



Immersion Day

Creating an Elastic Load Balancer

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Overview

This lab will walk the user through creating an ELB to load balance traffic across several EC2 nodes in a single Availability Zone.

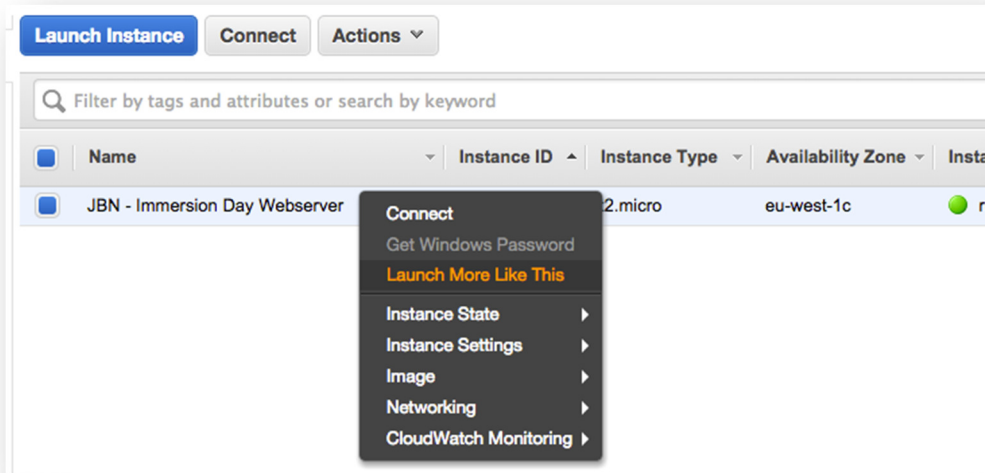


This lab has a prerequisite of Immersion Day – Getting Started with EC2 and assumes that you have already launched your first web server. This lab will demonstrate configuring a farm of web servers from the Immersion Day – Getting Started with EC2 lab to use ELB for its load balancing needs.

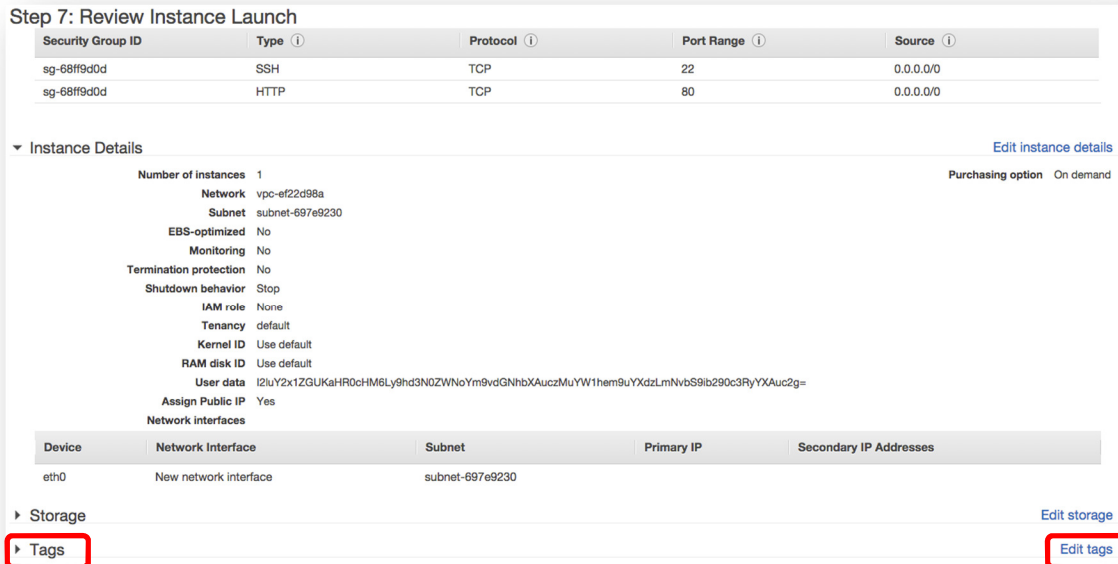
Launch a Second Web Server

Let's launch another web server, similar to our existing web server instance.

1. Right click your web server and choose **Launch More Like This**. As it implies, this feature will launch another web server similar to the existing web server.



2. On the next screen, scroll down to the **Tags** section and click **Edit Tags**.



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3. Change the **Value** of the **Name** tag to something different than the first instance, like [Your Initials] – Immersion Day Webserver 2.

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

Step 5: Tag Instance

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key (127 characters maximum)	Value (255 characters maximum)
Name	JBN - Immersion Day Webserver 2

Create Tag (Up to 10 tags maximum)

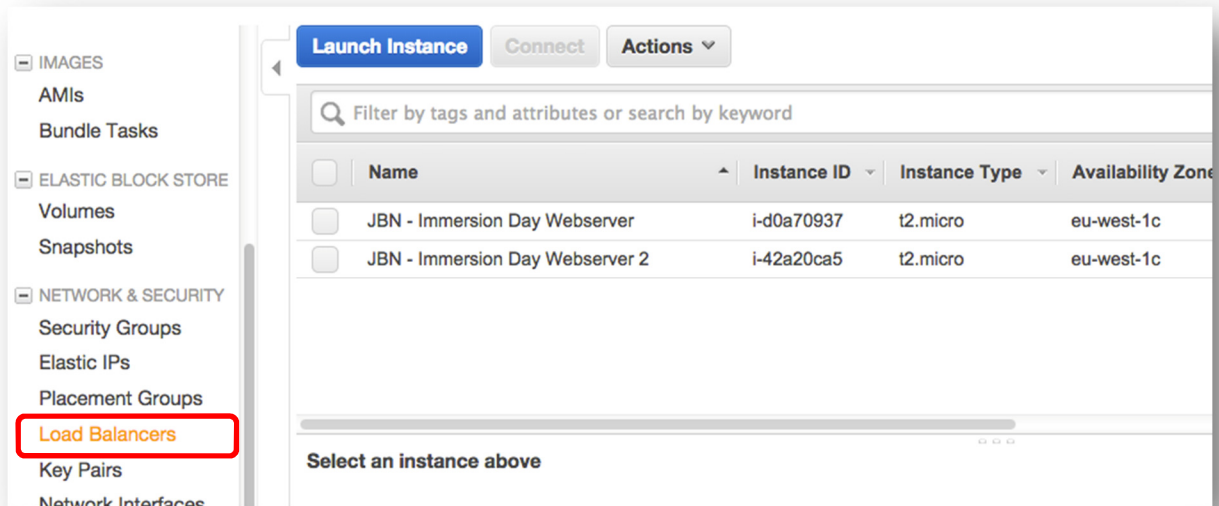
Cancel Previous **Review and Launch** Next: Configure Security Group

4. Click the **Review and Launch** button and then on the next screen click the blue **Launch** button near the bottom right corner.
5. On the next screen, ensure you have a keypair selected, checkmark the acknowledgement and click on the **Launch Instances** button. Like your first instance, this newly launched instance will take a few minutes to boot and configure itself.
6. Once the second web server has passed its status checks, confirm the web server is operational by browsing to its web site using its public DNS.

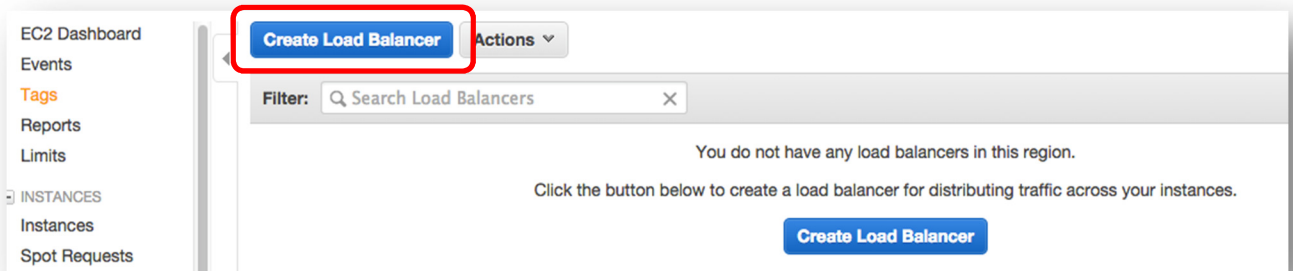
Create an ELB

You now have two web servers, but you need a load balancer in front of these servers to give your users a single location for accessing both servers and to balance user requests across your web server farm.

1. Click on the **Load Balancers** link in the EC2 Console.



2. Click on **Create Load Balancer** button.



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3. We will just be creating a HTTP load balancer, so give your ELB a new name like **[Your Initials]-ImmersionDay-ELB**, accept the default listener configuration, and click **Continue**.

Create Load Balancer

1. Define Load Balancer 2. Configure Health Check 3. Add EC2 Instances 4. Add Tags 5. Review

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name: JBN-ImmersionDay-ELB

Create LB Inside: My Default VPC (172.31.0.0/16)

Create an internal load balancer: ☐ (what's this?)

Enable advanced VPC configuration: ☐

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
HTTP	80	HTTP	80

Add

Cancel Continue

4. On the next screen change **Ping Path** to / (delete index.html), **Healthy Threshold** to 2 and accept the rest of the default options by clicking **Continue**.

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Create Load Balancer

1. Define Load Balancer **2. Configure Health Check** 3. Assign Security Groups 4. Add EC2 Instances 5. Add Tags 6. Review

Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that pass the health check. If an instance fails the health check, it is automatically removed from the load balancer. Customize the health check to meet your specific needs.

Ping Protocol: HTTP

Ping Port: 80

Ping Path: /

Advanced Details

Response Timeout: 5 seconds

Health Check Interval: 30 seconds

Unhealthy Threshold: 2

Healthy Threshold: 2

[Back](#) [Continue](#)

- On the next screen we'll create a new security group for our ELB. Name your security group something like **[Your Initials] – Immersion Day ELB SG**, and allow HTTP traffic to be passed to your instances by creating a rule of type **HTTP** for port 80, then click **Continue**.

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Create Load Balancer

1. Define Load Balancer 2. Configure Health Check 3. Assign Security Groups 4. Add EC2 Instances 5. Add Tags 6. Review

Assign Security Groups

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

Security group name:

Description:

Type	Protocol	Port Range	Source
HTTP	TCP	80	Anywhere 0.0.0.0/0

Add Rule

Back Continue

6. Select your Web Servers to add them to your ELB and click **Continue**.

Create Load Balancer

1. Define Load Balancer 2. Configure Health Check 3. Assign Security Groups 4. Add EC2 Instances 5. Add Tags 6. Review

Add Instances to Load Balancer

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-ef22d98a (172.31.0.0/16)

	Instance	Name	State	Security Groups	Zone	Subnet ID	Subnet CIDR
<input checked="" type="checkbox"/>	i-d0a70937	JBN - Immersion D...	running	HTTP/SSH	eu-west-1c	subnet-db71b8ac	172.31.32.0/20
<input checked="" type="checkbox"/>	i-5cdd61ba	JBN - Immersion D...	running	HTTP/SSH	eu-west-1a	subnet-697e9230	172.31.0.0/20

7. Tag your ELB with a **Key** of Name and a **Value** of [Your Initials] – Immersion Day ELB and click **Continue**.

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Create Load Balancer

1. Define Load Balancer2. Configure Health Check3. Assign Security Groups4. Add EC2 Instances5. Add Tags6. Review

Apply tags to your resources to help organize and identify them.

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key	Value
Name	JBN - Immersion Day ELB

Create Tag

BackContinue

- Review your ELB settings and click **Create** (followed by **Close**).
- AWS is now creating your ELB. It will take a couple of minutes to establish your load balancers, attach your web servers, and pass a couple of health checks. **Click** on your load balancer, select the **Instances tab**, and wait until the instances status changes from *Out of Service* to **In Service**. Also note that the overall **"Healthy?"** column turns from **No** to **Yes**.

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Create Load Balancer **Actions** ↺ ⚙ ?

Filter: × ⏪ < **1 to 1 of 1** > ⏩

<input type="checkbox"/>	Load Balancer Name	DNS Name	Port Configuration	Availability Zones
<input checked="" type="checkbox"/>	JBN-ImmersionDay-ELB	JBN-ImmersionDay-ELB-67...	80 (HTTP) forwarding to 80 (...)	eu-west-1a, eu-west-1c

Load balancer: **JBN-ImmersionDay-ELB** 📄 📄 📄

Description **Instances** **Health Check** **Monitoring** **Security** **Listeners** **Tags**

Connection Draining: Enabled, 300 seconds ([Edit](#))

Edit Instances

Instance ID	Name	Availability Zone	Status	Actions
i-d0a70937	JBN - Immersion Day Webserver	eu-west-1c	InService ⓘ	Remove from Load Balancer
i-5cdd61ba	JBN - Immersion Day Webserver 2	eu-west-1a	InService ⓘ	Remove from Load Balancer

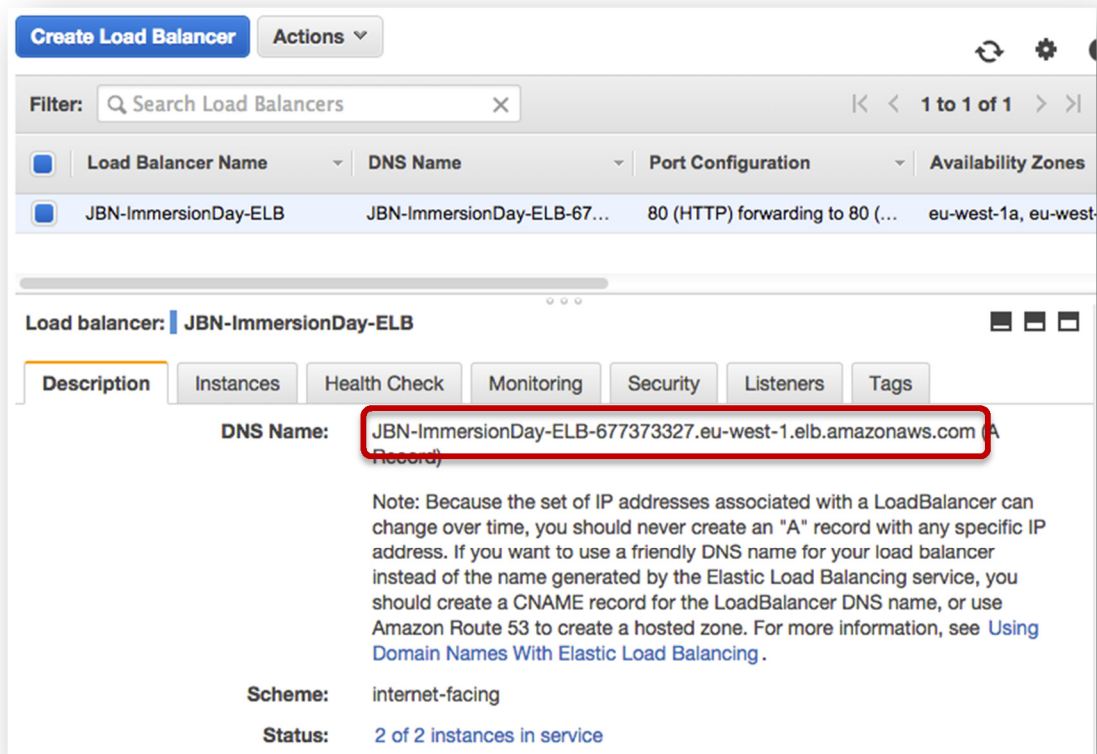
Edit Availability Zones

Availability	Subnet ID	Subnet	Instance	Healthy?	Actions
eu-west-1a	subnet-697e9230	172.31.0.0/20	1	Yes	Remove from Load Balancer
eu-west-1c	subnet-db71b8ac	172.31.32.0/20	1	Yes	Remove from Load Balancer

10. Once your ELB is healthy, click on the **Description tab**, select and copy the ELB's DNS name.

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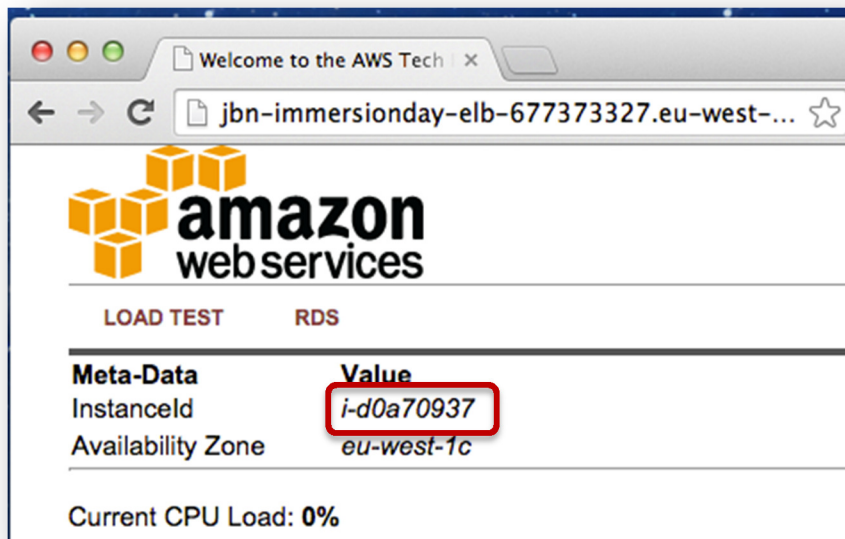
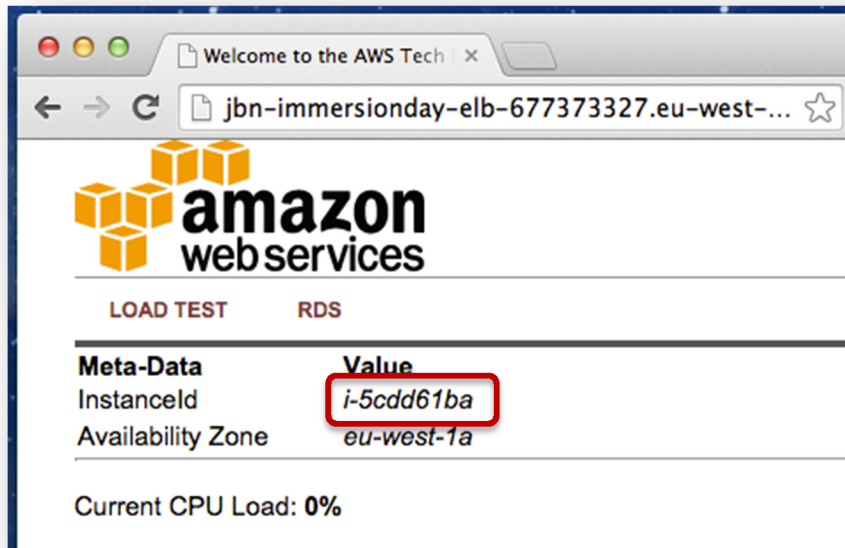
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11. Open the ELB URL in a new browser tab. Hit the browser refresh button and you should cycle through your web servers (you may need to do a "Shift-F5" or "Shift-Refresh" as some browsers like Chrome are pretty aggressive in locally caching web pages).

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12. Congratulations, you've created a load balanced website.