GARLAND
TECHNOLOGY

See every bit, byte, and packet®

PacketMAX™ Advanced Aggregator
GAA10G20AC | 1.19.2

User Manual

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Introduction

The GAA10G20AC is a unique device from Garland Technology that incorporates two separate units housed in the same chassis. The units have been designed to fit in a chassis that is only 13 inches deep. This allows the GAA10G20AC to be deployed in special applications. The chassis also provides the ability to power two units using two redundant power sources. Each unit is managed independently allowing them to operate in separate applications providing up to 10x 1G/10G ports each. However, they are also connected together via 2x1G/10G internal ports that allow for traffic to be switched between the units.

1/2 Rack 1U Chassis Specifications

Max. system throughput:
Support for: SFP(SX, LX and TX) and SFP+ (SR, LR, ER)
Operating Temp: 0 to 40° C or 32 to 104° F
Operating Humidity: 5 to 95%
Dimensions: 17.5" L x 1.72" H x 17.4" W (444.5mm L x 43.68 mm H x 441.96mm W)
Fixed AC Power (2)

1 Dashboard

The Dashboard of the GAA10G10AC is divided into 2 sections.

> System
> Packet Broker

1.1 System

The System section of the Dashboard consists of the following.

PS2	Power Supply 2 LED
PS1	Power Supply 1 LED
SYS	System LED
Ethernet Interface	Upper Left LED
Serial Interface	Lower Right LED
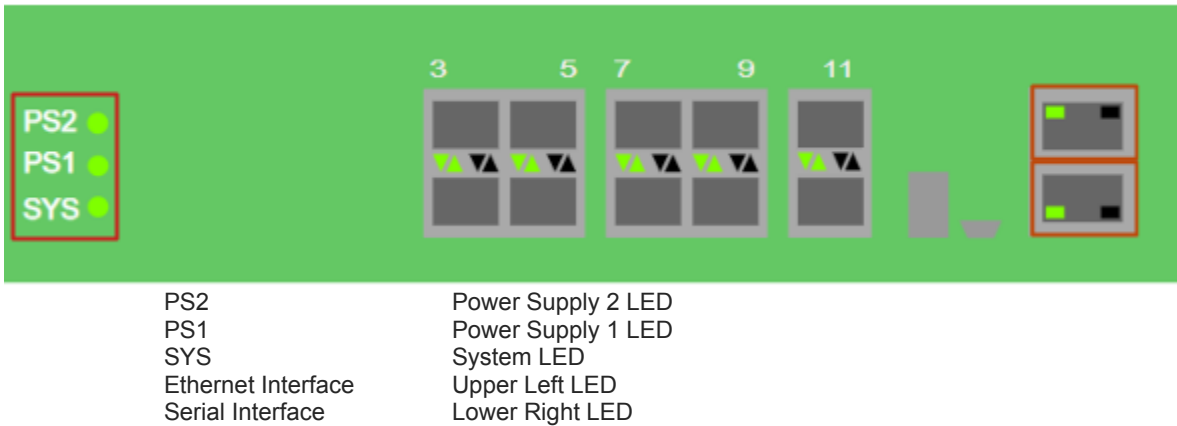
1.2 Packet Broker

The Packet Broker Section of the Dashboard consists of the following.

Port 3 thru 11 (odd) Up Arrows	Link/Activity LED
Port 4 thru 12 (even) Down Arrows	Link/Activity LED
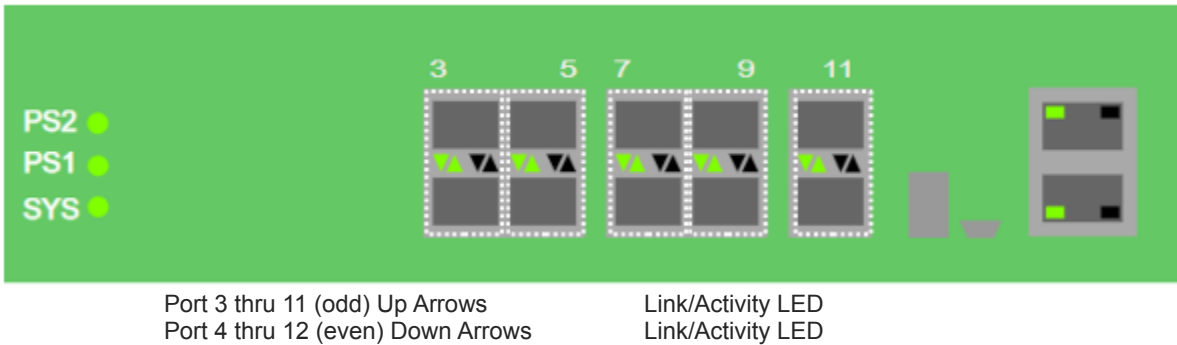
2 System

The following configuration options may be displayed, modified, enabled or disabled under the System panel.

System Info	SNMP
General	Export Configuration
Admin	Import Configuration
Network Settings	Software Upgrade
Date & Time	Reboot
Syslog	
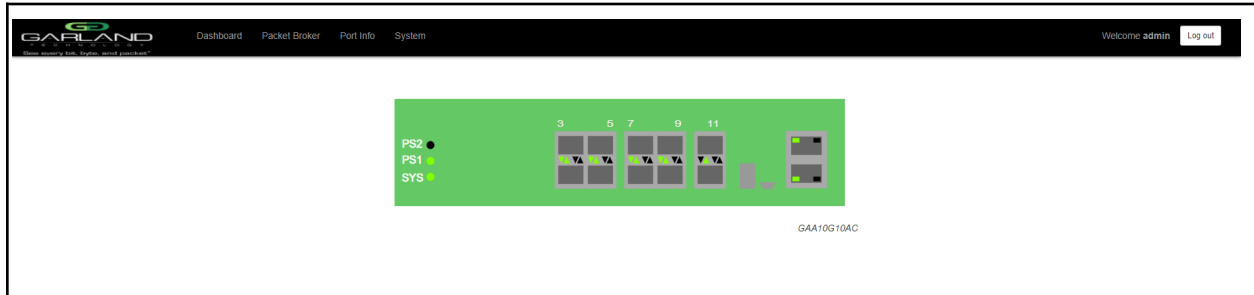
1. Select System on the Dashboard Menu bar.

The System panel will be displayed. The System configuration options will be displayed on the left side of the System panel.

2.1 System Info

The System Information is displayed by default. The System Information panel displays the following.

> Chassis Name
> Chassis Model
> Chassis Serial Number
> MAC Address
> Software Version

2.2 General

The following configuration options may be displayed or modified.

> Chassis Name
> Key Press Timeout

1. Select General.

> The panel will display the current configuration.

2. Select Edit Configuration.

3. Enable, disable or modify the desired options.

4. Select Save to save updates.

5. Select Cancel to return to the General System Settings panel.

2.3 Admin

The following configuration options may be displayed, modified, enabled or disabled.

> Groups
> Users
> Local Authentication
> TACACS Authentication

1. Select Admin.

> The panel will display the current configuration.

The default user is "admin/gtadmin1". The "admin" user privileges are defined by the default group "admin". Changes to the default user "admin" and group "admin" are allowed. However, the "admin" user or group "admin" may not be deleted.

2.3.1 Groups

The group defines the authorization for a user or group of users. A group may be used for local or TACACS authorization. In Use "true" means that there is at least one local user assigned to the group. If a group is used by TACACS, the In Use will indicate "false".

1. Select Groups + to create a new group.

> The Create New Group panel will be displayed.

2. Enter the Group Name.

3. Select the privileges for the new group.

4. Select Save to save updates.

5. Select Cancel to return to the Admin Settings panel.

>   The new group will be displayed on the Admin Settings panel.

6. Edit the group privileges by selecting the pencil.

7. Deleted the group by selecting the Red X. If a group has at least one local user assigned it cannot be deleted.

2.3.2 Users

Users displayed on the Admin Settings panel are for local authentication only.

1. Select Users + to create a new user.

>   The Create New User panel will be displayed.

2. Enter the Username.

3. Enter the Password.

4. Select the group the user will be assigned.

5. Select Save to save updates.

6. Select Cancel to return to the Admin Settings panel.

>   The new local user will be displayed on the Admin Settings panel.

7. Edit the username, password, or assigned group by selecting the pencil.

8. Delete the local user by selecting the Red X.

2.3.3 Authentication

Authentication allows for two options, Local or TACACS. Local or TACACS Authentication may be enabled or disabled independently and at least one option must be enabled.

1. Select Authentication Settings.

>   The Authentication Settings panel will be displayed. Local Authentication is enabled by default.

2. Select TACACS Authentication to enable.

3. Enter the TACACS Server IP Address.

4. Enter the TACACS Server Secret Word, optional.

5. Select Save to save updates.

6. Select Cancel to return the Admin Settings panel.

7. TACACS Test

> This option may be used to verify the authentication of a TACACS user and password. The TACACS Test option will be active only if TACACS Authentication has been enabled.

> The TACACS Test panel will appear.

7.1 Enter the Username.

7.2 Enter the Password.

7.3 Select Test.

> The GUI will display the results of the authentication of the user and the password entered.

8. TACACS Ping

> This option may be used to verify the network connectivity from the unit to the TACACS server. The TACACS Ping option will be active only if TACACS authentication has been enabled.

> The GUI will display the results of the ping test.

2.4 Network Settings

The following configuration options may be displayed, modified, enabled, or disabled. Any change made to any network setting option could cause network connectivity disruption for about 60 seconds.

> DHCP
> IP Address
> Mask
> Gateway
> DNS 1
> DNS 2
> SSL Certificate Loaded
> Using Uploaded SSL Certificate

1. Select Network Settings.

> The Network Settings panel will be displayed with the current configuration.

2. Select Edit Settings.

> The Network Settings panel will appear.

3. Enable, disable or modify the desired options.

4. Enable or disable Using Uploaded SSL Certificate.

> This option may be enabled if a SSL cert.pem file and key.pem file have been uploaded to the unit using the Add SSL Certificate option on the Network Settings panel.

5. Select Save to save updates.

6. Select Cancel to return the Network Settings panel.

7. Add SSL Certificate.

Uploading a custom SSL certificate involves two files. The cert.pem file and key.pem file. The unit will consider these files during the upload. If the files do not match or one of the files is corrupted the unit will abort the upload. The Result Messages will be displayed in the GUI. Adding an SSL certificate will cause the GUI to restart. This could take up to 90 seconds. It may be required to refresh or restart the web browser.

8. Select Add SSL Certificate.

   The Select Certificate and Select Key File panel will appear.

9. Select Choose File for Select Certificate.

10. Select the desired cert.pem file.

11. Select Open.

12. Select the Choose File for Select Key File.

13. Select the desired key.pem file.

14. Select Open.

15. Select Upload.

16. Select Restart Import to select a different cert.pem or key.pem file.

17. Select Cancel to return to the Network Settings panel.

2.5 Date & Time

The following configuration options may be displayed, modified, enabled or disabled.

Timezone	Time
UTC	Date
NTP IP Address	
NTP Pool	

1. Select Date & Time.

   The Date & Time Settings panel will be displayed with the current configuration.

2. Select Edit Settings.

   The Date & Time Settings panel will be displayed.

3. Enable, disable or modify the desired options.

4. Select Save to save updates.

5. Select Cancel to return the Date & Time Settings panel.

2.6 Syslog

The following configuration options may be displayed, modified, enabled or disabled.

Unit ID	Syslog Server IP Address
Protocol	Protocol Port Number

1. Select Syslog.

   The Syslog Configuration panel will be displayed with the current configuration.

2. Select Edit Settings.

3. Enable Syslog Config.

4. Enable, disable or modify the desired options.

5. Select Save to save updates.

6. Select Cancel to return the Syslog Configuration panel.

7. Sys Log Test may be selected to send a test message to the server.

2.7 SNMP

The following configuration options may be displayed, modified, enabled or disabled.

V2 Read/Write	V2 read Only	V3 MD5/DES	V3 SHA/AES
Access Port	Access Port	Access Port	Access Port
Trap Port	Trap Port	Trap Port	Trap Port
Trap IP Address	Trap IP Address	Trap IP Address	Trap IP Address
Community Password	Community Password	User	User
		Auth Password	Auth Password
		Priv Password	Priv Password

1. Select SNMP.

   The SNMP Configuration panel will be displayed with the current configuration.

2. Select Edit Configuration.

   The SNMP Configuration panel will be displayed.

3. Select Enable SNMP Config.

4. Enable, disable or modify the desired options.

5. Select Save to save updates.

6. Select Cancel to return the Syslog Configuration panel.

7. SNMP Test may be selected to send a test trap to the server.

2.8 Export Configuration

This option creates a configuration file (exportCfg.json) that may be used to recover a unit. The exportCfg.json file may be renamed if desired. The exportCfg.json file does not contain Usernames, Passwords, Groups, or Network Settings.

1. Select Export Configuration.

> The Export Configuration panel will be displayed.

2. Select Export.

> The exportCfg.json file will be downloaded to the default download destination of the browser.

2.9 Import Configuration

This option allows a previously created configuration file (exportCfg.json) to be uploaded to the unit. The Chassis Model is the only option that is considered and must match, otherwise, the unit will reject the exportCfg.json file.

1. Select Import Configuration.

> The Import Configuration panel will be displayed.

2. Select Choose File.

3. Select the desired exportCfg.json file.

4. Select Open.

5. Select Upload.

> The unit will automatically verify the selected exportCfg.json file.

6. Select Configure.

> The unit will import and load the exportCfg.json. An "import done" message will be displayed when complete. A reboot is not required.

2.10 Software Upgrade

This option allows the unit's firmware to be upgraded. The existing unit configuration will not be affected and maintained during the upgrade. It may be required to refresh or restart the web browser after the firmware upgrade is complete.

1. Select Software Upgrade.

> The Update Firmware panel will be displayed.

2. Select Choose File.

3. Select the desired firmware file.

4. Select Open.

> The new firmware file will be displayed.

5. Select Upload.

    The unit will validate the firmware file.

    The unit will install the firmware file.

    The unit will reboot.

6. After the upgrade is complete. The GUI will refresh to the Login panel.

2.11 Reboot

This option allows the unit to be rebooted. The traffic will be affected for up to 3 minutes.

1. Select Reboot.

    The Reboot Device panel will be displayed.

2. Select Reboot.

    The unit will present an "Are you sure?" message.

3. Select OK.

    A "rebooting" message will be displayed.

    A "Session timed out. Go to Login screen" message will be displayed.
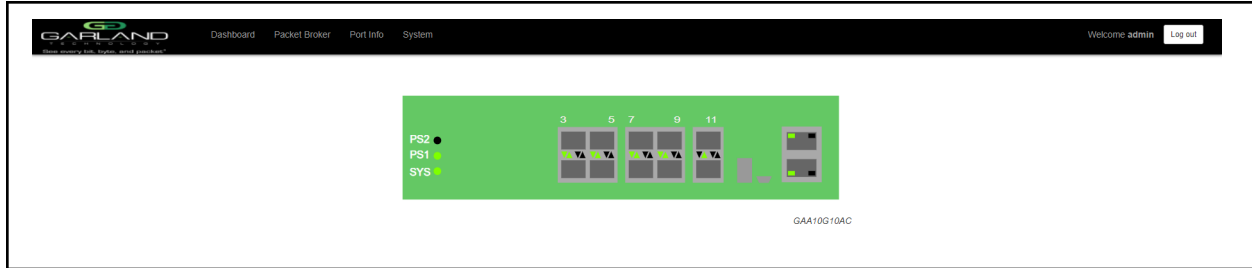
4. Select Go.

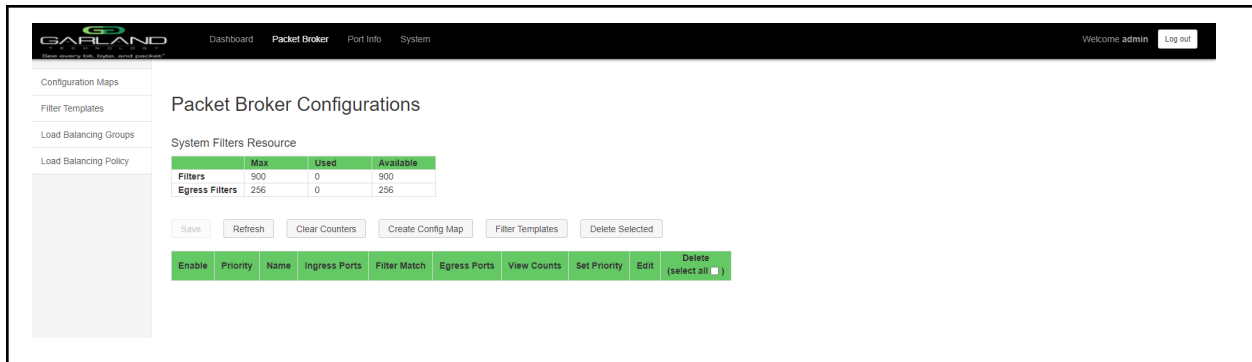   The Login panel will be displayed.

3 Packet Broker

The following configuration options may be displayed, modified, enabled or disabled under the Packet Broker panel.

Configuration Maps	Load Balance Policy
Filter Templates	Load Balance Groups

1. Select Packet Broker on the Dashboard menu bar.

The Packet Broker Configurations panel will be displayed.

3.1 Filter Template

Filter templates may be created as a pass all, pass by or deny by. Pass by and deny by templates may include multiple matching options to filter traffic. The options are considered by the system as (and) options. Thus, for traffic to pass or be denied it must match all defined options. Once a template is created it will appear on the Create Config Map panel and may be used to create an ingress or egress filter. Template options may be modified when applied to a config map. Any option modification made will not change the original template. It is advisable to rename a filter applied to a config map if the original template options were modified.

1. Select Filter Templates on the Packet Broker Configurations panel.

The Filter Templates panel will be displayed.

2. Select Create Template.

The Create New Filter Template panel will be displayed.

3. Enter the template name. If no name is entered the system will automatically apply a name as follows, tmplt, tmplt(2), tmplt(3), etc.

4. Enter the description, optional.

5. Select the Template Type, Pass All, Pass By or Deny By.

6. If pass by or deny by was selected in Step 5, the options will be displayed as follows.

> Source MAC Address / Source MAC Mask
> Destination MAC Address / Destination MAC Mask
> Ether Type
> Source IP Address / Source IP Mask
> Destination IP Address / Destination IP Mask
> Inner VLAN ID
> Outer VLAN ID
> DSCP
> IP Protocol
> L4 Source Port or Range
> L4 Destination Port or Range

7. Select Save Template once all desired option modifications have been completed.

8. The new filter template will appear on the Filter Templates panel.

9. The filter template may be modified by selecting the template name.

10. The filter template may be deleted by selecting the red X.

3.2 Load Balancing Policy

The load balancing policy determines the hashing applied to all load balancing groups, taps in the load balance mode and the ATLB2 Chained mode. The load balancing policy options are as follows and may be applied as L3 and/or L4 or L2.

> Ipv4 Source   MAC Source
> Ipv4 Destination   MAC Destination
> L4 Source Port
> L4 Destination Port

1. Select Load Balancing Policy on the Packet Broker Configurations panel.

> The Load Balancing Policy panel will be displayed.

2. Select the desired load balancing policy options.

3. Select Save to save updates.

4. Select Cancel to disregard changes.

3.2.1 Load Balancing Group

Load balancing groups are used as an egress option on config maps. The traffic applied to the ports assigned to a load balancing group will follow the hashing per the load balancing policy. Ports may be

added or removed from load balancing groups as desired. However, if ports are added or removed from a load balancing group that is used in a config map, the config map load balancing group will be also modified, the reverse is also applied. Previously created load balancing groups will appear on the Create Config Map panel.

1. Select Load Balancing Groups on the Packet Broker Configurations panel.

    The Load Balancing Groups panel will be displayed.

2. Select Create Group.

    The Create New Load Balance Group panel will be displayed.

3. Enter the name. If no name is entered the system will automatically apply a name as follows, lbg, lbg(2), lbg(3), etc.

4. Enter the description, optional.

5. Add ports by placing the cursor on the desired port. Select with the left mouse button. Drag the port to the New L.B. Group panel and release. Repeat for all desired ports. Ports may be added in any combination.

6. Remove a port by placing the cursor on the port in the New L.B. Group panel and double press the left mouse button.

7. Select Save to save updates.

8. Select Cancel to return to the Load Balancing Groups panel.

    The load balancing group will be displayed on the Load Balancing Groups panel. The assigned ports will also be displayed.

9. Edit the load balancing group by selecting the Edit for the desired group.

10. Deleted the load balancing group by selecting the red X. Load balancing groups may not be deleted if used on a config map.

3.3 Config Map

Config maps are unidirectional connections between ingress port(s) to egress port(s) and/or a load balancing group.

1. Select Create Config Map on the Packet Broker Configurations panel.

16
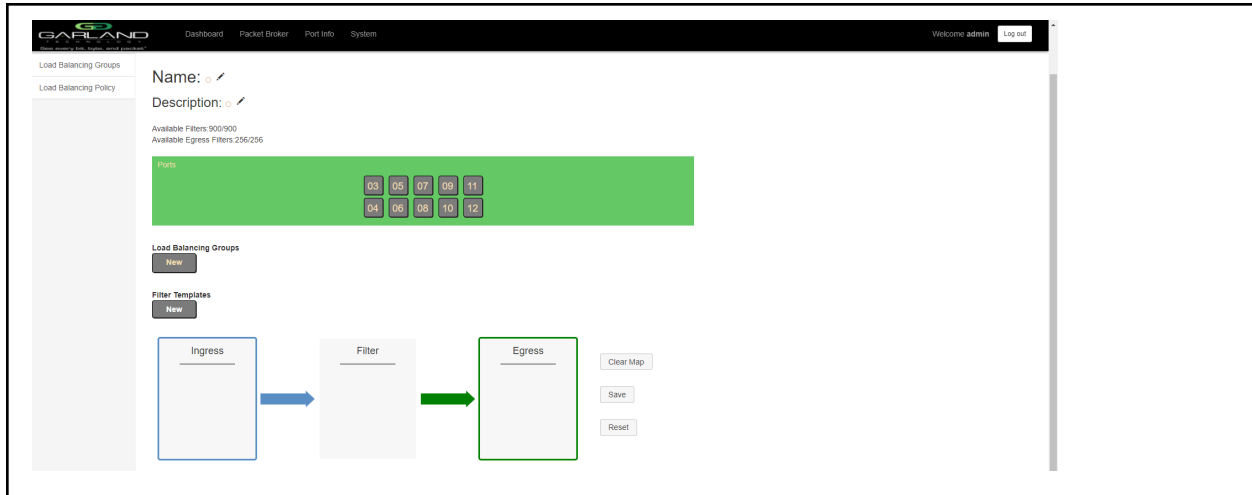
The Create Config Map panel will be displayed. Any previously created load balancing groups or filter templates will be displayed along with the new options. Any port shaded gray can be used for a config map, any port shaded black may not be used.

2. Select the Name pencil icon to apply a name, optional. If no name is entered the system will automatically apply a name to the config maps as follows, map, map(1), map(2) etc.

3. Place the cursor in the Name panel and enter the name.

4. Select the Check to apply.

5. Select the Description pencil to apply a description, optional.

6. Place the cursor in the Description panel and enter the description, optional.

7. Select the Check to apply updates.

3.3.1 Ingress

1. Add an ingress port by placing the cursor on the desired port. Select with the left mouse button. Drag the port to the Ingress panel and release. Ports may be added in any combination. If multiple ports are added, then the traffic from all ingress ports will be aggregated.

Figure 1 Ingress
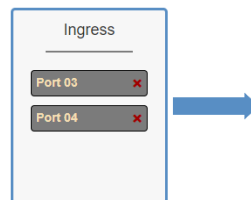
2. Remove a port by selecting the red X.

3.3.2 Filters

1. Add filters by placing the cursor on the desired filter template. A previously created filter template or the new filter template option may be selected. Select with the left mouse button. Drag the filter template to the Filter panel and release. The filter template will become an actual filter once the config map is saved.

> Filters may be added in any combination. If multiple filters are added, then the top filter is the highest priority. The filters are considered from top to bottom. A filter may be selected and moved up or down depending on priority preference.

Figure 2 Filter
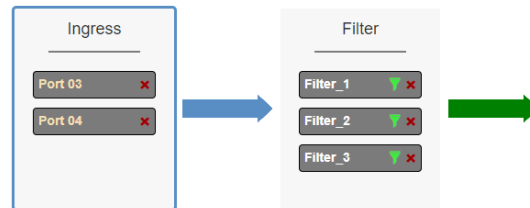
Figure 3 Filter System Considerations
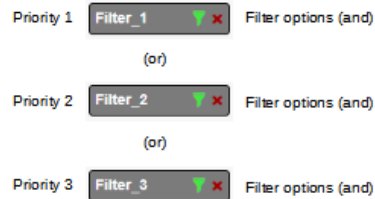
2. Filter templates may be modified by selecting the green filter icon for the desired template.

> The Edit Filter panel will be displayed.

> Any option modification made will not change the original template. It is advisable to rename a filter if the original filter template options were modified.

3. Enter the filter name, optional. If no name is entered the system will automatically apply a name to the filter as follows, iFlt, iFlt(2), iFlt(3) etc.

4. Select Accept once all desired options have been modified.

5. Remove a Filter Template by selecting the red X.

3.3.3 Egress

1. Add an egress port by placing the cursor on the desired port. Select with the left mouse button. Drag the port to the Egress panel and release. Repeat for all desired ports. If multiple ports are added, then 100% of the traffic will be sent to each port.
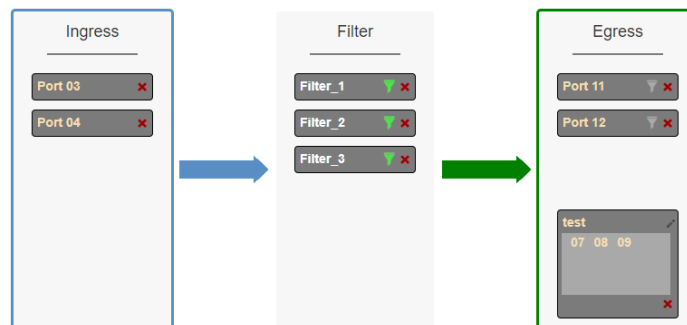
Figure 4 Egress Port(s)
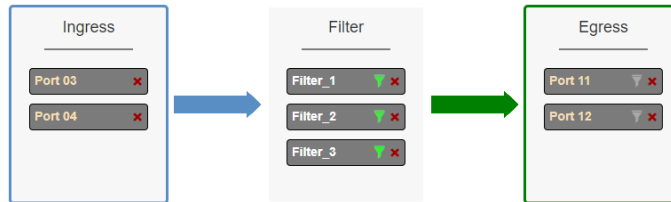
2. Add a load balancing group by placing the cursor on a previously created load balancing group or new load balancing group. Select with the left mouse button. Drag the load balancing group to the Egress panel and release. Ports may be added or removed from any load balancing group. If ports are added or removed from a previously created load balancing group, the origional load balancing group will also be modified.

Figure 5 Egress Load Balancing Group
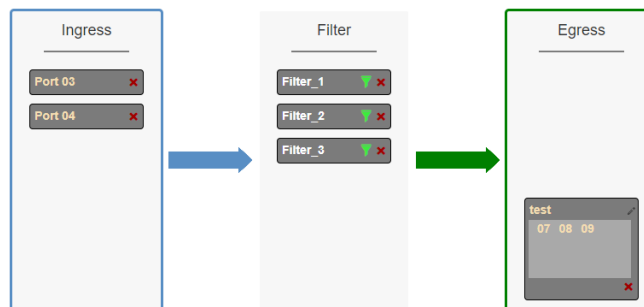
3. One load balancing group plus separate port(s) may be applied. The traffic applied to the ports assigned to the load balancing group will follow the hashing per the load balancing policy. 100% of the traffic will be sent to each of the separate port(s).
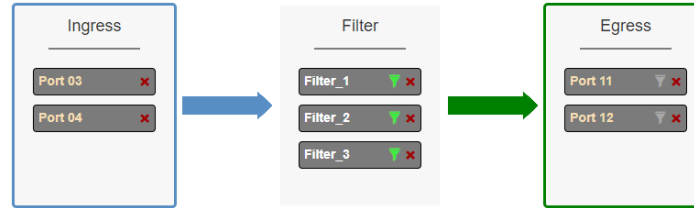
Figure 6 Egress Load Balancing Group and Port(s)

4. Remove a port or load balancing group by selecting the red X.

3.3.4 Egress Filter

1. Select the gray filter icon on the desired egress port.

Figure 7 Egress Filter

The Port XX Egress Filters panel will be displayed.

2. Add filters by placing the cursor on the desired filter template. A previously created filter
   template or the new filter template option may be selected. Select with the left mouse button. Drag the
   filter template to the Port XX Egress Filters panel and release. The filter template will become an
   actual egress filter once the config map is saved.

   Filters may be added in any combination. If multiple filters are added, then the top filter is the
   highest priority. The filters are considered from top to bottom. A filter may be selected
   and moved up or down depending on priority preference.
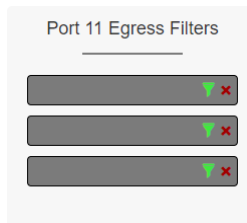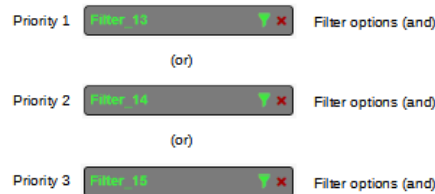
Figure 8 Port XX Egress Filters

Figure 9 Egress Filter System Considerations

3. If new is selected, the Edit Filter panel will displayed.

4. Enter the filter name, optional. If no name is entered the system will automatically apply a name to the
   egress filter as follows, eFltPXX, eFltPXX(2), eFltPXX(3) etc.

4. Select Accept once all desired options have been modified.

3.3.5 Config Map Save

1. Select Save to save the current configuration.

> The "Save this configuration? (May take a few seconds.)" panel will be displayed.

2. Select OK to save the Config Map.

3. Select Cancel to disregard.
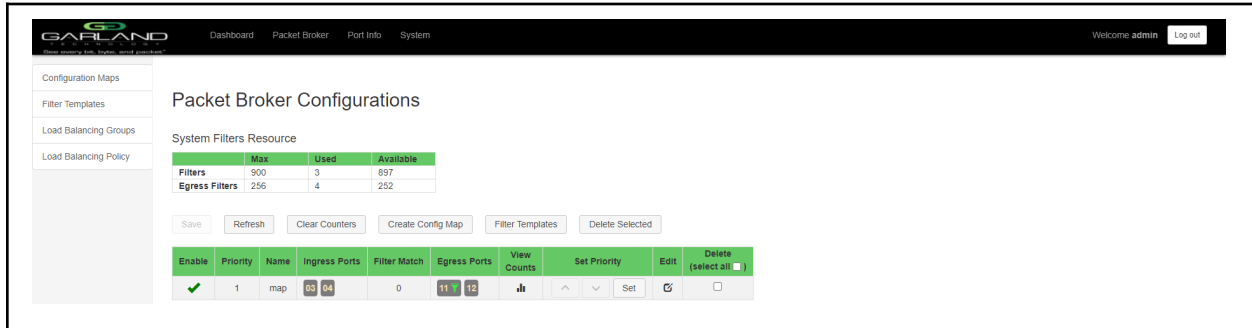

3.3.6 Modify a Config Map

1. Modify a config map by selecting the Edit icon. Modifications may be made using the create sections previously discussed.
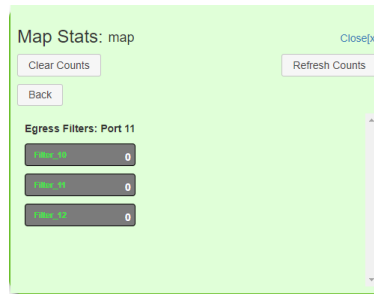

3.3.7 Config Map Statistics

Config map statistics are displayed in the filter match column for each config map. The number displayed represents all packets that have passed through the config map.

1. Select Refresh to refresh the config map statistics.

2. Select Clear Counters to clear and refresh the config map statistics.

3. Select the View Counts icon to display individual statistics.
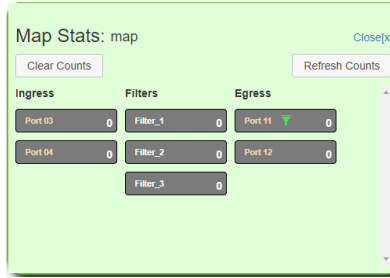
4. Select Refresh Counts to refresh the statistics.

5. Select Clear Counts to clear and refresh the statistics.

6. Select the Egress Filter icon to display the statistics.

7. Select Refresh Counts to refresh the statistics.

8. Select Clear Counts to clear and refresh the statistics.

3.3.8 Delete Config Map

1. Select the Delete in the Delete column for the desired config map(s).

2. The Select All option may be selected to delete all config maps.

3. Select Delete Selected.

3.3.9 Config Map Priority

The config map priority needs to be considered when the same ingress port(s) is used in multiple config maps to send traffic to multiple egress options, ie, different port(s) or load balancing groups. In this case, the config map with the highest priority will be considered first. In the following example there are three config maps with ingress port 3. The Traffic_A config map is the highest priority 1, the Traffic_B config map is the next priority 2 and finally the Traffic_C is the next priority 3.
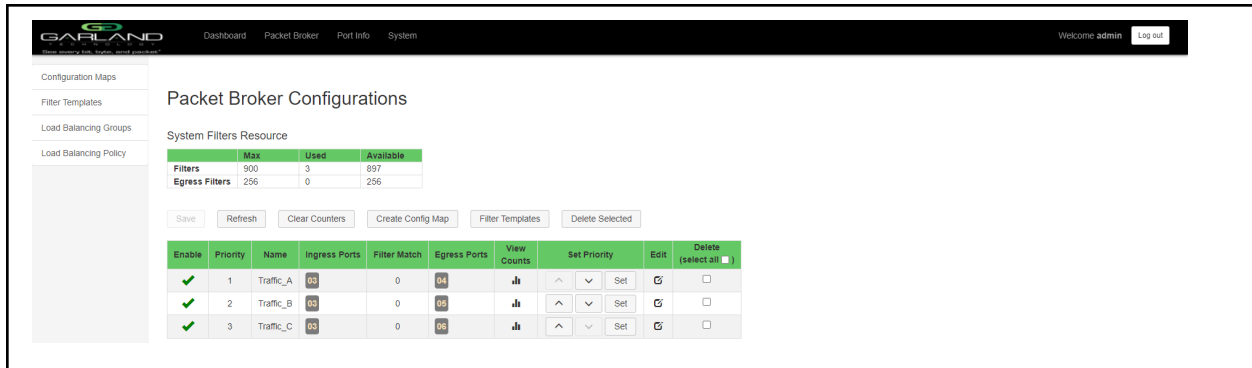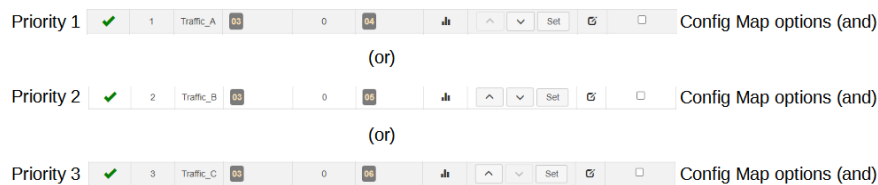

Figure 9 Config Map System Considerations

The Priority of a config map may be changed to a higher or lower value using two methods.

Method 1

1. Select the up or down arrow for the config map.

2. Select Save to save updates.

Method 2

1. Select Set.

  The Set Priority panel will be displayed.

2. Enter the priority in the Set New Priority panel.

3. Select Set to accept the priority value.

4. Select Cancel to disregard.

5. Select Save to save updates.

3.3.10 Enable/Disable Config Map

Config maps may be enabled or disabled as desired. If a config map is enabled, it is in the database and available for traffic. If a config map is disabled, it is in the database and not available for traffic. If the config map has a green check, then it is enabled. If the config map has a red dash, then it is disabled.

3.3.11 Disable Config Map

1. Select the green check for the config map in the Enable column.

>   The green check will change to a red dash.

2. Select Save.

3.3.12 Enable Config Map

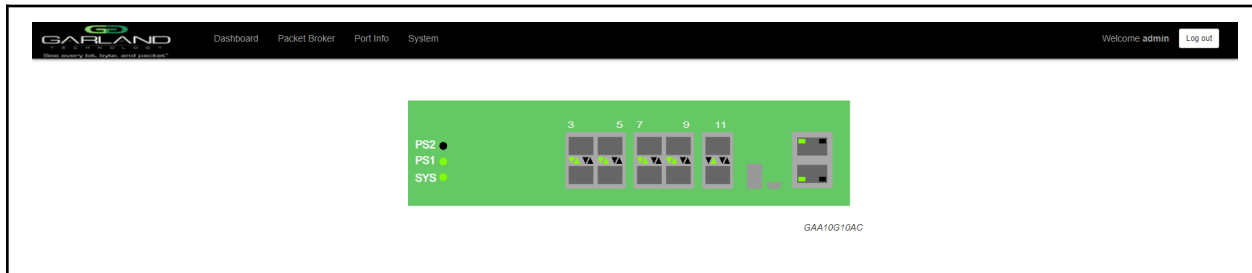1. Select the red dash for the config map in the Enable column.

>   The red dash will change to a green check.
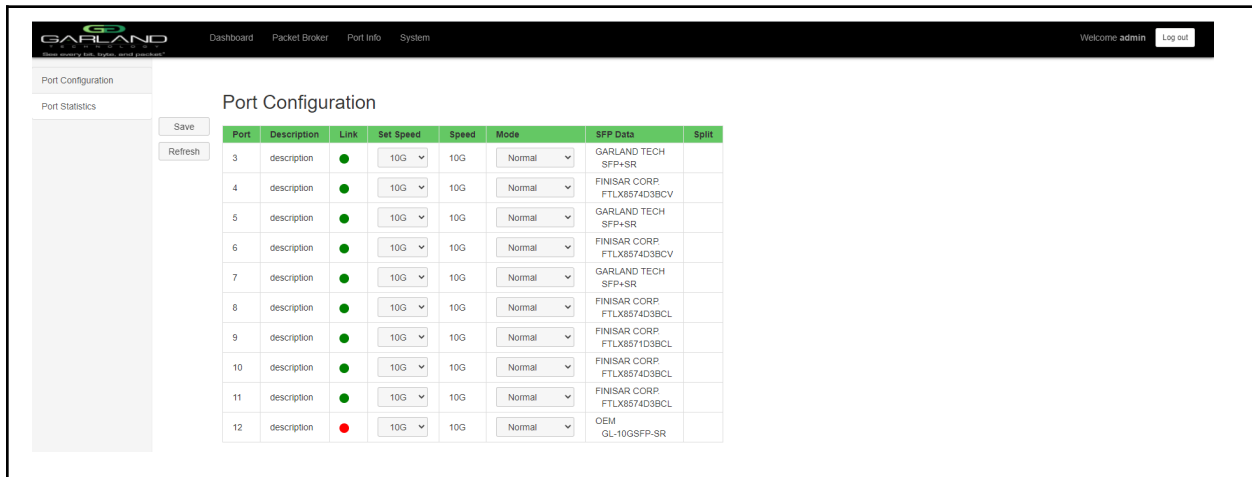
2. Select Save.

4 Port Info

The following configuration options may be displayed, modified, cleared or refreshed under the Port Info panel.

Port Number	Mode
Port Description	SFP Data
Link	Split
Set Speed	Port Statistics
Speed	

1. Select Port Info on the Dashboard menu bar.

The Port Configuration panel will be displayed.

4.1 Port Configuration

The port configuration is displayed by default. The Description, Set Speed and Mode may be modified. All other options are display only. However, they may be updated by selecting Refresh.

4.1.1 Port Description

1. Modify the port description by placing the cursor on Port Description for the desired port and press the left mouse button.

The Edit Description panel will be displayed.

2. Place the cursor in the description field and enter the new description.

3. Select Set to save updates.

4. Select Cancel to return to the Port Configuration panel.

4.1.2 Set Speed

1. Modify the port speed by selecting the pull down panel for the desired port.

2. Select the desired speed.

3. Select Save to save updates.

4.1.3 Mode

1. Modify the port mode by selecting the pull down panel for the desired port.

2. Select the desired mode. The available port modes are Normal, Loopback, Listen Only and Force Link.

3. Select Save to save updates.

4.2 Port Statistics

The following statistics may be displayed on the Port Statistics panel.

Port number	Receive Errors	Transmit Errors
Receive Packets	Transmit Packets	
Receive Discards	Transmit Discards	

1. Select Port Statistics on the Port Configuration panel.

   The Port Statistics panel will be displayed.

2. Update the statistics by selecting Refresh.

3. Clear and refresh the statistics by selecting Clear.