

How do I setup Multi-WAN to support WAN load balancing

How to Guides

Topics

- Multi-WAN features
- Fail-over logic
- Detection logic
- Configuring Multi-WAN
- Multi-WAN Monitoring
- VLAN based source routing

Multi-WAN features

- Aggregate up to 2 (SG Express 5100/5200) or 8 (SG Pro) Internet links to achieve higher total bandwidth throughput
- Achieves Network resilience with Internet link redundancy
- Weighted Load Balancing
 - Supports 8 Gigabit WAN interface
 - Asymmetric Bandwidth
 - Different ISPs
 - Load Balancing algorithm
 - Weighted Round Robin
 - Weighted Least Connections

Multi-WAN features

- Priority Groups Support
 - Organise Internet links into 3 different priority groups which get activated/deactivated automatically, based on preferred number of active Internet links (used for load-balancing)
 - Allows setup of hot-standby Internet links
- Drop-in Mode
 - No re-configuration for existing network equipment
 - No re-configuration of clients (zero configuration)
- VPN Friendly
 - Stateful client persistence

Fail-over logic

LB Pool Activation / De-activation logic

Link status is updated for all configured links.

LB Pool is empty

All links in priority group 1 is added to LB pool

If (no. of active links in pool) < preferred no of active links

add all links in priority group 2 to LB pool

If (no. of active links in pool) < preferred no of active links

add all links in priority group 3 to LB pool

Note: Only active links in LB Pool is used for load balancing.

Fail-over logic

WAN Link	1	2	3	4	5	6	7	8
Priority	1	1	1	1	2	2	3	3

Min no of Active Links = 3

1	1	1	1	2	2	3	3	The pool requires 3, so only priority 1 is activated
1	1	1	1	2	2	3	3	1 link fails, still can meet min. active links
1	1	1	1	2	2	3	3	2 links fail, cannot meet min. active links, priority 2 added to pool
1	1	1	1	2	2	3	3	3 links fail, still can meet min. active links
1	1	1	1	2	2	3	3	4 links fail, cannot meet min. active links, priority 3 added to pool
1	1	1	1	2	2	3	3	1 link recover, priority 1 & 2 can meet min. active links. Priority 3 removed from pool. No new connections on group 3 links.
1	1	1	1	2	2	3	3	1 more link recover, priority 1 can meet min. active links. Priority 2 removed from pool. No new connections on group 2 links. All existing connections closed on Group 3 link

Detection logic

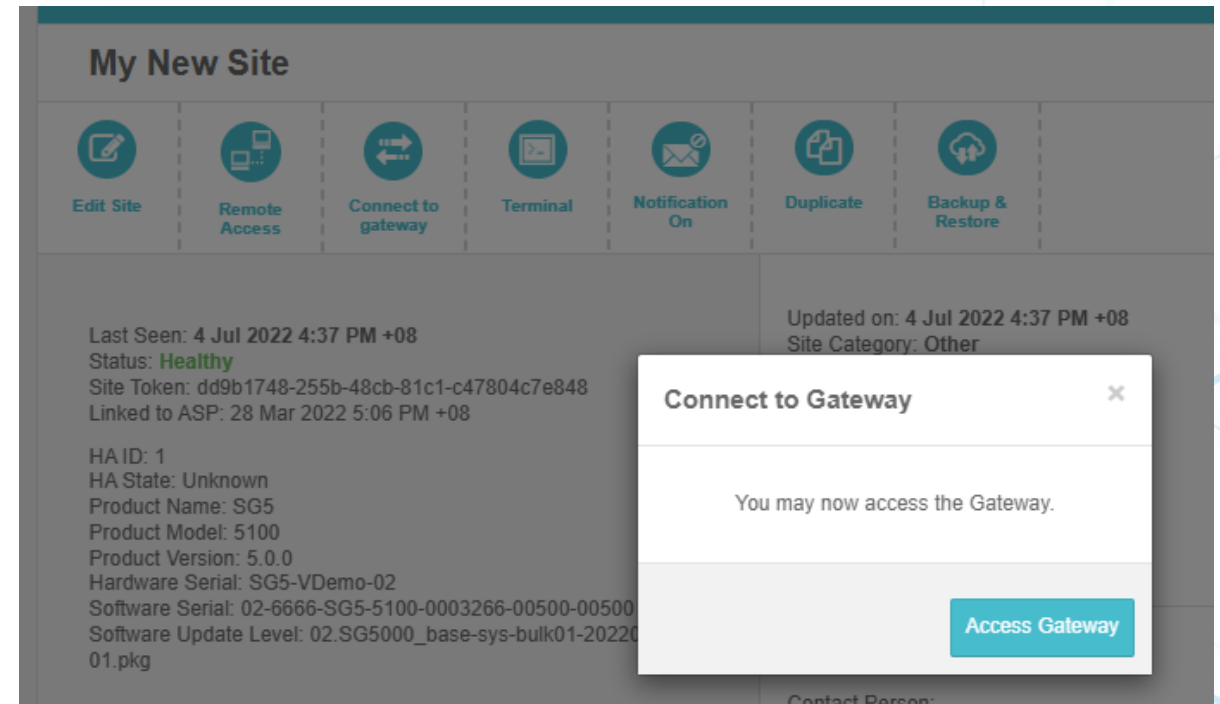
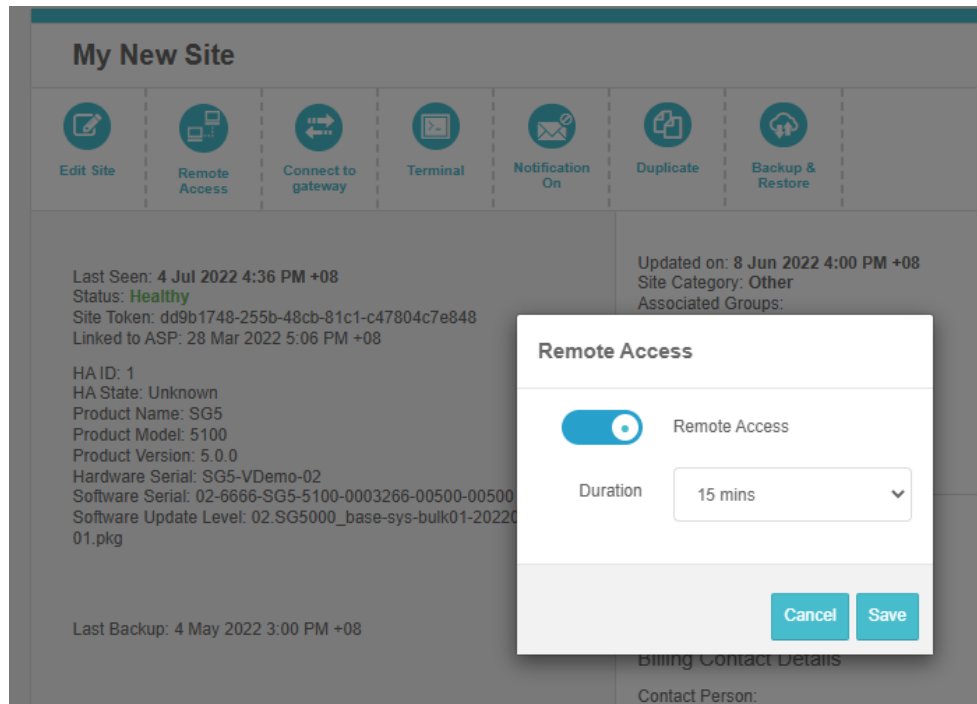
- Fail-over
 - Internet link failure detection (within 2 mins)
 - Enhanced Link Detection
 - arping of next-hop router
 - ping of a configured node
 - Configured link utilization threshold check via SNMP probes
 - Non-responsive Internet link marked down

Configuring Multi-WAN

- Ensure you have allocated the Multi-WAN module to the site

Configuring Multi-WAN

- Enable **Remote Access** on site and click **Connect to Gateway** and login to Gateway GUI



Configuring Multi-WAN

- Select **Network > WAN**, click **Add** to add the additional WAN links

Add						
Name	VLAN ID	IP Address	Gateway	Default Interface	Source NAT Address Range	Description
WAN		DHCP	DHCP	☒		WAN Interface

Configuring Multi-WAN

- Select **Network > WAN**, click **Add** to add the additional WAN links
- Depending on the model, you can configure up to 2 or 8 WAN links using either physical ports or VLANs

The screenshot displays the configuration page for a new WAN interface. The form includes the following fields and options:

- Name:** WAN 2
- Ethernet:** WAN
- VLAN ID:** 50
- Description:** WAN 2
- Default Interface:** A toggle switch that is currently turned off.
- Default Gateway:** Physical IP Gateway
- Mode:** DHCP. Below this is a link: [Configure static IP to overwrite dynamic IP »](#)
- Physical IP - ID 1:** A section header for the first physical IP configuration.
- Physical IP - ID 2:** A section header for the second physical IP configuration.
- Floating IP:** A section header for floating IP configuration.
- Enabled:** A toggle switch that is currently turned off.
- Source NAT:** A section header for source NAT configuration.
- Source NAT Address Range:** Two input fields labeled "First IP" and "Last IP".

Configuring Multi-WAN

- Select **Network > WAN > Load Balancer**
- Enable Load Balancer
- Select Algorithm
 - Weighted Least-Connection
 - Weighted Round-Robin
- Enable Priority
 - To configure standby links
- Enable Individual WAN links

The screenshot displays the configuration interface for Multi-WAN. At the top, the 'Load Balancer' toggle is enabled, with a note 'Applies to LAN traffic only'. The 'Algorithm' is set to 'Weighted Least-Connections'. The 'Enable Priority' toggle is also enabled, and the 'Preferred No. of Active WAN Members' is set to 2.

Below this, there are two sections for individual WAN links:

- WAN 1:**
 - 'Enabled' toggle is on.
 - 'Weight' is set to 1.
 - 'Probe IP' toggle is off.
 - 'Priority' is set to 1, with a note 'Highest: 1'.
- WAN 2:**
 - 'Enabled' toggle is on.
 - 'Weight' is set to 1.
 - 'Probe IP' is set to 127.0.0.1.
 - 'Priority' is set to 1, with a note 'Highest: 1'.

At the bottom right, there are 'Save' and 'Cancel' buttons.

Configuring Multi-WAN

- Enable Individual WAN links
 - Set Weight
 - Higher value means more
 - Configure custom Probe IP
 - If not enabled, probe will be using WAN gateway
 - Set Priority
 - Set priority group for each link
 - Highest group is 1

The screenshot displays the Multi-WAN configuration interface. At the top, the 'Load Balancer' toggle is enabled, with a note 'Applies to LAN traffic only'. Below it, the 'Algorithm' is set to 'Weighted Least-Connections'. The 'Enable Priority' toggle is also enabled, and the 'Preferred No. of Active WAN Members' is set to 2.

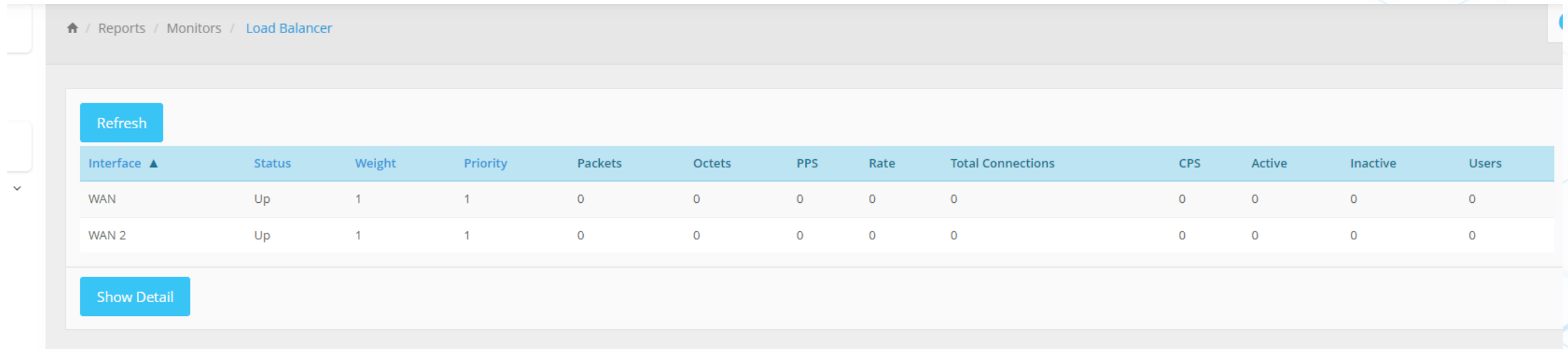
There are two WAN link configurations shown:

- WAN 1:**
 - 'Enabled' toggle is on.
 - 'Weight' is set to 1.
 - 'Probe IP' toggle is off.
 - 'Priority' is set to 1 (Highest: 1).
- WAN 2:**
 - 'Enabled' toggle is on.
 - 'Weight' is set to 1.
 - 'Probe IP' is set to 127.0.0.1.
 - 'Priority' is set to 1 (Highest: 1).

At the bottom right, there are 'Save' and 'Cancel' buttons.

Multi-WAN Monitoring

- Click on **Reports > Monitors > Load Balancer** to view the status of the Load Balancing.



🏠 / Reports / Monitors / Load Balancer

Refresh

Interface ▲	Status	Weight	Priority	Packets	Octets	PPS	Rate	Total Connections	CPS	Active	Inactive	Users
WAN	Up	1	1	0	0	0	0	0	0	0	0	0
WAN 2	Up	1	1	0	0	0	0	0	0	0	0	0

Show Detail

Multi-WAN Monitoring

The Load Balancer Monitors table shows the following information:

- 1.Interface** – Interface's name
- 2.Status** – Interface's status (Up, down)
- 3.Weight** – Load balancing weight applied to the interface
- 4.Priority** – Priority group assigned to the link
- 5.Packets** – Number of packets
- 6.Octets** – Number of octets
- 7.PPS** – Packets per Second
- 8.Rate** – Data transfer rate
- 9.Total connections** – Number of client connections received by this interface
- 10.CPS** – Connections per Second
- 11.Active** – Number of active connections
- 12.Inactive** – Number of inactive connections
- 13.Persistent** – Number of persistent connections

The **Show Detail** button will display current clients connected to the respective interfaces.

VLAN based Source Routing

- VLAN based source routing can be configured under **Network > Static Routes > Source** to pre-define which WAN link is the preferred link to use for a specific VLAN.
- This is useful to define certain VLANs for VIP users and make sure that their traffic is always sent out through a higher performance WAN link.
- If the selected WAN link is down, then the VLAN traffic is fail-over to any available link.

Home / Network / Static Routes

Destination Source

* VLAN 10 (Room 10)

* WAN WAN 2

Add Cancel

Learning Summary

You have learned the features of ANTLabs Multi-WAN module.

In addition, you have also learned how to configure multiple WAN links and enable WAN load-balancing across them.

You also learned how to configure selective downstream VLANs to route through specific WAN links.