

Setting up a GRE tunnel between RUT and Cisco device via Cisco CLI



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Introduction

Generic Routing Encapsulation (GRE) is a tunneling protocol that can encapsulate a wide variety of network layer protocols inside virtual point-to-point links over an Internet Protocol network.

This article provides an extensive configuration example with details on how to create a tunnel connection between two GRE Tunnel instances, one of which is configured on RUTxxx router and the second one on Cisco device using CLI.

Prerequisites

You will need:

- One RUTxxx router
- One Cisco router (this configuration example was created using Cisco ISR4321 Router)
- A PC to configure the routers
- PuTTY or similar terminal program
- Both routers must have a Public Static or Public Dynamic IP addresses

Configuration scheme



Cisco configuration

First, open PuTTY, and connect to router, enter routers **LAN IP** (in this example - 192.168.5.1), choose connection type, we are using **Telnet**, and press **Open**. Then depending on your router you might need to enter **username** and **password** in terminal.



After you are connected, create and configure GRE tunnel interface:

To enter configuration mode, execute command:

```
GRE_Cisco#configure terminal
```

Then execute following commands:

```
GRE_Cisco(config)# interface Tunnel0
GRE_Cisco(config-if)# ip address 172.16.0.2 255.255.255.0 # GRE Tunnel IP
address and mask
GRE_Cisco(config-if)# ip mtu 1400
GRE_Cisco(config-if)# ip tcp adjust-mss 1360
GRE_Cisco(config-if)# tunnel source 84.x.x.2 # CISCO side WAN IP
GRE_Cisco(config-if)# tunnel destination 8.x.x.1 # RUT Side WAN IP
GRE_Cisco(config-if)# exit
```

To add route to RUT's local network execute:

```
GRE_Cisco(config)# ip route 192.168.1.0 255.255.255.0 172.16.0.1
```

With this, if you followed steps correctly Cisco Routers configuration should be finished.

RUT configuration

Connect to router's **WebUI**, go to **Services > VPN > GRE Tunnel**. Enter a name for your GRE instance, click **ADD** and when instance appears in **GRE Configuration** field, click **Edit**.



Then apply the configuration presented below:



1. **Enable** instance.
2. Select **Tunnel source** (here we are using Mobile (PPP) connection).
3. Enter **Remote endpoint IP address** (Public IP of Cisco router).
4. Change **MTU** value to 1400 (it was set in Cisco router using this command: *GRE_Cisco(config-if)# ip mtu 1400*).
5. Set **Local GRE interface IPv4 address** to 172.16.0.1
6. Enter **Local GRE interface netmask** - 255.255.255.0
7. When creating new GRE interface you will first have to press **Add** in **Routing Settings** before entering following information.
8. Enter **Remote subnet IP address** - 192.168.5.0
9. Enter **Remote subnet netmask** - 255.255.255.0
10. Press **Save**

Testing configuration

If all steps were followed correctly, tunnel interface should be active. But as with any other configuration, it is always wise to test the setup in order to make sure that it works properly. In order to test the GRE Tunnel connection, login to RUT WebUI and go to **Services → CLI**. Login with

user name: **root** and the router's admin password. From there you should then be able to **ping** the opposite instance's virtual IP address. To use a ping command, type **ping <Cisco_ip_address>** and press the "Enter" key on your keyboard. You can also check it from Cisco routers side, connect to router with PuTTY or equivalent program and use same ping command **ping <RUT_ip_address>**.



If ping requests are working, yours setup ready to use! If not please review the steps in this example once more.