

## How to Configure BGP Router Setup

<https://campus.barracuda.com/doc/53248869/>

### Requirements

- Request your own or use an unique ARIN registered autonomous system (AS) number for your BGP site.
- Know the AS numbers of BGP sites to be connected.
- Create an OSPF/RIP/BGP service on the Barracuda NextGen Firewall F-Series.

### Step 1. Configure Basic Settings

1. Go to **CONFIGURATION > Configuration Tree > Box > Virtual Servers > your virtual server > Assigned Services > OSPF-RIP-BGP-Service > OSPF/RIP/BGP Settings**.
2. Enable BGP (If you are not using OSPF and RIP, disable them).
3. From the **Operation Mode** drop down field, select one of the following options according to your requirements:
  - **advertise-only** – Networks are only advertised.
  - **learn-only** – Only networks on the interfaces that are configured for OSPF/RIP/BGP are propagated; learned routes from other systems are still advertised.
  - **advertise-learn** – Networks are learned and propagated.
4. In the **Hostname** field, enter the hostname of the BGP router.
5. In the **Router ID** field, enter the IP address of the BGP router. You can enter any address from your ARIN range. Usually, the first or last IP address in the subnet is used.

You must also add this IP address as an additional IP address in the **Virtual Server Properties** on the Barracuda NextGen Firewall F-Series, as described later in **Step 6** of the configuration.
6. Click **Send Changes** and **Activate**.

### Step 2. Configure Operational Settings

In the settings for network routes that should be propagated by the BGP router, make sure that you enable the **Advertise Route** setting. See [How to Configure Direct Attached Routes](#) or [How to Configure Gateway Routes](#).

1. On the **OSPF/RIP/BGP Settings** page, click **BGP Router Setup** from the **Configuration** menu in the left navigation pane.
2. In the **AS Number** field, enter the AS number that you received from the ARIN. (This is the

number of the autonomous system that the BGP router belongs to).

3. In the **Terminal Password** field, specify the password for the connection to the BGP routing daemon through the command-line interface.  

The password can consist of small and capital characters, numbers, and non alphanumeric symbols, except the hash sign (#).
4. In the **Networks** table, add an entry for the ARIN network and any other network that you want to advertise.
  1. Enter a name for the network and click **OK**. The **Network** window opens.
  2. In the **Network Prefix** field, enter the network and subnet mask in CIDR notation for the autonomous system of the BGP router.
  3. Click **OK**.
5. In the **Route Distribution Configuration** section, enable the network route types to be redistributed by this BGP router according to your requirements. You can enable the following network routes:
  - **Kernel Routes** – Kernel network routes will be redistributed.
  - **Static Routes** – Gateway network routes will be redistributed.
  - **Connected Routes** – Network routes of directly attached networks will be redistributed.
  - **RIP Routes** – Network routes learned by the RIP router will be redistributed.
  - **OSPF Routes** – Network routes learned by the OSPF router will be redistributed.
6. Click **Send Changes** and **Activate**.

### Step 3. Configure BGP Preferences

In most cases, the default BGP preferences are sufficient and do not have to be configured. If you want, you can configure more detailed logging, special routing tables, and multipath handling.

1. On the **OSPF/RIP/BGP Settings** page, click **BGP Preferences** from the **Configuration** menu in the left navigation pane.
2. Specify the logging details according to your requirements.
3. Click **Send Changes** and **Activate**.

### Step 4. Add an IP Prefix Filter

1. On the **OSPF/RIP/BGP Settings** page, click **Filter Setup IPv4** from the **Configuration** menu in the left navigation pane.  

The Barracuda NextGen Firewall F-Series does also provide this configuration area for IPv6 addresses. When using IPv6, specify all settings described in the sections designated for IPv6. Note, that IPv6 has to be enabled in Quagga too. For general information on the implementation of IPv6 on the Barracuda NextGen Firewall F-Series, see [IPv6](#).
2. In the **IPv4 Prefix Filter** table, add an entry for the IP prefix filter. Enter a descriptive name, for example *ARIN*, and then click **OK**.

3. In the **IPv4 Prefix Filter** configuration, enter an optional description. For example, *ARIN Range*.
4. In the **Sequence Number** section, click **+** to add a Sequence Number configuration and specify a unique identifier number for the prefix list item in the **Sequence Number** field. For example, *01*.
5. In the **Network Prefix** field, enter the network IP range that you received from the ARIN (in this example *198.200.200.0/24* ). Then click **OK**.
6. Click **OK**.
7. Click **Send Changes** and **Activate**.

## Step 5. Configure Neighbor Settings

Before you configure the neighbor settings, the network for each provider that participates in BGP routing must be configured properly. Obtain and carefully verify the default gateway IP address for each provider.

You must only start configuring the neighbor settings on the provider side after you have completed the previous sections for enabling BGP , configuring the BGP router and adding an IP prefix filter . Otherwise, the BGP routing infrastructure will dampen any ICMP request and response, and the BGP service will have to be restarted on the ISP side. This ping dampening will occur whenever the BGP service goes up and down numerous times over a small period of time.

1. On the **OSPF/RIP/BGP Settings** page, click **Neighbor Setup IPv4** from the **Configuration** menu in the left navigation pane.
2. In the **Neighbors** table, add an entry for each provider network:
  1. Enter a descriptive name for the network and then click **OK**. The **Neighbors** window opens.
  2. In the **Neighbor IP** field, enter the default gateway IP address of the existing provider.
  3. From the **Enable BGP Routing Protocol Usage** list, select **yes**.
  4. In the **BGP Parameters** section, enter the BGP AS number of the ISP. (Do not enter the customer AS number that was specified in the BGP router settings.)
  5. In the **Neighbor Password** field, enter the password that should be used to connect to the neighbor peer.

The password can consist of small and capital characters, numbers, and non alpha-numeric symbols, except the hash sign (#).

6. Select **yes** from the **Update Source** drop down list to enable the **Update Source Interface** setting.
7. In the **Update Source Interface** field, enter an IP address from your network that should be used for the BGP session to this neighbor.

If you only advertise the ARIN route to go to providers (and not the network IP ranges or the ranges of other ISPs), it is highly recommended that you configure

the **Peer Filtering for Output** settings. Select the Peer Filter from the IP filter list that you created in the previous section (**Add an IP Prefix Filter**).

8. Click **OK**.
3. Click **Send Changes** and **Activate**.

## Step 6. Add the IP Address of the BGP Router

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You must add the IP address of the BGP router as an additional IP address in the **Virtual Server Properties** on the Barracuda NextGen Firewall F-Series. To add the IP address of the BGP router:

1. Go to **CONFIGURATION > Configuration Tree > Box > Virtual Servers > your virtual server > Server Properties**.
2. Click **Lock**.
3. In the **Virtual Server IP Addresses** section, add an entry to the **Additional IP** table.
  1. In the **Additional IP** field, enter the IP address of the BGP Router.
  2. From the **Reply to Ping** list, select **yes**.
  3. You can enter an optional description.
  4. Click **OK**.
4. Click **Send Changes** and **Activate**.

## Step 7. Create a Firewall Rule for BGP Router Communication

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To allow communication with other BGP routers, introduce a host firewall rule that allows network traffic through TCP port 179. For more information on creating firewall rules, see [Firewall Rules](#).

## Administrating BGP Routers from the Command Line

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The BGP routing daemon for the Barracuda NextGen Firewall F-Series is based on the [Quagga Software Routing Suite](#). You can configure and administrate the BGP router from the Barracuda NextGen Firewall F-Series command-line interface.

1. Open the [Command-Line Interface](#).
2. Enter vtysh to launch the configuration tool.

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