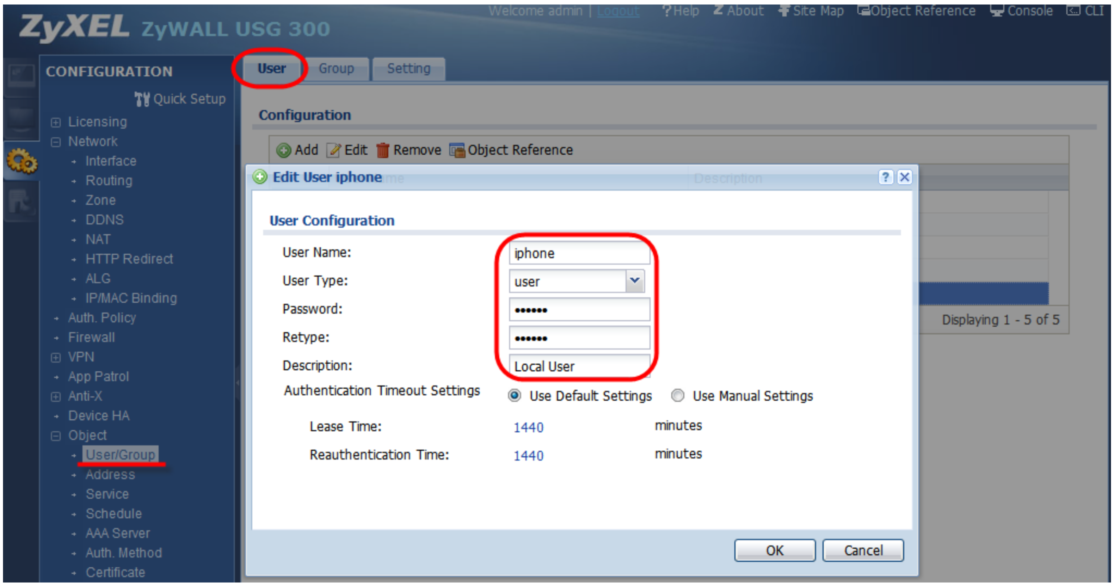
L2TP over IPSec connection between the ZyWALL USG and iPhone

iPhone 3G is now a very popular handheld device worldwide. It not only allows mobile users to surf Internet, delivering push email, but also provides secure access to corporate resources by supporting a variety of virtual private network (VPN) technologies. This document provides step-by-step instructions for setting up a VPN connection between ZyWALL USG and an iPhone.

ZyWALL USG configuration:

1. Configure a user account for the iPhone use when connecting. Click the **CONFIGURATION > Object > User/Group > User** page to create it. This user will be stored in “Local database”.



Edit User iphone

User Configuration

User Name: iphone

User Type: user

Password: ••••••

Retype: ••••••

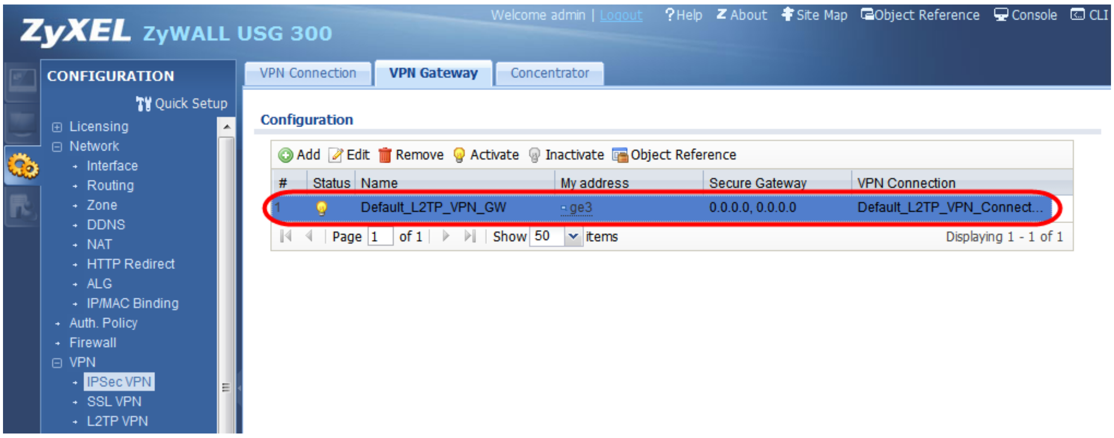
Description: Local User

Authentication Timeout Settings ● Use Default Settings ○ Use Manual Settings

Lease Time: 1440 minutes

Reauthentication Time: 1440 minutes

2. To build up the L2TP over IPSec connection, we have to create the IPSec rule first. Click **CONFIGURATION > VPN > IPSec VPN > VPN Gateway** page to create it. There is one pre-configured default rule for L2TP usage.

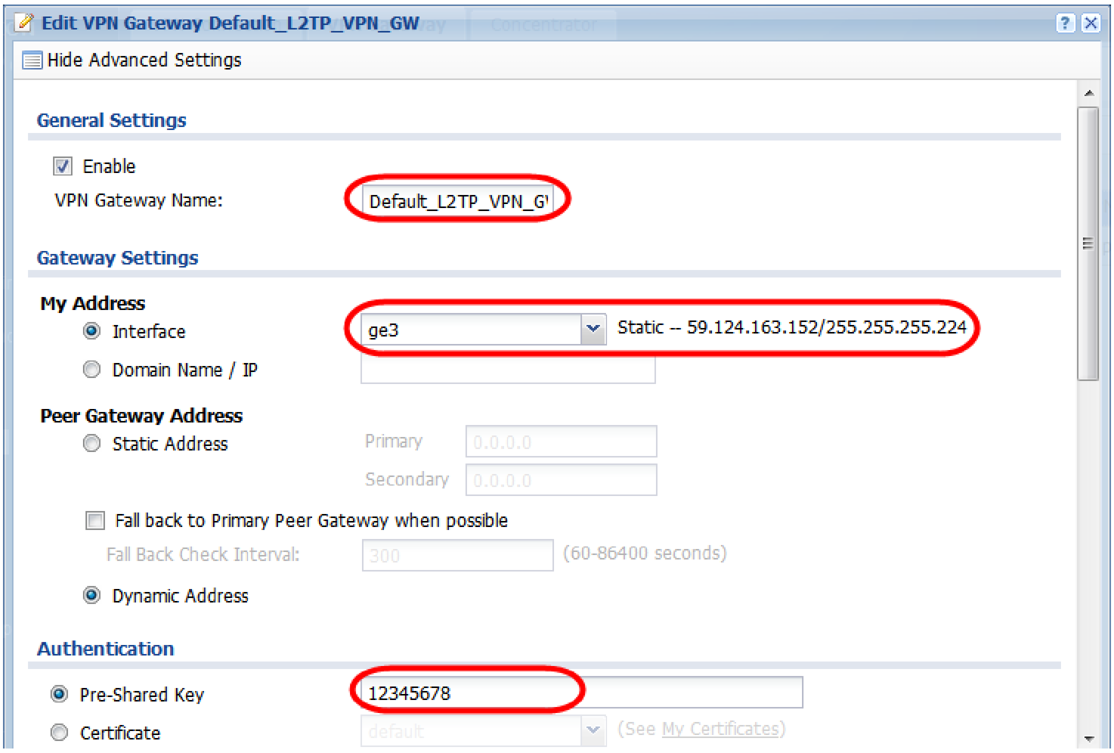


#	Status	Name	My address	Secure Gateway	VPN Connection
1	●	Default_L2TP_VPN_GW	ge3	0.0.0.0, 0.0.0.0	Default_L2TP_VPN_Connect...

Page 1 of 1 Show 50 items Displaying 1 - 1 of 1

3. Edit the default rule by filling in the following information: (click “Show Advanced Settings” first)

- VPN Gateway Name
- Gateway setting: select the local interface as My Address and set the peer side to use Dynamic Address (Peer Gateway Address)
- Pre-shared Key; this parameter will also be needed when configuring the iPhone connection.



General Settings

☑ Enable

VPN Gateway Name: Default_L2TP_VPN_G\

Gateway Settings

My Address

● Interface ge3 Static -- 59.124.163.152/255.255.255.224

○ Domain Name / IP

Peer Gateway Address

○ Static Address Primary 0.0.0.0 Secondary 0.0.0.0

□ Fall back to Primary Peer Gateway when possible

Fall Back Check Interval: 300 (60-86400 seconds)

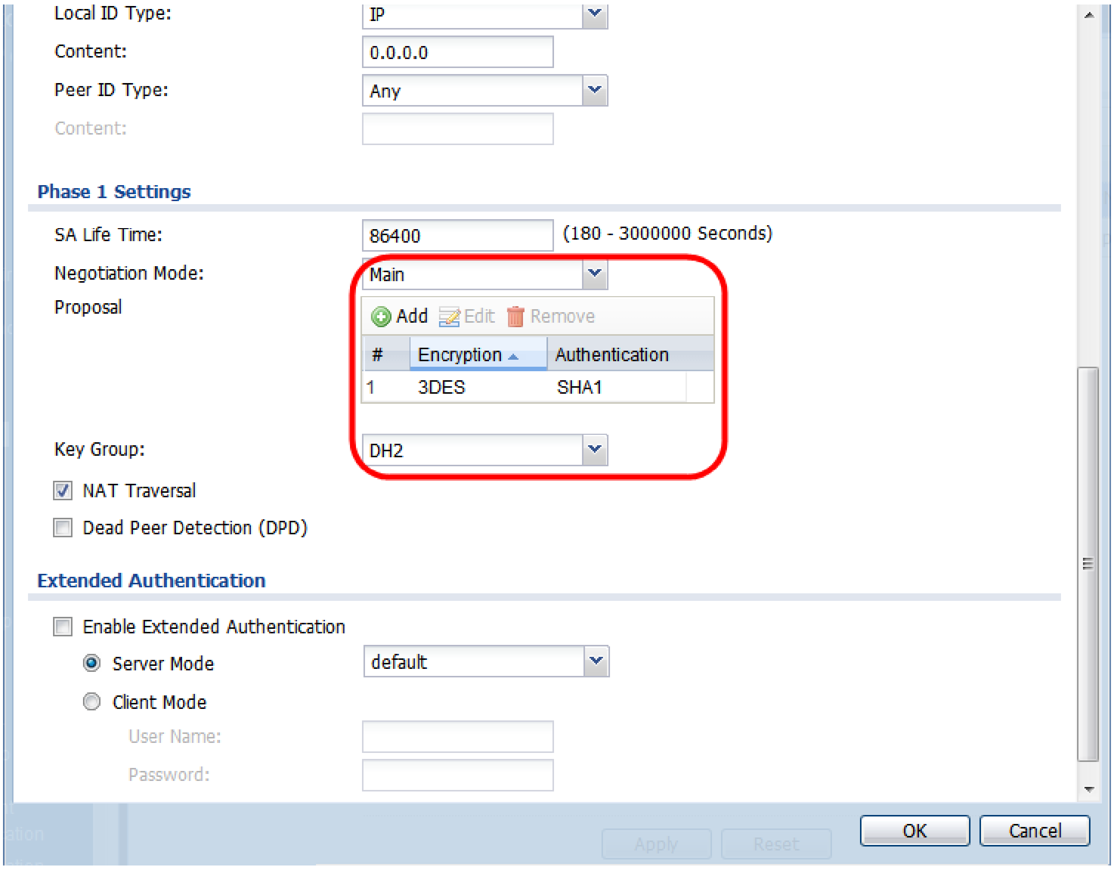
● Dynamic Address

Authentication

● Pre-Shared Key 12345678

○ Certificate default (See My Certificates)

4. Configure the Phase 1 proposal. There is a specific combination that is supported by the iPhone (depending on iOS version). Users can check the Appendix for more details.



Local ID Type: IP

Content: 0.0.0.0

Peer ID Type: Any

Content:

Phase 1 Settings

SA Life Time: 86400 (180 - 3000000 Seconds)

Negotiation Mode: Main

Proposal

#	Encryption	Authentication
1	3DES	SHA1

Key Group: DH2

☑ NAT Traversal

□ Dead Peer Detection (DPD)

Extended Authentication

□ Enable Extended Authentication

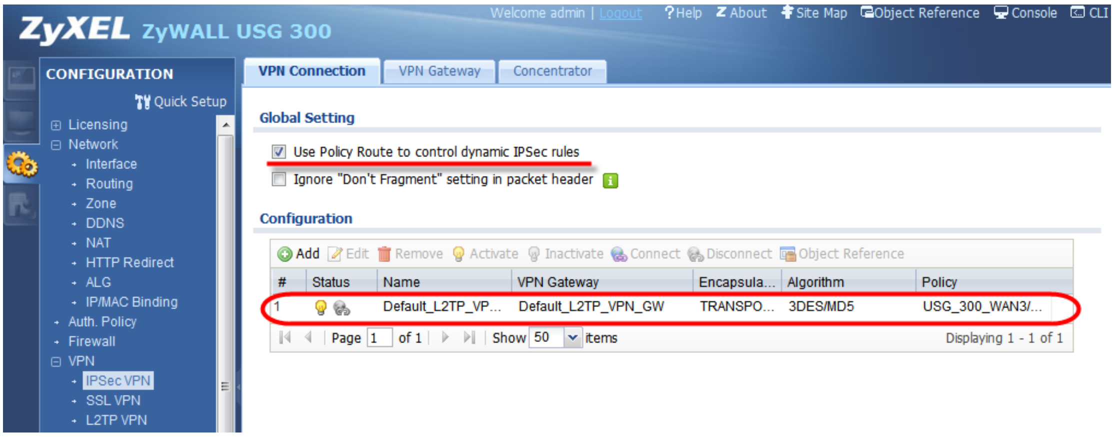
● Server Mode default

○ Client Mode

User Name:

Password:

5. After the VPN gateway setting is done, click the **CONFIGURATION > VPN > IPSec VPN > VPN Connection** page to create it. There is one pre-configured default rule for L2TP usage.



Global Setting

☑ Use Policy Route to control dynamic IPSec rules

□ Ignore "Don't Fragment" setting in packet header

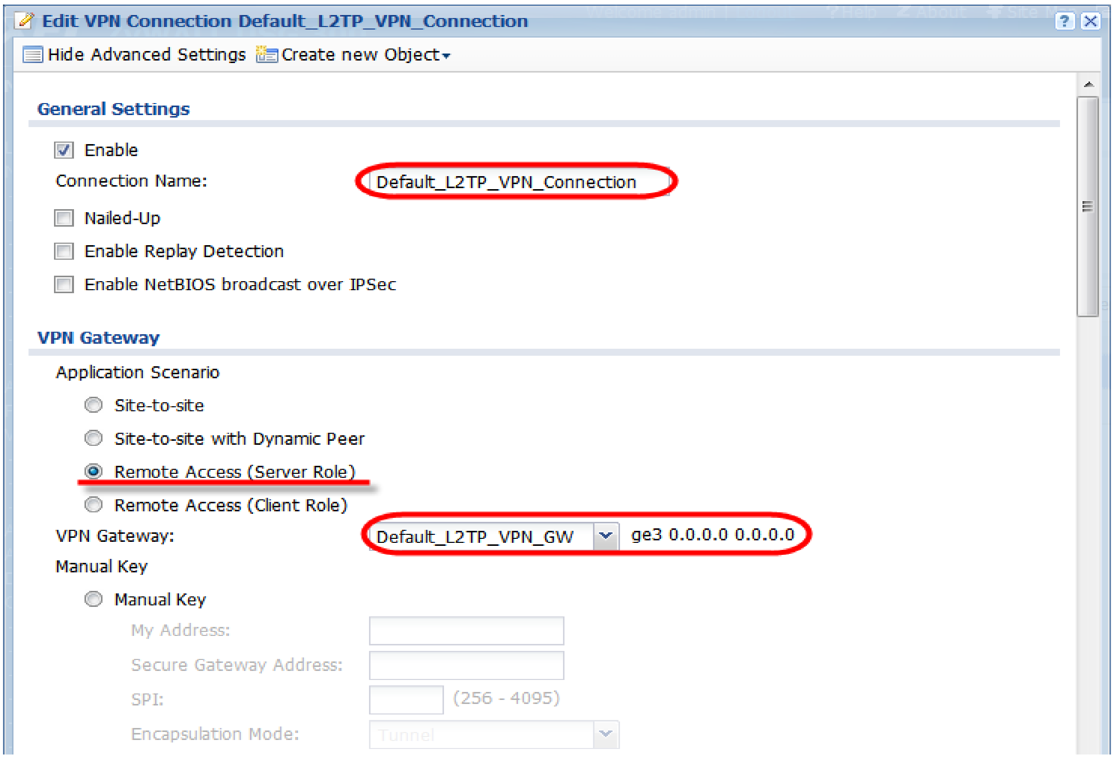
Configuration

#	Status	Name	VPN Gateway	Encapsula...	Algorithm	Policy
1		Default_L2TP_VP...	Default_L2TP_VPN_GW	TRANSPO...	3DES/MD5	USG_300_WAN3/...

Page 1 of 1 Show 50 items Displaying 1 - 1 of 1

6. Edit the default rule by filling in the following information: (click “Show Advanced Settings” first)

   - Connection Name
   - Select the application scenario as **Remote Access (Server Role)** and select the pre-configured VPN Gateway rule.



Edit VPN Connection Default_L2TP_VPN_Connection

Hide Advanced Settings | Create new Object

General Settings

☑ Enable

Connection Name: Default_L2TP_VPN_Connection

□ Nailed-Up

□ Enable Replay Detection

□ Enable NetBIOS broadcast over IPSec

VPN Gateway

Application Scenario

○ Site-to-site

○ Site-to-site with Dynamic Peer

● Remote Access (Server Role)

○ Remote Access (Client Role)

VPN Gateway: Default_L2TP_VPN_GW ge3 0.0.0.0 0.0.0.0

Manual Key

○ Manual Key

My Address:

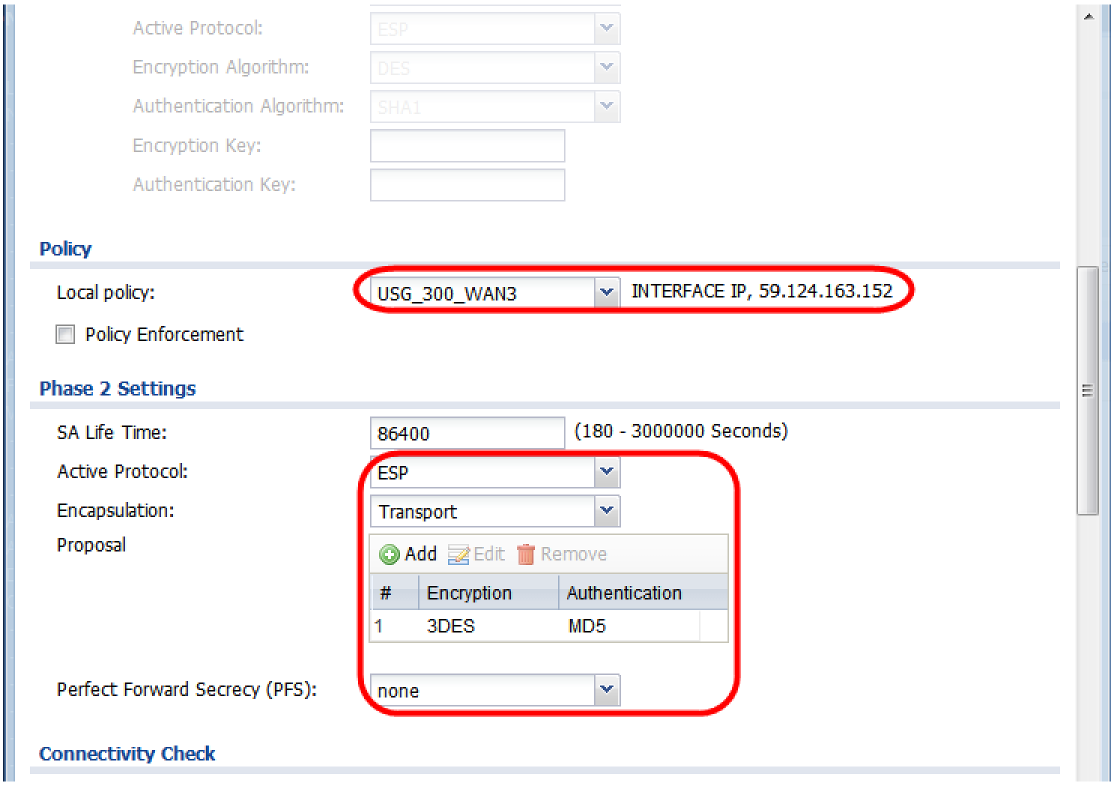
Secure Gateway Address:

SPI: (256 - 4095)

Encapsulation Mode: Tunnel

7. For L2TP over IPSec, we must use the Transport mode scenario, the VPN is configured as a Peer-to-Peer tunnel. Thus we have to select the WAN IP address as the Local Policy.

8. Configure the Phase 2 proposal. There is a specific combination that is supported by the iPhone (depending on iOS version). Users can check the Appendix for more details.



Active Protocol: ESP

Encryption Algorithm: DES

Authentication Algorithm: SHA1

Encryption Key:

Authentication Key:

Policy

Local policy: USG_300_WAN3 INTERFACE IP, 59.124.163.152

□ Policy Enforcement

Phase 2 Settings

SA Life Time: 86400 (180 - 3000000 Seconds)

Active Protocol: ESP

Encapsulation: Transport

Proposal

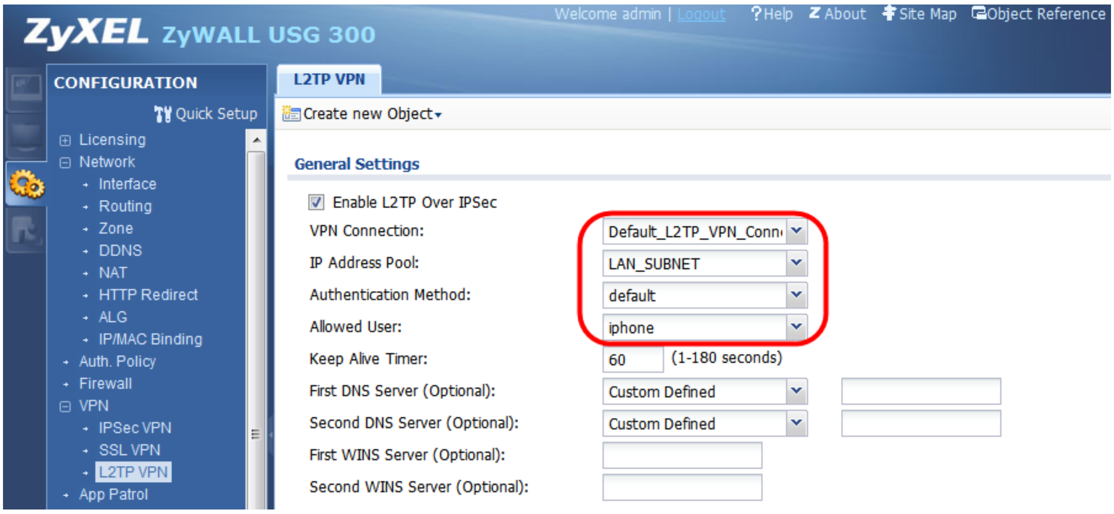
#	Encryption	Authentication
1	3DES	MD5

Perfect Forward Secrecy (PFS): none

Connectivity Check

9. After the VPN connection setting is done, click **CONFIGURATION > VPN > L2TP VPN > L2TP VPN** page to create it.

- Select the VPN connection rule
- Assign the IP address pool
- Select the Allowed user



General Settings

☑ Enable L2TP Over IPSec

VPN Connection: Default_L2TP_VPN_Conn

IP Address Pool: LAN_SUBNET

Authentication Method: default

Allowed User: iphone

Keep Alive Timer: 60 (1-180 seconds)

First DNS Server (Optional): Custom Defined

Second DNS Server (Optional): Custom Defined

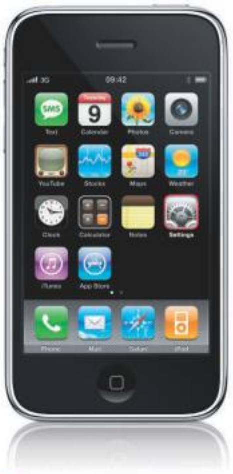
First WINS Server (Optional):

Second WINS Server (Optional):

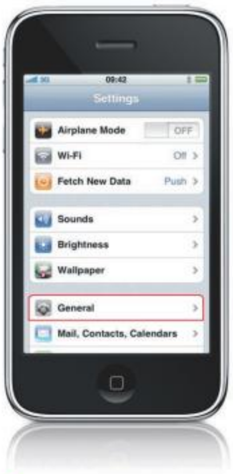
iPhone configuration :

(The description is quoted from Apple iPhone instruction guide, http://images.apple.com/iphone/business/docs/How_To_Setup_Guide.pdf)

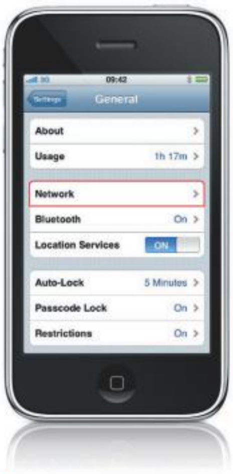
1. Go to the network setup screen by clicking **Settings > General > Network > VPN**.



> On the Home screen, tap **Settings**.

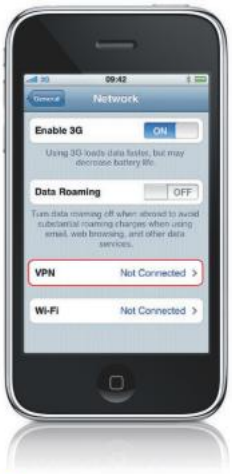

Settings
Airplane Mode OFF
Wi-Fi Off
Fetch New Data Push
Sounds
Brightness
Wallpaper
General
Mail, Contacts, Calendars

> Tap **General**.



General
About
Usage 1h 17m
Network
Bluetooth On
Location Services ON
Auto-Lock 5 Minutes
Passcode Lock On
Restrictions On

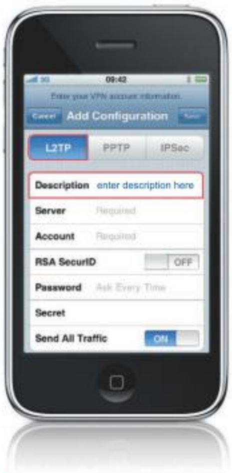
> Tap **Network**.



Network
Enable 3G ON
Using 3G loads data faster, but may decrease battery life.
Data Roaming OFF
Turn data roaming off when abroad to avoid substantial roaming charges when using email, web browsing, and other data services.
VPN Not Connected
Wi-Fi Not Connected

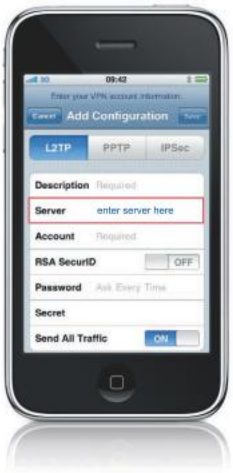
> Tap **VPN**. Then tap **Add VPN Configuration** to get started.

2. Click the L2TP tab and start to configure it. We need to fill in rule **Description** (e.g. iPhone_L2TP), **Server** address (e.g. www.securityusg.com), **Account** and **Password** that is configured in the USG L2TP allowed user setting.



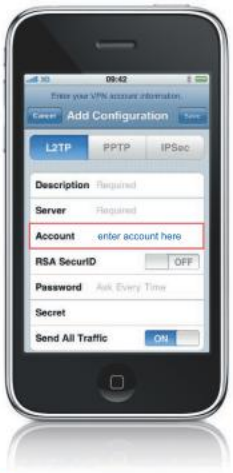
Enter your VPN account information.
Add Configuration
Description enter description here
Server Required
Account Required
RSA SecurID OFF
Password Ask Every Time
Secret
Send All Traffic ON

> Make sure **L2TP** is selected before proceeding.
>
> **Description:** Enter a description that identifies this VPN configuration, for example "My VPN."



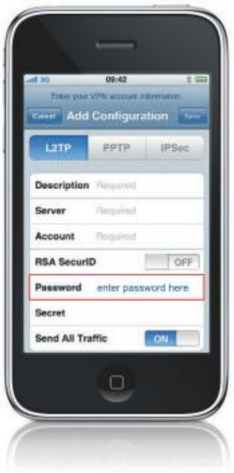
Enter your VPN account information.
Add Configuration
Description Required
Server enter server here
Account Required
RSA SecurID OFF
Password Ask Every Time
Secret
Send All Traffic ON

> **Server:** Enter the DNS name or IP address of the VPN server you're connecting to.



Enter your VPN account information.
Add Configuration
Description Required
Server Required
Account enter account here
RSA SecurID OFF
Password Ask Every Time
Secret
Send All Traffic ON

> **Account:** Enter your user name.

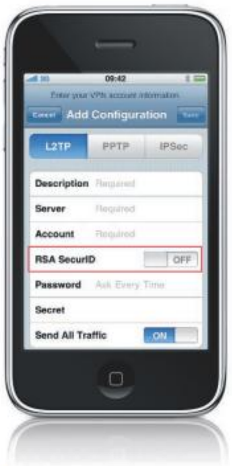


Enter your VPN account information.
Add Configuration
Description Required
Server Required
Account Required
RSA SecurID OFF
Password enter password here
Secret
Send All Traffic ON

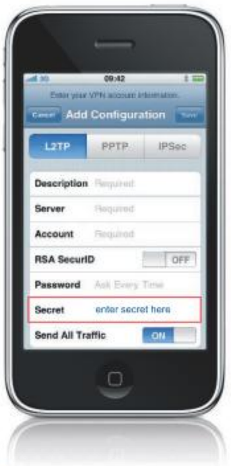
> **Password:** Enter the password or PIN of your VPN login account. Leave the Password field blank for RSA SecurID and CRYPTO-Card authentication or if you're required to enter the password manually with every connection attempt.

3. The **RSA SecurID** option is not used. **Secret** must match the Pre-Shared Key from the IPSec Phase-1 rule of the ZyWALL USG. Click **Save** to save the L2TP configuration.

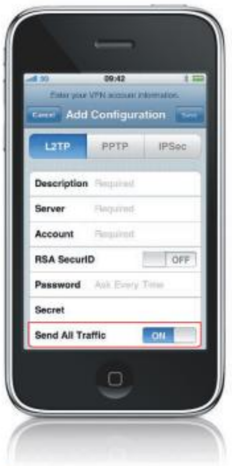
4. Back to the VPN page, the tunnel can be activated via the on / off icon



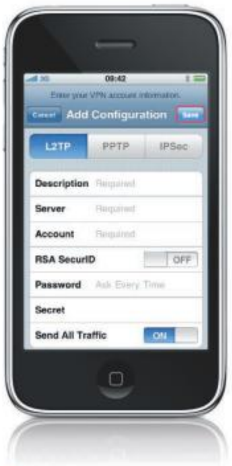
> **RSA SecurID:** Turn on this option if you're using a RSA SecurID token. Once enabled, the password field is hidden.



> **Secret:** Enter the group's shared secret.

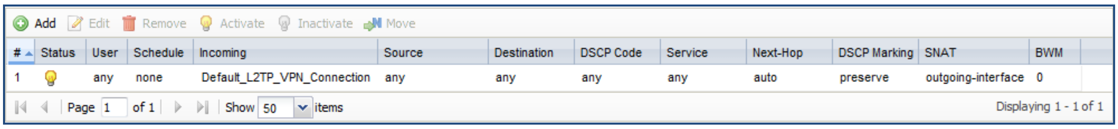


> **Send All Traffic:** Turn off this option to enable split tunneling.



> Tap **Save** once you've entered all your information and settings.

5. If the iPhone "Send all traffic" option is ON, user needs to create a policy route to do SNAT for iPhone to forward traffic to Internet via the L2TP tunnel.



#	Status	User	Schedule	Incoming	Source	Destination	DSCP Code	Service	Next-Hop	DSCP Marking	SNAT	BWM
1	💡	any	none	Default_L2TP_VPN_Connection	any	any	any	any	auto	preserve	outgoing-interface	0

Appendix. iPhone L2TP over IPSec test note

The iPhone L2TP over IPSec VPN has some limitations (currently for iOS3 only).

For iPhone with iOS 3.x

IKE phase 1—3DES encryption with SHA1 hash method (no md5 support).

DH2 is required when using a pre-shared key.

IPSec phase 2—3DES or AES128 encryption with MD5 or SHA1 hash method.

Summary of supported proposal:

	Phase 1	Phase 2
iOS 3.X	3DES-SHA1-DH2	3DES-MD5-none 3DES-SHA1-none AES128-MD5-none AES128-SHA1-none