

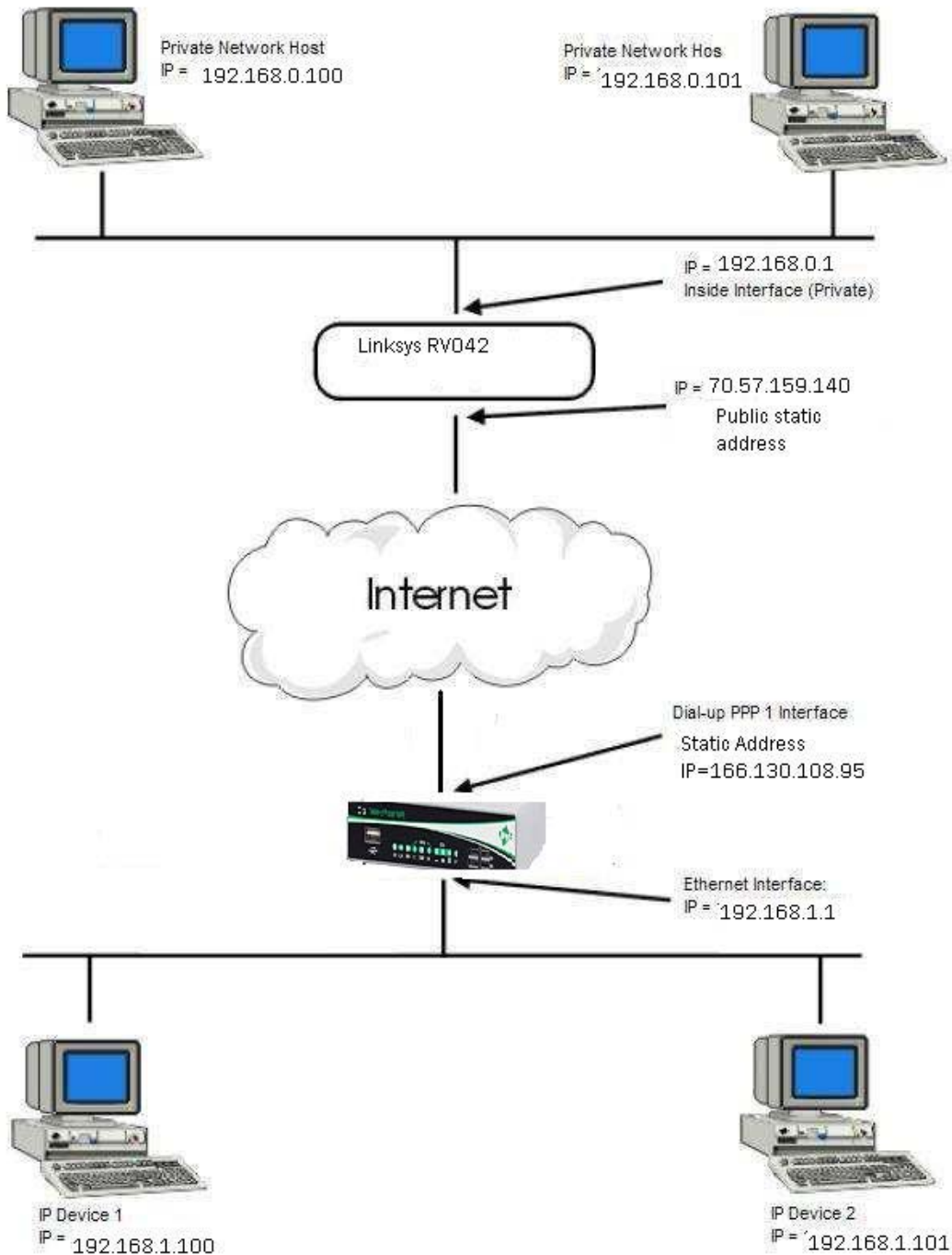


Transport VPN Application Guide

VPN tunnel between Linksys RV042 and WR41-H

Scenario: Building a VPN Tunnel from the Digi Transport WR41-H to a Linksys RV042 at the Corporate HQ.

Sample Diagram:



Application Guide – VPN setup Linksys RV042 to WR41-H

Theory of Operation: From the Digi Transport WR41-H which is at a remote office and the need to provide a secure connection back to the Corporate HQ. The Digi Transport WR41-H will build a VPN tunnel to the Linksys RV042 at the Corporate HQ for secure communications over the Cellular Network/Internet.

HQ Router / VPN Appliance Configuration: The HQ appliance's tunnel policy peer address will be the Transport WR41-H WAN's Mobile IP address. For this reason a static mobile IP address is preferred.

Transport WR41-H VPN setup:

Log into the Transport and configure as shown in screen shots below.

Please note your IP addresses will be different. Addresses shown are only an example.

The screenshot shows a web browser window displaying the configuration page for the Digi Transport WR41H-AEU-B00. The browser address bar shows the URL <http://166.130.108.95/default.asp>. The page title is "Digi Transport WR41H-AEU-B00 Ser#:92823". The navigation menu on the left includes: Home, Configuration (Interfaces, Common applications, Advanced applications, Services, VPN, Routing, Serial), Security, Alarms, System, Management, User applications, Diagnostics (Analyser, Event Log, PCAP), Firewall, Status, Statistics, and Administration. The main content area is titled "Configuration - Interfaces > Ethernet > ETH 0 > Configure" and "Configure: Ethernet 0". The configuration parameters are as follows:

Physical port:	ETH 0
Description:	
IP analysis:	Off
Ethernet analysis:	Off
DHCP client:	Disabled
IP address:	192.168.1.1
Multihome additional consecutive addresses:	0
Mask:	255.255.255.0
DNS server:	
Secondary DNS server:	
Gateway:	
Metric:	1
NAT mode:	Off
Speed (currently 100Base-T):	Auto
Firewall:	Off
IGMP:	Off
IPSec:	ON-Remove SAs when link down

Configuration → Interfaces → Ethernet → ETH 0 → Configure

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Digi Device ID: ss%es> Serial #: 92823 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://192.168.1.1/default.asp

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Digi

Digi Transport WR41H-AEU-B00 Ser#:92823

User : username

Configuration - VPN > IPsec > IKE > IKE 0

Encryption algorithm: AES

Encryption key bits (AES only): 256

Authentication algorithm: MD5

Duration (s): 28200

Aggressive mode: Off

Dead Peer Detection: On

IKE MODP group: 1 (768)

Minimum IPsec MODP group: No PFS

RSA private key file:

Maximum re-transmits: 2

Re-transmit interval (s): 10

Inactivity timeout (s): 30

Send INITIAL-CONTACT notifications: Yes

Retain phase 1 SA after phase 2 negotiation failure: No

NAT traversal enabled: No

NAT traversal keep-alive interval (s): 20

SA removal mode: Remove IPsec SAs when IKE SA removed

Use debug port: No

Debug level: Very High

Debug IP address filter:

Done

Configuration VPN →IPSec →IKE →IKE0

Application Guide – VPN setup Linksys RV042 to WR41-H

Digi Device ID: ss%es> Serial #: 92823 - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://192.168.1.1/default.asp

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Digi

Digi Transport WR41H-AEU-B00 Ser#:92823

User : username

Home

Configuration

- Interfaces
- Common applications
- Advanced applications
- Services
- VPN
- Routing
- Serial
- Security
- Alarms
- System
- Management

User applications

Diagnostics

- Analyser
- Event Log
- PCAP
- Firewall
- Status
- Statistics

Administration

- Directory listings
- Version info
- Execute a command

Configuration - VPN > IPsec > IKE > Responder

Configure: IKE 0 (Responder)

Act as initiator only: No

Acceptable encryption algorithms: AES

Minimum Encryption key bits (AES only): 256

Acceptable authentication algorithms: MD5

Minimum acceptable IKE MODP group: 1 (768)

Maximum acceptable IKE MODP group: 1 (768)

Duration (s): 28200

Inactivity timeout (s): 30

Send INITIAL-CONTACT notifications: Yes

Send RESPONDER-LIFETIME notifications: Yes

Retain phase 1 SA after phase 2 negotiation failure: No

NAT traversal enabled: No

NAT traversal keep-alive interval (s): 20

RSA private key file:

SA removal mode: Remove IPsec SAs when IKE SA removed

Use debug port: No

Debug level: Very High

Debug IP address filter:

Done

Configuration → VPN → IPsec → IKE → Responder

Application Guide – VPN setup Linksys RV042 to WR41-H

Digi Device ID: ss%> Serial #: 92823 - Mozilla Firefox

Configuration - VPN > IPsec > IPsec Eroutes > Eroute 0

Configure: IPsec ERROUTE 0

Description:	VPN Tunnel
Peer IP/hostname:	70.57.159.140
Backup peer IP:	
Peer ID:	70.57.159.140
Our ID:	166.130.108.95
XAUTH ID:	
RSA private key file:	
Send our ID as FQDN:	No
Interface to use for local subnet IP address:	None
Interface # to use for local subnet IP address:	0
Local subnet IP address:	192.168.1.0
Local subnet mask:	255.255.255.0
Local subnet IP address to negotiate (if different from above):	
Local subnet mask to negotiate (if different from above):	
Negotiate virtual local IP address using MODECFG (initiators only):	No
Remote subnet IP address:	192.168.0.0
Remote subnet mask:	255.255.255.0
Remote subnet ID:	
Local port:	0
Remote port:	0
TX packets with these TOS values through this eroute:	
First local port (IKEv2 only):	0
Last local port (IKEv2 only):	65535
First remote port (IKEv2 only):	0
Last remote port (IKEv2 only):	65535
Mode:	Tunnel
AH authentication algorithm:	Off
ESP authentication algorithm:	MDS
ESP encryption algorithm:	AES
ESP encrypt key length (bits):	256

Configuration→VPN→IPsec→IPsec Eroutes→Eroute 0 (screen shot 1 of 2)

Application Guide – VPN setup Linksys RV042 to WR41-H

The screenshot shows a Mozilla Firefox browser window displaying the configuration page for a Digi Transport WR41H-AEU-B00 device. The browser's address bar shows the URL `http://192.168.1.1/default.asp`. The page title is "Digi Transport WR41H-AEU-B00 Ser#:92823".

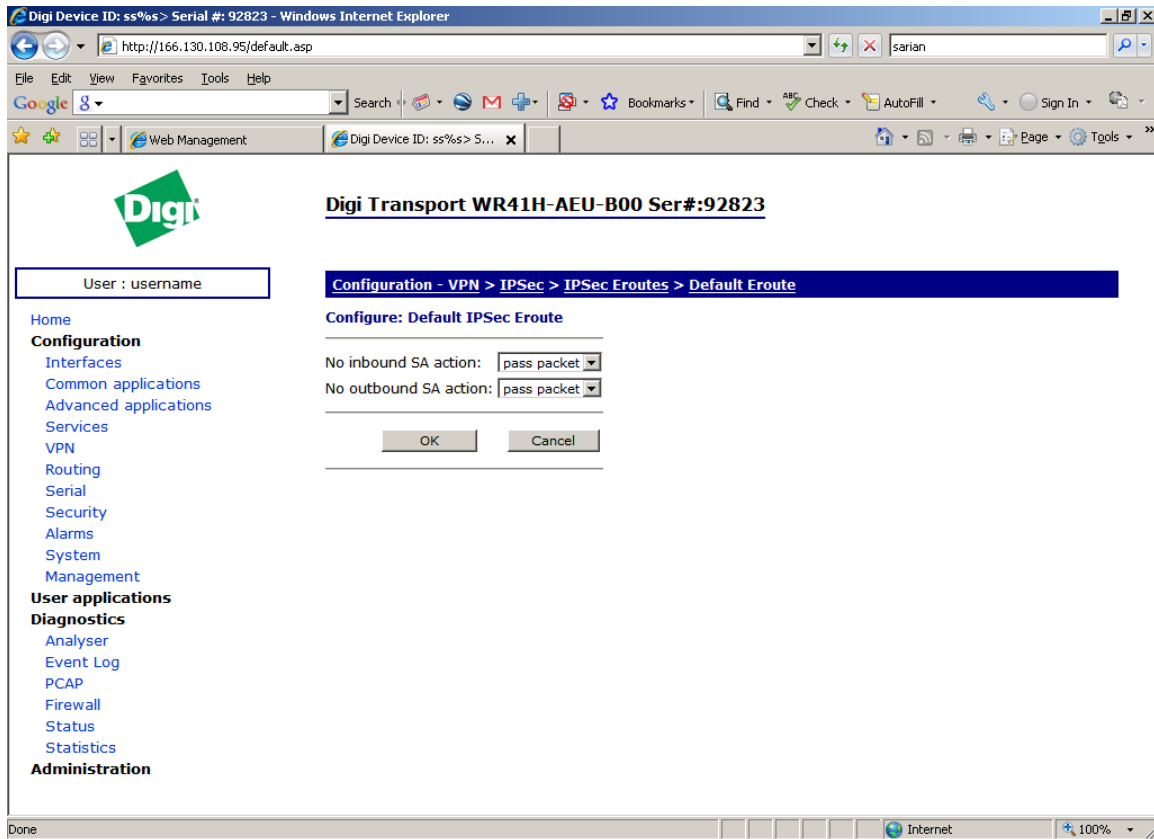
The interface includes a navigation menu on the left with the following items: Home, Configuration, Interfaces, Common applications, Advanced applications, Services, VPN, Routing, Serial, Security, Alarms, System, Management, User applications, Diagnostics, and Administration. The "Configuration" menu is expanded, showing "VPN" as the selected option.

The main content area is titled "Configuration - VPN > IPsec > IPsec Eroutes > Eroute 0". It contains a list of configuration parameters for the IPsec tunnel, each with a corresponding input field or dropdown menu:

Parameter	Value
First remote port (IKEv2 only):	0
Last remote port (IKEv2 only):	65535
Mode:	Tunnel
AH authentication algorithm:	Off
ESP authentication algorithm:	MDS
ESP encryption algorithm:	AES
ESP encrypt key length (bits):	256
IPCOMP algorithm:	Off
IPsec MODP group:	No PFS
IP protocol:	Off
Duration (s):	28200
Duration (kb):	1000000
Inactivity Timeout (s):	0
No SA action:	Use IKE
Create SA's automatically:	Yes
Go out of service if automatic establishment fails:	No
Authentication method:	Preshared Keys
This route is tunnelled within another route:	No
NAT traversal keep-alive interval (s):	20
Link eroute with interface:	Any
Link eroute with interface #:	0
IKE config to use when initiator:	0
IKE version:	1
Check APN usage:	No
Interface must use this APN:	Main APN
Use Secondary IP address as source address:	No
Get source address from this interface:	N/A
Get source address from this interface #:	0

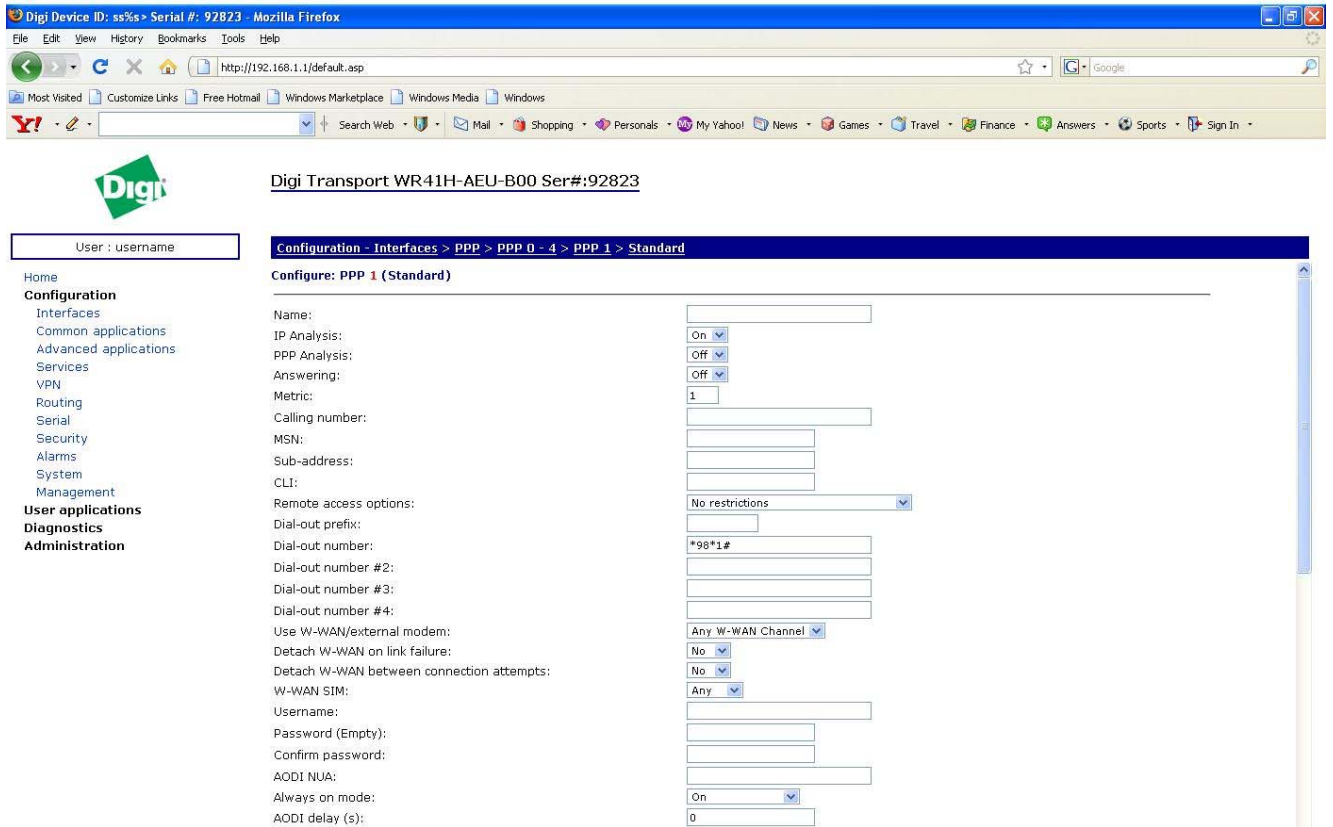
Configuration → VPN → IPsec → IPsec Eroutes → Eroute 0 (screen shot 2 of 2)

Application Guide – VPN setup Linksys RV042 to WR41-H



Configuration→IPsec→IPsec Eroutes→Default Eroute

Application Guide – VPN setup Linksys RV042 to WR41-H



Digi Device ID: ss%\$ Serial #: 92823 Mozilla Firefox

http://192.168.1.1/default.asp

Digi Transport WR41H-AEU-B00 Ser#:92823

User : username

Configuration - Interfaces > PPP > PPP 0 - 4 > PPP 1 > Standard

Configure: PPP 1 (Standard)

Name: [text box]

IP Analysis: On

PPP Analysis: Off

Answering: Off

Metric: 1

Calling number: [text box]

MSN: [text box]

Sub-address: [text box]

CLI: [text box]

Remote access options: No restrictions

Dial-out prefix: [text box]

Dial-out number: *98*1#

Dial-out number #2: [text box]

Dial-out number #3: [text box]

Dial-out number #4: [text box]

Use W-WAN/external modem: Any W-WAN Channel

Detach W-WAN on link failure: No

Detach W-WAN between connection attempts: No

W-WAN SIM: Any

Username: [text box]

Password (Empty): [text box]

Confirm password: [text box]

AODI NUA: [text box]

Always on mode: On

AODI delay (s): 0

Configuration → Interfaces → PPP → PPP 0-4 → PPP 1 → Standard (screen shot 1 of 3)

Application Guide – VPN setup Linksys RV042 to WR41-H

The screenshot shows a Mozilla Firefox browser window displaying the web interface for a Digi Transport WR41H-AEU-B00 device. The browser's address bar shows the URL `http://192.168.1.1/default.asp`. The page title is "Digi Transport WR41H-AEU-B00 Ser#:92823".

The interface includes a navigation menu on the left with the following items:

- Home
- Configuration**
 - Interfaces
 - Common applications
 - Advanced applications
 - Services
 - VPN
 - Routing
 - Serial
 - Security
 - Alarms
 - System
 - Management
- User applications**
- Diagnostics**
 - Analyser
 - Event Log
 - PCAP
 - Firewall

The main content area shows the configuration for "PPP 1 Standard". The breadcrumb trail is "Configuration - Interfaces > PPP > PPP 0 - 4 > PPP 1 > Standard". The configuration parameters are as follows:

Parameter	Value
Minimum link up-time (s):	0
Maximum link up-time (s):	0
Maximum negotiation time (s):	80
Firewall:	Off
IGMP:	Off
IPSec:	ON-Keep SAs when link down
QOS:	Off
RIP version:	Off
RIP destination IP address list:	
RIP authentication method:	Access list
Only send RIP when interface is in service:	No
Include in RIP advertisements:	Yes
DEFLATE compression:	Off
MPPE encryption:	Off
MPPE key size:	Auto
Time band:	

Configuration→Interfaces→PPP→PPP 0-4→PPP 1→Standard (screen shot 2 of 3)

Application Guide – VPN setup Linksys RV042 to WR41-H

The screenshot shows a Mozilla Firefox browser window displaying the web interface for a Digi Transport WR41H-AEU-B00 device. The browser's address bar shows the URL `http://192.168.1.1/default.asp`. The page title is "Digi Transport WR41H-AEU-B00 Ser#:92823".

The interface includes a navigation menu on the left with the following items:

- Home
- Configuration**
 - Interfaces
 - Common applications
 - Advanced applications
 - Services
 - VPN
 - Routing
 - Serial
 - Security
 - Alarms
 - System
 - Management
- User applications**
- Diagnostics**
 - Analyser
 - Event Log
 - PCAP
 - Firewall

The main content area displays the configuration for "PPP 1" under the path "Configuration - Interfaces > PPP > PPP 0 - 4 > PPP 1 > Standard". The configuration parameters are as follows:

RIP version:	Off
RIP destination IP address list:	
RIP authentication method:	Access list
Only send RIP when interface is in service:	No
Include in RIP advertisements:	Yes
DEFLATE compression:	Off
MPPE encryption:	Off
MPPE key size:	Auto
Time band:	
Log event up-time (mins):	0
Max up-time per day (mins):	0
Local IP address:	0.0.0.0
Remote IP address pool minimum:	10.10.10.0
Remote IP address pool range:	5
Remote network address:	0.0.0.0

Configuration → Interfaces → PPP → PPP 0-4 → PPP 1 → Standard (screen shot 3 of 3)

Application Guide – VPN setup Linksys RV042 to WR41-H

The screenshot shows a Mozilla Firefox browser window displaying the web interface of a Digi Transport WR41H-AEU-B00 device. The browser's address bar shows the URL `http://192.168.1.1/default.asp`. The page title is "Digi Transport WR41H-AEU-B00 Ser#:92823". The interface includes a navigation menu on the left with categories like Home, Configuration, Services, VPN, Routing, Serial, Security, Alarms, System, Management, User applications, and Diagnostics. The main content area is titled "Configuration - Security > Users > User 0 - 9 > User 8" and shows the "Configure: User 8" form. The form fields are as follows:

Name:	<input type="text" value="*"/>
Password:	<input type="text" value="mytest"/>
Confirm Password:	<input type="text" value="mytest"/>
New Password:	<input type="text"/>
Confirm New Password:	<input type="text"/>
Access Level:	<input type="text" value="Super"/>
Remote peer address:	<input type="text"/>
Remote subnet address:	<input type="text"/>
Remote subnet mask:	<input type="text"/>
Dialback number:	<input type="text"/>
Public Key file:	<input type="text"/>
DUN access enabled:	<input type="text" value="Yes"/>
Web page display mode:	<input type="text" value="Auto"/>

Configuration → Security → Users → User 0-9 → User 8

This is where you configure a user to use the pre-shared key.

mytest is the pre-shared key in this example.

Application Guide – VPN setup Linksys RV042 to WR41-H

Linksys VPN Setup:

The screenshot shows the Linksys VPN Gateway to Gateway setup page in Internet Explorer. The browser window title is "Web Management - Windows Internet Explorer" and the address bar shows "https://70.57.159.140/gateway_to_gateway.htm". The page is divided into three main sections: Local Group Setup, Remote Group Setup, and IPsec Setup.

Local Group Setup:

- Local Security Gateway Type: IP Only
- IP address: 70, 57, 159, 140
- Local Security Group Type: Subnet
- IP address: 192, 168, 0, 0
- Subnet Mask: 255, 255, 255, 0

Remote Group Setup:

- Remote Security Gateway Type: IP Only
- IP address: 166, 130, 108, 95
- Remote Security Group Type: Subnet
- IP address: 192, 168, 1, 0
- Subnet Mask: 255, 255, 255, 0

IPsec Setup:

- Keying Mode: IKE with Preshared key
- Phase1 DH Group: Group1
- Phase1 Encryption: AES-256
- Phase1 Authentication: MD5
- Phase1 SA Life Time: 28800 seconds
- Perfect Forward Secrecy:
- Phase2 Encryption: AES-256
- Phase2 Authentication: MD5
- Phase2 SA Life Time: 28800 seconds
- Preshared Key: mykey

On the right side of the page, there is a blue sidebar with the text: "Tunnel Name: Enter the Tunnel Name, such as LA Office, Branch Site, Corporate Site, etc." and a "More..." link.

Configure the Linksys as shown above in the VPN Gateway to Gateway setup.

Please note your IP addresses will be different. Addresses shown are only an example.

Application Guide – VPN setup Linksys RV042 to WR41-H

The screenshot shows the Linksys Web Management interface for a 10/100 4-port VPN Router (RV042). The VPN Summary page displays the following information:

- 1 Tunnel(s) Used, 49 Tunnel(s) Available
- Buttons: Add New Tunnel, Detail
- Jump to 1 / 1 page, 3 entries per page
- Table of Tunnels:

No.	Name	Status	Phase2 Enc/Auth/Grp	Local Group	Remote Group	Remote Gateway	Tunnel Test	Config.
1	The Love Tunnel	Connected	AES/MD5	192.168.0.0 255.255.255.0	192.168.1.0 255.255.255.0	168.130.108.95	Disconnect	Edit

1 Tunnel(s) Enabled, 1 Tunnel(s) Defined

GroupVPN Status table:

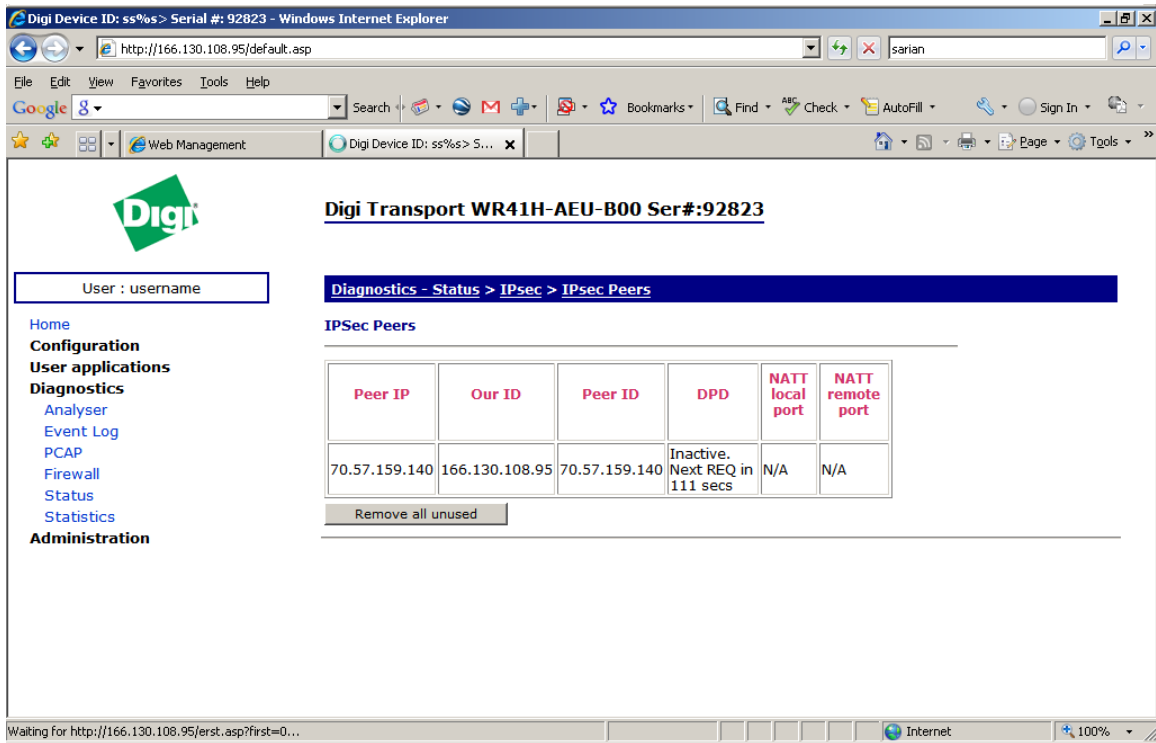
Group Name	Connected Tunnels	Phase2 Enc/Auth/Grp	Local Group	Remote Client	Remote Client Status	Tunnel Test	Config.
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Summary: It shows the amount of Tunnel(s) Used and Tunnel(s) Available. RV042 supports 50 tunnels.

Detail: Click the Detail button to see the details of VPN Summary, and users can use the tools on the top to save, export or print the details of VPN Summary.

VPN Summary screen will show status connected when the Tunnel has been established.

Application Guide – VPN setup Linksys RV042 to WR41-H



The screenshot shows a web browser window displaying the configuration page for a Digi Transport device. The page title is "Digi Transport WR41H-AEU-B00 Ser#:92823". The breadcrumb navigation is "Diagnostics - Status > IPsec > IPsec Peers". A table lists the IPsec peers with columns for Peer IP, Our ID, Peer ID, DPD, NATT local port, and NATT remote port. The table contains one entry: Peer IP 70.57.159.140, Our ID 166.130.108.95, Peer ID 70.57.159.140, DPD Inactive, Next REQ in 111 secs, NATT local port N/A, and NATT remote port N/A. A "Remove all unused" button is located below the table. The left sidebar contains navigation links for Home, Configuration, User applications, Diagnostics (Analyser, Event Log, PCAP, Firewall, Status, Statistics), and Administration.

Peer IP	Our ID	Peer ID	DPD	NATT local port	NATT remote port
70.57.159.140	166.130.108.95	70.57.159.140	Inactive. Next REQ in 111 secs	N/A	N/A

Diagnostics→Status→IPSec→IPSec Peers

This will show the IPsec Peers for the Tunnel(s) that are established.