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Application Guide

H8922S-Link Backup- WAN/Modem- IPsec

Contents

Revision History

Updates between document versions are cumulative. Therefore, the latest document version contains all updates made to previous versions.

Doc Version	Product	Release Data	Details
V1.0	Hongdian Router	2017.08.22	First Release

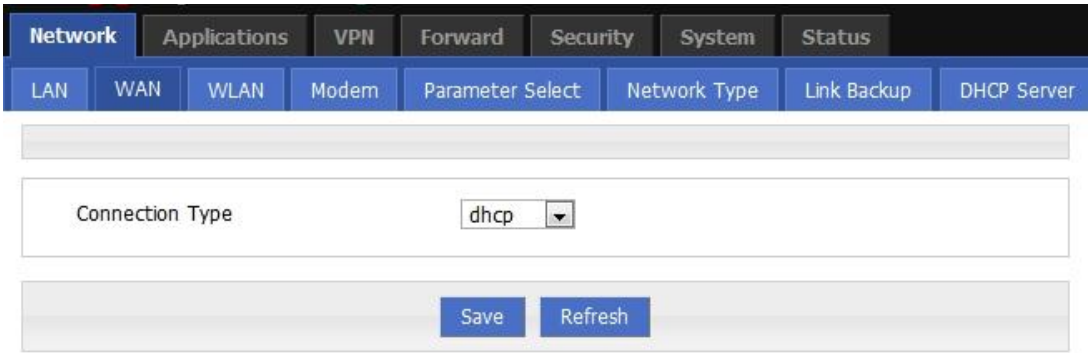
1 Overview

In some field applications, it needs to enable link backup for IPSec VPN, to make sure the stable VPN connection. After the IPSec connection having been established in Hongdian Router via WAN, how can it make the modem as backup link, so that if WAN is unavailable, the IPSec is still works via modem link?
Here we would guide you for this case.
There are two ways to achieve the link backup for dual moedm, and we firstly introduce the two link backup individually, next show you how to apply the link backup to existed IPSec connection.

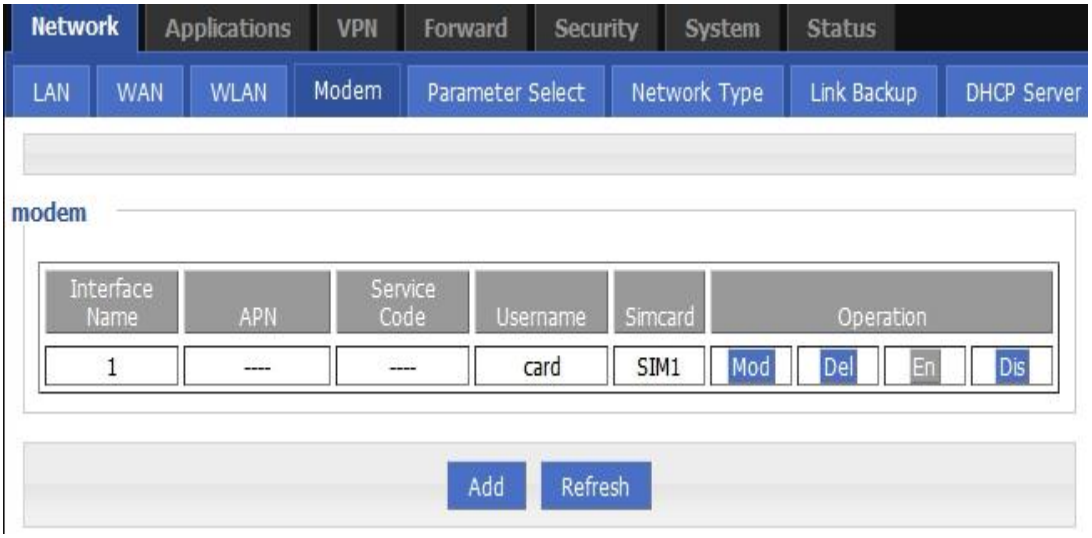
2 Description

2.1 Main-backup mode

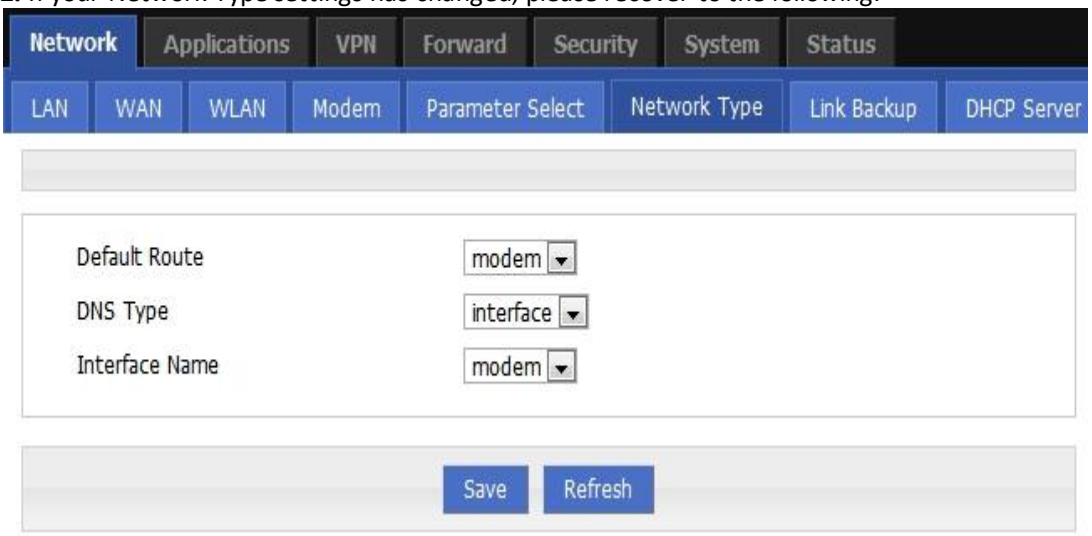
Regarding the scene about wan and modem linkbackup, when wan link as main, modem link as backup, it can be supported. Settings are on page>>Network>>Link Backup.
Steps are as below.
1. We finish the settings about wan and modem, wan port is dhcp (for example the wan port method of getting the IP), modem port is according to your custom.
wan:



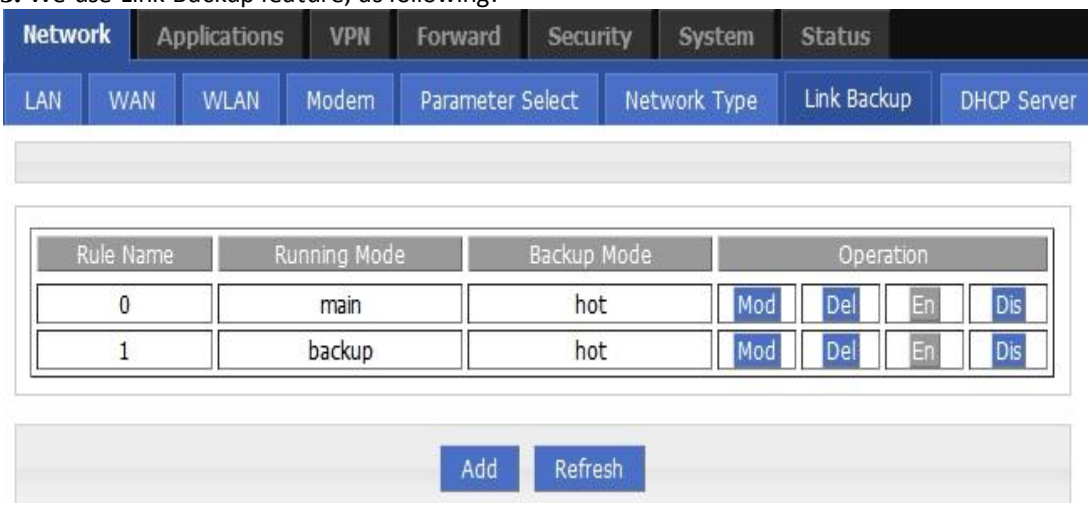
modem:



2. If your Network Type settings has changed, please recover to the following.

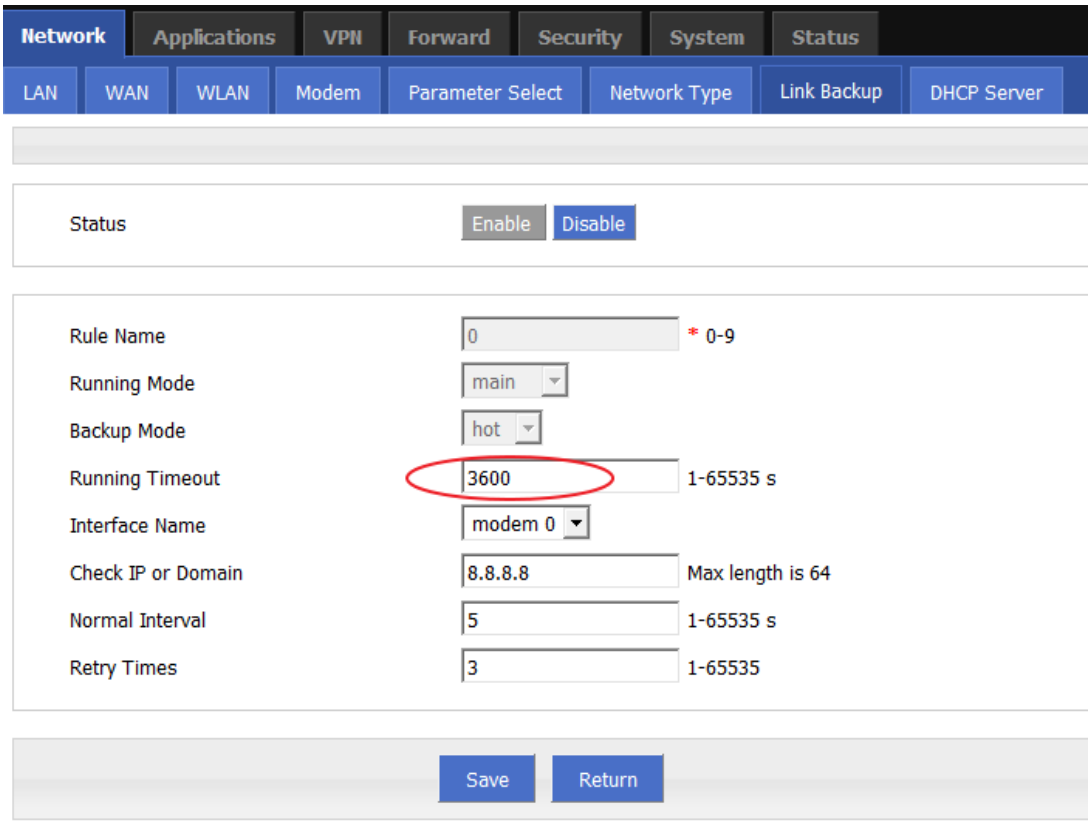


3. We use Link Backup feature, as following:

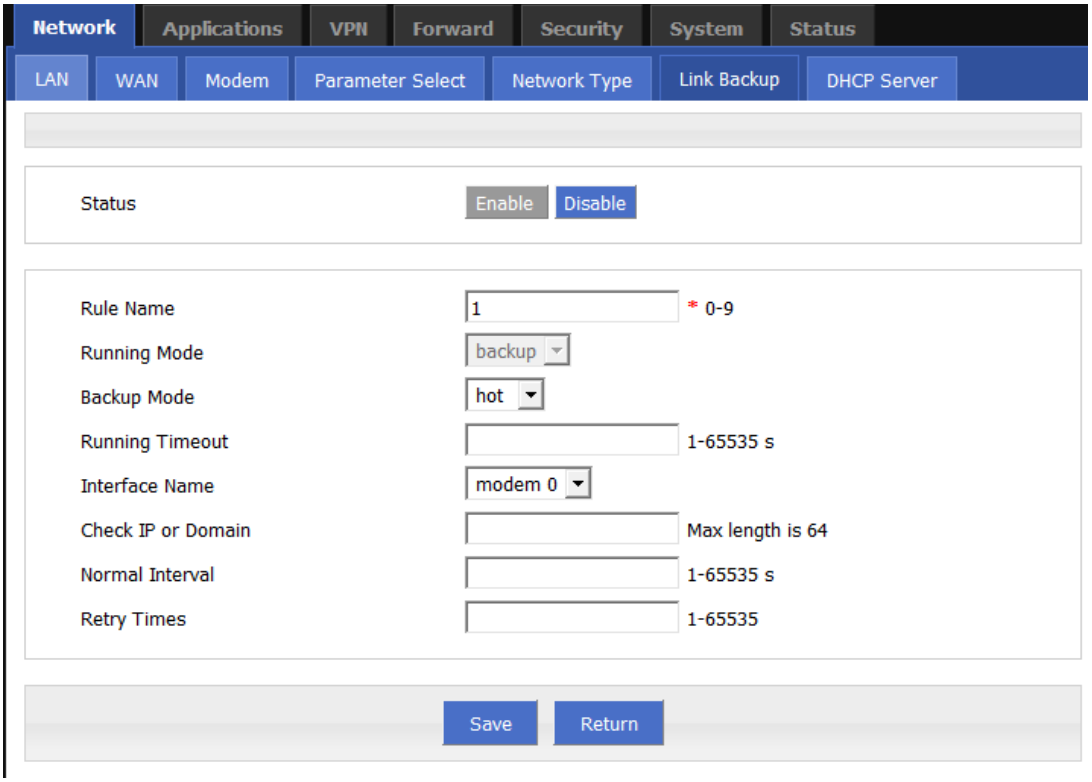


Rule0 is for checking eth0, if wan link fail, the link will switch to backup link.

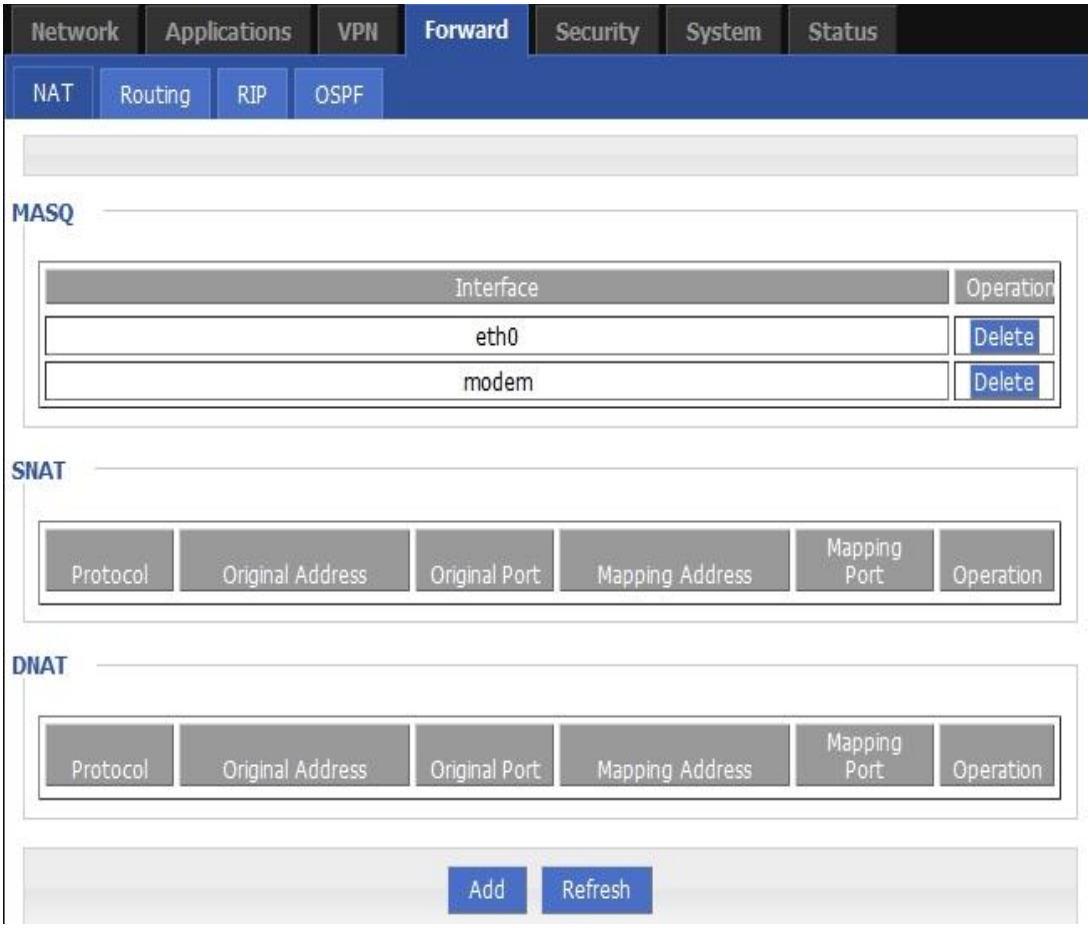
Note: If don't want backup link switch to main link immediately when main link is back ready for working, can setup the Running Timeout setting on Main link. The setup means: unless the main link is back and stable for that specific time, link doesn't switch. It will ensure the stability of the internet access.
For example: in image below, the timeout setting is set in main link, that means when main link resume, it should stable available for 1 hour. Then the link will switch from backup link to main link. If main link resumes but not stable available long enough for 1 hour, the counter will restart every time the link interrupted.



Rule1 is for checking modem, When Main link is resume available, the link will switch to main link.



4. We add MASQ about eth0 and modem.

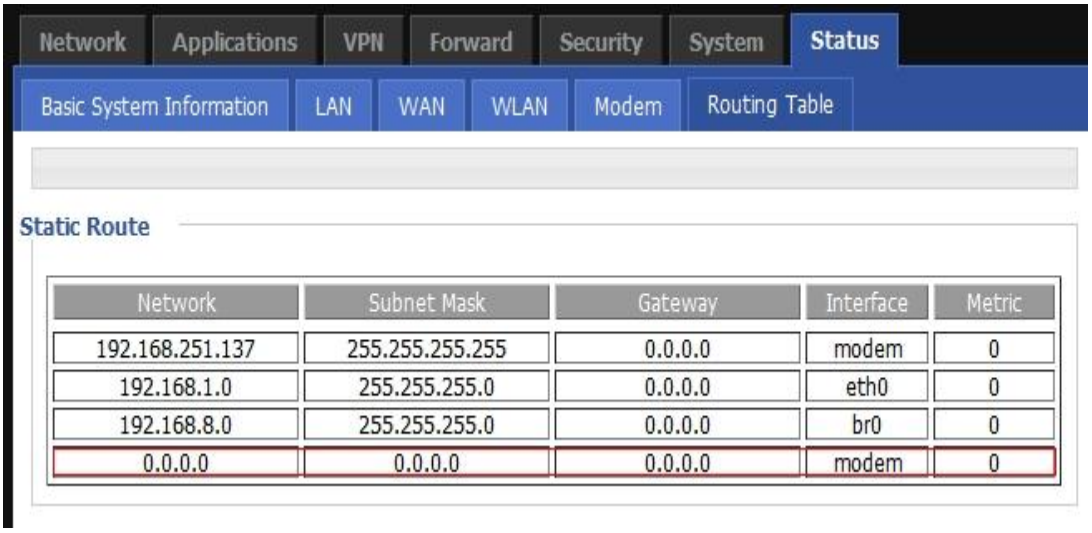


5. Please delete the default setting in page>>Forward>>Routing. When using link backup feature, this setting should be empty.

After that, the link backup setting is done, you will see the default route is eth0, refer to pic1, if wan link fail, the link will switch to modem link, you will see the default route is modem, refer to pic2

pic1

pic2



PS: about the linkbackup total switch time instruction:

```
14-Jul 11:... <30>Jul 14 11:38:12 linkbackup[6632]: ##### rule[0], main link[eth0], icmp check begin #####{linkbackup.c->1233}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:12 linkbackup[6632]: **** ICMP send icmp packet successful ****{icmp.c->219}  192.168.8.1
14-Jul 11:... <31>Jul 14 11:38:15 time[250]: ntpclient -h ntp.sjtu.edu.cn -s return 14{time.c->111}  192.168.8.1
14-Jul 11:... <27>Jul 14 11:38:15 time[250]: NTP failed!{time.c->302}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:15 linkbackup[6632]: recv_icmp_pack:select time out{icmp.c->79}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:15 linkbackup[6632]: **** ICMP Recv icmp packet timeout ****{icmp.c->299}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:17 linkbackup[6632]: **** ICMP send icmp packet successful ****{icmp.c->219}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:20 time[250]: last ntp failed, do ntp{time.c->188}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:20 linkbackup[6632]: recv_icmp_pack:select time out{icmp.c->98}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:20 linkbackup[6632]: **** ICMP Recv icmp packet timeout ****{icmp.c->299}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:22 linkbackup[6632]: **** ICMP send icmp packet successful ****{icmp.c->219}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:22 cloud_agent[6409]: cloud_agent version:140711-3.0.3[11-3.0.3]{wmmp_main.c->216}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:22 cloud_agent[6409]: initialization failed, reset cloud_agent, intialize cloud_agent again{wmmp_main.c->...  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:24 cloud_agent[6691]: cloud_agent version:140711-3.0.3[11-3.0.3]{wmmp_main.c->216}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:25 linkbackup[6632]: recv_icmp_pack:select time out{icmp.c->98}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:25 linkbackup[6632]: **** ICMP Recv icmp packet timeout ****{icmp.c->299}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:27 linkbackup[6632]: ##### rule[0], main link[eth0], icmp check end #####{linkbackup.c->1235}  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:27 linkbackup[6632]: now checking rule[0], check main link[eth0] ret[-2](0:success, <0:failed){linkbackup....  192.168.8.1
14-Jul 11:... <30>Jul 14 11:38:28 linkbackup[6632]: switch from [rule:0] main [link:eth0] to [rule:1] backup [link:modem]{linkbackup.c->...  192.168.8.1
```

From the log, the linkbackup switch from start to end, total cost 15s(retry time is 3), so every linkbakcup every check time cost 5s, we can draw the linkbakcup total switch time range is

Min: 5s*retry time<= linkbackup total switch time <= Max: normal interval+5s*retry time

2.2 Mutually backup mode

1. All settings are the same to Main/backup mode. The only difference in setting is to change main link rule name from 0 to 1-9 number. Then the main link rule will become a backup link which is equal to another rule. And the two rule are equal.

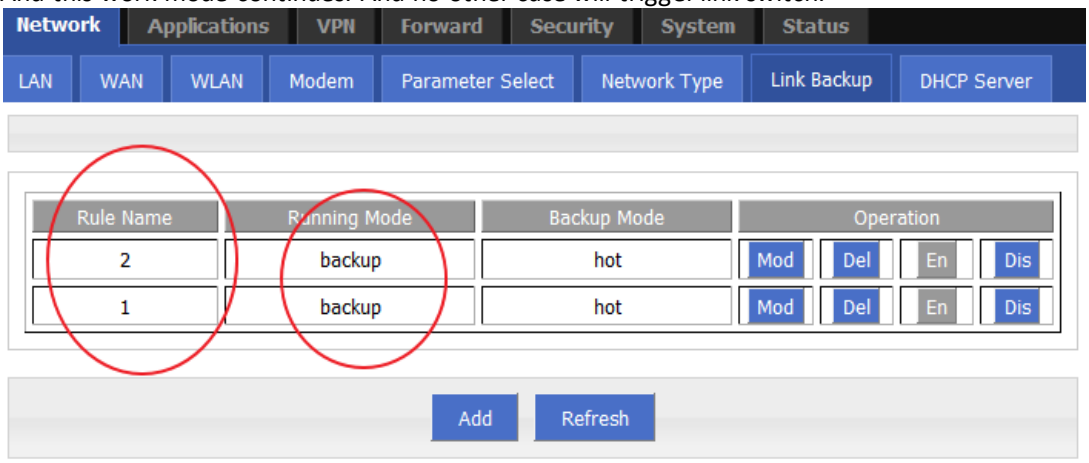
2. The working mode works this way:

When device start, device uses the rule with lower number rule at first.

When the link with lower rule number no longer available, device uses another rule.

When the link with higher rule number no longer available, device uses the other rule.

And this work mode continues. And no other case will trigger link switch.



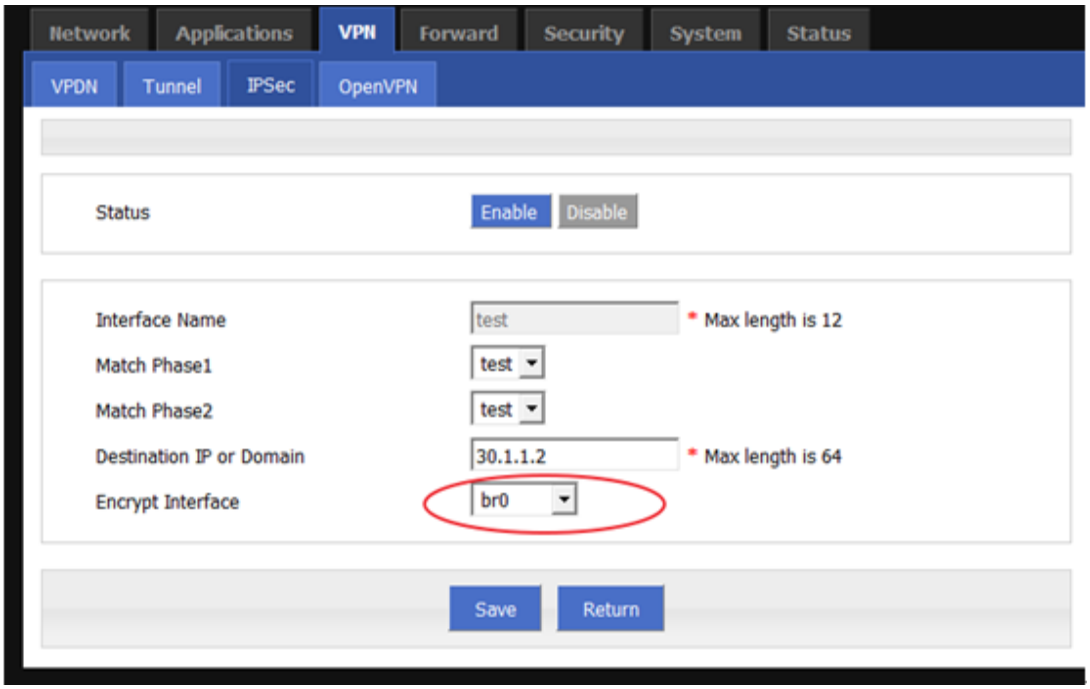
In the mutual backup mode, the “timeout “ is invalid.

2.3 IPSec connection insurance when link switch

When link switches between WAN and LTE, the IPSec connection need to rebuild.

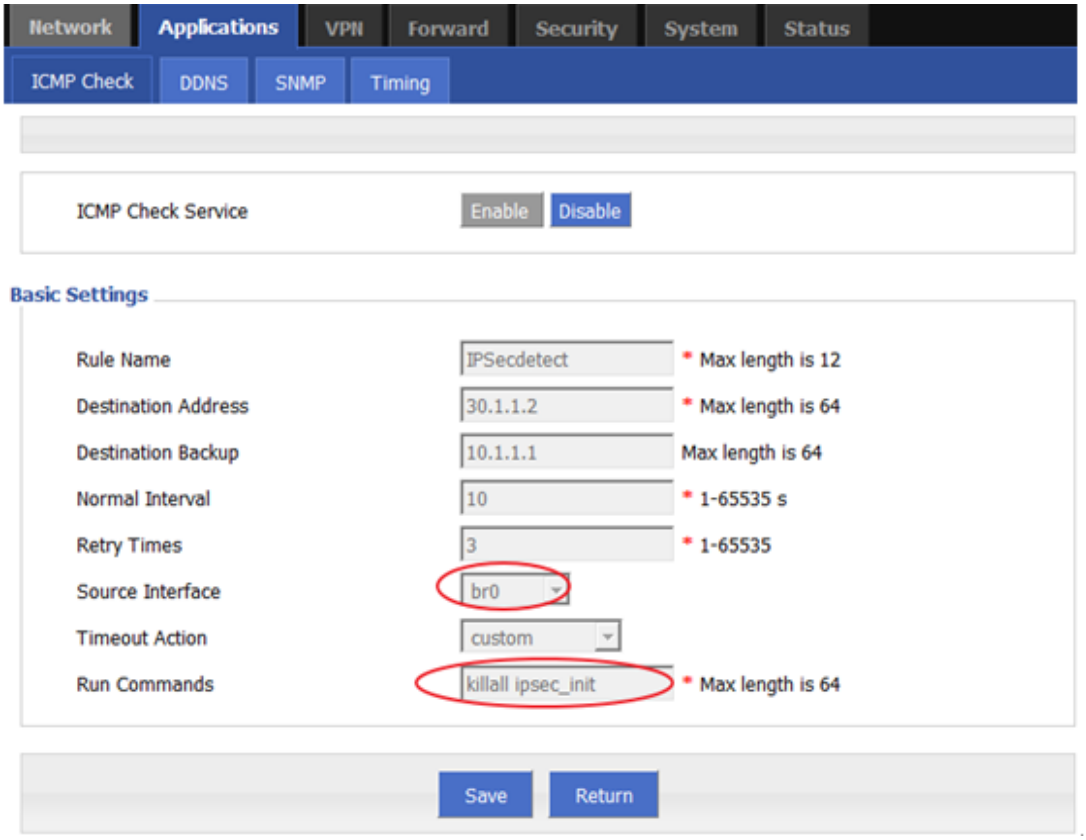
To let WAN connection rebuild success through different link, the interface selection is important, Normally, when link not switch, the interface can be set to eth0 when link work on WAN. The interface can be set to modem, when use LTE.

However, in the link switch case, in order to let IPSec package be sent from correct interface, we should set the "Encrypt Interface" to "br0" as show in image below:



And to detect IPSec connection, and trigger it to restart when link switches, need to setup ICMP detection:
Make the source interface "br0" and make the command: killall ipsec_init

When IPSec cannot work, ICMP detection will trigger IPSec to reset, and IPSec will try to rebuild until connection is buildup successfully.


Network
Applications
VPN
Forward
Security
System
Status
ICMP Check
DDNS
SNMP
Timing
ICMP Check Service
Enable
Disable
Basic Settings
Rule Name
IPSecdetect
* Max length is 12
Destination Address
30.1.1.2
* Max length is 64
Destination Backup
10.1.1.1
Max length is 64
Normal Interval
10
* 1-65535 s
Retry Times
3
* 1-65535
Source Interface
br0
Timeout Action
custom
Run Commands
killall ipsec_init
* Max length is 64
Save
Return

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Create smart things

Contact us

F14 - F16, Tower A, Building 14, No.12, Ganli 6th Road, Longgang District, Shenzhen 518112, China.

+86-755-88864288-5

+86-755-83404677

hongdianchina

www.hongdian.com

sales@hongdian.com

Hongdian_China