

EdgeSafe™

Bypass Network TAP

User Guide By Garland Technology

P10GMSBPE / P10GSSBPE



Garland Technology: Bypass System
Firmware Rev Level: 1.16.1

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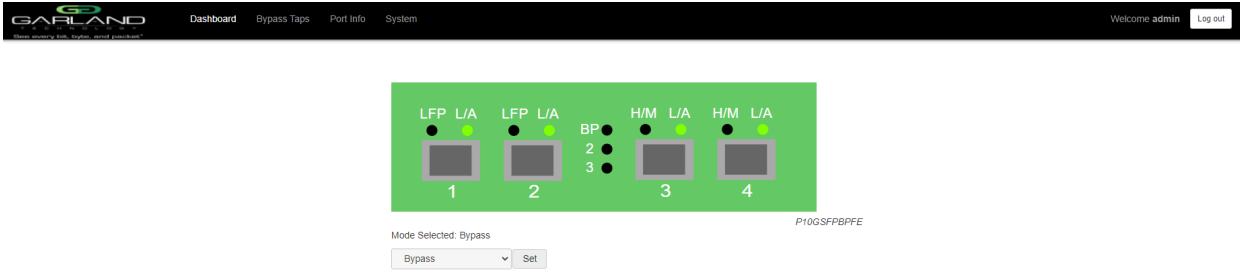
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P10GxxBPE Dashboard

The P10GSFPBPFE supports multiple modes of operation, Bypass, Span, Span Packet Inject, Breakout, Filter, Aggregate, Filter Tap and Bypass Filter. The dashboard, specifically the port function, menu bar options and LED operation will vary based on the mode selected.

1. Bypass



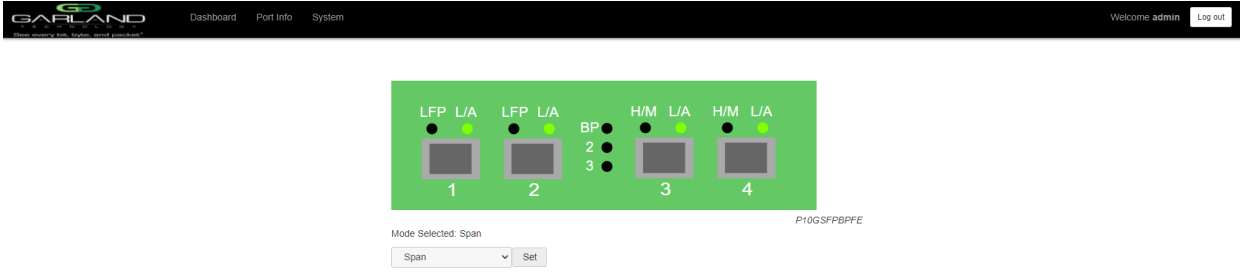
Port	L/A	LFP	BP	H/M	L/A	H/M	L/A
Port 1	L/A	LFP					
Port 2	L/A	LFP					
Port 3	L/A	LFP					
Port 4	L/A	LFP					

Mode Selected: Bypass

Bypass Set

Port	L/A	LFP	BP	H/M	L/A	H/M	L/A
Port 1 - L/A	Link/Activity LED Network Port	Activity LED N/A GUI					
Port 1 - LFP	Green indicates LFP active						
Port 2 - L/A	Link/Activity LED Network Port	Activity LED N/A GUI					
Port 2 - LFP	Green indicates LFP active						
BP	Green indicates Tap in Bypass	Off indicates Tap Inline					
2 -	N/A						
3 -	N/A						
Port 3 - L/A	Link/Activity LED Primary Inline Appliance Port	Activity LED N/A GUI					
Port 3 - H/M	N/A						
Port 4 - L/A	Link/Activity LED Primary Inline Appliance Port	Activity LED N/A GUI					
Port 4 - H/M	N/A						

2. Span



Port	L/A	LFP	BP	H/M	L/A	H/M	L/A
Port 1	L/A	LFP					
Port 2	L/A	LFP					
Port 3	L/A	LFP					
Port 4	L/A	LFP					

Mode Selected: Span

Span Set

Port	L/A	LFP	BP	H/M	L/A	H/M	L/A
Port 1 - L/A	Link/Activity LED Network Port	Activity LED N/A GUI					
Port 1 - LFP	N/A						
Port 2 - L/A	Link/Activity LED Span Port	Activity LED N/A GUI					
Port 2 - LFP	N/A						
BP	N/A						
2 -	N/A						
3 -	N/A						
Port 3 - L/A	Link/Activity LED Span Port	Activity LED N/A GUI					
Port 3 - H/M	N/A						

Port 4 – L/A
Port 4 – H/M

Link/Activity LED Span Port Activity LED N/A GUI
N/A

3. Span (Packet Inject)



Port 1 - L/A
Port 1 – LFP
Port 2 - L/A
Port 2 – LFP
BP
2 -
3 -
Port 3 – L/A
Port 3 – H/M
Port 4 – L/A
Port 4 – H/M

Link/Activity LED Network Port Activity LED N/A GUI
N/A
Link/Activity LED Span / Packet Inject Port Activity LED N/A GUI
N/A
N/A
N/A
N/A
Link/Activity LED Span / Packet Inject Port Activity LED N/A GUI
N/A
Link/Activity LED Span / Packet Inject Port Activity LED N/A GUI
N/A

4. Breakout



Port 1 - L/A
Port 1 – LFP
Port 2 - L/A
Port 2 – LFP
BP
2 -
3 -
Port 3 – L/A
Port 3 – H/M
Port 4 – L/A
Port 4 – H/M

Link/Activity LED Network Port Activity LED N/A GUI
Green indicates LFP active
Link/Activity LED Network Port Activity LED N/A GUI
Green indicates LFP active
N/A
N/A
N/A
Link/Activity LED Breakout Port Activity LED N/A GUI
N/A
Link/Activity LED Breakout Port Activity LED N/A GUI
N/A

5. Filter



Port 1 - L/A	Link/Activity LED Packet Broker Port	Activity LED N/A GUI
Port 1 - LFP	N/A	
Port 2 - L/A	Link/Activity LED Packet Broker Port	Activity LED N/A GUI
Port 2 - LFP	N/A	
BP	N/A	
2 -	N/A	
3 -	N/A	
Port 3 - L/A	Link/Activity LED Packet Broker Port	Activity LED N/A GUI
Port 3 - H/M	N/A	
Port 4 - L/A	Link/Activity LED Packet Broker Port	Activity LED N/A GUI
Port 4 - H/M	N/A	

6. Aggregate



Port 1 - L/A	Link/Activity LED Network Port	Activity LED N/A GUI
Port 1 - LFP	Green indicates LFP active	
Port 2 - L/A	Link/Activity LED Network Port	Activity LED N/A GUI
Port 2 - LFP	Green indicates LFP active	
BP	N/A	
2 -	N/A	
3 -	N/A	
Port 3 - L/A	Link/Activity LED Aggregate Port	Activity LED N/A GUI
Port 3 - H/M	N/A	
Port 4 - L/A	Link/Activity LED Aggregate Port	Activity LED N/A GUI
Port 4 - H/M	N/A	

7. Filter Tap



Port 1 - L/A
Port 1 - LFP
Port 2 - L/A
Port 2 - LFP
BP
2 -
3 -
Port 3 - L/A
Port 3 - H/M
Port 4 - L/A
Port 4 - H/M

Link/Activity LED Network Port Activity LED N/A GUI
Green indicates LFP active
Link/Activity LED Network Port Activity LED N/A GUI
Green indicates LFP active
N/A
N/A
N/A
Link/Activity LED Filter Tap Port Activity LED N/A GUI
N/A
Link/Activity LED Filter Tap Port Activity LED N/A GUI
N/A

8. Bypass Filter

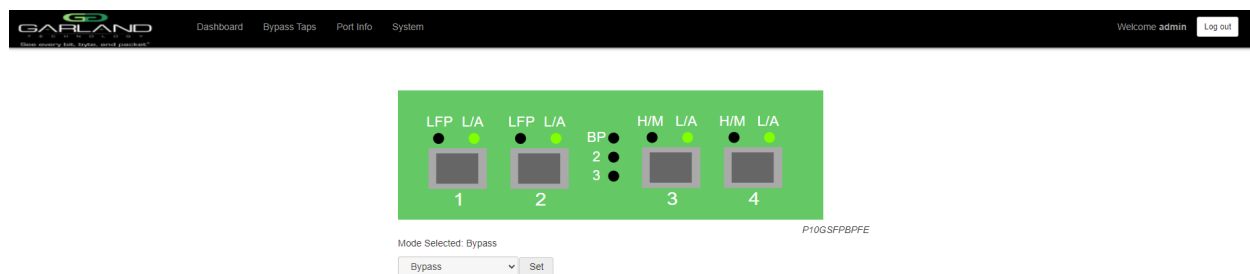
Port 1 - L/A
Port 1 - LFP
Port 2 - L/A
Port 2 - LFP
BP
2 -
3 -
Port 3 - L/A
Port 3 - H/M
Port 4 - L/A
Port 4 - H/M

Link/Activity LED Network Port Activity LED N/A GUI
Green indicates LFP active
Link/Activity LED Network Port Activity LED N/A GUI
Green indicates LFP active
Green indicates Tap in Bypass Off indicates Tap Inline
N/A
N/A
Link/Activity LED Primary Inline Appliance Port Activity LED N/A GUI
N/A
Link/Activity LED Primary Inline Appliance Port Activity LED N/A GUI
N/A

P10GxxBPE System

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

- | | |
|---------------------|-------------------------|
| 1. System Info | 7. SNMP |
| 2. General | 8. Export Configuration |
| 3. Admin | 9. Import Configuration |
| 4. Network Settings | 10. Software Upgrade |
| 5. Date & Time | 11. Reboot |
| 6. Syslog | |



Access the System panel by selecting 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.

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 General

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

- Chassis Name
- Key Press Timeout (secs)

1. Select General on the System panel.

The General System Settings panel will be displayed with the current configuration.

2. Select Edit Configuration.
3. Enter the desired Chassis Name.
4. Enter the desired Key Press Timeout (secs), (60-3600). The default is 60.
5. Select Save to save updates.
6. Select Cancel to return to the General System Settings panel.

3 Admin

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

- Groups
- Users
- Local Authentication
- TACACS Authentication

1. Select Admin on the System panel.

The Admin Settings panel will be displayed with 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.

3.1 Groups

The group defines the privileges for a user or group of users. A group may be used for local authorization 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.

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.

3.2 Users

If a user is created it is for local authorization. Users defined for use with TACACS are defined on the TACACS server.

1. Select Users + to create a new local user.

The Create New User panel will be displayed.

2. Enter the Username. (5-32 char, No spaces or special characters)
3. Enter the Password. (5-32 char, No spaces or special characters)
4. Select the group the local user will be assigned to.
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.

3.3 Local Authentication

Local authentication is only used by a local user. Local authentication may be enabled or disabled independently of TACACS authentication.

1. Select Authentication / Authentication Settings.

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

2. Disable local authentication by deselecting Local Authentication. The local authentication may not be disabled if TACACS authentication is not enabled.

3. Select Save to save updates.

4. Select Cancel to return the Admin Settings panel.

3.4 TACACS Authentication

TACACS authentication is only used by a TACACS Server. TACACS authentication may be enabled or disabled independently of Local authentication.

1. Select Authentication / Authentication Settings.

The Authentication Settings panel will be displayed. TACACS authentication is disabled by default.

2. Select TACACS Authentication to enable.
3. Enter the TACACS Server IP Address.
4. Enter the TACACS Server Secret Word, (3-20 characters)
5. Select Save to save updates.
6. Select Cancel to return the Admin Settings panel.

3.4.1 TACACS Test

The TACACS Test option may be used to verify the authentication and authorization of a TACACS user and password. The TACACS Test option will be active only if TACACS authentication has been enabled and the TACACS server and secret word has been defined.

1. Select TACACS Test.

The TACACS Test panel will appear.

2. Enter the username to test on the TACACS server.
3. Enter the password to test on the TACACS sever.
4. Select Test.

The GUI will display the results of the authentication, authorization and authorization group of the user and password entered.

3.4.2 TACACS Ping

The TACACS Ping 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 and the TACACS server and secret word has been defined.

1. Select TACACS Ping.

The GUI will display the results of the ping sent to the TACACS server defined on the TACACS authentication panel.

4 Network Settings

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

Network Settings	DHCP
	IP Address
	Mask
	Gateway
	DNS 1
	DNS 2

Add SSL Certificate

4.1 Network Settings

Any change made to any network setting option could cause network connectivity disruption for about 60 seconds.

1. Select Network Settings on the System panel.

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

2. Select Edit Settings.

The Edit Network Settings panel will appear.

3. Enable DHCP. Select to enable. Default is disabled.

4. Enter the unit Management IP Address. This is usually performed at turn up. Use caution if changing as the unit may become unreachable.

5. Enter the Mask. This is usually performed at turn up. Use caution if changing as the unit may become unreachable.
6. Enter the Gateway. This is usually performed at turn up. Use caution if changing as the unit may become unreachable.
7. Enter the desired DNS 1 address.
8. Enter the desired DNS 2 address.
9. Using Uploaded SSL Certificate. Default is disabled. Enabled if a SSL certificate and key have been uploaded to the unit using the Add SSL Certificate option on the Network Settings panel. Disable to use the unit generated SSL certificate.
10. Select Save to save updates.
11. Select Cancel to return the Network Settings panel.

4.2 Add SSL Certificate

Uploading a custom SSL certificate involves two files. The certificate file and key file. The unit will consider these files during the upload. If the files do not match or one of the files are corrupted the unit will abort the upload. Result messages will be displayed in the GUI. Adding a 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.

1. Select Network Settings on the System panel.

The Network Settings panel will be displayed.

2. Select Add SSL Certificate.

The Select Certificate and Select Key File panel will appear.

3. Select Choose File for Select Certificate.
4. Select the desired file.
5. Select Open.
6. Select the Choose File for Select Key File.
7. Select the desired file.
8. Select Open.
9. Select Upload.
10. Select Restart Import to select a different certificate or key file.
11. Select Cancel to return to the Network Settings panel.
12. Login to the unit via the GUI.
13. Select Network Settings on the System panel.

14. Verify the SSL Certificate Loaded displays true.
15. Verify the Using Uploaded SSL Certificate displays true.

5 Date & Time

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

Timezone	Time
UTC	Date
NTP	

1. Select Date & Time on the System panel.

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. Select the desired Timezone.
4. Select the desired UTC. The UTC option is defined based on the Timezone selected.
5. NTP Timing may be enabled as desired.
6. If NTP Timing is not desired, local timing preferred enter the Hour:Minute.
7. If NTP Timing is not desired, local timing preferred enter the Month/Day/Year
8. Use Pool may be selected for NTP Timing. If Use Pool is selected, then no IP Address is required.
9. An IP Address may be entered for the NTP Timing source if Use Pool was not selected. If Use Pool is selected and an IP Address is entered, the unit will follow the Use Pool option.

6 Syslog

1. Select Syslog on the System panel.

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

2. Select Edit Settings.
3. Enable Syslog Config.
4. If desired enable the Unit ID. The Unit ID will be sent as part of any syslog message from the unit.
5. Enter the desired Unit ID, (0-999).

6. Select the desired Protocol. Default is UDP, (UDP-TCP).
7. Enter the IP Address of the syslog server.
8. Enter the Syslog Port Number. Default is 514, (0-65535).
9. Select Save to save updates.
10. Select Cancel to return the Syslog Configuration panel.
11. Sys Log Test may be selected to send a test message to the syslog server.

7 SNMP

1. Select SNMP on the System panel.

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.

7.1 SNMPv2

1. Enter the Access Port number. Default is 161.
2. Enter the Trap Port number. Default is 162.
3. Enter the Trap IP Address.
4. Select the Protocol, (V2 Read/Write, V2 Read Only).
5. Enter the V2 Community Password. Default is abc, (1-20 characters)
6. Select Save to save updates.
7. Select Cancel to return the Syslog Configuration panel.
8. SNMP Test may be selected to send a test message to the SNMP server.

7.2 SNMPv3 MD5/DES

1. Enter the Access Port number. Default is 161.
2. Enter the Trap Port number. Default is 162.
3. Enter the Trap IP Address.
4. Select the Protocol, V3.

5. Enter the V3 User.
6. Select the V3 Auth Type, MD5.
7. Enter the V3 Auth Password, (8-20 characters).
8. Enter the V3 Priv Password, (8-20 characters).
9. Select the V3 Priv Protocol, DES.
10. Select Save to save updates.
11. Select Cancel to return the Syslog Configuration panel.
12. SNMP Test may be selected to send a Test Message to the SNMP Server.

7.3 SNMPv3 SHA/AES

1. Enter the Access Port number. Default is 161.
2. Enter the Trap Port number. Default is 162.
3. Enter the Trap IP Address.
4. Select the Protocol, V3.
5. Enter the V3 User.
6. Select the V3 Auth Type, SHA.
7. Enter the V3 Auth Password, (8-20 characters).
8. Enter the V3 Priv Password, (8-20 characters).
9. Select the V3 Priv Protocol, AES.
10. Select Save to save updates.
11. Select Cancel to return the Syslog Configuration panel.
12. SNMP Test may be selected to send a test message to the SNMP server.

8 Export Configuration

1. Select Export Configuration on the System panel.

The Export Configuration panel will be displayed.

2. Select Export.

The config file will be downloaded to the default download destination of the browser.

9 Import Configuration

1. Select Import Configuration on the System panel.

The Import Configuration panel will be displayed.

2. Select Choose File for the Select Config File option.
3. Browse to and select the desired Config File.
4. Select Open.
5. Select Upload.

The unit will verify if the selected file is a valid Config file.

6. Select Configure.

The unit will import and load the Config file. An “import done” message will be displayed when complete. A reboot is not required.

10 Software Upgrade

The existing unit configuration will not be affected during firmware upgrades. It may be required to refresh or restart the web browser after a firmware upgrade is complete.

1. Select Software Upgrade on the System panel.

The Update Firmware panel will be displayed.

2. Select Choose File for the Select File option.
3. Browse to and select the 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.

11 Reboot

A reboot will affect traffic for about 25 seconds.

1. Select Reboot on the System panel.

The Reboot Device panel will be displayed.

2. Select Reboot.

The unit will present an “Are you sure?” message.

4. Select OK.

A “rebooting” message will be displayed.

A “Session timed out. Go to Login screen” message will be displayed.

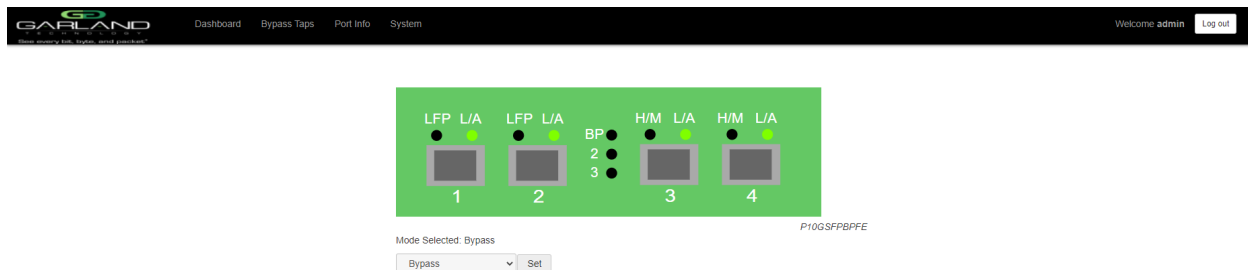
5. Select Go.

The Login panel will be displayed.

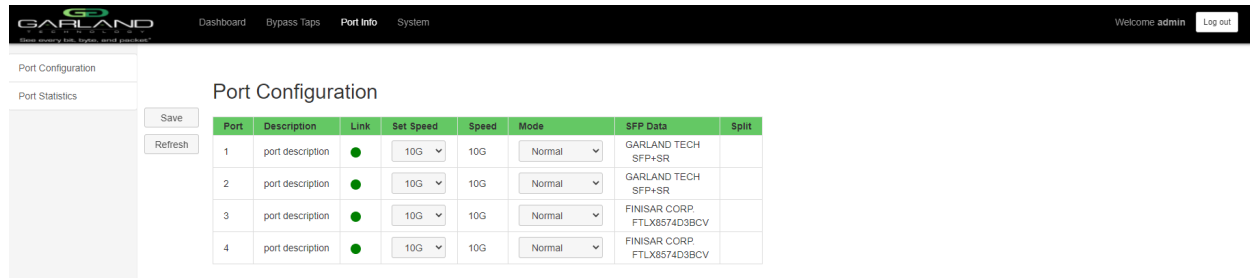
P10GxxBPE Port Info

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

- | | |
|---------------------|--------------------|
| 1. Port Number | 6. Mode |
| 2. Port Description | 7. SFP Data |
| 3. Link | 8. Split |
| 4. Set Speed | 9. Port Statistics |
| 5. Speed | |



Access the Port Configuration panel by selecting Port Info on the Dashboard menu bar.



The

Port Configuration panel will be displayed.

1 Port Configuration

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

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.

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.

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.

2 Port Statistics

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

- | | | |
|---------------------|----------------------|--------------------|
| 1. Port number | 4. Receive Errors | 7. Transmit Errors |
| 2. Receive Packets | 5. Transmit Packets | |
| 3. Receive Discards | 6. 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.

P10GxxBPE Bypass TAP

In the Bypass Mode the ports are assigned the following defaults.

Port 1	Network Port
Port 2	Network Port
Port 3	Primary Inline Appliance Port
Port 4	Primary Inline Appliance Port

When the tap is Inline (normal operation) the traffic flows as follows:

Port 1 to Port 3	Port 2 to Port 4
Port 3 through the inline appliance to Port 4	Port 4 through the inline appliance to Port 3
Port 4 to Port 2	Port 3 to Port 1

Heartbeat packets are TX/RX from Port 3 to Port 4 and Port 4 to Port 3.

100% of the traffic TX/RX on Ports 1 and 2 flow through the Inline Appliance ports 3,4.

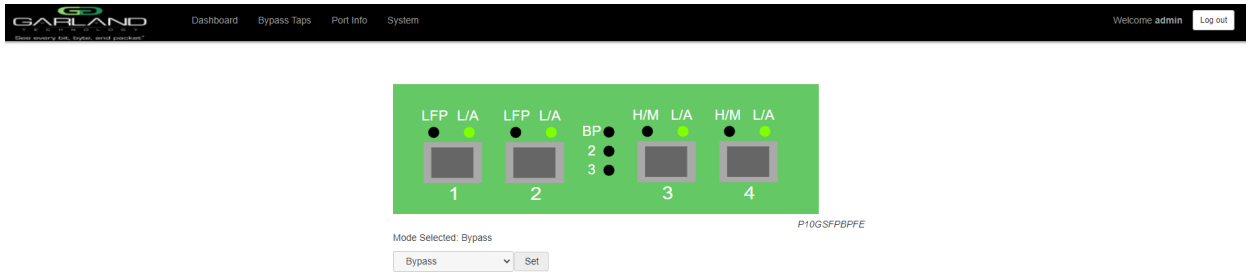
When the tap is in Bypass the traffic flows as follows:

Port 1 to Port 2	Port 2 to Port 1
------------------	------------------

100% of the traffic TX/RX flow between ports 1 and 2.

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

- | | |
|-----------------------|------------------|
| 1. Bypass Taps Panel | 3. Tap Settings |
| 2. Bypass Tap Name | 4. Monitor Ports |
| 3. Heartbeat Settings | |



Access the Bypass Taps panel by selecting Bypass Taps on the Dashboard Menu bar.



The Bypass Taps panel will be displayed.

1 Bypass Taps Panel

The Bypass Taps panel displays the following.

- Tap 1 Name
- Tap 1 Current Status
- Tap 1 Network Ports

- No. Of Lost HB Packets for all taps
- Heartbeats per Second for all taps

2 Bypass Tap Name

A name may be applied to the tap.

1. Select the pencil for the tap.
2. Enter the name. (1-15 characters)
3. Remove the name by placing the cursor in the name panel, backspace or delete the current name.
4. Select the Check to save updates.
5. Select Cancel to return the Bypass Taps panel.

3 Heartbeat Settings

The following configuration options may be displayed or modified.

No. Of Lost HB Packets Heartbeats per Second

1. Select Settings on the Bypass Taps panel.

The Configure Heartbeat Settings panel will be displayed with the current configuration.

2. Enter the No. Of Lost HB Packets. Default is 10, (10-100).

This is the number of heartbeats that must be lost before any tap will switch to Bypass.

3. Enter the Heartbeats per Second. Default is 10, (10-100).

This is the number of heartbeats per second sent by all taps.

4. Select Save to save updates.

5. Select Cancel to return the Bypass Taps panel.

4 Taps Settings

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

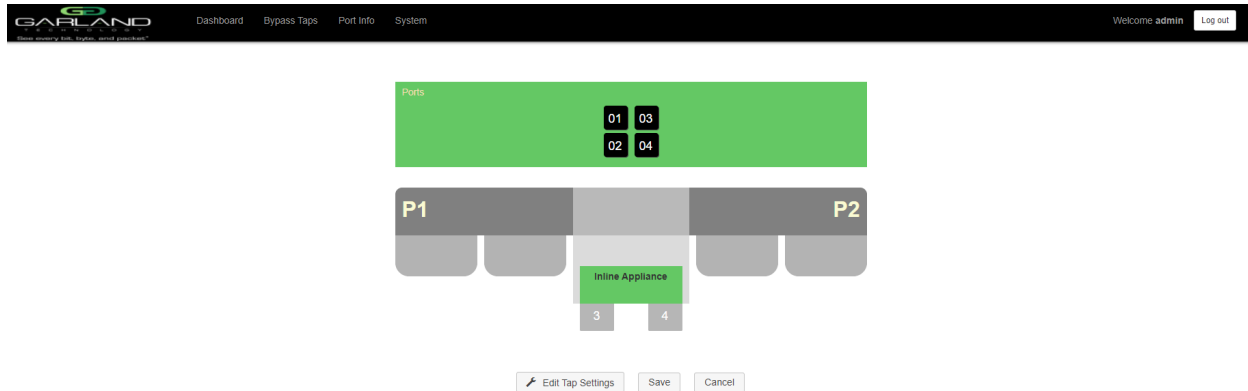
Tap Mode
Fail Mode
LFP

Reverse Bypass
Monitor Ports



1. Edit the Tap Settings, by placing the cursor on the tap and double-press the left mouse button.

The Tap panel will be displayed.



2. Select Edit Tap Settings to display, modify, enable or disable the Tap Mode, LFP or Reverse Bypass. The Fail Mode is always Open.
3. Select Save to save updates.
4. Select Cancel to return the Bypass Taps panel.

4.1 Edit Tap Settings

1. Select Edit Tap Settings on the Bypass Tap panel.

The Configure Inline Appliance panel will be displayed.

2. Select the Tap Mode.

Active	In normal conditions the tap will be inline. The traffic will flow bidirectional from one network port, through the primary inline appliance and back to the other network port. If an issue occurs with the primary inline appliance, loss of link or heartbeats, the tap will automatically switch to bypass, switching the traffic between the network ports. When the issue with the primary inline appliance is resolved, has link and heartbeats, the tap will automatically switch back to inline.
Force Bypass	If selected, the tap will switch the traffic between the network ports with no regard for the primary inline appliance link or heartbeats.
Force Inline	If selected, the tap will not be able to switch to bypass. The traffic will flow bidirectional from one network port, through the primary inline appliance and back to the other network port. If an issue occurs with the primary inline appliance, loss of link or heartbeats, the traffic will go down.

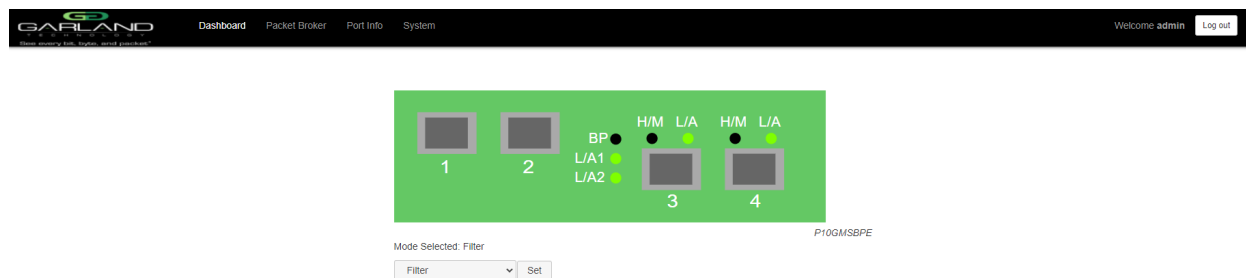
3. Fail Mode
The Fail Mode is always open. If power is lost to the unit. The traffic will switch between the network ports.
4. LFP
If enabled and link is lost on one of the network ports. The TX will be disabled on the other network port. The RX for both network ports remain on.

5. Reverse Bypass If enabled and the primary inline appliance fails, loss of link or heartbeats. The TX will be disabled on both of the network ports. The RX for both network ports remain on.
6. Select Accept to save updates. Save must additionally be selected on the Tap panel.
7. Select Cancel to return the Tap panel.

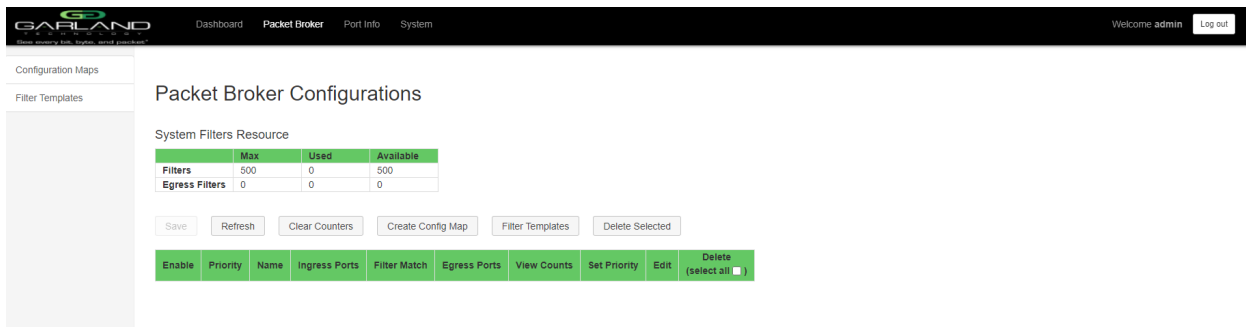
P10GxxBPE Packet Broker

The following configuration options may be displayed, modified, enabled or disabled under the Packet Broker panel. The mode must be set to Filter for this application.

- | | |
|------------------------|------------------------------------|
| 1. Filter Templates | 5. Statistics |
| 2. Load Balance Policy | 6. Ingress Filters Resources (500) |
| 3. Load Balance Groups | 7. Egress Filter Resources (0) |
| 4. Config Maps | |



Access the packet broker panel by selecting Packet Broker on the Dashboard menu bar.



The Packet Broker Configurations panel will be displayed.

1 Filter Templates

Filter templates may be applied to config maps as an ingress filter or egress filter. A filter template may be created as a Pass All, Pass By or Deny By. Filter templates will also appear on the Create Config Map panel. Modifications to the filter template being used as an ingress filter or egress filter are allowed. Changes made to the filter template applied to a config map will not change the original filter template. Once the config map is saved, the filter template becomes an ingress filter or egress filter, thus, filter templates may be deleted even if used on a config map. It is advisable to rename a filter template applied to a config map if the original filter template was modified when applied to a config map.

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 filter name, (0-16 characters).
4. Enter the description, optional (0-64 characters).
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 filter options will be displayed as follows:

Source MAC Address and Source MAC Mask, (optional)
 Destination MAC Address and Destination MAC Mask, (optional)
 Ether Type
 Source IP Address and Source IP Mask, (optional)
 Destination IP Address and Destination IP Mask, (optional)
 Inner VLAN ID (0-4094)
 Outer VLAN ID (0-4094)
 DSCP (0-63)
 IP Protocol (TCP, UDP or Other, (0-255))
 L4 Source Port (0-65535) or Range, (Minimum 0-65535 – Maximum 0-65535)
 L4 Destination Port (0-65535) or Range, (Minimum 0-65535 – Maximum 0-65535)

7. Select Save Template once all desired options have been enabled and defined.
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.

4. Config Maps

Config maps are unidirectional connections between ingress port(s) to egress port(s). Config maps may have one ingress filter or multiple ingress filters applied. Ingress filters may be modified as they are applied to a config map even if a filter template is used. Egress filters may be applied to egress ports and may be modified even if a filter template is selected.

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

The screenshot shows the 'Create Config Map' panel in the Garland Technology web interface. The panel is titled 'Configuration Maps' and includes a 'Back To Map List' button. It has input fields for 'Name' and 'Description', each with a pencil icon for editing. Below these fields, it shows 'Available Filters: 500/500' and 'Available Egress Filters: 0/0'. The 'Ports' section features a green bar with four port buttons labeled 01, 02, 03, and 04. The 'Filter Templates' section has a 'New' button and three template buttons labeled 'Template A', 'Template B', and 'Template C'. A diagram illustrates the flow from 'Ingress' to 'Filter' to 'Egress'. On the right side of the diagram are buttons for 'Clear Map', 'Save', and 'Reset'.

The Create Config Map panel will be displayed. Any previously created filter templates will be displayed. Any port shaded grey can be used for a config map.

2. Select the Name pencil to apply a name, optional.
3. Place the cursor in the Name panel and enter the name, (1-16 characters).
4. Select the Check to apply updates.
5. Select the Description pencil to apply a description, optional.
6. Place the cursor in the Description panel and enter the description, optional (1-64 characters).
7. Select the Check to apply updates.

4.1 Ingress Ports

1. Add ingress ports by placing the cursor on the desired port. Select with the left mouse button. Drag the port to the Ingress panel and release. Repeat for all desired ports.

Ports may be added in any combination. If multiple ports are added, then the traffic from all ingress ports will be aggregated.

2. Remove a port by selecting the red X.

4.2 Ingress Filters

1. Add ingress filters by placing the cursor on the desired filter template. A previously created filter template or the New filter template may be selected. Select with the left mouse button. Drag the filter template to the Filter panel and release. Repeat for all desired filter templates.

Filter templates may be added in any combination. If multiple filter templates are added, then the top filter template is the highest priority. Filter templates may be selected and moved up or down depending on preference.

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

The Edit Filter panel will be displayed.

It is advisable to rename a previously created filter template if modifications are made when applied to a config map. Changes made to a previously created filter template will not change the original filter template.

3. Select Accept once all desired options have been modified.
4. Remove a Filter Template by selecting the red X.

4.3 Egress Ports

1. Add egress ports 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 the traffic will be copied to all egress ports.
2. Remove a port or load balance group by selecting the red X.

4.5 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 Yes to save the Config Map.
3. Select Cancel to disregard.

Packet Broker Configurations

System Filters Resource

	Max	Used	Available
Filters	500	3	497
Egress Filters	0	0	0

Save Refresh Clear Counters Create Config Map Filter Templates Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
✓	1	map	01 02	0	03 04	1	Set	✎	☐

4.6 Modify a Config Map

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

Name
Description
Add/Remove Ingress Ports
Add/Remove/Modify/Reprioritize Ingress Filters
Add/Remove Egress Ports

4.6.1 Save

1. Select Save to save the current configuration.

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

2. Select Yes to save the config map.
3. Select Cancel to disregard.

4.6.2 Reset

1. Select reset to reset the current configuration.

The “Reset all changes?” panel will be displayed.

2. Select Yes to reset the Config Map.
3. Select Cancel to disregard.

Packet Broker Configurations

System Filters Resource

	Max	Used	Available
Filters	500	3	497
Egress Filters	0	0	0

Buttons: Save, Refresh, Clear Counters, Create Config Map, Filter Templates, Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
✓	1	map	01 02	0	03 04	⌄	⬆ ⬇ ⬆	Set	✕

4.7 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.

Map Stats: map Close[x]

Buttons: Clear Counts, Refresh Counts

Ingress	Filters	Egress
Port 01: 0	Filter 01: 0	Port 03: 0
Port 02: 0	Filter 02: 0	Port 04: 0
	Filter 03: 0	

4. Select Refresh Counts to refresh the statistics.
5. Select Clear Counts to clear and refresh the statistics.
9. Select Close to return to the Packet Broker Configurations panel.

4.8 Delete Config Map

1. Select the Delete in the Delete column for the desired config map.
2. The Select All option may be selected to delete all config maps.
3. Select Delete Selected.

4.9 Config Map Priority

The config map priority needs to be considered when the same ingress port is used in multiple config maps to multiple egress destinations or the same egress destination. In this case, the config map with the highest priority will be considered first. In the above example, there are three config maps with ingress port 1. The Traffic_A config map is the highest priority, 1. The Traffic_B is the next priority, 2. The Traffic_C is the next priority, 3. Consequently, a config map with priority 21 has a higher priority than a config map with priority 34.

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.

Packet Broker Configurations

System Filters Resource

	Max	Used	Available
Filters	500	3	497
Egress Filters	0	0	0

Buttons: Save, Refresh, Clear Counters, Create Config Map, Filter Templates, Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
<input checked="" type="checkbox"/>	1	Traffic_A	01	0	02		^ v Set		<input type="checkbox"/>
<input type="checkbox"/>	2	Traffic_B	01	0	03		^ v Set		<input type="checkbox"/>
<input checked="" type="checkbox"/>	3	Traffic_C	01	0	04		^ v Set		<input type="checkbox"/>

4.10 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.

4.10.1 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.

4.10.2 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.

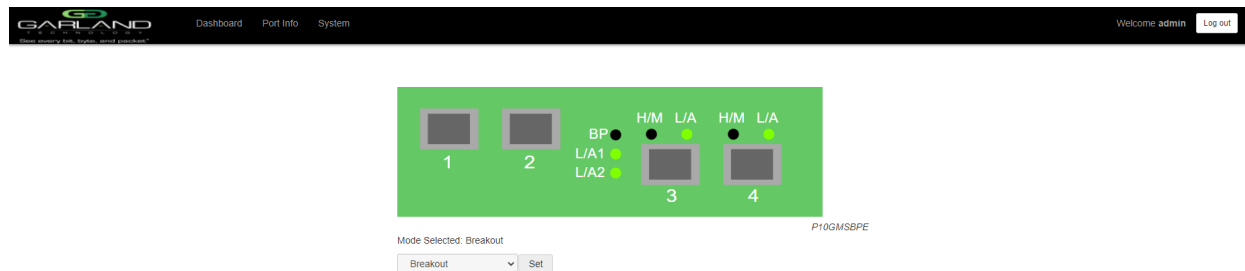
P10GxxBPE Breakout Mode

In the Breakout Mode the ports are assigned the following defaults.

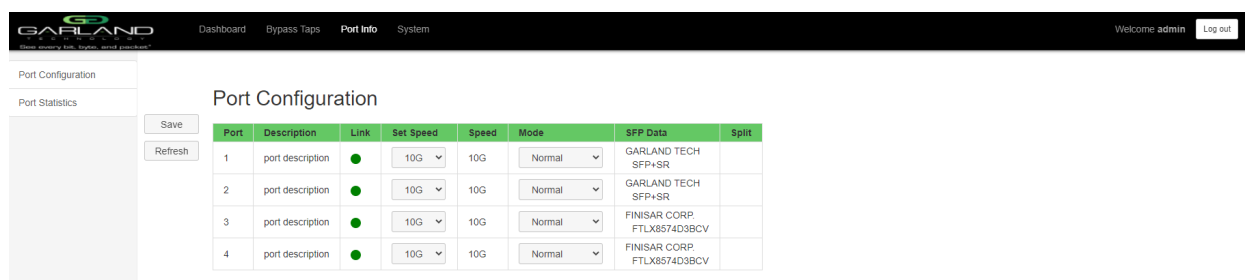
Port 1	Network Port
Port 2	Network Port
Port 3	Breakout Port
Port 4	Breakout Port

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

- | | |
|---------------------|--------------------|
| 1. Port Number | 6. Mode |
| 2. Port Description | 7. SFP Data |
| 3. Link | 8. Split |
| 4. Set Speed | 9. Port Statistics |
| 5. Speed | |



Access the Port Configuration panel by selecting Port Info on the Dashboard menu bar.



The Port Configuration panel will be displayed.

1 Port Configuration

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

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.

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.

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.

2 Port Statistics

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

- | | | |
|---------------------|----------------------|--------------------|
| 1. Port number | 4. Receive Errors | 7. Transmit Errors |
| 2. Receive Packets | 5. Transmit Packets | |
| 3. Receive Discards | 6. 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.

P10GxxBPE Bypass Filter Mode

In the Bypass Filter Mode the ports are assigned the following defaults, however, when the unit is placed in this mode there are no default filters created between network port 1 and inline appliance port 3 or network port 2 and the inline appliance port 4. The traffic that is passed through the inline appliance will be determined by the filter(s) created.

Port 1	Network Port
Port 2	Network Port
Port 3	Primary Inline Appliance Port
Port 4	Primary Inline Appliance Port

When the tap is Inline (normal operation) the traffic flows as follows:

Port 1 to Port 3 (determined by the filter(s))	Port 2 to Port 4 (determined by the filter(s))
Port 3 through the inline appliance to Port 4	Port 4 through the inline appliance to Port 3
Port 4 to Port 2	Port 3 to Port 1

Heartbeat packets are TX/RX from Port 3 to Port 4 and Port 4 to Port 3.
The traffic TX/RX on Ports 1 and 2 flow through the Inline Appliance ports 3 and 4 based on the filter(s).

When the tap is in Bypass the traffic flows as follows:

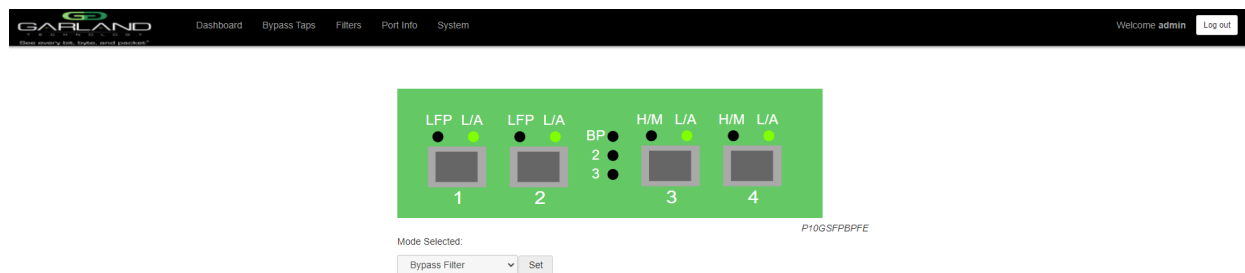
Port 1 to Port 2

Port 2 to Port 1

100% of the traffic TX/RX flow between ports 1 and 2.

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

1. Bypass Taps Panel
2. Bypass Tap Name
3. Heartbeat Settings
3. Tap Settings
4. Monitor Ports



Access the Bypass Taps panel by selecting Bypass Taps on the Dashboard Menu bar.



The Bypass Taps panel will be displayed.

1 Bypass Taps Panel

The Bypass Taps panel displays the following.

Tap 1 Name
Tap 1 Current Status
Tap 1 Network Ports

No. Of Lost HB Packets for all taps
Heartbeats per Second for all taps

2 Bypass Tap Name

A name may be applied to the tap.

1. Select the pencil for the tap.
2. Enter the name. (1-15 characters)
3. Remove the name by placing the cursor in the name panel, backspace or delete the current name.
4. Select the Check to save updates.
5. Select Cancel to return the Bypass Taps panel.

3 Heartbeat Settings

The following configuration options may be displayed or modified.

No. Of Lost HB Packets
Heartbeats per Second

1. Select Settings on the Bypass Taps panel.

The Configure Heartbeat Settings panel will be displayed with the current configuration.

2. Enter the No. Of Lost HB Packets. Default is 10, (10-100).

This is the number of heartbeats that must be lost before any tap will switch to Bypass.

3. Enter the Heartbeats per Second. Default is 10, (10-100).

This is the number of heartbeats per second sent by all taps.

4. Select Save to save updates.
5. Select Cancel to return the Bypass Taps panel.

4 Taps Settings

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

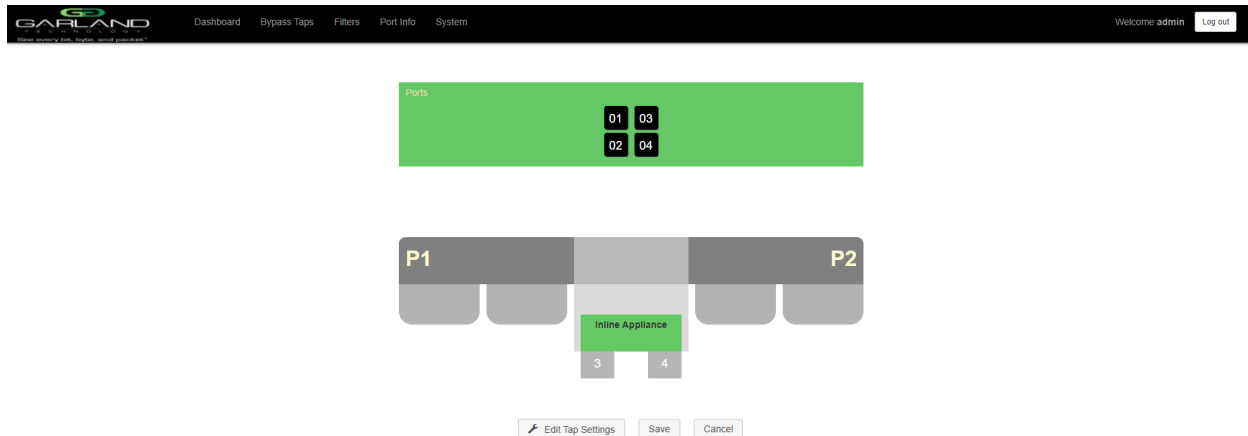
Tap Mode
Fail Mode
LFP

Reverse Bypass
Monitor Ports



1. Edit the Tap Settings, by placing the cursor on the tap and double-press the left mouse button.

The Tap panel will be displayed.



2. Select Edit Tap Settings to display, modify, enable or disable the Tap Mode, LFP or Reverse Bypass. The Fail Mode is always Open.
3. Select Save to save updates.
4. Select Cancel to return the Bypass Taps panel.

4.1 Edit Tap Settings

1. Select Edit Tap Settings on the Bypass Tap panel.

The Configure Inline Appliance panel will be displayed.

2. Select the Tap Mode.

Active In normal conditions the tap will be inline. The traffic will flow bidirectional from one network port, through the primary inline appliance and back to the other network port. If an issue occurs with the primary inline appliance, loss of link or heartbeats, the tap will automatically switch to bypass, switching the traffic

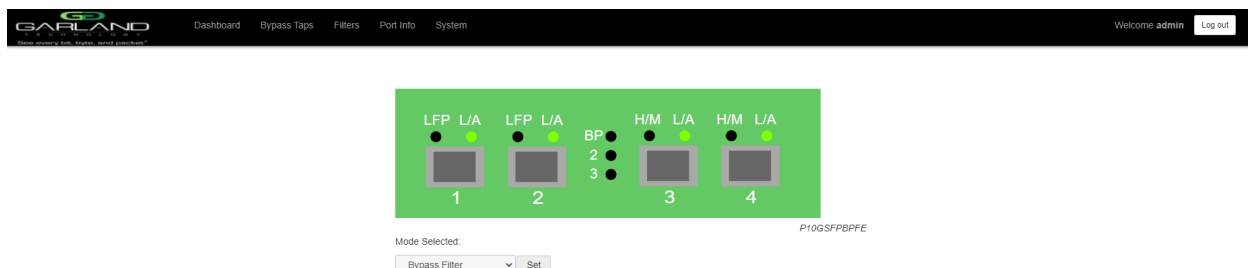
between the network ports. When the issue with the primary inline appliance is resolved, has link and heartbeats, the tap will automatically switch back to inline.

- | | |
|---------------------|--|
| Force Bypass | If selected, the tap will switch the traffic between the network ports with no regard for the primary inline appliance link or heartbeats. |
| Force Inline | If selected, the tap will not be able to switch to bypass. The traffic will flow bidirectional from one network port, through the primary inline appliance and back to the other network port. If an issue occurs with the primary inline appliance, loss of link or heartbeats, the traffic will go down. |
3. **Fail Mode** The Fail Mode is always open. If power is lost to the unit. The traffic will switch between the network ports.
 4. **LFP** If enabled and link is lost on one of the network ports. The TX will be disabled on the other network port. The RX for both network ports remain on.
 5. **Reverse Bypass** If enabled and the primary inline appliance fails, loss of link or heartbeats. The TX will be disabled on both of the network ports. The RX for both network ports remain on.
6. Select Accept to save updates. Save must additionally be selected on the Tap panel.
 7. Select Cancel to return the Tap panel.

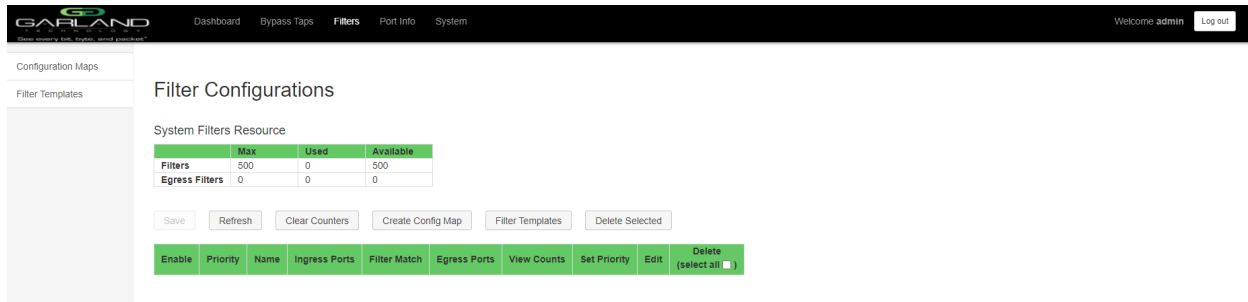
5. Filter

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

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Filter Templates 2. Statistics 3. Config Maps | <ol style="list-style-type: none"> 4. Egress Filter Resources (0) 5. Ingress Filters Resources (500) |
|--|--|



Access the Filter panel by selecting Filter on the Dashboard menu bar.



The Filter Configurations panel will be displayed.

5.1 Filter Templates

Filter templates may be applied to config maps as an ingress filter. A filter template may be created as a Pass All or Pass By. Filter templates will also appear on the Create Config Map panel. Modifications to the filter template being used as an ingress filter are allowed. Changes made to the filter template applied to a config map will not change the original filter template. Once the config map is saved, the filter template becomes an ingress filter, thus, filter templates may be deleted even if used on a config map. It is advisable to rename a filter template applied to a config map if the original filter template was modified when applied to a config map.

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 filter name, (0-16 characters).
4. Enter the description, optional (0-64 characters).
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 filter options will be displayed as follows:

Source MAC Address and Source MAC Mask, (optional)
 Destination MAC Address and Destination MAC Mask, (optional)
 Ether Type
 Source IP Address and Source IP Mask, (optional)
 Destination IP Address and Destination IP Mask, (optional)
 Inner VLAN ID (0-4094)
 Outer VLAN ID (0-4094)
 DSCP (0-63)
 IP Protocol (TCP, UDP or Other, (0-255))
 L4 Source Port (0-65535) or Range, (Minimum 0-65535 – Maximum 0-65535)
 L4 Destination Port (0-65535) or Range, (Minimum 0-65535 – Maximum 0-65535)

7. Select Save Template once all desired options have been enabled and defined.
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.

5.2 Config Maps

Config maps are unidirectional connections between network port 1 and inline appliance port 3 or network port 2 and inline appliance port 4. Config maps may have one ingress filter or multiple ingress filters applied. Ingress filters may be modified as they are applied to a config map even if a filter template is used.

1. Select Create Config Map on the Filter Configurations panel.

The Create Config Map panel will be displayed. Any previously created filter templates will be displayed.

2. Select the Name pencil to apply a name, optional.
3. Place the cursor in the Name panel and enter the name, (1-16 characters).
4. Select the Check to apply updates.
5. Select the Description pencil to apply a description, optional.
6. Place the cursor in the Description panel and enter the description, optional (1-64 characters).
7. Select the Check to apply updates.

5.3 Ingress Ports

1. Add ingress ports by placing the cursor on the desired network port 1 or 2. Select with the left mouse button. Drag the port to the Ingress panel and release.
2. Remove a port by selecting the red X.

5.4 Ingress Filters

1. Add ingress filters by placing the cursor on the desired filter template. A previously created filter template or the New filter template may be selected. The New template is by default a Pass All filter. Select with the left mouse button. Drag the filter template to the Filter panel and release. Repeat for all desired filter templates.

Filter templates may be added in any combination. If multiple filter templates are added, then the top filter template is the highest priority. Filter templates may be selected and moved up or down depending on preference.

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

The Edit Filter panel will be displayed.

It is advisable to rename a previously created filter template if modifications are made when applied to a config map. Changes made to a previously created filter template will not change the original filter template.

3. Select Accept once all desired options have been modified.
4. Remove a Filter Template by selecting the red X.

5.5 Egress Ports

1. Add egress ports by placing the cursor on the desired inline appliance port 3 or 4. Select with the left mouse button. Drag the port to the Egress panel and release.
2. Remove a port by selecting the red X.

The screenshot shows the Garland EdgeSafe configuration interface. The top navigation bar includes 'Dashboard', 'Bypass Taps', 'Filters', 'Port Info', and 'System'. The left sidebar shows 'Configuration Maps' and 'Filter Templates'. The main area displays a 'Name' and 'Description' field, and a 'Ports' section with a green background and four port buttons (01, 02, 03, 04). Below this is a 'Filter Templates' section with a 'New' button. The bottom section shows a flow diagram with three panels: 'Ingress' (containing 'Port 01'), 'Filter' (containing a green filter icon), and 'Egress' (containing 'Port 03'). Arrows indicate the flow from Ingress to Filter to Egress. To the right of the flow diagram are buttons for 'Clear Map', 'Save', and 'Reset'.

5.6 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 Yes to save the Config Map.
3. Select Cancel to disregard.

5.7 Modify a Config Map

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

Name
Description
Add/Remove/Modify/Reprioritize Ingress Filters

5.7.1 Save

1. Select Save to save the current configuration.

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

2. Select Yes to save the config map.
3. Select Cancel to disregard.

5.7.2 Reset

1. Select reset to reset the current configuration.

The “Reset all changes?” panel will be displayed.

2. Select Yes to reset the Config Map.
3. Select Cancel to disregard.

The screenshot shows the web interface for the EdgeSafe 10G Bypass TAP | P10GxxBPE. The top navigation bar includes links for Dashboard, Bypass Taps, Filters, Port Info, and System. The user is logged in as 'admin'. The main content area is titled 'Filter Configurations' and displays the 'System Filters Resource' table.

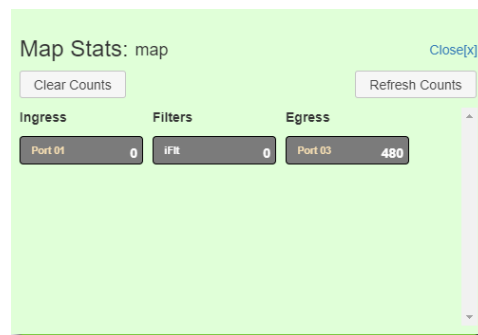
	Max	Used	Available
Filters	500	1	499
Egress Filters	0	0	0

Below the table are buttons for Save, Refresh, Clear Counters, Create Config Map, Filter Templates, and Delete Selected. At the bottom, there is a table with columns: Enable, Priority, Name, Ingress Ports, Filter Match, Egress Ports, View Counts, Set Priority, Edit, and Delete (select all). The first row shows a filter named 'map' with priority 1, 0 ingress ports, 0 filter matches, and 0 egress ports.

5.8 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.
9. Select Close to return to the Filter Configurations panel.

5.9 Delete Config Map

1. Select the Delete in the Delete column for the desired config map.
2. The Select All option may be selected to delete all config maps.
3. Select Delete Selected.

5.10 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.

Filter Configurations

System Filters Resource

	Max	Used	Available
Filters	500	1	499
Egress Filters	0	0	0

Buttons: Save, Refresh, Clear Counters, Create Config Map, Filter Templates, Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
	1	map	01	0	02	11	^ v Set		

5.10.1 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.

5.10.2 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.

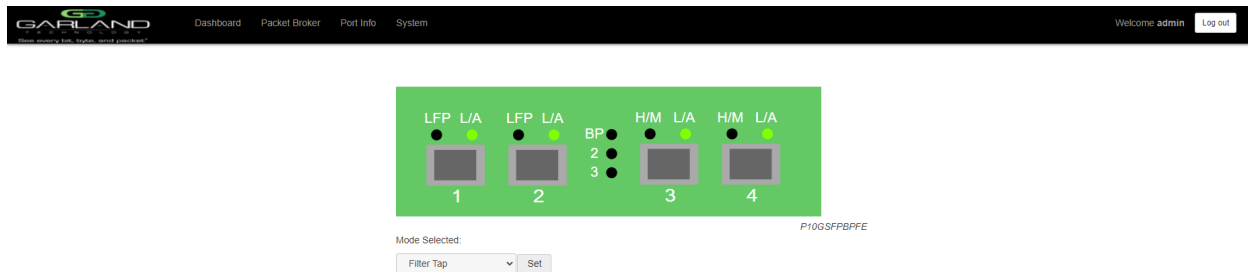
P10GxxBPE Filter Tap Mode

In the Filter Tap Mode the ports are assigned the following defaults, however when the unit is placed in this mode there are no default config maps created between network ports 1 and 2 and filter tap ports 3 and 4. The traffic that is passed to the filter ports is determined by the config map(s) and filter(s) created.

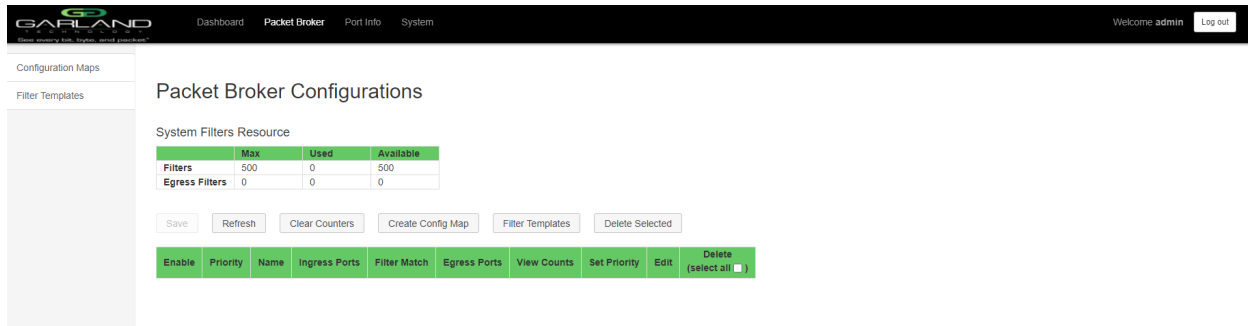
Port 1	Network Port
Port 2	Network Port
Port 3	Filter Tap Port
Port 4	Filter Tap Port

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

1. Filter Templates
2. Config Maps
3. Statistics
4. Ingress Filters Resources (500)
5. Egress Filter Resources (0)



Access the Packet Broker panel by selecting Packet Broker on the Dashboard menu bar.



The Packet Broker Configurations panel will be displayed.

1 Filter Templates

Filter templates may be applied to config maps as an ingress filter. A filter template may be created as a Pass All or Pass By. Filter templates will also appear on the Create Config Map panel. Modifications to the filter template being used as an ingress filter are allowed. Changes made to the filter template applied to a config map will not change the original filter template. Once the config map is saved, the filter template becomes an ingress filter, thus, filter templates may be deleted even if used on a config map. It is advisable to rename a filter template applied to a config map if the original filter template was modified when applied to a config map.

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 filter name, (0-16 characters).
4. Enter the description, optional (0-64 characters).
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 filter options will be displayed as follows:
 - Source MAC Address and Source MAC Mask, (optional)
 - Destination MAC Address and Destination MAC Mask, (optional)
 - Ether Type
 - Source IP Address and Source IP Mask, (optional)
 - Destination IP Address and Destination IP Mask, (optional)
 - Inner VLAN ID (0-4094)
 - Outer VLAN ID (0-4094)
 - DSCP (0-63)
 - IP Protocol (TCP, UDP or Other, (0-255))
 - L4 Source Port (0-65535) or Range, (Minimum 0-65535 – Maximum 0-65535)
 - L4 Destination Port (0-65535) or Range, (Minimum 0-65535 – Maximum 0-65535)
7. Select Save Template once all desired options have been enabled and defined.
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.

2 Config Maps

Config maps are unidirectional connections between ingress port(s) to egress port(s). Config maps may have one ingress filter or multiple ingress filters applied. Ingress filters may be modified as they are applied to a config map even if a filter template is used. Egress filters may be applied to egress ports and may be modified even if a filter template is selected.

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

The screenshot displays the 'Create Config Map' interface within the Garland Packet Broker Configuration tool. The top navigation bar includes 'Dashboard', 'Packet Broker', 'Port Info', and 'System'. The user is logged in as 'admin'. The left sidebar shows 'Configuration Maps' and 'Filter Templates'. The main panel has a 'Back To Map List' button and fields for 'Name' and 'Description'. Below these are counters for 'Available Filters: 500/500' and 'Available Egress Filters: 0/0'. A 'Ports' section shows a green bar with four port icons labeled 01, 02, 03, and 04. At the bottom, a 'Filter Templates' section has a 'New' button. The central diagram shows a flow from an 'Ingress' box to a 'Filter' box, and then to an 'Egress' box. To the right of the diagram are 'Clear Map', 'Save', and 'Reset' buttons.

The Create Config Map panel will be displayed. Any previously created filter templates will be displayed.

2. Select the Name pencil to apply a name, optional.
3. Place the cursor in the Name panel and enter the name, (1-16 characters).
4. Select the Check to apply updates.
5. Select the Description pencil to apply a description, optional.
6. Place the cursor in the Description panel and enter the description, optional (1-64 characters).
7. Select the Check to apply updates.

2.1 Ingress Ports

1. Add ingress ports 1 or 2 by placing the cursor on the desired port. Select with the left mouse button. Drag the port to the Ingress panel and release. Both network ports may be added if desired.

Ports may be added in any combination. If multiple ports are added, then the traffic from all ingress ports will be aggregated.

2. Remove a port by selecting the red X.

2.2 Ingress Filters

1. Add ingress filters by placing the cursor on the desired filter template. A previously created filter template or the New filter template may be selected. Select with the left mouse button. Drag the filter template to the Filter panel and release it. Repeat for all desired filter templates. Filter templates

maybe added in any combination. If multiple filter templates are added, then the top filter template is the highest priority. Filter templates may be selected and moved up or down depending on preference.

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

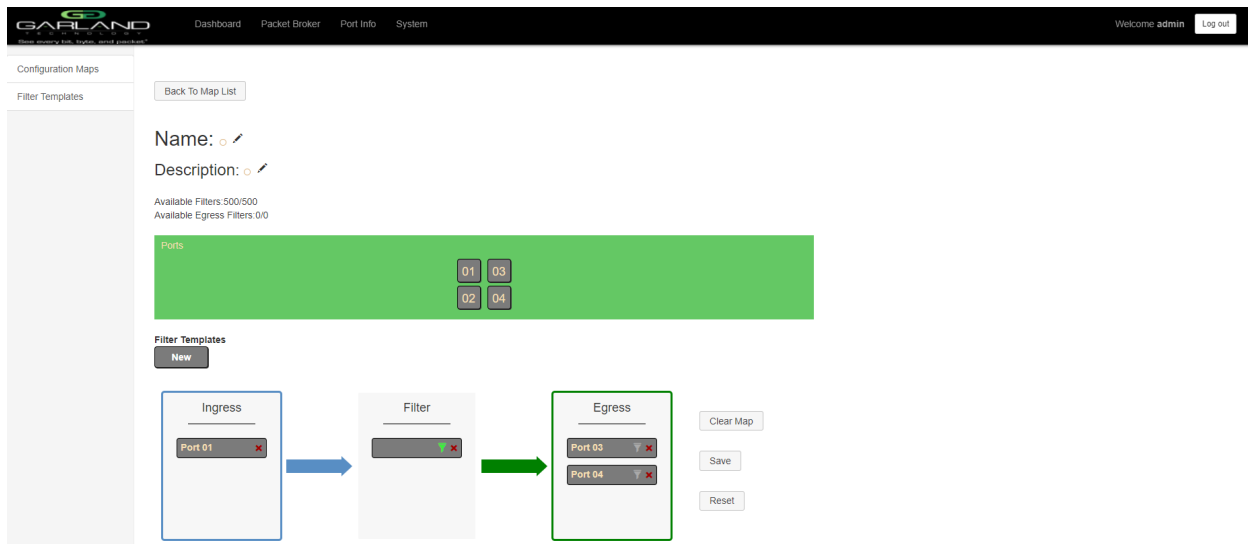
The Edit Filter panel will be displayed.

It is advisable to rename a previously created filter template if modifications are made when applied to a config map. Changes made to a previously created filter template will not change the original filter template.

3. Select Accept once all desired options have been modified.
4. Remove a Filter Template by selecting the red X.

2.3 Egress Ports

1. Add egress ports 3 or 4 by placing the cursor on the desired port. Select with the left mouse button. Drag the port to the Egress panel and release. Both filter tap ports may be added if desired.
2. Remove a port or load balance group by selecting the red X.



2.4 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 Yes to save the Config Map.
3. Select Cancel to disregard.

Packet Broker Configurations

System Filters Resource

	Max	Used	Available
Filters	500	2	498
Egress Filters	0	0	0

Save Refresh Clear Counters Create Config Map Filter Templates Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
<input checked="" type="checkbox"/>	1	map	01	0	03 04		^ v Set		<input type="checkbox"/>
<input checked="" type="checkbox"/>	2	map(2)	02	0	04		^ v Set		<input type="checkbox"/>

2.5 Modify a Config Map

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

- Name
- Description
- Add/Remove Ingress Ports
- Add/Remove/Modify/Reprioritize Ingress Filters
- Add/Remove Egress Ports

2.5.1 Save

1. Select Save to save the current configuration.

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

2. Select Yes to save the config map.
3. Select Cancel to disregard.

2.5.2 Reset

1. Select reset to reset the current configuration.

The “Reset all changes?” panel will be displayed.

2. Select Yes to reset the Config Map.
3. Select Cancel to disregard.

Packet Broker Configurations

System Filters Resource

	Max	Used	Available
Filters	500	2	498
Egress Filters	0	0	0

Save Refresh Clear Counters Create Config Map Filter Templates Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
<input checked="" type="checkbox"/>	1	map	01	0	03 04		^ v Set		<input type="checkbox"/>
<input checked="" type="checkbox"/>	2	map(2)	02	0	04		^ v Set		<input type="checkbox"/>

2.6 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.

Map Stats: map Close[x]

Clear Counts Refresh Counts

Ingress	Filters	Egress
Port 01 0	Filter 01 0	Port 03 0
Port 02 0	Filter 02 0	Port 04 0
	Filter 03 0	

4. Select Refresh Counts to refresh the statistics.
5. Select Clear Counts to clear and refresh the statistics.
9. Select Close to return to the Packet Broker Configurations panel.

Packet Broker Configurations

System Filters Resource

	Max	Used	Available
Filters	500	2	498
Egress Filters	0	0	0

Save Refresh Clear Counters Create Config Map Filter Templates Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
<input checked="" type="checkbox"/>	1	map	01	0	03 04	1	^ v Set		<input type="checkbox"/>
<input checked="" type="checkbox"/>	2	map(2)	02	0	04	1	^ v Set		<input type="checkbox"/>

2.7 Delete Config Map

1. Select the Delete in the Delete column for the desired config map.
2. The Select All option may be selected to delete all config maps.
3. Select Delete Selected.

Packet Broker Configurations

System Filters Resource

	Max	Used	Available
Filters	500	2	498
Egress Filters	0	0	0

Save Refresh Clear Counters Create Config Map Filter Templates Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
<input checked="" type="checkbox"/>	1	map	01	0	03 04	1	^ v Set		<input type="checkbox"/>
<input checked="" type="checkbox"/>	2	map(2)	02	0	04	1	^ v Set		<input type="checkbox"/>

2.8 Config Map Priority

The config map priority needs to be considered when the same ingress port is used in multiple config maps to multiple egress destinations or the same egress destination. In this case, the config map with the highest priority will be considered first. In the above example there are three config maps with ingress port 1. The Traffic_A config map is the highest priority, 1. The Traffic_B is the next priority, 2. The Traffic_C is the next priority, 3. Consequently, a config map with priority 21 has a higher priority than a config map with priority 34.

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.

Packet Broker Configurations

System Filters Resource

	Max	Used	Available
Filters	500	2	498
Egress Filters	0	0	0

Save Refresh Clear Counters Create Config Map Filter Templates Delete Selected

Enable	Priority	Name	Ingress Ports	Filter Match	Egress Ports	View Counts	Set Priority	Edit	Delete (select all)
✓	1	map	01	0	03 04	1	Set	✎	☐
-	2	map(2)	02	0	04	1	Set	✎	☐

2.9 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.

2.9.1 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.

2.9.2 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.

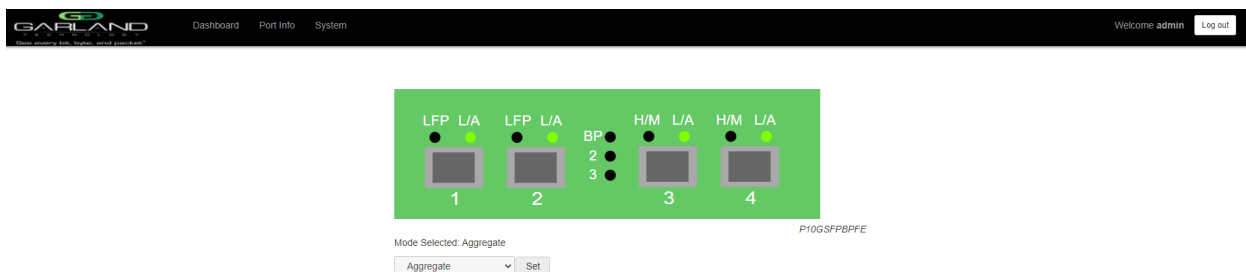
P10GxxBPE Aggregate Mode

In the Aggregate Mode the ports are assigned the following defaults.

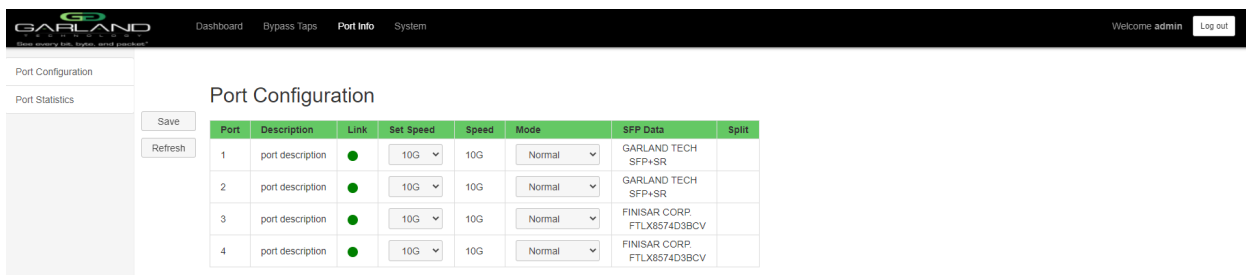
Port 1	Network Port
Port 2	Network Port
Port 3	Aggregate Port
Port 4	Aggregate Port

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

- | | |
|---------------------|--------------------|
| 1. Port Number | 6. Mode |
| 2. Port Description | 7. SFP Data |
| 3. Link | 8. Split |
| 4. Set Speed | 9. Port Statistics |
| 5. Speed | |



Access the Port Configuration panel by selecting Port Info on the Dashboard menu bar.



The Port Configuration panel will be displayed.

1 Port Configuration

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

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.

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.

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.

2 Port Statistics

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

- | | | |
|---------------------|----------------------|--------------------|
| 1. Port number | 4. Receive Errors | 7. Transmit Errors |
| 2. Receive Packets | 5. Transmit Packets | |
| 3. Receive Discards | 6. 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.

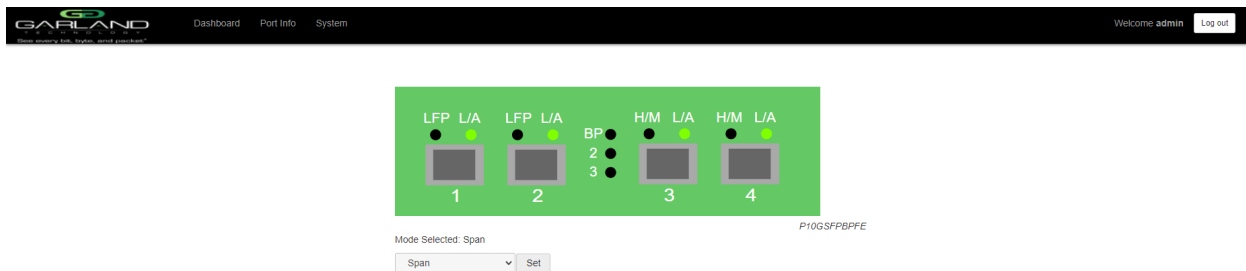
P10GxxBPE Span Mode

In the Span Mode the ports are assigned the following defaults.

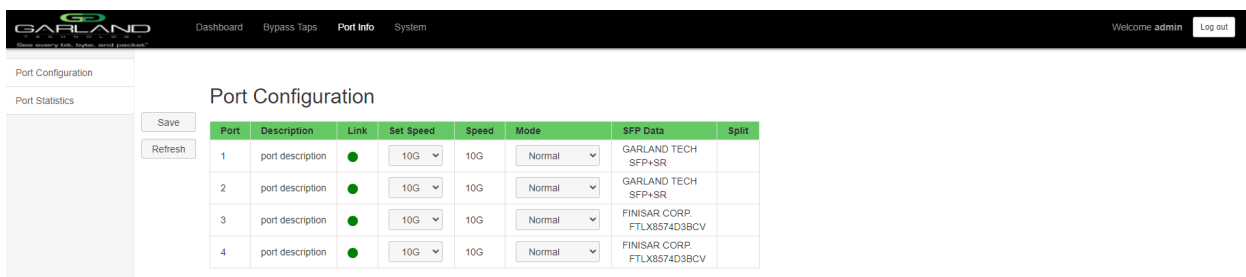
Port 1	Network Port
Port 2	Span Port
Port 3	Span Port
Port 4	Span Port

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

- | | |
|---------------------|--------------------|
| 1. Port Number | 6. Mode |
| 2. Port Description | 7. SFP Data |
| 3. Link | 8. Split |
| 4. Set Speed | 9. Port Statistics |
| 5. Speed | |



Access the Port Configuration panel by selecting Port Info on the Dashboard menu bar.



The Port Configuration panel will be displayed.

1 Port Configuration

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

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.

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.

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.

2 Port Statistics

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

- | | | |
|---------------------|----------------------|--------------------|
| 1. Port number | 4. Receive Errors | 7. Transmit Errors |
| 2. Receive Packets | 5. Transmit Packets | |
| 3. Receive Discards | 6. 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.

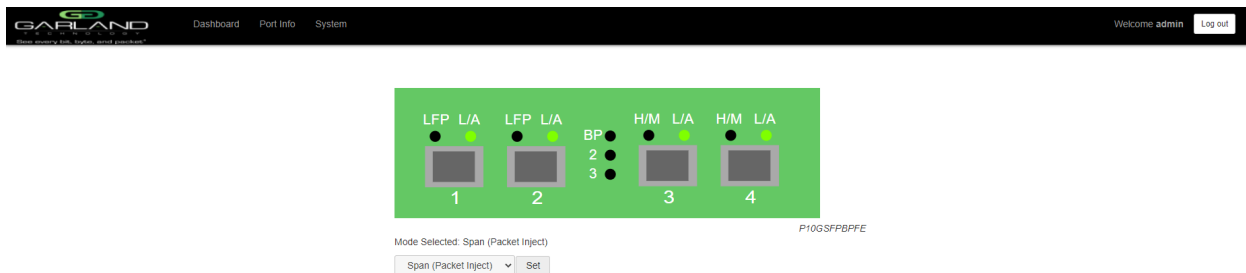
P10GxxBPE Span Mode

In the Span Packet Inject Mode the ports are assigned the following defaults.

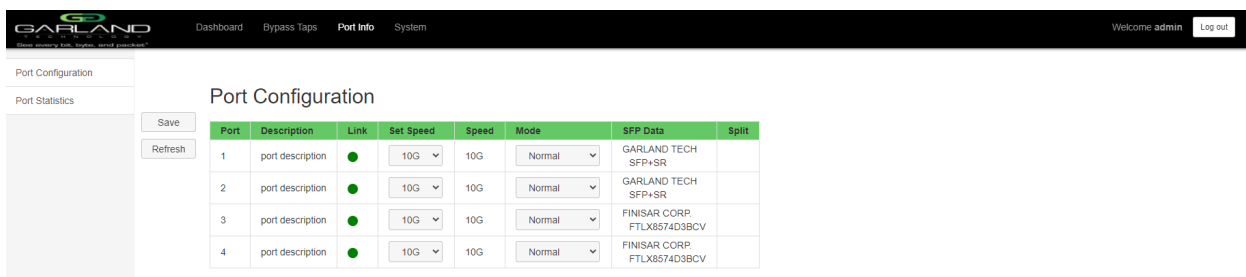
Port 1	Network Port
Port 2	Span Packet Inject Port
Port 3	Span Packet Inject Port
Port 4	Span Packet Inject Port

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

- | | |
|---------------------|--------------------|
| 1. Port Number | 6. Mode |
| 2. Port Description | 7. SFP Data |
| 3. Link | 8. Split |
| 4. Set Speed | 9. Port Statistics |
| 5. Speed | |



Access the Port Configuration panel by selecting Port Info on the Dashboard menu bar.



The Port Configuration panel will be displayed.

1 Port Configuration

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

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.

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.

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.

2 Port Statistics

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

- | | | |
|---------------------|----------------------|--------------------|
| 1. Port number | 4. Receive Errors | 7. Transmit Errors |
| 2. Receive Packets | 5. Transmit Packets | |
| 3. Receive Discards | 6. 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/

For questions, please contact Garland Technology Support at:
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Tel: 716.242.8500 Online: garlandtechnology.com/support