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Topic : Cloud Concepts

Date: 11-05-2023

EC2 Instance

The screenshot shows the AWS Services search results for 'EC2'. The main search results section displays four items: 'EC2' (Virtual Servers in the Cloud), 'EC2 Image Builder' (A managed service to automate build, customize and deploy OS images), 'Amazon Inspector' (Continual vulnerability management at scale), and 'AWS Firewall Manager' (Central management of firewall rules). Below this, under 'Features', there is a single item: 'Dashboard' (EC2 feature). To the right, a sidebar shows a summary of resources: 0 instances (running), 0 auto scaling groups, 0 dedicated hosts, 0 elastic IPs, 0 instances, 0 key pairs, 0 load balancers, 0 placement groups, 11 security groups, and 0 snapshots. A modal window on the right side provides information about EC2 instances.

Launching instance

The screenshot shows the AWS EC2 Dashboard. On the left, a sidebar lists navigation options: New EC2 Experience (with a 'Tell us what you think' link), EC2 Dashboard, EC2 Global View, Events, Limits, Instances (with sub-options like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations), Images (AMIs, AMI Catalog), and Elastic Block Store (CloudShell, Feedback, Language). The main content area displays a summary of resources and a 'Launch instance' button. It also includes sections for Service health (Region: US East (N. Virginia), Status: This service is operating normally) and Zones. A sidebar on the right provides links to supported platforms (VPC), Default VPC (vpc-09239e0111ebcfea8), Settings, EBS encryption, Zones, EC2 Serial Console, Default credit specification, and Console experiments. A 'Explore AWS' sidebar features links to Best Price-Performance with AWS Graviton2, Amazon GuardDuty Malware Protection, and 10 Things You Can Do Today to Reduce AWS Costs.

Launch

The screenshot shows the 'Launch an instance' wizard in the AWS EC2 console. The top navigation bar includes 'Services', 'Search', and account information for 'N. Virginia' and 'Simran_Patil'. The main area has a breadcrumb trail: 'EC2 > Instances > Launch an instance'. The left sidebar has sections for 'Name and tags' and 'Application and OS Images (Amazon Machine Image)'. The right sidebar shows a summary of the configuration:

- Number of instances:** 1
- Software Image (AMI):** Amazon Linux 2023 AMI 2023.0.2... (with a 'read more' link)
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** New security group
- Storage (volumes):** 1 volume(s) - 8 GiB

A note indicates a free tier of 750 hours for t2.micro instances. The bottom right features a large orange 'Launch instance' button.

The screenshot shows the 'Quick Start' interface for selecting an AMI. The top navigation bar includes 'Services', 'Search', and account information for 'N. Virginia' and 'Simran_Patil'. The left sidebar lists various OS options: Amazon Linux, macOS, Ubuntu, Windows, and Red Hat. The main area displays the selected 'Amazon Linux 2023 AMI' details:

- Amazon Linux 2023 AMI** (ami-0889a44b331db0194)
- Virtualization: hvm
- ENAv2 enabled: true
- Root device type: ebs
- Description:** Amazon Linux 2023 AMI 2023.0.20230503.0 x86_64 HVM kernel-6.1
- Architecture:** 64-bit (x86)
- AMI ID:** ami-0889a44b331db0194
- Verified provider:** (green badge)

The right sidebar shows a summary of the configuration, identical to the one in the first screenshot. It includes the same AMI selection and instance type (t2.micro), along with the free tier note and the orange 'Launch instance' button.

aws Services Search [Alt+S] N. Virginia

Instance type
t2.micro Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows pricing: 0.0162 USD per Hour
On-Demand SUSE pricing: 0.0116 USD per Hour
On-Demand RHEL pricing: 0.0176 USD per Hour
On-Demand Linux pricing: 0.0116 USD per Hour

Key pair (login) Info
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required
Select Create new key pair

Network settings Info
Edit
Network Info
vpc-09239e0111ebcfea8
Subnet Info
No preference (Default subnet in any availability zone)

Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.0.2...read more
ami-0889a44b531db0194
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the

Cancel Launch instance Review commands

aws Services Search [Alt+S] N. Virgin

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Family: t2 1 vCPU 1 GiB Memory Current generation: true
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madhavi Create new key pair

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Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.0.2...read more
ami-0889a44b531db0194
Virtual server type (instance type)
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Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB

Cancel Launch instance Review commands

aws Services Search [Alt+S] N. Virginia

No preference (Default subnet in any availability zone)
Auto-assign public IP Info
Enable
Firewall (security groups) Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
Create security group Select existing security group

We'll create a new security group called 'launch-wizard-7' with the following rules:

Allow SSH traffic from Anywhere
Helps you connect to your instance
0.0.0.0/0

Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server

Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Configure storage Info Advanced

Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.0.2...read more
ami-0889a44b531db0194
Virtual server type (instance type)
t2.micro
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New security group
Storage (volumes)
1 volume(s) - 8 GiB

Cancel Launch instance Review commands

To set up an endpoint, for example when creating a web server

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Configure storage Info

Advanced

1x 8 GiB gp3 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

0 x File systems Edit

Advanced details Info

Summary

Number of instances Info
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.0.2... read more
ami-0889a4b531db0194

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

Launch instance

EC2 > Instances > Launch an instance

Launching instance

Please wait while we launch your instance.
Do not close your browser while this is loading.

Creating security group rules 23%

Details

EC2 > Instances > Launch an instance

Success
Successfully initiated launch of instance (i-01deeda9ee54380a2)

Launch log

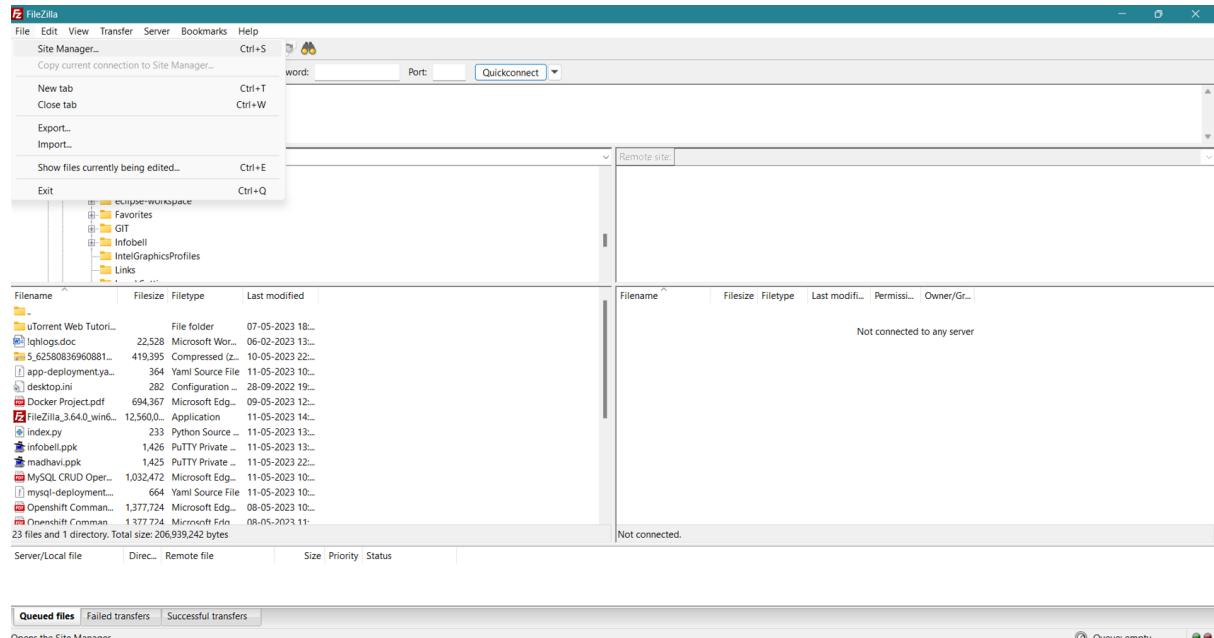
Next Steps

What would you like to do next with this instance, for example "create alarm" or "create backup"

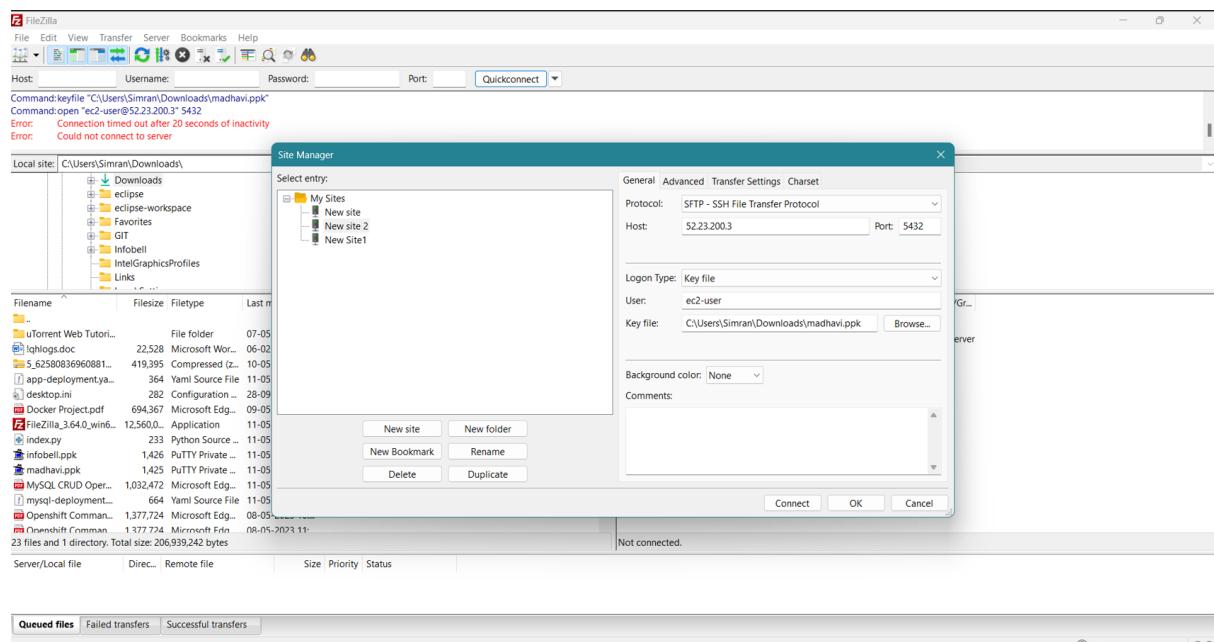
1 2 3 4 5 6 >

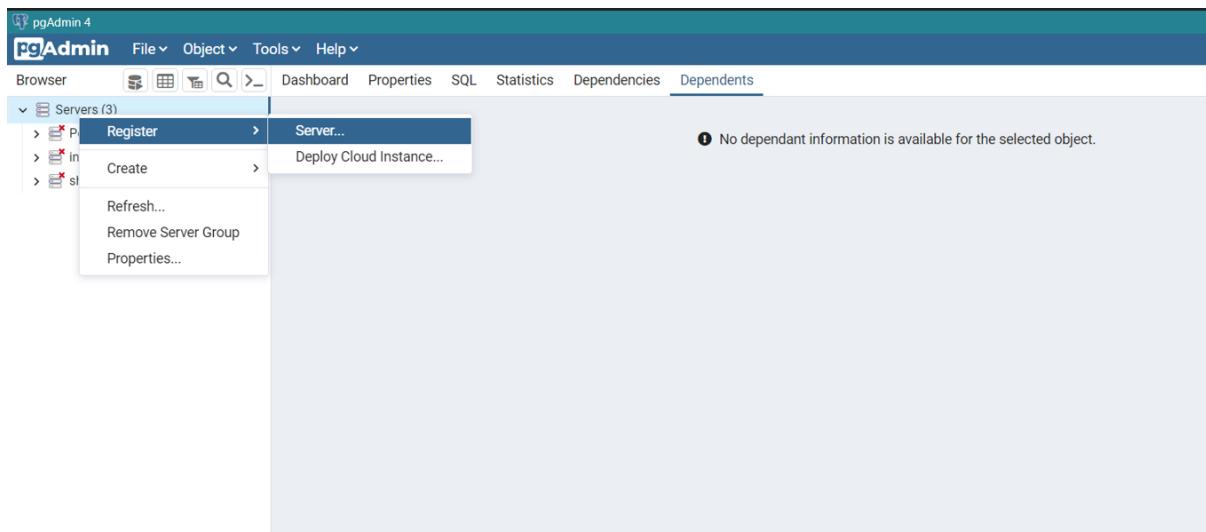
Create billing and free tier usage alerts To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds. Create billing alerts	Connect to your instance Once your instance is running, log into it from your local computer. Connect to instance Learn more	Connect an RDS database Configure the connection between an EC2 instance and a database to allow traffic flow between them. Connect an RDS database	Create EBS snapshot policy Create a policy that automates the creation, retention, and deletion of EBS snapshots. Create EBS snapshot policy
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FileZilla



Connecting local System to ec2-user





The screenshot shows the AWS RDS console for the 'madhavi1' database. The left sidebar includes links for Dashboard, Databases (selected), Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, Events, and Event subscriptions. The main area shows the 'Deleting DB instance madhavi' page. The 'Summary' tab displays the following details:

DB identifier	CPU	Status	Class
madhavi1	7.76%	Available	db.t3.micro
Role	Current activity	Engine	Region & AZ
Instance	1.00 sessions	PostgreSQL	us-east-1a

The 'Connectivity & security' tab is active, showing sections for Endpoint & port, Networking, and Security.

Screenshot of the AWS Amazon RDS Connectivity & security page.

The left sidebar shows navigation options like Dashboard, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, and Event subscriptions.

The main content area is titled "Connectivity & security". It contains three tabs: Endpoint & port, Networking, and Security.

Endpoint & port:

- Endpoint: madhavi1 cptjmzim4r1.us-east-1.rds.amazonaws.com
- Port: 5432

Networking:

- Availability Zone: us-east-1a
- VPC: vpc-09239e0111ebcfea8
- Subnet group: default-vpc-09239e0111ebcfea8
- Subnets:
 - subnet-05a4f29e092ebb708
 - subnet-0058a7bb6523be7cf
 - subnet-0fab4ef4dd973d400
 - subnet-07c3289338caa9ac4
 - subnet-0883b7b5069df5587
 - subnet-03da3e230cbe77cc1
- Network type:

Security:

- VPC security groups: madhavi (sg-0e17a0a6916974c20)
Status: Active
- Publicly accessible: Yes
- Certificate authority: rds-ca-2019
- Certificate authority date: August 22, 2024, 22:38 (UTC+05:30)
- DB instance certificate expiration date: August 22, 2024, 22:38 (UTC+05:30)

Bottom footer includes CloudShell, Feedback, Language, © 2023, Amazon Web Services India Private Limited or its affiliates., Privacy, Terms, and Cookie preferences.

Screenshot of the AWS EC2 Instances page showing the launch of an instance.

The breadcrumb navigation shows EC2 > Instances > Launch an instance.

A success message indicates "Successfully initiated launch of instance (i-0729498407889bdf1)".

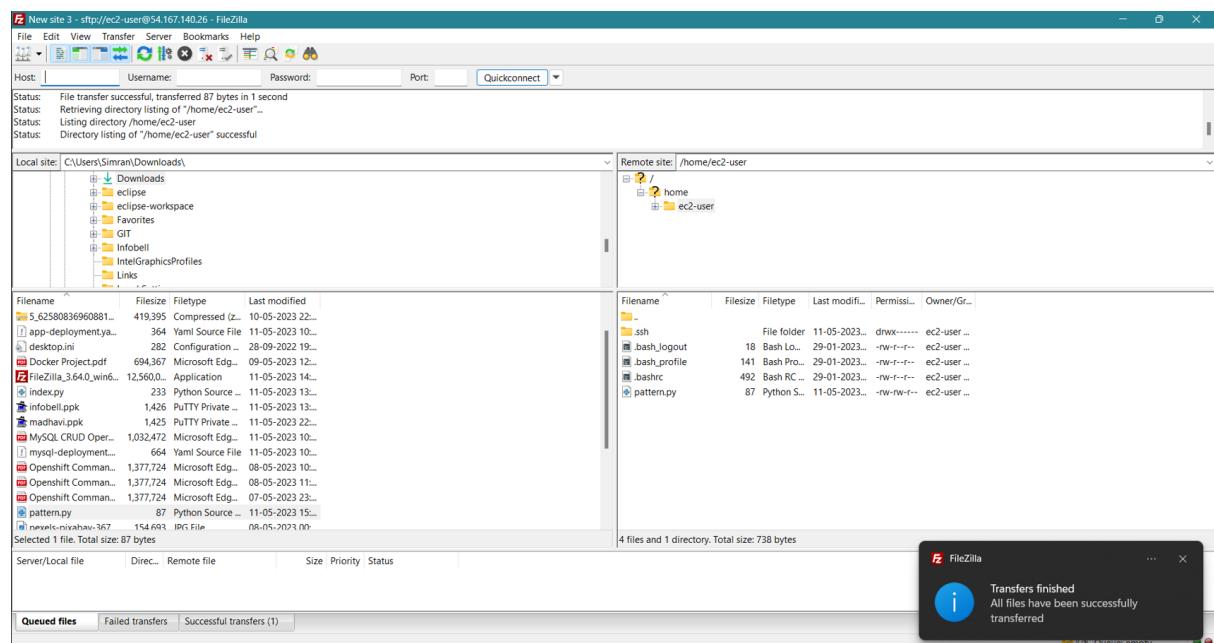
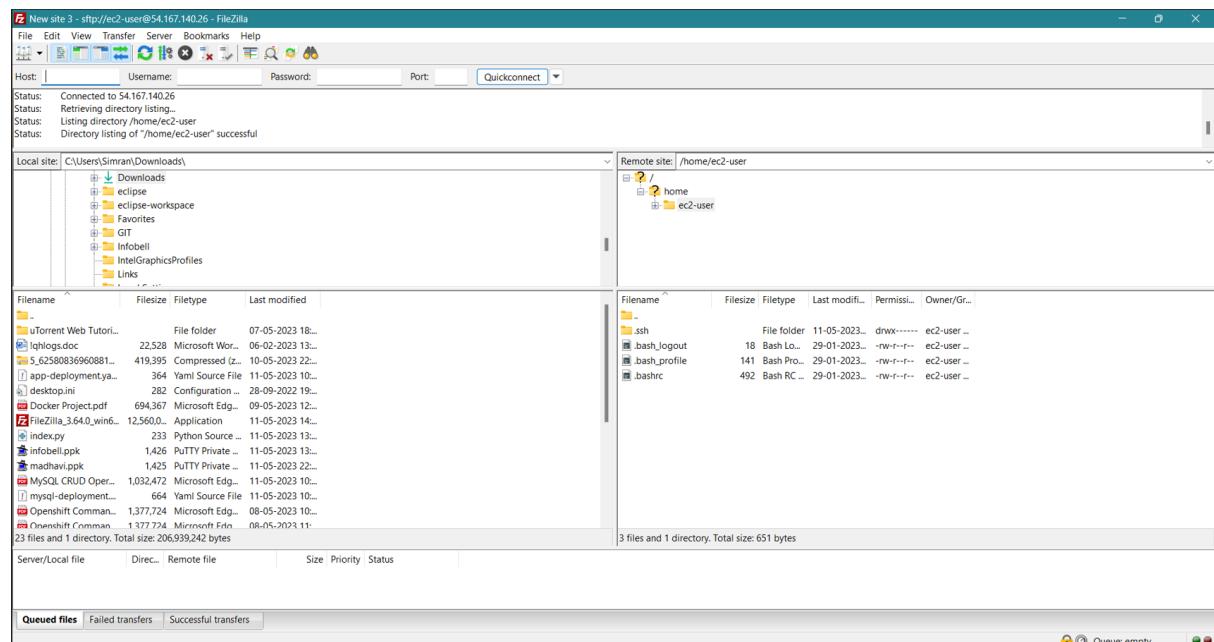
The "Next Steps" section includes:

- Create billing and free tier usage alerts
- Connect to your instance
- Connect an RDS database
- Create EBS snapshot policy

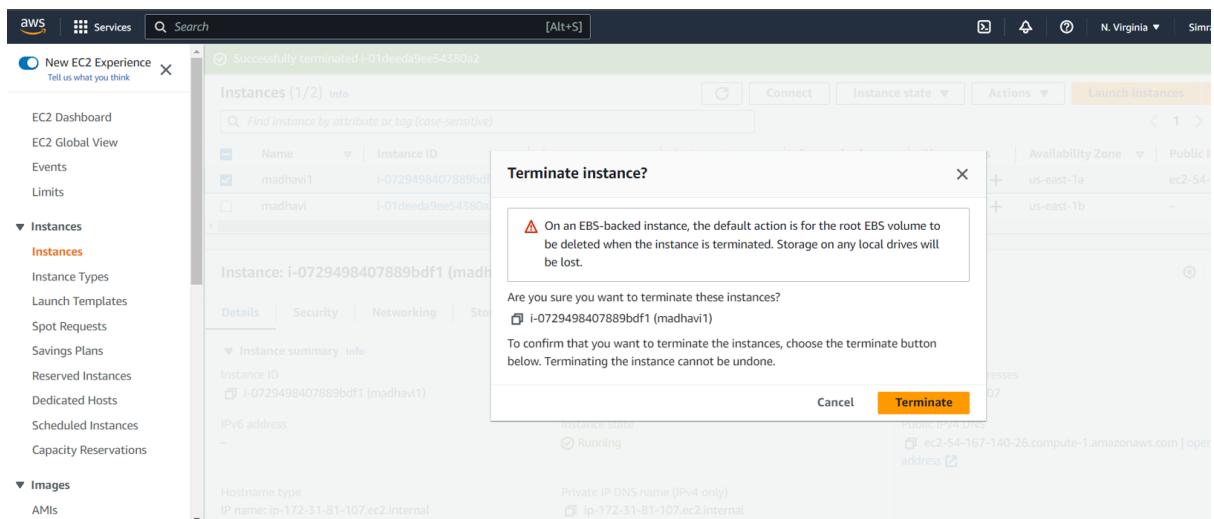
A search bar at the top asks "What would you like to do next with this instance, for example "create alarm" or "create backup"?" with a page navigation indicator (1-6).

```
ec2-user@ip-172-31-81-107:~$ login as: ec2-user
Authenticating with public key "madhavi"
'      #
'      #####
'      #     Amazon Linux 2023
'      _\####\_
'      \###|_
'      \|/_   https://aws.amazon.com/linux/amazon-linux-2023
'      V~`-'-->
'      ~~~_/
'      /`/
'      /`/`/
[ec2-user@ip-172-31-81-107 ~]$
```

File from local System transferred Successfully



Login to putty as ec2-user



Successfully terminated

The screenshot shows the AWS EC2 Instances page. The left sidebar is collapsed. The main content area displays a table of instances:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
madhavi1	i-0729498407889bdf1	Shutting-down	t2.micro	-	No alarms	us-east-1a	ec2-54-167-140-
madhavi	i-01deeda9ee54380a2	Terminated	t2.micro	-	No alarms	us-east-1b	-

Below the table, the details for instance i-0729498407889bdf1 (named madhavi1) are shown:

Details	Security	Networking	Storage	Status checks	Monitoring	Tags
Instance summary						
Instance ID i-0729498407889bdf1 (madhavi1)	Public IPv4 address 54.167.140.26 open address	Instance state Shutting-down	Private IPv4 addresses 172.31.81.107			
IPv6 address -	Private IP DNS name (IPv4 only) ip-172-31-81-107.ec2.internal	Public IPv4 DNS ec2-54-167-140-26.compute-1.amazonaws.com open address				
Hostname type IP name: ip-172-31-81-107.ec2.internal						