Lab 263

Create Subnets and Allocate IP addresses in an Amazon VPC)

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Bootcamp: Forge AWS re/Start UYMON5
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Objectives

In this lab, you will:

- Summarize the customer scenario
- Create a Amazon Virtual Private Cloud (Amazon VPC) and understand how to create subnets and allocate IP addresses
- Familiarize yourself with the Amazon Web Services (AWS) Management Console
- Develop a solution to the customer's issue in this lab
- Summarize and describe your findings (group activity)

Scenario

Your role is a cloud support engineer at AWS. During your shift, a customer from a startup company requests assistance regarding a networking issue within their AWS infrastructure. The following is the email and an attachment regarding their architecture:

Ticket from your customer

Hello, Cloud Support!

I'm new to AWS, and I need help setting up a VPC. Can you please help me through the setup process? I would like to build only the VPC part and would like to make it look something like the following picture. Can you help me ensure I have around 15,000 private IP addresses in this VPC available? I would also like the VPC IPv4 CIDR block to be a 192.x.x.x. I don't remember which is a private range though. Can you confirm that? I would also like to allocate at least 50 IP addresses for the public subnet.

Thanks! Paulo Santos Startup Owner

Customer diagram

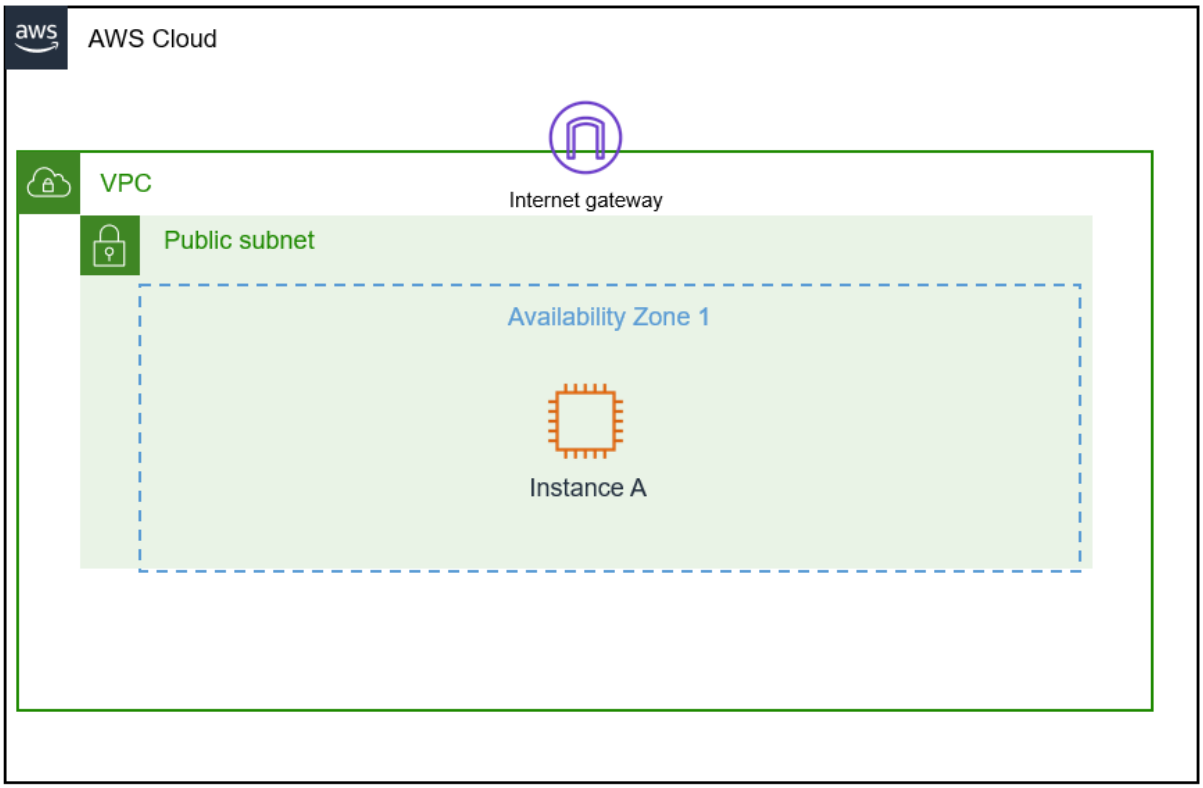


Figure: In the customer's VPC architecture, the customer needs approximately 15,000 IP addresses for their Seattle office headquarters and 50 IP addresses for their operations department, which will be in the public subnet.

Task 1: Investigate the customer's needs

In previous courses, you covered the purpose of IP subnetting and the use of Classless Inter-Domain Routing (CIDR) notations. As you go through this lab, think about which CIDR notation the customer should use for the VPC and subnet.

Before you start, quickly go over what a VPC is:

- A VPC is like a data center but in the cloud. It is logically isolated from other virtual networks, and you can use a VPC to spin up and launch your AWS resources within minutes.
- Resources within a VPC communicate with each other through private IP addresses. An instance needs a public IP address for it to communicate outside the VPC. The VPC needs networking resources, such as an internet gateway and a route table, for the instance to reach the internet.
- A CIDR block is a range of private IP addresses that is used within the VPC (for example, the /16 number that you see next to an IP address).
- A subnet is a range of IP addresses within your VPC.
- To determine the CIDR range, you can use the following third-party calculator: https://www.subnet-calculator.com/
- To determine the recommended range of private IP addresses that you can use, you can refer to the following guide: https://datatracker.ietf.org/doc/html/rfc1918.

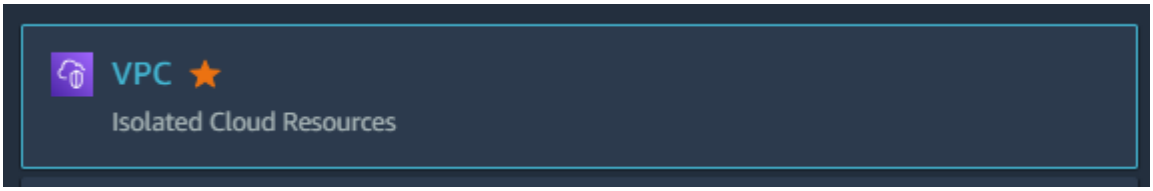
For task 1, you will investigate the customer's needs and build a VPC environment based on the customer's requirements. You then build a short and simple walkthrough for the customer to follow.

In the scenario, Paulo, who is the customer requesting assistance, has switched to using AWS and would like assistance in launching his first VPC. He has some networking knowledge but is new to AWS. You know that he needs around 15,000 IP addresses in the private range within his VPC, and he would like a public subnet. He would like to allocate at least 50 IP addresses in the public subnet.

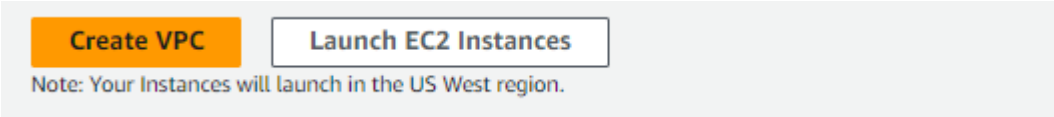
For the customer, you will build one VPC and a guide about how to launch one.

Build VPC on Amazon Virtual Private Cloud:

1. At the upper-right of these instructions, choose **AWS**. The AWS Management Console opens in a new tab.
2. Once you are in the AWS console, type and search for **VPC** in the search bar on the top-left corner. Select VPC from the list.



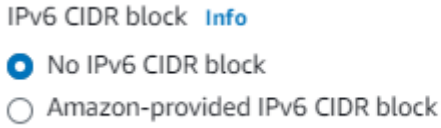
7. You are now in the Amazon VPC dashboard. You use the Amazon Virtual Private Cloud (Amazon VPC) service to build your VPC.
8. We **create a VPC**. This will launch you into a step by step process to set up a VPC with it's basic components.



9. Once we click on “create VPC”, we use the following steps to launch the VPC.

   Configure the following options:

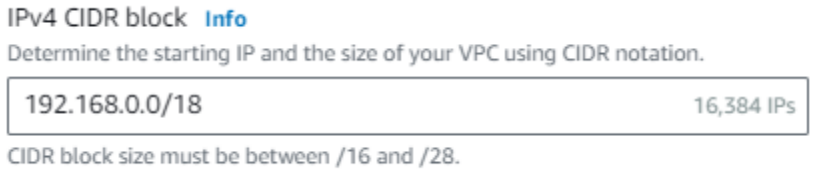
   - For **IPv6 CIDR block**, leave **No IPv6 CIDR Block** selected. You will not be using IPv6 in this lab.

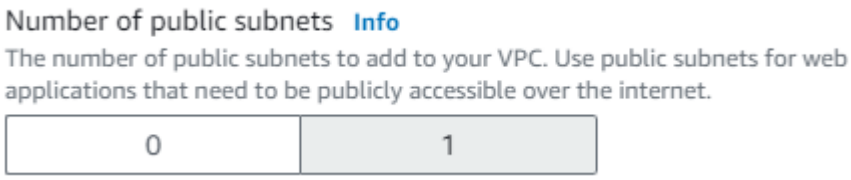
   - For the **VPC name**, enter `First VPC`

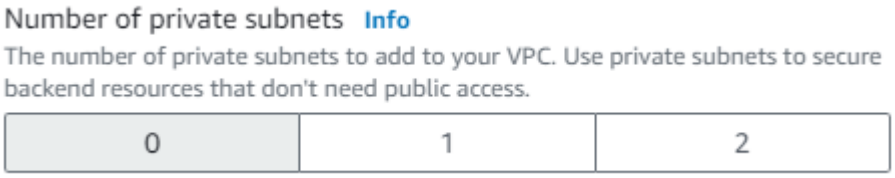
   - For **Public subnet's IPv4 CIDR**, this option prefills. Input the correct VPC CIDR that you are using; however, keep in mind that the public subnet's CIDR must be smaller then the VPC CIDR block, and it must be able to include at least 50 IP addresses.

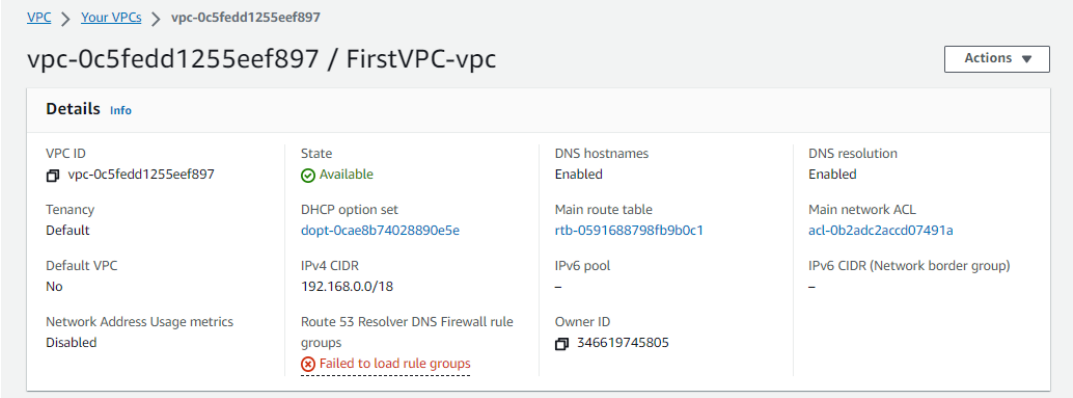
   - For Number of Public subnets we choose 1. Since the client is requesting a **VPC with a Single Public Subnet**

   - As user show on the diagram, private subnets were not asked, so we choose 0.



- Leave the remaining options set to their default settings.
- At the lower-right, choose **Create VPC**. We get the following tab:



The subnet from this created VPC will be the following:

Creation of VPC that resembles the customer's request:

configuring a VPC: Step 2, VPC with a Single Public Subnet is configured with the following with the following parameters:

- The IPv4 CIDR block is 192.168.0.0/18
- The IPv6 CIDR block is set to the default
- The VPC name is "First VPC",
- The Public subnet's IPv4 CIDR is 192.168.1.0/26
- The Availability Zone is set to No Preference
- The Subnet name is "Public subnet," and the remaining options are left at their default settings.

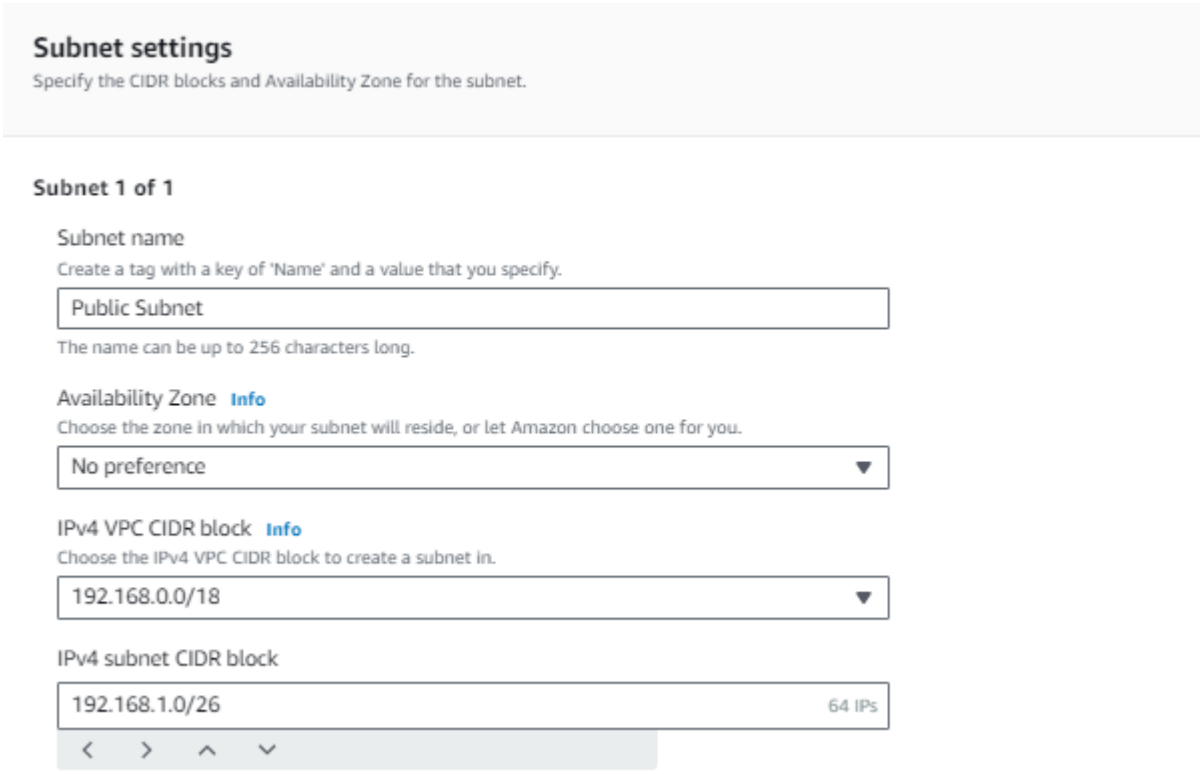


Figure: Example of a completed VPC

Task 2: Send the response to the customer (group activity)

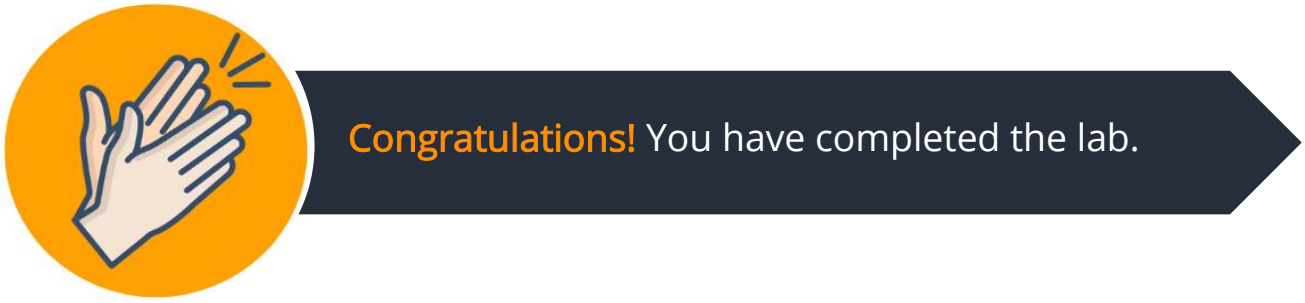
In groups of two, submit your findings.

Person 1 acts as Brock the customer, and person 2 acts as the cloud support engineer. Person 2 walks through how they would build the VPC with person 1.

Note

This task should take 30 minutes. If a group activity is not possible, have one student walk through their findings with the class.

Lab Complete



Choose **End Lab** at the top of this page, and then select Yes to confirm that you want to end the lab.

A message *Ended AWS Lab Successfully* is briefly displayed, indicating that the lab has ended.

Recap

In this lab, you have investigated the customer's environment and analyzed the customer's request to build a successful walkthrough of their environment. Through this experience, you learned how to launch a VPC, which CIDR block and range to give the customer, and how to show the customer to build a VPC.