https://wiki.teltonika-networks.com/view/Policy_Based_Routing

Policy Based Routing

The information on this page is updated in accordance with the **00.07.07.1** firmware version.

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Contents

Introduction

Policy-based routing (PBR) is a technique used in computer networking to direct network packets based on defined criteria beyond the standard destination-based routing. Unlike traditional routing, which forwards packets solely based on their destination address, PBR allows to customize routing decisions according to various factors.

With policy-based routing you can implement specific rules or policies to dictate the path that packets should take through the network. This flexibility enables organizations to optimize traffic flow, prioritize certain types of traffic, enforce security measures, and manage network resources more efficiently.

Prerequisites & Topology

Before proceeding with the configuration, ensure that all requirements are met:

1. Before starting you need to have 3 different WAN connections. In this case we are going to use: **Wi-fi WAN**, **Wired WAN** and **Mobile WAN**.These interfaces have to be preconfigured.

Configuration

If you're having trouble finding this page or some of the parameters described here on your device's WebUI, you should **turn on "Advanced WebUI" mode**. You can do that by clicking the "Advanced" button, located at the top of the WebUI.

Configuring VLANs

Open router's **WebUI** and navigate to **Network → VLAN → Port Based** configuration:

Port based VLAN

Add new VLANs by clicking and Make following changes:

1. VLAN ID: **1** | lan1: **Untagged** | Lan2: **Off** | Lan3: **Off** | lan4: **Untagged** | Wan: **Off**
2. VLAN ID: **3** | lan1: **Off** | Lan2: **Untagged** | Lan3: **Off** | lan4: **Off** | Wan: **Off**
3. VLAN ID: **5** | lan1: **Off** | Lan2: **Off** | Lan3: **Untagged** | lan4: **Off** | Wan: **Off**

Configuring Different LAN Networks

Open router's **WebUI → Network → LAN** click ![x]on current available LAN interface configuration:

LAN1 General Settings

Make the following changes:

1. Enter Name : **LAN_VLAN_ETH0**
2. Enter IPV4 address: **192.168.100.1**
3. Select IPV4 netmask: **255.255.255.0**

![x]

LAN1 Physical Settings

Make the following changes:

1. Select Interface : **eth0**

![x]

Add new LAN netwrok by clicking ![x] and Make following changes:

LAN2 General Settings

Make the following changes:

1. Enable Interface: **on**
2. Enter Name : **LAN_VLAN_3**
3. Enter IPV4 address: **192.168.3.1**
4. Select IPV4 netmask: **255.255.255.0**
5. Enable DHCPv4: **on**

![x]

LAN2 Physical Settings

Make the following changes:

1. Select Interface : **eth0.3**

![x]

Add new LAN netwrok by clicking and Make following changes:

LAN3 General Settings

Make the following changes:

1. Enable Interface: **on**
2. Enter Name : **LAN_VLAN_5**
3. Enter IPV4 address: **192.168.5.1**
4. Select IPV4 netmask: **255.255.255.0**
5. Enable DHCPv4: **on**

LAN3 Physical Settings

Make the following changes:

1. Select Interface : **eth0.5**

After configuring all LAN interfaces the end result should look something like this:

Configuring Policy Based Routing

Open **WebUI → Network → Routing → Policy based routing → Add new instance** and create new instances for each available WAN in this case Wi-Fi WAN, Wired-WAN and Mobile:

Creating Wifi Wan Routing Table

Add new instance:

1. Enter ID: **1**
2. Enter New configuration name: **WifiWan**

click in the new window make following changes:

Static IPv4 Routes

click ![x] and apply this to the route:

1. Select Interface: **WifiWan** | Enter Target: **0.0.0.0** | Enter IPv4-Netmask: **0.0.0.0** | Enter IPv4-Gateway: **192.168.1.1 (Note: Use the Wi-Fi network's gateway. The current LAN gateway in use is 192.168.100.1. However, the correct gateway to route correctly will be the next hop address. This means the router gateway providing the Wi-Fi WAN should be used. In my case, this gateway is 192.168.1.1.)**

![x]

Creating Wired Wan Routing Table

Add new instance:

1. Enter ID: **3**
2. Enter New configuration name: **WiredWan**

![x]

click ![x] in the new window make following changes:

Static IPv4 Routes

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click ![x] and apply this to the route:

1. Select Interface: **Wan** | Enter Target: **0.0.0.0** | Enter IPv4-Netmask: **0.0.0.0** | Enter IPv4-Gateway: **192.168.10.1**

![x]

Creating Mobile Wan Routing Table

Add new instance:

1. Enter ID: **5**
2. Enter New configuration name: **MWan**

![x]

click ![x] in the new window make following changes:

Static IPv4 Routes

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click ![x] and apply this to the route:

1. Select Interface:**mob1s1a1** | Enter Target: **0.0.0.0** | Enter IPv4-Netmask: **0.0.0.0**

Creating Routing Rules for IPv4

Routing Rules for IPv4

By clicking create 3 rules under **Routing Rules for IPv4** tab apply these changes to the rules:

Policy Rule 1

1. Enter Priority: **1**
2. Select Incoming interface: **LAN_VLAN_ETH0**
3. Select Outgoing interface: **None**
4. Select Matched Traffic Action: **Lookup Table**
5. Lookup Table: **WifiWAN(1)**

Policy Rule 2

1. Enter Priority: **1**
2. Select Incoming interface: **LAN_VLAN_3**
3. Select Outgoing interface: **None**
4. Select Matched Traffic Action: **Lookup Table**
5. Lookup Table: **WiredWan(3)**

Policy Rule 3

1. Enter Priority: **1**
2. Select Incoming interface: **LAN_VLAN_5**
3. Select Outgoing interface: **None**
4. Select Matched Traffic Action: **Lookup Table**
5. Lookup Table: **MWan(5)**

NOTE: Delete all Autimatic or unrelated routing rules

Configuration testing

Connect end device to physical port that is assingned to different routing policy. Open cmd and run this command: **tracert 8.8.8.8**, three physical ports that we assigned to diffrent Vlans route to 8.8.8.8 should be using different gateways and public addresses visit to check if address changes whatismyipaddress.

Public IP addresses that are used in my topology:

1. WiFi WAN: **78.xxx.xxx.xxx**
2. Wired WAN: **213.xxx.xxx.xxx**
3. Mobile WAN: **84.xxx.xxx.xxx**

Physical Port 1 Test Result

Physical Port 2 Test Result

Physical Port 3 Test Result

Policy Based Routing on a single Host

Single Host Routing Topology

Wired WAN Routing Policy Priority Change

Open WebUI → Network → Routing → Policy based routing → Routing Rules for IPv4 and click on **Policy Rule 2**

Make following changes:

1. Set Priority: **2**

Creating New Routing Policy Rule

Open **WebUI → Network → Routing → Policy based routing**

Creating Single Node Routing Table Over WifiWan

Add new instance:

1. Enter ID: **7**
2. Enter New configuration name: **Node**

click in the new window make following changes:

Static IPv4 Routes

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click and apply this to the route:

1. Select Interface: **WifiWan** | Enter Target: **0.0.0.0** | Enter IPv4-Netmask: **0.0.0.0** | Enter IPv4-Gateway: **192.168.1.1**

Routing Rules for IPv4

By clicking create rule under **Routing Rules for IPv4** tab apply these changes to the rules:

Policy Rule 4

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1. Enter Priority: **1**
2. Select Incoming interface: **LAN_VLAN_3**
3. Select Outgoing interface: **None**
4. Enter Source subnet: **192.168.3.246/32**
5. Select Matched Traffic Action: **Lookup Table**
6. Lookup Table: **Node (7)**

Testing the Policy Route

External links

1. https://wiki.teltonika-networks.com/view/Splitting_Network_Traffic_Via_Multiple_Interfaces