
How to Configure Scaling Policies for a CloudGen Firewall Auto Scaling Cluster

<https://campus.barracuda.com/doc/73719779/>

Scaling policies are required for the firewall cluster to adjust the capacity in response to changes in demand. Define CloudWatch alarms for the high and low thresholds. Use the custom metrics collected from the firewall cluster or the default EC2 system metrics. Add scaling policies to the Auto Scaling group that trigger a scaling action when the health check is in alarm state.

Custom Metrics

The firewall published the following custom metrics in the **Barracuda/NGF** namespace:

Custom VPN Metrics

- Client to Site VPN tunnels
- SSL VPN clients
- Site to Site VPN tunnels up
- Site to Site VPN tunnels down

Custom System Metrics

- load
- Used memory
- Protected IPs

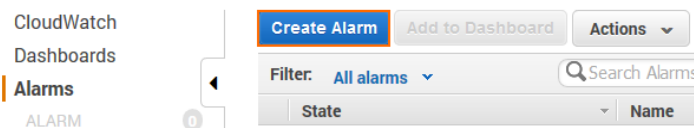
Custom Firewall Metrics

- Bytes in
- Bytes out
- Bytes total
- Packets in
- Packets out
- Packets total
- Connections dropped
- IPS Hits
- Forwarding Connections new
- Forwarding Connections total
- Connections new
- Connections total
- Connections blocked
- Connections failed

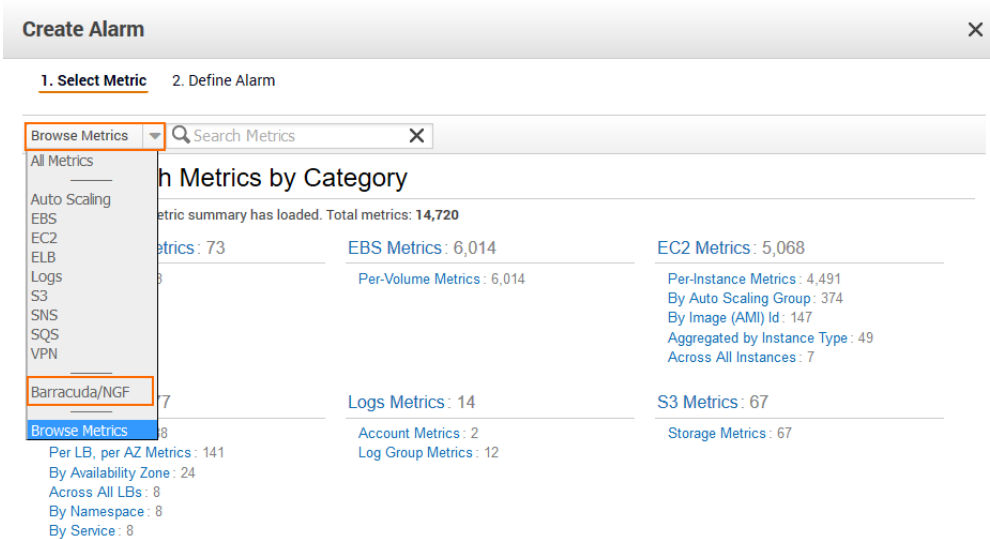
Step 1. Create CloudWatch Alarm

Create two CloudWatch alarms, one for the high and one for the low alarm threshold.

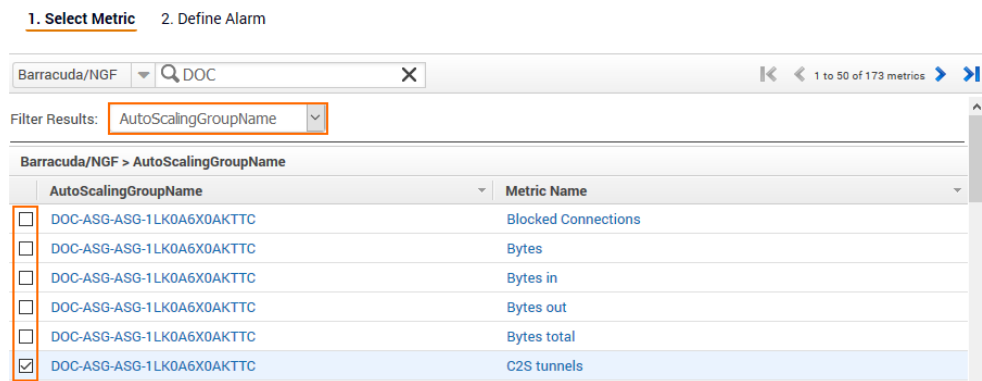
1. Log into the AWS console.
2. Click **Services** and select **CloudWatch**.
3. In the left menu, click **Alarms**.
4. Click **Create Alarm**.



5. From the **Browse Metrics** drop-down list, select **Barracuda/NGF**.



6. From the **Filter Results** drop-down list, select **AutoScalingGroupName**.
7. Select the check box for the metric.



8. Click **Next**.
9. Enter a **Name**.
10. Configure the **Alarm Threshold**:
 - o **Logic operator** - Select \geq when defining an alarm to scale out, \leq when defining and alarm to scale in.

- **Alarm threshold** – Depending on the instance and metric type, enter the threshold. If unsure, use CloudWatch to monitor your cluster under load to determine the correct value to match your workload.
- **Period** – Enter the time period the threshold must be exceeded for alarm to be triggered.

Alarm Threshold

Provide the details and threshold for your alarm. Use the graph on the right to help set the appropriate threshold.

Name:

Description:

Whenever: C2S tunnels

is:

for: consecutive period(s)

11. In the **Alarms section**, click **delete** to not receive a notification when the alarm is triggered. Alternatively, select an SNS topic that is configured to send notification emails when the alarm is triggered.

Actions

Define what actions are taken when your alarm changes state.

[Delete](#)

Whenever this alarm:

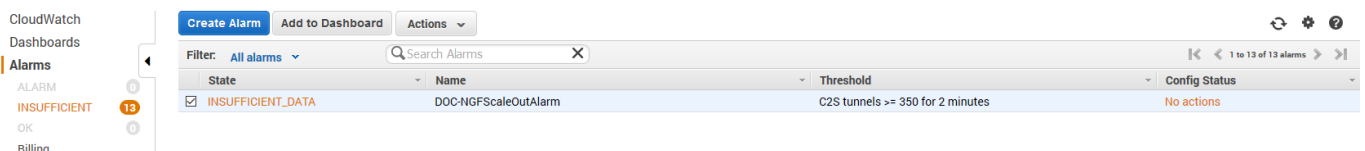
Send notification to: [New list](#) [Enter list](#) ⓘ

This notification list is managed in the SNS console.

[+ Notification](#)
[+ AutoScaling Action](#)
[+ EC2 Action](#)

12. From the **Period** drop-down list, select the number of minutes.
13. From the Statistics drop-down list, select **Average** or **Sum** depending on the metric.
14. Click **Create Alarm**.

The alarm is in the **INSUFFICIENT** state until there is enough data for the alarm. As soon as enough data is available, the alarm state changes to **OK** or **Alarm**.



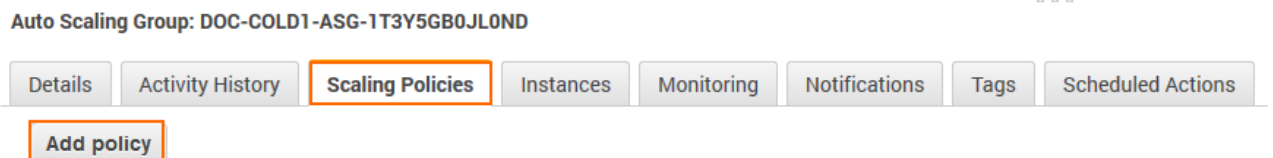
The screenshot shows the AWS CloudWatch Alarms console. On the left, there is a navigation menu with 'Alarms' selected, showing a count of 13. The main area displays a table of alarms. The first alarm is highlighted:

State	Name	Threshold	Config Status
INSUFFICIENT_DATA	DOC-NGFScaleOutAlarm	C2S tunnels >= 350 for 2 minutes	No actions

Step 2. Add Scaling Policy to Scale Out

1. Log into the AWS console.

2. Click **Services** and select **EC2**.
3. In the left menu, click **Auto Scaling Groups**.
4. Select the CloudGen Firewall Auto Scaling group.
5. In the lower half, click the **Scaling Policies** tab.
6. Click **Add policy**.



7. Enter a **Name**.
8. From the **Execute policy when** drop-down list, select the matching CloudWatch alarm created in Step 1.
9. Configure the action:
 - **Action** – Select **add** to scale out, or **Remove** to scale in. Click **set** to use an explicit number of instances.
 - **Number of instances** – Depending on the action, enter the number of instances to scale (add / remove) or the number of instances to scale to (set).
10. (optional) Click **add steps** to define a more granular scaling policy that takes into account by how much the threshold is exceeded.
11. In the **Instances need** text box, enter the number of seconds to wait before the next scaling action.

Create Scaling policy

Name:

Execute policy when: ⌵ 🔄 Create new alarm

breaches the alarm threshold: C2S tunnels >= 350 for 2 consecutive periods of 60 seconds for the metric dimensions AutoScalingGroupName = DOC-ASG-ASG-1LK0A6X0AKTTC

Take the action:

Add	1	instances	when	350	<=	C2S tunnels	<	400	
Add	2	instances	when	400	<=	C2S tunnels	<	500	✕
Add	3	instances	when	500	<=	C2S tunnels	<	+infinity	✕

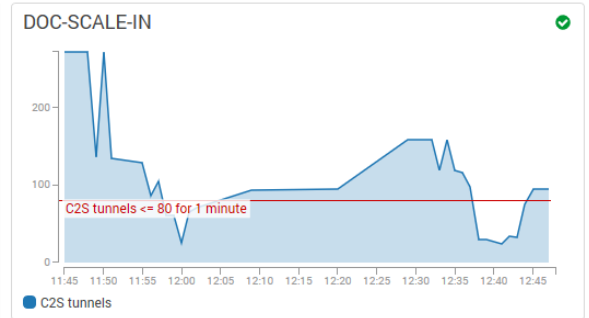
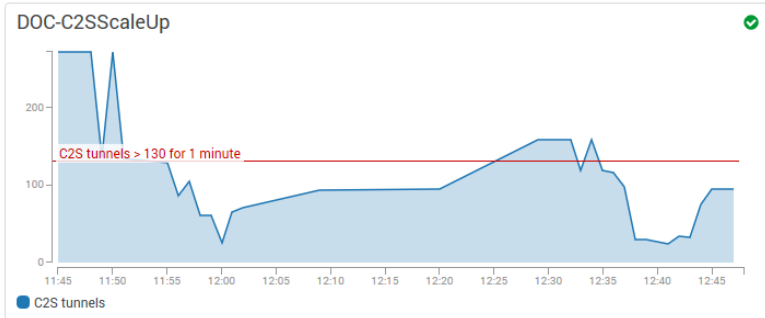
[Add step](#) ⓘ

Instances need: seconds to warm up after each step

[Create a simple scaling policy](#) ⓘ

12. Click **Create**.

Repeat this for both Scale In and Scale Out policies. Use CloudWatch dashboard widgets to visualize the alarm thresholds



Figures

1. aws_scaling_policies_01.png
2. aws_scaling_policies_02.png
3. aws_scaling_policies_03.png
4. aws_scaling_policies_04.png
5. aws_scaling_policies_05.png
6. aws_scaling_policies_07.png
7. aws_scaling_policies_08.png
8. aws_scaling_policies_09.png
9. awsIG_cloudwatch_monitor_alarms.png

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