

# Load Balancing

1. Disable Failover and SIM Switch firstly.

Failover is disabled as default, but SIM Switch is enabled by default.

- a. Goto Services → Failover to disable Failover.

The screenshot shows the 'Failover Configuration' page. On the left is a navigation menu with categories: Status, System, Services, Network, and Logout. Under 'Services', 'Failover' is selected. The main content area is titled 'Failover Configuration' and contains 'Failover Settings' and 'Primary Configuration'. In 'Failover Settings', 'Enable' is unchecked and 'Back To High priority' is checked. In 'Primary Configuration', 'Primary' is set to 'Wired\_wan'. Other fields include 'Host1 to ping', 'Host2 to ping', 'Ping timeout' (1), 'Max Retries' (10), and 'Interval between ping' (30).

- b. Goto Network → Mobile → SIM Switch, set "Enable SIM switch" to unchecked. And click button "Save & Apply"

The screenshot shows the 'Cell Switch Configuration' page. The left navigation menu has 'Network' selected, and 'Mobile' is highlighted. The main content area has tabs for 'General' and 'SIM Switch', with 'SIM Switch' active. It is titled 'Cell Switch Configuration'. 'Master SIM' is set to 'SIM 1'. 'Enable SIM switch' is unchecked. Below is a 'Switch Rules' section with several options: 'On Time', 'On ICMP check', 'On signal strength', 'On dial fail', 'On data limit', and 'Switch to master', all of which are unchecked.

2. Open page Network → Load Balancing. Load Balancing is disabled by default.

3. Goto Configuration → Interface page.

Interface	Enabled	Tracking IP	Tracking reliability	Tracking count	Ping timeout	Ping interval	Interface down	Interface up	Metric	Errors	Sort
wan	Yes	8.8.4.4 8.8.8.8	2	1	2s	5s	3	8	—	0	+
wwan	No	8.8.8.8	1	1	2s	5s	3	8	—	0	+
ifmobile	Yes	8.8.8.8	1	1	5s	30s	3	8	11	0	+
ifmobile2	Yes	8.8.8.8	1	1	5s	30s	3	8	12	0	+

There are 4 default interfaces. Wan is wired wan, wwan is wifi client, ifmobile is cell 1 interface. Ifmobile2 is cell 2 interface.

The metric of ifmobile and ifmobile2 are set to 11 and 12.

The default metric for wan and wwan are 0. If we want to add wan or wwan into Load Balancing, we must modify default metric to other value rather than 0.

4. Edit interface ifmobile. Click button “Edit” behind ifmobile. Set “Enabled” to checked to use this interface in Load Balancing. After configuring is done, click button “Save & Apply”.

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- Services
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  - Operation Mode
  - Mobile
  - LAN
  - Wired WAN
  - WAN IPv6
  - Interfaces
  - Wi-Fi
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  - Static Routes
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  - DHCP and DNS
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  - Dynamic Routing
  - Diagnostics
  - QoS
  - Load Balancing

Overview | Configuration | **Advanced**

General | **Interfaces** | Members | Policies | Rules

### MWAN Interface Configuration - ifmobile

Enabled

Tracking IP

Tracking reliability

Ping count

Ping timeout

Ping interval

Interface down

Interface up

Metric 11

[Back to Overview](#) [Save & Apply](#) [Save](#) [Reset](#)

5. Goto Configuration → Members page.

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Overview | Configuration | **Advanced**

General | Interfaces | **Members** | Policies | Rules

### MWAN Member Configuration

#### Members

Members are profiles attaching a metric and weight to an MWAN interface  
 Names may contain characters A-Z, a-z, 0-9, \_ and no spaces  
 Members may not share the same name as configured interfaces, policies or rules

Member	Interface	Metric	Weight	Sort	
wan_m1_w3	wan	1	3	↑ ↓	<a href="#">Edit</a> <a href="#">Delete</a>
wan_m2_w3	wan	2	3	↑ ↓	<a href="#">Edit</a> <a href="#">Delete</a>
wifi_client_m1_w3	wwan	1	3	↑ ↓	<a href="#">Edit</a> <a href="#">Delete</a>
cell_m1_w3	ifmobile	1	3	↑ ↓	<a href="#">Edit</a> <a href="#">Delete</a>
cell2_m1_w3	ifmobile2	1	3	↑ ↓	<a href="#">Edit</a> <a href="#">Delete</a>

[Add](#)

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

6. If you don't want to use these existed member, input member name and click button "Add".

[Add](#)

7. Select interface and add metric and weight. Then click button "Save & Apply".

### MWAN Member Configuration - cell\_m1\_w2

Interface

Metric

Weight

#### Currently Configured Interfaces

- wan
- wwan
- ifmobile
- ifmobile2

8. Goto Configuration → Policies to edit the existed policy “balanced”.




### MWAN Policy Configuration


#### Policies

Policies are profiles grouping one or more members controlling how MWAN distributes traffic  
 Member interfaces with lower metrics are used first. Interfaces with the same metric load-balance  
 Load-balanced member interfaces distribute more traffic out those with higher weights  
 Names may contain characters A-Z, a-z, 0-9, \_ and no spaces. Names must be 15 characters or less  
 Policies may not share the same name as configured interfaces, members or rules

Policy	Members assigned	Last resort	Errors	Sort
<i>balanced</i>	wan_m1_w3 cell_m1_w3 cell2_m1_w3	unreachable (reject)		<input type="button" value="↑"/> <input type="button" value="↓"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>



### MWAN Policy Configuration - balanced

Member used wan\_m1\_w3   
cell\_m1\_w3   
cell2\_m1\_w3 

Last resort unreachable (reject) 

#### Currently Configured Members

- wan\_m1\_w3
- wan\_m2\_w3
- wifi\_client\_m1\_w3
- cell\_m1\_w3
- cell2\_m1\_w3

- Remove member cell\_m1\_w3 by click  after "cell\_m1\_w3". And new member cell\_m1\_w2 by click  .
- Now we have 3 members in this policy, interfaces distribute more traffic out those with higher weights. Now wan and ifmobile2 have weight 3,ifmobile has weight 2.that means if all 3 interfaces are online, then wan and ifmobile2 has 3/8 traffic out, ifmobile has 2/8 traffic out .  
Notice: all member in the same policy for Load Balancing should have same metric. Otherwise Load Balancing will use lower metric firstly.
- Goto Configuration → Rules to edit default\_rule

**Status**

---

**System**

---

**Services**

---

**Network**

Operation Mode

Mobile

LAN

Wired WAN

WAN IPv6

Interfaces

Wi-Fi

Firewall

Static Routes

Switch

DHCP and DNS

Hostnames

Loopback Interface

Dynamic Routing

Diagnostics

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## MWAN Rule Configuration

### Traffic Rules

Rules specify which traffic will use a particular MWAN policy based on IP address, port or protocol  
Rules are matched from top to bottom. Rules below a matching rule are ignored. Traffic not matching any rule is routed using the routing table  
Traffic destined for known (other than default) networks is handled by the main routing table. Traffic matching a rule, but all WAN interfaces for that policy are down will be blackholed  
Names may contain characters A-Z, a-z, 0-9, \_ and no spaces  
Rules may not share the same name as configured interfaces, members or policies

Rule	Source address	Source port	Destination address	Destination port	Protocol	Sticky	Sticky timeout	IPset	Policy assigned	Errors	Sort
default_rule	—	—	0.0.0.0/0	—	all	No	—	—	balanced		<input type="button" value="↑"/> <input type="button" value="↓"/> <input type="button" value="Edit"/> <input type="button" value="X"/>

### MWAN Rule Configuration - default\_rule

Source address

Source port

Destination address

Destination port

Protocol

Sticky

Sticky timeout

IPset

Policy assigned

### Currently Configured Policies

**balanced**

12. If everything is done, goto Configuration → General to enable Load Balancing.

Overview Configuration **Advanced**

General Interfaces Members Policies Rules

## MWAN General Configuration

Load Balancing conflicts with Failover and SIM switch

Enabled

Save & Apply Save Reset

13. Goto Overview → Interface Status to check.

Overview Configuration **Advanced**

Interface Status **Detailed Status**

### Load Balancing Status

Enabled

### Interface Live Status

wan (eth0.2) Offline	wwan (X) Disabled
ifmobile (3g-ifmobile) Online (tracking active)	ifmobile2 (wwan1) Online (tracking active)

### Interface Systemlog

```
Last 50 MWAN systemlog entries. Newest entries sorted at the top :
Fri Oct 20 14:03:55 2017 user.notice mwan3: ifup interface ifmobile2 (wwan1)
Fri Oct 20 14:03:53 2017 user.notice mwan3: ifup interface ifmobile (3g-ifmobile)
Fri Oct 20 14:03:52 2017 user.warn mwan3: Could not find gateway for interface wan (eth0.2)
```

14. Goto Overview → Detail Status. Now only ifmobile and ifmobile2 are online, so ifmobile has 40%(2/5) traffic with weight 2, and ifmobile2 has 60%(3/5) with weight 3.

Overview

Configuration

Advanced

Interface Status

Detailed Status

## MWAN Detailed Status

```
Interface status:
interface wan is offline (tracking down)
interface wwan is unknown
interface ifmobile is online (tracking active)
interface ifmobile2 is online (tracking active)

Policy balanced:
ifmobile (40%)
ifmobile2 (60%)

Known networks:
10.242.221.250
10.64.64.64
10.242.221.248/30
127.255.255.255
10.242.221.249
127.0.0.0
224.0.0.0/3
127.0.0.1
10.242.221.248
10.154.142.198
127.0.0.0/8
192.168.8.255
10.242.221.251
192.168.8.1
192.168.8.0
```

How to config metric for interface wan and wwan.

1. Goto network → interface.



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## Interfaces

### Interface Overview

Network	Status	Actions
<b>LAN</b> br-lan	Uptime: 1h 6m 55s MAC-Address: 90:22:06:80:53:62 RX: 4.18 MB (30287 Pkts.) TX: 19.80 MB (29804 Pkts.) IPv4: 192.168.8.1/24 IPv6: fdba:b091:4b04::1/60	Connect Stop Edit
<b>IFMOBILE</b> 3g-ifmobile	Uptime: 0h 42m 28s RX: 1.22 MB (3039 Pkts.) TX: 767.20 KB (4920 Pkts.) IPv4: 10.154.142.198/32	Connect Stop Edit
<b>IFMOBILE2</b> wwan1	Uptime: 0h 42m 5s MAC-Address: 2A:DF:C2:65:1B:75 RX: 4.26 MB (6404 Pkts.) TX: 965.01 KB (6728 Pkts.) IPv4: 10.242.221.249/30	Connect Stop Edit
<b>WAN</b> eth0.2	Uptime: 0h 0m 0s MAC-Address: 90:22:06:C0:53:62 RX: 0.00 B (0 Pkts.) TX: 453.98 KB (1353 Pkts.)	Connect Stop Edit
<b>WAN6</b> eth0.2	Uptime: 0h 0m 0s MAC-Address: 90:22:06:C0:53:62 RX: 0.00 B (0 Pkts.) TX: 453.98 KB (1353 Pkts.)	Connect Stop Edit

### Global network options


- Find wan or wwan, click button "Edit".

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## Interfaces - WAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation `INTERFACE.VLANNR` (e.g., eth0.1).

### Common Configuration

General Setup	Advanced Settings	Physical Settings	Firewall Settings
<p>Status  Uptime: 0h 0m 0s MAC-Address: 90:22:06:C0:53:62 RX: 0.00 B (0 Pkts.) TX: 457.23 KB (1363 Pkts.)</p>			
<p>Protocol <input type="text" value="DHCP client"/></p>			
<p>Hostname to send when requesting DHCP <input type="text" value="Cell_Router"/></p>			
<p> <input type="button" value="Back to Overview"/> <input type="button" value="Save &amp; Apply"/> <input type="button" value="Save"/> <input type="button" value="Reset"/> </p>			

- Goto Advanced Settings. Change "Use gateway metric" from 0 to 5. Then click button save & apply.

Status
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## Interfaces - WAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interface" and enter the names of several network interfaces separated by spaces. You can also use VLAN notation (INTERFACE.VLAN, eth0.1).

### Common Configuration

[General Setup](#) [Advanced Settings](#) [Physical Settings](#) [Firewall Settings](#)

Bring up on boot

Use builtin IPv6-management

Use broadcast flag

Use default gateway

Use DNS servers advertised by peer

Use gateway metric

Client ID to send when requesting DHCP

Vendor Class to send when requesting DHCP

Override MAC address

Override MTU

[Back to Overview](#)

[Save & Apply](#)

[Save](#)

[Reset](#)