RUTX DMVPN

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Introduction

Dynamic Multipoint VPN (**DMVPN**) is a dynamic tunneling form of a virtual private network (VPN) supported on Cisco routers. This article contains step-by-step instructions on how to configure DMVPN between a "HUB" and two "Spokes" using RUTXxx routers.

Prerequisites

You will need:

- At least two RUTXxx routers
- A PC to configure the routers
- HUB has to be reachable from spokes (HUB must have Public IP address, or has to be in the same WAN network as Spokes)

Configuration scheme

Spoke configuration

This section contains information on how to configure DMVPN **Spokes**. Firstly, we'll configure the DMVPN instance to make the connection possible. Then we'll set the **Border Gateway Protocol** (**BGP**) parameters as our dynamic routing solution.

Note: at the moment, BGP is the only stable dynamic routing solution that can work with DMVPNs.

STEP 1: Connect to router's **WebUI**, go to **Services > VPN > DMVPN**. Enter a name for your DMVPN instance, click **ADD** and when instance appears in **DMVPN CONFIGURATION** field, click **Edit**.

STEP 2: Configure DMVPN settings.

1. **Enable** instance.
2. Select **Working mode** (Spoke).
3. Enter **HUB Address** (HUB WAN IP).
4. Select **Tunnel source** (select your WAN interface).
5. Write **Local GRE interface IP address** (create GRE tunnel IP address or just use the same as in the example).
6. Write Remote **GRE interface IP address** (create GRE tunnel IP address or just use the same as in the example).
7. Add **GRE MTU** (largest PDU size of any single transaction).
8. Write **GRE keys** (it must match with HUB and other Spokes).
9. Add **Pre-shared key** (it must match HUB and other Spokes).
10. Write **IKE lifetime** (how long the keying channel of a connection should last before being renegotiated). **P.S.** do that in **PHASE 1** and **PHASE 2**.
11. Leave everything else as default and click **Save & Apply**.

STEP 3: Go to **Network > Routing > Dynamic Routes > BGP** and make the necessary configuration.

1. **Enable** instance.
2. **Enable vty** instance.
3. Enable **BGP Instance**.
4. Add **AS** (Autonomous system name, it must match with other Spokes).
5. Write **BGP router ID** (SPOKE GRE Tunnel IP).
6. Add **Network** (SPOKE LAN network IP with subnet mask).
7. Select **Redistribution options**.
8. Write a **Name** of the new instance (anything you want).
9. Press **Add** button and then new BGP peer will appear.
10. Add **REMOTE AS** (HUB GRE Tunnel IP).
11. Write **REMOTE ADDRESS** (HUB GRE IP).
12. **Enable** peer.
13. Leave everything else as default and click **Save & Apply**.

Repeat this on different routers as many times as the number of Spokes that you need. Remember that other Spokes will have different LAN, WAN and GRE IP addresses.

HUB configuration

This section contains information on how to configure DMVPN HUB.

STEP 1: Connect to router's **WebUI**, go to **Services > VPN > DMVPN**. Enter a name for your DMVPN instance, click **ADD** and when instance appears in **DMVPN CONFIGURATION** field, click **Edit**.

STEP 2: Configure DMVPN settings.

1. **Enable** instance.
2. Select **Working mode**.
3. Select **Tunnel source** (select your WAN interface).
4. Write **Local GRE interface IP address** (create GRE tunnel IP address or just use the same as in the example).
5. Write **Local GRE interface netmask**.
6. Add **GRE MTU** (largest PDU size of any single transaction).
7. Write **GRE keys** (it must match with HUB and other Spokes).
8. Add **Pre-shared key** (it must match HUB and other Spokes).
9. Write **IKE lifetime** (how long the keying channel of a connection should last before being renegotiated). **P.S.** do that in **PHASE 1** and **PHASE 2**.
10. Leave everything else as default and click **Save & Apply**.

STEP 3: Go to **Network > Routing > Dynamic Routes > BGP** and make the necessary configuration.

1. **Enable** instance.
2. **Enable vty** instance.
3. Enable **BGP Instance**.
4. Add **AS** (Autonomous system name).
5. Write **BGP router ID** (HUB GRE Tunnel IP).
6. Add **Network** (HUB LAN network IP with subnet mask).
7. Select **Redistribution options**.
8. Write **BGP PEER GROUP NAME** (anything you want).
9. Press **ADD** button and then new BGP PEER GROUP will appear.
10. Add **REMOTE AS** (it must match AS of other DMVPN spokes).
11. Leave everything else as default and click **Save & Apply**.

Testing configuration

Access **HUB** and **Spoke WebUI**, check whether new routes appeared (it should look similar to the examples).

SPOKE:

HUB: