Braves and Proban Ratio by the balance 3 Probability of the second secon	Operating Operating <thoperating< th=""> <thoperating< th=""> <tho< th=""><th>Wer Cl Mar 116 Pr Mar 116 Pr Wer Comparison Provide Wer Total Records Totalisations Provide Wer Mark Records Totalisations Provide Image: State State</th></tho<></thoperating<></thoperating<>	Wer Cl Mar 116 Pr Mar 116 Pr Wer Comparison Provide Wer Total Records Totalisations Provide Wer Mark Records Totalisations Provide Image: State

Figure 20: Open OpenVPN Connect



(3) With **iTunes** open the OpenVPN Connect app on your PC and add the provided key files to the folder **"Documents of OpenVPN":**

DS	Dokumente von "OpenVPN":	
DataCollection		
Files ² HD		
Fon		
iFiles		
Infinite Flight		
MagicPlan		
ManualViewer		
QuickEdit		
SSH Term		
USB Disk		
Wi-Fi SD		Datei hinzufügen Speichern al

Figure 21: Opening OpenVPN Connect with iTunes

(4) Synchronize the key files with your iPhone / iPad:

Freigabe						
Mit folgenden Apps	Apps können Sie Dokumente zwischen dem iPad	d und diesem Compute	er übertragen. n "OpenVPN":			
Data	Collection	README.txt			11.08.2011 1- 19.12.2014 1	4:14 8 KB 1:31 8 KB
Files	² HD	USER-003-0003	3.crt 3.key		10.05.2012 1 10.05.2012 1	0:33 8 KB 6:33 8 KB
Fon		(P) VAPORIX_Serv	er.ovpn		06.02.2013 1	2:12 8 KB
iFiles						
	ite Flight					
Mag	icPlan					
Man	ualViewer					
Ope	ιVPN					
💋 Quid	kEdit					
SSH SSH	Term					
USB USB	Disk					
Wi-F	i SD				Datei hinzufügen	speichern als
Fotos		Apps	Andere	8,35 GB frei	Synchronisleren	1

Figure 22: Synchronizing OpenVPN Connect files



(5) Within OpenVPN Connect, click onto the green circle to add the server:

•••• Voda	fone.de.국 your Private Tunnel profile. 10:21	Go Lädt nicht 💷
About	OpenVPN	× Help
?	If you are importing a profile from an OpenVPN Access Server, log into the server using Safari and cli locked" or "autologin" profile.	ick on "user- Go
	Using iTunes Sync, select your device, go to OpenVPN under the "apps" tab, and drop your .ovpn ar cert/key files into the file sharing window.	nd related
$\mathbf{\times}$	If you receive the profile as a .ovpn attachment in the Mail app, you can open it in OpenVPN (Note: th is less secure).	nis method
2	More Help	>
NEW PR	OFILES ARE AVAILABLE	
	1 new OpenVPN profile is available for import.	2
<u>C</u>	. Server utologin profile	\supset
MORE FI	ROM OPENVPN TECHNOLOGIES	
0	Private Tunnel Your Secure and Private Path to the Internet	>
R	OpenVPN Access Server VPN Solution for your Business	>
OpenVPN	N is a registered trademark of OpenVPN Technologies, Inc.	

Figure 23: Adding OpenVPN Connect Server

(6) For the trusted connection or termination of the secure connection click the "Connection" button and confirm the following prompt:



Figure 24: Secure VPN connection on / off



(7) The secure VPN connection is shown with the **green connection symbol**:

•••• Vodafone.	de 🗢 VPN	10:21	Lädt nicht 🔳
About		OpenVPN	Help
၇ Oper	VPN Con	inect	
Profile	Q ;	Server Autologin profile	
Status	📝 (Connected	>
Connectio	n 💽		
CONNECTION	N DETAILS		
Duration	0:00:04	Last packet received 4 seconds ago	
Bytes In	3.39 KB	Bytes Out 2.47 KB +	
MORE FROM	OPENVPN TE	ECHNOLOGIES	
P	rivate Tunn	nel Your Secure and Private Path to the Internet	>
() o	penVPN Ad	ccess Server VPN Solution for your Business	>
OpenVPN is a	registered tra	ademark of OpenVPN Technologies, Inc.	

Figure 25: Secure VPN connection established

(8) Open your web browser with the server address <u>http://10.0.8.1.</u> The secure connection is displayed with a VPN icon in the menu bar:



Figure 26: SECON-Server startup screen with secure VPN connection



2.4 Installation for the Android operating system

 On your Android phone or Android tablet look for the **OpenVPN Connect** app at Google Play Store and install it:

.		6	🛙 🖬 12:53
			Q
	Connect Secure		
	OpenVPN Connect	E	
	Für Telefone entwickelt	EREN	
	Downloads 54.954≛ Kommunikatio Äl n	Inlich	
	OpenVPN Connect ist die offizielle Android-VPN-Client für OpenVPN-Server.		
	WEITERLESEN		

Figure 27: Android OpenVPN

(2) Confirm the access rights:



Figure 28: Access rights



(3) Open the OpenVPN Connect app:



Figure 29: Open OpenVPN Connect

(4) Open the "Settings" menu in the OpenVPN startup screen:



Figure 30: OpenVPN Connect startup screen

(5) Select the menu item "Import" and then "Import profiles from SD card":

	_	
About		
Help		
mport 🕟		
Preferences		
Add Proxy		Import Private Tunnel Profile 🔒
Add Shortcut		Import Access Server Profile
Show log file		Import Profile from SD card
More		Import PKCS#12 from SD card



Figure 32: Drop-down list "Import profiles from SD card"



Save the key and configuration files provided by FAFNIR:

"ca.crt" "SECON-VPN-Client.ovpn" "USER-AAA-BBBB.crt" (AAA-BBBB represents a USER ID) "USER-AAA-BBBB.key" (AAA-BBBB represents a USER ID) on the SD card of your Android phone / tablet or on a FAT formatted USB stick.

(6) Open that folder in the import query.

		⊿ 🖬 10	:51
OpenVPN Connect			
Please select .ovpn profile to import			
Location. / Sucaru			
I /			
■/			
🖿 Alarms			
Android			
DCIM			
Download			
Movies			
Music			
Notifications			
Pictures			
Podcasts			
Binatones			
Select		Cancel	
Ş			

Figure 33: Import query



(7) Choose the file with the extension .ovpn and confirm this selection with "Select":



Figure 34: Selection of the ovpn profile

(8) Select "Connect" to establish the secure VPN connection



Figure 35: Execution of the secure VPN connection



(9) Enter the confirmation prompt:



Figure 36: Confirmation prompt

(10) Dial-up to the SECON-Server



Figure 37: Dial-up to the SECON-Server



(11) View of a successful connection; the OpenVPN icon is displayed with a green point and the mesage "OpenVPN Connected" appears:



Figure 38: Successful connection

(12) Close the OpenVPN window via the Home button. The connection remains unchanged. Open your web browser and enter the SECON-Server address in the address bar (in this example, the FAFNIR SECON-Server <u>http://10.0.8.1</u>):



Figure 39: Dial-up to the SECON-Server

If you use your own server, the configuration files and the server address in the browser bar must be changed accordingly.



(13) It opens the SECON-Server with the startup screen:



Figure 40: SECON-Server startup screen

(14) To terminate the connection, close the web browser, open the OpenVPN Connect app and press "Disconnect":

↔ 😡 层	⊿ 🖻 11:04
OpenVPN Connect	I
OpenVPN Profile:	
217.114.65.194 [SECON-VPN-Client-402-0003]	
OpenVPN: Connected	
Disconnect	
Connection stats: Duration 0:00:49 Packet received 8 seconds ago Bytes in 3,62 KB Bytes out 2,70 KB Tap for more detail Tap for more detail Vour Secure and Private Path to the Internet https://www.privatetunnel.com/ VPN Solution for your Business http://openvpn.net/as/	
OpenVPN is a registered trademark of OpenVPN Technologies, Inc.	

Figure 41: Terminating connection



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FAFNIR GmbH Schnackenburgallee 149 c 22525 Hamburg Germany Tel.: +49 / 40 / 39 82 07–0 Fax: +49 / 40 / 390 63 39 E-mail: info@fafnir.com Web: www.fafnir.com