

CA-1

CLOUD COMPUTING

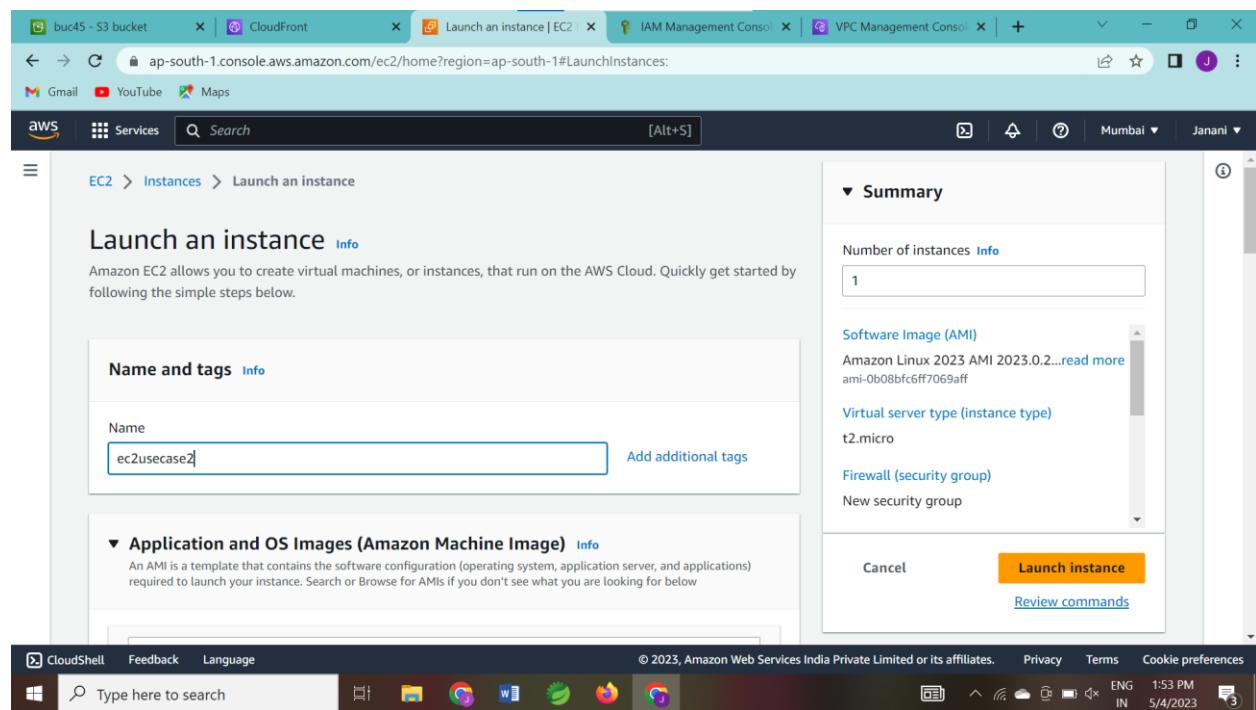
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1.



The screenshot shows the AWS EC2 console with the 'Launch an instance' wizard open. The first step, 'Application and OS Images (Amazon Machine Image)', is displayed. A search bar at the top allows for finding specific AMIs. Below it, a 'Quick Start' section lists several popular AMIs: Amazon Linux, macOS, Ubuntu, Windows, and Red Hat. An 'Amazon Machine Image (AMI)' section highlights the 'Amazon Linux 2023 AMI' (ami-0b08bfc6ff7069aff), noting it is 'Free tier eligible'. To the right, a 'Summary' panel shows 'Number of instances' set to 1, and a large orange 'Launch instance' button is prominently displayed.

The screenshot continues the 'Launch an instance' wizard. In the 'Key pair (login)' section, users are prompted to enter a key pair name, with 'ec2usecase2' entered. It also specifies the key pair type as RSA. In the 'Network settings' section, the subnet and auto-assign public IP options are shown. The right side of the screen displays a summary of the selected instance details, including the AMI and instance type, along with the 'Launch instance' button.

The screenshot shows the AWS EC2 Launch Instance wizard. The configuration steps are as follows:

- Key pair (login):** ec2usecase2 (selected)
- Network settings:** Network: `vpc-0540fcaa1db9ed14c`, Subnet: `No preference` (Default subnet in any availability zone)
- Instance Type:** t2.micro
- Software Image (AMI):** Amazon Linux 2023 AMI 2023.0.2... (ami-0b08bfc6ff7069aff)
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** New security group

At the bottom right, there are buttons for **Cancel**, **Launch instance** (highlighted in orange), and **Review commands**.

The screenshot shows the AWS EC2 Create Volume wizard. The configuration steps are as follows:

- Volume type:** General Purpose SSD (gp2) (selected)
- Size (GiB):** 10
- IOPS:** 100 / 3000
- Throughput (MiB/s):** Not applicable
- Availability Zone:** ap-south-1b
- Snapshot ID - optional:** Don't create volume from a snapshot

At the bottom right, there are buttons for **Cancel**, **Create volume** (highlighted in orange), and **Review commands**.

The screenshot shows the AWS EC2 Management Console with the 'Volumes' tab selected. A green success message at the top states: "Successfully created volume vol-0fe3990245467157b." Below this, a table displays two volumes:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot
-	vol-00824bcdca968544	gp3	8 GiB	3000	125	snap-0e04d20...
-	vol-0fe3990245467157b	gp2	10 GiB	100	-	-

The sidebar on the left shows the 'Instances' section, and the bottom navigation bar includes CloudShell, Feedback, Language, and a search bar.

The screenshot shows the AWS EC2 Management Console with the 'Security Groups' tab selected. It displays a single security group with the following details:

Owner	Inbound rules count	Outbound rules count
595489195236	1 Permission entry	1 Permission entry

The 'Inbound rules' tab is active, showing one rule:

group rule...	IP version	Type	Protocol	Port range
2af77b934b3...	IPv4	SSH	TCP	22

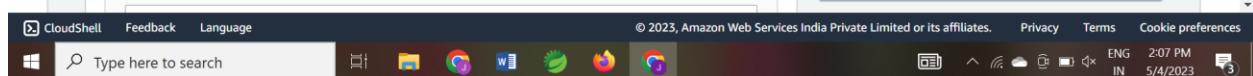
A message at the top right says: "You can now check network connectivity with Reachability Analyzer" with a "Run Reachability Analyzer" button. The sidebar on the left shows the 'Instances' section, and the bottom navigation bar includes CloudShell, Feedback, Language, and a search bar.

2.

The screenshot shows the 'Launch an instance' step of the AWS EC2 wizard. The left sidebar lists 'Name and tags' and 'Application and OS Images (Amazon Machine Image)'. The main area shows a configuration form with the following details:

- Name and tags**: Name is set to 'ec2usecase1'.
- Software Image (AMI)**: Set to 'Amazon Linux 2023 AMI 2023.0.2...'. The AMI ID is 'ami-0b08bf6ff7069aff'.
- Virtual server type (instance type)**: Set to 't2.micro'.
- Firewall (security group)**: Set to 'New security group'.

At the bottom right are 'Cancel', 'Launch instance' (highlighted in orange), and 'Review commands' buttons.



The screenshot shows the 'Launch an instance' step of the AWS EC2 wizard. The left sidebar lists 'Recent' and 'Quick Start' sections. The main area shows a search bar and a list of AMIs:

- Recent AMIs**: Amazon Linux, macOS, Ubuntu, Windows, Red Hat.
- Quick Start**: Microsoft Windows Server 2022 Base (selected), Free tier eligible.
- Description**: Microsoft Windows Server 2022 Base, ami-06c2ec1ceac22e8d6 (64-bit (x86)), Virtualization: hvm, ENA enabled: true, Root device type: ebs.

The right panel is identical to the one in the first screenshot, showing the 'Summary' section with 1 instance, AMI selection, instance type, security group, and launch buttons.

Screenshot of the AWS Management Console showing the 'Create key pair' dialog box.

Create key pair

Key pairs allow you to connect to your instance securely.

Enter the name of the key pair below. When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#)

Key pair name - required

For Windows instances, you use a key pair to connect to your instance.

Network settings

Private key file format

.pem
For use with OpenSSH

.ppk
For use with PuTTY

Cancel **Create key pair**

The screenshot shows the 'Create key pair' dialog box open in the center of the screen. The 'Key pair name' field contains 'ec2usecase1'. The 'Private key file format' section has 'pem' selected. The 'Create key pair' button is highlighted in orange.



Screenshot of the AWS Management Console showing the 'Launch instance' dialog box.

Compare instance types

Key pair (login)

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

For Windows instances, you use a key pair to decrypt the administrator password. You then use the decrypted password to connect to your instance.

Network settings

Number of instances

Microsoft Windows Server 2022 ...read more
ami-06c2ec1ceac22e8d6

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

Launch instance

The screenshot shows the 'Launch instance' dialog box open. It includes sections for 'Compare instance types', 'Key pair (login)', 'Network settings', and configuration for 'Number of instances' (1), 'Virtual server type' (t2.micro), and 'Storage (volumes)'. A tooltip shows two key files: 'ec2usecase1.pem' and 'ec2usecase2.ppk'. The 'Launch instance' button is highlighted in orange.



The screenshot shows the AWS EC2 Management Console with the URL ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances. The Network settings section is open, showing the following configuration:

- VPC - required: vpc-0540fcaa1db9ed14c (default)
- Subnet Info: No preference
- Auto-assign public IP: Enabled
- Firewall (security groups):
 - Create security group (selected)
 - Select existing security group
- Security group name: launch-wizard-20

The Summary section on the right shows:

- Number of instances: 1
- Microsoft Windows Server 2022
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes):

Buttons at the bottom include Cancel, Launch instance (highlighted in orange), and Review commands.

The screenshot shows the AWS EC2 Management Console with the URL ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances. The Inbound security groups rules section is open, showing:

- Security group rule 1 (TCP, 3389, 0.0.0.0/0):
 - Type: rdp
 - Protocol: TCP
 - Port range: 3389
 - Source type: Anywhere
 - Description: e.g. SSH for admin desktop
 - Warning message: 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.
 - Add security group rule button

The Summary section on the right shows:

- Number of instances: 1
- Microsoft Windows Server 2022
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes):

Buttons at the bottom include Cancel, Launch instance (highlighted in orange), and Review commands.

The screenshot shows the AWS EC2 Management Console interface. The top navigation bar includes links for CloudFront, IAM Management Console, VPC Management Console, and other AWS services. The main content area displays the 'Instances' page. On the left, a sidebar shows the 'New EC2 Experience' and lists various EC2-related options like EC2 Dashboard, Global View, Events, Limits, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, and Capacity Reservations. The 'Instances' section is expanded, showing three instances:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
devop1	i-0383420e03e57ff5d	Terminated	t2.micro	-	No alarms
ec2usecase2	i-09d69eb1483eae817	Running	t2.micro	2/2 checks passed	No alarms
ec2usecase1	i-0d49a2c4c65eae432	Pending	t2.micro	-	No alarms

The instance **ec2usecase1** is selected, and its details are shown in the main pane. The 'Inbound rules' section displays the following rule:

Name	Security group rule ID	Port range	Protocol	Source
-	sgr-021420848ad02ec6d	3389	TCP	0.0.0.0/0

At the bottom of the screen, the Windows taskbar is visible with icons for File Explorer, Google Chrome, Microsoft Word, and Mozilla Firefox. The system tray shows the date and time as 5/4/2023, 2:12 PM, and the location as Mumbai, India.

3.

The screenshot shows the AWS IAM Management Console with the URL us-east-1.console.aws.amazon.com/iamv2/home?region=us-east-1#/groups/create. The page title is "Create user group". On the left, there's a sidebar with "Identity and Access Management (IAM)" and a "User groups" section containing links for Users, Roles, Policies, Identity providers, and Account settings. Below that is a "Access reports" section with links for Access analyzer and Archive rules. At the bottom of the sidebar are "Feedback" and "Language" buttons, along with a search bar and a toolbar with icons for file operations.

Create user group

Name the group

User group name
Enter a meaningful name to identify this group.

Maximum 128 characters. Use alphanumeric and '+-=_,@-' characters.

Add users to the group - Optional (0) Info
An IAM user is an entity that you create in AWS to represent the person or application that uses it to interact with AWS. A user can belong to up to 10 groups.

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The screenshot shows the same AWS IAM Management Console interface, but now at the "Attach permissions policies" step. The URL is still us-east-1.console.aws.amazon.com/iamv2/home?region=us-east-1#/groups/create. The page title is "Create user group". The left sidebar and bottom controls are identical to the previous screenshot. The main content area now displays a table titled "Attach permissions policies - Optional (Selected 1/843)".

Attach permissions policies - Optional (Selected 1/843)

Info
You can attach up to 10 policies to this user group. All the users in this group will have permissions that are defined in the selected policies.

Filter policies by property or policy name and press enter.	1 match	< 1 >	⚙️
"AmazonEC2FullAccess" X	<input type="button" value="Clear filters"/>		
Policy name	Type	Description	
<input checked="" type="checkbox"/> AmazonEC2FullAccess	AWS managed	Provides full access to Amaz	Cancel Create group

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The screenshot shows the AWS IAM Management Console with the URL us-east-1.console.aws.amazon.com/iamv2/home?region=us-east-1#/groups/create. The left sidebar is titled "Identity and Access Management (IAM)" and includes sections for "User groups", "Access management", and "Access reports". The main content area is titled "Attach permissions policies - Optional" and shows a table with one item: "AutoScalingFullAccess" (AWS managed, Provides full access to Auto S). A search bar at the top says "Filter policies by property or policy name and press enter." and shows "1 match". Buttons for "Create policy" and "Create group" are visible.

The screenshot shows the AWS IAM Management Console with the URL us-east-1.console.aws.amazon.com/iamv2/home?region=us-east-1#/users/create. The left sidebar shows "Step 1: Specify user details", "Step 2: Set permissions", and "Step 3: Review and create". The main content area is titled "Specify user details" and has a "User details" section. It shows a "User name" input field containing "EC2Admin1". Below it is a note: "The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = . @ _ - (hyphen)". There is also an optional checkbox: "Provide user access to the AWS Management Console - optional" with the note: "If you're providing console access to a person, it's a best practice to manage their access in IAM Identity Center." A callout box contains the note: "If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after you create this IAM user. Learn more". Buttons for "Cancel" and "Next" are at the bottom.

Permissions options

- Add user to group
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.
- Copy permissions
Copy all group memberships, attached managed policies, and inline policies from an existing user.
- Attach policies directly
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

User groups (1/1)			
<input type="button" value="Create group"/>			
<input type="text" value="Search groups"/>			
<input checked="" type="checkbox"/> Group name	▲	Users	▼
<input checked="" type="checkbox"/> EC2-Admins	0	Attached policies	Created
AmazonEC2FullAccess... 2023-05-04 (3 minut...)			

Permissions boundary - optional
Set a permissions boundary to control the maximum permissions for this user. Use this advanced feature used to delegate permission.

Step 1
Specify user details

Step 2
Set permissions

Step 3
Review and create

User details

User name	Console password type	Require password reset
EC2Admin1	None	No

Permissions summary

Name	Type	Used as
EC2-Admins	Group	Permissions group

Screenshot of the AWS IAM Management Console showing a successful user creation.

User created successfully
You can view and download the user's password and email instructions for signing in to the AWS Management Console.

IAM > Users

Users (1) Info
An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

User name	Groups	Last activity	MFA	Password a...
EC2Admin1	EC2-Admins	None	None	

Identity and Access Management (IAM)

- Dashboard
- Access management**
 - User groups
 - Users**
 - Roles
 - Policies
 - Identity providers
 - Account settings
- Access reports**
 - Access analyzer
 - Archive rules

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Screenshot of the AWS IAM Management Console showing a successful user group creation.

User groups (1) Info
A user group is a collection of IAM users. Use groups to specify permissions for a collection of users.

Group name	Users	Permissions	Creation time
EC2-Admins	1	Defined	4 minutes ago

Identity and Access Management (IAM)

- Dashboard
- Access management**
 - User groups**
 - Users
 - Roles
 - Policies
 - Identity providers
 - Account settings
- Access reports**
 - Access analyzer
 - Archive rules

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