

Configuration Guide

How to Configure an IPSec VPN Tunnel on the DWC-1000



Overview

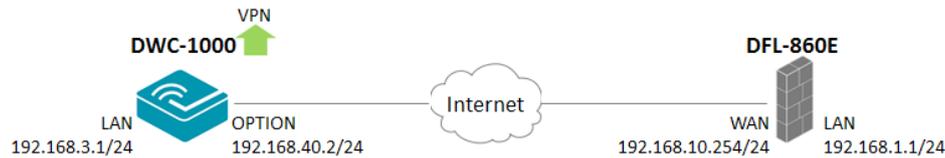
This guide describes how to configure the D-Link DWC-1000 Unified Controller which has been upgraded with VPN license to implement IPSec gateway to gateway with pre-shared keys.

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The user case presented in this guide covers IPsec VPN tunnel configuration between the DWC-1000 and a DFL-860E firewall.

Situation note

The IPsec VPN tunnel is the most secure and popular approach to ensure end-to-end data security across the Internet. Once a VPN tunnel is set up, clients that are in the same subnet but located in different geographical locations will be connected as if they were in the same internal network.



DFL-860E Settings

```
set Interface Ethernet wan1 DHCPEnabled=No
set Interface Ethernet wan1 DefaultGateway=192.168.10.1
set Address IP4Address InterfaceAddresses/wan1_ip Address=192.168.10.254
set Address IP4Address InterfaceAddresses/wan1_net Address=192.168.10.0/24
add PSK ipsec-psk Type=ASCII PSKAscii=testtest
add Interface IPsecTunnel ipsec-if AuthMethod=PSK IKEAlgorithms=Medium IPsecAlgorithms=Medium PSK=ipsec-psk
LocalNetwork=InterfaceAddresses/lannet RemoteNetwork=192.168.3.0/24 Remote Endpoint=192.168.40.2
add Interface InterfaceGroup ipsec-lan Members=ipsec-if,lan
add IPRule Action=Allow SourceInterface=ipsec-lan SourceNetwork=all-nets DestinationInterface=ipsec-lan
DestinationNetwork=all-nets Service=all_services Index=1 LogEnabled=Yes Name=ipsec-lan-allow
```

NOTE: The screenshots in this guide are from the DWC-1000's firmware version 4.1.0.10_10260W. If you are using an earlier version of the firmware, the screenshots may not be identical to what you see on your browser.

Configuration steps

1. Make sure the device has been upgraded with the VPN license pack. First, navigate to **TOOLS> License** to check this. If you need to activate a license, please refer to the “How to Activate a License for the DWC-1000” guide.

The screenshot shows the D-Link DWC-1000 web interface. The top navigation bar includes **SETUP**, **ADVANCED**, **TOOLS** (selected), **STATUS**, and **HELP**. The left sidebar lists various configuration options, with **License** selected. The main content area is titled **LICENSES** and includes a **LOGOUT** link. Below the title, there is a text box stating: "This page shows the list of activated licenses and also can be used for activating new DWC-1000-VPN and DWC-1000-AP6 licenses." A section titled **List of Available Licenses** contains a table with the following data:

#	License Model	Activation Code	Expires
1	DWC-1000-AP6	48FCD01B6A4BAD0A217920000	Perpetual
0	DWC-1000-VPN	2D2D32579FFFFC63491240000	Perpetual

Below the table is a **License Activation** section with an **Activation Code:** label, an input field, and an **Activate** button. On the right side, there is a **Helpful Hints...** section with text: "There are mainly three things related to Licence. Licence Mode Activation Code Expires" and a **More...** link. The footer of the page reads **WIRELESS CONTROLLER**.

2. Set the **OPTION** interface by going to **SETUP> Internet Settings> Option1 Settings> Option1 Setup**. Then change the ISP connection type and its IP information using the following values.

ISP Connection type: Static IP

IP Address: 192.168.40.2

IP Subnet Mask: 255.255.255.0

Gateway IP Address: 192.168.40.1

The screenshot shows the D-Link DWC-1000 web interface. The top navigation bar includes **SETUP** (selected), **ADVANCED**, **TOOLS**, **STATUS**, and **HELP**. The left sidebar lists various configuration options, with **Internet Settings** selected. The main content area is titled **OPTION1 SETUP** and includes a **LOGOUT** link. Below the title, there is a text box stating: "This page allows you to set up your Internet connection. Ensure that you have the Internet connection information such as the IP Addresses, Account Information etc. This information is usually provided by your ISP or network administrator." There are **Save Settings** and **Don't Save Settings** buttons. A section titled **Connection Type** contains the following fields:

- Connection Type:** Static IP (dropdown menu)
- IP Address:** 192.168.40.2
- IP Subnet Mask:** 255.255.255.0
- Gateway IP Address:** 192.168.40.1

Below this is a **Domain Name System (DNS) Servers** section with the following field:

- Primary DNS Server:** 0.0.0.0

On the right side, there is a **Helpful Hints...** section with text: "The setup page lets you configure the ISP settings to enable this router to connect to the Internet. This router supports multiple connections. Please select the appropriate connection to connect to the Internet." and a **More...** link.

3. Set IPsec Policy by going to SETUP> VPN Settings> IPsec> IPsec Policies. Click **Add** to add an IPsec policy. Use the following values below to fill in the General settings.

Policy Name: ipsec-if

Policy Type: Auto Policy

IPsec Mode: Tunnel Mode

Select Local Gateway: Option1

Remote Endpoint: IP Address, 192.168.10.254

Local IP: Subnet

Local Start IP Address: 192.168.3.0

Local Subnet Mask: 255.255.255.0

Remote IP: Subnet

Remote Start IP Address: 192.168.1.0

Remote Subnet Mask: 255.255.255.0

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DWC-1000 // SETUP ADVANCED TOOLS STATUS HELP

Wizard
WLAN Global Settings
AP Management
Internet Settings
Network Settings
QoS
GVRP
VPN Settings
VLAN Settings
DMZ Setup
USB Settings

IPSEC CONFIGURATION LOGOUT

This page allows user to add/edit VPN (IPsec) policies which includes Auto and Manual policies.

Save Settings Don't Save Settings

General

Policy Name: ipsec-if

Policy Type: Auto Policy

IP Protocol Version: IPv4 IPv6

IKE Version: IKEv1 IKEv2

IPsec Mode: Tunnel Mode

Select Local Gateway: Option1

Remote Endpoint: IP Address
192.168.10.254

Enable Mode Config:

Enable NetBIOS:

Enable RollOver:

Enable DHCP:

Local IP: Subnet

Local Start IP Address: 192.168.3.0

Local End IP Address:

Local Subnet Mask: 255.255.255.0

Local Prefix Length:

Remote IP: Subnet

Remote Start IP Address: 192.168.1.0

Remote End IP Address:

Remote Subnet Mask: 255.255.255.0

Helpful Hints...
Use Tunnel mode if you require communication to be secured between networks. Transport mode can be used if the requirement is to have secure communication between 2 hosts. Use Manual Policy parameters if you wish to specify the keys to be used for encryption/decryption (during communication). This is for advanced users who require more control over IPsec tunnel communication. For normal users, Auto Policy would do just fine. Enable Rollover only if the Port Mode is 'Auto-Rollover' in Option MODE settings page. The active Option will be used for setting up the tunnel, thus providing an uninterrupted VPN connection. Enable DHCP over IPsec checkbox to allow external users to form a VPN to DWC-1000. Multiple users can connect as well.
[More...](#)

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Use the following values below to fill in the Phase1 (IKE SA Parameters) settings.

Exchange Mode: Main

Direction / Type: Both

NAT Traversal: ON

NAT Keep Alive Frequency: 20

Local Identifier Type: Local WAN IP

Remote Identifier Type: Remote WAN IP

Encryption Algorithm: 3DES

Authentication Algorithm: SHA-1

Authentication Method: Pre-shared Key

Pre-shared Key: testtest

Diffie-Hellman (DH) Group: Group 2 (1024 bit)

SA Lifetime (sec): 28800

Enable Dead Peer Detection: Enabled

Detection Period: 10

Reconnect after failure count: 3

Phase1 (IKE SA Parameters)	
Exchange Mode:	Main
Direction / Type:	Both
Nat Traversal:	
On:	<input checked="" type="radio"/>
Off:	<input type="radio"/>
NAT Keep Alive Frequency (in seconds):	20
Local Identifier Type:	Local Wan IP
Local Identifier:	
Remote Identifier Type:	Remote Wan IP
Remote Identifier:	
Encryption Algorithm:	
DES:	<input type="checkbox"/>
3DES:	<input checked="" type="checkbox"/>
Authentication Algorithm:	
MD5:	<input type="checkbox"/>
SHA-1:	<input checked="" type="checkbox"/>
SHA2-256:	<input type="checkbox"/>
SHA2-384:	<input type="checkbox"/>
SHA2-512:	<input type="checkbox"/>
Authentication Method:	Pre-shared key
Pre-shared key:	testtest
Diffie-Hellman (DH) Group:	Group 2 (1024 bit)
SA-Lifetime (sec):	28800
Enable Dead Peer Detection:	<input checked="" type="checkbox"/>
Detection Period:	10
Reconnect after failure count:	3
Extended Authentication:	None
Authentication Type:	User Database
Username:	
Password:	

For this case, Phase2 (Manual Policy Parameters) is greyed out so you don't need to change these settings.

Phase2-(Manual Policy Parameters)	
SPI-Incoming:	<input type="text" value="0.0.0.0"/>
SPI-Outgoing:	<input type="text" value="0.0.0.0"/>
Encryption Algorithm:	<input type="text" value="AES-128"/>
Key Length:	<input type="text" value="128"/>
Key-In:	<input type="text" value=""/>
Key-Out:	<input type="text" value=""/>
Integrity Algorithm:	<input type="text" value="SHA-1"/>
Key-In:	<input type="text" value=""/>
Key-Out:	<input type="text" value=""/>

Use the following values below to fill in the Phase2 (Auto Policy Parameters) settings.

SA Lifetime: 3600 Seconds

Encryption Algorithm: 3DES

Integrity Algorithm: SHA-1

Phase2-(Auto Policy Parameters)	
SA Lifetime:	<input type="text" value="3600"/> <input type="text" value="Seconds"/>
Encryption Algorithm:	
DES:	<input type="checkbox"/>
NONE:	<input type="checkbox"/>
3DES:	<input type="checkbox"/>
AES-128:	<input checked="" type="checkbox"/>
AES-192:	<input type="checkbox"/>
AES-256:	<input type="checkbox"/>
AES-CCM:	<input type="checkbox"/>
AES-GCM:	<input type="checkbox"/>
Integrity Algorithm:	
MD5:	<input type="checkbox"/>
SHA-1:	<input checked="" type="checkbox"/>
SHA2-224:	<input type="checkbox"/>
SHA2-256:	<input type="checkbox"/>
SHA2-384:	<input type="checkbox"/>
SHA2-512:	<input type="checkbox"/>
PFS Key Group:	<input type="checkbox"/> <input type="text" value="DH Group 1 (768 bit)"/>

Click **Save Settings** when you are finished.

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