



Garland Technology Modular Chassis

Available in 1U (4 Slots) and 2U (12 Slots) AC or DC Power with Filtering Backplane

The M1GXACSF Filtering Backplane Chassis can receive up to 4 or 12 1Gbps Modules depending on whether the chassis is a 1U chassis or a 2U chassis. Both chassis are equipped with dual internal power supplies for either AC or DC power sources.

The backplane feature can be used with all the Garland Technology 1Gbps Modular TAPs. If you have Garland Technology Modules purchased before this Aggregating Backplane Chassis was released (April, 2015) and you want to be able to take advantage of the aggregating backplane you will need to update the firmware of the modules. Otherwise, the modules will operate as they normally would in the new chassis. There is a RJ-45 Management port that allows access to the Command Line Interface (CLI).

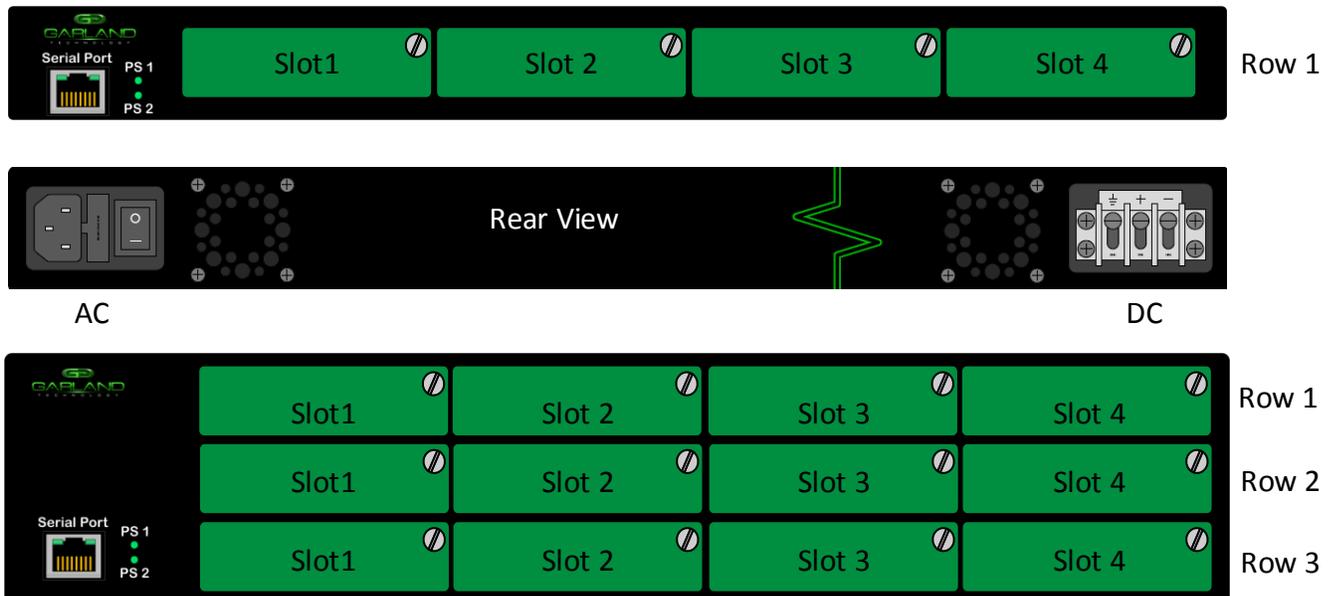


Figure 1: M1GXXCSF Slot Layout

To deploy the M1GXXCSF Modular Chassis with Filtering Backplane into your network, the following steps apply:

- Carefully unpack the chassis and install it into a 19" equipment rack. The model M1G1XCSF will require 1U of rack space and the model M1G2XCSF will require 2U of rack space. You will need 2 AC or DC connections to apply power to the two internal power supplies. Now insert your Garland Technology Modular TAPs by carefully sliding into the available slots in the chassis.
- If you are installing F series Modules, you will need to connect to the Chassis Management port to set up the type of Filtering you require for your application.
If you are installing legacy modules you will be able to manage them through the management port as you would in the standard Managed Chassis (for A series modules or BP series modules) or by setting up the DIP switches located on the Module's logic board.
- Connect a power cable to each of the M1GXXCSF power supplies and plug them into an available power source. Recommend plugging the cables into different power sources in case one should fail the other may not.

- Notes:**
- Fiber links are always 1000Mbps speed and Full Duplex.
 - Do not leave unused slots uncovered. Install a blanking plate on unused slots so that proper internal air circulation is maintained.

Understanding the Filtering Backplane Chassis capabilities:

The M1GXXCSF Filtering modular Chassis provides the user the capability of filtering network traffic at Layers 2, 3 and 4 of a packet. Providing the monitoring tools with only the traffic that they are interested in. This makes them more efficient to do the processing they are designed for.

Layer 2 filtering is filtering on source MAC address, destination MAC address or the VLAN ID. These may be used in any combination with each other or any other filter field.

Layer3 filtering can target all IP messages or all non-IP messages. When IP is selected, the other layer 3 filter fields appear on the menu, these are source IP address, destination IP address, and DSCP. These may be used in any combination with each other or any other filter as long as IP messaging has been selected.

Layer 4 filtering can target TCP, UDP or any other layer 4 protocol. When TCP, or UDP is selected, additional layer 4 menu items appear. These are source port and destination port. These fields are only meaningful in TCP or UDP protocols.

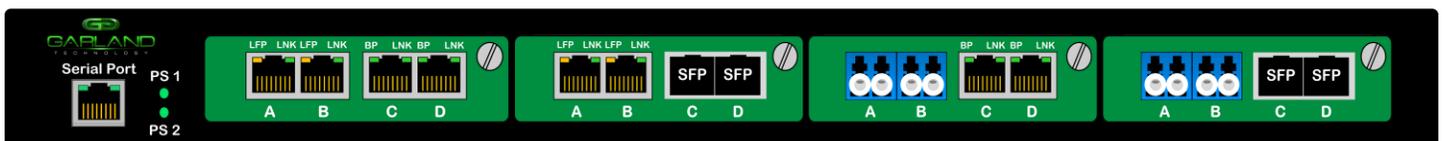


Figure 2: M1G1ACSF with four modules

Accessing the Garland Technology Modular Chassis with Filtering Backplane:

Connect to the RJ-45 Management port using the supplied cable. You will need a serial terminal emulator like PuTTY using the settings listed below:

User Name:	admin
User Password:	gtadmin1
Bits per second:	19200
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None

Opening Screen

```
Garland Technology M1G2ACSF (Code Version: 1.2.74)
Enter Username: admin
Enter Password: *****
```

Figure 3: Opening Screen - Enter Default PW 'gtadmin1'

Once you have made connection with the CLI, you can change the default Username and Password.

The Main Menu provides access to the three main areas that can be controlled on the M1GXXCSF chassis.

Option 1 gives you access to configuring the individual modules.

Option 2 provides access to set up Filtering of each module to the backplane

Option 3 provides the capability to manage the Username and Password for the chassis.

Main Menu

```
Garland Technology M1G2ACSF (Code Version: 1.2.74)
```

```
Main Menu
```

```
Select:
```

1. Change/View Module Configuration
2. Filtering
3. Change Username/Password
0. Logout

Figure 4: Main Menu

Definitions:

SMF	Singlemode Fiber Network Ports
MMF	Multimode Fiber Network Ports
RJ-45	Copper Port
SFP	Transceiver Port – 1Gbps
LFP	Link Failure Propagation

```

                Select slot Number to view/modify
Chassis serial number: 21470000101

Power Supply 1: Up
Power Supply 2: Down
                #: Module Type
                Operating Mode (Current State)
-----
1:   1: M1GCCF          2: M1GCCF          3: M1GCCF          4: M1GCCF
5:   1: M1GCCF          6: M1GCSF          7: Empty           8: M1GCCF
9:   1: Empty          10: M1GSSF         11: Empty           12: M1GSCF

Press
1: Select Slot 1   2: Select Slot 2   3: Select Slot 3   4: Select Slot 4
5: Select Slot 5   6: Select Slot 6   7: Select Slot 7   8: Select Slot 8
9: Select Slot 9   a: Select Slot 10  b: Select Slot 11  c: Select Slot 12
0: Exit

```

Figure 5: Change/View Module Configuration

Selecting #1 On the Main Menu brings up the Select Slot Number Screen, this screen provides the chassis Serial Number and the condition of the power supplies as to whether they are “UP” or “DOWN”.

It also displays the Model Number of the Modules inserted in the chassis if a module is present.

Pressing number 1, 2, 3 or 4 will select the slot of the module you want to manage.

```

=====
Slot 1 Status:
=====
Link State:          Port: A          Port: B          Port: C          Port: D
                    Down          Down          Down          Down
Speed:
Duplex:
Media Type:          SMF          SMF          SFP          SFP
Serial Number: 21430020100
Software Version: 1.7.30
=====
Slot 1 Select Option:
=====
Press
TAPs with Fiber Network ports have all four ports set to 1Gbps
TAPs with Fiber Network ports always have LFP ON.
Press Enter to refresh this status screen
0: Exit

```

Figure 6: Show Status of the Module of the selected slot (SMF)

- Slot number:** 1 was selected and this Screen provides the status of the module in Slot 1.
 - Link State:** Link State indication - UP or DOWN
 - Speed:** Is always 1Gbps for Fiber Network and Monitor ports. For Copper Network ports the speed can be 10Mbps, 100Mbps, or 1000Mbps. The Monitor side will be 1000Mbps.
 - Duplex:** Indicates if the link is Full or Half Duplex
 - Serial Number:** Shows the Module's serial number
 - Software Version:** Shows the firmware version of the Module.
- If the Module has fiber network ports, there is nothing to select on this screen as the speed is always 1Gbps and the Duplex is always full

```

=====
Slot 3 Status:
=====
Link State:      Port: A      Port: B      Port: C      Port: D
                  Down        Down        Down        Down
Speed:
Duplex:
Media Type:      RJ45         RJ45         RJ45         RJ45
Serial Number: 21410002013
Software Version: 1.1.30
=====
Slot 1 Select Option:
=====
Press
2: Set Speed (Autonegotiate 1G)
3: Set LFP Mode (ON)
B: Restore Defaults
Press Enter to refresh this status screen
0: Exit

```

Figure 7: Show Status of the Module of the selected slot (RJ-45 Copper)

- Slot number:** 3 was selected and this Screen provides the status of the module in slot3.
- Link State:** Link State indication - UP or DOWN
- Speed:** Copper Network port the speed can be 10Mbps, 100Mbps or 1000Mbps. The Monitor side will be 1000Mbps
- Media Type:** Can be RJ-45 Copper, MM/SM Fiber or SFP
- Duplex:** Indicates if the link is Full or Half Duplex
- Serial Number:** Shows the Module's serial number
- Software Version:** Shows the firmware version of the Module.

Pressing #2 when on the Slot Status Screen of a Copper TAP Module, will bring up this screen.

```
=====  
Slot 3 Speed Mode Configuration  
=====  
  
Current Mode: Autonegotiate 1G  
1: Autonegotiate 1G  
2: Autonegotiate 100M  
3: Autonegotiate 10M  
4: Forced Gbit Full Duplex  
5: Forced 100Mbit Full Duplex  
6: Forced 10Mbit Full Duplex  
7: Synchronize  
0: Return and Apply
```

Figure 8: Speed Mode Configuration

- Current Mode:** Shows the current speed setting of the module in the currently selected slot.
- Numbers 1-7:** Shows the various speed settings available for this module.

Pressing #3 when on the Slot Status Screen of a Copper TAP Module, will bring up this screen.

```
=====  
Slot 4 LFP Mode Configuration  
=====  
  
Current Mode: ON  
1: ON  
2: OFF  
  
0: Return and Apply
```

Figure 9: Setting LFP Mode

Pressing **b** when on the Slot Status Screen of a Copper TAP Module, will bring up this Restore Defaults screen.

```

=====
Slot 4 Restore Defaults
=====

1: Restore defaults
0: Exit without restore
  
```

Figure 10: Restore Defaults

Filtering

Pressing **#2** on the Main Menu Screen, will begin the Filtering setup process.

We will set up filters for Layer 2, Layer 3 and Layer 4;

Below is the screen you get when pressing '2' on the main menu. This is a 2U chassis, so this menu allows you to select one of three rows to set up filters. Pressing '2' on a 1U chassis would take you directly to the 'Filter Row' menu.

The 'Select Row' Screen

```

Garland Technology M1G2ACSF (code Version: 1.2.74)

Select Row

1:      M1GCCF      M1GCCF      M1GCCF      M1GCCF
2:      M1GCCF      M1GCSF      Empty       M1GCCF
3:      Empty       M1GSSF      Empty       M1GSCF
0: Back
  
```

Figure 11: Restore Defaults

Layer 2 Filtering

Layer 2 filtering is filtering on source MAC address, destination MAC address or the VLAN ID. These may be used in any combination with each other or any other filter field.

We will set up two filters at layer 2:

- 1: Filter 'Case 234A' to ingress card 1 port a, select only source IP 192.168.1.137, and send it out to card 3 port c.
- 2: Filter 'flt 937' to capture destination MAC address 23:e7:9a:d5:66:01 from card 4 port b and card 2 port a and send out card 1 port d.

Layer 2 filtering cont

Row Filters Menu

```
Garland Technology M1G2CC (Code Version:1.2.74)

Row 1 Filters

No Filters Defined for row 1.

u:cursor up   d:cursor down   t:filter up     g:filter down
a:add         e:edit         i:insert       x:delete
v:view       c:clear count r:reset       h:help
0:exit
Select:
```

Figure 12: Row Filters Menu

Press 'A' to begin the process of adding and defining a filter.

'Edit Filter' Menu

```
Edit Filter:
1. Name           : Filter
2. Ports          : [   |   |   |   ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:
```

Figure 13: Edit Filter Menu

This is the Edit Filter Menu. The program provided the default name 'Filter'. Press '1' to change the filter name.

Naming the Filter

```
Edit Filter:
All Values in Decimal.
1. Name           : Filter
2. Ports          : [   |   |   |   ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:
Filter Name: 'Case 432A'
```

Figure 14: Filter Name Edit

The 'Filter Name' line appears below the menu. First delete the word FILTER then enter the new filter name 'case 432A'

The Filter has a name

```
Edit Filter:
1. Name           : case 432A
2. Ports          : [   |   |   |   ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:
```

Figure 15: Edit Filter Menu

Press 'Return' and the filter name 'case 432A' gets placed on the Name Line of the Edit Filter Menu. Press '2' so we can select the ingress port (s) for this filter.

The Select 'Ingress Ports' Menu

```
Garland Technology M1G2ACSF (Code Version: 1.2.74)
Select Ingress Port(s)
map: [ i |   | i |   ]

Slot 1 - M1GCCF:
1: A1 [ ]
2: B1 [*]
Slot 2 - M1GCCF:
3: A2 [ ]
4: B2 [ ]
Slot 3 - M1GCCF:
5: A3 [*]
6: B3 [ ]
Slot 4 - M1GCCF:
7: A4 [ ]
8: B4 [ ]
e: Egress Ports Menu
0: Exit
```

Figure 16: Ingress Ports Menu

Pressing '2' takes you directly to the 'Select Ingress Port (s)' menu. Press '2' and '5'. This places an asterisk in the Brackets of port B1 and port A3 as well as placing 'i's in their respective positions on the ports map. You can go directly to the 'Select Egress Port (s) menu to setup the egress port (s) by pressing 'e'.

'Egress Ports' Menu

```
Garland Technology M1G2ACSF (Code Version: 1.2.74)
Select Egress Port(s)
map: [ i |   | i |   | o ]

Slot 1 - M1GCCF:
1: C1 [ ]
2: D1 [ ]
Slot 2 - M1GCCF:
3: C2 [ ]
4: D2 [ ]
Slot 3 - M1GCCF:
5: C3 [ ]
6: D3 [ ]
Slot 4 - M1GCCF:
7: C4 [ ]
8: D4 [*]
i: Ingress Ports Menu
0: Exit
```

Figure 17: Select Egress Port (s) Menu

Press 'e' to bring up the Select Egress Port (s) screen then press 8 to place an asterisk in D4 brackets and an 'o' in the appropriate place on the ports map. Then press '0' to return to the Edit Filter Menu.

Ingress/Egress ports for filter Case 432A

```
Edit Filter:
1. Name           : case 432A
2. Ports          : [ i |   | i |   | o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:
```

Figure 18: Case 432A w/Ingress & Egress

We now have an 'i' in the B1 and A3 positions of the ports map line and an 'o' in the D4 position of the ports map line. Press '0' to return to the 'Row 1 Filters' Screen

Return to the 'Row 1 Filters' Screen

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

#: Name          Ports          Count
-> 1: Case 432A   [ i | |i | o]  0

u:cursor up    d:cursor down  t:filter up    g:filter down
a:add          e:edit         i:insert       x:delete
v:view         c:clear count  r:reset       h:help
0:exit        *** s:SAVE AND APPLY FILTERS ***
Select:
```

Figure 19: Row 1 Filters' Screen showing the case 432A filter

We now have a filter 'case 432A' which can send traffic from ports 1B and 3A to port 4D (slot 1 port B and slot 3 port A to slot 4 port D). At this point ALL traffic will be sent as no filters have been defined. Note the presence of the 'S' in the menu. This indicates that the filter has not been saved in flash memory or downloaded to the modules yet.

Press 'S' now

The Filter is now being saved

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

#: Name          Ports          Count
-> 1: Case 432A   [ i | |i | o]  0

u:cursor up    d:cursor down  t:filter up    g:filter down
a:add          e:edit         i:insert       x:delete
v:view         c:clear count  r:reset       h:help
0:exit        *** s:SAVE AND APPLY FILTERS ***
Select:

Updating filters in modules in row 1, slot 1, 2, 3, 4 ...
```

Figure 20: Row 1 Filters screen while saving the filter

The program is saving the filter to Flash and downloading to the modules.

Row Filters Screen after saving filter 432A

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters

#: Name          Ports          Count
-> 1: Case 432A   [ i | |i | o]  0

u:cursor up    d:cursor down  t:filter up    g:filter down
a:add          e:edit         i:insert       x:delete
v:view         c:clear count  r:reset       h:help
0:exit
Select:
```

Figure 21: Edit Filter Menu to set Destination MAC

Notice the 'S' Save and Download selection is gone. Now we want to copy the filter then edit it to filter on the destination MAC address. Pressing function key 'F1' to copy the currently selected filter.

Row 1 Filters Screen after pressing F1

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

#: Name          Ports          Count
-> 1: Case 432A   [ i | |i | o]  0
    1: Case 432A   [ i | |i | o]  0

u:cursor up    d:cursor down  t:filter up    g:filter down
a:add          e:edit         i:insert       x:delete
v:view         c:clear count  r:reset       h:help
0:exit        *** s:SAVE AND APPLY FILTERS ***
Select:
```

Figure 22: Edit Filter Menu to set Source IP

Now we can edit the new filter we just added by pressing 'E'.

Back to the Edit Filter Screen

```
Edit Filter:
1. Name          : case 432A dmac
2. Ports         : [ i | |i | o]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      :
0: Exit
Enter menu selection:
```

Figure 23: Edit Filter Menu to set Destination MAC

Press '1' so we can provide a name for the new filter. In this case we will add to the existing name 'case 432A' we will enter dmac at the end of the current name. Press 5 to setup Destination MAC.

Note: The name of the filter is for User's convenience only and does not affect the operation. So multiple filters with the same name are allowed.

Pressing '5' adds a line to the menu

```
Edit Filter:
1. Name          : case 432A dmac
2. Ports         : [ i | |i | o]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      :
0: Exit
Enter menu selection:

filter on DESTINATION MAC address? [N]:
```

Figure 24: Begin setting up the destination MAC address

The program will add 'filter on DESTINATION MAC address? [N]:' line at the bottom of the menu. Press 'y' to add the address.

Press 'y' to add MAC address

```

Edit Filter:
1. Name           : case 432A dmac
2. Ports          : [ i | | i | | o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:

filter on DESTINATION MAC address? [N]:
Enter DESTINATION MAC address? (hex):
  
```

Figure 25: ready to enter destination MAC address

The program will add 'Enter DESTINATION MAC address? (hex):' line at the bottom of the menu. Press 'y' to add the address. at this point, the controller expects the user to enter 6 hex numbers. The ':' delimiting colons are added automatically for convenience. Hex numbers expected are two digits each with digits being 0-9 or a-f.

Begin Adding DESTINATION MAC address

```

Edit Filter:
1. Name           : case 432A dmac
2. Ports          : [ i | | i | | o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:

filter on DESTINATION MAC address? [N]:y
Enter DESTINATION MAC address? (hex): c8:20:f
  
```

Figure 26: Entering the destination MAC address

We will enter 'c', '8','2','0','f'. If any other digit besides 0-9 and a-f is entered such as a 'g', a warning message will appear. For example pressing 'g' will warn of an INVALID CHARACTER.

If an invalid character is entered

```

Edit Filter:
1. Name           : case 432A dmac
2. Ports          : [ i | | i | | o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:5

filter on DESTINATION MAC address? [N]:y
Enter DESTINATION MAC address? (hex): c8:20:f
  
```

Figure 27: Enter the next octet of the Source IP

Pressing 'g' caused - !INVALID CHARACTER! Message to Pop up. The 'g' is not entered on the line.

Enter the remainder of the address

```

Edit Filter:
1. Name           : case 432A dmac
2. Ports          : [ i | | i | | o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:5

filter on DESTINATION MAC address? [N]:y
valid MAC address Enter DESTINATION MAC address? (hex): c8:20:f1:57:3a:42
  
```

Figure 28: Enter remainder of address

Enter the remainder of the DESTINATION MAC address - '1', '5', '7', '3', 'a', '4', '2' and if you entered the numbers correctly, the program will announce that you have entered a 'valid MAC address'. Press 'enter' to accept the MAC address.

We now have a valid Destination MAC address

```

Edit Filter:
1. Name           : case 432A dmac
2. Ports          : [ i | | i | | o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address: c8:20:f1:57:3a:42
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:5
  
```

Figure 29: The Destination MAC address is added to line 5

Please note that entering the SOURCE MAC address is operationally the same as entering the DESTINATION MAC address. If a SOURCE MAC address is entered at this point, the filter would require a packet to match both criteria before passing that packet. Press '0' to return to the Row 1 Filter screen.

Back to the Row 1 Filters Screen

```

Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# : Name           Ports           Count
-> 1: Case 432A dmac [ i | | i | | o ] 0
   1: Case 432A    [ i | | i | | o ] 0

u:cursor up  d:cursor down  t:filter up   g:filter down
a:add        e:edit           i:insert      x:delete
v:view      c:clear count r:reset       h:help
0:exit      *** s:SAVE AND APPLY FILTERS ***
Select:
  
```

Figure 30: the Case 432A dmac has been created

Press 'S' to save the filters to flash and download to the modules

The Filter is saved

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters

# Name Ports Count
-> 1: Case 432A dmac [ i | |i | o] 0
   1: Case 432A [ i | |i | o] 0

u:cursor up d:cursor down t:filter up g:filter down
a:add e:edit i:insert x:delete
v:view c:clear count r:reset h:help
0:exit
Select:
```

Figure 31: We now have two Filters on the Row 1 Filters Screen

The 'S:Save and download' selection has been removed. We now want to create a new filter called 'abc'. This filter will look for packets with a VLAN ID 768 from port A on slot 2 and send them to port C on slot 1. So we will press 'a' to add the filter

Adding a new filter named 'abc'

```
Edit Filter:
1. Name : FILTER
2. Ports : [ | | | ]
3. Counter Used : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID :
7. Layer 3 :
0: Exit
Enter menu selection:
```

Figure 32: Add a new filter

We will create the new filter's name

Set up filter name and port mapping

```
Edit Filter:
1. Name : abc
2. Ports : [ o|i | | ]
3. Counter Used : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID :
7. Layer 3 :
0: Exit
Enter menu selection:6
```

Figure 33: Enter Name and port mapping

Change the filter name to 'abc' and set up port mapping as was previously described - Port A on slot 2 and port C on slot 1. Press '6' to enter the VLAN ID. Then press 'y'

Enter 768 for the VLAN ID

```
Edit Filter:
1. Name : abc
2. Ports : [ o|i | | ]
3. Counter Used : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID :
7. Layer 3 :
0: Exit
Enter menu selection:
filter on VLAN ID? [N]:y
Enter VLAN ID(decimal):768
```

Figure 34: provide VLAN ID

Enter '7','6','8' for the VLAN ID then press <enter>

VLAN ID defined

```
Edit Filter:
1. Name : abc
2. Ports : [ o|i | | ]
3. Counter Used : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID : 768
7. Layer 3 :
0: Exit
Enter menu selection:
```

Figure 35: vlan 768 assigned

Press '0' to return to the Row 1 Filters Screen

Back to the Row 1 Filters Screen

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# Name Ports Count
1: Case 432A dmac [ i | |i | o] 0
2: Case 432A [ i | |i | o] 0
-> 3: abc [ o|i | | ] 0

u:cursor up d:cursor down t:filter up g:filter down
a:add e:edit i:insert x:delete
v:view c:clear count r:reset h:help
0:exit *** s:SAVE AND APPLY FILTERS ***
Select:
```

Figure 36: Re-order the filters

Move the selection cursor up by pressing the <up arrow>. Since filters 1 and 2 both use the same ingress, packets coming in will try to meet the criteria for filter 'case 432 dmac and will only go to other filters if there is no match. To change the order (priority) of a filter, use 'T' to move the filter up one row or 'G' to move it down one row.

Move the Selection Cursor

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# : Name          Ports          Count
1 : Case 432A dmac [ i | | i | o ] 0
-> 2 : Case 432A   [ i | | i | o ] 0
3 : abc          [ o | i | | ]   0

u:cursor up  d:cursor down  t:filter up   g:filter down
a:add        e:edit             i:insert      x:delete
v:view      c:clear count  r:reset      h:help
0:exit     *** s:SAVE AND APPLY FILTERS ***
Select:
```

Figure 37: Cursor now points to case 432A

The cursor has been moved up. Press 'T' to move the filter up one row.

Case 432A filter is now in first position

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# : Name          Ports          Count
-> 1 : Case 432A   [ i | | i | o ] 0
2 : Case 432A dMAC [ i | | i | o ] 0
3 : abc          [ o | i | | ]   0

u:cursor up  d:cursor down  t:filter up   g:filter down
a:add        e:edit             i:insert      x:delete
v:view      c:clear count  r:reset      h:help
0:exit     *** s:SAVE AND APPLY FILTERS ***
Select:
```

Figure 38: Filters are now in the correct order

The 'case 432A filter is now in the first position.

Save Row 1 Filters

```
Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters

# : Name          Ports          Count
-> 1 : Case 432A   [ i | | i | o ] 0
2 : Case 432A dMAC [ i | | i | o ] 0
3 : abc          [ o | i | | ]   0

u:cursor up  d:cursor down  t:filter up   g:filter down
a:add        e:edit             i:insert      x:delete
v:view      c:clear count  r:reset      h:help
0:exit     *** s:SAVE AND APPLY FILTERS ***
Select:
```

Figure 39: The filters now need to be saved

Press 'S' to save the row 1 filters screen.

IP filtering Setting up 'Source IP Filter'

```
Edit Filter:
1. Name          : src IP fltA
2. Ports         : [ i o | | | ]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      :
0: Exit
Enter menu selection:
```

Figure 40: Start setting up Source IP

Using the menu system as previously described, we will create a filter named 'src IP fltA'. The filter on packets with a source IP address 192.168.1.102

Select Layer 3 to setup filter

```
Edit Filter:
1. Name          : src IP fltA
2. Ports         : [ i o | | | ]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      :
0: Exit
Enter menu selection:7

i.IP:
n.non-IP
e.no-filter
any other key,no change
Select layer 3 type[no filter]:
```

Figure 41: Press 'i' to select IP

We will select IP packets by pressing '7' then 'i'

Layer 3 Select IP

```
Edit Filter:
1. Name          : src IP fltA
2. Ports         : [ i o | | | ]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      : IP
8. Source IP address :
9. Destination IP address :
a. DSCP         :
b. Layer 4      :
0: Exit
Enter menu selection:
```

Figure 42: Three new options added to the menu

The Edit Filter screen changes, so now we can enter the source IP address we are interested in – 192.168.1.102 – Press 8

Setting up 'Source IP address'

```
Edit Filter:
1. Name          : src IP fltA
2. Ports         : [ i o | | | ]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      : IP
8. Source IP address :
9. Destination IP address :
a. DSCP         :
b. Layer 4      :
0: Exit
Enter menu selection:8

Filter on SOURCE IP address? [N]:
```

Figure 43: New line is added to the bottom of the Menu

Press 'y' to set up entering the SOURCE IP address.

Setting up 'Source IP address' cont

```

Edit Filter:
1. Name           : src IP fltA
2. Ports          : [i o] | | ]
3. Counter Used   : YES
4. Source IP Address :
5. Destination IP Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       :
0: Exit
Enter menu selection:8
filter on SOURCE IP address? [N]:y
Enter SOURCE IP address (decimal):192
  
```

Figure 44: adding the first octet

Enter 192

Setting up 'Source IP address' cont

```

Edit Filter:
1. Name           : src IP fltA
2. Ports          : [i o] | | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       :
0: Exit
Enter menu selection:8
filter on SOURCE IP address? [N]:y
Enter SOURCE IP address (decimal):192.
  
```

Figure 45: entering an error

The program enters the delimiter for you so all you need enter are the numbers.
Now enter 268

Setting up 'Source IP address' cont

```

Edit Filter:
1. Name           : src IP fltA
2. Ports          : [i o] | | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       :
0: Exit
Enter menu selection:8
filter on SOURCE IP address? [N]:y
Enter SOURCE IP address (decimal): 192.268<<<INVALID
  
```

Figure 46: correcting the error

Since 268 is out of range, the program puts up a message and will not allow the user to continue. This invalid entry must first be corrected in order to continue. Backspace to remove the bad entry and enter 168

Setting up 'Source IP address' cont

```

Edit Filter:
1. Name           : src IP fltA
2. Ports          : [i o] | | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       :
0: Exit
Enter menu selection:8
filter on SOURCE IP address? [N]:y
Enter SOURCE IP address (decimal): 192.168.1.102
Enter SOURCE IP mask (decimal): 255.255.255.255
  
```

Figure 47: correcting the error

Enter '1'. Since we want to place one digit in this octet we can enter the delimiter explicitly. Now enter 102 to finish the address. The program will automatically enter the SOURCE IP mask 255.255.255.255 and provides the opportunity to edit it if necessary. Press <enter>

The Source IP address is created

```

Edit Filter:
1. Name           : src IP fltA
2. Ports          : [i o] | | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address : 192.168.1.102 mask: 255.255.255.255
9. Destination IP address :
a. DSCP          :
b. Layer 4       :
0: Exit
  
```

Figure 48: finish the entry

Press '0' to return to the Row 1 Filters Screen

Back to Row 1 Filters screen

```

Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# Name Ports Count
-> 1: src IP fltA [i o] | | o] 0
2: Case 432A [i | |i | o] 0
3: Case 432A dmac [i | |i | o] 0
4: abc [ o |i | | ] 0

u:cursor up d:cursor down t:filter up g:filter down
a:add e:edit i:insert x:delete
v:view c:clear count r:reset h:help
0:exit *** s:SAVE AND APPLY FILTERS ***
Select:
  
```

Figure 49: Filter 'src IP fltA' is finished

We have created a fourth filter.
Next we will create a DSCP filter

DSCP filter

Using the menu system as previously described, we created a filter named 'DSCP=21', 4A->4C. Now, to add a filter for all packets with DSCP=21.

Start setting up 'DSCP filter'

```

Edit Filter:
1. Name           : DSCP=21
2. Ports          : [ | | | | i o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:
  
```

Figure 50: start setting up Source IP

Using the menu system as previously described, we will create a filter named 'DSCP=21'. TO filter on all packets with DSCP=21. Press '7'

Setting up 'DSCP filter' cont

```

Edit Filter:
1. Name           : DSCP=21
2. Ports          : [ | | | | i o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:7

i.IP:
n.non-IP
e.no filter
any other key.no change
Select layer 3 type[no filter]:
  
```

Figure 51: We want to select Layer 3

The get Layer 3 options when we press '3' more options appear at the bottom of the menu. Press 'i'.

Setting up 'DSCP Filter' cont

```

Edit Filter:
1. Name           : DSCP=21
2. Ports          : [ | | | | i o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :IP
8. Source IP address :
9. Destination IP Address :
a: DSCP
b: Layer 4
0: Exit
Enter menu selection:a

filter on dscp?[N]:
  
```

Figure 52: Select

Selecting IP brings up three new options, Source IP, Destination IP and DSCP. We will select 'a' to set up filter on DSCP

Setting up 'DSCP Filter' cont

```

Edit Filter:
1. Name           : DSCP=21
2. Ports          : [ | | | | i o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :IP
8. Source IP address :
9. Destination IP Address :
a: DSCP
b: Layer 4
0: Exit
Enter menu selection:a

filter on dscp?[N]:y
  
```

Figure 53: DSCP of '21' is set

Press 'y'

DSCP of 21 is set

```

Edit Filter:
1. Name           : DSCP=21
2. Ports          : [ | | | | i o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :IP
8. Source IP address :
9. Destination IP Address :
a: DSCP
b: Layer 4
0: Exit
Enter menu selection:a

filter on dscp?[N]:
  Enter DSCP(decimal 0-63):21
  
```

Figure 54: VLAN ID of '21' is set

Press '21' <return> to enter 21 on line a of the edit filter screen

Filter DSCP 21 is complete

```

Edit Filter:
1. Name           : DSCP=21
2. Ports          : [ | | | | i o ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :IP
8. Source IP address :
9. Destination IP Address :
a: DSCP
b: Layer 4
0: Exit
Enter menu selection:
  
```

Figure 55: VLAN ID of '21' is set

Filter DSCP 21 is complete. Press '0' to return to the Row 1 Filters screen

Back at the Row 1 filters screen

```
Garland Technology M1G1ACSF (Code Version:1.2.74)
Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# : Name          Ports          Count
1: src IP fltA   [ i o | | | o ] 0
2: Case 432A    [ i | |i | | o ] 0
3: Case 432A dmac [ i | |i | | o ] 0
4: abc         [ o |i | | ] 0
-> 5: DSCP=21    [ | | | |i o ]

u:cursor up  d:cursor down  t:filter up   g:filter down
a:add       e:edit          i:insert     x:delete
v:view      c:clear count  r:reset      h:help
0:exit     *** s:SAVE AND APPLY FILTERS ***
Select:
```

Figure 56: We have now added filter DSCP=21 to the Row 1 Filters

We are finished with the Layer 3 level filters. Next we will work on the Layer 4 filters

Layer 4 filtering

Layer 4 filtering captures protocols riding on layer 3 IP. Specifically the IP port number, 0-255, which identifies the Layer 4 protocol in the packet. Two of the protocols, TCP=6, and UDP=17, contain source and destination ports which can also be used as keys for filters.

ICMP filter

ICMP is identified as IP protocol =1. Using previously explained commands, we create a new filter named 'ICMP', 2B->3C...

Setting up IP protocol 1...

```
Edit Filter:
1. Name          : ICMP
2. Ports        : [ | i | o | ]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      :
0: Exit
Enter menu selection:
```

Figure 57: setting up IP protocols

We have set up a filter named 'ICMP', 2B->3C Press '7' to return to the Row 1 Filters screen

Selecting IP protocol

```
Edit Filter:
1. Name          : src IP fltA
2. Ports        : [ i o | | | o ]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      :
0: Exit
Enter menu selection:7

i.IP:
n.non-IP
e.no-filter
any other key.no change
Select layer 3 type[no filter]:
```

Figure 58: Select IP protocol

Press 'i' to begin setting up the IP protocol

Choose to filter on layer 4

```
Edit Filter:
1. Name          : ICMP
2. Ports        : [ | i | o | ]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      : IP
8. Source IP address :
9. Destination IP address :
a. DSCP         :
b. Layer 4      :
0: Exit
Enter menu selection:b

  filter on layer 4(IP protocol)?[N]:y
t.tcp:
u.udp
h.other
any other key.no change
IP protocol[0]:
```

Figure 59: Select IP protocol

Press 'b' to set up a filter on layer 4. Program adds the line 'filter on layer 4 (IP protocol) ?[N]:' Press 'y' and the program adds 'Enter IP protocol (decimal 0-255):'

Program provides what you can choose from

```
Edit Filter:
1. Name          : ICMP
2. Ports        : [ | i | o | ]
3. Counter Used  : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID      :
7. Layer 3      : IP
8. Source IP address :
9. Destination IP address :
a. DSCP         :
b. Layer 4      :
0: Exit
Enter menu selection:b

  filter on layer 4(IP protocol)?[N]:y
t.tcp:
u.udp
h.other
any other key.no change
IP protocol[0]:

Enter IP Protocol (decimal 0-255):1
```

Figure 60: select from new menu items

Press 'b' to set up a filter on layer 4. Program adds the line 'filter on layer 4 (IP protocol) ?[N]:' Press 'y' and the program adds the choices available to choose from. Press 'h'. The program adds the line 'Enter IP protocol (decimal 0-255):' Next press '1'

The ICMP filter is complete

```

Edit Filter:
1. Name           : ICMP
2. Ports          : [ | i | o | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       : 1
0: Exit
Enter menu selection:
  
```

Figure 61: ICMP filter is complete

Press '0' to return to the Row 1 Filters screen

Row 1 Filters now have six filters complete

```

Garland Technology M1G1ACSF (Code Version:1.2.74)
Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# : Name           Ports           Count
1 : src IP fltA    [ i o | | | o ] 0
2 : Case 432A      [ i | | i | o ] 0
3 : Case 432A dmac [ i | | i | o ] 0
4 : abc            [ o | i | | ] 0
5 : DSCP=21        [ | | | i o ] 0
-> 6 : ICMP         [ | i | o | ] 0

u:cursor up  d:cursor down  t:filter up   g:filter down
a:add        e:edit          i:insert      x:delete
v:view       c:clear count  r:reset       h:help
0:exit      *** s:SAVE AND APPLY FILTERS ***
Select:
  
```

Figure 62: Completed the 6th filter - ICMP filter

The next filter we will develop is the 'Email send capture filter'. Emails are sent to tcp port 587. We will create a filter to capture 'email send' and send them to a monitoring port.

email send capture filter

Next Filter 'Email send capture' filter

```

Edit Filter:
1. Name           : email send
2. Ports          : [ i o | | | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:7
  
```

Figure 63: create 'email send' filter

Using the previously described commands, create a filter named 'email send' which will go from 1A -> 1C. Press '7' to select layer 3

Select Layer 3

```

Edit Filter:
1. Name           : email send
2. Ports          : [ i o | | | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       :
0: Exit
Enter menu selection:7

i.IP:
n.non-IP
e.no-filter
any other key.no change
Select layer 3 type[no filter]:
  
```

Figure 64: Select IP

Selecting Layer 3 brings up more menu selections. Press 'i' to select IP

Pressing 'b' will change the menu again

```

Edit Filter:
1. Name           : email send
2. Ports          : [ i o | | | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       :
0: Exit
Enter menu selection:b

filter on layer 4(IP protocol)?[N]:
  
```

Figure 65: Select layer 4

Press 'b' to select layer 4. A new line is added to the bottom of the menu.

Pressing 'y' will set up for selection of protocol

```

Edit Filter:
1. Name           : email send
2. Ports          : [ i o | | | ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       :
0: Exit
Enter menu selection:b

filter on layer 4(IP protocol)?[N]:y
t.tcp:
u.udp
h.other
any other key.no change
IP protocol[0]:
  
```

Figure 66: Set up selecting the protocol

Press 'y' to select protocol will add more menu selections.

Select the protocol

```

Edit Filter:
1. Name           : email send
2. Ports          : [i o |   |   ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       : 6(TCP)
c. Source Port   :
d. Destination port :
0: Exit
Enter menu selection:

```

Figure 67: Select tcp protocol

Press 't' to select tcp protocol

Now we setup the destination port

```

Edit Filter:
1. Name           : email send
2. Ports          : [i o |   |   ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       : 6(TCP)
c. Source Port   :
d. Destination port :
0: Exit
Enter menu selection:d

```

Figure 68: Setup destination port

Press 'd' to select Destination port. Program adds a new line to the bottom of the menu – filter on DESTINATION port?[N]

Enter the DESTINATION port

```

Edit Filter:
1. Name           : email send
2. Ports          : [i o |   |   ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       : 6(TCP)
c. Source port   :
d. Destination port :
0: Exit
Enter menu selection:d

filter on DESTINATION port?[N]:y
Enter DESTINATION (decimal):587

```

Figure 69: Enter the destination port

Press 'y' then the program adds another line to allow the entry of the Destination port. Enter the DESTINATION port '587 <enter>'

The Destination port filter is complete

```

Edit Filter:
1. Name           : email send
2. Ports          : [i o |   |   ]
3. Counter Used   : YES
4. Source MAC Address :
5. Destination MAC Address:
6. VLAN ID       :
7. Layer 3       : IP
8. Source IP address :
9. Destination IP address :
a. DSCP          :
b. Layer 4       : 6(TCP)
c. Source port   :
d. Destination port : 587
0: Exit
Enter menu selection:

```

Figure 70: destination port is complete

Enter the DESTINATION port '587'. We are finished setting up the 'email send' filter. Press '0' to return to the Row 1 Filters screen

Back at the Row 1 filters screen

```

Garland Technology M1G1ACSF (Code Version:1.2.74)

Row 1 Filters

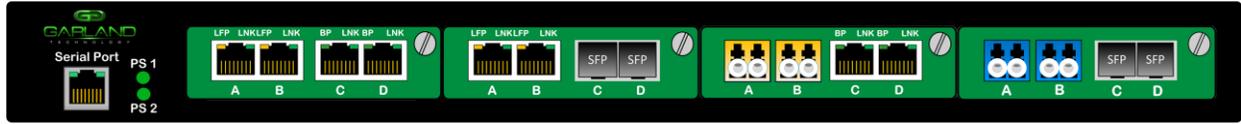
#  Name           Ports          Count
1:  src IP fltA    [i o |   |   ] 0
2:  Case 432A     [i |   |i |   ] 0
3:  Case 432A dmac [i |   |i |   ] 0
-> 4:  abc          [ o|i |   |   ] 0
5:  DSCP=21       [ |   |   |i o ] 0
6:  ICMP          [ |i |   |   ] 0
7:  email send    [i o |   |   ] 0

u:cursor up  d:cursor down  t:filter up    g:filter down
a:add        e:edit         i:insert       x:delete
v:view      c:clear count  r:reset        h:help
0:exit    *** s:SAVE AND APPLY FILTERS ***
Select:

```

Figure 71: We have set up 7 filters

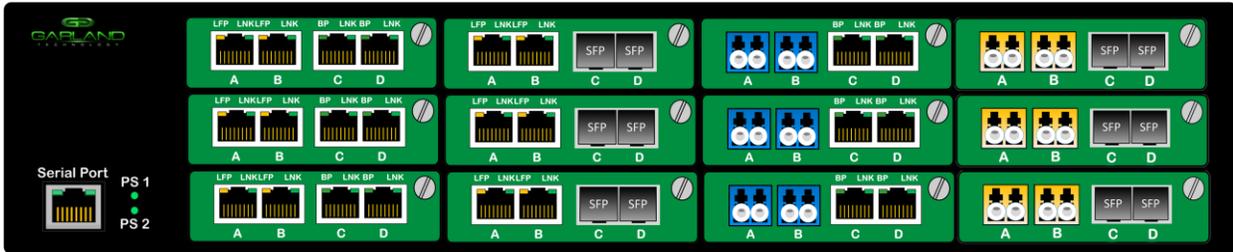
The TCP source port, and UDP source and destination entries are similar.
Note: Always remember to press 'S' when you finish entering your filters or they won't be there when you try to use them



1U – 1G Modular Chassis holds up to 4 TAPs with dual internal PSU

M1G1ACSM/M1G1DCSM

Rack Mount Space: 1U
 Size dimensions (W x H x D): 17.44 x 1.72 x 13.32 inches
 Weight: 6.8 lbs
 Ambient Temperature: 0°C to +40°C / +32°F to +104°F
 Operating Relative Humidity: 90% non-condensing
 Storage Temperature: -20°C to +70°C / -4°F to +158°F
 Voltage (AC/DC): 85-264 Volts AC / 36-72 Volts DC
 Current (nominal): .4 amps
 Maximum Power Consumption: 50 watts



2U – 1G Modular Chassis holds up to 12 TAPs with dual internal PSU

M1G2ACSM/M1G2DCSM

Rack Mount Space: 2U
 Size dimensions (WxHxD): 17.44 x 3.47 x 13.32 inches
 Weight: 9 lbs
 Ambient Temperature: 0° C to +40°C / +32°F to +104°F
 Operating Relative Humidity: 90% non-condensing
 Storage Temperature: -20°C to +70°C / -4°F to +158°F
 Voltage (AC/DC): 85-264 Volts AC / 36-72 Volts DC
 Current (nominal): 1.2 amps
 Maximum Power Consumption: 144 Watts



Pressing 'h' will bring up the help Screen

```
----- CURSOR MOVEMENT -----
<home>.....Place cursor at the beginning of the filter list
<end>.....Place cursor at the end of the filter list
<pg up>.....Move cursor forward a page in the filter list
<pg dn>.....Move cursor backward a page in the filter list
U,u,<up arrow>.....Move cursor up one position in the filter list
D,d,<down arrow>...Move cursor down one position in the filter list

----- FILTER MOVEMENT -----
T,t.....Move selected filter on the list (increases priority)
G,g.....Move selected filter down on the list(decreases priority)

----- FILTER MODIFICATION -----
E,e.....Edit selected filter
A,a.....Add a new filter to the end of the list
<F1>.....Copy a selected filter
I,i,<insert>.....Insert a new filter above selected filter
X,x,<delete>.....Delete selected filter
V,v.....View details on selected filter
c.....Clear count on selected filter

----- CONTROL -----
O.....Exit row filtering menu
C.....Clear counts on all filters this row
R,r.....Reset filters to factory default, deletes all filters this row
S,s.....Save this row's filter list to flash, and apply it to modules
```

Figure 71: HELP Menu