Amazon ELB Lab

AWS Essentials

Version 3.1

Table of Contents

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Introduction

Overview

Amazon Elastic Load Balancing (ELB) automatically distributes incoming application traffic across multiple Amazon EC2 instances. It enables you to achieve even greater fault tolerance in your applications, seamlessly providing the amount of load balancing capacity needed in response to incoming application traffic.

Topics Covered

The following Amazon ELB topics will be covered in this lab:

- Overview of the ELB Management Console
- Creating an ELB for HTTP traffic
- Configuring health checks
- Understanding ELB properties

The Scenario

As the operations focused individual in the start-up business, Asperatus Tech, you previously configured some S3 buckets, and a pair of EC2 instances in preparation for your website. Now, it is time to tie the EC2 instances together with an Elastic Load Balancer for high availability.

Using Amazon Elastic Load Balancing

The AWS Management Console

Please review the instructions included within the first lab for opening and configuring the console.

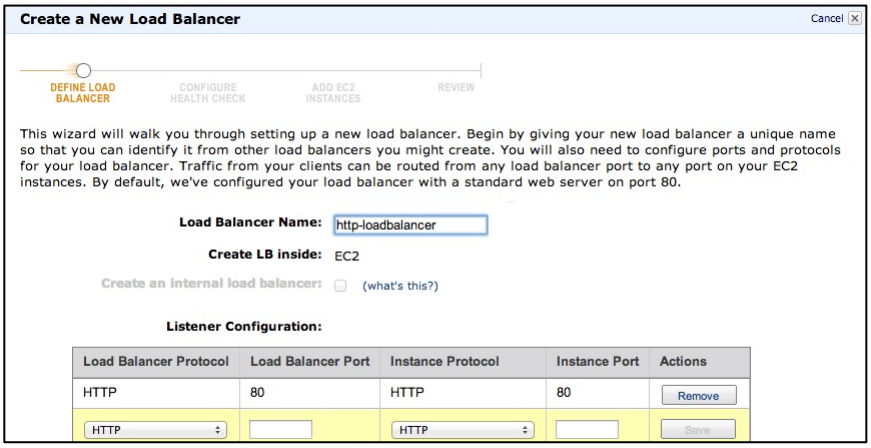
ELB Basics

Your role with Asperatus Tech has put you in touch with many different Amazon AWS technologies. You have created, modified, secured and built lifecycle policies around S3 buckets for storing documents to iterate upon for the website. You have tested and built your AMI gold image for deploying web servers. Now, it is time to deploy that image into a highly available ELB to achieve high availability. You have two of your Asperatus webservers running, and you will now create the ELB, add both instances, and test. For this section, you use the Amazon EC2 Management Console to create an ELB, setup health checks, and learn about various aspects of ELB.

1) When your servers are running, expand **Network & Security** and click the **Load Balancers** link.

2) Click **Create Load Balancer**.

3) On the **Create a new Load Balancer** panel, type a value in the **Load Balancer Name** field (such as **http-loadbalancer**) and validate that the **Listener Configuration** for the HTTP protocol is automatically generated for port 80, the accepted port for unsecured web traffic.



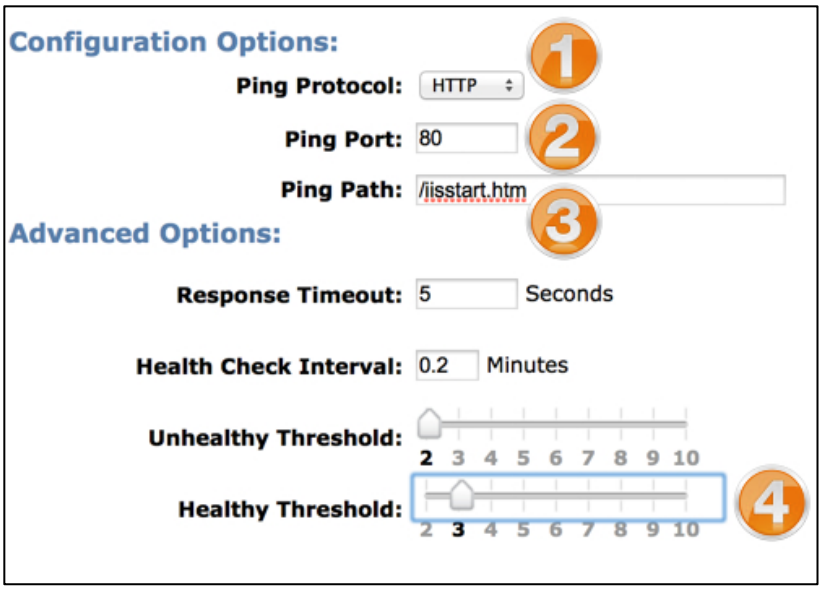
4) Click **Continue**.

5) On the "Configure Health Check" panel, configure the load balancer health check and response options with the below basic options. For this example we will only touch on the basic settings to configure an ELB. More information relating to configuration can be found at http://aws.amazon.com/elasticloadbalancing/.

(1) Verify the **Ping Protocol** field is set to **HTTP** and the **Ping Port** is set to **80**.

(2) In the **Ping Path** field, type **`/iisstart.htm`**.

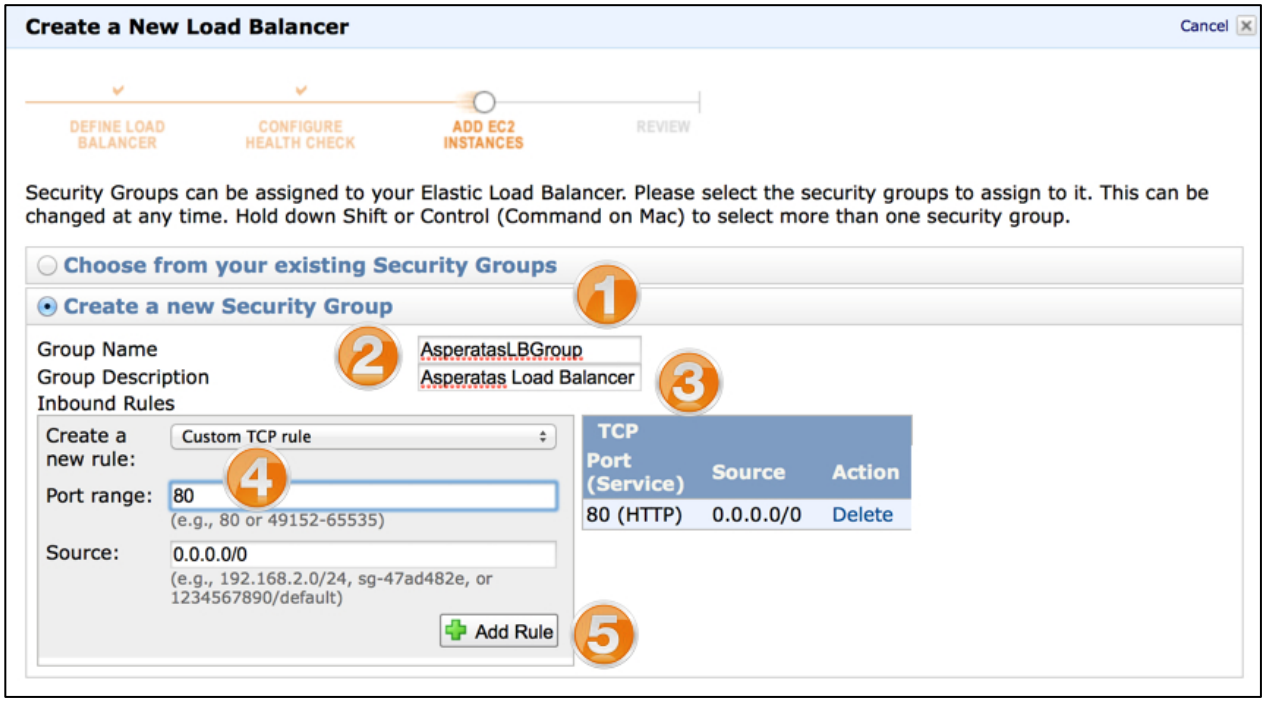
(3) For **Healthy Threshold**, use the slider to set the value to **3**.



Accept the remaining default values and click **Continue**.

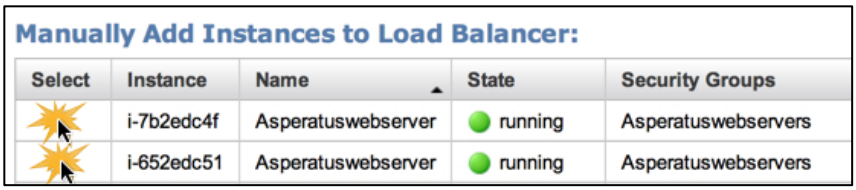
6) At the Security Group page,

(1) Select **Create a new Security Group**
(2) Input a **Group Name**, like AsperatasLBGroup
(3) Type a **Group Description**, like Asperatas Load Balancer SG
Note: Verify that the rule exists to permit 80 (HTTP) from Source 0.0.0.0/0. If not, proceed with steps 4 and 5.
(4) Select **HTTP** from the **Create a new rule** drop down menu
(5) Finally, click **Add Rule**



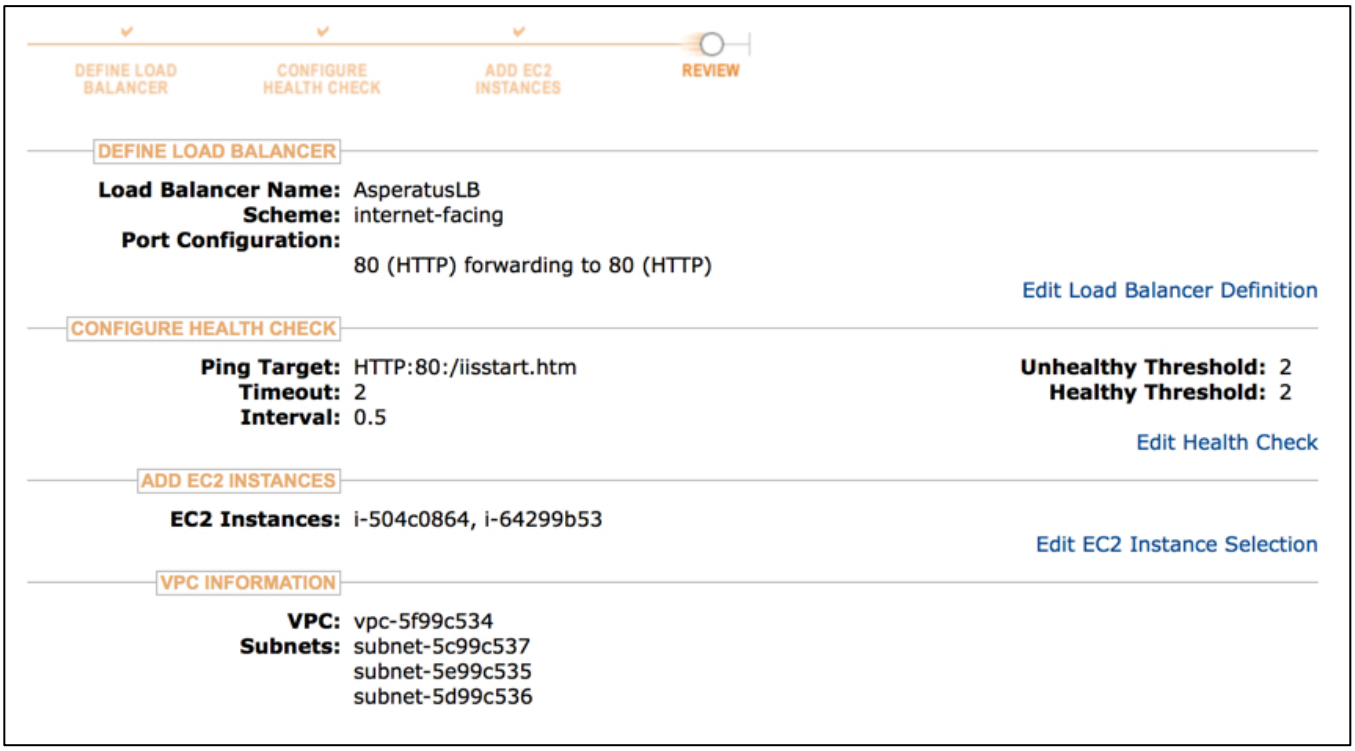
Once completed, click **Continue.**

7) On the **Manually Add Instances to Load Balancer** panel, select both of the Asperatus servers listed.

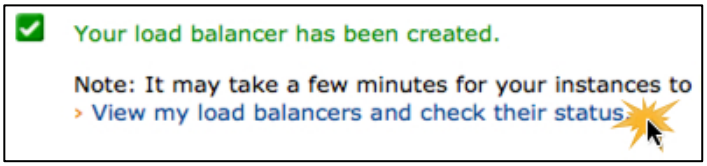


8) Click **Continue**.

9) Review your settings on the "Review" panel and click **Create**.



10) Click the **View my load balancers and check their status** link to go to the ELB page and view your new load balancer.



11) Next, you will need to allow the **HTTP** protocol to the security group in which the servers reside. They will be in a security group created for you, beginning with the text *qlstack*.

(1) Return to **EC2 > Network & Security > Security Groups**

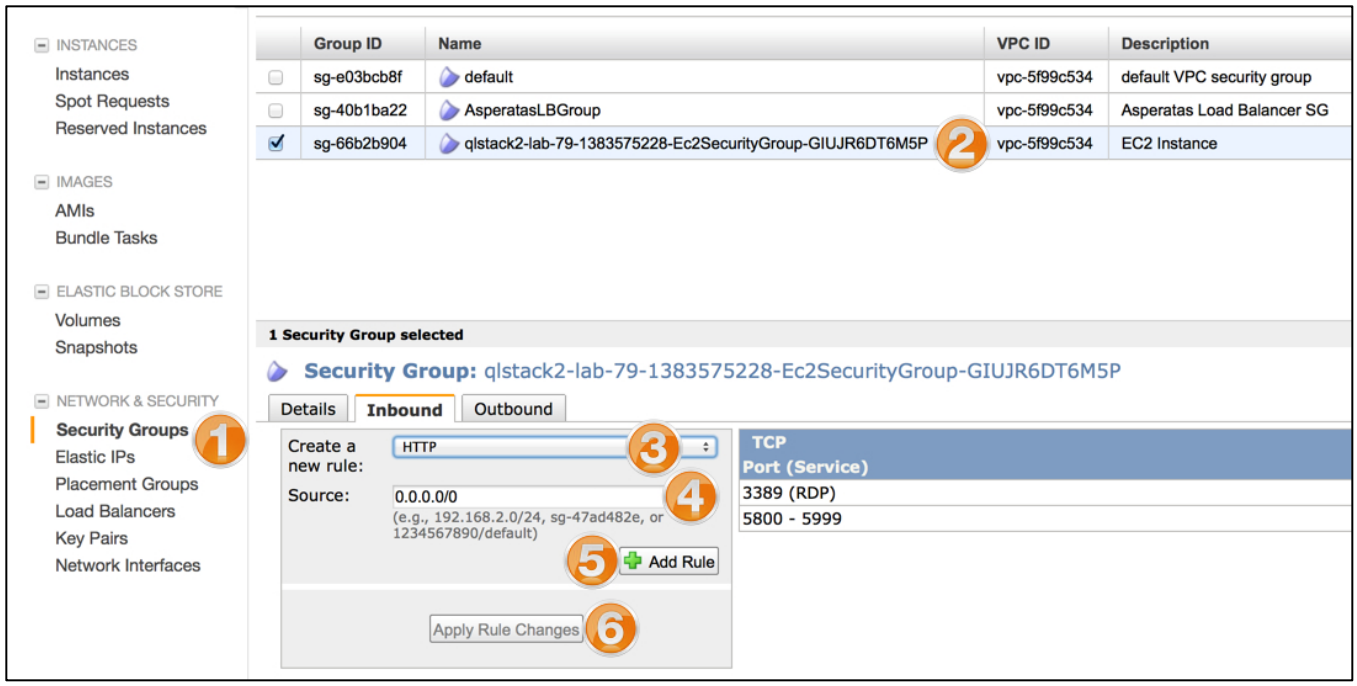
(2) Select the security group with a name beginning with *qlstack*. It will also have the description *EC2 Instance*

(3) Select **HTTP** from the **Create a new rule drop down box**

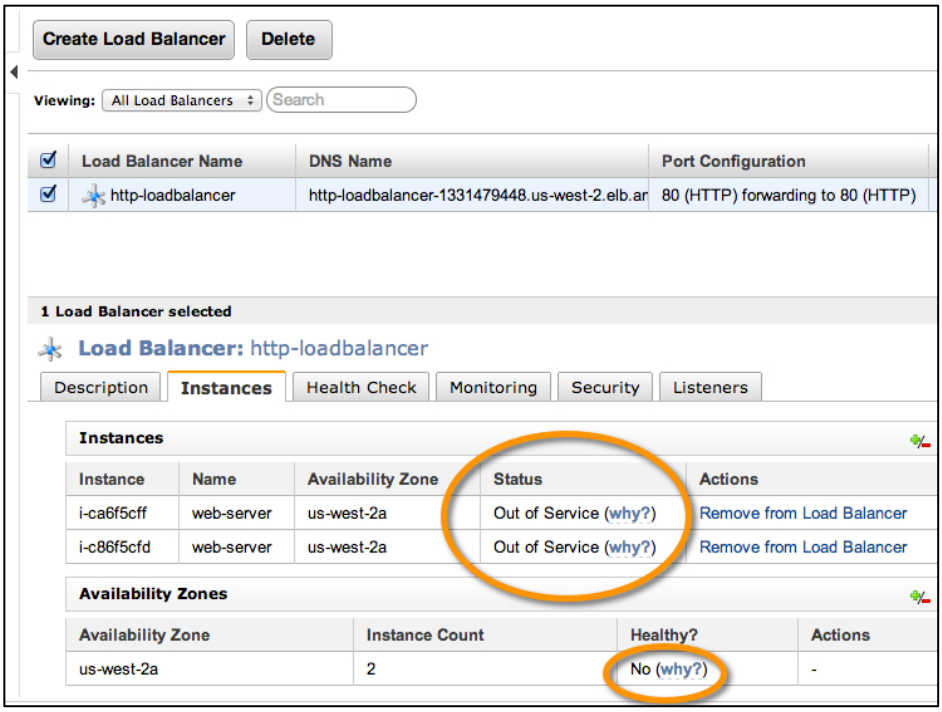
(4) Input **0.0.0.0/0** if not already populated

(5) Click **Add Rule**

(6) Click **Apply Rule Changes**

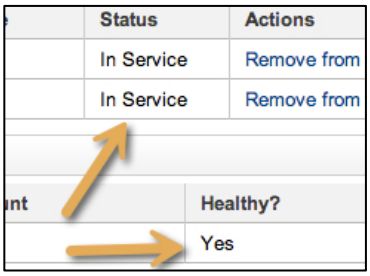


12) Return to **EC2 > Network & Security > Load Balancers.** Check the box to select the **load balancer** you created, and then click the **Instances** tab. Note that the two instances you created are listed, but the **Status** may be **Out of Service**. Similarly, the load balancer's **Healthy?** status may be **No**. If you hover your mouse over the **why?** link beside each item, a pop-up dialog will offer an explanation.



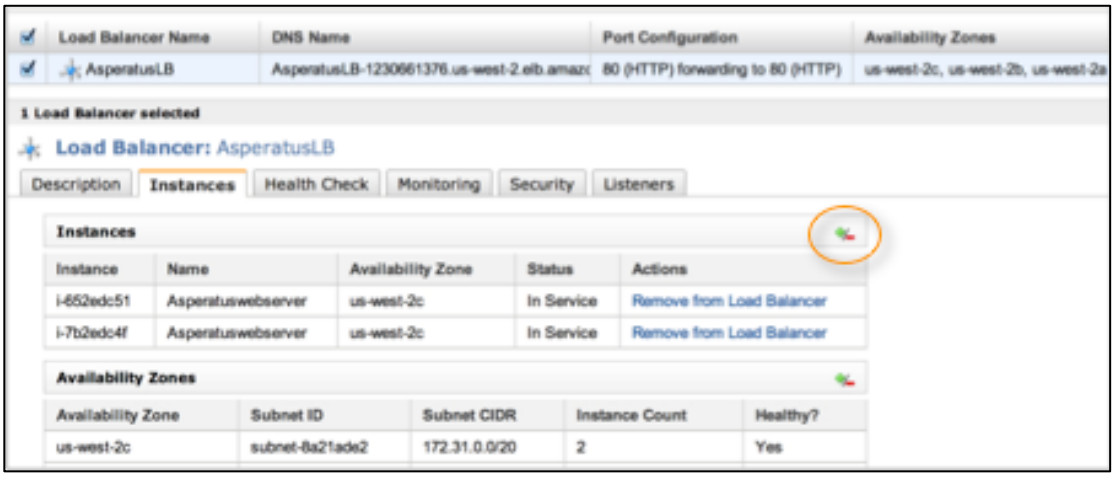
13) Click **Refresh** periodically to update the status.

14) After a short time, the instance **Status** changes to **In Service**, and the load balancer's **Healthy** status changes to **Yes**. If your load balancer's Status does not change to "In Service," click the **why?** link.

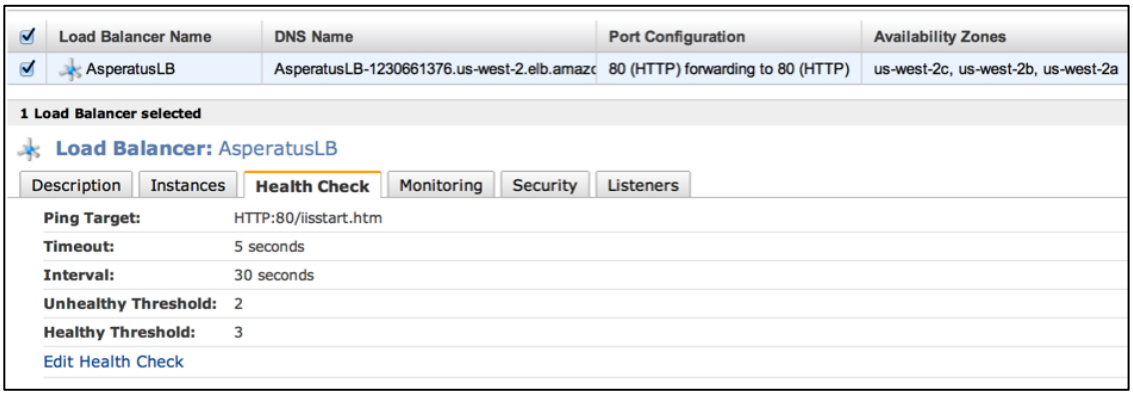


15) With the load balancer selected, click the **Description** tab. This tab displays a summary of all the settings for the load balancer and provides links to access it.

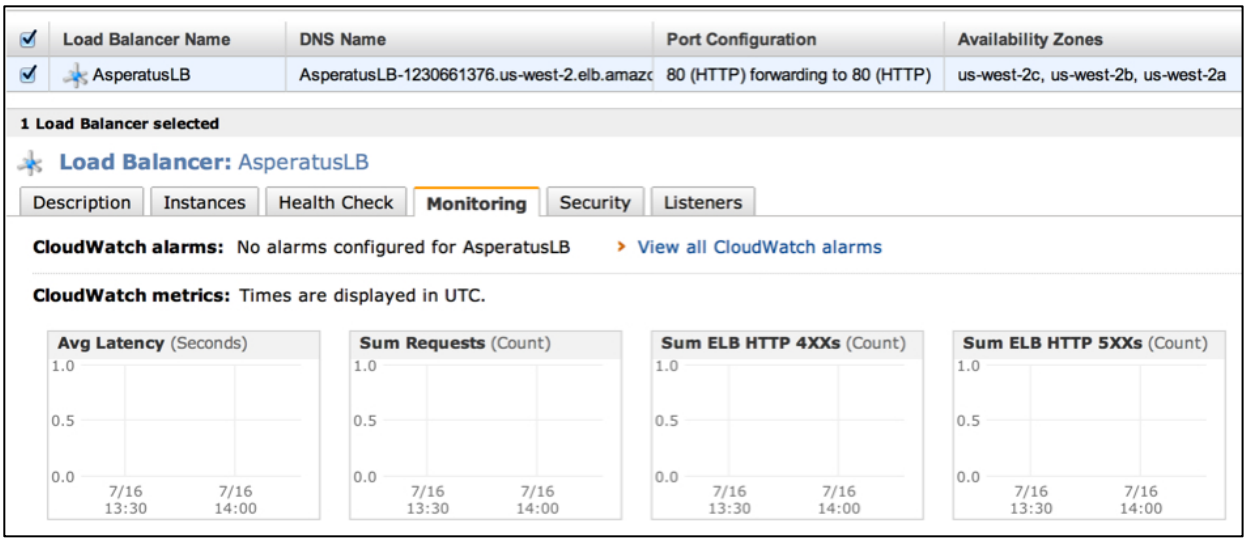
16) Click the **Instances** tab. This is where you can add, change, and remove instances from the load balancer.



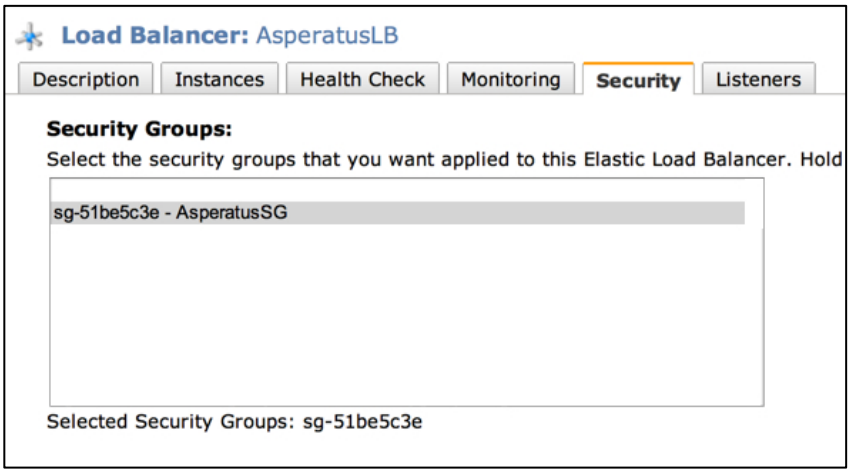
17) Click the **Health Check** tab. Here, you can click **Edit Heath Check** to modify any health check settings.



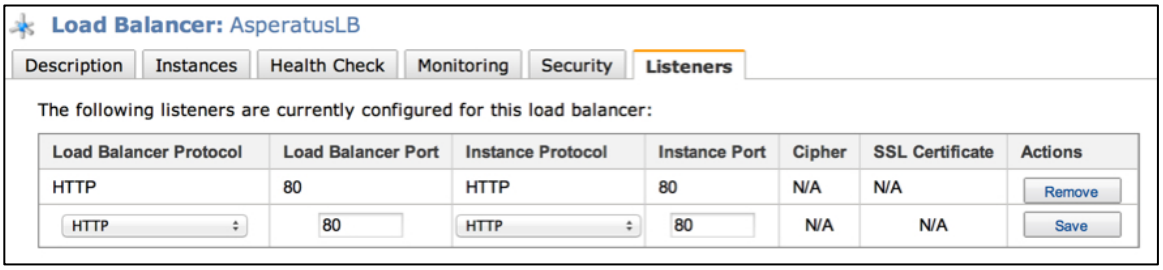
18) Click the **Monitoring** tab. Basic monitoring statistics are displayed by CloudWatch. These monitoring settings are pre-configured for the ELB.



19) Click the **Security** tab and note the security groups associated with your load balancer. Your load balancer runs under a context that may be locked down or given access to particular resources (as needed), heightening security.



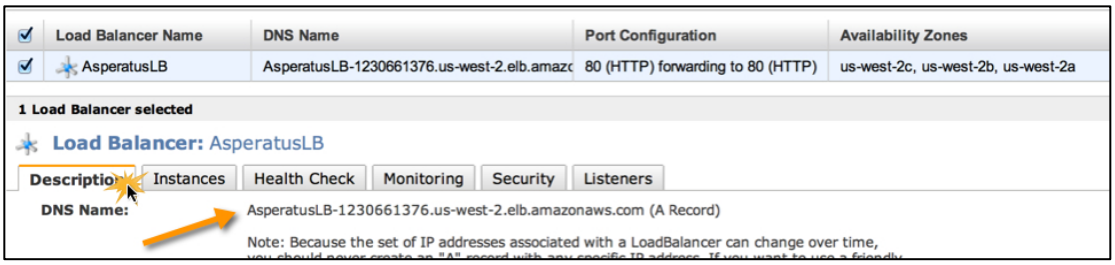
20) Click the **Listeners** tab. On this tab, you add, modify, or delete listeners.



Using an ELB

In this section you test the functionality of the Elastic Load Balancer you created.

1) With the load balancer selected, click the **Description** tab.
2) For **DNS Name**, locate the line beginning with “http”.
3) Copy the entire line, except for “(A Record)” and paste the text in your browser’s Address bar.



4) The **`iisstart.htm`** page loads confirming the load balancer is sending requests to the Web servers.

Conclusion

Congratulations! You now have successfully:

- Deployed two webservers from an AMI template.
- Configured an Elastic Load Balancer to load balance traffic over port 80.
- Toured the Elastic Load Balancer tabs.
- Tested the configuration by using the URL provided.

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