ZyXEL

Firmware Release Note

ZyWALL 2

Release 3.60(WK.3)

Date: **Sep 26, 2003**
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ZyXEL ZyWALL 2 Standard Version
Release 3.60(WK.3)b3
Release Note

Date: Sep 26, 2003

Supported Platforms:

ZyXEL ZyWALL 2

Versions:

ZyNOS F/W Version : V 3.60(WK.3) | 09/26/2003
BootBase : V1.04 | 01/23/2003 15:24:37

Notes:

1. Restore to Factory Defaults Setting Requirement: No
2. The setting of ignore triangle route is on in default ROMFILE. Triangle route network topology has potential security crisis. If you are not clear about it, please refer to Appendix for the triangle route issue.
3. IKE process in phase 2 will check ID information between system and the peer. If you found that the IPSEC connection is failed, please check your settings.
4. Using Web to configure VPN, the phase 1 algorithms have been fixed to DES + MD5. If other algorithms are preferred, please use ADVANCE page to configure them.
5. When firewall turns from "off" to "on", the firewall initialization procedure will disconnect all connections running through the ZyWALL.
6. SUA/NAT address loopback feature was enabled on ZyWALL by default; however, if users do not need it, a C/I command "ip nat loopback off" could turn it off.
7. When UPnP is on, and then reboot the router, Windows XP will not detect UPnP and refresh “My Network Places→Local Network”. Plug in network wire again can solve this problem.

Known Issues:

1. Dial-backup feature is not ready.
2. Sometimes on screen the “Local Area Connection” icon for UPnP disappears. The icon shows again when restarting PC.
3. When Peer ID content is blank when its ID type is IP and the secure gateway address is 0.0.0.0, the rule will be chosen when incoming packets’ ID type is IP. This is because ZyWALL only check ID type when this rule’s ID content is blank

and ID type is IP. We will modify it in the future.

4. When UPnP is on, and then reboot the router, Windows XP will not detect UPnP and refresh "My Network Places→Local Network". Plug in network wire again can solve this problem.
5. The DHCP client in ZW LAN side may get an IP which is reserved by static DHCP. The situation will disappear if the client releases the IP and requests again.
6. When you use MSN messenger, sometimes you fail to open special applications, such as whiteboard, file transfer and video etc. You have to wait more than 3 minutes and retry these applications.

Features:

Modifications in V 3.60(WK.3) | 9/26/2003

Modify for formal release.

Modifications in V 3.60(WK.3)b3 | 9/26/2003

1. [BUG FIX] Symptom: Packets to WAN will switch to LAN.
   Condition: Sends packets from local PC to other machine through WAN. Some time later packets will switch to LAN port.

Modifications in V 3.60(WK.3)b2 | 9/24/2003

1. [BUG FIX] Symptom: Run ping plotter and it will show lots of packet lost errors.
   Condition: User Ping Plotter in local PC, and connect router to Internet. Ping Plotter will show packet lost error during running the program.
2. [BUG FIX] Symptom: Router sends DNS query even mail server or sys log server is empty.
   Condition: When sys log server or mail server is not given, system should not send DNS query but it did.

Modifications in V 3.60(WK.3)b1 | 8/22/2003

1. [FEATURE CHANGE] Do not check protocol and port information during IKE phase 1 negotiation.
2. [FEATURE CHANGE] In previous design in traffic redirect, system checks traffic in all ways periodically. Now router checks backup route only when WAN is disconnected.
3. [FEATURE CHANGE] In previous design in IKE, responder sends initial contact only when it receives initial contact notify from initiator. Now the responder sends initial contact notify to initiator when first contact with peer.
4. [FEATURE CHANGE] In the past, after phase 2 rekey, responder still use old phase 2 SA to transmit packets for a certain period and then started use the new phase 2 SA. Now responder will use new phase 2 SA after rekey immediately.
5. [FEATURE CHANGE] eWC→Firewall→Attack Alert: Change max incomplete TCP number from 10 to 30.

6. [BUG FIX] Symptom: Netmeeting causes system crashes.
7. [BUG FIX] Symptom: IPSec packets will use ZyWALL's LAN IP as source IP.
   Condition:
   (1) There is a full feature NAT rule to transffered WAN IP to a LAN IP.
   (2) ZyWALL plays as RESPONDER.
   (3) IPSec tunnel can be established successfully, however the source IP IPSec packet will become the LAN IP set in full feature NAT rule. As a result, the traffic cannot be transmitted.

Modifications in V 3.60(WK.2)c0 | 6/03/2003

Modifications in V 3.60(WK.2)b2 | 5/26/2003

1. [BUG FIXED] Symptom & Condition: CNM feature doesn't work, when we turn on CNM Encryption/Decryption.

Modifications in V 3.60(WK.2)b1 | 5/22/2003

2. [ENHANCEMENT] Enhance the WAN port configuration function so that user can configure the WAN port speed as Auto/10/100 Mbps and transmit mode as full or half duplex mode.
   CI Command: "ether edit load 2"
   "ether edit speed [*auto|100/full|100/half|10/full|10/half*]"
   "ether edit save"
3. [BUG FIXED] Symptom: A special IPSec policy rule will make the ZyWALL can not establish the IPSec tunnel.
   Condition: (1) The security gateway is 0.0.0.0
   (2) The peer IP type is IP and the peer ID content is empty or "0.0.0.0";
   (3) The ZyWALL can't establish the IPSec tunnel when the peer site dial in.
4. [BUG FIX] Symptom & Condition: Sometimes Enable/Disable traffic redirect when WAN encapsulation is PPPoE, system may crash.
5. [BUG FIX] Symptom & Condition: Under heavy traffic, firewall sometime has inexplicable crash.
6. [BUG FIX] Symptom: After phase 2 rekey, dynamic rule cannot pass traffic anymore.
   Condition: 1) Set secure gateway of a rule to 0.0.0.0, it becomes a dynamic rule and only can be responder. Trigger the tunnel by inbound request from the peer.
   2) After the phase 2 rekey, traffic cannot pass this tunnel anymore.
7. [BUG FIX] Symptom & Condition: WAN connection will drop in case of using PPTP for ADSL modem (Alcatel ANT1000, Alcatel SpeedTouch Home and Thomson SpeedTouch 510), especially if there is "high speed" on ADSL (512/256).
8. [BUG FIX] Symptom: After firmware upgrade, VPN rules cannot work.
   Condition: After firmware upgraded from 3.60, the VPN rules cannot work

anymore. The only solution is to save these rules again.

Modifications in V 3.60(WK.1)c0 | 4/19/2003

Modifications in V 3.60(WK.1)b4 | 4/14/2003

1. [BUG FIX] Symptom & Condition: When users change the WAN MAC from factory default to spoofing a specific computer's MAC, traffic can not pass through ZyWALL from LAN to WAN.

Modifications in V 3.60(WK.1)b3 | 4/2/2003

2. [BUG FIX] Symptom: Sometimes, IPSec re-key procedure failed.
   Condition: Under the heavy traffic situation, sometimes IPSec re-key failed.
3. [BUG FIX] Symptom: Even though the IPSec policy is correct, the IKE phase 1 negotiation may failed.
   Condition 1: When there are two IPSec polices with the same security gateway, ZyWALL sometimes can't create the second IPSec tunnel.
   Condition 2: If ZyWALL didn't send the DEL packet to info the security gateway to delete the IPSec tunnel (for example power off the device, or PPPoE drops…etc.), ZyWALL can't re-create the tunnel.
4. [BUG FIX] Symptom: It's a compatibility problem with SonicWall.
   Condition 1: Can't create the IPSec tunnel with a SonicWall security gateway, if the type of ID Content is FQDN.

Modifications in V 3.60(WK.1)b2 | 3/26/2003

5. [BUG FIX] Add eWC wizard telia service check – Check relogin value, WAN IP assignment and Telia login server should be domain name.
6. [BUG FIX] Symptom: Save Telia login service under static IP address assignment will show roadrunner error message.
   Condition: Telia login only work when WAN IP is assigned with dynamic IP. If save this service with static IP, the error message is not correct.
7. [BUG FIX] Symptom: eWC can't save PSK with hexadecimal format that more than 32 characters.
   Condition: Save PSK in hexadecimal format that more 32 characters, the PSK will be cut to 30 characters.

Modifications in V 3.60(WK.1)b1 | 3/14/2003

1. [BUG FIX] Symptom: A special case will make the ZyWALL device to reboot.
   (1) Condition: (1) Configure an IPSec Rule.
   (2) On the Logs Settings page, configure "Mail Server", "Mail Subject" and the mail address logs mails send to.

(3) Still on the Logs Settings page, select IPSec and IKE alert.
(4) Enter the CI command mode, and issue the CI command “ipsec dial #” to create the VPN tunnel.
(5) After seeing the message “Press any key to return....”, press the Enter key.
(6) The ZyWALL crashes.

2. [BUG FIX] Symptom & Condition: On Firewall --- Rule Config, can’t setup to log firewall logs.
3. [BUG FIX] The general user(not ZyWALL administrator), can directly retrieve ZyWALL rom file by using the rom-0 as the URL file, without password checking.
4. [ENHANCEMENT] Supports the hexadecimal format of IPSec Pre-Shared Key.
5. [ENHANCEMENT] Supports Telia login WAN access.
6. [ENHANCEMENT] Added a new CI commands to configure UDP port NAT timeout
   CI command: "ip nat timeout udp [port] <seconds>". For more details, please refer to CI command lists

Modifications in V 3.60(WK.0)b9 | 2/21/2003

Modifications in V 3.60(WK.0)b9 | 2/21/2003

1. [BUG FIX] Symptom: VPN setting causes system reboot.
   Condition: Step1. Build one VPN tunnel and set the secure gateway address by using IP address and establish the tunnel. Keep on pinging the client continuously
   Step2. Change the secure gateway address setting from IP to DNS and apply.
2. [BUG FIX] Symptom: Status display ERROR.
   Condition: When we change System/Time Zone to none by web, an internally ERROR 1 will be displayed in the Status-Line.
3. [BUG FIX] Symptom & Condition: In web, the page does not refresh when we change the time zone and apply.

Modifications in V 3.60(WK.0)b8 | 2/14/2003

1. [BUG FIX] Symptom & Condition: It’s failed to restore default romfile by pressing reset button.
2. [BUG FIX] Symptom: System rebooted under heavy traffic.
   Condition: When watchdog turns on (sys wdog sw on) and under heavy traffic, ZW will reboot.
3. [BUG FIX] Symptom & Condition: The maximum number of source addresses or destination addresses in an ACL rule is 20. But users can set more than 20 addresses.

Modifications in V 3.60(WK.0)b7 | 1/23/2003

1. [FEATURE CHANGE] Enable eWC NAT Full-feature (add address mapping table).
2. [BUG FIX] Symptom & Condition: One special notebook PC(Dell Inspiron 8000) connect to ZyWALL's console port and none of terminal program open the console port. In this situation, the ZyWALL device boots fail.

Modifications in V 3.60(WK.0)b6 | 1/10/2003

1. [ENHANCEMENT] Add NAT traversal feature. This feature is supported only ESP tunnel and ESP transport when key management is IKE.
2. [ENHANCEMENT] Add the Full Feature NAT.
3. [FEATURE CHANGE] Message change from "Discard packet, the mac is not allowed. vlanTag=4" to "VPN1 discards packet, the mac is not allowed."
4. [FEATURE CHANGE] DHCP relay is not supported anymore.
5. [FEATURE CHANGE] The color of centralize Log GUI is defined. Black color is for normal log messages and red for alert log messages.
6. [BUG FIX] Symptom & Condition: While NAT is enabled, remote device can not access router's LAN IP through IPSec tunnel. In other words, remote management to the LAN IP over IPSec tunnel failed.
7. [BUG FIX] Symptom & Condition: When Traffic Redirect is active and change the WAN encapsulation to PPPoE or PPTP, and if idle time out the routing table will disorder.
8. [BUG FIX] Symptom & Condition: Removed wrong "DMZ" selection form all Remote Management pages.
9. [BUG FIX] Symptom & Condition: If the user didn't load IPSec rule first before executing IPSec configuration CI command, "ipsec config netbios active <yes|no>" or "ipsec config netbios group <…>" , ZyWALL will crash.
10. [BUG FIX] Symptom: Can not change WAN MAC by web immediately:
    Condition: While we change WAN MAC by web, the MAC ca not change immediately till device reboot. But it is OK while we change by SMT menu.
11. [BUG FIX] Symptom: Console led does not light:
    Condition: Console led does not light while we login into SMT.
12. [BUG FIX] Symptom: Receving hotmail mail will cause system crash.
    Condition: 1. Enable Block Cookies. 2. Receiving mail form hotmail causes system crash.
13. [BUG FIX] Symptom: System crashes when setting DHCP :
    Condition: If we disable DHCP server and set a static DHCP entry, the ZyWALL crashes.
14. [BUG FIX] Symptom: The value for sys stdio can not be saved. :
    Condition: Under CI command, we enter "sys stdio 0". The value becomes the default value after we relogin SMT.
15. [BUG FIX] Symptom: Traffic redirect check path is not up :
    Condition: While WAN link is fine and the traffic redirect check point is failed, it spends long time to activate traffic redirect. Under the situation, the metric of the route for traffic redirect sometimes changes frequently.
16. [BUG FIX] Symptom: Switching Web is not smooth:
    Condition: Sometimes we can not smoothly switch between VPN1/VPN2 in VPN page.

17. [BUG FIX] Symptom: Traffic Redirect can't work on PPPoE connection.
    Condition: If the WAN side has a successful PPPoE connection, and the ZyWALL device would not check the checked site and update to correct the routing table.
18. [BUG FIX] Symptom: LAN LED light on, when setup the WAN.
    Condition: Using the eWC to setup WAN or using SMT 2 to setup the WAN's MAC address. All Ethernet LEDs will light on.
19. [BUG FIX] Symptom: Add, delete or refresh static route rule on SMT menu12 sometimes cause ZyWALL crash.
    Condition: Sometimes our action on menu12 with static route rule setup will cause ZyWALL crash.
20. [BUG FIX] Symptom: When "ipsec switch" is off, "ipsec dial" still works.
    Condition: If user uses command "ipsec switch off" to turn off IPSec, "dial" still works.

Modifications in V 3.60(WK.0)b5 | 12/12/2002

1. [FEATURE ENHANCEMENT] show the reason of forward/block by content filter feature in the centralized log message.
2. [FEATURE CHANGE] Symptom & Condition: System reboot under heavy traffic if the watchdog mechanism is on.
3. [BUG FIXED] Symptom & Condition: The system crashes, if the user power off the PC which connect to the device's console port.
4. [BUG FIX] Symptom: Menu 24.6 Restore occur system reboot :
   Condition: Menu 24.6 Restore Configuration is Failed and Device will Hang then key any key Occur system reboot !
5. [BUG FIX] Symptom: System reboot :
   Condition: The ZW2 V3.60(WK.0)b2 /ZW2W V3.60(WJ.0)b2 system reboot occur The Step: Into Web; VPN Host ;VPN Hosts IP Address or MAC address, if you change IP or MAC and Apply the ZW will reboot!!
6. [BUG FIX] Symptom: The parsing string for keyword blocking is junk.
   Condition: 1. Use CI command "ip urlfilter customize actionFlag act5 enable" to enable the full path check. 2. Use browser to access the URL that set in the keyword blocking, the packets will be still allowed to pass.
7. [BUG FIX] Symptom & Condition: The system crashes, if the user changes the console's baud rate and presses any key by using a different data rate.
8. [BUG FIX] Symptom & Condition: eWC→WAN IP has bugs when WAN→ISP is PPPoE or PPTP. Leaving some values in remote IP or remote mask for WAN→IP and then switch to dynamic IP, ZyWALL cannot dial anymore
9. [BUG FIX] Symptom: System hangs when syslog is active.
   Condition: System hangs when syslog is active and syslog daemon on the remote server turns off.
10. [BUG FIX] Symptom & Condition: After setting a VPN rule and then save it, sometimes warning message "[-6100] Fail to lock read" shows on screen. But the rule can be saved correctly and tunnel can be built successfully.
11. [BUG FIX] Symptom: The PPPOE or PPTP address can be set within the range of LAN subnet.
    Condition: When using smt menu 4 or 11, choose the pppoe or pptp encapsulation, set the IP address within the range of LAN subnet and then save

the configuration.

12. [BUG FIX] Symptom: Send email log will cause system to hang about 30 seconds.
    Condition: 1. Email server address is written in domain name. 2. The WAN network link can not connect to Internet when applying email log setting.
13. [BUG FIX] Symptom: VPN tunnel can not be established if ZyWALL sets phase 1 ID type as IP and wants to negotiate with another side by passing through a router with NAT.
    Condition: Take the figure below as the example:

    ZyWALL A----------Router C (with NAT) ----------ZyWALL B
    (WAN) (WAN) (LAN) (WAN)

    If ZyWALL A wants to build a VPN tunnel with ZyWALL B by passing through Router C with NAT, A can not see B and will set secure gateway as C. In our implementation system will set peer ID content as secure gateway address if peer ID type is IP. So A's peer ID content is C's WAN IP if A's peer ID type is IP. In this case, A and B will never negotiate successfully. To avoid this situation, now user can set ID content when ID type is IP. In this case, A will check the ID content what B is configured. However, user can leave the ID content is blank when ID type is IP. Please refer to appendix for the detail setting and system behavior.
14. [BUG FIX] Symptom & Condition: During IKE phase 1 negotiation, if ZyWALL receives a Notify DEL payload, it may crash.

Modifications in V 3.60(WK.0)b4 | 12/3/2002

1. [BUG FIX] Symptom: HTP external test fail.
   Condition: HTP test is failed in LAN and WAN external loopback test.

Modifications in V 3.60(WK.0)b3 | 11/29/2002

1. [BUG FIX] Symptom: Bootbase can not change baud rate.
   Condition: Bootbase always use baud rate 9600 after the system starts or restarts. The baud rate which users set will take effect after RAS starts.
2. [BUG FIX] Symptom: Can not restore configuration by menu 24.6.
   Condition: Menu 24.6 restore configuration is failed and device will hang then key any key occur system reboot.
3. [BUG FIX] Symptom: VPN page configuration causes system reboot.
   Condition: Web -> VPN Host -> VPN host's IP address or Mac address. If you change IP and Apply, the ZW will reboot.
4. [BUG FIX] Symptom: While access http://www.gamespy.com/articles/ and http://groups.yahoo.com system will crash.
   Condition: System crashes when access http://www.gamespy.com/articles/ or when survey/read the forums via http://groups.yahoo.com.
5. [BUG FIX] Heavy traffic causes system reboot.
   Heavy traffic easily trigger watchdog to reset system.

Modifications in V 3.60(WK.0)b2 | 11/21/2002

1. First release.

Modifications in V 3.60(WK.0)b1 | 11/11/2002

2. [FEATURE CHANGE] HTP behavior is changed. Please refer to appendix 1
3. [BUG FIX] Ethernet external loop back test fail.

Appendix 1 Remote Management Enhancement (Add SNMP & DNS Control)

New function

(1) You can change the server port.
(2) You can set the security IP address for each type of server.
(3) You can define the rule for server access. (WAN only/LAN only, None, ALL).
(4) The secure IP and port of the SNMP server is read only
(5) The port of the SNMP and DNS server is read only.
(6) The default server access of the SNMP and DNS is ALL.

Modification

(1) The default value for Server access rule is **ALL**.
(2) Under the default setting: You can setup the Menu 15 to forwarding the server to LAN IP address. Thus you can configure the router through the WAN and you don't need to modify the server management or filter.

```
            Menu 24.11 - Remote Management Control

      TELNET Server:    Port = 23       Access = ALL
                        Secured Client IP = 0.0.0.0

      FTP Server:       Port = 21       Access = ALL
                        Secured Client IP = 0.0.0.0

      Web Server:       Port = 80       Access = ALL
                        Secured Client IP = 0.0.0.0

      SNMP server:      Port = 161      Access = ALL
                        Secured Client IP = 0.0.0.0

      DNS server:       Port = 53       Access = ALL
                        Secured Client IP = 0.0.0.0


                  Press ENTER to Confirm or ESC to Cancel:
```

Appendix 2 Trigger Port

Introduction

Some routers try to get around this "one port per customer" limitation by using "triggered" maps. Triggered maps work by having the router watch ***outgoing*** data for a specific port number and protocol. When the router finds a match, it remembers the IP address of the computer that sent the matching data. When the requested data wants to come back ***in*** through the firewall, the router uses the port mapping rules that are linked to the trigger, and the IP address of the computer that "pulled" the trigger, to get the data back to the proper computer.

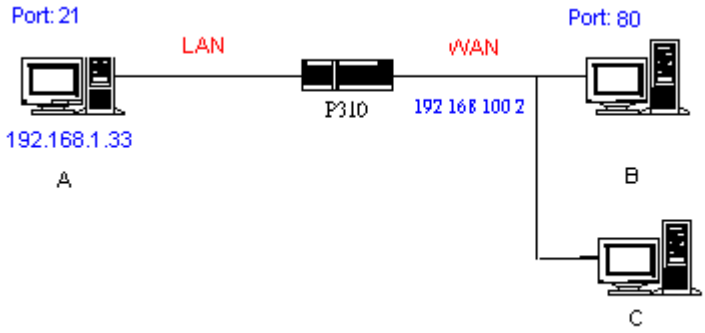
These triggered events can be timed so that they erase the port mapping as soon as they are done with the data transfer, so that the port mapping can be triggered by another Client computer. This gives the ***illusion*** that multiple computers can use the same port mapping at the same time, but the computers are really just taking turns using the mapping.

How to use it

Following table is a configuration table.

Name	Incoming	Trigger
Napster	**6699**	**6699**
Quicktime 4 Client	**6970-32000**	**554**
Real Audio	**6970-7170**	**7070**
User	**1001-1100**	**1-100**

How it works



For example, you are running a FTP Server on port 21 of machine A. And you may want this server accessible from the Internet without enabling NAT-based firewall. There are one Web Server on port 80 of machine B and another client C on the Internet.

(1) As Prestige receives a packet from a local client A destined for the outside Internet machine B, it will check the destination port in the TCP/UDP header to see if it matches the setting in "Trigger Port" (80). If it matches, Prestige records the source IP of A (192.168.1.33) in its internal table.

(2) Now client C (or client B) tries to access the FTP server in machine A. When Prestige to forward any un-requested traffic generated from Internet, it will first check the rules in port forwarding set. When no matches are found, it will then check the "Incoming Port". If it matches, Prestige will forward the packet to the recorded IP address in the internal table for this port. (This behavior is the same as

we did for port forwarding.)

(3) The recorded IP in the internal table will be cleared if machine A disconnect from the sessions that matches the "Trigger Port".

Notes

(1) Trigger events can't happen on data coming from ***outside*** the firewall because the NAT router's sharing function doesn't work in that direction.

(2) Only one computer can use a port or port range at a time on a given real (ISP assigned) IP address.

Appendix 3 Hard-coded packet filter for "NetBIOS over TCP/IP" (NBT)

The new set C/I commands is under "sys filter netbios" sub-command. Default values of any direction are “Forward”, and trigger dial is “Disabled”.

There are two CI commands:
(1) "sys filter netbios disp": It will display the current filter mode.

Example ouput:

```
================ NetBIOS Filter Status ================
        LAN to WAN:         Block
        WAN to LAN:         Forward
        IPSec Packets:      Forward
        Trigger Dial:       Disabled
```

(2) "sys filter netbios config <type> {on|off}": To configure the filter mode for each type.

Current filter types and their description are:

Type	Description	Default mode
0	LAN to WAN	Forward
1	WAN to LAN	Forward
6	IPSec pass through	Forward
7	Trigger dial	Disabled

Example commands:
sys filter netbios config 0 on => block LAN to WAN NBT packets
sys filter netbios config 1 on => block WAN to LAN NBT packets
sys filter netbios config 6 on => block IPSec NBT packets
sys filter netbios config 7 off => disable trigger dail

Appendix 4 Traffic Redirect/Static Route Application Note

Why traffic redirect/static route be blocked by ZyWALL

ZyWALL is the ideal secure gateway for all data passing between the Internet and the LAN. For some reasons (load balance or backup line), users want traffics be re-routed to another Internet access devices while still be protected by ZyWALL. The network topology is the most important issue. Here is the common example that people misemploy the LAN traffic redirect and static route.

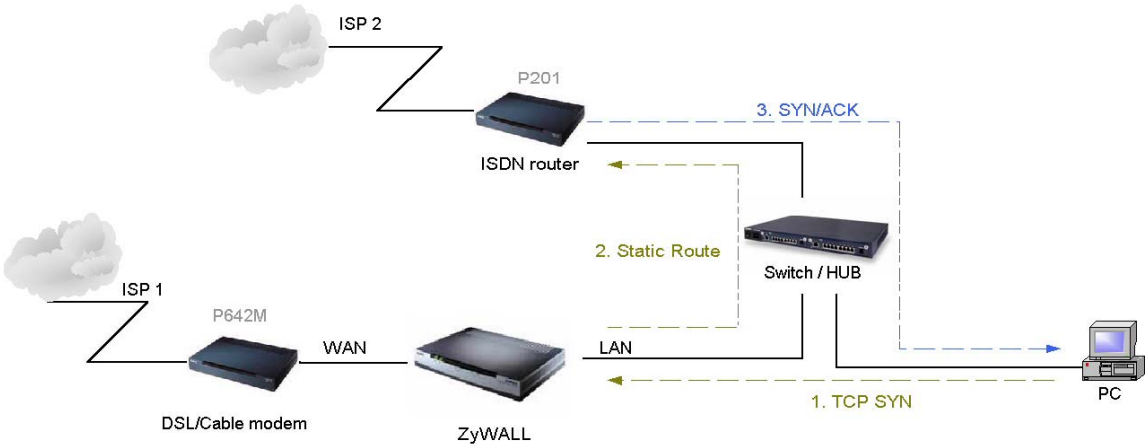


Figure 4-1 Triangle Route

Figure 5-1 indicates the triangle route topology. It works fine with turn off firewall. Let's take a look into the perspective toward this situation.

Step 1. PC sends outgoing traffics through ZyWALL because default gateway assigned to it.

Step 2. Then, ZyWALL will redirect the traffics to another gateway (ISDN/Router) as we expect.

Step 3. But the return traffics do not go through ZyWALL because the gateway (say, P201) and the PC are on the same IP network. **Any traffic will easily inject into the protected network area through the unprotected gateway**.

Step 4. When firewall turns on, it could be worse. ZyWALL will check the outgoing traffics by ACL and create dynamic sessions to allow legal return traffics. For Anti-DoS reason, ZyWALL will send RST packets to the PC and the peer because it never received TCP SYN/ACK packet.

That causes all of outgoing TCP traffics being reset!

How traffic redirect/static route works under protection - Solutions

(1) Gateway on alias IP network

IP alias allows you to partition a physical network into different logical IP networks over the same Ethernet interface. The ZyWALL supports three logical LAN interfaces via its single physical Ethernet interface with the ZyWALL itself as the gateway for each LAN network. Division of protected LAN and the other gateway into different subnets will trigger the incoming traffic back to ZyWALL and it can work as normal function.

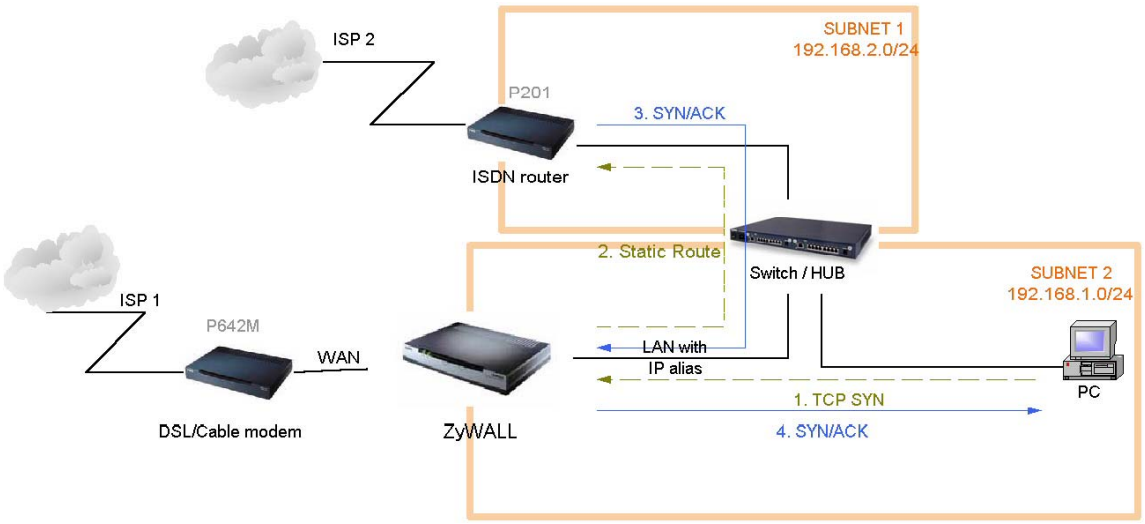


Figure 4-2 Gateway on alias IP network

(2) Gateway on WAN side

A working topology is suggested as below.

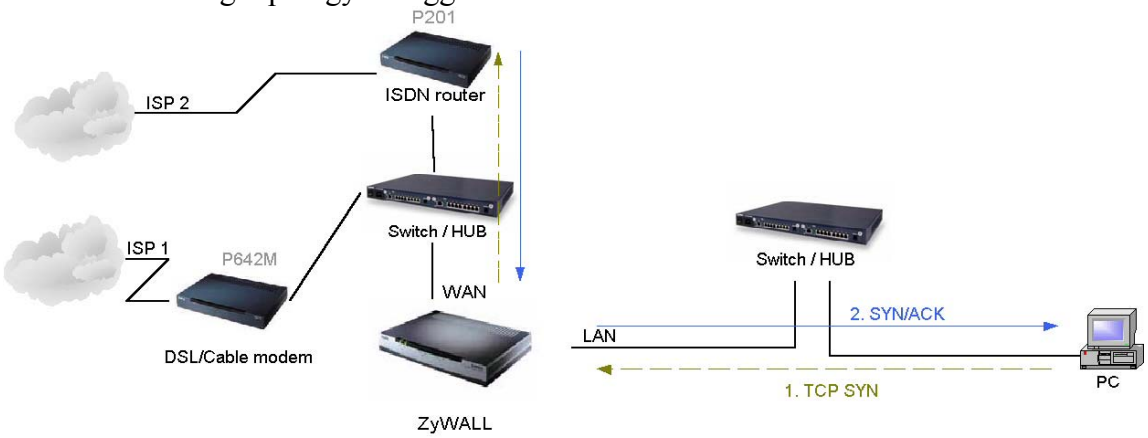


Figure 4-3 Gateway on WAN side

Appendix 5 IPSec FQDN support

ZyWALL A----------Router C (with NAT) ----------ZyWALL B
(WAN) (WAN) (LAN) (WAN)

If ZyWALL A wants to build a VPN tunnel with ZyWALL B by passing through Router C with NAT, A can not see B. It has to secure gateway as C. However, ZyWALL B will send it packet with its own IP and its ID to ZyWALL A. The IP will be NATed by Router C, but the ID will remain as ZyWALL B sent.

In FQDN design, all three types, IP, DNS, E-Mail, can set ID content. For ID type is DNS or E-mail, the behavior is simple. ZyWALL A and ZyWALL B only checks the ID contents are consistent and they can connect.

Basically the story is the same when ID type is IP. If user configures ID content, then ZyWALL will use it as a check. So the ID content also has to match each other. For example, ID type and ID content of incoming packets must match "Peer ID Type" and "Peer ID content". Or ZyWALL will reject the connection.

However, user can leave "ID content" blank if the ID type is IP. ZyWALL will put proper value in it during IKE negotiation. This appendix describes all combinations and behaviors of ZyWALL.

We can put all combinations in to these two tables:

(Local ID Type is IP):

Configuration		**Run-time status	
My IP Addr	Local ID Content	My IP Addr	Local ID Content
0.0.0.0	*blank or 0.0.0.0	My WAN IP	My WAN IP
0.0.0.0	a.b.c.d (NOT 0.0.0.0)	My WAN IP	a.b.c.d
a.b.c.d (not 0.0.0.0)	*blank or 0.0.0.0	a.b.c.d	a.b.c.d
a.b.c.d (not 0.0.0.0)	e.f.g.h (NOT 0.0.0.0)	a.b.c.d	e.f.g.h

*Blank: User can leave this field as empty, doesn't put anything here.
**Runtime status: During IKE negotiation, ZyWALL will use "My IP Addr" field as source IP of IKE packets, and put "Local ID Content" in the ID payload.

(Peer ID Type is IP):

Configuration		*Run-time check
Secure Gateway Addr	Peer ID Content	
0.0.0.0	Blank or 0.0.0.0	Just check ID types of incoming packet and machine's peer ID type. If the peer's ID is

		IP, then we accept it.
0.0.0.0	a.b.c.d (NOT 0.0.0.0)	System checks both type and content
a.b.c.d	Blank	1. System will check the ID type and the content. 2. The contents will match only if the ID content of coming packet is a.b.c.d because system will put Secure Gateway Address as Peer ID content.
a.b.c.d	e.f.g.h	1. System will check the ID type and the content. 2. The contents will match only if the ID content of coming packet is e.f.g.h.

*Runtime Check: During IKE negotiation, we will check ID of incoming packet and see if it matches our setting of "Peer ID Type" and "Peer ID Content".

Summary:

1. When Local ID Content is blank or 0.0.0.0, during IKE negotiation, my ID content will be "My IP Addr" (if it's not 0.0.0.0) or local's WAN IP.
2. When "Peer ID Content" is not blank or 0.0.0.0, ID of incoming packet has to match our setting. Or the connection request will be rejected.
3. When "Secure Gateway IP Addr" is 0.0.0.0 and "Peer ID Content" is blank or 0.0.0.0, system can only check ID type. This is a kind of "dynamic rule" which means it accepts incoming request from any IP, and these requests' ID type is IP. So if user put such a kind of rule in top of rule list, it may be matched first. To avoid this problem, we will enhance it in the future.

Annex A CI Command List

Command Class List Table		
System Related Command	Exit Command	Ethernet Related Command
IP Related Command	IPSec Related Command	Firewall Related Command

System Related Command Home

Command				Description
sys				
	adjtime			retrive date and time from Internet
			display	display cbuf static
	callhist			
		display		display call history
		remove	<index>	remove entry from call history
	countrycode		[countrycode]	set country code
	date		[year month date]	set/display date
	domainname			display domain name
	edit		<filename>	edit a text file
	extraphnum			maintain extra phone numbers for outcalls
		add	<set 1-3> <1st phone num> [2nd phone num]	add extra phone numbers
		display		display extra phone numbers
		node	<num>	set all extend phone number to remote node <num>
		remove	<set 1-3>	remove extra phone numbers
		reset		reset flag and mask
	feature			display feature bit
	hostname		[hostname]	display system hostname
	logs			
		category		
			access [0:none/1:log]	record the access control logs
			attack [0:none/1:log/2:alert/3:both]	record and alert the firewall attack logs
			display	display the category setting
			error [0:none/1:log/2:alert/3:both]	record and alert the system error logs
			ipsec [0:none/1:log]	record the access control logs
			javablocked [0:none/1:log]	record the java etc. blocked logs
			mten [0:none/1:log]	record the system maintenance logs
			upnp [0:none/1:log]	record upnp logs
			urlblocked [0:none/1:log/2:alert/3:both]	record and alert the web blocked logs
			urlforward [0:none/1:log]	record web forward logs
		clear		clear log
		display		display all logs
		errlog		
			clear	display log error
			disp	clear log error
			online	turn on/off error log online display
		load		load the log setting buffer
		mail		
			alertAddr [mail address]	send alerts to this mail address
			display	display mail setting
			logAddr [mail address]	send logs to this mail address
			schedule display	display mail schedule
			schedule hour [0-23]	hour time to send the logs
			schedule minute [0-59]	minute time to send the logs
			schedule policy [0:full/1:hourly/2:daily/3:weekly/4:non	mail schedule policy

			e]	
			schedule week [0:sun/1:mon/2:tue/3:wed/4:thu/5:fri/6:sat]	weekly time to send the logs
			server [domainName/IP]	mail server to send the logs
			subject [mail subject]	mail subject
		save		save the log setting buffer
		syslog		
			active [0:no/1:yes]	active to enable unix syslog
			display	display syslog setting
			facility [Local ID(1-7)]	log the messages to different files
			server [domainName/IP]	syslog server to send the logs
	pwderrtm		[minute]	Set or display the password error blocking timeout value.
	rn			
		load	<entry no.>	load remote node information
		disp	<entry no.>(0:working buffer)	display remote node information
		nat	<none|sua|full_feature>	config remote node nat
		nailup	<no|yes>	config remote node nailup
		mtu	<value>	set remote node mtu
		save	[entry no.]	save remote node information
	stdio		[second]	change terminal timeout value
	time		[hour [min [sec]]]	display/set system time
	trcdisp			monitor packets
	trclog			
	trcpacket			
	version			display RAS code and driver version
	view		<filename>	view a text file
	wdog			
		switch	[on|off]	set on/off wdog
		cnt	[value]	display watchdog counts value: 0-34463
	romreset			restore default romfile
	socket			display system socket information
	filter			
		netbios		
	roadrunner			
		debug	<level>	enable/disable roadrunner service 0: diable <default> 1: enable
		display	<iface name>	display roadrunner information iface-name: enif0, wanif0
		restart	<iface name>	restart roadrunner
	ddns			
		debug	<level>	enable/disable ddns service
		display	<iface name>	display ddns information
		restart	<iface name>	restart ddns
		logout	<iface name>	logout ddns
	cpu			
		display		display CPU utilization
	filter			
		netbios		
	upnp			
		active	[0:no/1:yes]	Activate or deactivate the saved upnp settings
		config	[0:deny/1:permit]	Allow users to make configuration changes. through UPnP
		display		display upnp information
		firewall	[0:deny/1:pass]	Allow UPnP to pass through Firewall.
		load		save upnp information

		save		save upnp information

Exit Command Home

Command				Description
exit				exit smt menu

Ethernet Related Command Home

Command				Description
ether				
	config			display LAN configuration information
	driver			
		cnt		
			disp <name>	display ether driver counters
		ioctl	<ch_name>	Useless in this stage.
		status	<ch_name>	see LAN status
	version			see ethernet device type
	edit			
		load	<ether no.>	load ether data from spt
		mtu	<value>	set ether data mtu
		speed	[auto|100/full|100/half|10/full|10/half]	change Ethernet speed
		save		save ether data to spt

IP Related Command Home

Command				Description
ip				
	address		[addr]	display host ip address
	alias		<iface>	alias iface
	aliasdis		<0|1>	disable alias
	arp			
		status	<iface>	display ip arp status
	dhcp		<iface>	
		client		
			release	release DHCP client IP
			renew	renew DHCP client IP
		status	[option]	show dhcp status
	dns			
		query		
		server	<primary> [secondary] [third]	set dns server
		stats		
			clear	clear dns statistics
			disp	display dns statistics
		default	<ip>	Set default DNS server
	httpd			
		debug	[on|off]	set http debug flag
	icmp			
		status		display icmp statistic counter
		discovery	<iface> [on|off]	set icmp router discovery flag
	ifconfig		[iface] [ipaddr] [broadcast <addr> |mtu <value>|dynamic]	configure network interface
	ping		<hostid>	ping remote host
	route			
		status	[if]	display routing table
		add	<dest_addr|default>[/<bits>] <gateway> [<metric>]	add route
		addiface	<dest_addr|default>[/<bits>] <gateway> [<metric>]	add an entry to the routing table to iface
		addprivate	<dest_addr|default>[/<bits>] <gateway> [<metric>]	add private route

		drop	<host addr> [/<bits>]	drop a route
	smtp			
	status			display ip statistic counters
	stroute			
		display	[rule # | buf]	display rule index or detail message in rule.
		load	<rule #>	load static route rule in buffer
		save		save rule from buffer to spt.
		config		
			name <site name>	set name for static route.
			destination <dest addr>[/<bits>] <gateway> [<metric>]	set static route destination address and gateway.
			mask <IP subnet mask>	set static route subnet mask.
			gateway <IP address>	set static route gateway address.
			metric <metric #>	set static route metric number.
			private <yes|no>	set private mode.
			active <yes|no>	set static route rule enable or disable.
	udp			
		status		display udp status
	rip			
	tcp			
		status	[tcb] [<interval>]	display TCP statistic counters
	telnet		<host> [port]	execute telnet clinet command
	tftp			
	traceroute		<host> [ttl] [wait] [queries]	send probes to trace route of a remote host
	xparent			
		join	<iface1> [<iface2>]	join iface2 to iface1 group
		break	<iface>	break iface to leave ipxparent group
	urlfilter			
		exemptZone		
			display	display exemptzone information
			actionFlags [type(1-3)][enable/disable]	set action flags
			add [ip1] [ip2]	add exempt range
			delete [ip1] [ip2]	delete exempt range
			clearAll	clear exemptzone information
		customize		
			display	display customize action flags
			actionFlags [act(1-6)][enable/disable]	set action flags
			logFlags [type(1-3)][enable/disable]	set log flags
			add [string] [trust/untrust/keyword]	add url string
			delete [string] [trust/untrust/keyword]	delete url string
			clearAll	clear all information
	tredir			
		failcount	<count>	set tredir failcount
		partner	<ipaddr>	set tredir partner
		target	<ipaddr>	set tredir target
		timeout	<timeout>	set tredir timeout
		checktime	<period>	set tredir checktime
		active	<on|off>	set tredir active
		save		save tredir information
		disp		display tredir information
		debug	<value>	set tredir debug value
	rpt			
		start		start report
		stop		stop report
		url	[num]	top url hit list
		ip	[num]	top ip addr list

		srv	[num]	top service port list
	igmp			
		debug	[level]	set igmp debug level
		forwardall	[on|off]	turn on/off igmp forward to all interfaces flag
		querier	[on|off]	turn on/off igmp stop query flag
		iface		
			<iface> grouptm <timeout>	set igmp group timeout
			<iface> interval <interval>	set igmp query interval
			<iface> join <group>	join a group on iface
			<iface> leave <group>	leave a group on iface
			<iface> query	send query on iface
			<iface> rsptime [time]	set igmp response time
			<iface> start	turn on of igmp on iface
			<iface> stop	turn off of igmp on iface
			<iface> ttl <threshold>	set ttl threshold
			<iface> v1compat [on|off]	turn on/off v1compat on iface
		robustness	<num>	set igmp robustness variable
		status		dump igmp status
	pr			

IPSec Related Command Home

Command				Description
ipsec				
	debug	<1|0>		turn on|off trace for IPsec debug information
	ipsec_log_disp			show IPSec log, same as menu 27.3
		lan	<on|off>	After a packet is IPSec processed and will be sent to LAN side, this switch is to control if this packet can be applied IPSec again.
				Remark: Command available since 3.50(WA.3)
		wan	<on|off>	After a packet is IPSec processed and will be sent to WAN side, this switch is to control if this packet can be applied IPSec again.
				Remark: Command available since 3.50(WA.3)
	show_runtime	sa		display runtime phase 1 and phase 2 SA information
		spd		When a dynamic rule accepts a request and a tunnel is established, a runtime SPD is created according to peer local IP address. This command is to show these runtime SPD.
	switch	<on|off>		As long as there exists one active IPSec rule, all packets will run into IPSec process to check SPD. This switch is to control if a packet should do this. If it is turned on, even there exists active IPSec rules, packets will not run IPSec process.
	timer	chk_my_ip	<1~3600>	- Adjust timer to check if WAN IP in menu is changed
				- Interval is in seconds
				- Default is 10 seconds
				- 0 is not a valid value
		chk_conn.	<0~255>	- Adjust auto-timer to check if any IPsec connection has no traffic for certain period. If yes, system will disconnect it.
				- Interval is in minutes
				- Default is 2 minuets
				- 0 means never timeout
		update_peer	<0~255>	- Adjust auto-timer to update IPSec rules which use domain name as the secure gateway IP.
				- Interval is in minutes

				- Default is 30 minutes
				- 0 means never update
				Remark: Command available since 3.50(WA.3)
	updatePeerIp			Force system to update IPSec rules which use domain name as the secure gateway IP right away.
				Remark: Command available since 3.50(WA.3)
	dial	<rule #>		Initiate IPSec rule <#> from ZyWALL box
				Remark: Command available since 3.50(WA.3)
	display	<rule #>		Display IPSec rule #
	keep_alive	<rule #>	<on|off>	Set ipsec keep_alive flag
	load	<rule #>		Load ipsec rule
	save			Save ipsec rules
	config	netbios	active <on|off>	Set netbios active flag
			group <group index1, group index2…>	Set netbios group
		name	<string>	Set rule name
		active	<Yes | No>	Set active or not
		keeyAlive	<Yes| No>	Set keep alive or not
		natTraversal	<Yes| No>	Enable NAT traversal or not.
		lcIdType	<0:IP | 1:DNS | 2:Email>	Set local ID type
		lcIdContent	<string>	Set local ID content
		myIpAddr	<IP address>	Set my IP address
		peerIdType	<0:IP | 1:DNS | 2:Email>	Set peer ID type
		peerIdContent	<string>	Set peer ID content
		secureGwAddr	<IP address | Domain name>	Set secure gateway address or domain name
		protocol	<1:ICMP | 6:TCP | 17:UDP>	Set protocol
		lcAddrType	<0:single | 1:range | 2:subnet>	Set local address type
		lcAddrStart	<IP>	Set local start address
		lcAddrEndMask	<IP>	Set local end address or mask
		lcPortStart	<port>	Set local start port
		lcPortEnd	<port>	Set local end port
		rmAddrType	<0:single | 1:range | 2:subnet>	Set remote address type
		rmAddrStart	<IP>	Set remote start address
		rmAddrEndMask	<IP>	Set remote end address or mask
		rmPortStart	<port>	Set remote start port
		rmPortEnd	<port>	Set remote end port
		antiReplay	<Yes | No>	Set anitreplay or not
		keyManage	<0:IKE | 1:Manual>	Set key manage
		ike	negotiationMode <0:Main | 1:Aggressive>	Set negotiation mode in phase 1 in IKE
			preShareKey <string>	Set pre shared key in phase 1 in IKE
			p1EncryAlgo <0:DES | 1:3DES>	Set encryption algorithm in phase 1 in IKE
			p1AuthAlgo <0:MD5 | 1:SHA1>	Set authentication algorithm in phase 1 in IKE
			p1SaLifeTime <seconds>	Set sa life time in phase 1 in IKE
			p1KeyGroup <0:DH1 | 1:DH2>	Set key group in phase 1 in IKE
			activeProtocol <0:AH | 1:ESP>	Set active protocol in phase 2 in IKE
			p2EncryAlgo <0:Null | 1:DES | 2:3DES>	Set encryption algorithm in phase 2 in IKE
			p2AuthAlgo <0:MD5 | 1:SHA1>	Set authentication algorithm in phase 2 in IKE
			p2SaLifeTime <seconds>	Set sa life time in phase 2 in IKE
			encap <0:Tunnel | 1:Transport>	set encapsulation in phase 2 in IKE
			pfs <0:None | 1:DH1 | 2:DH2>	set pfs in phase 2 in IKE
		manual	activeProtocol <0:AH | 1:ESP>	Set active protocol in manual
		manual ah	encap <0:Tunnel | 1:Transport>	Set encapsulation in ah in manual
			spi <decimal>	Set spi in ah in manual
			authAlgo <0:MD5 | 1:SHA1>	Set authentication algorithm in ah in manual

			authKey <string>	Set authentication key in ah in manual
		manual esp	encap <0:Tunnel | 1:Transport>	Set encapsulation in esp in manual
			spi <decimal>	Set spi in esp in manual
			encryAlgo <0:Null | 1:DES | 2:3DES>	Set encryption algorithm in esp in manual
			encryKey <string>	Set encryption key in esp in manual
			authAlgo <0:MD5 | 1:SHA1>	Set authentication algorithm in esp in manual
			authKey < string>	Set authentication key in esp in manual
		name	<string>	Set rule name

Firewall Related Command Home

Command				Description
sys	Firewall			
		acl		
			disp	Display specific ACL set # rule #, or all ACLs.
		active	<yes|no>	Active firewall or deactivate firewall
		clear		Clear firewall log
		cnt		
			disp	Display firewall log type and count.
			clear	Clear firewall log count.
		disp		Display firewall log
		online		Set firewall log online.
		pktdump		Dump the 64 bytes of dropped packet by firewall
		update		Update firewall
		dynamicrule		
		tcprst		
			rst	Set TCP reset sending on/off.
			rst113	Set TCP reset sending for port 113 on/off.
			display	Display TCP reset sending setting.
		icmp		
		dos		
			smtp	Set SMTP DoS defender on/off
			display	Display SMTP DoS defender setting.
			ignore	Set if firewall ignore DoS in lan/wan/dmz/wlan
		ignore		
			dos	Set if firewall ignore DoS in lan/wan/dmz/wlan
			triangle	Set if firewall ignore triangle route in lan/wan/dmz/wlan