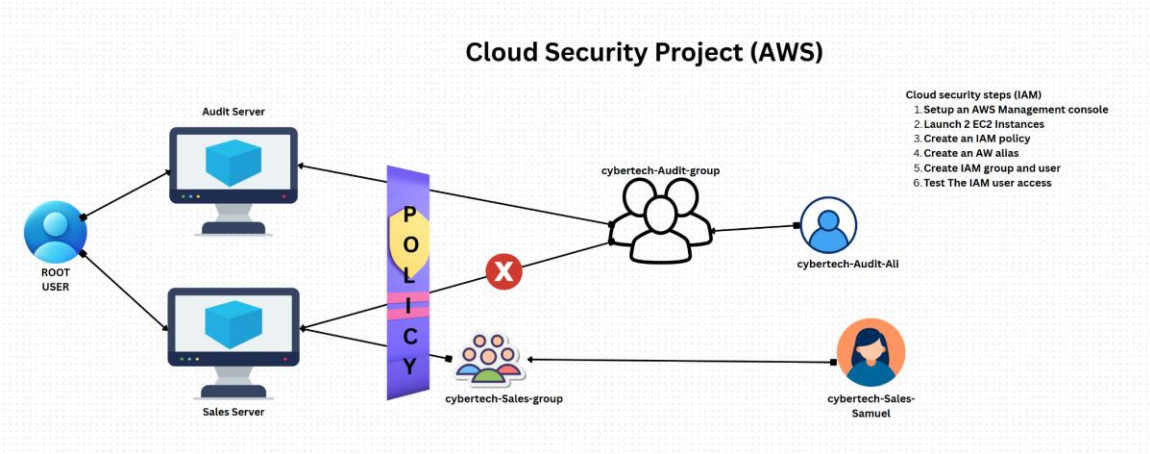
AWS IAM Cloud Security Project

1. Project Overview

I completed this project on cloud security controls in Amazon Web Services (AWS), focusing on Identity and Access Management (IAM). The goal was to create a least- privilege policy, attach it to a user or group, and verify that the policy correctly restricts actions on Amazon EC2 instance.



In this project, we will be creating Users, User groups, buckets, cloudtrails, polices and implementing those policies and verifying them.

Standard practice prescribes that we don't do anything on root user, i.e we do not create EC2, S3 buckets from the root user, however we can use it to create a user with admin privileges. one we are done with this, we log out and go to the login page where we will be given the option to log in as IAM user.. please proceed with this and you can now start creatin all we need from this new login channel

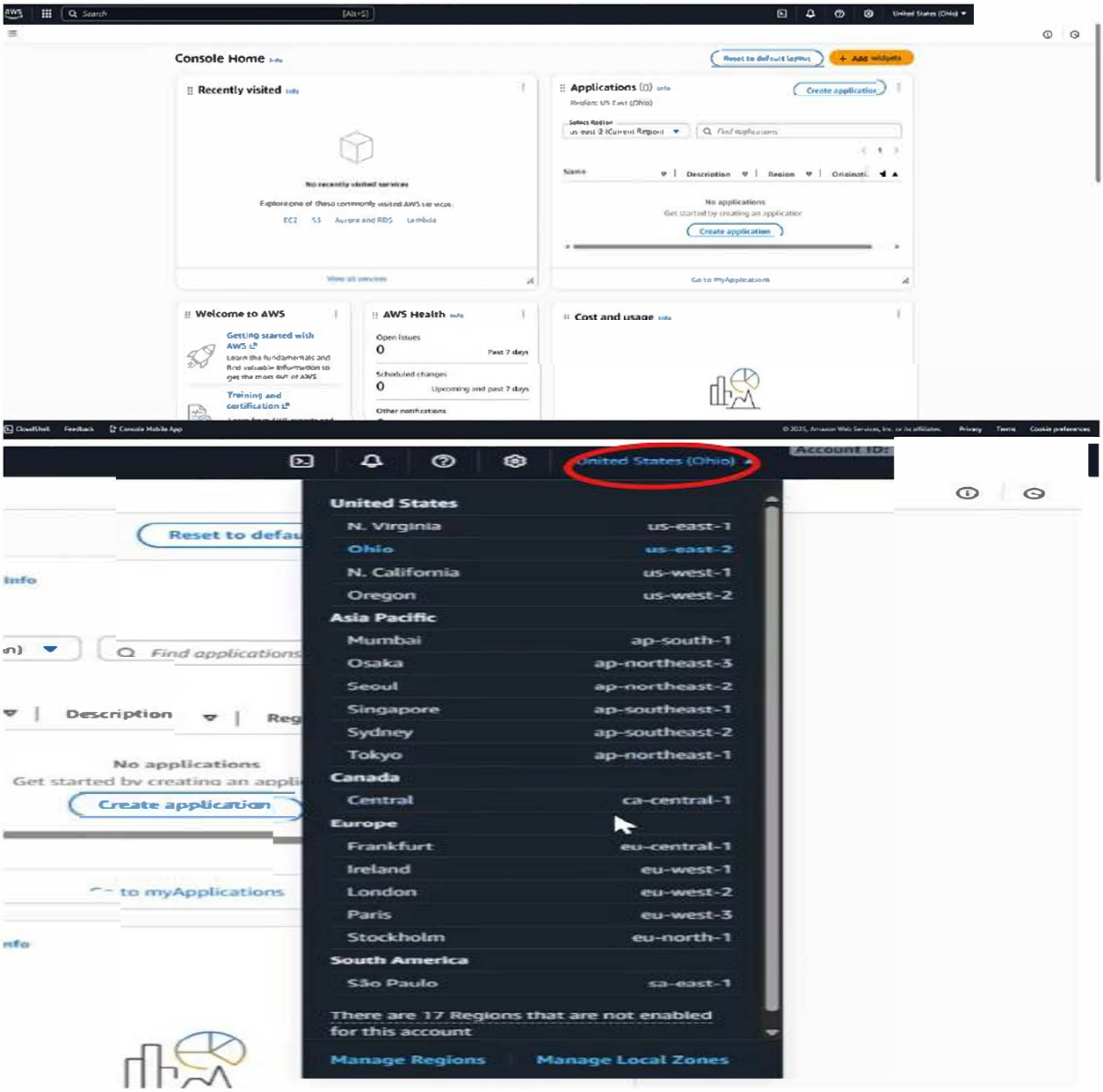
In AWS, we use services to create everything

Firstly we can create an AWS trail account for 6 month on the website at Cloud Computing Services - Amazon Web Services (AWS), a credit card will be required however you will get a credit to use to run your simulation.

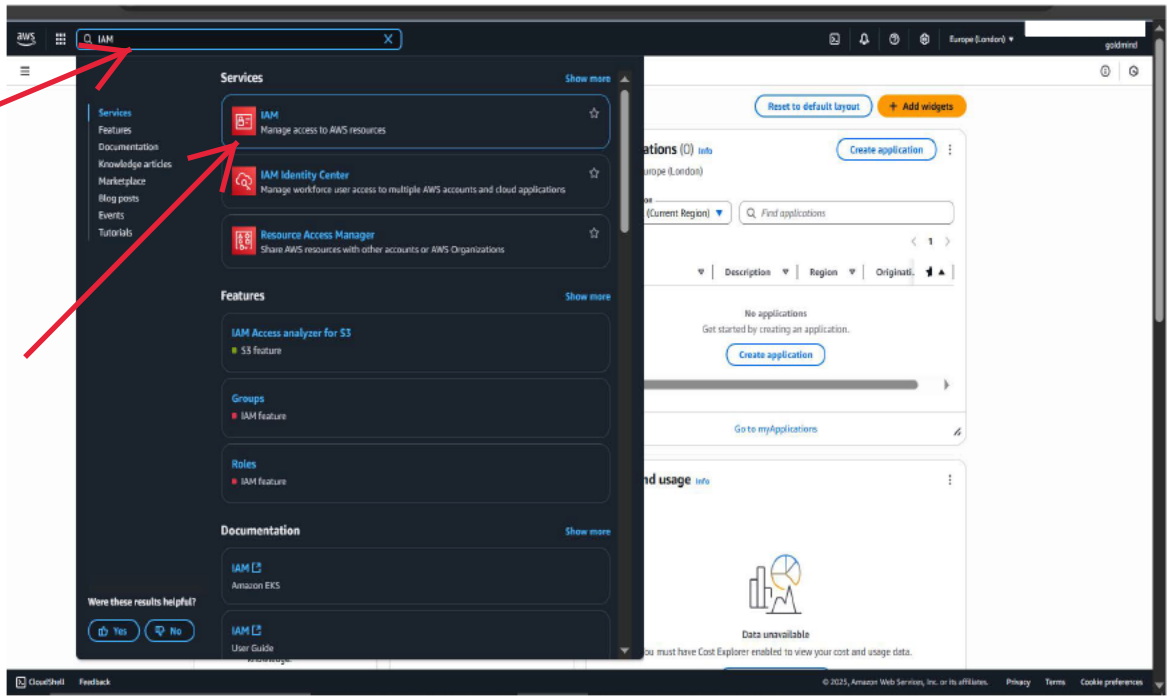
CREATING THE IAM USER AND GROUPS

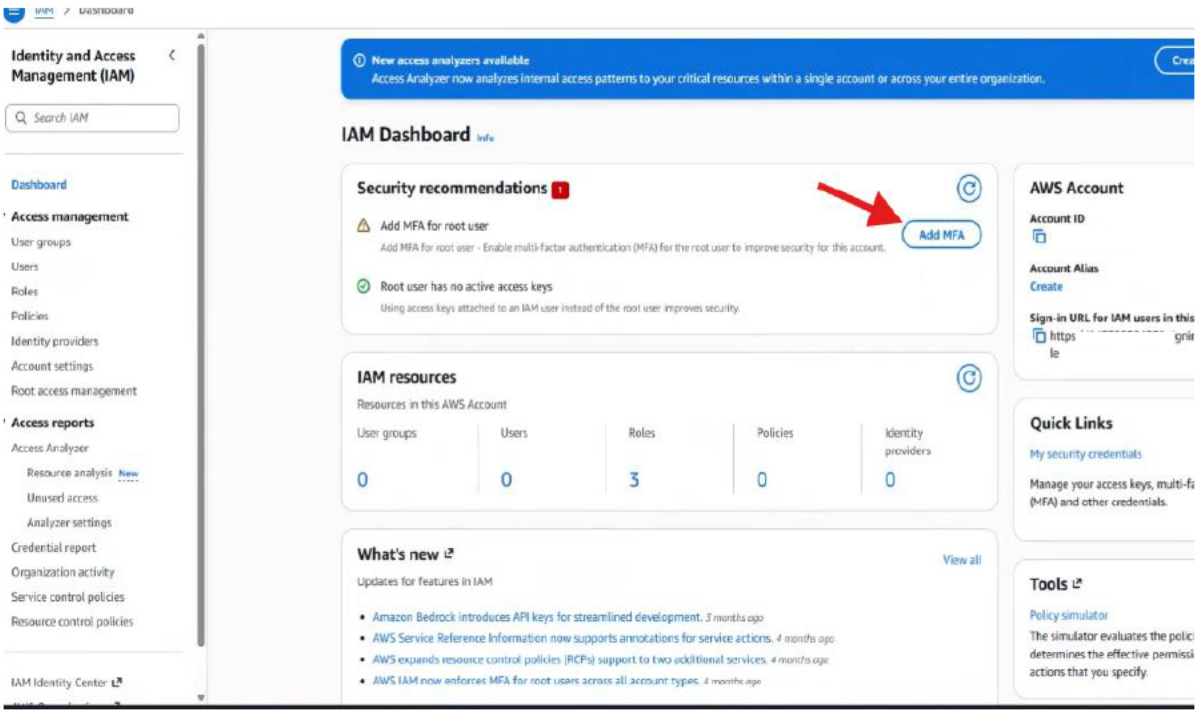
Upon creating an account and logging in, it will be a root user, so we will set up MFA (to make it secure) and create a user with admin privileges.

Firstly, we need to change our geographical location to our closest location

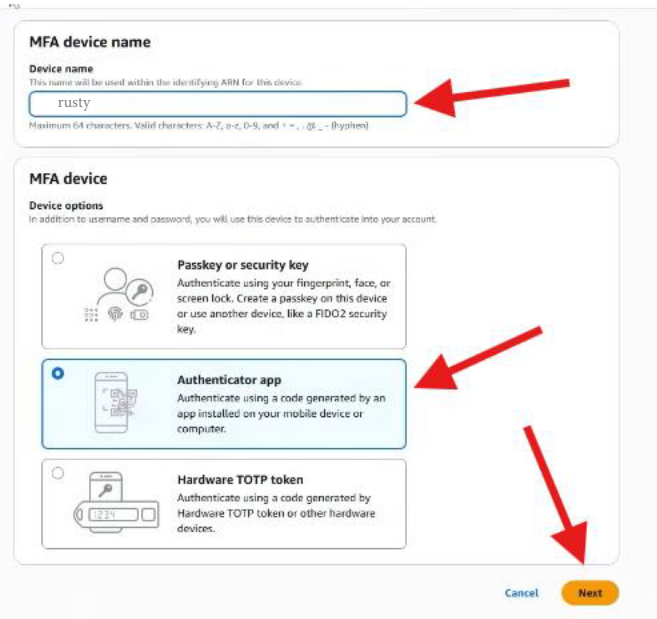


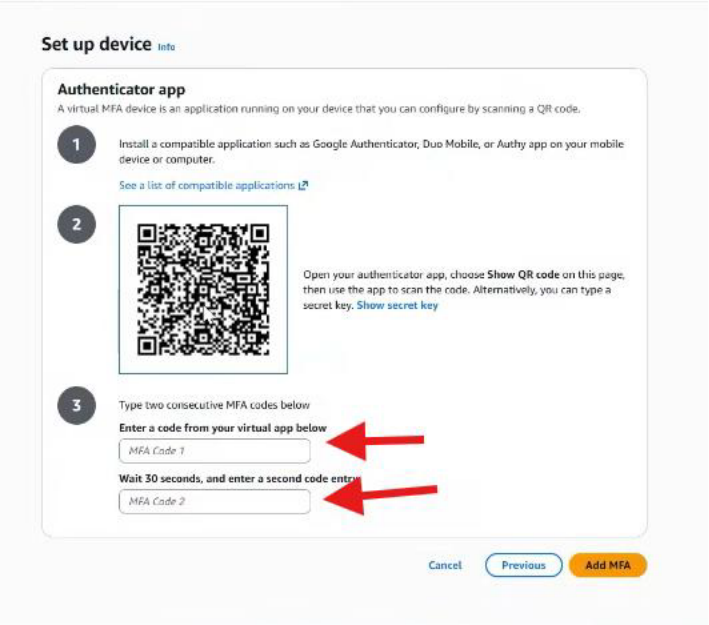
In the search bar, find the IAM service , as best practice, set up MFA



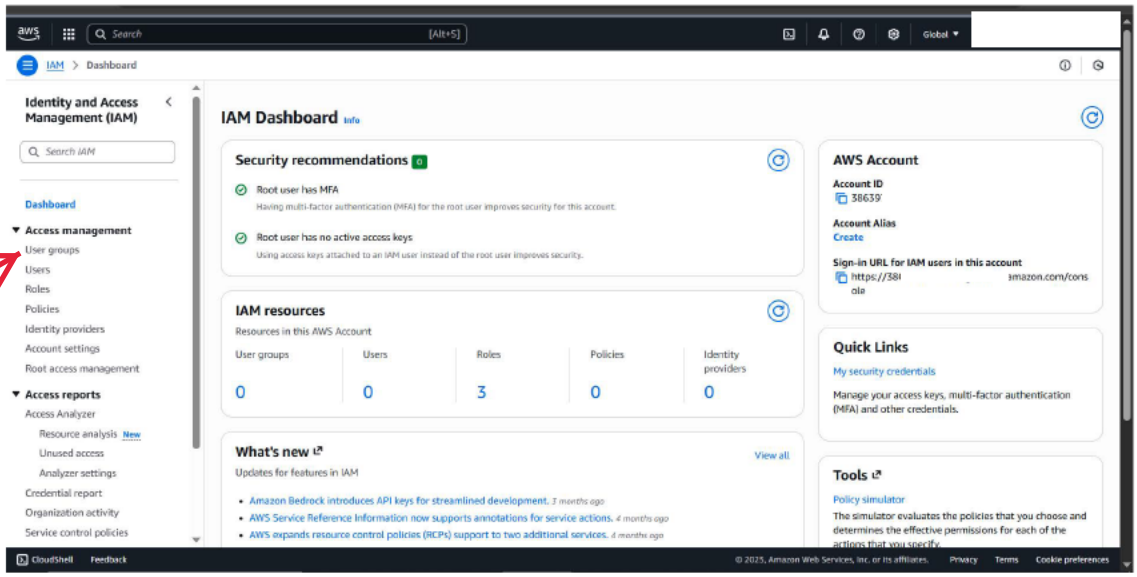


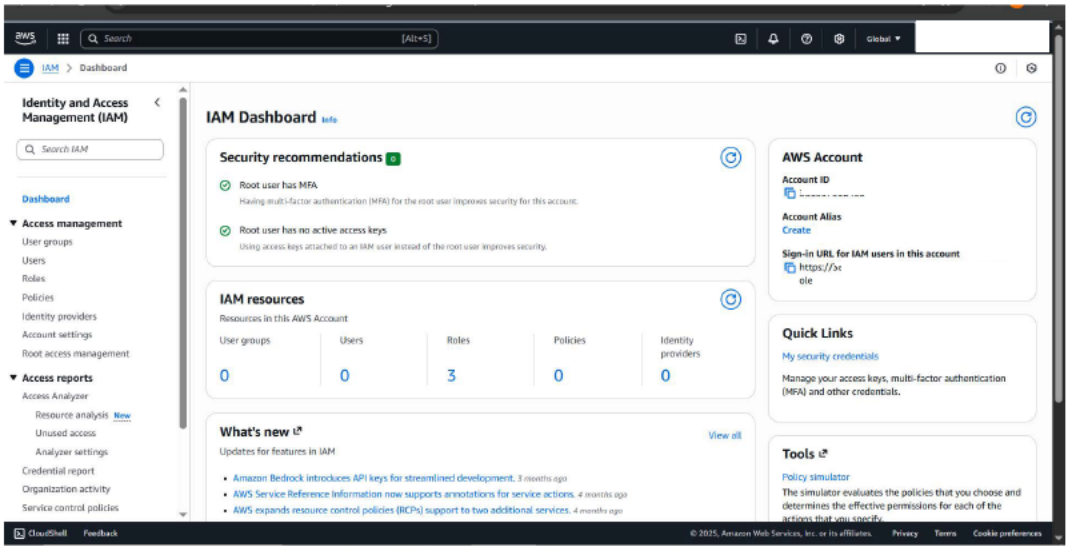
Give the device a name and select a MFA device of your choice, in this instance we will use an Authentication app





Now, we will set up our user, on the left side, under Access management, select user and select “create user”


IAM > Dashboard
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Root access management
Access reports
Access Analyzer
Resource analysis New
Unused access
Analyzer settings
Credential report
Organization activity
Service control policies
IAM Dashboard Info
Security recommendations 0
Root user has MFA
Having multi-factor authentication (MFA) for the root user improves security for this account.
Root user has no active access keys
Using access keys attached to an IAM user instead of the root user improves security.
IAM resources
Resources in this AWS Account
User groups 0
Users 0
Roles 3
Policies 0
Identity providers 0
What's new
Updates for features in IAM
View all
Amazon Bedrock introduces API keys for streamlined development. 3 months ago
AWS Service Reference Information now supports annotations for service actions. 4 months ago
AWS expands resource control policies (RCPs) support to two additional services. 4 months ago
AWS Account
Account ID
Account Alias
Create
Sign-in URL for IAM users in this account
Quick Links
My security credentials
Manage your access keys, multi-factor authentication (MFA) and other credentials.
Tools
Policy simulator
The simulator evaluates the policies that you choose and determines the effective permissions for each of the
CloudShell
Feedback
Privacy
Terms
Cookie preferences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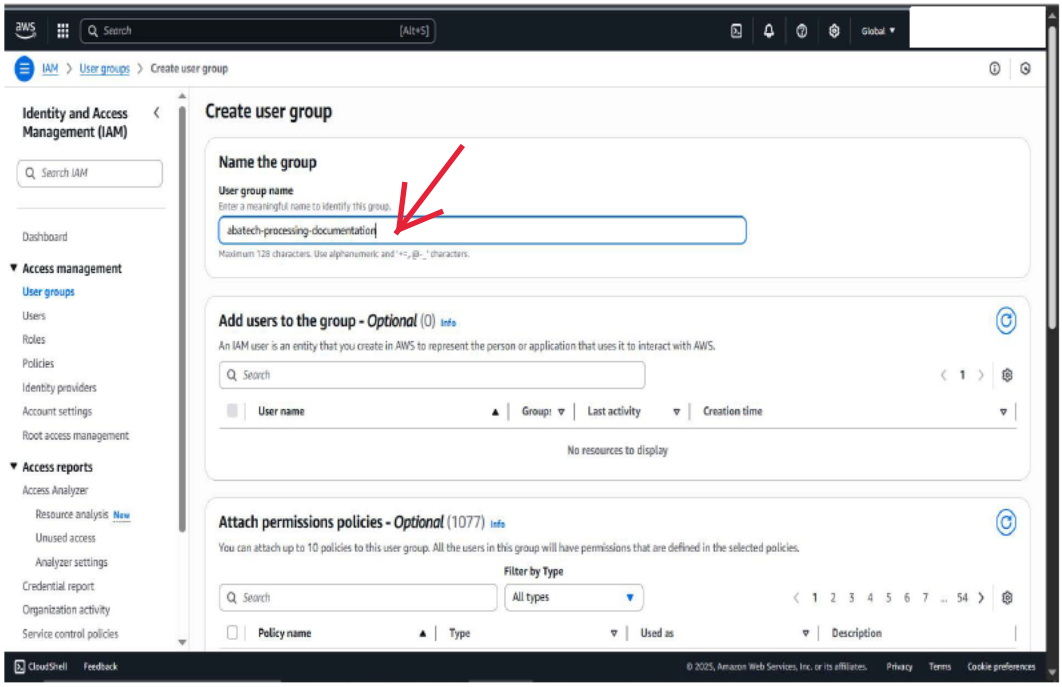
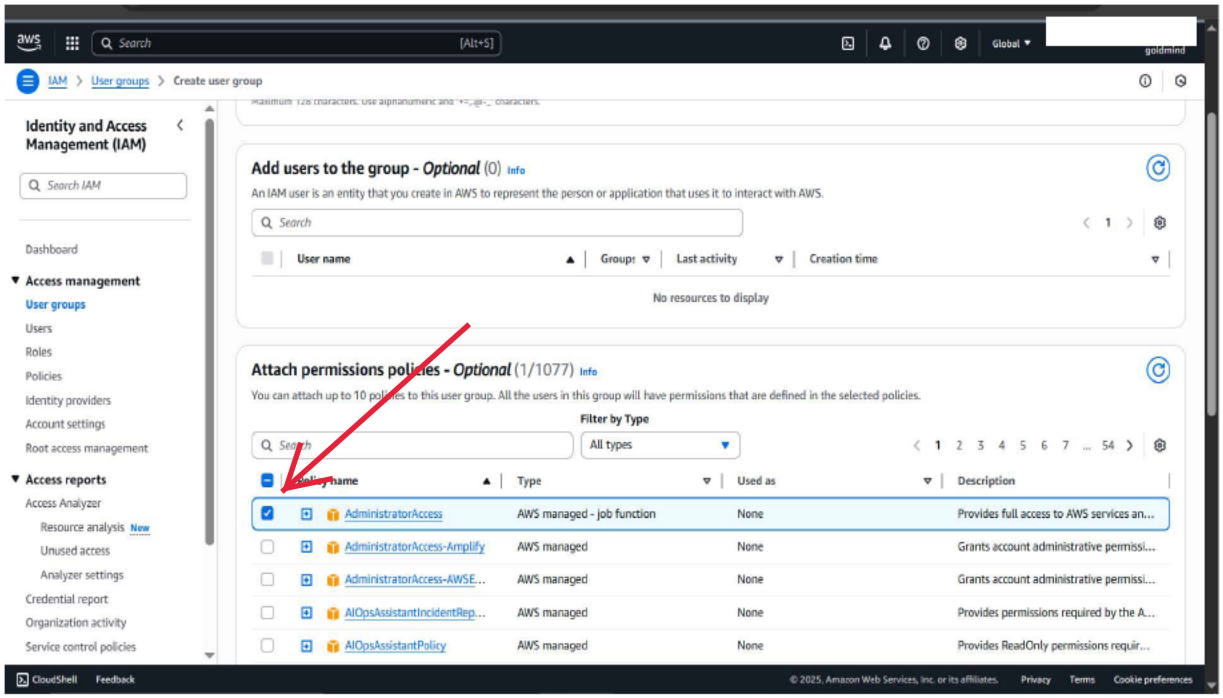
Policy simulator


IAM > User groups > Create user group
Identity and Access Management (IAM)
Create user group
Name the group
User group name
Enter a meaningful name to identify this group.
abatech-processing-documentation
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.
User name
Groups
Last activity
Creation time
No resources to display
Attach permissions policies - Optional (1077) 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 by Type
All types
Policy name
Type
Used as
Description
CloudShell
Feedback
Privacy
Terms
Cookie preferences


IAM > User groups > Create user group
Identity and Access Management (IAM)
Add users to the group - Optional (0) Info
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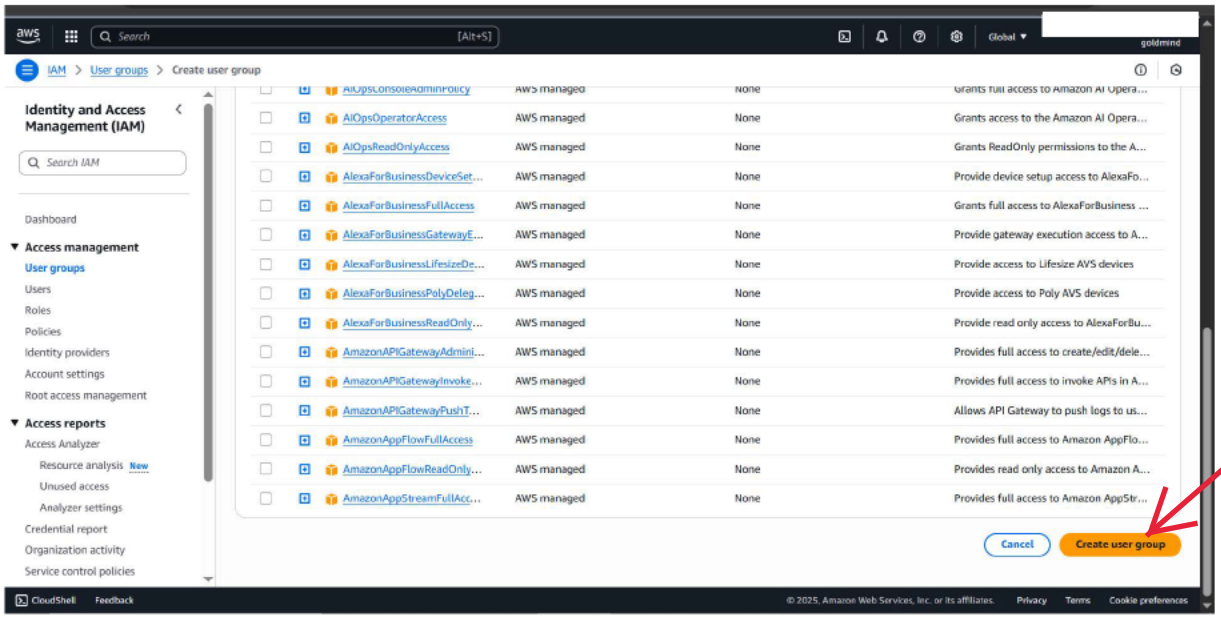
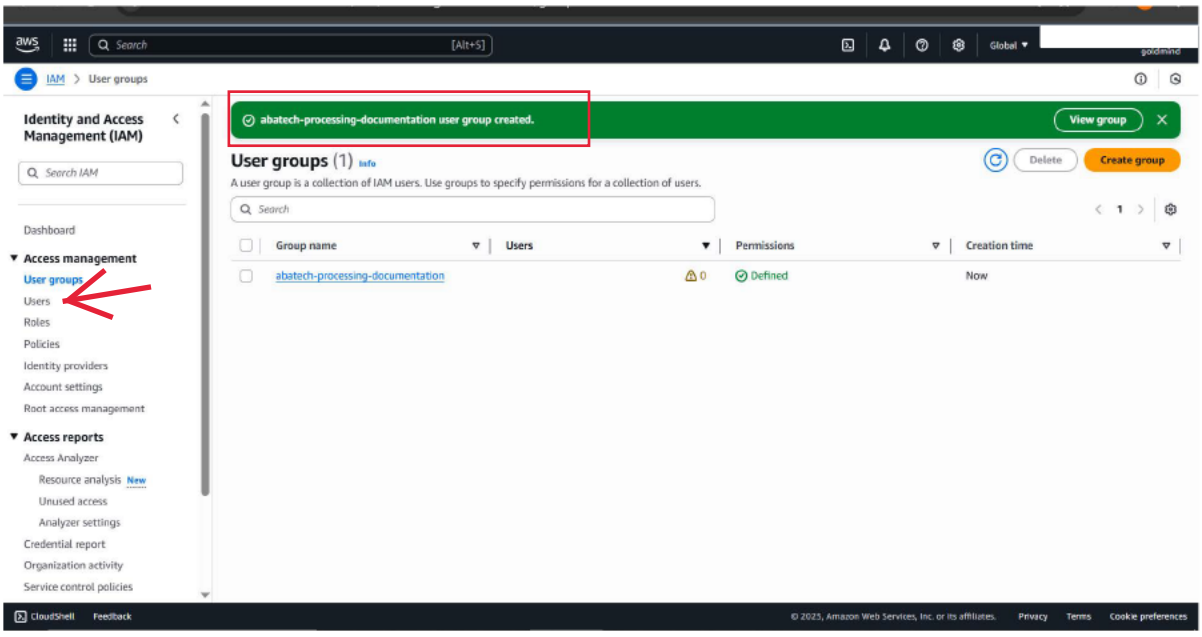
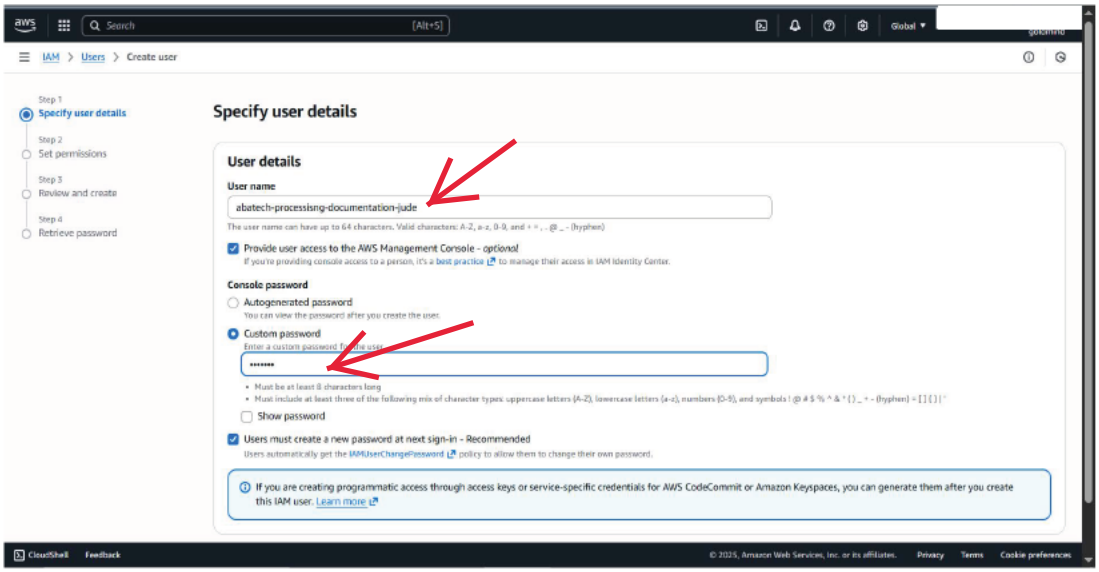
No resources to display
Attach permissions policies - Optional (1/1077) Info
You can attach up to 10 policies to this user group. All the users in this group will have permissions that are defined in the selected policies.
Filter by Type
All types
AdministratorAccess AWS managed - job function None Provides full access to AWS services an...
AdministratorAccess-Amplify AWS managed None Grants account administrative permissi...
AdministratorAccess-AWSE... AWS managed None Grants account administrative permissi...
AIOpsAssistantIncidentRep... AWS managed None Provides permissions required by the A...
AIOpsAssistantPolicy AWS managed None Provides ReadOnly permissions requir...


IAM > User groups > Create user group
Identity and Access Management (IAM)
AIOpsOperatorAccess AWS managed None Grants access to the Amazon AI Opera...
AIOpsReadOnlyAccess AWS managed None Grants ReadOnly permissions to the A...
AlexaForBusinessDeviceSet... AWS managed None Provide device setup access to AlexaFo...
AlexaForBusinessFullAccess AWS managed None Grants full access to AlexaForBusiness ...
AlexaForBusinessGatewayE... AWS managed None Provide gateway execution access to A...
AlexaForBusinessLifesizeDe... AWS managed None Provide access to Lifesize AVS devices
AlexaForBusinessPolyDeleg... AWS managed None Provide access to Poly AVS devices
AlexaForBusinessReadOnly... AWS managed None Provide read only access to AlexaForBu...
AmazonAPIGatewayAdmini... AWS managed None Provides full access to create/edit/dele...
AmazonAPIGatewayInvoke... AWS managed None Provides full access to invoke APIs in A...
AmazonAPIGatewayPushT... AWS managed None Allows API Gateway to push logs to us...
AmazonAppFlowFullAccess AWS managed None Provides full access to Amazon AppFlo...
AmazonAppFlowReadOnly... AWS managed None Provides read only access to Amazon A...
AmazonAppStreamFullAcc... AWS managed None Provides full access to Amazon AppStr...
Cancel
Create user group


IAM > User groups
Identity and Access Management (IAM)
abatech-processing-documentation user group created.
View group
User groups (1) Info
A user group is a collection of IAM users. Use groups to specify permissions for a collection of users.
Delete
Create group
Group name Users Permissions Creation time
abatech-processing-documentation 0 Defined Now


Search
[Alt+S]
Global
goldmind
IAM > Users > Create user
Step 1
Specify user details
Step 2
Set permissions
Step 3
Review and create
Step 4
Retrieve password
Specify user details
User details
User name
abatech-processisng-documentation-jude
The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = , . @ _ - (hyphen)
Provide user access to the AWS Management Console - optional
If you're providing console access to a person, it's a best practice to manage their access in IAM Identity Center.
Console password
Autogenerated password
You can view the password after you create the user.
Custom password
Enter a custom password for the user.
Must be at least 8 characters long
Must include at least three of the following mix of character types: uppercase letters (A-Z), lowercase letters (a-z), numbers (0-9), and symbols ! @ # $ % ^ & * ( ) _ + - (hyphen) = [ ] { } | '
Show password
Users must create a new password at next sign-in - Recommended
Users automatically get the IAMUserChangePassword policy to allow them to change their own password.
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
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Feedback
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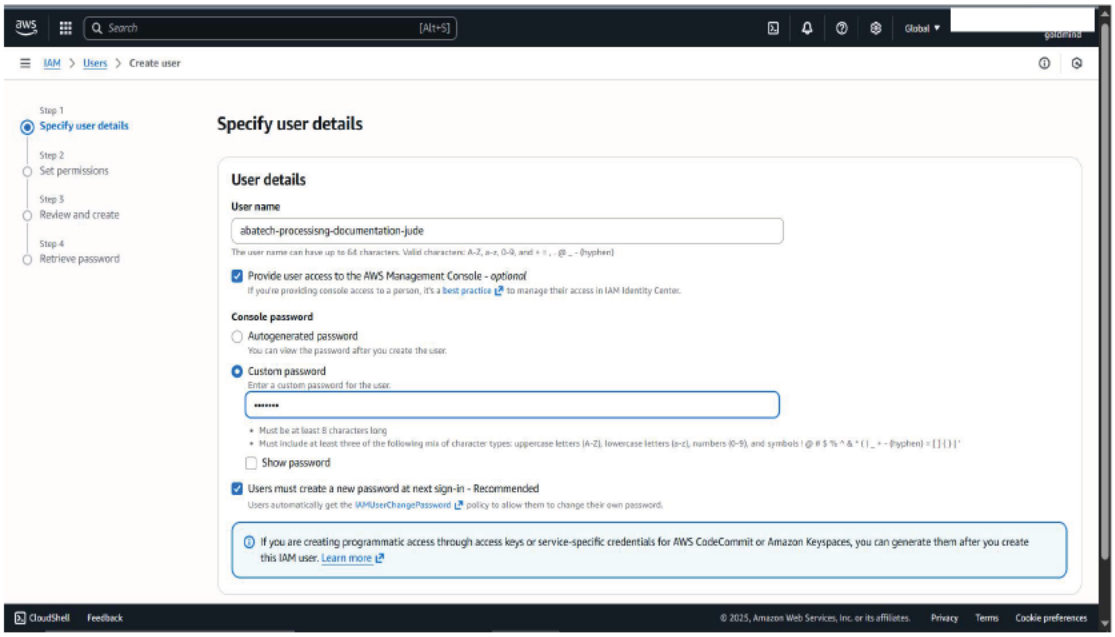
Terms
Cookie preferences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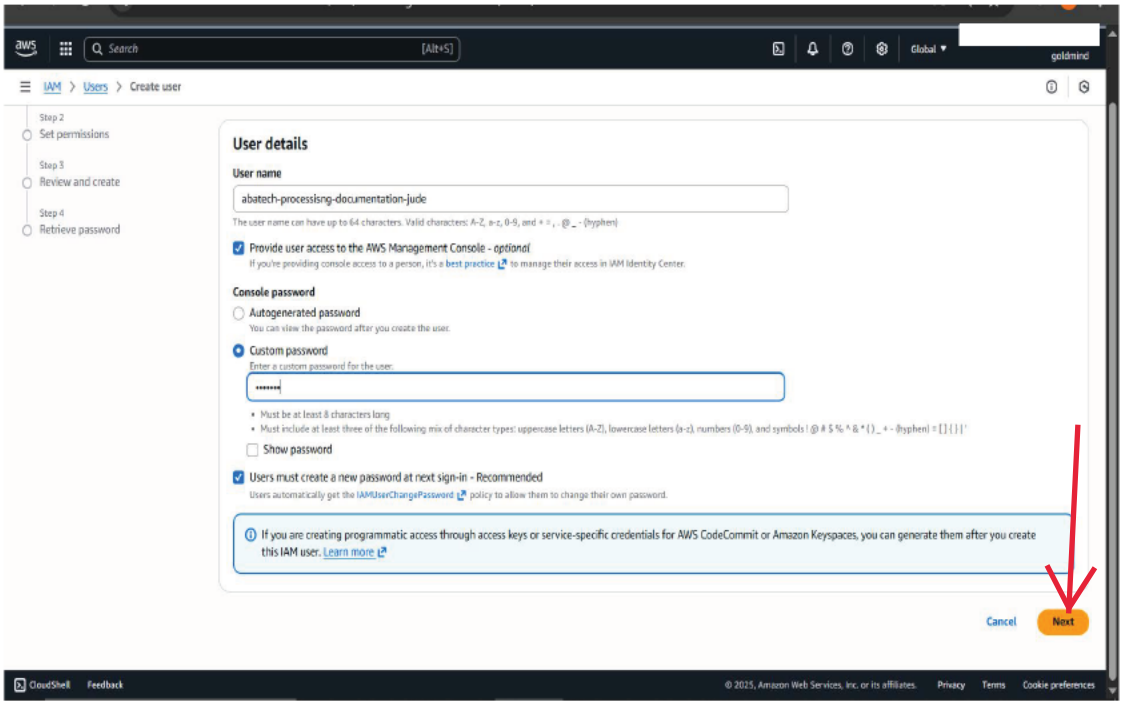
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Step 2
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Cancel
Next
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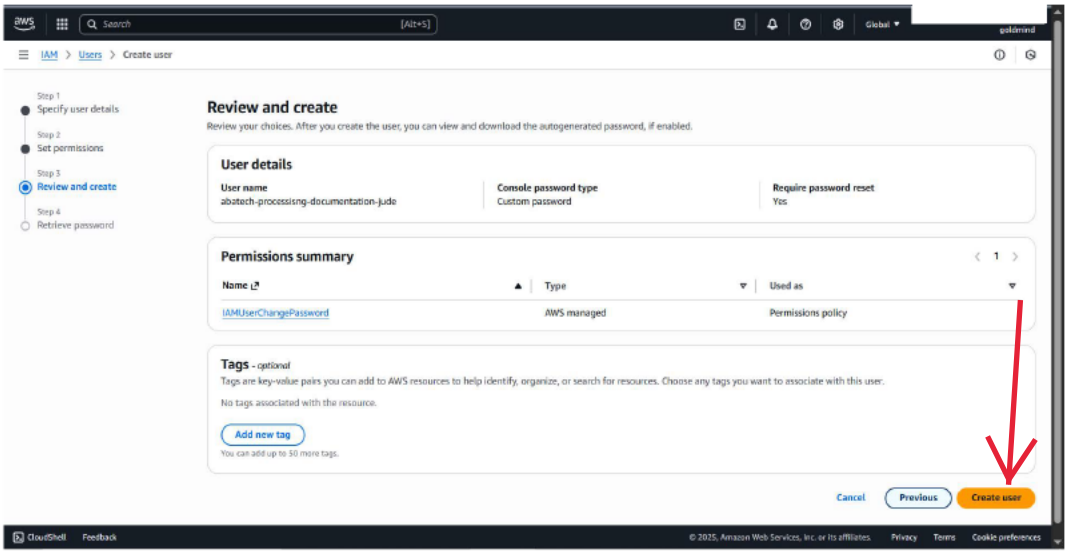
Search
[Alt+S]
Global
IAM > Users > Create user
Step 1
Specify user details
Step 2
Set permissions
Step 3
Review and create
Step 4
Retrieve password
Review and create
Review your choices. After you create the user, you can view and download the autogenerated password, if enabled.
User details
User name
abatech-processisng-documentation-jude
Console password type
Custom password
Require password reset
Yes
Permissions summary
Name
Type
Used as
IAMUserChangePassword
AWS managed
Permissions policy
Tags - optional
Tags are key-value pairs you can add to AWS resources to help identify, organize, or search for resources. Choose any tags you want to associate with this user.
No tags associated with the resource.
Add new tag
You can add up to 50 more tags.
Cancel
Previous
Create user
CloudShell
Feedback
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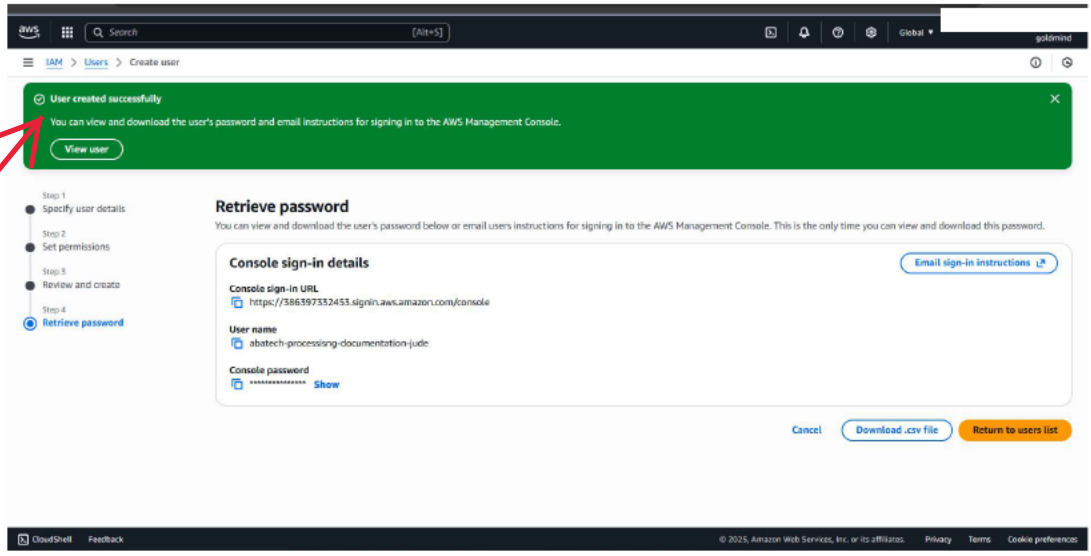
Search
[Alt+S]
Global
IAM > Users > Create user
User created successfully
You can view and download the user's password and email instructions for signing in to the AWS Management Console.
View user
Step 1
Specify user details
Step 2
Set permissions
Step 3
Review and create
Step 4
Retrieve password
Retrieve password
You can view and download the user's password below or email users instructions for signing in to the AWS Management Console. This is the only time you can view and download this password.
Console sign-in details
Email sign-in instructions
Console sign-in URL
https://386397332453.signin.aws.amazon.com/console
User name
abatech-processisng-documentation-jude
Console password
Show
Cancel
Download .csv file
Return to users list
CloudShell
Feedback
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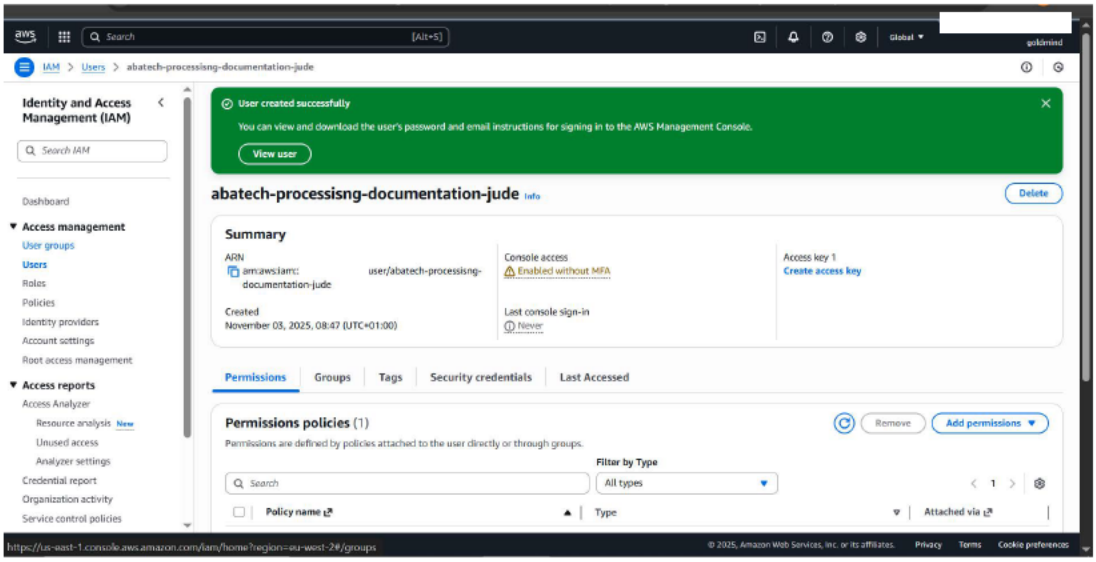
Search
[Alt+S]
Global
IAM > Users > abatech-processisng-documentation-jude
Identity and Access Management (IAM)
Search IAM
Dashboard
Access management
User groups
Users
Roles
Policies
Identity providers
Account settings
Root access management
Access reports
Access Analyzer
Resource analysis New
Unused access
Analyzer settings
Credential report
Organization activity
Service control policies
User created successfully
You can view and download the user's password and email instructions for signing in to the AWS Management Console.
View user
abatech-processisng-documentation-jude Info
Delete
Summary
ARN
arn:aws:iam:
user/abatech-processisng-documentation-jude
Console access
Enabled without MFA
Access key 1
Create access key
Created
November 03, 2025, 08:47 (UTC+01:00)
Last console sign-in
Never
Permissions
Groups
Tags
Security credentials
Last Accessed
Permissions policies (1)
Remove
Add permissions
Permissions are defined by policies attached to the user directly or through groups.
Filter by Type
Search
All types
Policy name
Type
Attached via
https://us-east-1.console.aws.amazon.com/iam/home?region=eu-west-2#/groups
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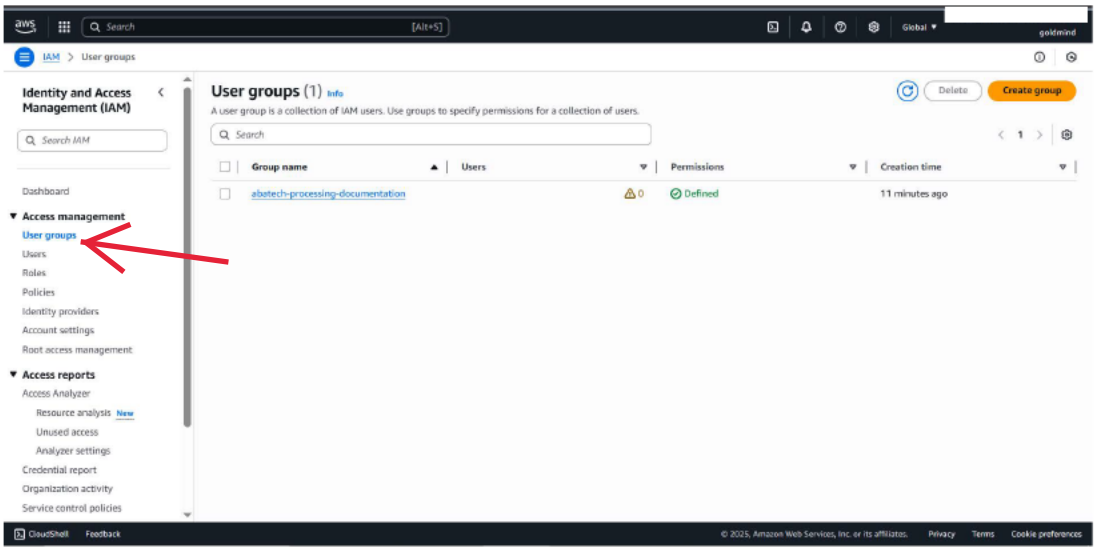
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Delete
Create group
Group name
Users
Permissions
Creation time
abatech-processing-documentation
0
Defined
11 minutes ago
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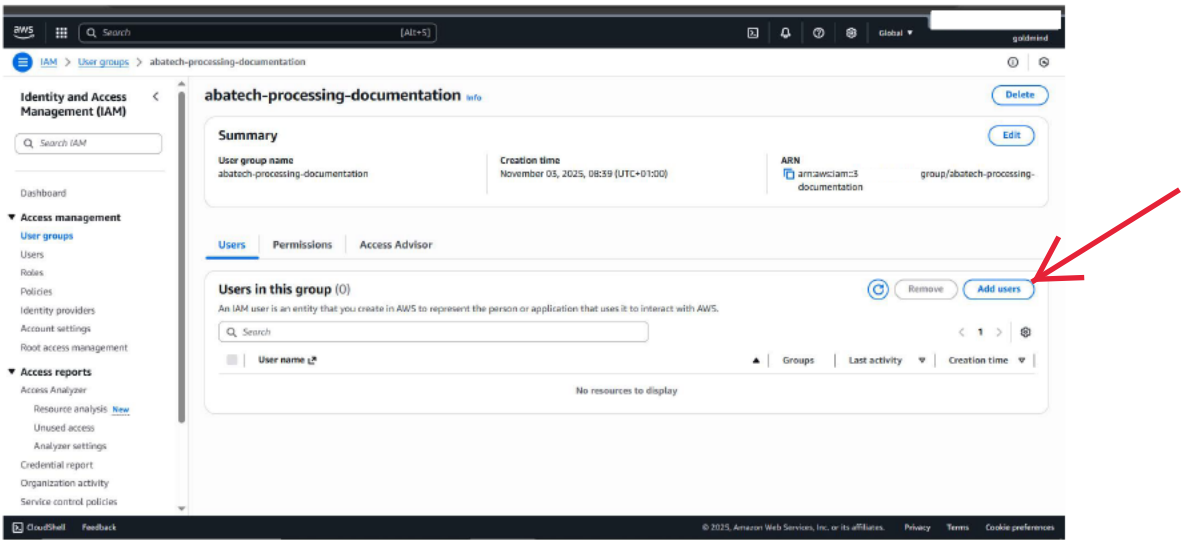
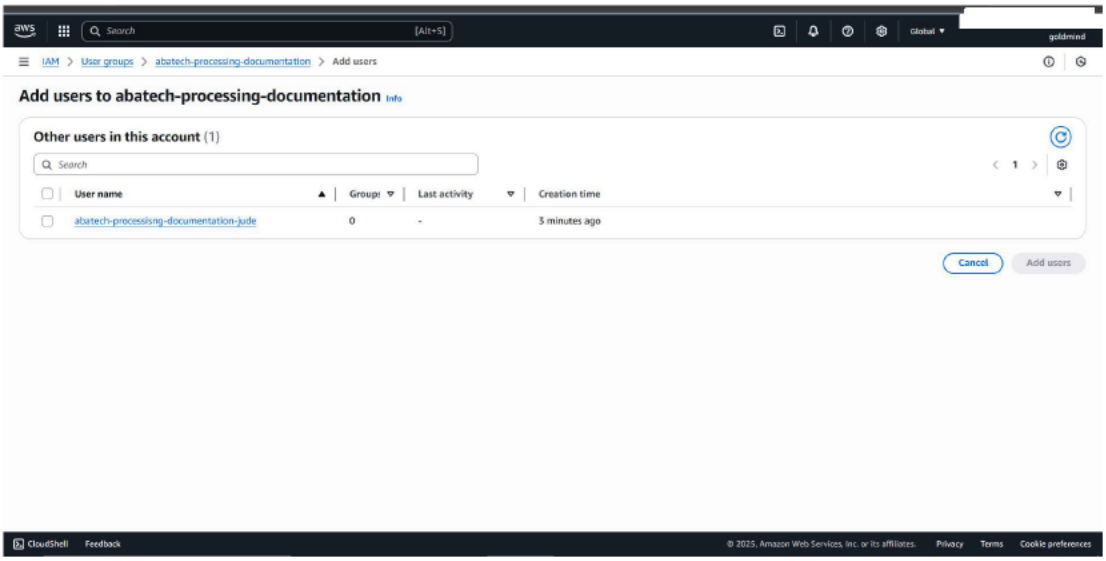
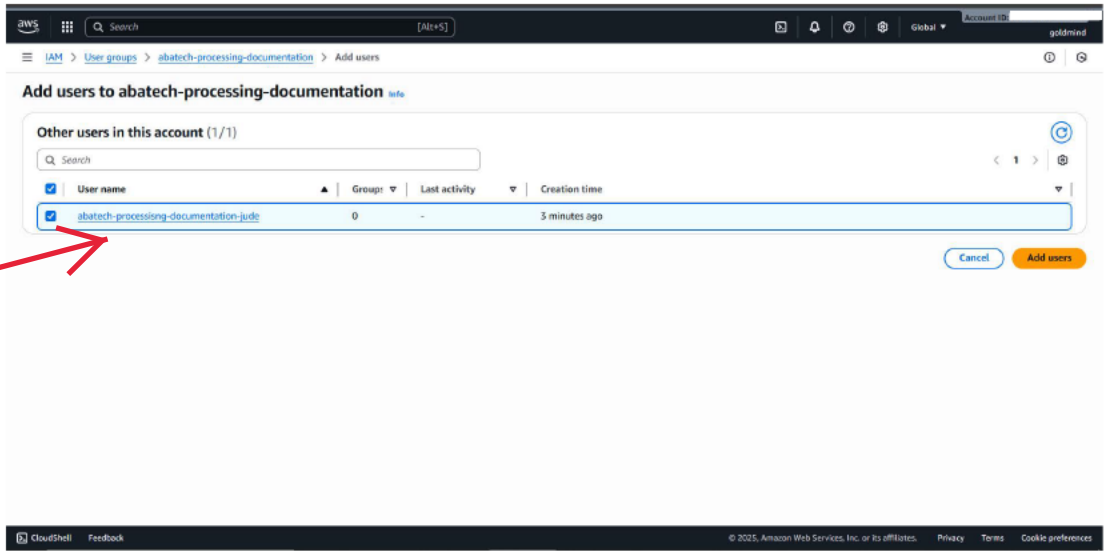

abatech-processing-documentation Info
Delete
Summary
Edit
User group name
abatech-processing-documentation
Creation time
November 03, 2025, 08:39 (UTC+01:00)
ARN
Users
Permissions
Access Advisor
Users in this group (0)
An IAM user is an entity that you create in AWS to represent the person or application that uses it to interact with AWS.
Remove
Add users
User name
Groups
Last activity
Creation time
No resources to display


IAM > User groups > abatech-processing-documentation > Add users
Add users to abatech-processing-documentation Info
Other users in this account (1)
User name
Groups
Last activity
Creation time
abatech-processing-documentation-jude
0
-
3 minutes ago
Cancel
Add users


Search
[Alt+S]
Global
goldmind
IAM > User groups > abatech-processing-documentation > Add users
Add users to abatech-processing-documentation Info
Other users in this account (1/1)
Search
User name
Groups
Last activity
Creation time
abatech-processisng-documentation-jude
0
-
3 minutes ago
Cancel
Add users
CloudShell
Feedback
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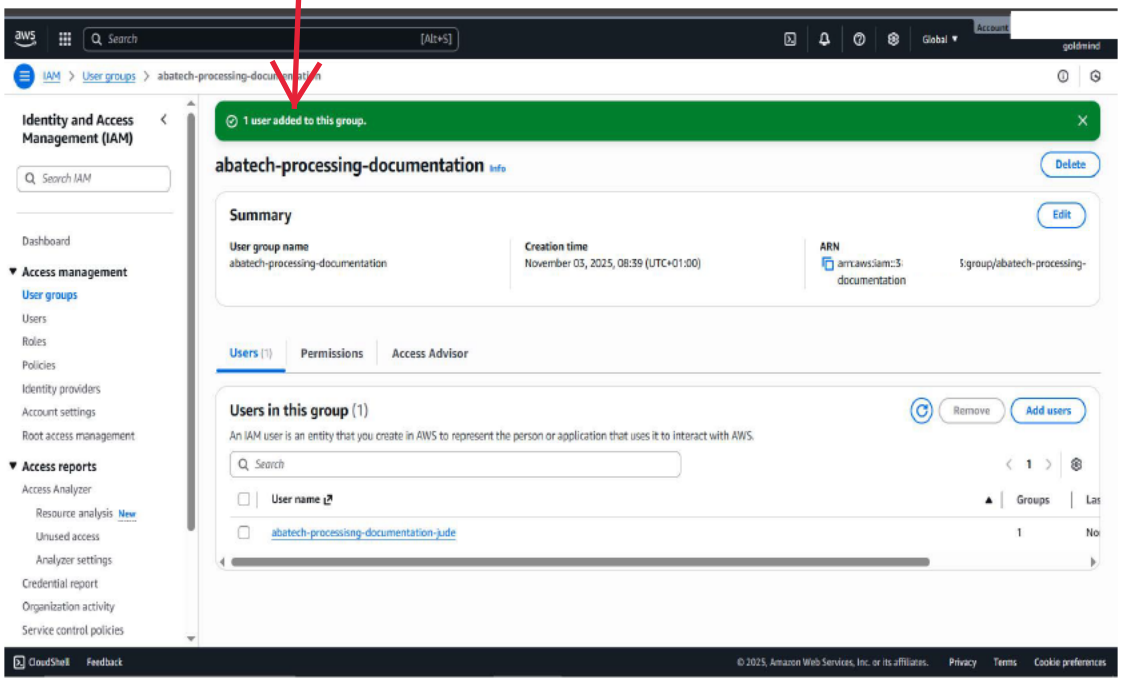
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Analyzer settings
Credential report
Organization activity
Service control policies
1 user added to this group.
abatech-processing-documentation Info
Delete
Summary
Edit
User group name
abatech-processing-documentation
Creation time
November 03, 2025, 08:39 (UTC+01:00)
ARN
documentation
Users (1)
Permissions
Access Advisor
Users in this group (1)
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Remove
Add users
Search
User name
Groups
abatech-processisng-documentation-jude
1
CloudShell
Feedback
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