

■ DETAILED LAB: Compute Host Provisioning and Validation This document outlines the standard operating procedure (SOP) followed to provision, secure, and validate an Amazon Elastic Compute Cloud (EC2) instance. ■ Figure 1 — EC2 Instance Creation This screenshot captures the EC2 instance being configured in the AWS Management Console. It shows the selected instance type (t3.micro), instance naming, and the initial setup in the EC2 Instances dashboard.

The screenshot shows the AWS Management Console interface for the EC2 service. The left sidebar navigation includes 'Dashboard', 'AWS Global View', 'Events', 'Instances' (selected), 'Instance Types', 'Launch Templates', 'Spot Requests', 'Savings Plans', 'Reserved Instances', 'Dedicated Hosts', 'Capacity Reservations', and 'Capacity Manager'. The main content area displays 'Instances (1/1) Info' with a search bar and filter options for 'Name', 'Instance ID', 'Instance state', 'Instance type', 'Status check', 'Alarm status', 'Availability Zone', and 'Public IP'. A single instance is listed: 'Command Host' (i-0c385d090e511f076), which is 'Running' (t3.micro), has passed 3/3 checks, is in 'us-west-2a', and has a public IP 'ec2-44-24-'. Below the table, the instance details for 'i-0c385d090e511f076 (Command Host)' are shown, including tabs for 'Details' (selected), 'Status and alarms', 'Monitoring', 'Security', 'Networking', 'Storage', and 'Tags'. The 'Details' tab displays the 'Instance summary' with fields for 'Instance ID' (i-0c385d090e511f076), 'Public IPv4 address' (44.249.58.135), 'Private IPv4 addresses' (10.0.10.254), 'IPv6 address' (none), 'Instance state' (Running), 'Public DNS' (ec2-44-24-58-135.us-west-2.compute.amazonaws.com), and a note about an open address. The bottom of the page includes links for 'CloudShell', 'Feedback', and copyright information: '© 2025, Amazon Web Services, Inc. or its affiliates.' and links for 'Privacy', 'Terms', and 'Cookie preferences'.

**Operational Objectives Host Provisioning:** Deploy an EC2 instance into a targeted VPC segment. **Security Adherence:** Implement access control via Key Pairs and Security Groups. **Connectivity Validation:** Confirm secure shell (SSH) access and system operational status. ■ Figure 2 — Connecting via EC2 Instance Connect This screenshot shows a successful login to the instance using EC2 Instance Connect. The Amazon Linux 2 welcome message confirms connectivity and OS details.



1. Instance Configuration and Launch Selected the **t3.micro** instance type. Launched into the correct **VPC** and public subnet. Created and applied a secure Key Pair for SSH authentication. 2. Security and Access Control A minimal **Security Group** was configured, allowing inbound SSH (TCP 22) only from trusted IP addresses. Outbound rules remained open for standard internet access. ■ Figure 3 — Database Interaction & System Validation This screenshot shows the MariaDB session inside the EC2 instance. Test queries were executed to verify system and database service functionality. The error “1049: Unknown database ‘world’” confirmed the engine was running though the target schema was missing.

```

-> mysql -u root --password='re:St@rt!9'
-> SHOW DATABASES;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near 'sudo su
cd /home/ec2-user/
mysql -u root --password='re:St@rt!9'
SHOW DATABASES' at line 1
MariaDB [(none)]> SHOW DATABASES;
+-----+
| Database      |
+-----+
| information_schema |
| mysql          |
| performance_schema |
+-----+
3 rows in set (0.001 sec)

MariaDB [(none)]> CREATE TABLE world.country (
->   `Code` CHAR(3) NOT NULL DEFAULT '',
->   `Name` CHAR(52) NOT NULL DEFAULT '',
->   `Continent` enum('Asia','Europe','North America','Africa','Oceania','Antarctica','South America') NOT NULL DEFAULT 'Asia',
->   `Region` CHAR(26) NOT NULL DEFAULT '',
->   `SurfaceArea` FLOAT(10,2) NOT NULL DEFAULT '0.00',
->   `IndepYear` SMALLINT(6) DEFAULT NULL,
->   `Population` INT(11) NOT NULL DEFAULT '0',
->   `LifeExpectancy` FLOAT(3,1) DEFAULT NULL,
->   `GDP` FLOAT(10,2) DEFAULT NULL,
->   `GDPold` FLOAT(10,2) DEFAULT NULL,
->   `LocalName` CHAR(45) NOT NULL DEFAULT '',
->   `GovernmentForm` CHAR(45) NOT NULL DEFAULT '',
->   `HeadofState` CHAR(60) DEFAULT NULL,
->   `Capital` INT(11) DEFAULT NULL,
->   `Code2` CHAR(2) NOT NULL DEFAULT '',
->   PRIMARY KEY (`Code`)
-> );
ERROR 1049 (42000): Unknown database 'world'
MariaDB [(none)]>

```

3. Operational Validation and Post-Launch Audit Retrieved system information and AMI metadata. Validated access to the MariaDB service. Observed expected system responses during SQL execution.

✓■ Conclusion This lab demonstrated the complete lifecycle of provisioning, securing, and validating an Amazon EC2 host. All deployed resources were terminated afterward to avoid unnecessary compute costs and maintain a clean environment.