

GajShield UPTM: Module 3

Routing/Fail Over/Load Balancing

- In this modules, we will learn
 - Basic routing
 - Creating network objects and groups
 - Creating service objects and groups
 - Adding a route to a network
 - Source/Service based routing
 - Firewall policy
 - Firewall policy with source/service routing
 - Wan failover
 - Load Balancing of outbound traffic

GajShield: Recap

- In the previous two modules, we have learn how to setup the GajShield UPTM using the wizard and create basic policies
- We have also learn to create URL filtering policies with user authentication

GajShield: Routing

- To add a static route in the GajShield firewall, you need to create the necessary network objects.
 - For e.g. if I want to add a static route to my other branch, I will need to know the network address of the branch and the router ip.
 - Network of my branch: 192.168.1.0/255.255.255.0
 - Router IP: 192.168.2.221
 - Create a network object for the branch and also for the router. Since the router is a single IP, you can add a host

GajShield: Static Route

The screenshot displays the GajShield SecureGate v5 Firewall Management web interface. The browser window title is "Gajshield: Web based Administration and Management Tool - Mozilla Firefox". The address bar shows the URL "https://192.168.2.176/cgi-bin/mainmenus.ggi". The interface features a navigation menu on the left with categories like NETWORK, FIREWALL, USERS, and SYSTEM. The main content area is titled "Firewall Management" and includes tabs for "Hosts", "Networks", and "Network Groups". A "Configure Networks" form is visible, containing the following data:

Configure Networks	
Network ID	myotherbranch
Network IP	192.168.1.0
Netmask	255.255.255.0

An "Add" button is located below the form. The footer of the interface contains the text "Copyright © GajShield Infotech (I) Pvt. Ltd. All rights reserved" and the IP address "192.168.2.176".

GajShield: Static Route

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Configure Hosts	
Host Id	mywanrouter
Host IP	192.168.2.221

Below the table is an "Add" button. The status bar at the bottom of the browser shows "Done" on the left and "192.168.2.176" on the right. The footer of the application contains the text "Copyright © GajShield Infotech (I) Pvt. Ltd. All rights reserved".

GajShield: Static Route

The screenshot displays the GajShield SecureGate v5 Firewall Management interface within a Mozilla Firefox browser window. The browser's address bar shows the URL `https://192.168.2.176/cgi-bin/mainmenus.cgi`. The interface features a navigation menu on the left with categories like NETWORK, FIREWALL, USERS, VPN, SYSTEM, ADMIN, REPORT, BROWSING, TRAFFIC CHART, IPS, and LOGOUT. The main content area is titled 'Firewall Management' and includes tabs for 'Interfaces', 'Aliases', 'Routes', 'Nameservers', and 'Restart Nw'. The 'Routes' tab is active, showing a 'Configure Routes' form with two rows: 'Network' set to 'myotherbranch' and 'Gateway' set to 'mywanrouter'. An 'Add' button is positioned below the form. The footer of the interface contains the copyright notice 'Copyright © GajShield Infotech (I) Pvt. Ltd. All rights reserved' and the IP address '192.168.2.176'.

GajShield: Web based Administration and Management Tool - Mozilla Firefox

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`https://192.168.2.176/cgi-bin/mainmenus.cgi` Google

GajShield SecureGate v5

Firewall Management

Interfaces Aliases **Routes** Nameservers Restart Nw

NETWORK

- Basic
- Advanced

FIREWALL

USERS

VPN

SYSTEM

ADMIN

REPORT

BROWSING

TRAFFIC CHART

IPS

LOGOUT

Configure Routes

Network	myotherbranch
Gateway	mywanrouter

Add

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Done 192.168.2.176

GajShield: Source/Service based routing

- Decision on where to forward the IP packet depends on the destination of the packet.
- If a static router is created for the destination, the packet will flow through the gateway provided
- If not, traffic will flow through the default gateway
- At times, we may want to route the traffic based on the source IP address. For example, I want to route all my bosses browsing traffic through my other ISP which is dedicated for my boss.
 - Bosses IP address – 192.168.2.116
 - Other ISP configured as ISP2

GajShield: Source Routing

- Tasks
 - Configure the WAN interface of the firewall and connect it to ISP2.
 - Create a network object for my boss.
 - Add a policy to route http traffic through ISP2

GajShield: Configure Interface

The screenshot shows the GajShield SecureGate v5 web interface. The browser window title is "Gajshield: Web based Administration and Management Tool - Mozilla Firefox". The address bar shows the URL "https://192.168.2.176/cgi-bin/mainmenus.ggi". The interface has a blue header with the GajShield logo and the text "GajShield SecureGate v5". Below the header is a navigation bar with tabs for "Interfaces", "Aliases", "Routes", "Nameservers", and "Restart Nw". On the left side, there is a sidebar menu with the following items: NETWORK (expanded), Basic, Advanced, FIREWALL, USERS, VPN, SYSTEM, ADMIN, REPORT, BROWSING, IPS, and LOGOUT. The main content area displays a table for configuring interfaces. The table has three columns: "Select", "Interface", and "Reset". The "Select" column contains radio buttons, with the third one (int3) selected. The "Interface" column lists "int1", "int2", "int3", and "int4". The "Reset" column contains circular icons with a refresh symbol. Below the table is an "Assign IP" button. A small question mark icon is visible in the top right corner of the table area.

Select	Interface	Reset
<input type="radio"/>	int1	
<input type="radio"/>	int2	
<input checked="" type="radio"/>	int3	
<input type="radio"/>	int4	

[Assign IP](#)

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GajShield: Configure Interface

The screenshot displays the GajShield SecureGate v5 web interface within a Mozilla Firefox browser window. The browser's address bar shows the URL `https://192.168.2.176/cgi-bin/mainmenuus.ggi`. The interface features a dark blue header with the title "GajShield SecureGate v5" and a "Firewall Management" sub-header. A navigation menu on the left includes categories like NETWORK, FIREWALL, and SYSTEM, with "Advanced" selected under NETWORK. The main content area has tabs for "Interfaces", "Aliases", "Routes", "Nameservers", and "Restart Nw". The "Configure Interface" form is the central focus, containing the following fields and options:

Configure Interface	
Interface Name	ISP2 <input type="checkbox"/> Proxy ARP
Interface Type	Standard
IP Address	219.65.11.27
Netmask	255.255.255.0
Next HOP IP	219.65.11.21 <input type="checkbox"/> Make Default Gateway
Interface Bandwidth (KB)	
MTU	1500

Below the form is an "Apply" button and a link labeled "Configure Extra Next Hop". The footer of the page contains the copyright notice: "Copyright © GajShield Infotech (I) Pvt. Ltd. All rights reserved".

GajShield: Verify Connectivity

The screenshot shows the GajShield SecureGate v5 web interface. The browser title is "Gajshield: Web based Administration and Management Tool - Mozilla Firefox". The address bar shows the URL "https://192.168.2.176/cgi-bin/mainmenus.ggi". The interface has a blue header with the GajShield logo and the text "GajShield SecureGate v5". Below the header, there are tabs for "Backup", "Patch", and "Debug Network". A left sidebar contains a menu with categories: NETWORK, FIREWALL, USERS, VPN, SYSTEM, ADMIN (with sub-items: Administration, Settings, Utility, License), REPORT, BROWSING, IPS, and LOGOUT. The main content area is titled "Debug Network Options" and contains a table with the following data:

Debug Network Options			
Query Interfaces	LAN		query
Ping	219.65.11.21	None	ping
Traceroute		None	traceroute
Arp		ISP1	arp
		ISP2	

At the bottom of the page, there is a copyright notice: "Copyright © GajShield Infotech (I) Pvt. Ltd. All rights reserved".

GajShield: Source Routing

Gajshield: Web based Administration and Management Tool - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://192.168.2.176/cgi-bin/mainmenus.cgi

GajShield SecureGate v5

Firewall Management

Hosts Networks Network Groups

NETWORK

FIREWALL

Networks

Services

Policies

USERS

VPN

SYSTEM

ADMIN

REPORT

BROWSING

TRAFFIC CHART

IPS

LOGOUT

Configure Hosts

Host Id	myboss
Host IP	192.168.2.116

Add

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Done 192.168.2.176

GajShield: Source Routing

The screenshot displays the GajShield SecureGate v5 Firewall Management interface. The browser window title is "Gajshield: Web based Administration and Management Tool - Mozilla Firefox". The address bar shows the URL "https://192.168.2.176/cgi-bin/mainmenus.cgi". The interface features a navigation menu on the left with categories like NETWORK, FIREWALL, USERS, and SYSTEM. The main content area is titled "Firewall Management" and includes tabs for "Quick Setup", "Rules", "Bandwidth", "Install Policies", "Backup Rules", and "Admin Ips". The "Rules" tab is active, showing a configuration form for a rule. The form includes fields for "Dir.", "Src.", "Serv.", "Dest.", "Action", "Status", "Log", "Queue", "Schedule", and "Route - Failover". The "Route - Failover" section shows two links: "Link 1" with IP "int3-219.65.11.21" and "Link 2" with "None". An "Add" button is located at the bottom of the form. The footer of the interface contains the copyright notice "Copyright © GajShield Infotech (I) Pvt. Ltd. All rights reserved" and the IP address "192.168.2.176".

GajShield SecureGate v5
Firewall Management

Quick Setup | **Rules** | Bandwidth | Install Policies | Backup Rules | Admin Ips

NETWORK
FIREWALL
Networks
Services
Policies
USERS
VPN
SYSTEM
ADMIN
REPORT
BROWSING
TRAFFIC CHART
IPS
LOGOUT

Dir.	Src.	Serv.	Dest.
Any	myboss ↓ Ignore	http ↓ No NAT	any ↓ No NAT

Action	Status	Log	Queue
accept	active	yes	default

Schedule

Day | Date | Month | Year | Time | - | Day | Date | Month | Year | Time

Ld. Bal.	Route - Failover	Comment
<input type="checkbox"/> ISP1	Link 1 int3-219.65.11.21	
<input type="checkbox"/> ISP2	Link 2 None	

Add

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Done 192.168.2.176

GajShield: Wan Failover

- My boss was happy that he had a dedicated line to browse. But one day, ISP2 was down and he could not browse. He screamed and yelled at me. So I decided to route his traffic through ISP1, incase ISP2 goes down

GajShield: Wan Failover

The screenshot displays the GajShield SecureGate v5 Firewall Management interface within a Mozilla Firefox browser window. The browser's address bar shows the URL `https://192.168.2.176/cgi-bin/mainmenus.ggi`. The interface features a navigation menu on the left with categories like NETWORK, FIREWALL, USERS, and SYSTEM. The main content area is titled "Firewall Management" and includes tabs for "Quick Setup", "Rules", "Bandwidth", "Install Policies", "Backup Rules", and "Admin Ips". The "Rules" tab is active, showing a configuration form for a rule. The form includes fields for "Dir.", "Src.", "Serv.", "Dest.", "Action", "Status", "Log", "Queue", and "Schedule". Below these fields is a "Route - Failover" section with a table for defining failover links and an "Add" button.

Dir.	Src.	Serv.	Dest.
Any	myboss ↓ Ignore	http ↓ No NAT	any ↓ No NAT

Action	Status	Log	Queue
accept	active	yes	default

Schedule										
Day	Date	Month	Year	Time	-	Day	Date	Month	Year	Time

Ld. Bal.	Route - Failover		Comment
<input type="checkbox"/> ISP1	Link 1	int3-219.65.11.21	Failover policy
<input type="checkbox"/> ISP2	Link 2	int2-203.129.45.1	

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Done 192.168.2.176

GajShield: Load Balancing

The screenshot displays the GajShield SecureGate v5 Firewall Management interface. The browser window title is "Gajshield: Web based Administration and Management Tool - Mozilla Firefox". The address bar shows the URL "https://192.168.2.176/cgi-bin/mainmenus.ggi". The interface features a navigation menu on the left with categories like NETWORK, FIREWALL, USERS, and VPN. The main content area is titled "Firewall Management" and includes tabs for "Quick Setup", "Rules", "Bandwidth", "Install Policies", "Backup Rules", and "Admin Ips". The "Rules" tab is active, showing a configuration form for a rule. The form includes sections for "Dir.", "Src.", "Serv.", "Dest.", "Action", "Status", "Log", "Queue", "Schedule", "Ld. Bal.", "Route - Failover", and "Comment".

Dir.	Src.	Serv.	Dest.
Any	myboss ↓ Ignore	http ↓ No NAT	any ↓ No NAT

Action	Status	Log	Queue
accept	active	yes	default

Schedule										
Day	Date	Month	Year	Time	-	Day	Date	Month	Year	Time

Ld. Bal.	Route - Failover		Comment
<input checked="" type="checkbox"/> ISP1	Link 1	None	Failover policy
<input checked="" type="checkbox"/> ISP2	Link 2	None	

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Done 192.168.2.176

GajShield: Exercise

