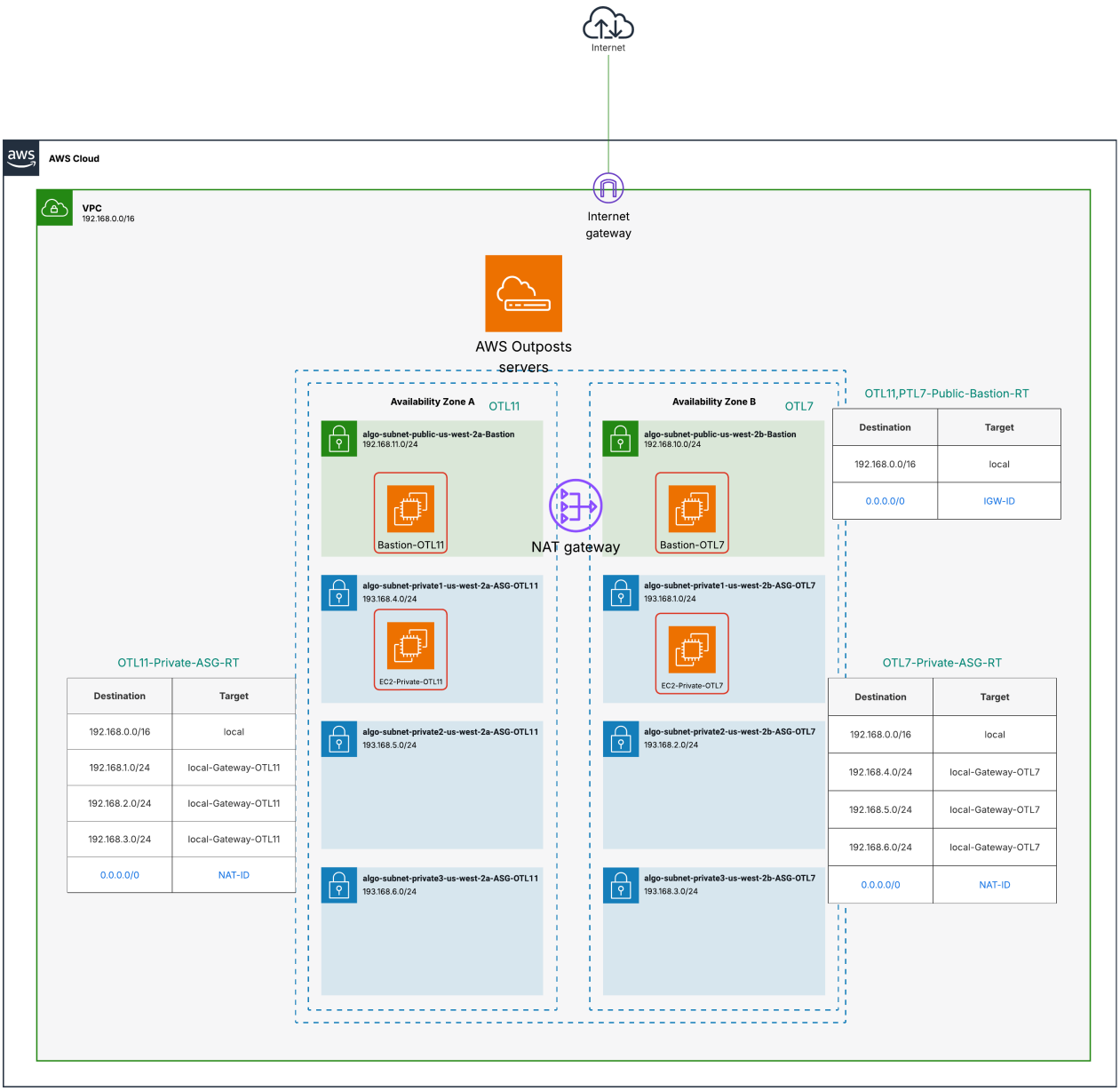
AWS 2 Outposts – Networking Configuration 🕮

🧬 Architecture

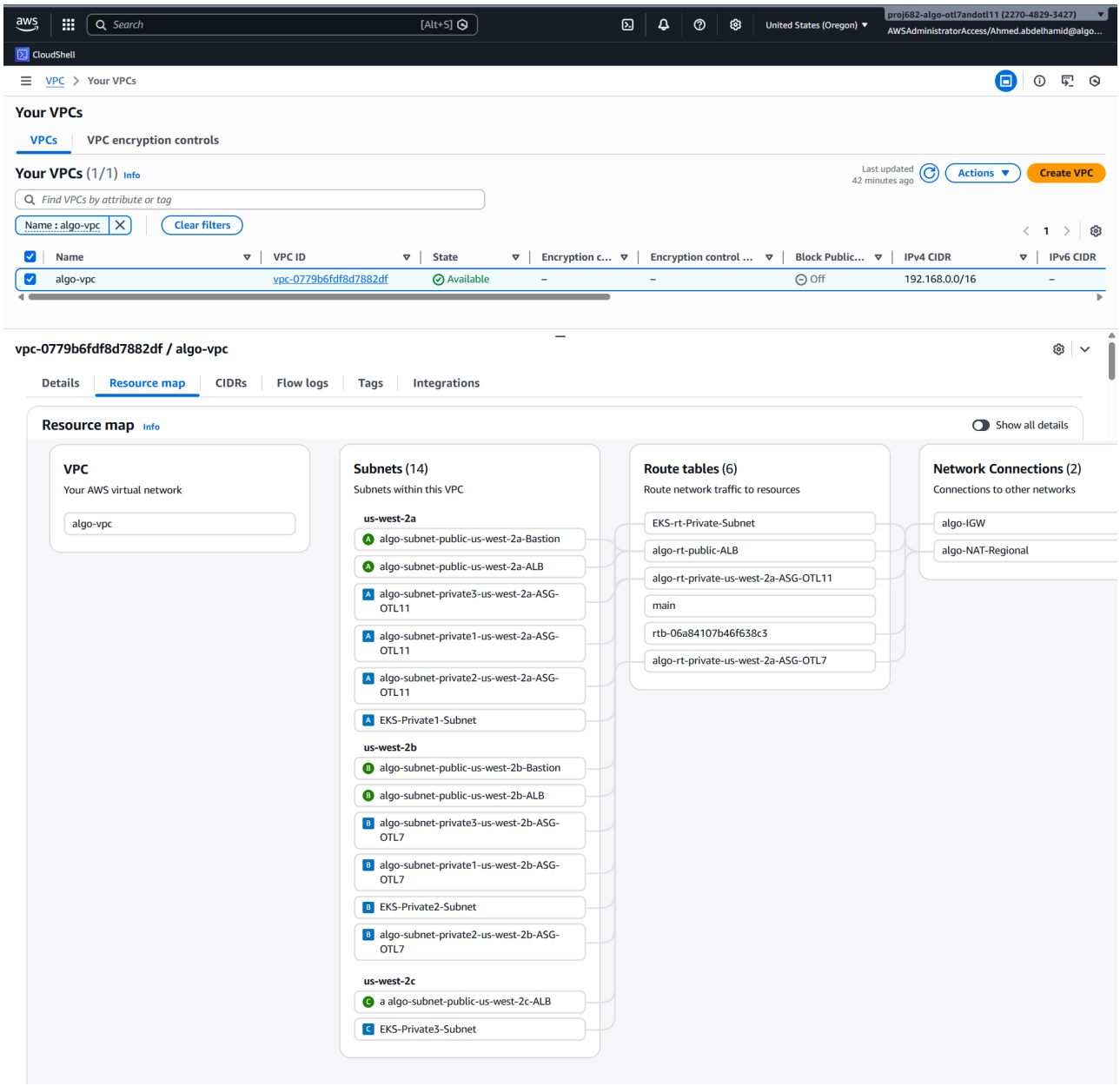


🌐 VPC (Region)

- 💡 **It is recommended to create a new VPC from scratch to prevent failures**
- Key points to ensure a smooth setup:
  - 🚫 Avoid using the main Route Table, as it results in errors.
  - Ensure the following components are created:
    - ☑ **VPC-CIDR**: `192.168.0.0/16`
    - ☑ **Internet Gateway (IGW)**

- ☑ **Route Table**
  - Add Routes
  - Subnet Association
- ☑ **NAT Gateway** (Regional Only)
- ☑ Add appropriate tags for each resource.

VPC Diagram:



Subnet Breakdown and Configuration:

- **Outpost Subnet Creation**:

  OTL11 (Created on Outpost):

  - `3-Private Subnet ASG (us-west-2a)` → **Worker Nodes**
    - `192.168.4.0/24`, `192.168.5.0/24`, `192.168.6.0/24`
  - **Public Subnet Bastion (us-west-2a)** → Test connection
    - `192.168.11.0/24`
  - **Public Subnet ALB (us-west-2a)** — On **Region**

- `192.168.7.0/24`

OTL7 (Created on Outpost):

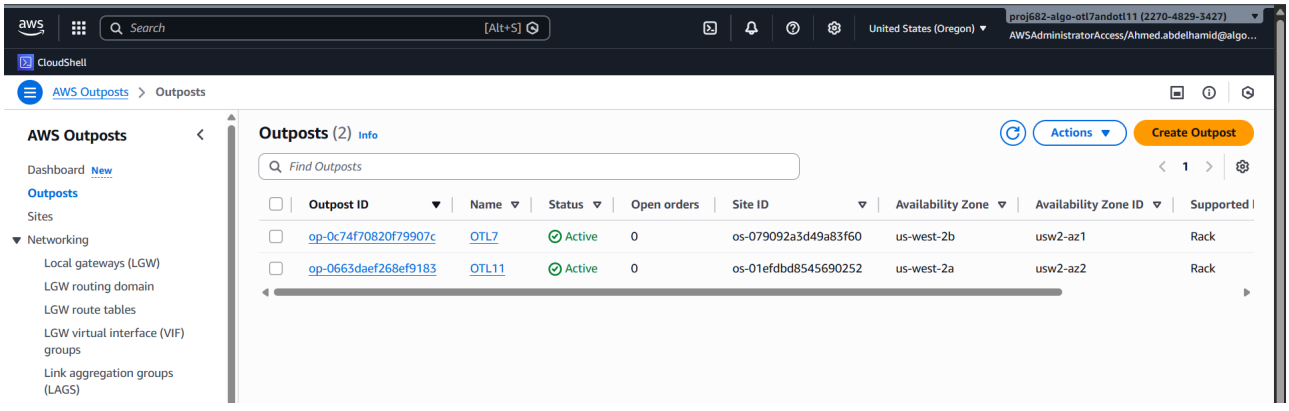
- `3-Private Subnet ASG (us-west-2b)` → **Worker Nodes**
  - `192.168.1.0/24`, `192.168.2.0/24`, `192.168.3.0/24`
- **Public Subnet Bastion (us-west-2b)** → Test connection
  - `192.168.10.0/24`
- **Public Subnet ALB (us-west-2b)** — On **Region**
  - `192.168.8.0/24`
- **Public Subnet ALB (us-west-2c)** — On **Region**
  - `192.168.9.0/24`

AWS Outpost

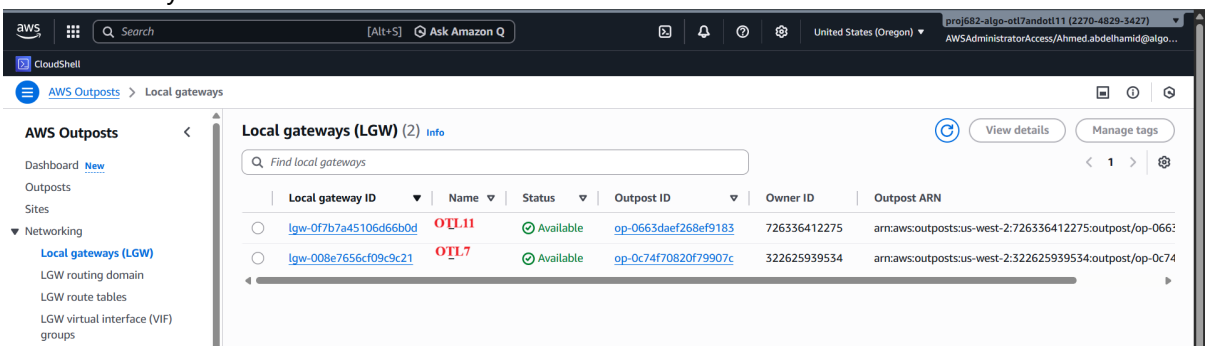
1. **Local Gateway (LGW)**:
   - Automatically created with the subnets.
   - After creating subnets on the outpost:
     - **Local Gateway Route Tables** are created automatically.
     - You must **associate the VPC** and configure Routes.

2. Steps to perform:
   - 🗁 Go to the **VPC section**, and configure routing.
   - Manage Subnet Association and Route Tables.

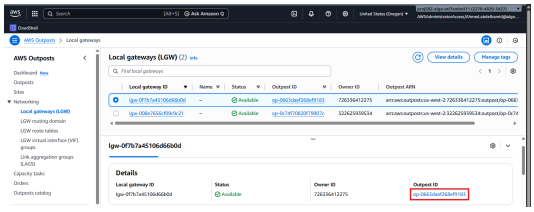
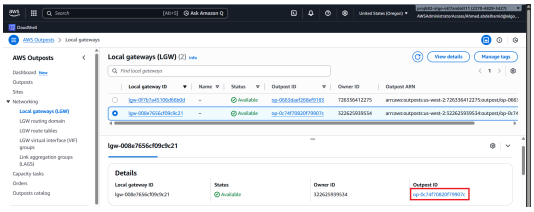
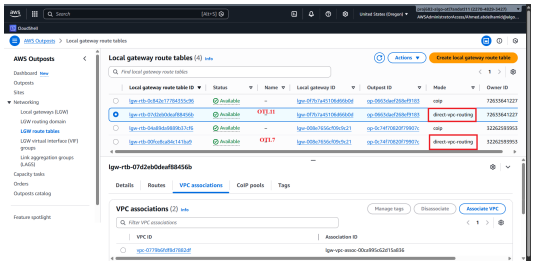
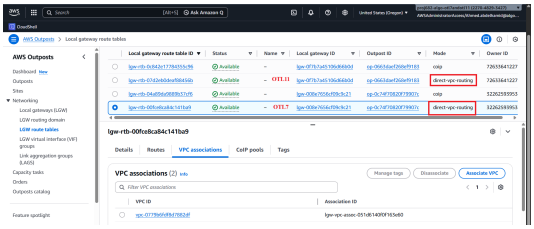
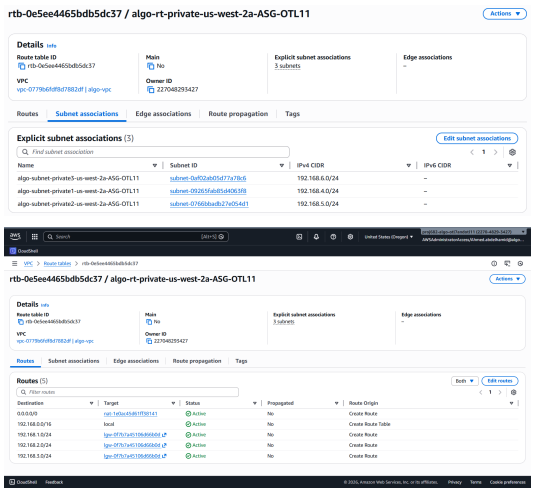
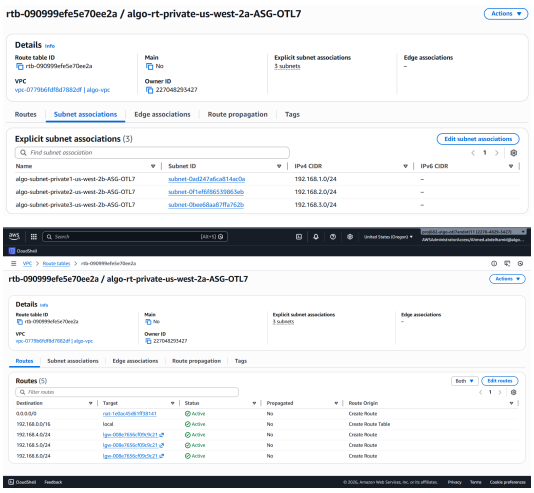
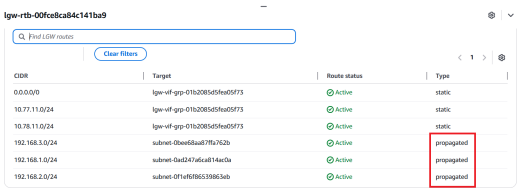
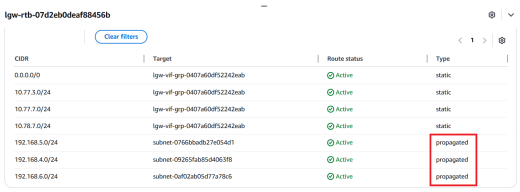
Graphical Illustrations:



- Local Gateway Visualization:



LGW Configuration Table

Configuration	OTL11	OTL7
Local Gateway Configuration		
Associate VPC		
Routing from the VPC Route table to Outpost through Local Gateway (LGW) — in the region		
After associating successfully, go to Outpost-LGW-rt, and you should see "propagated."		

To test the connection, we will create 2 EC2 instances and ping each other

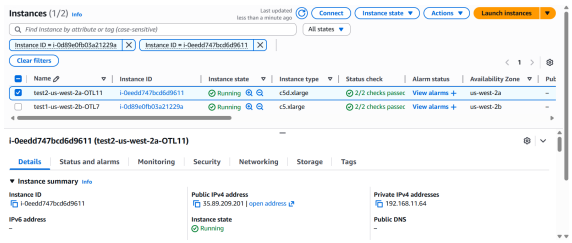
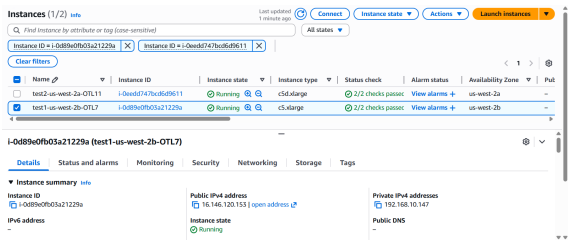
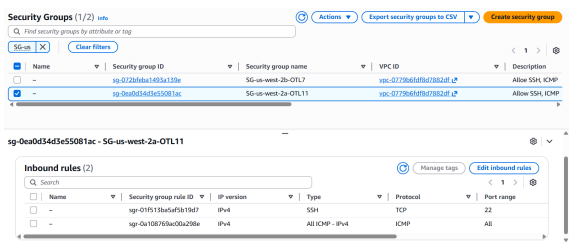
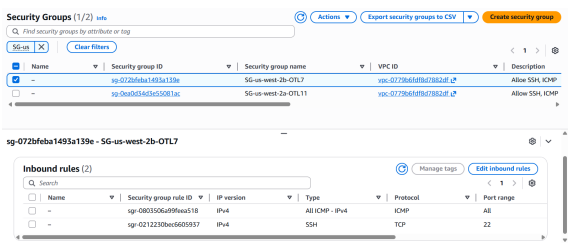
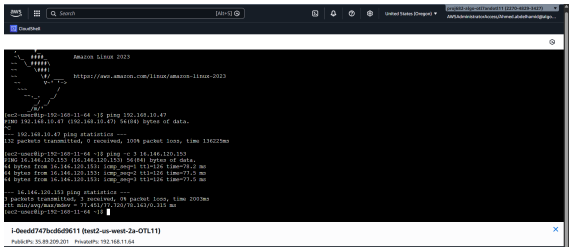
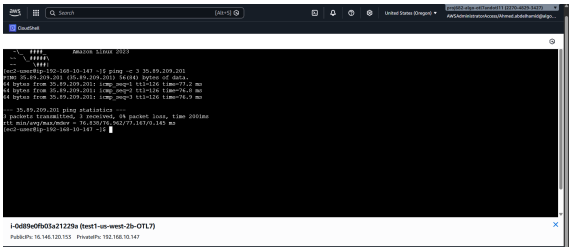
Testing Connections

1. **EC2 in Public Subnets**:
   - Create **2 EC2 instances** across outposts.
   - Use `ping` to test the connection.

- Errors you might encounter:

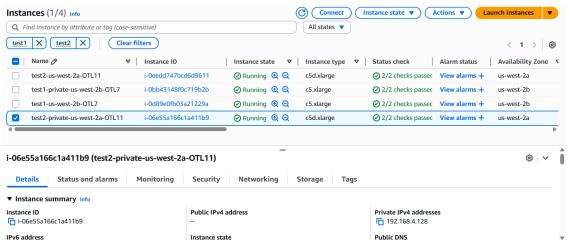
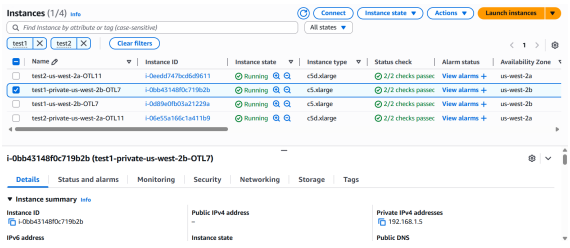
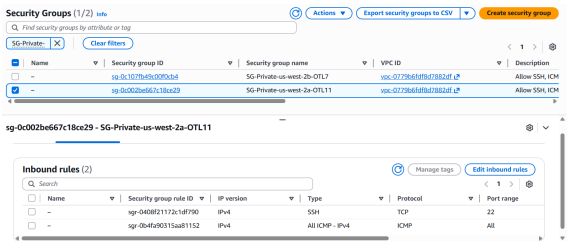
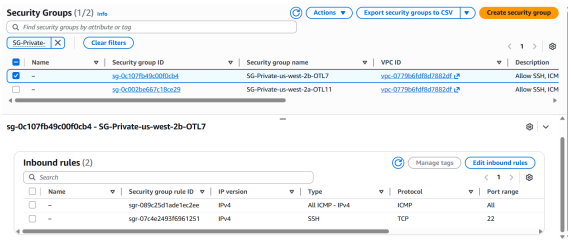
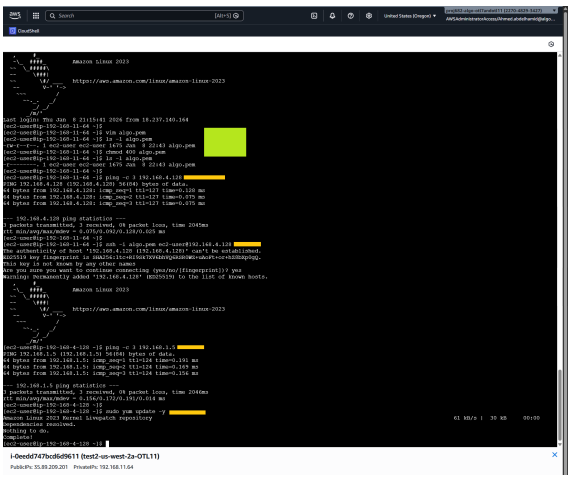
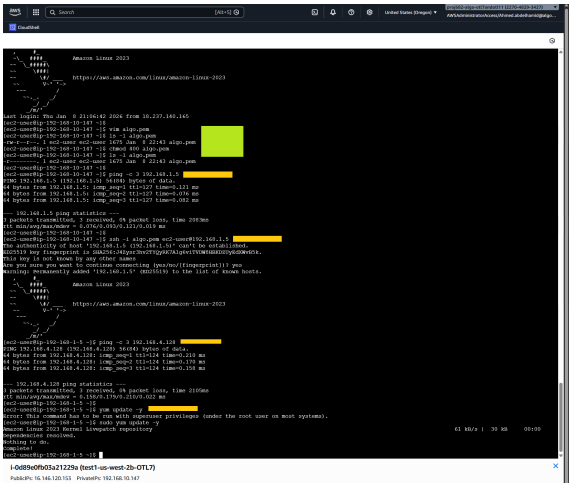
  - Create **2 Security Groups (SG)** in Outpost, allowing:
    - **SSH**
    - **ICMP**
  - Supported EBS: **gpt2**
  - Supported Instance Types: **C5d.xlarge**, **C5.xlarge**

📌 Test the connection from Public to Public EC2 instances.

Example - Public-EC2	**us-west-2a (OTL11)**	**us-west-2b (OTL7)**
EC2 Public Instance Output:		
Security Group		
Test Ping:		

📌 Test the connection from Public to Private EC2 instances.

Example - Private-EC2	**us-west-2a (OTL11)**	**us-west-2b (OTL7)**

Example - Private-EC2	us-west-2a (OTL11)	us-west-2b (OTL7)
EC2 Private Instance Output:		
Security Group		
Test Ping:		

Final Steps

Both **Outposts** can successfully communicate. This configuration ensures reliable connection and meets the requirements for deploying instances in AWS Outposts.

For further information, refer to the official AWS documentation: **AWS Outposts Launch Instances Guide**