


### Route-based VPN configuration example:

TR1804 - Overview

Not secure | 192.168.20.1/cgi-bin/luci/stok=46c4d9e965a013262d2d23a0531c619f/admin/status/overview

Overview	<h3>System</h3> <table border="1"> <tr><td>Hostname</td><td>TR1804</td></tr> <tr><td>SN</td><td>660420156A0038FA</td></tr> <tr><td>Firmware Version</td><td>3.2.181</td></tr> <tr><td>Kernel Version</td><td>3.18.29</td></tr> <tr><td>Local Time</td><td>Thu Nov 22 17:17:58 2018</td></tr> <tr><td>Uptime</td><td>5h 27m 47s</td></tr> <tr><td>Load Average</td><td>1.83, 1.35, 1.00</td></tr> <tr><td>Port Status</td><td>   LAN1 LAN2 LAN3 LAN4 WAN </td></tr> </table> <h3>Mobile 1</h3> <table border="1"> <tr><td>Cellular Status</td><td>Up</td></tr> <tr><td>IP Address</td><td>10.81.32.253/255.255.255.255</td></tr> <tr><td>DNS 1</td><td>112.110.240.193</td></tr> <tr><td>DNS 2</td><td>106.66.16.3</td></tr> </table>	Hostname	TR1804	SN	660420156A0038FA	Firmware Version	3.2.181	Kernel Version	3.18.29	Local Time	Thu Nov 22 17:17:58 2018	Uptime	5h 27m 47s	Load Average	1.83, 1.35, 1.00	Port Status	 LAN1 LAN2 LAN3 LAN4 WAN	Cellular Status	Up	IP Address	10.81.32.253/255.255.255.255	DNS 1	112.110.240.193	DNS 2	106.66.16.3
Hostname		TR1804																							
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Network																									
Firewall																									
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Kernel Log																									
Reboot Log																									
Realtime Graphs																									
VPN																									
System																									
Services																									
Network																									
Logout																									

IP Address	10.81.32.253/255.255.255.255
DNS 1	112.110.240.193
DNS 2	106.66.16.3
Cell Modem	SLM730_SLM750 (05C6_F601 )
IMEI/ESN	869715037775452
Sim Status	SIM Ready
Strength	 23 / 31, dBm : -67
Selected Network	Automatic
Registered Network	Registered on Home network: "IDEA", 0,
Sub Network Type	EDGE
Location Area Code	7D
Cell ID	D811
ICCID	89911100000784763188
MSISDN/IMSI	/ 404045193895532

- Status
- System
- Services
- Network
  - Operation Mode
  - Mobile
  - LAN
  - Wired WAN
  - WAN IPv6
  - Interfaces
  - Wi-Fi
  - Firewall
  - Switch
  - DHCP and DNS

### Operation mode configuration

You may configure the operation mode suitable for you environment.

- Operation mode
- Bridge mode  
All ethernet and wireless interfaces are bridged into a single bridge interface.
  - Gateway mode  
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.
  - AP client mode  
The wireless ap client interface is treated as WAN port
- Wired-WAN port role
- Wired-WAN port acts as WAN
  - Wired-WAN port acts as LAN
- NAT enable

Save & Apply Save Reset

- Operation Mode
- Mobile
- LAN
- Wired WAN
- WAN IPv6
- Interfaces
- Mi-Fi
- Firewall
- Switch
- DHCP and DNS
- Diagnostics
- Loopback Interface
- Hostnames
- Dynamic Routing
- Guest LAN(Guest WiFi)
- Static Routes
- DoS
- Logout

Enable

Mobile connection: pppd mode

PIN code:

Dialing number: \*99#

APN: internet

Authentication method: None

Dual APN support:

Network Type: automatic

MTU: 1500

Online mode: Keep Alive

Metric: 0

Save & Apply Save Reset

**Techroutes** TR-1804-4G Wireless Cellular Router/Modem UNSAVED CHANGES: 1

Status IPsec PPTP L2TP OpenVPN GRE Tunnel

### IPsec Configuration

Instance name	Enable	Exchange mode	Auth method	Operation level	
vti	Yes	IKEv1-Main	PSK Client	Main	<a href="#">Edit</a> <a href="#">Delete</a>

New instance name:  Client

Enable Route-based IPsec

Save & Apply Save Reset

- Status
- System
- Services
  - ICMP Check
  - VRRP
  - Failover
  - DTU
  - SNMP
  - GPS
  - SMS
  - VPN**
  - DDNS
  - Connect Radio Module
  - NMS
- Network
- Logout

IPSec PPTP L2TP OpenVPN GRE Tunnel

## IPSec Instance: Vti

[Switch to advanced configuration »](#)

Enable

Exchange mode IKEv1-Main

Operation Level Main

Authentication method PSK Client

Remote VPN endpoint 150.242.74.107

Local endpoint Any

Local IKE identifier

Remote IKE identifier

Preshared Keys .....

Perfect Forward Secrecy Disable

Perfect Forward Secrecy Disable

DPD action Clear

DPD delay 10 seconds

DPD timeout 100 seconds

NAT Traversal Disable

Local subnet 0.0.0.0/0

Remote subnet 0.0.0.0/0

Local source ip

Remote source ip

### Phase 1 Proposal

Enable

Encryption algorithm: 3DES

Hash algorithm: HMAC\_MD5

DH group: MODP1024/2

Life time: 28800 seconds

### Phase 2 Proposal

Enable

Encryption algorithm: 3DES

PFS group: MODP1024/2

Authentication: HMAC\_MD5

Life time: 28800 seconds

[Save & Apply](#)
[Save](#)
[Reset](#)

### Static IPv4 Routes

Interface	Target	IPv4-Netmask	IPv4-Gateway	Metric
lan	172.16.2.0	255.255.255.0	192.168.20.2	0
vti	192.168.16.0	255.255.255.0		0

- Routes
- System Log
- Kernel Log
- Reboot Log
- Realtime Graphs
- VPN
- System
- Services
- Network
- Logout

IPv4-Address	MAC-Address	Interface
192.168.20.2	5c:cc:ff:01:10:93	br-lan
192.168.20.34	78:84:3c:a3:89:0d	br-lan

### Active IPv4-Routes

Network	Target	IPv4-Gateway	Metric	Table
ifmobile	0.0.0.0/0	10.64.64.64	0	main
ifmobile	10.64.64.64		0	main
lan	172.16.2.0/24	192.168.20.2	0	main
vti	192.168.16.0/24		0	main
lan	192.168.20.0/24		0	main

IPSec VPN status:

Status
Overview
Network
Firewall
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System Log
Kernel Log
Reboot Log
Realtime Graphs
VPN
System
Services
Network
Logout

IPSec    IPSec Log    OpenVPN    PPTP tunnel    L2TP tunnel

### IPSec Status

Refresh

```
Status of IKE charon daemon (weakSwan 5.6.3, Linux 3.18.29, mips):
uptime: 13 minutes, since Nov 22 17:10:39 2018
malloc: sbrk 114688, mmap 0, used 106656, free 8032
worker threads: 11 of 16 idle, 5/0/0 working, job queue: 0/0/0/0, scheduled: 5
loaded plugins: charon random nonce aes des sha1 sha2 md5 pem pkcs1 gmp x509 revocation hmac stroke kernel-netlink socket-def
Listening IP addresses:
192.168.20.1
fd9:a279:c00a::1
10.81.32.253
Connections:
vii: %any...150.242.74.107 IKEv1, dpddelay=10s
vii: local: [10.81.32.253] uses pre-shared key authentication
vii: remote: [150.242.74.107] uses pre-shared key authentication
vii: child: 0.0.0.0/0 == 0.0.0.0/0 TUNNEL, dpdaction=clear
Security Associations (1 up, 0 connecting):
vii[1]: ESTABLISHED 13 minutes ago, 10.81.32.253[10.81.32.253]...150.242.74.107[150.242.74.107]
vii[1]: IKEv1 SPIs: c87a647f01da8ab4_i*2be510651db53913_r, pre-shared key reauthentication in 7 hours
vii[1]: IKE proposal: 3DES_CBC/HMAC_MD5_96/PRF_HMAC_MD5/MODP_1024
vii[1]: INSTALLED, TUNNEL, reqid 1, ESP in UDP SPIs: cc20a90e_i bc63474d_o
vii[1]: 3DES_CBC/HMAC_MD5_96, 3108 bytes_i (37 pkts, 643s ago), 2940 bytes_o (35 pkts, 644s ago), rekeying in 7 hours
vii[1]: 0.0.0.0/0 == 0.0.0.0/0
```

```
192.168.20.1 - PuTTY
root@TR1804:~#
root@TR1804:~# ping 192.168.16.1
PING 192.168.16.1 (192.168.16.1): 56 data bytes
64 bytes from 192.168.16.1: seq=0 ttl=255 time=648.735 ms
64 bytes from 192.168.16.1: seq=1 ttl=255 time=674.076 ms
64 bytes from 192.168.16.1: seq=2 ttl=255 time=648.755 ms
64 bytes from 192.168.16.1: seq=3 ttl=255 time=878.660 ms
64 bytes from 192.168.16.1: seq=4 ttl=255 time=615.674 ms
64 bytes from 192.168.16.1: seq=5 ttl=255 time=940.282 ms
64 bytes from 192.168.16.1: seq=6 ttl=255 time=431.490 ms
64 bytes from 192.168.16.1: seq=7 ttl=255 time=533.092 ms
64 bytes from 192.168.16.1: seq=8 ttl=255 time=510.351 ms
^C
--- 192.168.16.1 ping statistics ---
10 packets transmitted, 9 packets received, 10% packet loss
round-trip min/avg/max = 431.490/653.457/940.282 ms
root@TR1804:~# ping 192.168.16.1 -I 192.168.20.1
PING 192.168.16.1 (192.168.16.1) from 192.168.20.1: 56 data bytes

64 bytes from 192.168.16.1: seq=0 ttl=255 time=397.889 ms
64 bytes from 192.168.16.1: seq=1 ttl=255 time=373.948 ms
64 bytes from 192.168.16.1: seq=2 ttl=255 time=392.749 ms
^Z[3]+ Stopped ping 192.168.16.1 -I 192.168.20.1
root@TR1804:~#
```

TSR -08 Router Configuration:

```
interface GigaEthernet0/0
 ip address 192.168.20.2 255.255.255.0
 no ip directed-broadcast
 ip http firewalltype 0
!
interface GigaEthernet0/1
 ip address 172.16.2.1 255.255.255.0
 no ip directed-broadcast
 ip http firewalltype 0
!
interface Async0/0
 no ip address
 no ip directed-broadcast
!
interface Async0/1
 no ip address
 no ip directed-broadcast
!
interface Async0/2
 no ip address
 no ip directed-broadcast
!
!
!
!
!
!
!
!
!
ip route cache
ip route default 192.168.20.1
ip route 172.16.2.0 255.255.255.0 192.168.20.1
!
```

Ping and traceroute on client PC

```

C:\Users\User>ping 192.168.16.1
Pinging 192.168.16.1 with 32 bytes of data:
Reply from 192.168.16.1: bytes=32 time=351ms TTL=253
Reply from 192.168.16.1: bytes=32 time=1005ms TTL=253
Reply from 192.168.16.1: bytes=32 time=320ms TTL=253
Reply from 192.168.16.1: bytes=32 time=338ms TTL=253

Ping statistics for 192.168.16.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 320ms, Maximum = 1005ms, Average = 503ms

C:\Users\User>
C:\Users\User>
C:\Users\User>
C:\Users\User>ipconfig

Windows IP Configuration

Wireless LAN adapter Wireless Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . . . . . :

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix . . . . . :
    Link-local IPv6 Address . . . . . : fe80::98ef:6b28:2908:de1b%11
    IPv4 Address. . . . . : 172.16.2.34
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 172.16.2.1

Tunnel adapter isatap.{5AC427B5-35AF-449E-93BF-4B3F048D2DD8}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . . . . . :

Tunnel adapter isatap.{C5DD8C77-FAAF-47EE-A224-9B6D8941A292}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . . . . . :

C:\Users\User>tracert 192.168.16.1
'tracert' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\User>tracert -d 192.168.16.1

Tracing route to 192.168.16.1 over a maximum of 30 hops

  0  <1 ms    <1 ms    <1 ms    172.16.2.1
  1  1 ms     1 ms     1 ms     192.168.20.1
  2  675 ms   336 ms   501 ms   192.168.16.1

Trace complete.

C:\Users\User>

```

Server Route Based-vpn configuration:

```

Router#
Router#show version
Techroutes Network Pvt. Ltd Internetwork Operating System Software
TSR 2800-20 Series Software, Version 8.1.1B (BASE) Build 8929, RELEASE SOFTWARE
Techroutes Network Pvt. Ltd
Compiled: 2017-11-25 15:12:45 by SYS_8929, Image text-base: 0x108000
ROM: System Bootstrap, Version 0.3.6
Serial num:10015020626, ID num:020626
System image file is "Router.bin"

```





```
isdn switch-type basic-5ess
!
!
!
aaa authentication login default local
aaa authentication enable default none
aaa authentication ppp default local
aaa authorization exec default local
!
username admin password 0 admin
!
!
!
crypto isakmp keepalive 10 3 periodic
crypto isakmp key 0 test@123 address 0.0.0.0 0.0.0.0
crypto isakmp policy 1
 authentication pre-share
 encryption 3des
 group 2
 hash md5
!
crypto ipsec transform-set TST esp-3des esp-md5-hmac
!
crypto ipsec profile TEST
 set transform-set TST
!
crypto dynamic-map CMAP 1
 match address XYZ
 set transform-set TST
!
crypto map VPN 1 ipsec-isakmp dynamic CMAP

!
!
crypto key load-keyconf end
!
!
interface Tunnel1
 mtu 1450
 ip unnumbered GigaEthernet0/0
 no ip directed-broadcast
 tunnel source GigaEthernet0/0
 tunnel destination 106.79.54.224
 tunnel mode ipsec ipv4
 tunnel protection ipsec profile TEST
 tunnel speed-up
!
interface GigaEthernet0/0
 ip address 150.242.74.107 255.255.255.248
 no ip directed-broadcast
 ip http firewalltype 0
```

```
!  
interface GigaEthernet0/1  
  no ip address  
  no ip directed-broadcast  
  ip http firewalltype 0  
!  
interface GigaEthernet0/2  
  ip address 192.168.16.1 255.255.255.0  
  no ip directed-broadcast  
  ip http firewalltype 0  
!  
interface GigaEthernet0/3  
  no ip address  
  no ip directed-broadcast  
  ip http firewalltype 0  
!  
interface GigaEthernet0/4  
  no ip address  
  no ip directed-broadcast  
  ip http firewalltype 0  
!  
interface GigaEthernet0/5  
  ip address 192.168.2.1 255.255.255.0  
  no ip directed-broadcast  
  ip http firewalltype 0  
!  
interface Async0/6  
  no ip address  
  no ip directed-broadcast  
!  
!  
!  
!  
!  
!  
!  
!  
no ip route cache  
ip route default 150.242.74.105  
ip route 172.16.2.0 255.255.255.0 Tunnel1  
ip route 192.168.20.0 255.255.255.0 Tunnel1  
!  
!  
!  
!  
!  
!  
!  
!  
!  
!
```

```

!
!
!
!
!
!
!
!
!
!
!
!
ip dhcpd pool dpool
network 192.168.2.0 255.255.255.0
range 192.168.2.10 192.168.2.255
default-router 192.168.2.1
dns-server 192.168.2.1
lease infinite
!
ip dhcpd enable
!
!
!
ip http ispmode 1
ip http server
ip http language english
ip http timeout 10
ip http set-name-value 0
!
!
no ip proxy enable
ip proxy aaa-authen enable
!
!
!
!
!
!
gbsc app-ctrl priority onlinegames all
no gbsc app-ctrl drop onlinegames all
gbsc group default
!
gbsc pushto mode text
no gbsc filter-url enable
gbsc filter-url mode forbid
no gbsc filter-key enable
!

```

!  
!  
!  
!

Router#Router#

Router#

Router#

Router#show cry sa isakmp

Codes: C - IKE configuration mode, D - Dead Peer Detection

K - Keepalives, N - NAT-traversal

X - IKE Extended Authentication

psk - Preshared key, rsig - RSA signature

renc - RSA encryption

dir: initiator

C-id	Local	Remote	Status
0	150.242.74.107	106.79.54.224	using

Encr	Hash	Auth	DH	Lifetime
enc-3des	md5	preshagroup	228547	

Icookie	Rcookie	Refcnt	Nat
f7:25:5a:e6:65:ff:db:32	e2:ec:50:2:2c:50:e1:e5	0	nat outside

Router#

Router#

Router#

Router#shwo cry sa ipsec

shwo cry sa ipsec

^

Unknown command

Router#show cry sa ipsec

interface: Tunnel1

local addr 150.242.74.107

peer addr 106.79.54.224

peer port 23802

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)

remote ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)

sa type : negotiation

in use settings ={ udp tunnel }

sa status using

refcnt : 0

life left : 28534

kilobytes life left : infinite

#pkts encaps : 637 #pkts decaps: 586

#pkts encaps err: 0 #pkts decaps err: 0

success send bytes: 52464, error send bytes: 0

success rcv bytes: 35256, error rcv bytes: 0

inbound esp sas:

spi: 0x4e7a0b17(1316621079)

transform: esp-3des esp-md5-hmac

inbound ah sas:

inbound pcp sas:

outbound esp sas:

spi: 0xc5e3c28c(-974929268)

transform: esp-3des esp-md5-hmac

outbound ah sas:

outbound pcp sas:

Router#

Router#

Router#

Server side ping snaps:

```
C:\Windows\system32\cmd.exe - ping 172.16.2.1 -t
Reply from 172.16.2.1: bytes=32 time=385ms TTL=51
Reply from 172.16.2.1: bytes=32 time=345ms TTL=51
Reply from 172.16.2.1: bytes=32 time=357ms TTL=51
Reply from 172.16.2.1: bytes=32 time=313ms TTL=51
Reply from 172.16.2.1: bytes=32 time=324ms TTL=51
Request timed out.
Reply from 172.16.2.1: bytes=32 time=357ms TTL=51
Reply from 172.16.2.1: bytes=32 time=324ms TTL=51
Reply from 172.16.2.1: bytes=32 time=326ms TTL=51
Reply from 172.16.2.1: bytes=32 time=326ms TTL=51
Reply from 172.16.2.1: bytes=32 time=320ms TTL=51
Reply from 172.16.2.1: bytes=32 time=317ms TTL=51
Reply from 172.16.2.1: bytes=32 time=308ms TTL=51
Reply from 172.16.2.1: bytes=32 time=318ms TTL=51
Reply from 172.16.2.1: bytes=32 time=325ms TTL=51
Reply from 172.16.2.1: bytes=32 time=344ms TTL=51
Reply from 172.16.2.1: bytes=32 time=362ms TTL=51
Reply from 172.16.2.1: bytes=32 time=364ms TTL=51
Reply from 172.16.2.1: bytes=32 time=440ms TTL=51
Reply from 172.16.2.1: bytes=32 time=436ms TTL=51
Reply from 172.16.2.1: bytes=32 time=362ms TTL=51
Reply from 172.16.2.1: bytes=32 time=445ms TTL=51
Reply from 172.16.2.1: bytes=32 time=446ms TTL=51
Reply from 172.16.2.1: bytes=32 time=325ms TTL=51

Reply from 192.168.20.1: bytes=32 time=344ms TTL=51
Reply from 192.168.20.1: bytes=32 time=329ms TTL=51
Reply from 192.168.20.1: bytes=32 time=486ms TTL=51
Reply from 192.168.20.1: bytes=32 time=522ms TTL=51
Reply from 192.168.20.1: bytes=32 time=310ms TTL=51
Reply from 192.168.20.1: bytes=32 time=317ms TTL=51
Reply from 192.168.20.1: bytes=32 time=331ms TTL=51
Reply from 192.168.20.1: bytes=32 time=328ms TTL=51
Reply from 192.168.20.1: bytes=32 time=324ms TTL=51
Reply from 192.168.20.1: bytes=32 time=308ms TTL=51
Reply from 192.168.20.1: bytes=32 time=336ms TTL=51
Reply from 192.168.20.1: bytes=32 time=354ms TTL=51
Reply from 192.168.20.1: bytes=32 time=331ms TTL=51
Reply from 192.168.20.1: bytes=32 time=358ms TTL=51
Reply from 192.168.20.1: bytes=32 time=315ms TTL=51
Reply from 192.168.20.1: bytes=32 time=321ms TTL=51
Reply from 192.168.20.1: bytes=32 time=378ms TTL=51
Reply from 192.168.20.1: bytes=32 time=366ms TTL=51
Reply from 192.168.20.1: bytes=32 time=363ms TTL=51

C:\Windows\system32\cmd.exe - ping 172.16.2.34 -t
Reply from 172.16.2.34: bytes=32 time=325ms TTL=51
Reply from 172.16.2.34: bytes=32 time=331ms TTL=51
Reply from 172.16.2.34: bytes=32 time=328ms TTL=51
Reply from 172.16.2.34: bytes=32 time=317ms TTL=51
Reply from 172.16.2.34: bytes=32 time=348ms TTL=51
Reply from 172.16.2.34: bytes=32 time=321ms TTL=51
Reply from 172.16.2.34: bytes=32 time=339ms TTL=51
Reply from 172.16.2.34: bytes=32 time=334ms TTL=51
Reply from 172.16.2.34: bytes=32 time=319ms TTL=51
Request timed out.
Reply from 172.16.2.34: bytes=32 time=304ms TTL=51
Reply from 172.16.2.34: bytes=32 time=311ms TTL=51
Reply from 172.16.2.34: bytes=32 time=329ms TTL=51
Reply from 172.16.2.34: bytes=32 time=329ms TTL=51
Reply from 172.16.2.34: bytes=32 time=344ms TTL=51
Reply from 172.16.2.34: bytes=32 time=346ms TTL=51
Reply from 172.16.2.34: bytes=32 time=318ms TTL=51
Reply from 172.16.2.34: bytes=32 time=348ms TTL=51
Reply from 172.16.2.34: bytes=32 time=514ms TTL=51
Reply from 172.16.2.34: bytes=32 time=492ms TTL=51

C:\Windows\system32\cmd.exe
Wireless LAN adapter Wireless Network Connection 2:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . :

Wireless LAN adapter Wireless Network Connection:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . :

Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . . :
Link-local IPv6 Address . . . . . : fe80::78ac:b2f3:6580:3e42x11
IPv4 Address. . . . . : 192.168.16.2
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.16.1

Tunnel adapter isatap.{F8628C19-32DD-40C6-B81A-2071DE415A89}:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . . :

Tunnel adapter Teredo Tunneling Pseudo-Interface:
```