

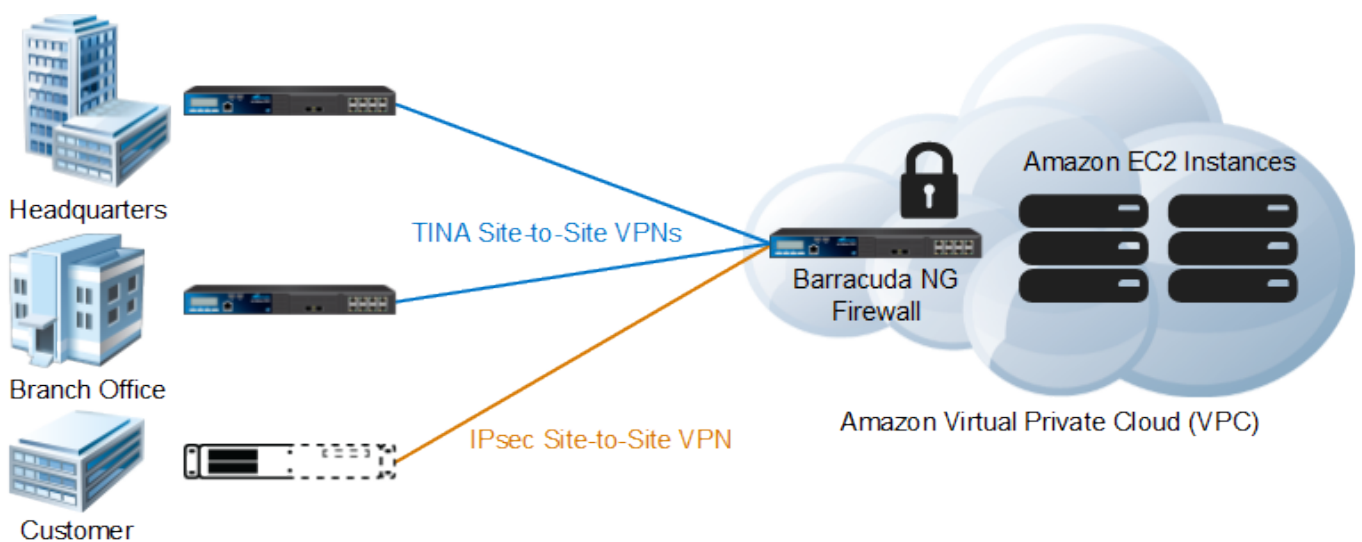
How to Deploy the Barracuda NG Firewall in an Amazon Virtual Private Cloud

<https://campus.barracuda.com/doc/43847090/>

The Barracuda NG Firewall can run as a virtual appliance in the Amazon cloud as a gateway device for Amazon EC2 instances in an Amazon Virtual Private Cloud (VPC).

Follow the steps in this article to deploy the Barracuda NG Firewall in an Amazon VPC.

Amazon AWS charges apply. For more information, see Amazon's monthly pricing calculator at <http://calculator.s3.amazonaws.com/calc5.html>.



In this article:

Before you Begin

Before you deploy the Barracuda NG Firewall in the Amazon VPC:

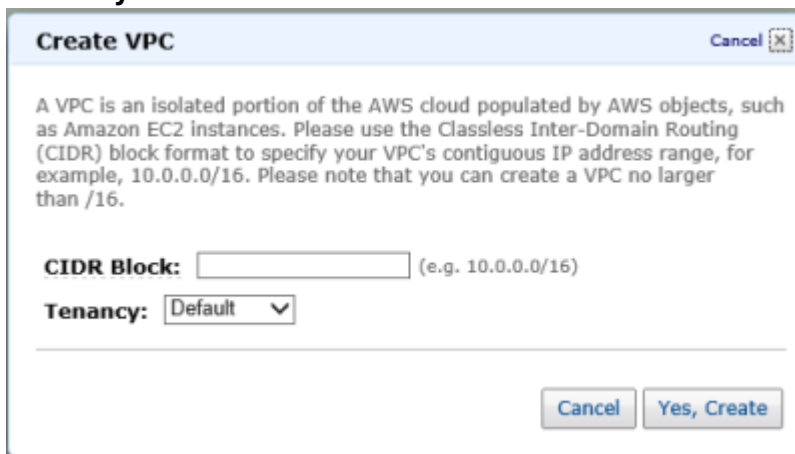
- Get an Amazon Web Service (AWS) account.
- Get a Barracuda NG Firewall Vx license. The Barracuda NG Firewall AMI itself is free (BYOL = Bring Your Own License).
- Choose the country and availability zone in which you want to create the Amazon VPC. All

instances and services must be in the same availability zone.

Step 1. Set Up the Amazon VPC Cloud

The Amazon VPC is a smaller, isolated version of the public Amazon Elastic Compute Cloud (EC2). The VPC is restricted to its own /16 network subnet. Create a VPC in the 192.168.0.0/16 subnet.

1. Go to the Amazon Web Services Console (<https://console.aws.amazon.com>).
2. In the **Compute & Networking** section, click **VPC - Isolated Cloud Resources**.
3. In the left pane of the VPC console, click **Your VPCs**.
4. Create a VPC with the following settings:
 - **CIDR Block** – Enter 192.168.0.0/16.
 - **Tenancy** – Select **Default**.



Create VPC Cancel

A VPC is an isolated portion of the AWS cloud populated by AWS objects, such as Amazon EC2 instances. Please use the Classless Inter-Domain Routing (CIDR) block format to specify your VPC's contiguous IP address range, for example, 10.0.0.0/16. Please note that you can create a VPC no larger than /16.

CIDR Block: (e.g. 10.0.0.0/16)

Tenancy: ▼

5. Click **Yes, Create**.

Your VPC is now listed on the **Your VPCs** page.

	VPC ID	State	CIDR	DHCP Options Set	Main Route Table	Default Network ACL	Tenancy	Default VPC
<input checked="" type="checkbox"/>	vpc-b0a9a0db	● available	192.168.0.0/16	dopt-b4a9a0df	rtb-b6a9a0dd	acl-b7a9a0dc	default	false

Step 2. Create an Internet Gateway

Create an Internet gateway to enable devices in the Amazon VPC to access the Internet.

1. Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
2. In the left pane, click **Internet Gateways**.
3. Click **Create Internet Gateway**.

- In the **Create Internet Gateway** window, click **Yes, Create**.

Create Internet Gateway
Cancel

The Internet gateway is the router on the AWS network that connects your VPC to the Internet.

- Select the new Internet gateway, and then click **Attach to VPC**.

Viewing: All Internet Gateways

	ID	State	VPC
<input checked="" type="checkbox"/>	igw-2baca540	● available	

- Select the VPC that you created in [Step 1](#) (e.g., **vpc-b0a9a0db (192.168.0.0/16)**), and then click **Yes, Attach**.

Attach to VPC
Cancel

Select the VPC to attach to the Internet Gateway.

VPC: vpc-b0a9a0db (192.168.0.0/16)

The Internet gateway is now associated with the Amazon VPC.

	ID	State	VPC
<input type="checkbox"/>	igw-2baca540	● available	vpc-b0a9a0db (192.168.0.0/16)

Step 3. Create Subnets

Create two /24 subnets inside the Amazon VPC:

- A public network that connects the dhcp (eth0) interface of the Barracuda NG Firewall to the Internet gateway.

- A private network for the eth1 interface on the Barracuda NG Firewall and the EC2 instances in the VPC.

Step 3.1. Create the Private Subnet

1. Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
2. In the left pane, click **Subnets**.
3. Click **Create Subnet**.
4. In the **Create Subnet** window, configure the following settings:
 - **VPC** – Select the VPC with the 192.168.0.0/16 subnet (e.g., **vpc-abcd1234568 (192.168.0.0/16)**).
 - **Availability Zone** – Select the availability zone that your VPC is in (e.g., **eu-west-1a**).
 - **CIDR Block** – Enter 192.168.200.0/24.
5. Click **Yes, Create**.

Step 3.2. Create the Public Subnet

1. Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
2. Click **Subnets**.
3. Click **Create Subnet**.
4. In the **Create Subnet** window, configure the following settings:
 - **VPC** – Select the VPC with the 192.168.0.0/16 subnet (e.g., **vpc-abcd1234568 (192.168.0.0/16)**).
 - **Availability Zone** – Select the availability zone that your VPC is in (e.g., **eu-west-1a**).
 - **CIDR Block** – Enter any 192.168.XX.0/24 subnet, except for 192.168.200.0/24 (e.g., you can enter 192.168.10.0/24).
5. Click **Yes, Create**.

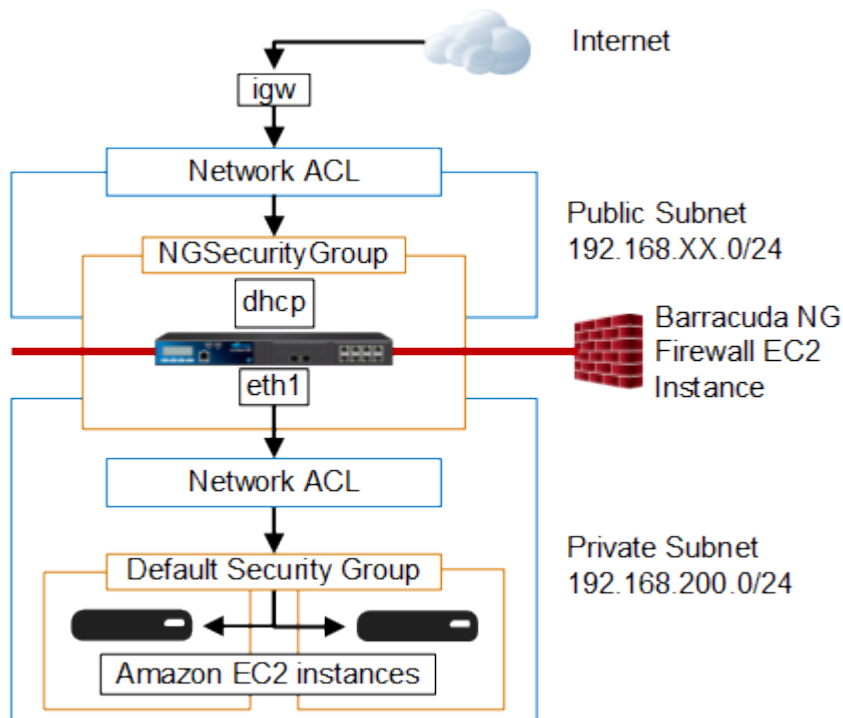
The private (192.168.200.0/24) and public (192.168.10.0/24) subnets are now in your VPN.

	Subnet ID	State	VPC ID	CIDR	Available IPs	Availability Zone	Route Table	Network ACL	Default Subnet
<input type="checkbox"/>	subnet-e8a8a183	● available	vpc-b0a9a0db	192.168.200.0/24	251	eu-west-1a	rtb-b6a9a0dd	Default	false
<input type="checkbox"/>	subnet-f6a8a19d	● available	vpc-b0a9a0db	192.168.10.0/24	251	eu-west-1a	rtb-b6a9a0dd	Default	false

Step 4. Set Up Amazon Security Groups and Network ACLs

To secure incoming and outgoing connections to the VPC, set up the following features:

- **Security Groups** – Act as stateful firewalls that control traffic to one or more Amazon EC2 instances. Every instance must be associated with one or more security groups. With security groups, you can only allow specific connections; by default, connections are blocked.
- **Network ACLs** – Act as a stateless firewall that controls traffic going in and out of a subnet. With network ACLs, you can allow and block connections. By default, an Amazon network ACL blocks all traffic.



For more information on Amazon security groups and network ACLs, see http://docs.aws.amazon.com/AmazonVPC/latest/UserGuide/VPC_Security.html.

Step 4.1. Create a Security Group for Barracuda NG Admin Access

1. Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
2. In the left pane, expand **SECURITY** and then click **Security Groups**.
3. Click **Create Security Group**.
4. In the **Create Security Group** window, configure the following settings:
 - **Name** - Enter NGSecurityGroup.
 - **Description** - Enter Access for NG Admin.
 - **VPC** - Select the VPC from the list (e.g., **vpc-b0a9a0db**).
5. Click **Yes, Create**.

Create Security Group
Cancel

Name:

Description:

VPC:

6. Select **NGSecurityGroup**.
7. In the lower pane, click the **Inbound** tab.
8. Add rules with the following settings to allow inbound traffic for the SSH daemon and ping:

Create a new Rule	Source
SSH	0.0.0.0/0
All ICMP	0.0.0.0/0
DNS	0.0.0.0/0

9. Add custom rules with the following settings to allow inbound traffic for Barracuda NG Admin (port 807), the VPN service (port 691), and the management tunnel (port 692):

Create a new Rule	Port range	Source
Custom TCP rule	807	0.0.0.0/0
Custom UDP rule	807	0.0.0.0/0
Custom TCP rule	691-692	0.0.0.0/0
Custom UDP rule	691-692	0.0.0.0/0

10. Create additional rules for all services running on the Barracuda NG Firewall and all services forwarded for EC2 Instances in the Amazon VPC (e.g., port 80/443 for web servers, port 25 for SMTP, etc.).
11. Click **Apply Rule Changes**.

All inbound rules are now listed under the **Inbound** tab of the security group.

Step 4.2. Configure a Security Group for the Private Subnetwork

Instances in the private subnetwork are only accessed by connections passing through the Barracuda NG Firewall EC2 instance. Configure the default security group to only allow traffic that is coming from the NGSecurityGroup.

- Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
- In the left pane, expand **SECURITY** and then click **Security Groups**.
- Select the **default** security group.
- In the lower pane, click the **Inbound** tab.
- Add rules with the following settings to allow incoming traffic for the default security group coming from the NGSecurityGroup and for traffic within in the default security group.

Rule	Rule Settings
To allow incoming traffic from the NGSecurityGroup.	<ul style="list-style-type: none"> ◦ Create a new Rule - Select All Traffic. ◦ Source - Enter the group ID for NGSecurityGroup (e.g., sg-cf49bca0). You can find the group ID by selecting the NGSecurityGroup security group and then clicking the Details tab.
To allow incoming traffic from the default security group.	<ul style="list-style-type: none"> ◦ Create a new Rule - Select All Traffic. ◦ Source - Enter the group ID for the default security group (e.g., sg-ae4ebbc1). You can find the group ID by selecting the default security group and then clicking the Details tab.

- Click **Apply Rule Changes**.
- Click the **Outbound** tab.

8. Add the following rules to allow all outgoing traffic coming from the default security group going to the NGSecurityGroup or for traffic within the default security group.

Rule	Rule Settings
To allow outgoing traffic to the NGSecurityGroup.	<ul style="list-style-type: none"> ◦ Create a new Rule - Select All Traffic. ◦ Source - Enter the group ID for NGSecurityGroup (e.g., sg-cf49bca0). You can find the group ID by selecting the NGSecurityGroup security group and then clicking the Details tab.
To allow outgoing traffic within the default security group.	<ul style="list-style-type: none"> ◦ Create a new Rule - Select All Traffic. ◦ Source - Enter the group ID for the default security group (e.g., sg-ae4ebbc1). You can find the group ID by selecting the default security group and then clicking the Details tab.

9. Click **Apply Rule Changes**.

The default security group now lets all traffic pass between the two security groups.

Step 4.3. Set Up the Network ACLs

By default, network ACLs block all incoming and outgoing traffic. To use the Barracuda NG Firewall instead of the Amazon network ACL, add rules to allow all inbound and outbound traffic.

To use the Barracuda NG Firewall as a gateway device, allow all traffic into the private network.


1. Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
2. In the left pane, expand **SECURITY** and then click **Network ACLs**.
3. Click **Create Network ACL**.
4. Select the **VPC** with the 192.168.0.0/16 subnet (e.g., **vpc-abcd1234568 (192.168.0.0/16)**), and then click **Yes, Create**.
5. Click the **Inbound** tab.
6. Add a rule with the following settings to allow inbound traffic.

Traffic	Rule Settings
Inbound	<ul style="list-style-type: none"> ◦ Create a new Rule: All Traffic ◦ Rule #: 100 ◦ Source: 0.0.0.0/0 ◦ Allow/Deny: ALLOW

- Click the **Outbound** tab.
- Add a rule with the following settings to allow outbound traffic.

Traffic	Rule Settings
Outbound	<ul style="list-style-type: none"> ◦ Create a new Rule: All Traffic ◦ Rule #: 100 ◦ Source: 0.0.0.0/0 ◦ Allow/Deny: ALLOW

The network ACL now permits all traffic on all ports in and out of the subnets. All hosts in the private network are protected by the Firewall service running on the Barracuda NG Firewall.

 **Network ACL: ac1-b7a9a0dc** ⌵ ⌵ ⌵

Inbound | Outbound | Associations | Tags

Create a new rule: Custom TCP rule ▾

Rule #:

Port range:
(e.g., 80 or 1024-4999)

Source:
(e.g., 192.168.2.0/24)

Allow/Deny: ALLOW ▾

+ Add Rule

Rule #	Port (Service)	Protocol	Source	Allow/Deny	Action
100	ALL	ALL	0.0.0.0/0	ALLOW	Delete
*	ALL	ALL	0.0.0.0/0	DENY	

Note: Network ACLs are stateless, which means for any given request you want to handle, you must create rules in *both* directions. For example, to handle inbound traffic to a web server in your VPC, you must allow both inbound TCP port 80, and outbound TCP ports 1024-65535.

Step 5. Deploy a Barracuda NG Firewall in an Amazon EC2 Instance

In the Amazon VPC that you created in [Step 1](#), launch an Amazon EC2 instance with the Barracuda NG Firewall AMI image. Note that the Barracuda NG Firewall AMI image is EBS backed, so powering down the Barracuda NG Firewall EC2 instance will not result in data loss. The Barracuda NG Firewall will be launched with one dynamic DHCP interface. More Network interfaces are added after launching the Instance. The **Amazon Launch Instance** wizard guides you through the following steps:

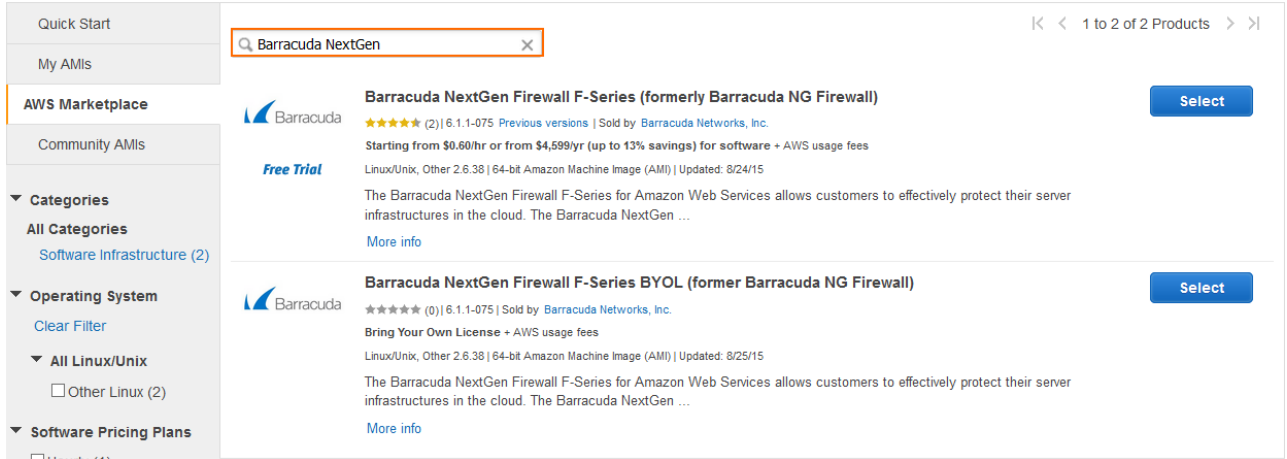
Start the Amazon Launch Instance Wizard

- Go to the Amazon Web Services EC2 console (<https://console.aws.amazon.com/ec2/home>).
- Click **Launch Instance**.

Launch Instance Wizard Step 1: Choose AMI

- Click on **AWS Marketplace** in the left navigation.

2. Enter Barracuda NextGen in the search box and click **Search**.
3. Click **Select** next to the Barracuda NG Firewall image you want to install (e.g., Barracuda NextGen Firewall BYOL or hourly).



Launch Instance Wizard Step 2: Choose Instance Type

1. Select an EC2 instance type. Verify that the number of CPUs for your license matches the number of vCPUs of the EC2 instance type.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Tag Instance 6. Configure Security Group 7. Review


Step 2: Choose an Instance Type

<input type="radio"/>	Compute optimized	c4.xlarge	36	60	EBS only	Yes	10 Gigabit
<input checked="" type="radio"/>	Compute optimized	c3.large	2	3.75	2 x 16 (SSD)	-	Moderate
<input type="radio"/>	Compute optimized	c3.xlarge	4	7.5	2 x 40 (SSD)	Yes	Moderate
<input type="radio"/>	Compute optimized	c3.2xlarge	8	15	2 x 80 (SSD)	Yes	High

2. Click **Next: Configure Instance Details**.

Launch Instance Wizard Step 3: Configure Instance

1. From the **Network** list, select the VPC created in [Step 1](#) (e.g., **vpc-b0a9a0db (192.168.0.0/16)**).
2. From the **Subnet** list, select the 192.168.XX.0/24 subnet created in [Step 3.2](#) (e.g., **subnet-f6a8a19d (192.168.10.0/24)**).
3. Select the **Enable termination protection** check box.
4. (Optional) To improve I/O performance, enable **EBS-optimized instance**.

Network ⓘ	vpc-f3212891 (192.168.0.0/16) ▾	 Create new VPC
Subnet ⓘ	subnet-99b49ced(192.168.10.0/24) eu-west-1a ▾	Create new subnet 250 IP Addresses available
Public IP ⓘ	<input type="checkbox"/> Automatically assign a public IP address to your instances	
IAM role ⓘ	None ▾	
Shutdown behavior ⓘ	Stop ▾	
Enable termination protection ⓘ	<input checked="" type="checkbox"/> Protect against accidental termination	
Monitoring ⓘ	<input type="checkbox"/> Enable CloudWatch detailed monitoring Additional charges apply.	
EBS-optimized instance ⓘ	<input type="checkbox"/> Launch as EBS-optimized instance Additional charges apply.	

5. Click **Next: Add Storage**.

Launch Instance Wizard Step 4: Add Storage

- (Optional) If you want the EBS volumes to be deleted after the Barracuda NG Firewall EC2 instance has been terminated (deleted), select the **Delete on Termination** check boxes.
- (Optional) Enter a larger **Size** for the **/dev/sdf** EBS volume.
- (Optional) To improve the I/O performance of your EC2 instance, select **Provisioned IOPS** from the **Volume Type** list.

Type ⓘ	Device ⓘ	Snapshot ⓘ	Size (GB) ⓘ	Volume Type ⓘ	IOPS ⓘ	Delete on Termination ⓘ
Root	/dev/sda1	snap-03faa312	10	Provisioned IOPS ▾	300	<input type="checkbox"/>
EBS ▾	/dev/sdf ▾	snap-a2fea7b3	80	Standard ▾	N/A	<input type="checkbox"/>

4. Click **Next: Tag Instance**.

Launch Instance Wizard Step 5: Tag Instance

- (Optional) Add tags to identify your EC2 instance.
- Click **Next: Configure Security Group**.

Launch Instance Wizard Step 6: Configure Security Group

- From the **Assign a security group** list, select **Select an existing security group**.
- Select the **NGSecurityGroup** that you created in [Step 4.1](#) from the list of Security Group (e.g., **sg-cf49bca0- NGSecurityGroup**).

Assign a security group: Create a new security group
 Select an existing security group

Security Group ID	Name	Description
<input type="checkbox"/> sg-0b10e464	default	default VPC security group
<input checked="" type="checkbox"/> sg-7e50a411	NGSecurityGroup	Security Group NG admin

3. Click **Review and Launch**.
4. In the **Warning** window, click **Continue**.

Launch Instance Wizard Step 7: Review

1. Click **Launch**.
2. In the **Select an existing key pair or create a new key pair** window:
 - Select **Proceed without a key pair**.
 - Click the check box to acknowledge that you will not be able to connect to this instance unless you already know the password built into the AMI.

Select an existing key pair or create a new key pair ✕

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Proceed without a key pair ▼

I acknowledge that I will not be able to connect to this instance unless I already know the password built into this AMI.

Cancel Launch Instances

3. Click **Launch Instances**.

Deactivate the Source/Destination Check

1. Click **View Instances**.
2. Right-click the Barracuda NG EC2 instance that you just created, and then select **Change Source/Dest. Check**.
3. Click **Yes, Disable**.

Enable Source/Destination Check ✕

Are you sure that you would like to disable Source/Destination Check for the instance with the following details:

Instance:	i-0f889443 (NGFW 5.4.2-108)
Network Interface:	eni-a31a4ee5
Status	Enabled

Cancel Yes, Disable

Your EC2 Instance appears in the EC2 list. After the instance is up, the **State** and **Status Checks** change to green.

<input type="checkbox"/>	Name	Instance	AMI ID	Root Device	Type	State	Status Checks	Alarm Status	Monitoring	Security Groups
<input type="checkbox"/>	Barracuda NG Firewall 5.4.2	i-2adb8d65	ami-5c59be2b	ebs	t1.micro	running	Loading...	none	basic	NGSecurityGroup

Step 6. Allocate and Associate an Amazon Elastic IP Address to the Barracuda NG Firewall EC2 Instance

The private IP address assigned to the external interface (eth1) on the Barracuda NG Firewall instance is not yet reachable from the Internet. Create and attach an Amazon Elastic IP Address (EIP) to the external network interface.

1. Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
2. In the left pane, click **Elastic IPs**.
3. Click **Allocate New Address**.
4. From the **EIP used in** list, select **VPC**.
5. Click **Yes, Allocate**.
6. Select the new EIP, and then then click **Associate Address**.
7. In the **Associate Address** window, configure the following settings:
 - **Instance** - Select the Barracuda NG Firewall instance (e.g., **i-2adb8d65 (Barracuda NG Firewall 5.4.2)**).
 - **Private IP address** - Select the IP address in the public subnet that you created in [Step 3.2](#) (e.g., **192.168.10.89***).

Associate Address
Cancel

Select the instance or network interface to which you wish to associate this IP address (54.229.198.60).

Instance:

Private IP address: * denotes the primary private IP address

or

Network Interface:

Private IP address: * denotes the primary private IP address

Allow Reassociation

8. Click **Yes, Associate**.

Your EIP is now listed with the instance ID and ENI ID associated with the Barracuda NG Firewall instance.

Address	Instance ID	ENI ID	Scope	Public DNS
54.229.198.60	i-2adb8d65 (Barracuda NG Firewall 5.4.2)	eni-79696112	vpc-b0a9a0db (192.168.200.0/24)	

Step 7. Create and Attach a Network Interface

Create a Network Interface in the private subnet. This interface will be registered as eth1 on the Barracuda NG Firewall.

1. Go to the Amazon Web Services EC2 console (<https://console.aws.amazon.com/ec2/home>).
2. In the left pane, click on **Network Interfaces**.
3. Click **Create Network Interface**.
4. Configure the Network Interface with the following settings:
 - **Subnet** - Select the private subnet (**192.168.200.0/24**) you created in Step 3.1. E.g., **subnet-e8a8a183**
 - **Private IP** - Enter a free IP in the private subnet This IP will not be used as the management IP E.g., 192.168.200.200
 - **Security Group** - Select the NG Security Group created in Step 4.1

Create Network Interface
Cancel

Description:



Subnet:

Private IP:

Security Groups:

sg-61777f03 - default - default VPC... group
 sg-d77769b5 - launch-wi...d-1 - launch-wiza... UTC+1
 sg-5808003a - NGSecurit...oup - Public Netw... Group

5. Click **Yes, Create**. The Network Interface is now listed in the Network Interface list

Name	Network Interface	Subnet ID	Zone	Security Groups	Description	Instance ID	Status	Public	Primary Private IP
<input type="checkbox"/>	empty	 eni-f39b8d87	subnet-98b49cec	eu-west-1a	NGSecurityGroup	NGFW Private Subnet Network Interface	 available		192.168.200.200

6. Select the Network Interface you just created and click **Attach**.
7. Select the Barracuda NG Firewall EC2 instance you created in step 5. E.g. **i-2adb8d65 Barracuda NG Firewall (running)**
8. Click **Yes, Attach**.

Attach Network Interface Cancel ✕

Network Interface: eni-f39b8d87

Instance:* i-8f0dedc0 - Barracuda...Firewall (running) ▾

Cancel Yes, Attach

9. Right click on the Network Interface you just created and select **Change Source/Dest. Check**.
10. **Disable** the **Source/Dest. check**.

Change Source/Dest. Check ✕

Network Interface eni-f39b8d87

Source/dest. check Enabled
 Disabled

Cancel Save

11. Click **Save**.
12. Go to the Amazon Web Services EC2 console (<https://console.aws.amazon.com/ec2/home>).
13. Right-click on the Barracuda NG Firewall Instance and click **Reboot**. You must reboot the Barracuda NG Firewall after adding additional Network Interfaces to make sure that the NG Firewall will detect and assign the correct network interface number to the new Elastic Network Interface.

Step 8. Create Route Tables

Create two routing tables to route the networks:

- A table to route traffic in the private network to the internal interface on the Barracuda NG Firewall.
- A table to route traffic from the Barracuda NG Firewall's external interface to the Internet gateway.

These route tables ensure that all traffic in the VPC passes through the Barracuda NG Firewall.

Step 8.1. Create a Route Table for the Private Network

Route all traffic in the private network to the eth1 interface on the Barracuda NG Firewall.

1. Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
2. In the left pane, click **Route Tables**.
3. Click **Create Route Table**.
4. Select the **VPC** with the 192.168.0.0/16 subnet (e.g., **vpc-abcd1234568 (192.168.0.0/16)**), and then click **Yes, Create**.
5. From the list of route tables on the page, select the route table that you just created.
6. In the lower pane, click the **Routes** tab and then add a routing entry with the following settings:
 - o **Destination** – Enter 0.0.0.0/0.
 - o **Target** – Select **Enter network interface ID**, and then select the network interface in the private subnet you created in Step 7 (e.g., **eni-f39b8d87**). To find the network interface ID, go to the [AWS EC2 console](#) and click **Network Interfaces**. The network interface is in the 192.168.200.0/24 subnet.
7. Click **Add**.
8. Click the **Associations** tab.
9. From the **Select a subnet** list, select the 192.168.200.0/24 subnet (e.g., **subnet-d79be8bf (192.168.200.0/24)**).

Route Table: rtb-b6a9a0dd

Routes Associations Route Propagation Tags

Subnet	Actions
subnet-e8a8a183 (192.168.200.0/24) ▼	Associate

The following subnets have not been associated with any route tables and are therefore using the Main table routes:

- subnet-e8a8a183 (192.168.200.0/24)

10. Click **Associate**.
11. Click **Yes, Associate** to confirm the association.

Route Table ID	Associated With	Main	VPC
<input type="checkbox"/> rtb-44a1a82f	1 Subnet	No	vpc-b0a9a0db (192.168.0.0/16)
<input checked="" type="checkbox"/> rtb-b6a9a0dd	1 Subnet	Yes	vpc-b0a9a0db (192.168.0.0/16)

1 Route Table selected

Route Table: rtb-b6a9a0dd

Routes Associations Route Propagation Tags


Destination	Target	Status	Propagated	Actions
192.168.0.0/16	local	● active	No	Remove
0.0.0.0/0	eni-7a696111 / i-2adb8d65	● active	No	Remove

Step 8.2. Create a Route Table for the Public Network

Route traffic from the Barracuda NG Firewall's external interface to the Internet gateway that you created in [Step 2](#).

1. Go to the Amazon Web Services VPC console (<https://console.aws.amazon.com/vpc/home>).
2. In the left pane, click **Route Tables**.
3. Click **Create Route Table**.

4. Select the **VPC** with the 192.168.0.0./16 subnet (e.g., **vpc-abcd1234568 (192.168.0.0/16)**), and then click **Yes, Create**.
5. From the list of route tables on the page, select the route table that you just created.
6. In the lower pane, click the **Routes** tab and then add a routing entry with the following settings:
 - **Destination** – Enter 0.0.0.0/0.
 - **Target** – Select the Internet gateway that you created in [Step 2](#) (e.g., **igw-6e81f206**).
7. Click **Add**.
8. Click the **Associations** tab.
9. From the **Select a subnet** list, select the 192.168.XX.0/24 subnet that you created in [Step 3.2](#) (e.g., **subnet-2429574c (192.168.10.0./24)**).

 **Route Table: rtb-44a1a82f**

Routes | **Associations** | Route Propagation | Tags

Subnet	Actions
subnet-f6a8a19d (192.168.10.0/24)	Associate


The following subnets have not been associated with any route tables and are therefore using the Main table routes:

- subnet-e8a8a183 (192.168.200.0/24)

10. Click **Associate**.
11. Click **Yes, Associate** to confirm the association.

Route Table ID	Associated With	Main	VPC
<input type="checkbox"/> rtb-44a1a82f	1 Subnet	No	vpc-b0a9a0db (192.168.0.0/16)
<input checked="" type="checkbox"/> rtb-b6a9a0dd	1 Subnet	Yes	vpc-b0a9a0db (192.168.0.0/16)

1 Route Table selected

 **Route Table: rtb-b6a9a0dd**

Routes | **Associations** | Route Propagation | Tags

Destination	Target	Status	Propagated	Actions
192.168.0.0/16	local	● active	No	Remove
0.0.0.0/0	eni-7a696111 / i-2adb8d65	● active	No	Remove

Your Barracuda NG Firewall instance is now reachable from the Internet.

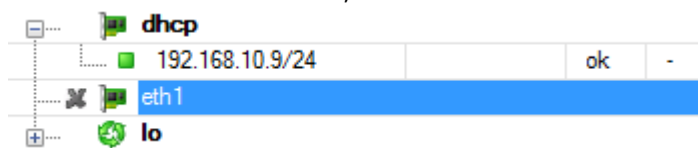
Step 9. Add Amazon Network Interface to the Barracuda NG Firewall Instance

Add the second Amazon Network interface to the Barracuda NG Firewall Instance.

1. Reboot the Barracuda NG Firewall Instance, to correctly detect the new Network Interface.
2. With Barracuda NG Admin, log into the Barracuda NG Firewall. Use the following settings:
 - **Management IP:** The Amazon Elastic IP address that you created in [Step 6](#) (e.g., 54.229.198.60).
 - **Login:** root
 - **Password:** (e.g., i-2adb8d65)

You have three days initial grace period to license your Barracuda NG Firewall, after that the default password (ngf1r3wall) also authenticates the root user.
3. Open the **CONTROL > Network** page.
4. Ensure that there are two network interfaces listed: **dhcp** and **eth1**. if the second network

interface is listed as eth0, reboot the Barracuda NG Firewall.



5. Open the **CONFIGURATION > Configuration Tree > Box > Network** page.
6. In the left pane click on **Interfaces**.
7. Click **Lock**.
8. Double Click on **10dynmod** entry in the **Network Interface Cards** list. The **Network Interface Cards: 10dynmod** window will open.
9. Select **2** from the **Number of Interfaces** drop down menu.
10. Click **OK**.

Network Interface Configuration

NIC Type	Ethernet	<input type="checkbox"/> Other
Driver Module Name	dynmod.ko	<input checked="" type="checkbox"/> Other
Number of Interfaces	2	<input type="checkbox"/> Other
Activate Driver	yes	
Ethernet MTU	1500	

11. Click **Send Changes**. The eth1 interface is now listed in the **Physical Interface** list.

Physical Interfaces

Name	MTU	Availability
eth0	1500	RESERVED
eth1	1500	available

12. In the left pane click on **Routing**.
13. Click on + in the **Main Routing Table** section. The **Routes** windows opens.
14. Enter a **Name** for the route. E.g., privateVPCSubnet.
15. Configure the route with the following settings:
 - **Target Network Address** - Enter the destination address for the private subnet: 192.168.200.0/24
 - **Route Type** - Select **directly attached network** from the drop down.
 - **Interface Name** - Select **eth1**
 - **Trust Level** - Select **Trusted**
16. Click **OK**.
17. Click **Send Changes** and **Activate**.
18. Open the **CONTROL > Box** page.

19. In the left pane in the **Network** section click **Activate new network configuration**. The **Network Activation** window opens.
20. Click on **Failsafe**.
21. Open **Server Properties** page for the **S1** virtual server (**CONFIGURATION > Full Configuration > Virtual Servers > S1 > Server Properties**).
22. Click **Lock**.
23. Enter the IP address you assigned to the Amazon Network Interface in Step 8. in **Second-IP [IP2]**. E.g., 192.168.200.200
Do not change the **First IP** for the virtual server S1. You will lock yourself out if you do.
24. Select **yes** from the **Reply to Ping** drop down.
25. Click **Send Changes**.
26. Click **Activate**.

Additional Information

- Do not delete the default virtual server S1. By deleting the virtual server, the application redirect rule that lets you connect to the Barracuda NG Firewall EC2 is removed.
- When you add additional IP addresses to network interfaces or virtual servers on the Barracuda NG Firewall, you must also add these IP addresses to the respective Amazon network interfaces as additional IP addresses. Depending on the Amazon EC2 instance type used, there are limitations on the number of IP addresses that you can assign to a single Amazon network interface.
- To patch or update the Barracuda NG Firewall EC2 instance firmware, it is recommended that you use the Barracuda NG Admin graphic interface and not the SSH shell.

Troubleshooting Tips

- If you cannot activate the network after attaching an additional Amazon Network Interface make verify that the network interface numbering is correct. E.g., eth1 not eth0 if a dhcp device is already present. Reboot the Barracuda NG Firewall instance for the interface numbers to be assigned correctly.
- If you cannot connect to the other Amazon EC2 instances in the private subnet, check the following settings:
 - **Network Interfaces** – Mismatch between the IP address assigned to the network interface on the Barracuda NG Firewall and the Amazon Network Interface associated with it.
 - **Security Groups** – If the settings for the Security Group are too restrictive, the traffic will be blocked by the Amazon firewall. For debugging purposes, introduce a Security Group policy allowing all traffic in and out, and all traffic between the two security groups.
 - **Network ACLs** – If the rules in the Amazon network ACLs are too restrictive, traffic going into the subnet will be blocked by the Amazon firewall.
 - **Routing Tables** – Verify that the Amazon network interface associated with eth1 on the

Barracuda NG Firewall is the default gateway for the private subnet and that the private subnet is associated with the correct routing table.

- If you cannot connect to the Internet from the Barracuda NG firewall, check the following settings:
 - **Security Groups** - If the settings for the Security Group are too restrictive, the traffic will be blocked by the Amazon firewall. For debugging purposes, introduce a Security Group policy allowing all traffic in and out, and all traffic between the two security groups.
 - **Network ACLs** - If the rules in the Amazon Network ACLs are too restrictive, traffic going into the subnet will be blocked by the Amazon firewall.
 - **Routing Tables** - Verify that the Amazon Internet Gateway (igw) is the default route and that the public subnet is associated with the correct routing table.

Next Steps

To continue setting up the Barracuda NG Firewall, you can proceed with the following tasks:

Task	Instructions
License the Barracuda NG Firewall. After the deployment you have an initial grace period of three days to license your Barracuda NG Firewall. After that the root user will also be able to log in with the default (ngf1r3wall) password.	How to Activate and License a Standalone Virtual Barracuda NG Firewall
Complete the Getting Started guide for the Barracuda NG Firewall.	Getting Started

Figures

1. AmazonCloudNG.png
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3. AwsListVPCs.png
4. AwsCreateInternetGateway.png
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