

Project Report: AWS Backup Plan for EC2 and RDS

Title:

Automated Backup and Recovery Plan for EC2 and RDS Using AWS Backup

Introduction:

In modern cloud infrastructure, data protection and disaster recovery are critical components of a robust deployment strategy. AWS Backup provides a centralized, fully managed service to automate and manage backups across AWS services. This project demonstrates how to configure and manage automated backup and recovery of EC2 and RDS resources using AWS Backup, ensuring business continuity and data resilience.

Objectives:

- Launch and configure an EC2 instance with a sample web server and test data.
- Launch and configure an RDS instance with a sample database and data.
- Set up AWS Backup, including a Backup Vault and Backup Plan.
- Assign EC2 and RDS to the Backup Plan using tags or direct resource selection.
- Test and validate the backup process with on-demand backups.
- Document the entire process with screenshots and a summary report.

Technology Stack:

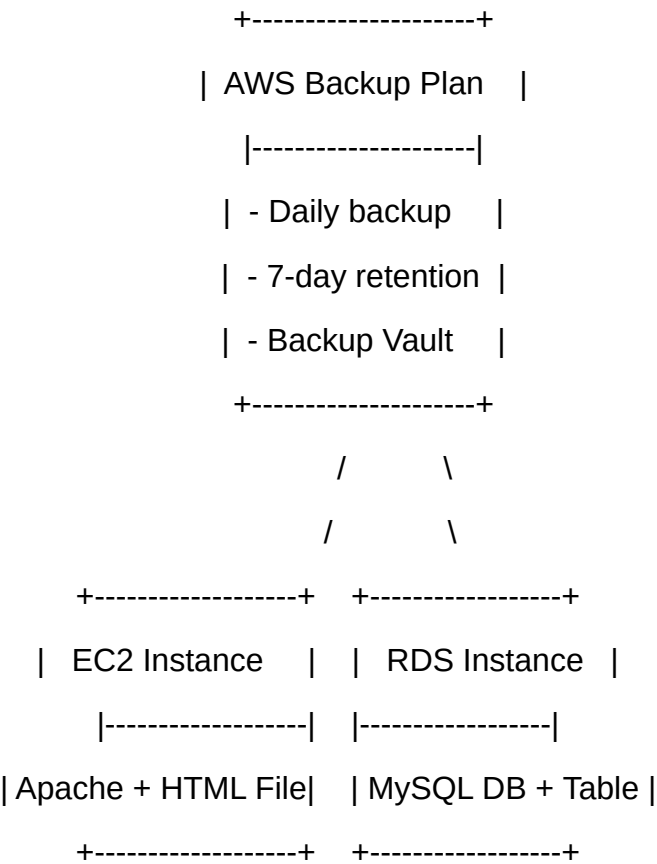
Component | Technology Use

Compute | AWS EC2 (Amazon Linux 2) Database | AWS RDS (MySQL 8.x) Web Server | Apache HTTP Server

Backup Service | AWS Backup

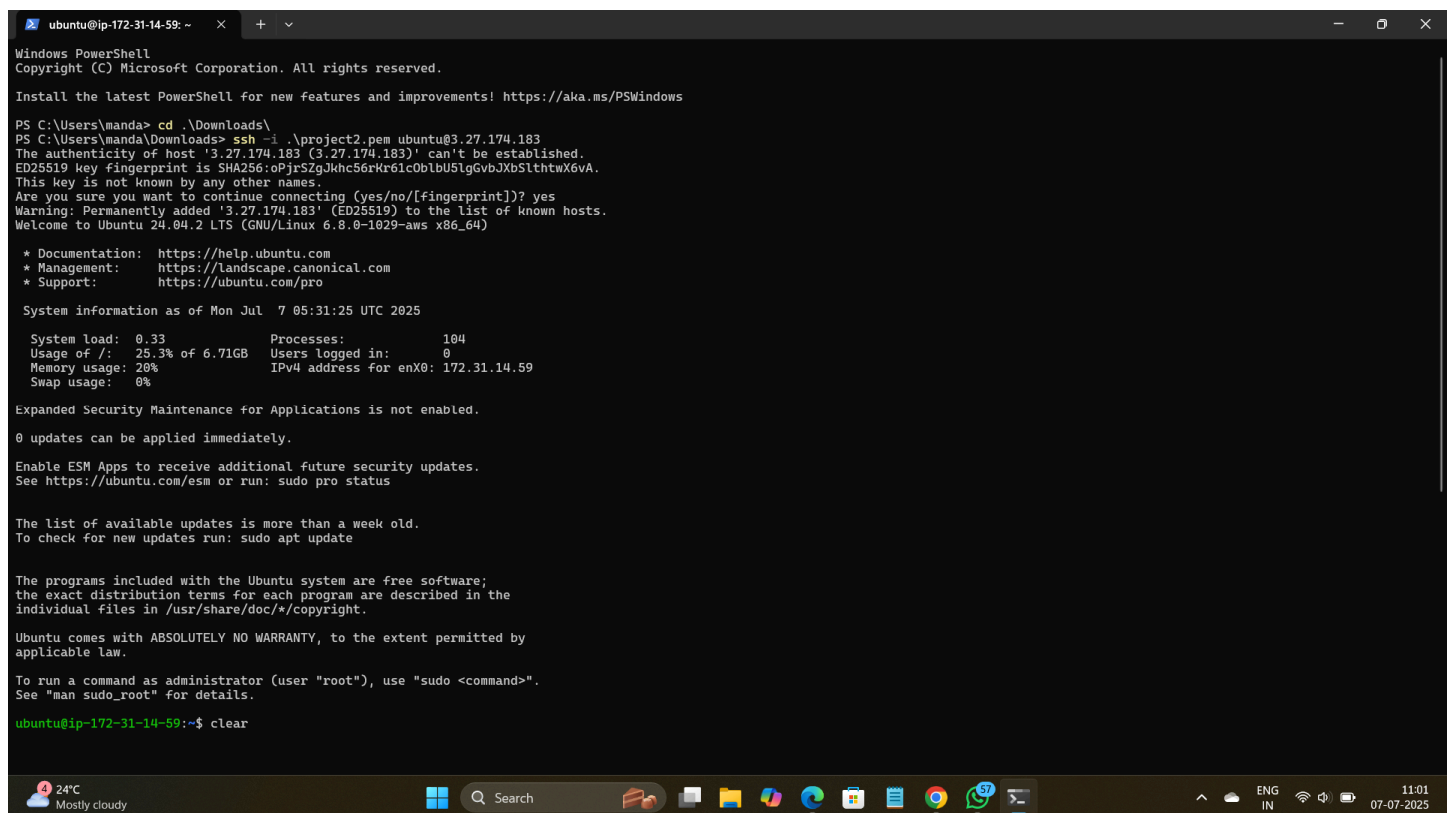
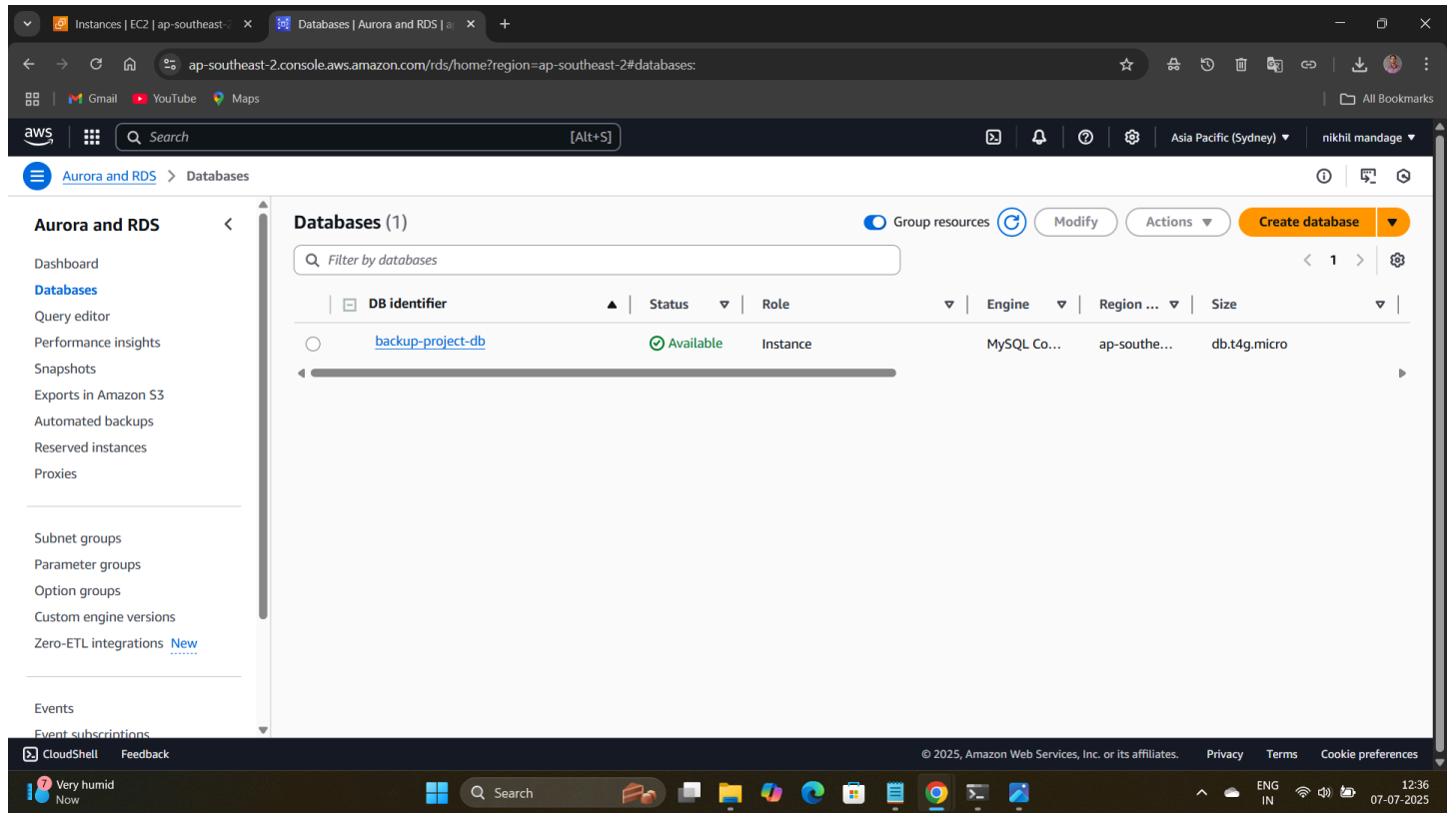
OS & CLI Tools | Amazon Linux 2, AWS Console, MySQL Networking | VPC, Security Groups

System Structure Diagram:



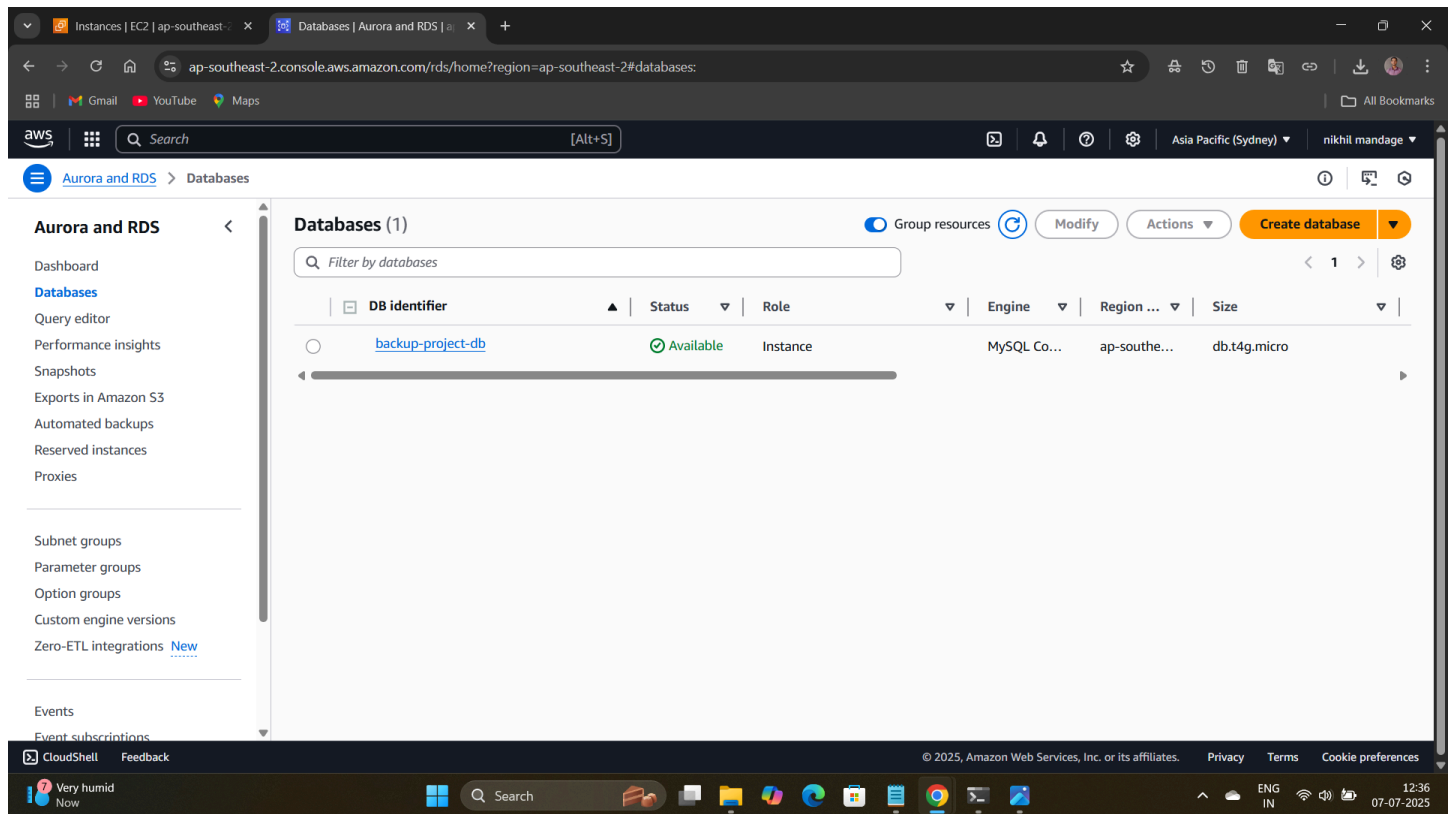
Implementation Steps:

- 1. Launch EC2 Instance:

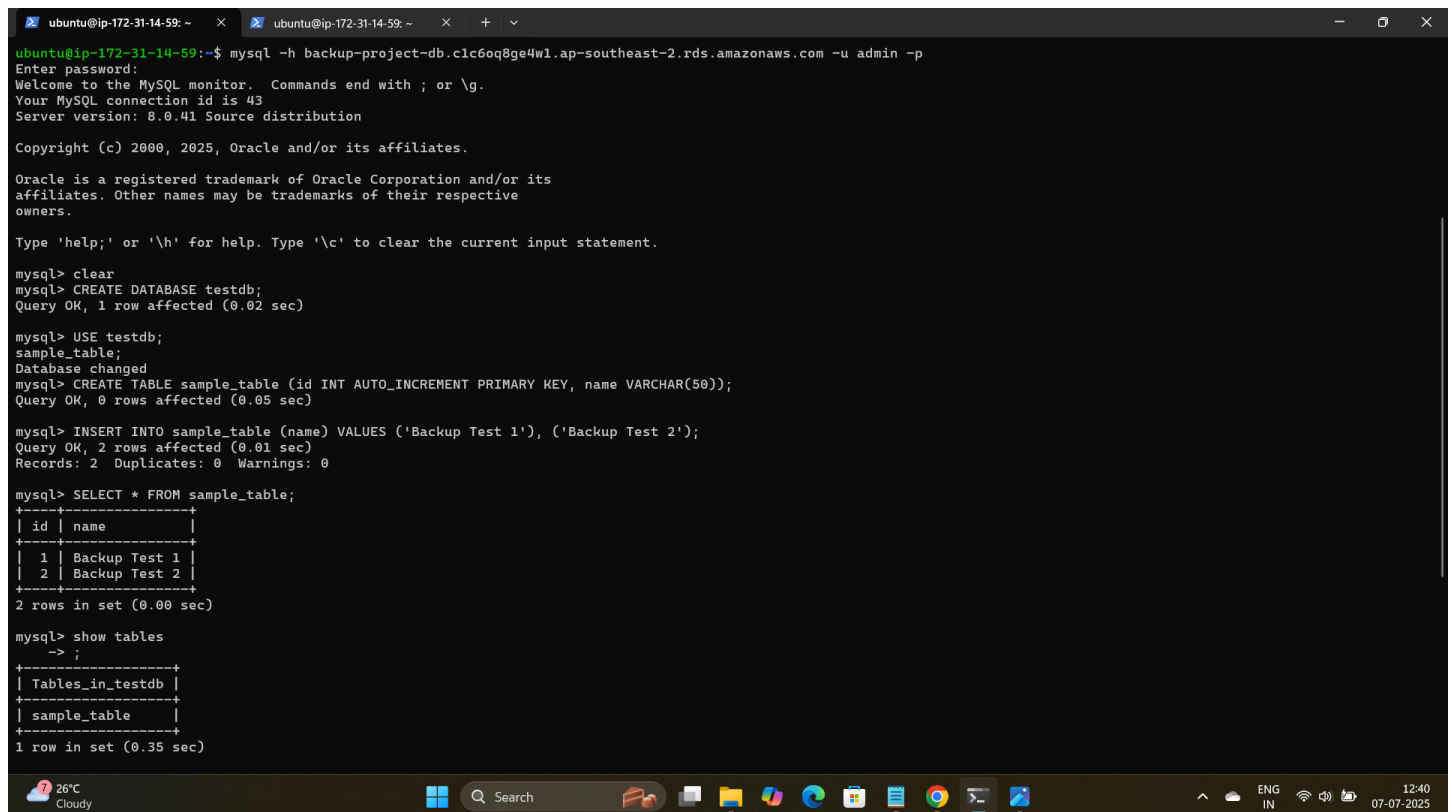


- Install Apache and create sample page

1. Launch RDS Instance:



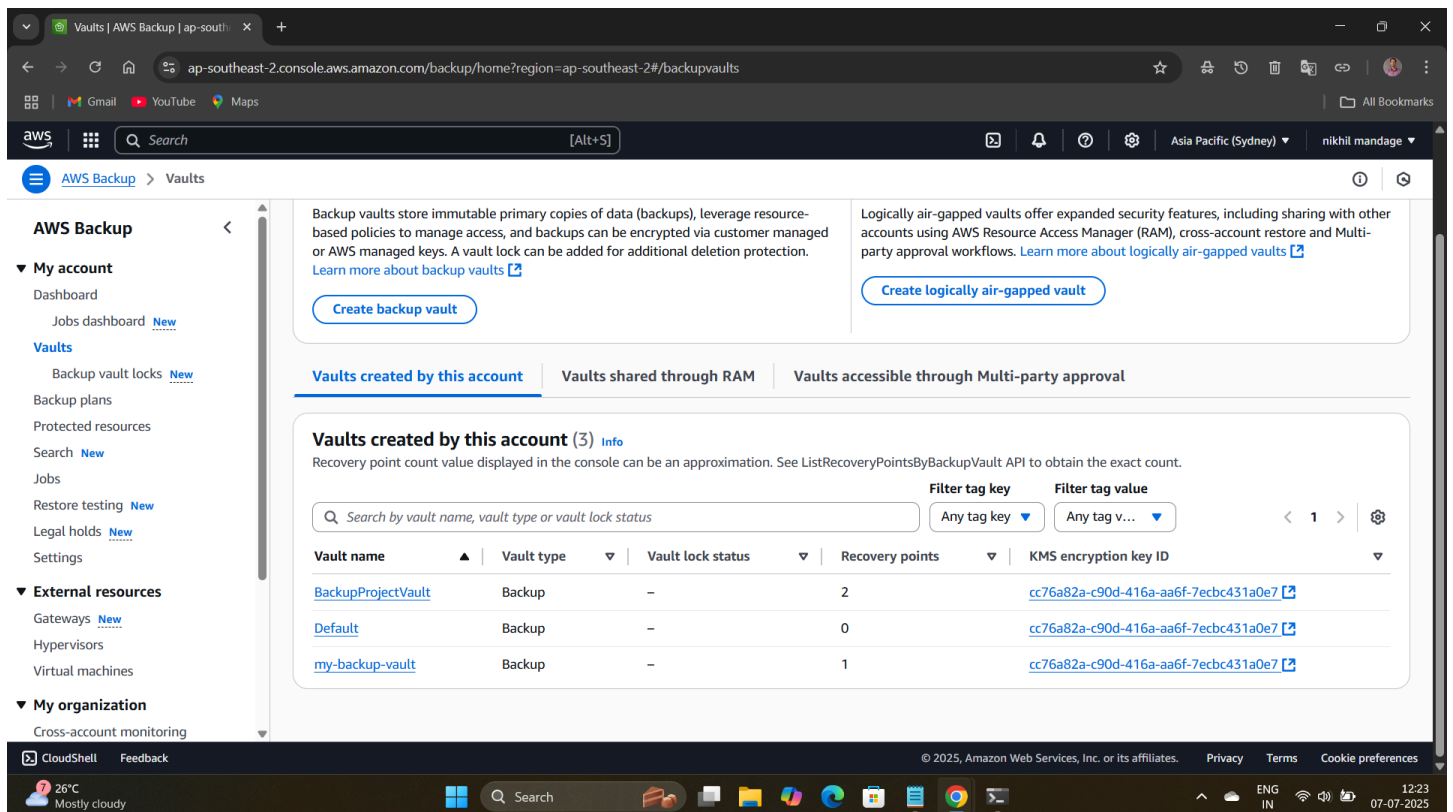
- Create MySQL DB, add table and data



```
ubuntu@ip-172-31-14-59: ~  
Query OK, 0 rows affected (0.05 sec)  
  
mysql> INSERT INTO sample_table (name) VALUES ('Backup Test 1'), ('Backup Test 2');  
Query OK, 2 rows affected (0.01 sec)  
Records: 2 Duplicates: 0 Warnings: 0  
  
mysql> SELECT * FROM sample_table;  
+-----+  
| id | name |  
+-----+  
| 1 | Backup Test 1 |  
| 2 | Backup Test 2 |  
+-----+  
2 rows in set (0.00 sec)  
  
mysql> show tables  
-> ;  
+-----+  
| Tables_in_testdb |  
+-----+  
| sample_table |  
+-----+  
1 row in set (0.35 sec)  
  
mysql> CREATE DATABASE testdb;  
ERROR 1007 (HY000): Can't create database 'testdb'; database exists  
mysql> exit;  
Bye  
ubuntu@ip-172-31-14-59:~$  
ubuntu@ip-172-31-14-59:~$  
ubuntu@ip-172-31-14-59:~$  
ubuntu@ip-172-31-14-59:~$ history  
1 sudo apt install mysql-client -y  
2 sudo apt install mysql-server -y  
3 clear  
4 sudo systemctl enable apache2  
5 sudo systemctl start apache2  
6 sudo apt install mysql-server -y  
7 mysql -h backup-project-db.c1c6oq8ge4w1.ap-southeast-2.rds.amazonaws.com -u admin -p  
8 history  
ubuntu@ip-172-31-14-59:~$ |
```

1. Set Up AWS Backup:

- Create Vault, Plan, Assign Resources



Backup plans | AWS Backup | ap-southeast-2.console.aws.amazon.com/backup/home?region=ap-southeast-2#/backupplan

Backup plans facilitate repeated backups of data.

Backup plans

Back up data on a repeat basis by creating a backup plan. Backup plans can be customized to ensure specific resources are backed up according to an optimized schedule. [Learn more about backup plans.](#)

[Create backup plan](#)

Recovery points

Backups created by backup plans are called Recovery Points, and they can be viewed in the backup vaults specified by each plan. [Learn more about backup vaults.](#)

[View backup vaults](#)

Compliance monitoring

Backup plans can be monitored for compliance via Backup Audit Manager. [Set up compliance monitoring with frameworks.](#)

[View compliance reports](#)

Backup plans (2) Info [Create on-demand backup](#) [Create backup plan](#)

Backup plans define your backup requirements, including backup schedules, backup retention rules and lifecycle rules.

Find backup plan by name

Filter tag key: Any tag key Filter tag value: Any tag v...

| Backup plan name | Last runtime | Last modified |
|--------------------------------------|------------------------------------|------------------------------------|
| daily-ec2-rds-backup | July 7, 2025, 06:46:59 (UTC+05:30) | July 4, 2025, 13:19:42 (UTC+05:30) |
| BackupProjectPlan | - | July 7, 2025, 11:53:43 (UTC+05:30) |

SecurityGroup | EC2 | ap-southi x Protected resources | AWS Backi x

ap-southeast-2.console.aws.amazon.com/backup/home?region=ap-southeast-2#/resources

Rate your experience with this AWS Backup console. ☆☆☆☆

Protected resources (1) Info [Create on-demand backup](#)

Resources backed up by AWS Backup

Find resources by name, ID, type, or last backup

| Resource name | Resource ID | Resource type | Last backup |
|--------------------|----------------------------------------------|---------------|------------------------------------|
| Ubuntu-Backup-Demo | instance/i-05cf6f3b9b6437188 | EC2 | July 4, 2025, 13:30:30 (UTC+05:30) |

- Trigger and verify on-demand backups

Backup jobs | AWS Backup | ap-southeast-2

ap-southeast-2.console.aws.amazon.com/backup/home?region=ap-southeast-2#/jobs/backup

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Cross-account monitoring

Jobs

In jobs, you can monitor the status and other details of backup, restore, and copy activity.

Backup jobs

Restore jobs

Copy jobs

Backup jobs (2)

Records of your scheduled or on-demand backups.

Filter backup jobs by job ID, status, resource ID, resource type or message category

| | Backup job ID | Status | Resource name | Message category | Resource ID | Resource type |
|--|------------------------------------------------------|-----------|-------------------|------------------|------------------------------|---------------|
| | 3D8EE5E7-0A79-3AA5-EF1E-C3FCFF3A1C22 | Completed | backup-project-db | Success | backup-project-db | RDS |
| | 73351439-2504-7513-F9FC-897D8FD00386 | Completed | BackupProject-EC2 | Success | instance/i-0773e564189298e5a | EC2 |

CloudShellFeedback

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ap-southeast-2.console.aws.amazon.com/backup/home?region=ap-southeast-2#/resources

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Protected resources (1)

Resources backed up by AWS Backup

Create on-demand backup

Find resources by name, ID, type, or last backup

| Resource name | Resource ID | Resource type | Last backup |
|--------------------|----------------------------------------------|---------------|------------------------------------|
| Ubuntu-Backup-Demo | instance/i-05cf6f3b9b6437188 | EC2 | July 4, 2025, 13:30:30 (UTC+05:30) |

CloudShellFeedback

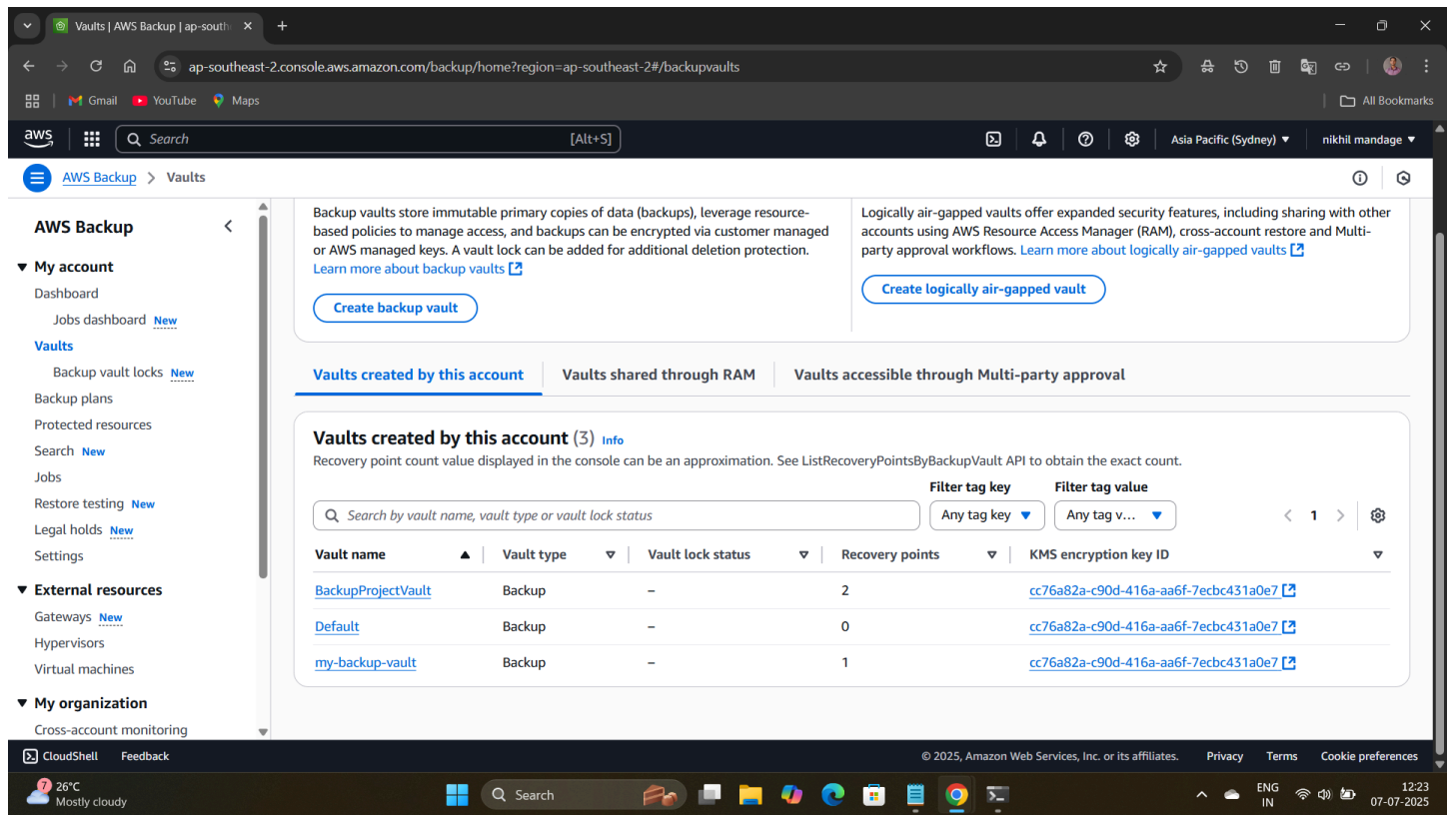
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Results:

- EC2 Test Page accessible
- RDS table contains sample data
- Backup Plan active
- Recovery points verified

Conclusion:

This project successfully demonstrated how to configure a centralized backup solution using AWS Backup for both EC2 and RDS resources. By automating daily backups with a 7-day retention policy, we've implemented a reliable data protection and recovery mechanism.

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