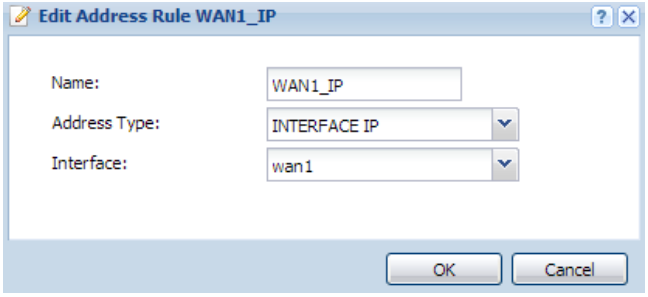
L2TP over IPSec VPN Setup

This guide is designed to assist you in the setup of the L2TP VPN capabilities of the ZyWALL (ZLD) series routers.

Start by accessing the routers web confiugurator (http://192.168.1.1), once in the configuration screen you will need to create some address objects as well as user accounts for the L2TP users. An object for the WAN IP will be created as well as an object for a range of IP addresses which will be assigned to L2TP connected users.

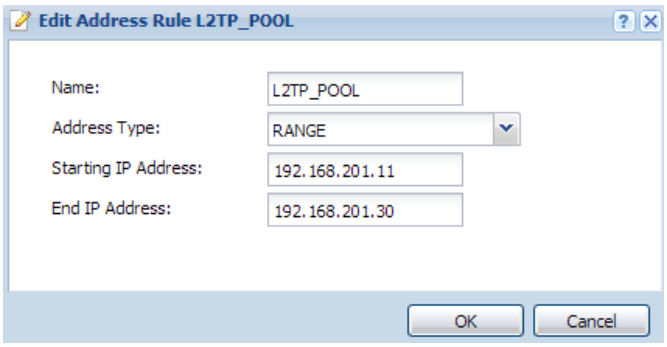
To create the address objects click on the "Configuration" menu icon,  , on the far left. In the configuration menu go to Object > Address and click the "Add" button to insert the IP entries.

1. Create and address object for the WAN IP address. The name can be whatever you like, the Address Type needs to be set to "Interface IP", for Interface select the approriate WAN connection.

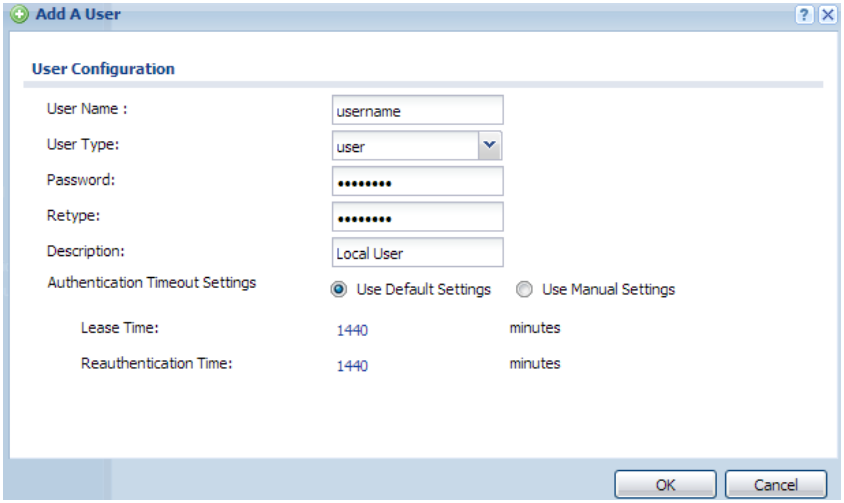


2. Create a second address object for the L2TP IP range. The L2TP IP addresses has to be unique, it cannot conflict with any other interface that is created on the ZyWALL. (example: LAN1 by default uses 192.168.1.0/24 IP scheme, this means you cannot use 192.168.1.XXX for L2TP IP range) Once you have named the new address entry for the Address Type select "Range", then specify

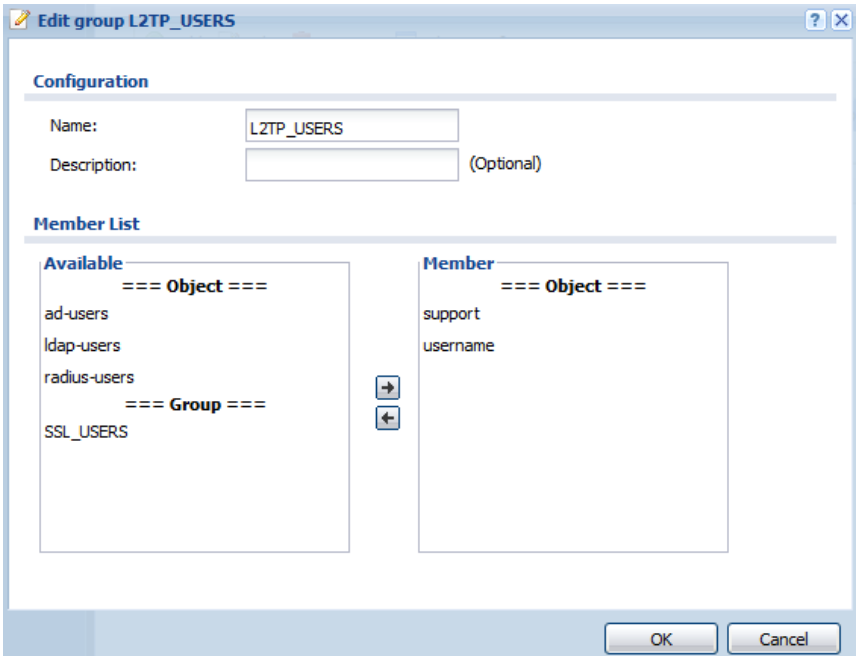
the starting and ending IP addresses that will be used for the L2TP users.



Now that you have created the address objects go to menu Configuration > Object > User/Group to create user accounts for the L2TP users. In the User tab click on the "Add" button to insert a user entry. Specify the username, User Type should be set to "USER", create a password for the user account.

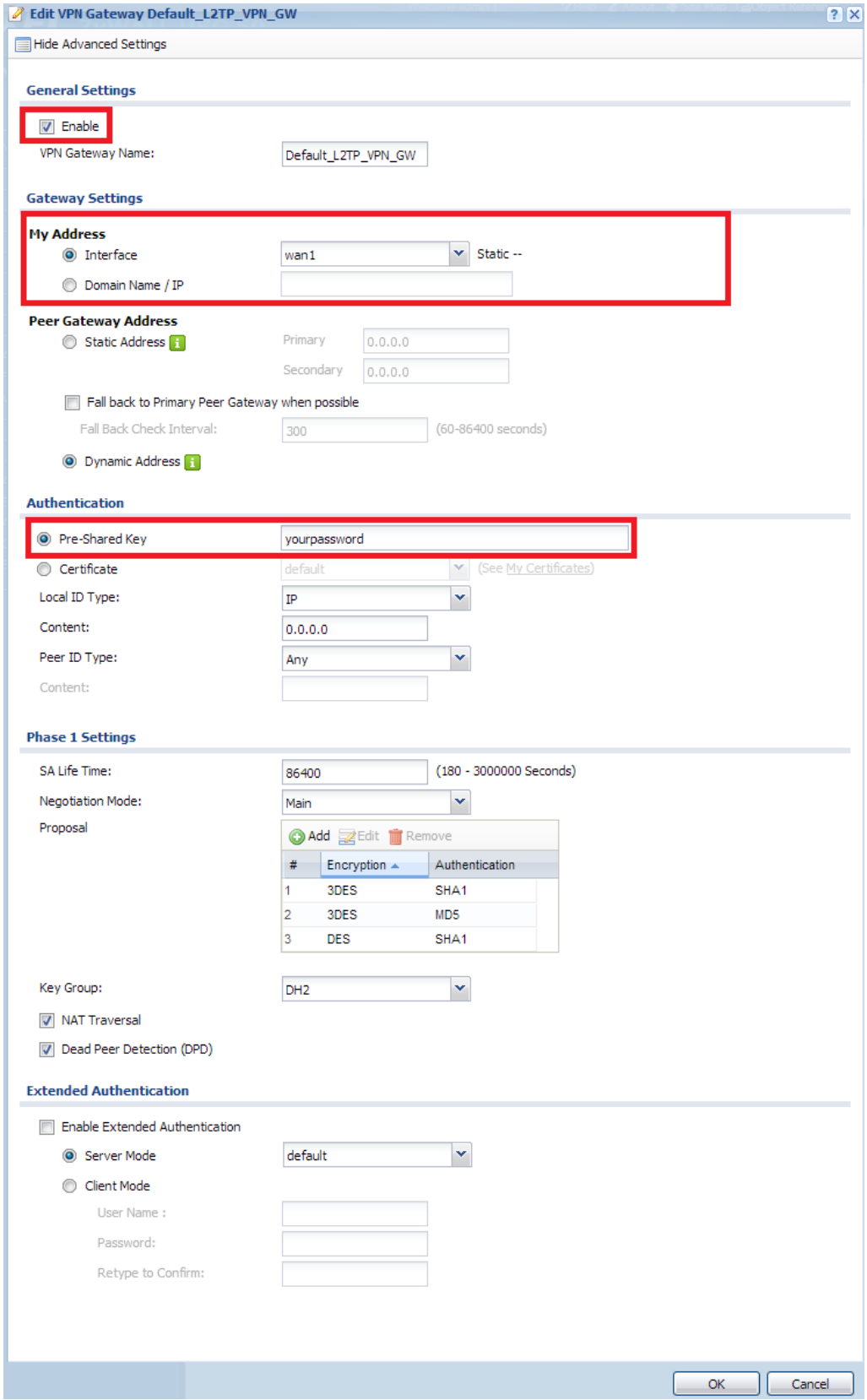


Click on the "Group" tab and add a user group for the L2TP. Select all the user accounts you have created for the L2TP users and move these user accounts to the "Member" list on the right.

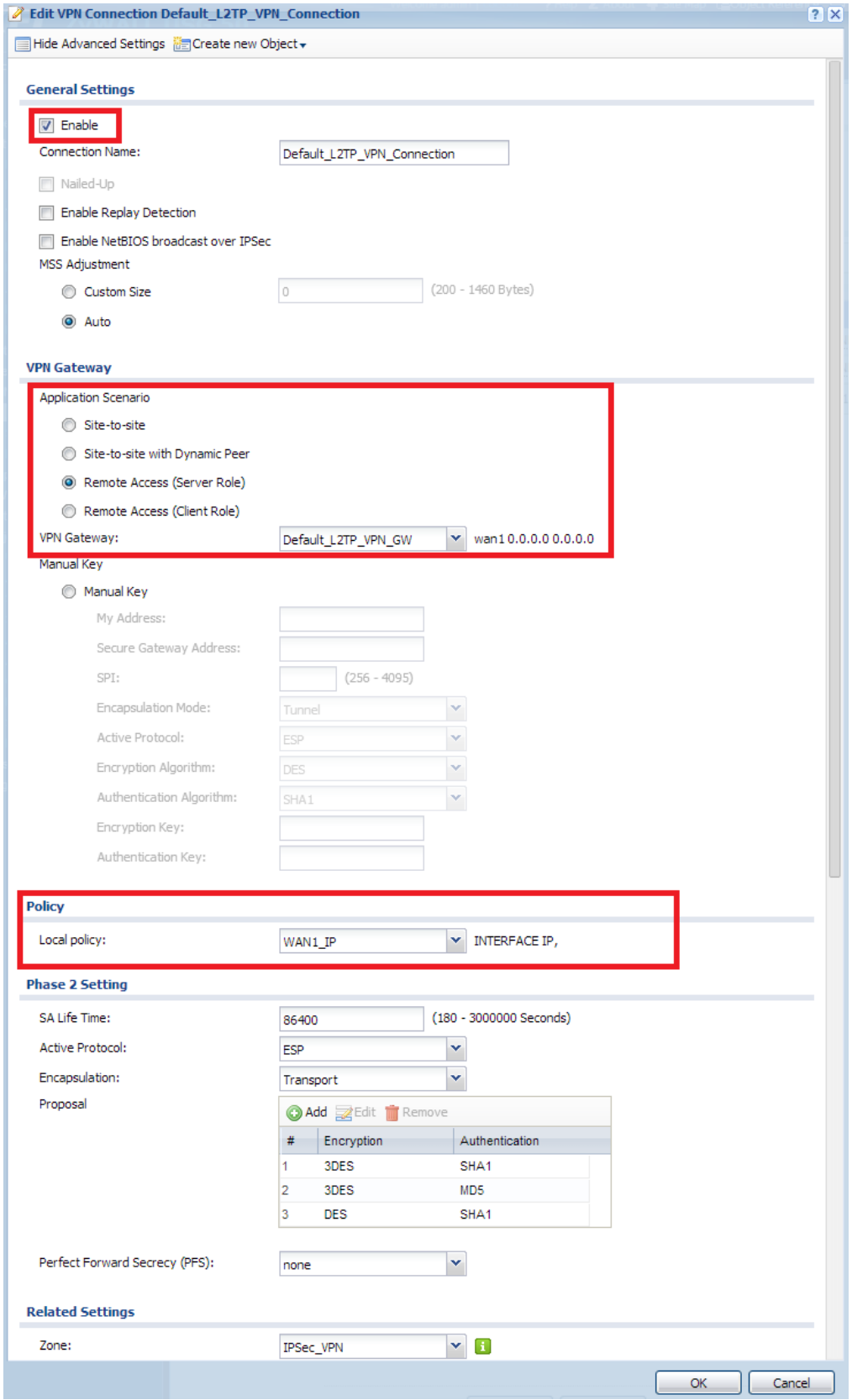


Once all necessary objects have been created go to Configuration > VPN > IPSec VPN to start setting up the L2TP VPN policies. On the "IPSec VPN" menu click on the "VPN Gateway" tab. You will see a default rule called "Default_L2TP_VPN_GW". Click on the rule to highlight it then click the "Edit" button across the top. Once the policy editor is open check the box to "Enable" the rule, under gateway settings select the correct WAN connection interface for L2TP VPN's and create a "Pre-Shared Key" in the authentication option.

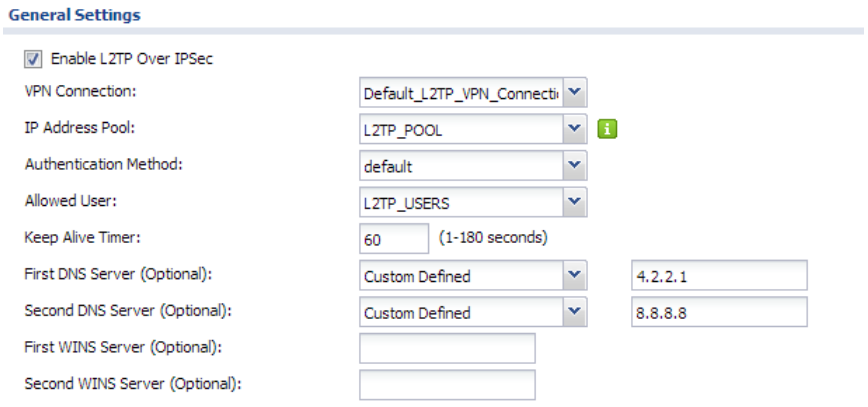
WARNING!! DO NOT CHANGE THE DEFAULT ENCRYPTION OR AUTHENTICATION IN THE VPN GATEWAY OR VPN CONNECTION. THE DEFAULT RULES ARE SET THE WAY THEY ARE BECAUSE THAT IS HOW L2TP NEEDS TO BE SET IN ORDER TO WORK. CHANGING EITHER CAN RESULT IN YOUR TUNNEL NOT ESTABLISHING!


Edit VPN Gateway Default_L2TP_VPN_GW
Hide Advanced Settings
General Settings
Enable
VPN Gateway Name:
Default_L2TP_VPN_GW
Gateway Settings
My Address
Interface
wan1
Static --
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
yourpassword
Certificate
default
(See My Certificates)
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
Add
Edit
Remove
Encryption Authentication
1 3DES SHA1
2 3DES MD5
3 DES SHA1
Key Group:
DH2
NAT Traversal
Dead Peer Detection (DPD)
Extended Authentication
Enable Extended Authentication
Server Mode
default
Client Mode
User Name :
Password:
Retype to Confirm:
OK
Cancel

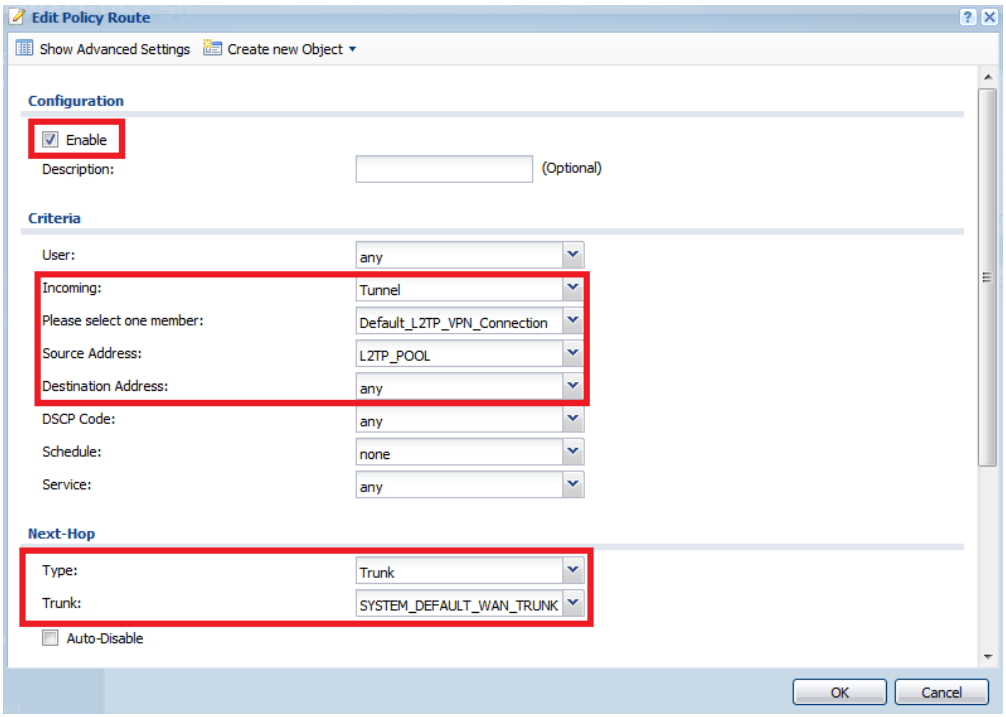
Now that VPN Gateway is configured click on the "VPN Connection" tab and edit the "Default_L2TP_VPN_Connection" policy. Enable the rule, select "Remote Access (Server Role)" for the application scenario and under Policy select the address object you created for the WAN IP address.


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
MSS Adjustment
Custom Size
0
(200 - 1460 Bytes)
Auto
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
wan1 0.0.0.0 0.0.0.0
Manual Key
Manual Key
My Address:
Secure Gateway Address:
SPI:
(256 - 4095)
Encapsulation Mode:
Tunnel
Active Protocol:
ESP
Encryption Algorithm:
DES
Authentication Algorithm:
SHA1
Encryption Key:
Authentication Key:
Policy
Local policy:
WAN1_IP
INTERFACE IP,
Phase 2 Setting
SA Life Time:
86400
(180 - 3000000 Seconds)
Active Protocol:
ESP
Encapsulation:
Transport
Proposal
Add
Edit
Remove
Encryption Authentication
1 3DES SHA1
2 3DES MD5
3 DES SHA1
Perfect Forward Secrecy (PFS):
none
Related Settings
Zone:
IPSec_VPN
OK
Cancel

Now that the IPSec VPN portion of the L2TP has been configured go to Configuration > VPN > L2TP VPN to setup the L2TP portion. Check the box to "Enable L2TP Over IPSec", for the VPN Connection option click ont he dropdown and select the "Default_L2TP_VPN_Connection" rule that was configured on the previous step. For IP Address Pool click the dropdown and select the address object you created with the range of addresses. For Allowed User click on the dropdown and select the user group you created for the L2TP users. By default L2TP clients are programmed to send all traffic through the VPN connection which means internet traffic from the clients will be sent through the tunnel. Setup DNS servers which the L2TP users will be able to use to access the internet through the ZyWALL.



To allow the L2TP users internet access a policy route needs to be created under Configuration > Network > Routing > Policy Route. This route will specify that Incoming traffic from a "Tunnel", tunnel member being the "Default_L2TP_VPN_Connection", the source address is the range of L2TP IP addresses and the destination being any. The next-hop for this traffic should be Type "Trunk" and the trunk member will be the "SYSTEM_DEFAULT_WAN_TRUNK"


Edit Policy Route
Show Advanced Settings
Create new Object
Configuration
Enable
Description:
(Optional)
Criteria
User:
any
Incoming:
Tunnel
Please select one member:
Default_L2TP_VPN_Connection
Source Address:
L2TP_POOL
Destination Address:
any
DSCP Code:
any
Schedule:
none
Service:
any
Next-Hop
Type:
Trunk
Trunk:
SYSTEM_DEFAULT_WAN_TRUNK
Auto-Disable
OK
Cancel