

D-Link Building Networks for People **NETDEFEND**

IPSec VPN Configuration Between two VPN Gateway

Objectives

- Two firewalls communicate to each other by **IPsec tunnel**.
- The client of local-net can ping to the client of remote-net

The logic of configuration

- Create VPN Object(pre-shared key)
- Configure IPsec tunnel
- Create the IP rule for IPsec tunnel

➤ Please configure the LAN and WAN IP parameter of the Firewalls base on the network diagram before you configure the IPSec VPN parameter.

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IPSec VPN Configuration
Between two VPN Gateway

VPN Configuration (DFL-1600)

- For users to authenticate VPN tunnels
- 2 types of method to enter PSK – ASCII and HEX
 - ASCII – type in passphrase
 - HEX – type in passphrase and use “generate” to cipher passphrase

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Logged in as administrator
admin - 192.168.1.107

Home Configuration Tools Status Maintenance Logout Help

DFL-1600

- System
- Objects
 - Address Book
 - ALG
 - Services
 - IP Pools
 - NAT Pools
 - Schedules
 - Authentication Objects**
 - VPN Objects
- Rules
- Interfaces
- Routing
- CP / IPS
- User Authentication
- Traffic Management
- ZoneDefense

Authentication Objects
Add, remove and modify Pre-Shared Keys and Certificates.

Type	Type	Comments
Pre-shared key	Certificate	Local
SSH client key		

Right-click on a row for further options.

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IPSec VPN Configuration
Between two VPN Gateway

VPN Objects – Pre Shared Keys

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DFL-1600

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Pre-shared key
PSK (Pre-Shared Key) authentication is based on a shared secret that is known only by the parties involved.

General

Name: IPSec1

Shared Secret

Passphrase

Shared Secret: *****

Confirm Secret: *****

Hexadecimal Key

Passphrase

Generate Random Key

Since regular words and phrases are vulnerable to dictionary attacks, do not use them as shared secrets.

Comments

Comments:

OK Cancel

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IPSec VPN Configuration Between two VPN Gateway

VPN Objects – Pre Shared Keys Created

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IPSec VPN Configuration Between two VPN Gateway

IKE Algorithms

- Predefined IKE Algorithms by default
- High – Very Secured
- Medium – Secured
- You can defined your own algorithms

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IPSec VPN Configuration Between two VPN Gateway

IKE Algorithms

General
Configure algorithms which are used in the IKE phase of an IPsec session.

Name: (1)

Encryption Algorithms

Null:	<input type="checkbox"/>	DES:	<input checked="" type="checkbox"/> (2)
3DES:	<input checked="" type="checkbox"/>	CAST128:	<input type="checkbox"/>
Blowfish:	<input checked="" type="checkbox"/>	Twofish:	<input type="checkbox"/>
AES (Rijndael):	<input type="checkbox"/>		

Key Size

MD5: ☒ (3) SHA1: ☐

Comments

Comments:

OK (4) Cancel

Done

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IPSec VPN Configuration Between two VPN Gateway

IKE Algorithms Created


IKE Algorithms
Configure algorithms which are used in the IKE phase of an IPsec session.

Add


#	Name	Algorithms	Comments
0	High	3DES, AES, Blowfish, MD5, SHA1	High security
1	Medium	3DES, AES, Blowfish, CAST128, MD5, SHA1	High compatibility
2	IKE1	DES, 3DES, MD5	

Right-click on a row for further options.

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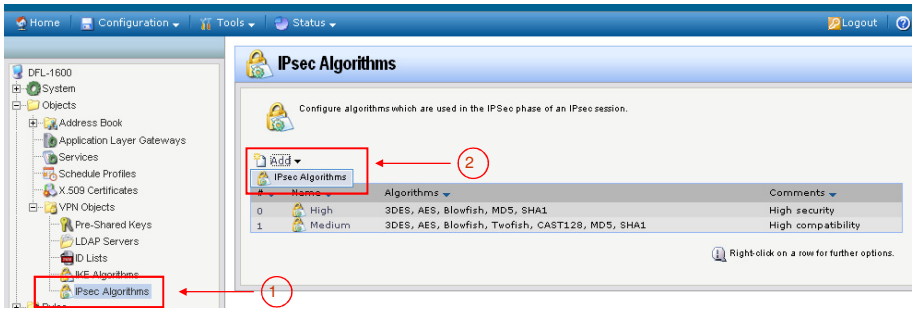
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IPSec VPN Configuration Between two VPN Gateway

IPsec Algorithms


- Predefined IPSec Algorithms by default
- High – Very Secured
- Medium – Secured
- You can defined your own algorithms



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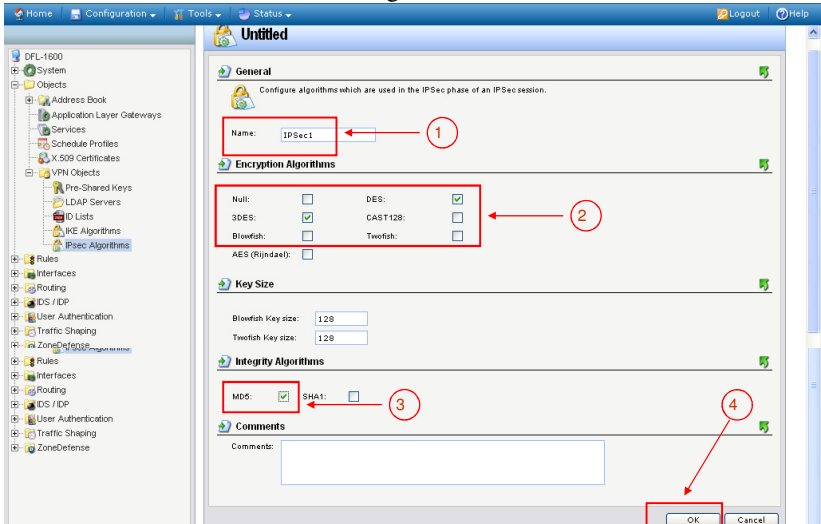


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IPSec VPN Configuration Between two VPN Gateway

IPsec Algorithms



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IPSec VPN Configuration Between two VPN Gateway

IPsec Algorithms Created

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File Edit View Go Bookmarks Tools Help

http://192.168.1.1/

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Home Configuration Tools Status Logout Help

DFL-1600

- System
- Objects
 - Address Book
 - Application Layer Gateways
 - Services
 - Schedule Profiles
 - X.509 Certificates
 - VPN Objects
 - Pre-Shared Keys
 - LDAP Servers
 - ID Lists
 - IPsec Algorithms
- Rules
- Interfaces
- Routing
- IDS / IDP
- User Authentication
- Traffic Shaping
- ZoneDefense

IPsec Algorithms

Configure algorithms which are used in the IPsec phase of an IPsec session.

Add

#	Name	Algorithms	Comments
0	High	3DES, AES, Blowfish, MD5, SHA1	High security
1	Medium	3DES, AES, Blowfish, MD5, SHA1	High compatibility
2	IPsec1	DES, 3DES, MD5	

Right click on a row for further options.

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IPSec VPN Configuration Between two VPN Gateway

Create objects for IP address of remote IP address and network

- Click "Address" in Objects
- Click "Add" → "IP4 Host/Network"

D-Link DFL-1600 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://192.168.1.1/

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Home Configuration Tools Status Logout Help

DFL-1600

- System
- Objects
 - Address Book
 - InterfaceAddresses
 - Application Layer Gateways
 - Services
 - Schedule Profiles
 - X.509 Certificates
 - VPN Objects
 - Pre-Shared Keys
 - LDAP Servers
 - ID Lists
 - IPsec Algorithms
- Rules
- Interfaces

Address Book

The Address Book contains symbolic names for various types of addresses, including IP networks and Ethernet MAC addresses.

Add

Address	UserAuthGroups	Comments
IP4 Address Group		This folder contains addresses for interfaces
NA IP4 Address Pair		
Ethernet Address	0.0.0.0/0	Primary DNS server on interface "wan1".
Ethernet Address Group	0.0.0.0	Secondary DNS server on interface "wan1".

Right click on a row for further options.

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IPSec VPN Configuration Between two VPN Gateway

D-Link DFL 1600 - Mozilla Firefox
http://192.168.1.1/

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Home Configuration Tools Status Logout Help

DFL-1600

- System
- Objects
 - Address Book
 - InterfaceAddresses
 - Application Layer Gateways
 - Services
 - Schedule Profiles
 - X.509 Certificates
 - VPN Objects
 - Pre-Shared Keys
 - LDAP Servers
 - ID Lists
 - KE Algorithms
 - IPsec Algorithms
- Rules
- Interfaces
 - Ethernet
 - VLAN
 - IPsec Tunnels

Untitled

General User Authentication

Use an IP Address item to define a name for a specific IP4 host, network or range.

Name: VPN_RemoteIP

IP Address: 192.168.0.3

Comments:

OK Cancel

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IPSec VPN Configuration Between two VPN Gateway

D-Link DFL 1600 - Mozilla Firefox
http://192.168.1.1/

Logged in as: administrator
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Home Configuration Tools Status Logout Help

DFL-1600

- System
- Objects
 - Address Book
 - InterfaceAddresses
 - Application Layer Gateways
 - Services
 - Schedule Profiles
 - X.509 Certificates
 - VPN Objects
 - Pre-Shared Keys
 - LDAP Servers
 - ID Lists
 - KE Algorithms
 - IPsec Algorithms
- Rules
- Interfaces
 - Ethernet
 - VLAN
 - IPsec Tunnels
 - PPPoE Tunnels
 - L2TP/PPTP Servers

Address Book

The Address Book contains symbolic names for various types of addresses, including IP networks and Ethernet MAC addresses.

Add

- IP4 Host/Network
- IP4 Address Group
- HA IP4 Address Pair
- Ethernet Address
- Ethernet Address Group
- Address Folder

Address	UserAuthGroups	Comments
0.0.0.0/0		This folder contains addresses for interfaces
0.0.0.0		Primary DNS server on interface "wan1".
192.168.0.3		Secondary DNS server on interface "wan1".

Right-click on a row for further options.

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IPSec VPN Configuration Between two VPN Gateway

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File Edit View Go Bookmarks Tools Help

http://192.168.1.1/

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Home Configuration Tools Status Logout Help

DFL-1600

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 - ID Lists
 - IKE Algorithms
 - Psec Algorithms
 - Rules
 - Interfaces
 - Ethernet
 - VLAN

Untitled

General User Authentication

General

Use an IP4 Address Item to define a name for a specific IP4 host, network or range.

Name: VPN_RemoteNet

IP Address: 192.168.3.0/24

Comments

OK Cancel

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IPSec VPN Configuration Between two VPN Gateway

VPN IP Network Object Created

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http://192.168.1.1/

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Home Configuration Tools Status Logout Help

DFL-1600

- System
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 - ID Lists
 - IKE Algorithms
 - Psec Algorithms
 - Rules
 - Interfaces
 - Ethernet
 - VLAN

Address Book


The Address Book contains symbolic names for various types of addresses, including IP networks and Ethernet MAC addresses.

Add


#	Name	Address	UserAuthGroups	Comments
0	InterfaceAddresses			This folder contains addresses for interfaces
1	all-nets	0.0.0.0/0		
2	wan1_dns1	0.0.0.0		Primary DNS server on interface "wan1".
3	wan1_dns2	0.0.0.0		Secondary DNS server on interface "wan1".
4	VPN_RemoteIP	192.168.0.3		
5	VPN_RemoteNet	192.168.3.0/24		

Right-click on a row for further options.

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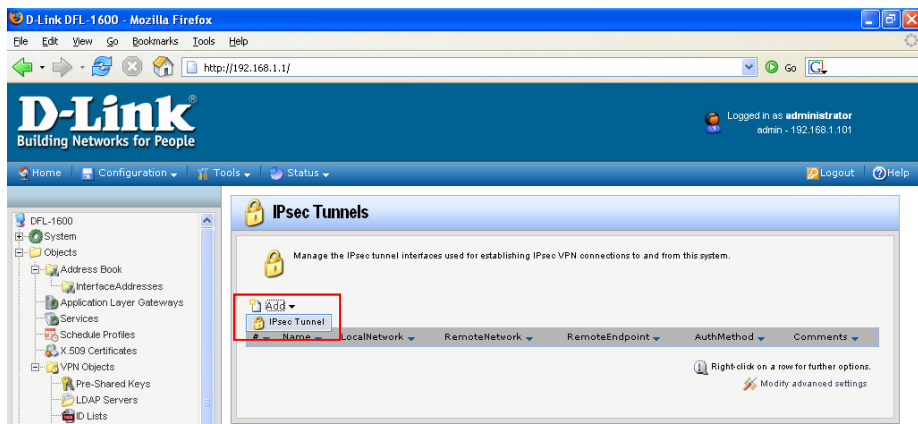
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IPSec VPN Configuration Between two VPN Gateway

Create the IPsec tunnel


- Click “**IPsec Tunnels**” in Interface
- Click “Add” → IPsec Tunnel”



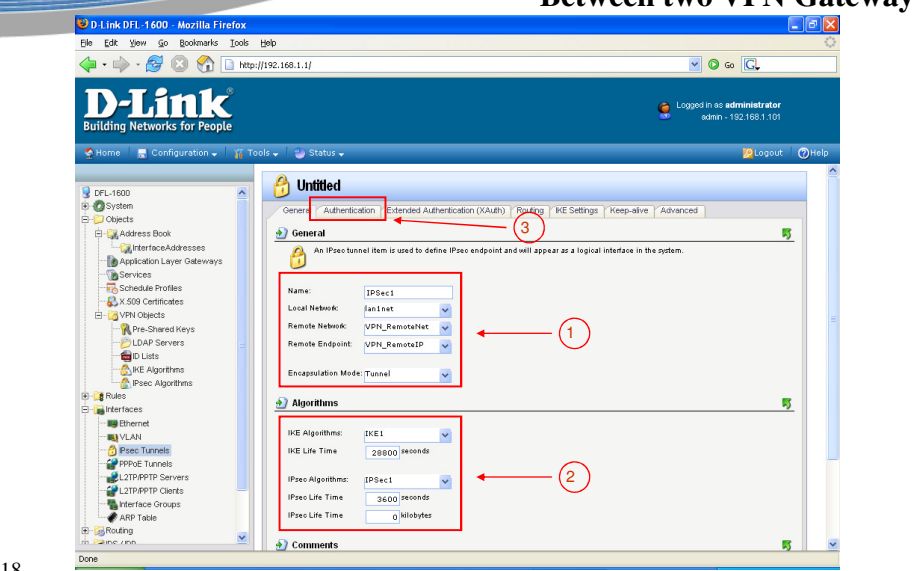
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IPSec VPN Configuration Between two VPN Gateway



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IPSec VPN Configuration Between two VPN Gateway

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http://192.168.1.1/

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Home Configuration Tools Status Logout Help

Untitled

General Authentication Extended Authentication (XAuth) Routing **IKE Settings** Keep-alive Advanced

Authentication

☐ X.509 Certificate

Root Certificate(s): Available: AdminCert Selected:

Gateway Certificate: (None)

Identification List: (None)

☒ Pre-Shared Key

Pre-Shared Key: IPSec1

OK Cancel

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Home Configuration Tools Status Logout Help

IPSec1

General Authentication Extended Authentication (XAuth) Routing **IKE Settings** Keep-alive Advanced

IKE

☒ Main ☐ Aggressive

DH Group: 2

Perfect Forward Secrecy

PFS: None DH Group: 2

Security Association

☒ Per Net ☐ Per Host

Compatibility Flags

☐ Do not verify padding

NAT Traversal

☐ Off ☒ On if supported and NATed ☐ On if supported

OK Cancel

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IPSec VPN Configuration Between two VPN Gateway

IPSec Tunnel Created

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IPSec VPN Configuration Between two VPN Gateway

Combine two interfaces to one interface group

- Click “**Interface Groups**” in this Interface
- Click “Add” → “Interface Group”

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IPSec VPN Configuration Between two VPN Gateway

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Home Configuration Tools Status Logout Help

Untitled

General
Use an interface group to combine several interfaces for a simplified security policy.

Name: IPSec_LAN
☒ Security/Transport Equivalent

Interfaces

Available	Selected
van1	lan1
van2	IPSec1
dms1	
lan2	
lan3	

Comments
Comments:

OK Cancel

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IPSec VPN Configuration Between two VPN Gateway

Interface Group Created

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Interface Groups
Use interface groups to combine several interfaces for simplified policy management.

Add


ID	Name	Members	Comments
0	IPSec_LAN	lan1,IPSec1	

Right-click on a row for further options.

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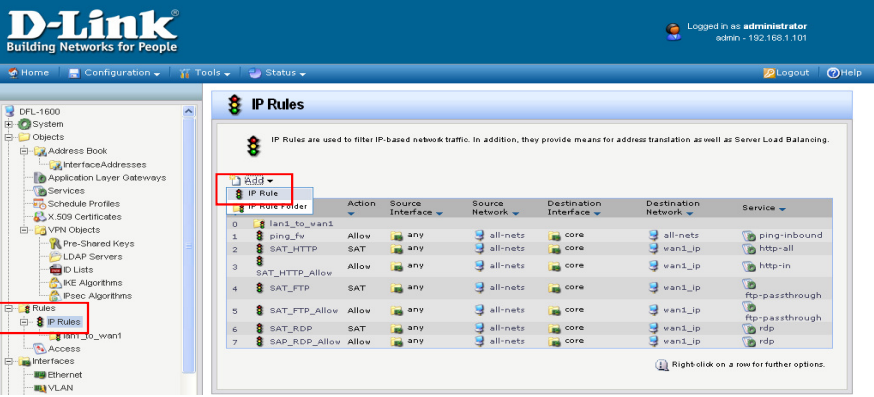
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IPSec VPN Configuration Between two VPN Gateway

Create IP Rules for IPSec tunnel


- Click “IP Rules” in Rules
- Click “Add” → “IP Rule”



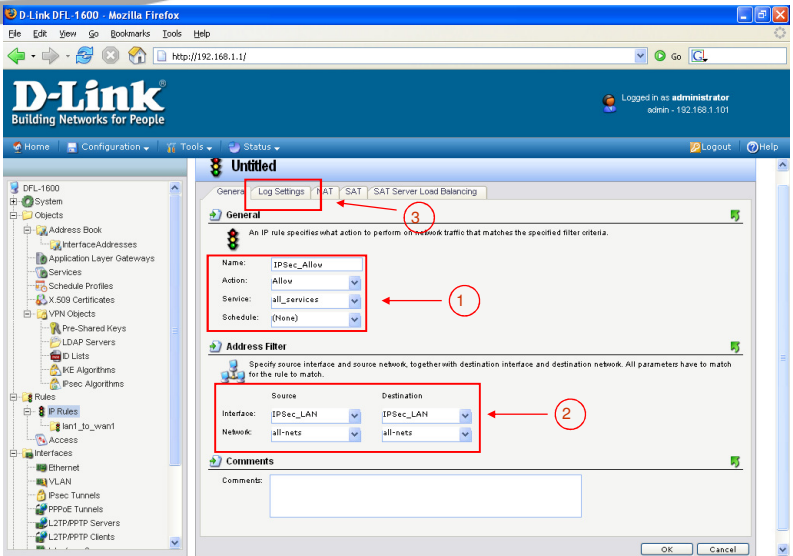
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IPSec VPN Configuration Between two VPN Gateway



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IPSec VPN Configuration Between two VPN Gateway

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http://192.168.1.1/

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Home Configuration Tools Status Logout Help

Untitled

General Log Settings NAT SAT SAT Server Load Balancing

Select log receive(s) and severity to enable logging for this object.

☒ Enable logging

Log to:

☒ All receives

☐ Specific receive(s)

Available

Selected

Log with severity: Notice

OK Cancel

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IPSec VPN Configuration Between two VPN Gateway

IP Rule Created

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http://192.168.1.1/

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Home Configuration Tools Status Logout Help

IP Rules

IP Rules are used to filter IP-based network traffic. In addition, they provide means for address translation as well as Server Load Balancing.

Add

#	Name	Action	Source Interface	Source Network	Destination Interface	Destination Network	Service
0	lan3_to_wan1						
1	ping_fw	Allow	any	all-nets	core	all-nets	ping-inbound
2	SAT_HTTP	SAT	any	all-nets	core	wan1_ip	http-all
3	SAT_HTTP_Allow	Allow	any	all-nets	core	wan1_ip	http-in
4	SAT_FTP	SAT	any	all-nets	core	wan1_ip	ftp-passthrough
5	SAT_FTP_Allow	Allow	any	all-nets	core	wan1_ip	ftp-passthrough
6	SAT_RDP	SAT	any	all-nets	core	wan1_ip	rdp
7	SAT_RDP_Allow	Allow	any	all-nets	core	wan1_ip	rdp
8	IPSec_Allow	Allow	IPSec_LAN	all-nets	IPSec_LAN	all-nets	all_services

Right-click on a row for further options.

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IPSec VPN Configuration Between two VPN Gateway

After all configuration , Click “configuration” on main menu bar

- Click “**Save and Activate**”

IP Rules

IP Rules are used to filter IP-based network traffic. In addition, they provide means for address translation as well as Server Load Balancing.

Add

#	Name	Action	Source Interface	Source Network	Destination Interface	Destination Network	Service
0	lan1_to_wan1	Allow	any	all-nets	core	all-nets	ping-inbound
1	ping_fw	Allow	any	all-nets	core	wan1_ip	http-all
2	SAT_HTTP	Allow	any	all-nets	core	wan1_ip	http-in
3	SAT_HTTP_Allow	Allow	any	all-nets	core	wan1_ip	ftp-passthrough
4	SAT_FTP	Allow	any	all-nets	core	wan1_ip	ftp-passthrough
5	SAT_FTP_Allow	Allow	any	all-nets	core	wan1_ip	rdp
6	SAT_RDP	Allow	any	all-nets	core	wan1_ip	rdp
7	SAT_RDP_Allow	Allow	any	all-nets	core	wan1_ip	all_services
8	IPSec_Allow	Allow	IPSec_LAN	all-nets	IPSec_LAN	all-nets	

Right-click on a row for further options.

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IPSec VPN Configuration Between two VPN Gateway

Save Configuration

Are you sure you want to save the configuration?

An administrator needs to log in within 30 seconds to verify the new configuration. Otherwise the unit will assume that you accidentally locked yourself out, and revert to its previous configuration.
[Click here to edit the configuration verification timeout.](#)

OK Cancel

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IPSec VPN Configuration Between two VPN Gateway

D-Link DFL-1600 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://192.168.1.1/

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Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

DFL-1600

System

Objects

Address Book

InterfaceAddresses

Application Layer Gateways

Services

Schedule Profiles

X.509 Certificates


Commit changes


Changes Activated

Changes committed to the configuration file

Configuration successfully activated and committed.

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IPSec VPN Configuration Between two VPN Gateway

VPN Configuration (DFL-800)

- Please ensure that the VPN Parameter is identical between DFL-800 & DFL-1600

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admin - 192.168.1.107

Home Configuration Tools Status Maintenance Logout Help

System

Objects

ALG

Services

IP Pools

NAT Pools

Schedules

Authentication Objects

VPN Objects

Rules

Interfaces

Routing

DP / IPS

User Authentication

Traffic Management

ZoneDefense

Authentication Objects

Add, remove and modify Pre-Shared Keys and Certificates.

Add

Certificate

Pre-shared key

SSH Client Key

Type

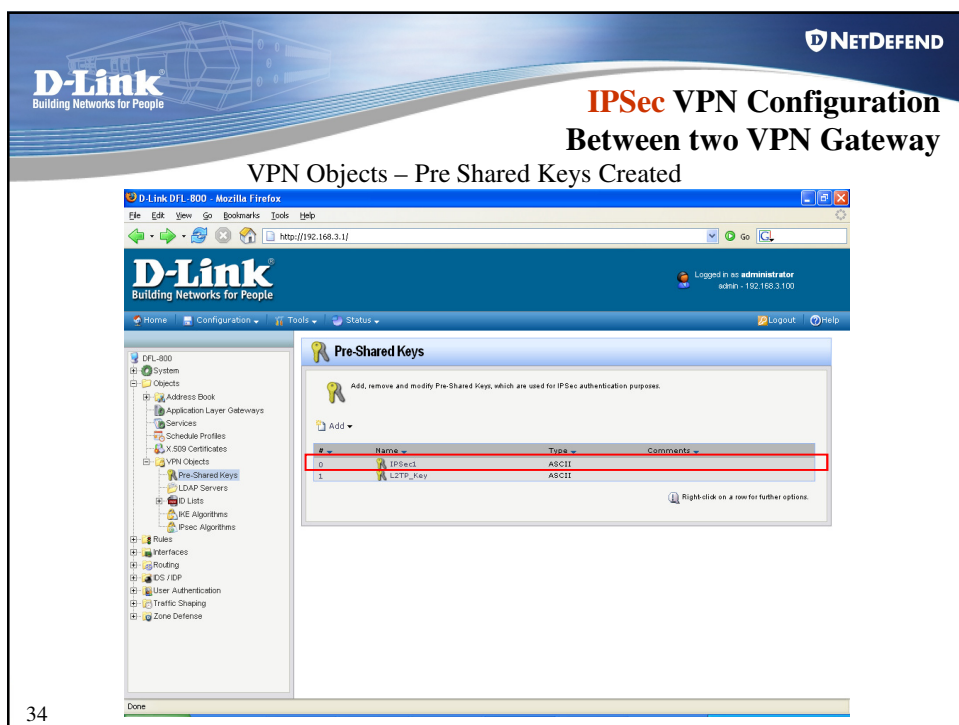
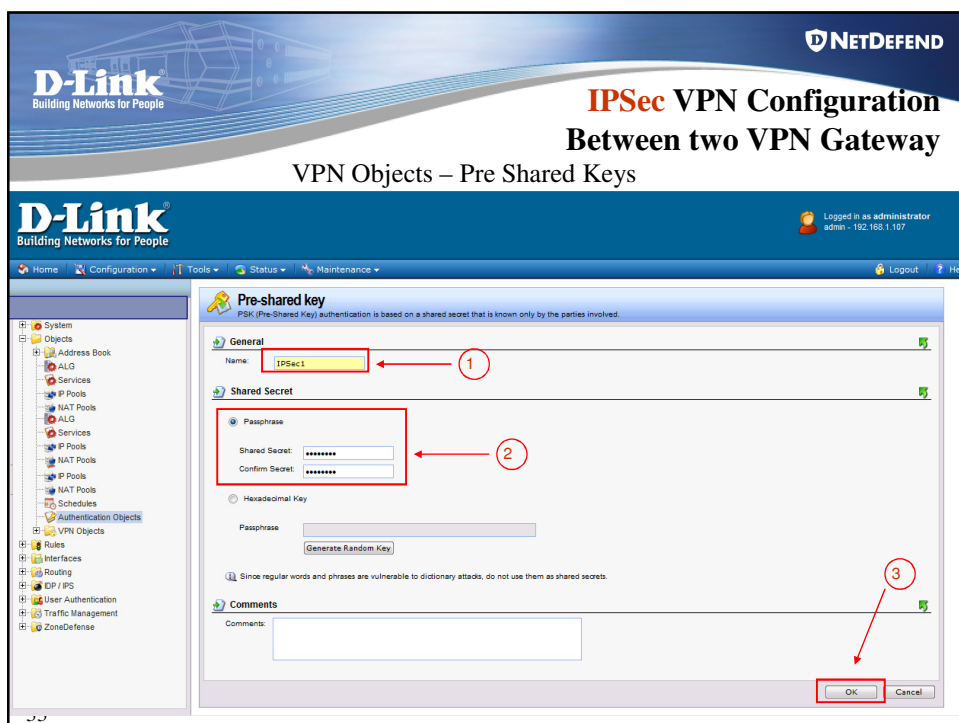
Certificate


Local

Comments


Right-click on a row for further options.

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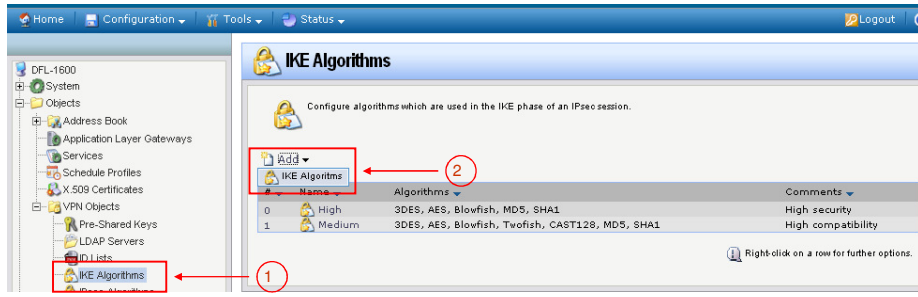
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IPSec VPN Configuration Between two VPN Gateway

IKE Algorithms


- Predefined IKE Algorithms by default
- High – Very Secured
- Medium – Secured
- You can defined your own algorithms



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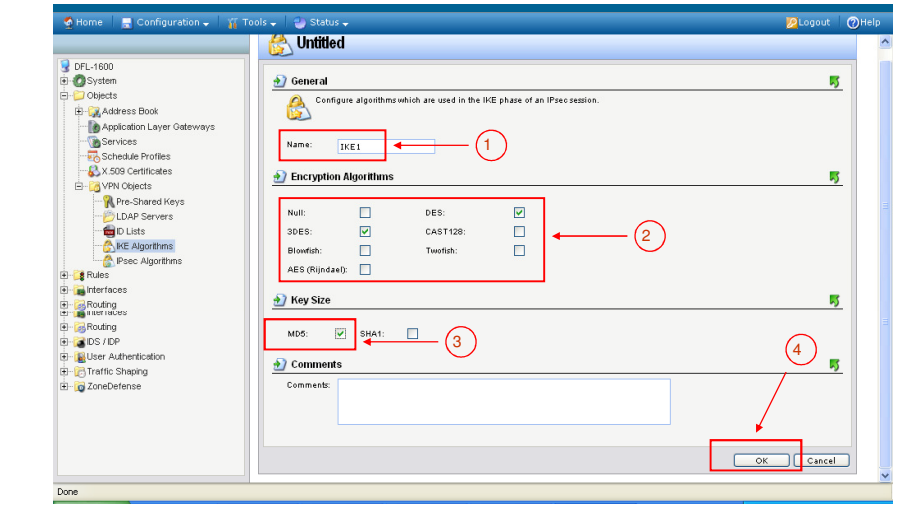


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IPSec VPN Configuration Between two VPN Gateway

IKE Algorithms



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IPSec VPN Configuration Between two VPN Gateway

IKE Algorithms Created

Configure algorithms which are used in the IKE phase of an IPSec session.

#	Name	Algorithms	Comments
0	High	3DES, AES, Blowfish, MD5, SHA1	High security
2	IKE1	DES, 3DES, MD5	High compatibility

Right-click on a row for further options.

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IPSec VPN Configuration Between two VPN Gateway

IPsec Algorithms

- Predefined IPsec Algorithms by default
- High – Very Secured
- Medium – Secured
- You can defined your own algorithms

Configure algorithms which are used in the IPsec phase of an IPSec session.

#	Name	Algorithms	Comments
0	High	3DES, AES, Blowfish, MD5, SHA1	High security
1	Medium	3DES, AES, Blowfish, Twofish, CAST128, MD5, SHA1	High compatibility

Right-click on a row for further options.

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IPSec VPN Configuration Between two VPN Gateway

IPsec Algorithms

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NETDEFEND

IPSec VPN Configuration Between two VPN Gateway


IPsec Algorithms Created

#	Name	Algorithms	Comments
0	High	3DES, AES, Blowfish, MD5, SHA1	High security
1	Medium	3DES, AES, Blowfish, MD5, SHA1	High compatibility
2	IPSec1	DES, 3DES, MD5	

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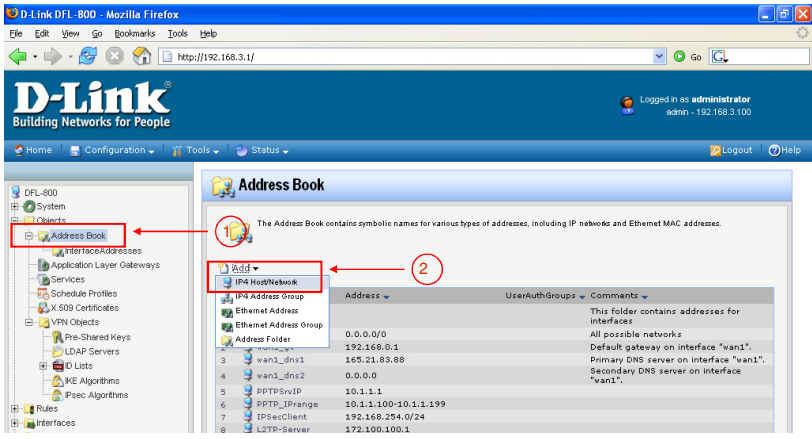
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IPSec VPN Configuration Between two VPN Gateway

Create objects for IP address of remote IP address and network


- Click “Address” in Objects
- Click “Add” → “IP4 Host/Network”



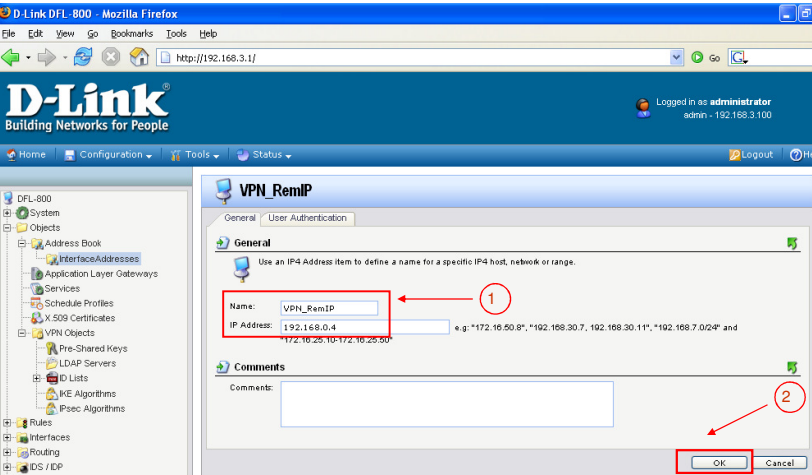
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IPSec VPN Configuration Between two VPN Gateway



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IPSec VPN Configuration Between two VPN Gateway

D-Link DFL-800 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://192.168.3.1/

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Logged in as administrator
admin - 192.168.3.100

Home Configuration Tools Status Logout Help

DFL-800

- System
- Objects
 - Address Book
 - InterfaceAddresses
 - Application Layer Gateways
 - Services
 - Schedule Profiles
 - X.509 Certificates
 - VPN Objects
 - Pre-Shared Keys
 - LDAP Servers
 - ID Lists
 - IKE Algorithms
 - IPsec Algorithms
- Rules
- Interfaces
- Routing
- IDS / IDP
- User Authentication

Address Book

The Address Book contains symbolic names for various types of addresses, including IP networks and Ethernet MAC addresses.

Add

IP4 Host/Network

	Address	UserAuthGroups	Comments
0	0.0.0.0/0		This folder contains addresses for interfaces
1	192.168.0.1		All possible networks
2	165.21.83.88		Default gateway on interface "wan1".
3	wan1_dns1		Primary DNS server on interface "wan1".
4	wan1_dns2		Secondary DNS server on interface "wan1".
5	PPTPSrvIP		
6	PPTP_IPRange		
7	IPSecClient		
8	L2TP-Server		
9	L2TP_IPRange		
10	http-ty		

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IPSec VPN Configuration Between two VPN Gateway

D-Link DFL-800 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://192.168.3.1/

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Home Configuration Tools Status Logout Help

DFL-800

- System
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- Routing
- IDS / IDP
- User Authentication

VPN RemNet

General User Authentication

General

Use an IP4 Address item to define a name for a specific IP4 host, network or range.

Name: **VPN_RemNet**

IP Address: **192.168.1.0/24**

Comments:

OK Cancel

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IPSec VPN Configuration Between two VPN Gateway

VPN IP Network Object Created

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Home Configuration Tools Status Logout Help

InterfaceAddresses

Use an Address Folder to group related address objects for a better overview. Edit the settings for this folder

Add

#	Name	Address	UserAuthGroups	Comments
0	lan_ip	192.168.3.1		IPAddress of interface lan
1	lannet	192.168.3.0/24		The network on interface lan
2	dmz_ip	172.17.100.254		IPAddress of interface dmz
3	dmznet	172.17.100.0/24		The network on interface dmz
4	wan1_ip	192.168.0.3		IPAddress of interface wan1
5	wan1net	192.168.0.0/24		The network on interface wan1
6	wan2_ip	192.168.120.254		IPAddress of interface wan2
7	wan2net	192.168.120.0/24		The network on interface wan2
8	dhcpserver_range	192.168.3.100-192.168.3.199		
9	dhcpserver_netmask	255.255.255.0		
10	DRS1	165.21.69.88		
11	Switch1	192.168.3.90		
12	Admin	192.168.3.100		
13	VPN_RemIP	192.168.0.4		
14	VPN_RemNet	192.168.1.0/24		
15	DWL-2100AP	192.168.3.50		

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D-Link
Building Networks for People

NETDEFEND

IPSec VPN Configuration Between two VPN Gateway

Create the IPsec tunnel

- Click "IPsec Tunnels" in Interface
- Click "Add" → IPsec Tunnel

Logged in as administrator
admin - 192.168.3.100

Home Configuration Tools Status Logout Help

IPsec Tunnels

Manage the IPsec tunnel interfaces used for establishing IPsec VPN connections to and from this system.

Add

#	Name	LocalNetwork	RemoteNetwork	RemoteEndpoint	AuthMethod	Comments
0	IPSec_Dyn	lannet	all-nets		PSK	
1	L2TP_IPSec	wan1_ip	all-nets		PSK	
2	IPSec1	lannet	VPN_RemNet	VPN_RemIP	PSK	

Right-click on a row for further options.
Modify advanced settings

46

D-Link
Building Networks for People

NETDEFEND

IPSec VPN Configuration Between two VPN Gateway

D-Link DFL-800 - Mozilla Firefox
http://192.168.3.1/

Logged in as administrator
admin - 192.168.3.100

Home Configuration Tools Status

IPSec1

General Authentication Extended Authentication (XAuth) Routing IKE Settings Keep-alive Advanced

General

An IPsec tunnel item is used to define IPsec endpoint and will appear as a logical interface in the system.

Name: IPSec1

Local Network: lanet

Remote Network: VPN_RemNet

Remote Endpoint: VPN_RemIP

Encapsulation Mode: Tunnel

Algorithms

IKE Algorithm: IKE1

IKE Life Time: 28800 seconds

IPsec Algorithm: IPSec1

IPsec Life Time: 3600 seconds

IPsec Life Size: 0 kilobytes

Comments

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Building Networks for People

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IPSec VPN Configuration Between two VPN Gateway

D-Link DFL-800 - Mozilla Firefox
http://192.168.3.1/

Logged in as administrator
admin - 192.168.3.100

Home Configuration Tools Status

IPSec1

General Authentication Extended Authentication (XAuth) Routing IKE Settings Keep-alive Advanced

Authentication

X.509 Certificate

Root Certificate(s): Available AdminCert Selected

Gateway Certificate: (None)

Identification List: (None)

Pre-Shared Key

Pre-Shared Key: IPSec1

OK Cancel

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IPSec VPN Configuration
Between two VPN Gateway

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

IPSec1

General Authentication Extended Authentication (XAuth) Routing IKE Settings Keep-alive Advanced

IKE

Main ☒ Aggressive ☐ DH Group 2

Perfect Forward Secrecy

PFS None ☐ DH Group 2

Security Association

Per Net ☒ Per Host ☐

Compatibility Flags

☐ Do not verify padding

NAT Traversal

Off ☐ On if supported and NATed ☒ On if supported ☐

OK Cancel

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D-Link Building Networks for People

IPSec VPN Configuration
Between two VPN Gateway

IPSec Tunnel Created

Logged in as administrator
admin - 192.168.3.100

Home Configuration Tools Status Logout Help

IPsec Tunnels


Manage the IPsec tunnel interfaces used for establishing IPsec VPN connections to and from this system.

Add


#	Name	LocalNetwork	RemoteNetwork	RemoteEndpoint	AuthMethod	Comments
0	IPSec_Dyn	lanet	all-nets		PSK	
1	IPSec1	lanet	all-nets		PSK	
2	IPSec1	lanet	VPN_RemNet	VPN_RemIP	PSK	

Right-click on a row for further options.
Modify advanced settings

50



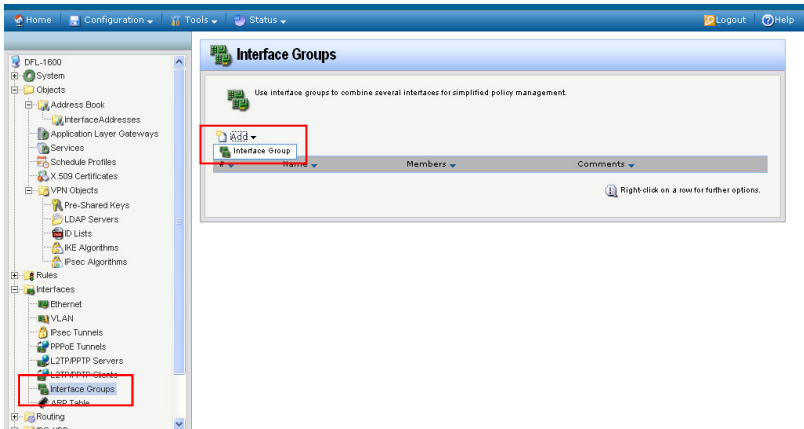
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IPSec VPN Configuration Between two VPN Gateway

Combine two interfaces to one interface group


- Click “Interface Groups” in this Interface
- Click “Add” → “Interface Group”



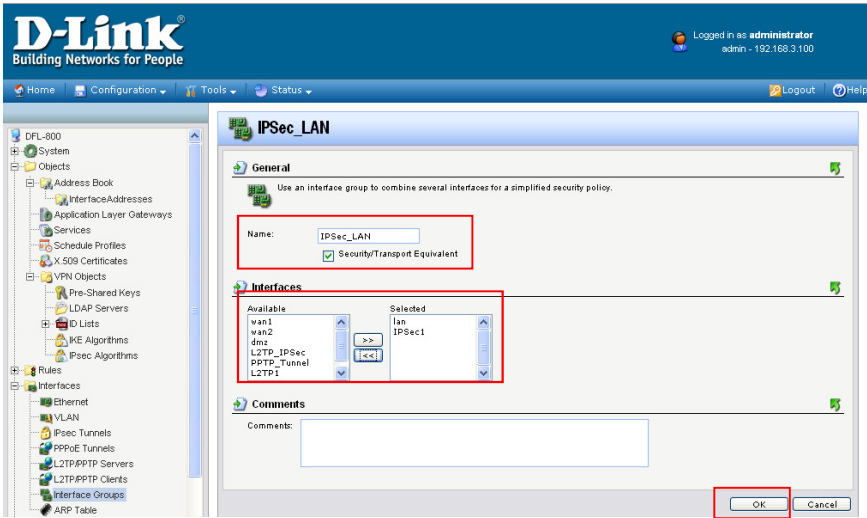
51



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IPSec VPN Configuration Between two VPN Gateway



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IPSec VPN Configuration Between two VPN Gateway

Interface Group Created

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NETDEFEND

IPSec VPN Configuration Between two VPN Gateway

Create IP Rules for IPSec tunnel

- Click “IP Rules” in Rules
- Click “Add” → “IP Rule”

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IPSec VPN Configuration
Between two VPN Gateway

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status

Untitled

General Log Settings NAT SAT SAT Server Load Balancing

General

An IP rule specifies what action to perform on network traffic that matches the specified filter criteria.

Name: IPSec_Allow

Action: Allow

Service: all_services

Schedule: (None)

Address Filter

Specify source interface and source network, together with destination interface and destination network. All parameters have to match for the rule to match.

Source Interface: IPSec_LAN

Destination Interface: IPSec_LAN

Source Network: all-nets

Destination Network: all-nets

Comments

Comments:

OK Cancel

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Building Networks for People

IPSec VPN Configuration
Between two VPN Gateway

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status

Untitled

General Log Settings NAT SAT SAT Server Load Balancing

General

Select log receive(s) and severity to enable logging for this object.

☒ Enable logging

Log to:

☒ All receives

☐ Specific receive(s)

Available

Selected

Log with severity: Notice

OK Cancel

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IPSec VPN Configuration
Between two VPN Gateway

IP Rule Created

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IPSec VPN Configuration
Between two VPN Gateway

After all configuration , Click “configuration” on main menu bar

- Click “Save and Activate”

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IPSec VPN Configuration Between two VPN Gateway

Logged in as **administrator**
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

DFL-1600
System
Objects
Address Book
InterfaceAddresses
Application Layer Gateways
Services
Schedule Profiles
X.509 Certificates
VPN Objects
Pre-Shared Keys

Save Configuration

? Are you sure you want to save the configuration?

An administrator needs to log in within 30 seconds to verify the new configuration. Otherwise the unit will assume that you accidentally locked yourself out, and revert to its previous configuration.
Click here to edit the configuration verification timeout.

OK Cancel

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D-Link Building Networks for People **NETDEFEND**

IPSec VPN Configuration Between two VPN Gateway

Logged in as **administrator**
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

DFL-1600
System
Objects
Address Book
InterfaceAddresses
Application Layer Gateways
Services
Schedule Profiles
X.509 Certificates

Commit changes

Changes Activated

Changes committed to the configuration file

Configuration successfully activated and committed.

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IPSec VPN Configuration Between two VPN Gateway

After IPSec VPN Tunnel establish between DFL-800 & DFL-1600, PC1 can ping to PC2 at remote network

```

C:\Documents and Settings\tytan>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection 6:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . . : 192.168.1.101
    Subnet Mask . . . . . : 255.255.255.0
    IP Address. . . . . : fe80::320f:f09f:3f6x4
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter Wireless Network Connection:

    Media State . . . . . : Media disconnected

Tunnel adapter Teredo Tunneling Pseudo-Interface:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . . : fe80::5445:5245:444f:x6
    Default Gateway . . . . . : 

Tunnel adapter Automatic Tunneling Pseudo-Interface:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . . : fe80::5efe:192.168.1.101x2
    Default Gateway . . . . . : 

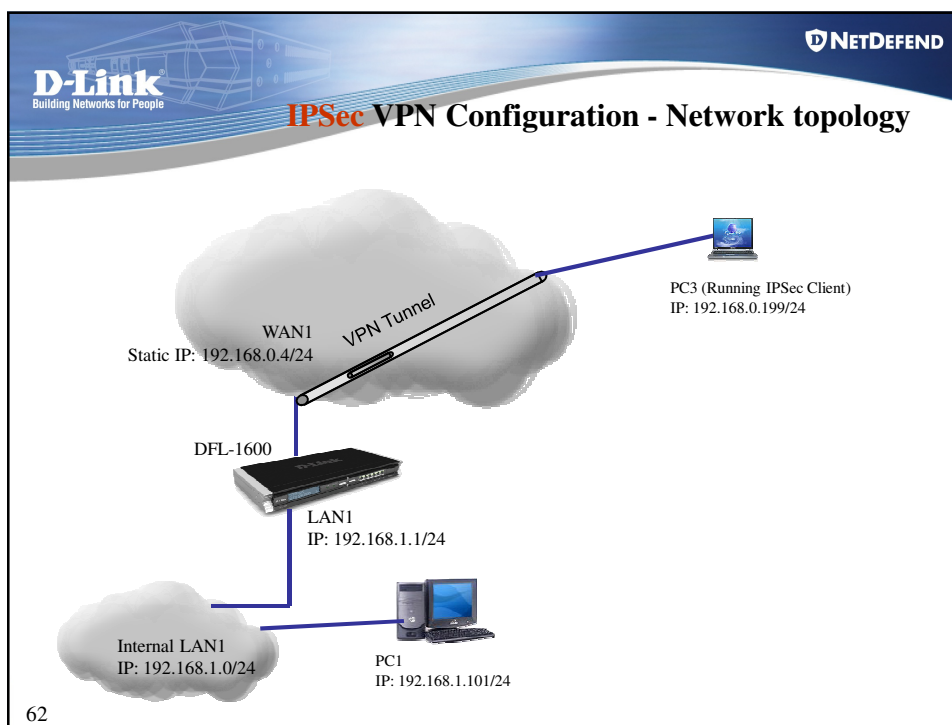
C:\Documents and Settings\tytan>ping 192.168.3.100



Pinging 192.168.3.100 with 32 bytes of data:
Reply from 192.168.3.100: bytes=32 time=480ms TTL=126
Reply from 192.168.3.100: bytes=32 time=1ms TTL=126
Reply from 192.168.3.100: bytes=32 time=1ms TTL=126
Reply from 192.168.3.100: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.3.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 480ms, Average = 120ms

C:\Documents and Settings\tytan>
  
```

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IPSec VPN Configuration Between IPSec Client and VPN Gateway

Objectives

- PC with D-Link IPSec Client communicate with firewalls by IPsec tunnel .
- The IPSec client can ping to the client of remote VPN network after VPN Tunnel Eastablish

The logic of configuration

- Configure Dynamic IPsec tunnel in Firewall for IPSec Client Remote Access
- Configure IPSec Client in PC

➤ Please configure the LAN and WAN IP parameter of the Firewall base on the network diagram before you configure the IPSec VPN parameter.

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IPSec VPN Configuration Between IPSec Client and VPN Gateway

Create Dynamic IPsec tunnel for Remote IPSec Client

- Click “IPsec Tunnels” in Interface
- Click “Add” → IPsec Tunnel”



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IPSec VPN Configuration
Between IPSec Client and VPN Gateway

NETDEFEND

D-Link DFL-1600 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://192.168.1.1/

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

Untitled

General Authentication Extended Authentication (XAuth) Settings IKE Settings Keep-alive Advanced

General

An IPSec tunnel item is used to define IPSec endpoint and will appear as a logical interface in the system.

Name: IPSec_Dyn

Local Network: lan1net

Remote Network: all-netz

Remote Endpoint: (None)

Encapsulation Mode: Tunnel

Algorithms

IKE Algorithm: IKE1

IKE Life Time: 28800 seconds

IPSec Algorithm: IPSec1

IPSec Life Time: 3600 seconds

IPSec Life Time: 0 kilobytes

Comments

Transferring data from 192.168.1.1...

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IPSec VPN Configuration
Between IPSec Client and VPN Gateway

NETDEFEND

D-Link DFL-1600 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://192.168.1.1/

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

Untitled

General Authentication Extended Authentication (XAuth) Routing IKE Settings Keep-alive Advanced

Authentication

☐ X.509 Certificate

Root Certificate(s): Available AdminCert Selected

Gateway Certificate: (None)

Identification List: (None)

☒ Pre-Shared Key

Pre-Shared Key: IPSec1

OK Cancel

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IPSec VPN Configuration Between IPSec Client and VPN Gateway

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Maintenance Logout Help

IPSec Dyn

General Authentication Extended Authentication (XAuth) Routing IKE Settings **Keep-alive** Advanced

Automatic Routing

☐ Allow DHCP over IPsec from single-host clients

☒ Dynamically add route to the remote network when a tunnel is established

Packet Sizes

Specify the size at which to fragment plaintext packets (rather than fragmenting IPsec).

Plaintext MTU: 1424

IP Addresses

IP address to use as source IP of the tunnel

☒ Automatically pick the address of a local interface that corresponds to the local net

☐ Specify address manually

IP Address: (None)

OK Cancel

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IPSec VPN Configuration Between IPSec Client and VPN Gateway

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Maintenance Logout Help

IPSec Dyn

General Authentication Extended Authentication (XAuth) Routing IKE Settings **Keep-alive** Advanced

IKE

☒ Main DH Group: 2

☐ Aggressive

Perfect Forward Secrecy

PFS: None DH Group: 2

Security Association

☒ Per Net

☐ Per Host

NAT Traversal

☐ Off

☒ On if supported and NATed

☐ On if supported

Dead Peer Detection

☒ Dead Peer Detection

OK Cancel

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D-Link Building Networks for People

IPSec VPN Configuration
Between IPSec Client and VPN Gateway

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Maintenance Logout Help

DFL-210

- System
- Objects
- Rules
- Interfaces
 - Ethernet
 - VLAN
 - IPSec
 - PPPoE
 - PPTPL2TP Servers
 - PPTPL2TP Clients
 - Interface Groups
 - ARP
- Routing
- IP / IPS
- User Authentication
- Traffic Management

IPSec_Dyn

General Authentication Extended Authentication (XAuth) Routing IKE Settings Keep-alive Advanced

Automatic Route Creation

Automatically add route for remote network.

☐ Add route for remote network

Route Metric: 90

OK Cancel

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D-Link Building Networks for People

IPSec VPN Configuration
Between IPSec Client and VPN Gateway
Dynamic IPSec Tunnel Created

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

DFL-1600

- System
- Objects
- Rules
- Interfaces
 - Ethernet
 - VLAN
 - IPsec Tunnels
 - PPPoE Tunnels
 - L2TP/PPTP Servers
 - L2TP/PPTP Clients
 - Interface Groups
 - ARP Table
- Routing
- IDS / IDP

IPsec Tunnels

Manage the IPsec tunnel interfaces used for establishing IPsec VPN connections to and from this system.

Add

#	Name	LocalNetwork	RemoteNetwork	RemoteEndpoint	AuthMethod	Comments
0	IPSec1	lan1net	VPN_RemoteNet	VPN_RemoteIP	PSK	
1	IPSec_Dyn	lan1net	all-nets		PSK	

Right-click on a row for further options.
Modify advanced settings

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D-Link Building Networks for People **NETDEFEND**

IPSec VPN Configuration Between IPSec Client and VPN Gateway

Combine the IPSec and LAN interfaces to one interface group

- Click “**Interface Groups**” in this Interface
- Click “IPSec_LAN” Interface Groups that Created previously

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IPSec VPN Configuration Between IPSec Client and VPN Gateway

Add the newly created IPSec_Dyn interface to the interface group

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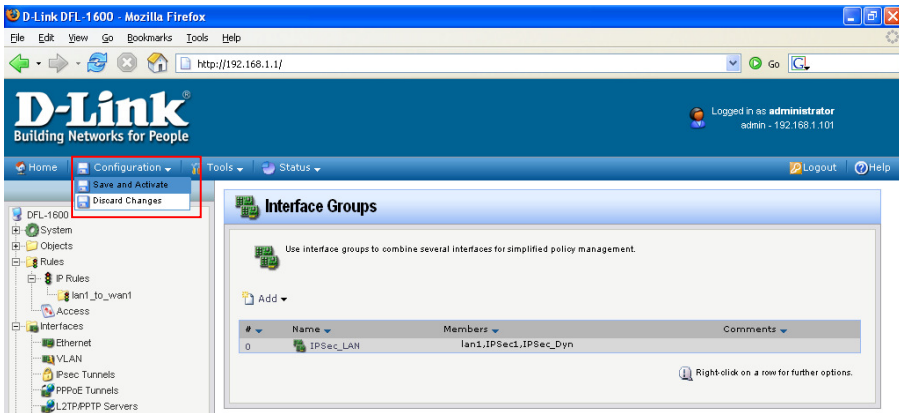
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IPSec VPN Configuration Between IPSec Client and VPN Gateway

After all configuration , Click “configuration” on main menu bar

- Click “**Save and Activate**”



D-Link DFL-1600 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://192.168.1.1/

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Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

Configuration menu items: Save and Activate, Discard Changes

Interface Groups

Use interface groups to combine several interfaces for simplified policy management.

Add

#	Name	Members	Comments
0	IPSec_LAN	lan1.IPSec1.IPSec_Dyn	


Right-click on a row for further options.

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IPSec VPN Configuration Between IPSec Client and VPN Gateway



D-Link DFL-1600 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://192.168.1.1/

D-Link Building Networks for People

Logged in as administrator
admin - 192.168.1.101

Home Configuration Tools Status Logout Help

Save Configuration

Are you sure you want to save the configuration?

An administrator needs to log in within 30 seconds to verify the new configuration. Otherwise the unit will assume that you accidentally locked yourself out, and revert to its previous configuration.
Click here to edit the configuration verification timeout.

OK Cancel

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IPSec VPN Configuration Between IPSec Client and VPN Gateway

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IPSec VPN Configuration Between IPSec Client and VPN Gateway

Re-login to DFL-1600

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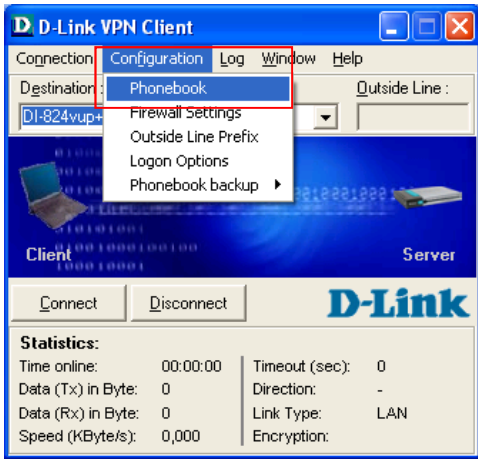
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IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Click "Configuration" → "Phonebook"



D-Link VPN Client

Connection Configuration Log Window Help

Destination: DI-824vup+

Firewall Settings

Outside Line Prefix

Logon Options

Phonebook backup

Client Server

Connect Disconnect

Statistics:

Time online:	00:00:00	Timeout (sec):	0
Data (Tx) in Byte:	0	Direction:	-
Data (Rx) in Byte:	0	Link Type:	LAN
Speed (KByte/s):	0,000	Encryption:	

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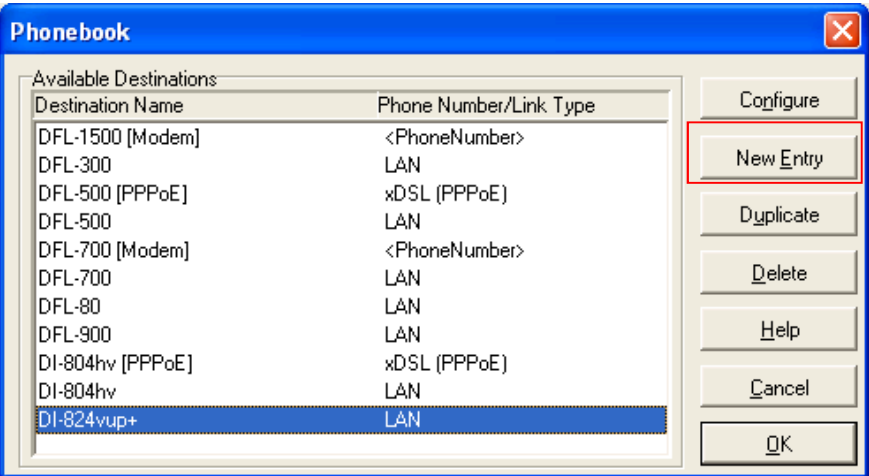
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IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Click "New Entry"



Phonebook

Available Destinations

Destination Name	Phone Number/Link Type
DFL-1500 [Modem]	<PhoneNumber>
DFL-300	LAN
DFL-500 [PPPoE]	xDSL (PPPoE)
DFL-500	LAN
DFL-700 [Modem]	<PhoneNumber>
DFL-700	LAN
DFL-80	LAN
DFL-900	LAN
DI-804hv [PPPoE]	xDSL (PPPoE)
DI-804hv	LAN
DI-824vup+	LAN

Configure

New Entry

Duplicate

Delete

Help

Cancel

OK

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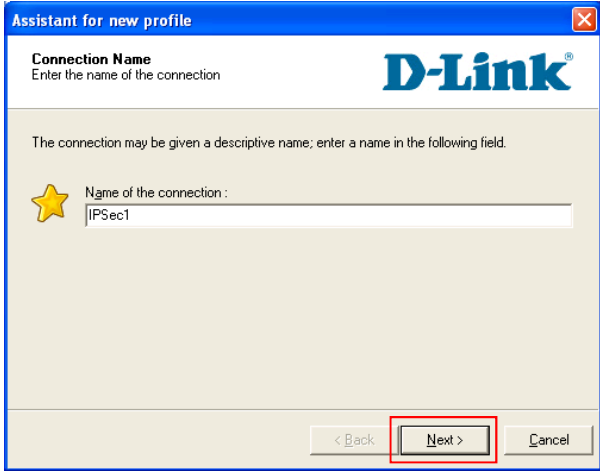
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IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Enter IPSec "Connection Name", click "Next"



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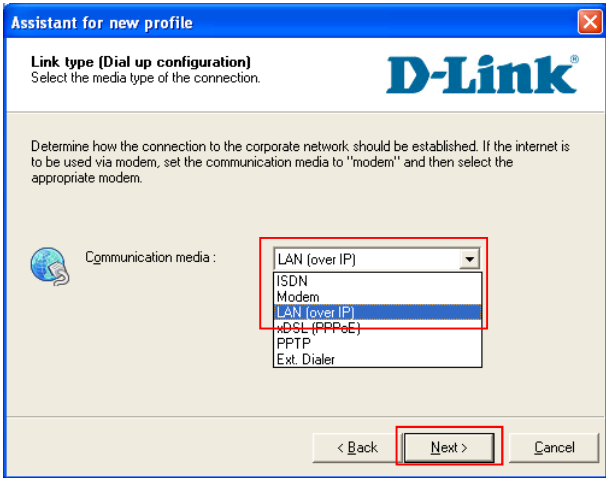
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IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Select "LAN (Over IP)", click "Next"



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D-Link Building Networks for People **NETDEFEND**

IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Enter "VPN Gateway" (WAN IP of the Remote VPN Gateway), click "Next"

Assistant for new profile

VPN gateway parameters
To which VPN gateway should the connection be established

Enter the DNS name (i.e. vpnserver.domain.com) or the official IP address (i.e. 212.10.17.29) of the VPN gateway you want to connect to.
Using Extended Authentication (XAUTH) you can enter the Username and Password for the authentication. If no authentication data are entered they will be requested when establishing the connection.

Gateway : 192.168.0.4

☐ Use extended authentication (XAUTH)

Username : _____

Password : _____ Password (Confirm) : _____

< Back **Next >** Cancel

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D-Link Building Networks for People **NETDEFEND**

IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Enter "Pre-shared key", click "Finish"

Assistant for new profile

Pre-shared key
Common secret for data encryption

A shared secret or pre-shared key is used to encrypt the connection; this then needs to be identically configured on both sides (VPN client and VPN gateway).
Enter the appropriate value for the IKE ID according to the selected ID type.

Pre-shared key

Shared secret : _____ Confirm secret : _____

Local identity

Type : IP Address

ID : _____

< Back **Finish** Cancel

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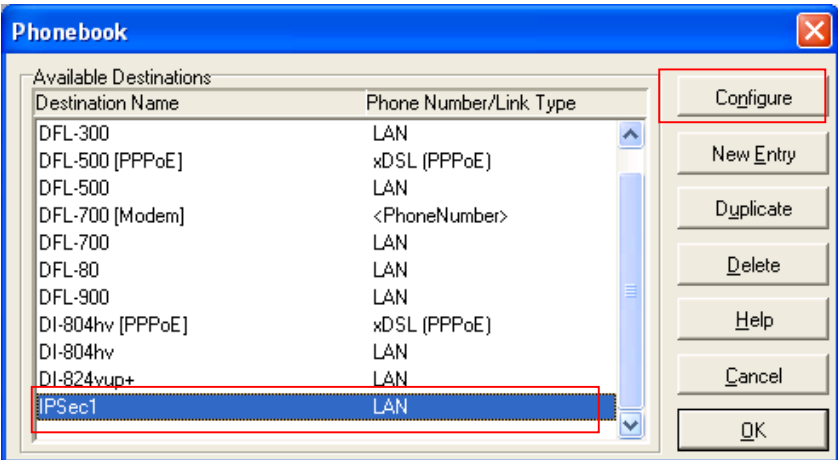
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IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

IPSec Client Created, select it and click "Configure"



The Phonebook window displays a list of available destinations. The 'IPSec1' entry is selected, and the 'Configure' button is highlighted.

Destination Name	Phone Number/Link Type
DFL-300	LAN
DFL-500 [PPPoE]	xDSL (PPPoE)
DFL-500	LAN
DFL-700 [Modem]	<PhoneNumber>
DFL-700	LAN
DFL-80	LAN
DFL-900	LAN
DI-804hv [PPPoE]	xDSL (PPPoE)
DI-804hv	LAN
DI-824vup+	LAN
IPSec1	LAN

Buttons: Configure, New Entry, Duplicate, Delete, Help, Cancel, OK

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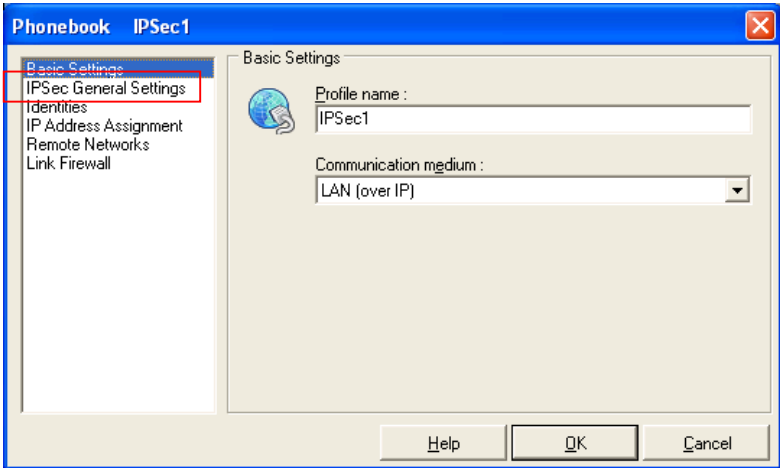
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IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Select "IPSec General Settings"



The Phonebook window displays the configuration for 'IPSec1'. The 'Basic Settings' tab is selected, and the 'IPSec General Settings' option is highlighted.

Basic Settings

Profile name : IPSec1

Communication medium : LAN (over IP)

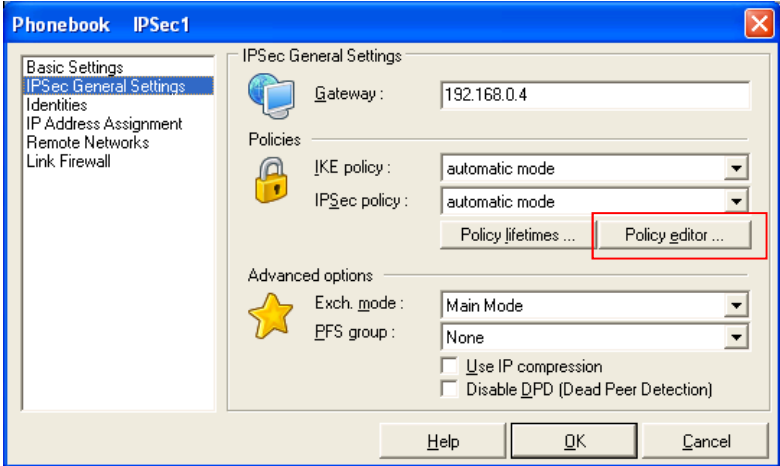
Buttons: Help, OK, Cancel

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IPSec VPN Configuration
Between IPSec Client and VPN Gateway

IPSec Client Configuration

Click "Policy editor"

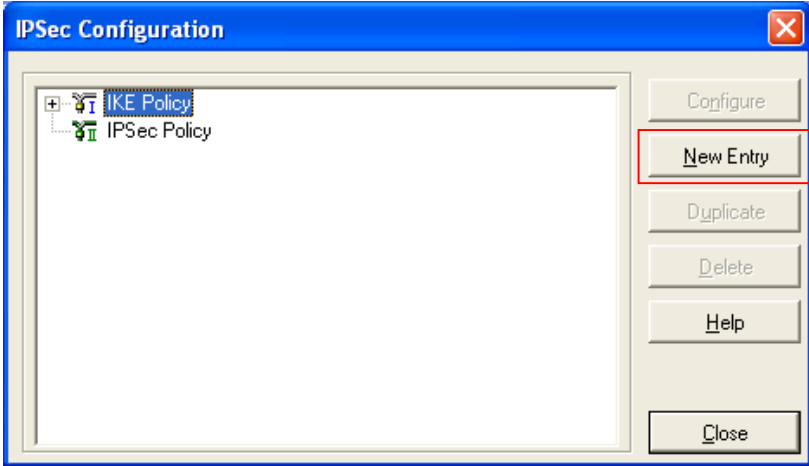


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IPSec VPN Configuration
Between IPSec Client and VPN Gateway

IPSec Client Configuration

Select "IKE Policy", click "New Entry"



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IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Enter IKE Policy Name, Select IKE Policy, click "OK"

IKE Policy

Name : IKE1

Authentication	Encryption	Hash	DH Group
Preshared Key	DES	MD5	DH-Group 2 (1024 Bit)

Authentication : Preshared Key Add

Encryption : DES Remove

Hash : MD5

DH Group : DH-Group 2 (1024 Bit)

Help
OK
Cancel

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D-Link Building Networks for People **NETDEFEND**

IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Select IPSec Policy, click "New Entry"

IPSec Configuration

- DFL-900 [3DES-SHA-DH2]
- DFL-1500 [3DES-SHA-DH2]
- DFL-300 [3DES-SHA-DH2]
- DFL-500 [3DES-SHA-DH2]
- IKE1
- IPSec Policy
- D1-824vup+ [3DES-SHA]
- DFL-80 [3DES-SHA]
- DFL-900 [3DES-SHA]
- DFL-1500 [3DES-SHA]
- DFL-300 [3DES-SHA]
- DFS-500 [3DES-SHA]

New Entry
Duplicate
Delete
Help
Close

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D-Link Building Networks for People **NETDEFEND**

IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

Enter IPSec Policy Name, Select IPSec Policy, click "OK"

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D-Link Building Networks for People **NETDEFEND**

IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

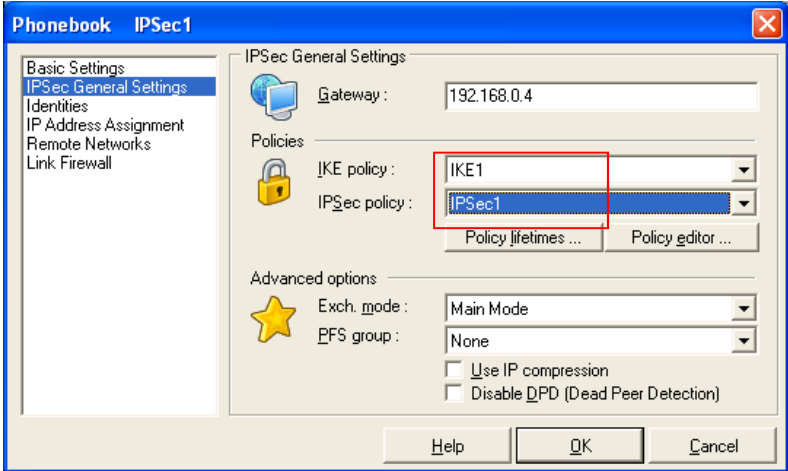
Both "IKE Policy" and "IPSec Policy" are created. Click "Close"

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IPSec VPN Configuration
Between IPSec Client and VPN Gateway

IPSec Client Configuration

Select "IKE Policy" and IPSec Policy". Click "Identities"

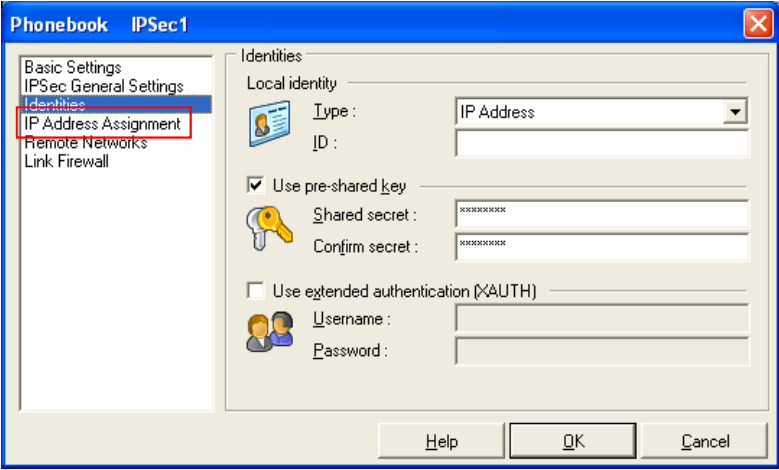


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IPSec VPN Configuration
Between IPSec Client and VPN Gateway

IPSec Client Configuration

Verify Configuration, Click "IP Address Assignment"

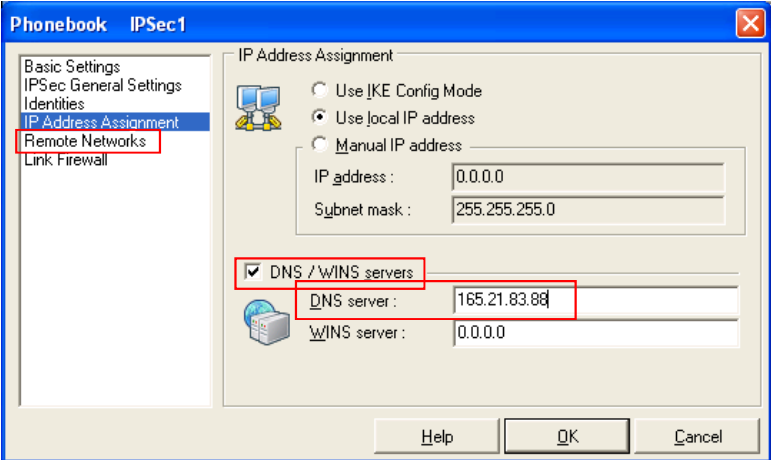


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IPSec VPN Configuration
Between IPSec Client and VPN Gateway

IPSec Client Configuration

Tick "DNS/Wins server", Enter "DNS server". Click "Remote Networks"

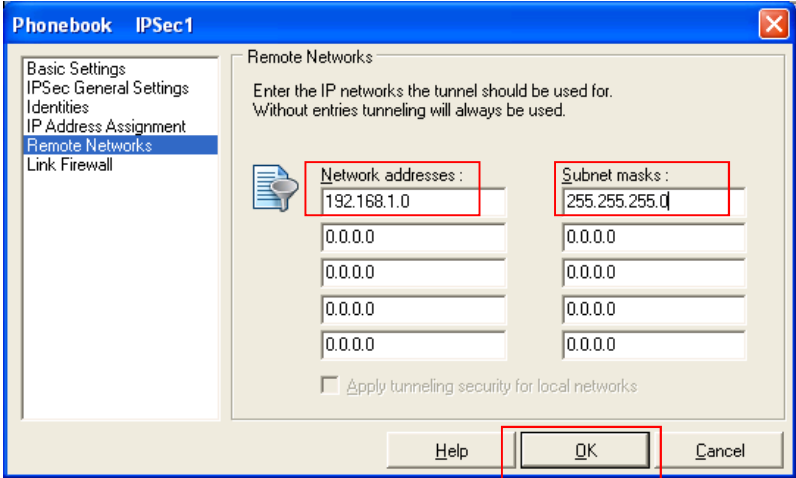


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IPSec VPN Configuration
Between IPSec Client and VPN Gateway

IPSec Client Configuration

Enter "Remote Networks address and Subnet masks". Click "OK"



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NETDEFEND

D-Link
Building Networks for People

IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

IPSec Client Phonebook Created. Click "OK"

Phonebook

Destination Name	Phone Number/Link Type
DFL-300	LAN
DFL-500 [PPPoE]	xDSL (PPPoE)
DFL-500	LAN
DFL-700 [Modem]	<PhoneNumber>
DFL-700	LAN
DFL-80	LAN
DFL-900	LAN
DI-804hv [PPPoE]	xDSL (PPPoE)
DI-804hv	LAN
DI-824vup+	LAN
IPSec1	LAN
IPSec2	LAN

Configure

New Entry

Duplicate

Delete

Help

Cancel

OK

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D-Link
Building Networks for People

IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration


Select the IPSec Client just created

D-Link VPN Client

Connection Configuration Log Window Help

Destination : IPSec1 Outside Line :

- DFL-700 [Modem]
- DFL-80
- DFL-900
- DI-804hv
- DI-804hv [PPPoE]
- DI-824vup+
- IPSec1**
- IPSec2



Server

Connect

Disconnect

Statistics:

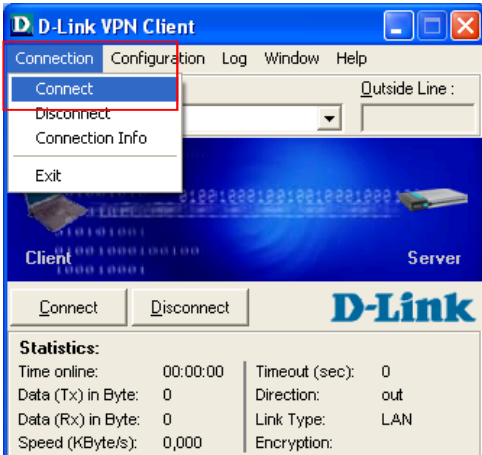
Time online: 00:00:00	Timeout (sec): 0
Data (Tx) in Byte: 0	Direction: out
Data (Rx) in Byte: 0	Link Type: LAN
Speed (KByte/s): 0,000	Encryption:

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D-Link NETDEFEND

IPSec VPN Configuration
Between IPSec Client and VPN Gateway
 IPSec Client Configuration

Click "Connection" → "Connect".



The screenshot shows the D-Link VPN Client window. The 'Connection' menu is open, and the 'Connect' option is highlighted with a red box. The window also displays a 'Destination' dropdown menu with 'IPSec1' selected, and a 'Statistics' section at the bottom.

Statistics:

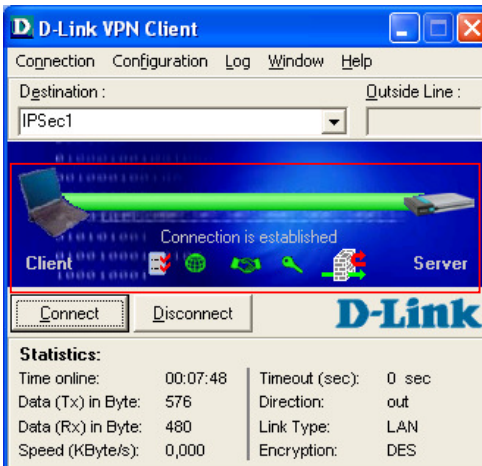
Time online:	00:00:00	Timeout (sec):	0
Data (Tx) in Byte:	0	Direction:	out
Data (Rx) in Byte:	0	Link Type:	LAN
Speed (KByte/s):	0,000	Encryption:	

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D-Link NETDEFEND

IPSec VPN Configuration
Between IPSec Client and VPN Gateway
 IPSec Client Configuration

IPSec Client connected to remote VPN Gateway




The screenshot shows the D-Link VPN Client window after a successful connection. The 'Destination' dropdown menu still shows 'IPSec1'. A green bar across the middle of the window indicates 'Connection is established'. The 'Statistics' section at the bottom shows updated data.


Statistics:

Time online:	00:07:48	Timeout (sec):	0 sec
Data (Tx) in Byte:	576	Direction:	out
Data (Rx) in Byte:	480	Link Type:	LAN
Speed (KByte/s):	0,000	Encryption:	DES

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D-Link
Building Networks for People

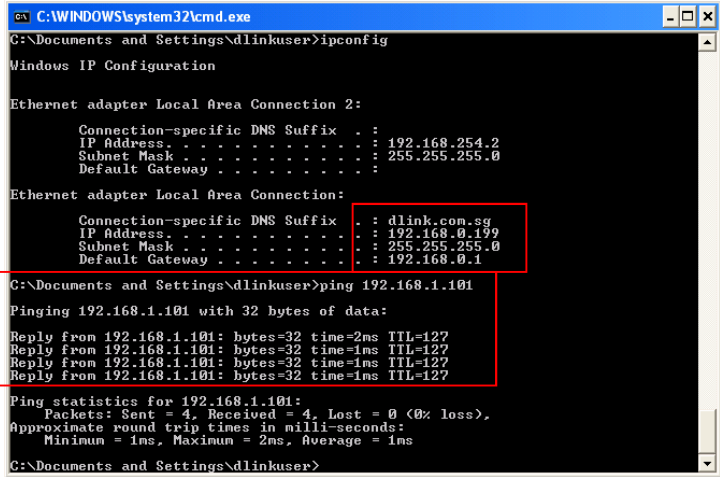


IPSec VPN Configuration

Between IPSec Client and VPN Gateway

IPSec Client Configuration

PC3 with IPSec Client can ping to PC1 at Remote Network



```

C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\dlinkuser>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . . : 192.168.254.2
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : dlink.com.sg
    IP Address. . . . . : 192.168.0.199
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1

C:\Documents and Settings\dlinkuser>ping 192.168.1.101

Pinging 192.168.1.101 with 32 bytes of data:

Reply from 192.168.1.101: bytes=32 time=2ms TTL=127
Reply from 192.168.1.101: bytes=32 time=1ms TTL=127
Reply from 192.168.1.101: bytes=32 time=1ms TTL=127
Reply from 192.168.1.101: bytes=32 time=1ms TTL=127

Ping statistics for 192.168.1.101:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\Documents and Settings\dlinkuser>
  
```