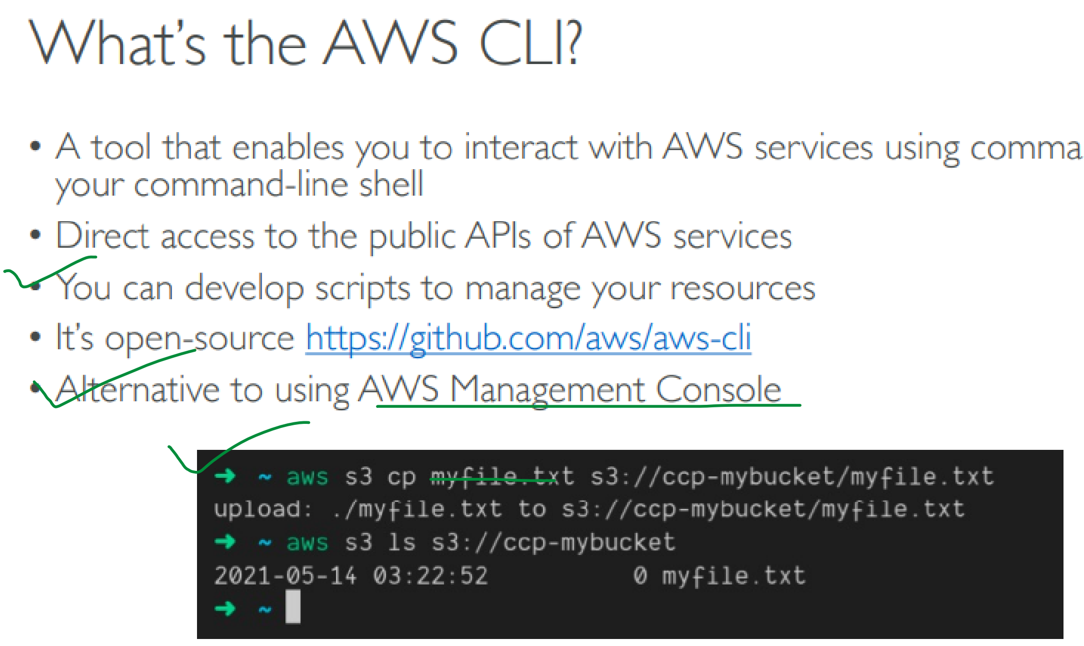
AWS CLI - IAM

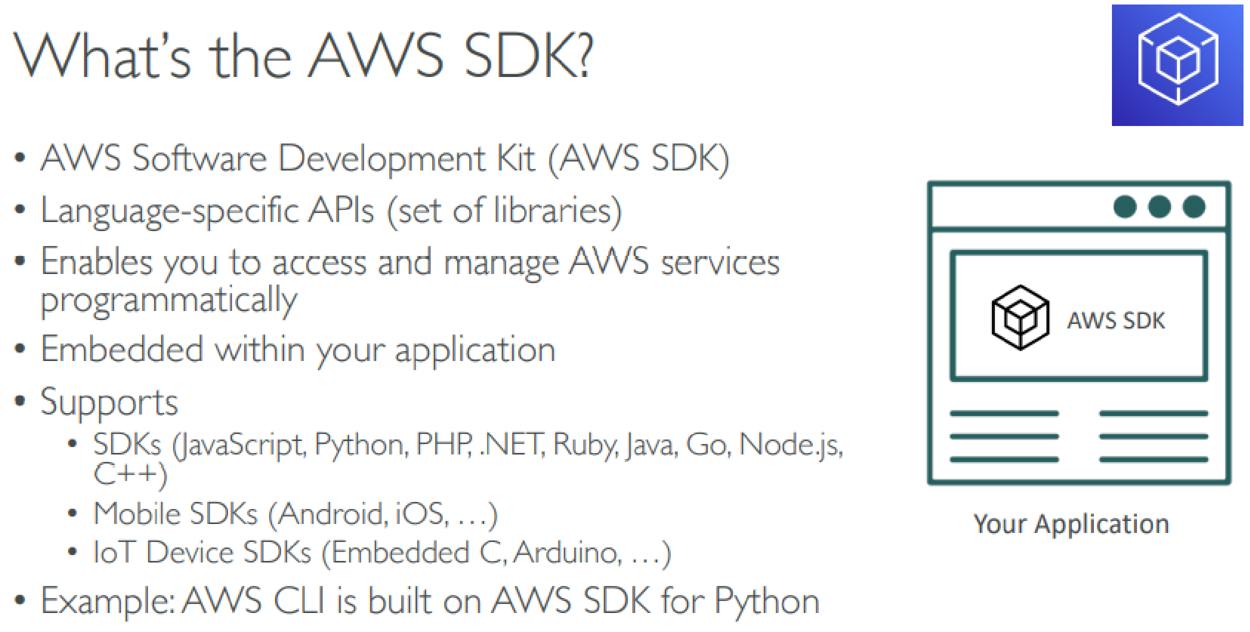
- Install CLI
- You need to configured it
- aws configure -- it will ask you access **key ID and access key secret , region ap-south-1 and json**
-
- You can interact will AWS services or resource from CLI.



What's the AWS CLI?

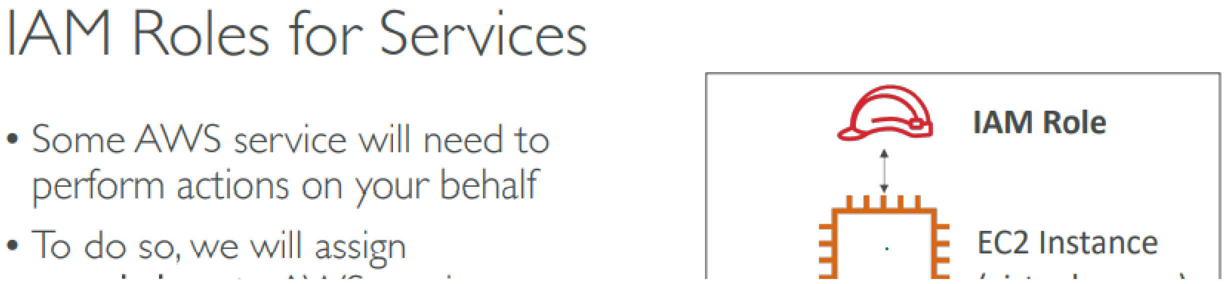
- A tool that enables you to interact with AWS services using commands in your command-line shell
- Direct access to the public APIs of AWS services
- You can develop scripts to manage your resources
- It's open-source https://github.com/aws/aws-cli
- Alternative to using AWS Management Console

```
➜ ~ aws s3 cp myfile.txt s3://ccp-mybucket/myfile.txt
upload: ./myfile.txt to s3://ccp-mybucket/myfile.txt
➜ ~ aws s3 ls s3://ccp-mybucket
2021-05-14 03:22:52          0 myfile.txt
➜ ~
```



What's the AWS SDK?

- AWS Software Development Kit (AWS SDK)
- Language-specific APIs (set of libraries)
- Enables you to access and manage AWS services programmatically
- Embedded within your application
- Supports
  - SDKs (JavaScript, Python, PHP, .NET, Ruby, Java, Go, Node.js, C++)
  - Mobile SDKs (Android, iOS, …)
  - IoT Device SDKs (Embedded C, Arduino, …)
- Example: AWS CLI is built on AWS SDK for Python

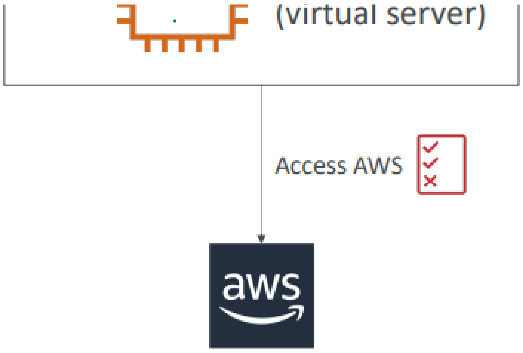


IAM Roles for Services

- Some AWS service will need to perform actions on your behalf
- To do so, we will assign

permissions to AWS services with IAM Roles

- Common roles:
  - EC2 Instance Roles
  - Lambda Function Roles
  - Roles for CloudFormation



IAM Guidelines & Best Practices

- Don't use the root account except for AWS account setup
- One physical user = One AWS **user**
- **Assign users to groups** and assign permissions to ~~groups~~
- Create a **strong password policy**
- Use and enforce the use of **Multi Factor Authentication (MFA)**
- Create and use **Roles** for giving permissions to AWS services
- Use Access Keys for Programmatic Access (~~CLI / SDK~~)
- Audit permissions of your account with the IAM Credentials Report
- Never share IAM users & Access Keys

Shared Responsibility Model for IAM

aws

- Infrastructure (global network security)
- Configuration and vulnerability analysis
- Compliance validation

You

- Users, Groups, Roles, Policies management and monitoring
- Enable MFA on all accounts
- Rotate all your keys often
- Use IAM tools to apply appropriate permissions
- Analyze access patterns & review permissions

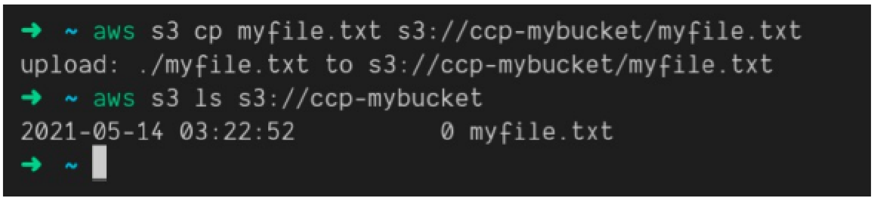
IAM Section – Summary

- **Users:** mapped to a physical user, has a password for AWS Console
- **Groups:** contains users only
- **Policies:** JSON document that outlines permissions for users or groups

- **Policies:** JSON document that outlines permissions for users or groups
- **Roles:** for EC2 instances or AWS services
- **Security:** MFA + Password Policy
- **Access Keys:** access AWS using the CLI or SDK
- **Audit:** IAM Credential Reports & IAM Access Advisor

What's the AWS CLI?

- A tool that enables you to interact with AWS services using commands in your command-line shell
- Direct access to the public APIs of AWS services
- You can develop scripts to manage your resources
- It's open-source https://github.com/aws/aws-cli
- Alternative to using AWS Management Console



```
➜ ~ aws s3 cp myfile.txt s3://ccp-mybucket/myfile.txt
upload: ./myfile.txt to s3://ccp-mybucket/myfile.txt
➜ ~ aws s3 ls s3://ccp-mybucket
2021-05-14 03:22:52          0 myfile.txt
➜ ~ 
```

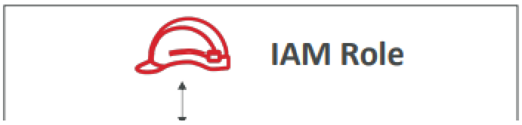
What's the AWS SDK?

- AWS Software Development Kit (AWS SDK)
- Language-specific APIs (set of libraries)
- Enables you to access and manage AWS services programmatically
- Embedded within your application
- Supports
  - SDKs (JavaScript, Python, PHP, .NET, Ruby, Java, Go, Node.js, C++)
  - Mobile SDKs (Android, iOS, …)
  - IoT Device SDKs (Embedded C, Arduino, …)
- Example: AWS CLI is built on AWS SDK for Python

Your Application

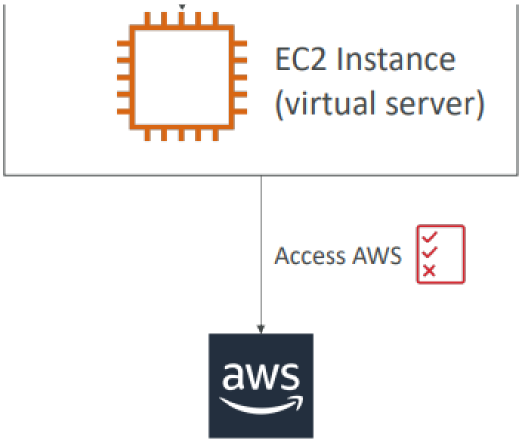
IAM Roles for Services

- Some AWS service will need to perform actions on your behalf



perform actions on your behalf

- To do so, we will assign **permissions** to AWS services with **IAM Roles**
- Common roles:
  - EC2 Instance Roles
  - Lambda Function Roles
  - Roles for CloudFormation



IAM Security Tools

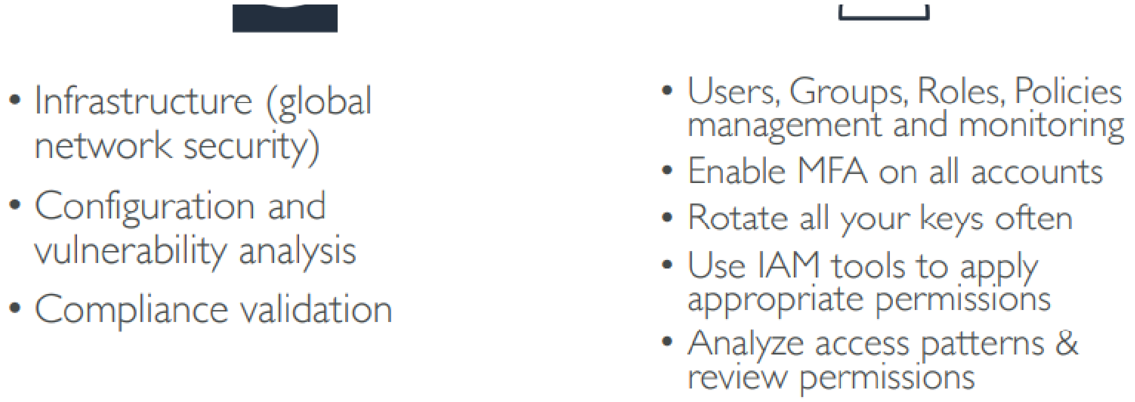
- **IAM Credentials Report (account-level)**
  - a report that lists all your account's users and the status of their various credentials

- **IAM Access Advisor (user-level)**
  - Access advisor shows the service permissions granted to a user and when those services were last accessed.
  - You can use this information to revise your policies.

IAM Guidelines & Best Practices

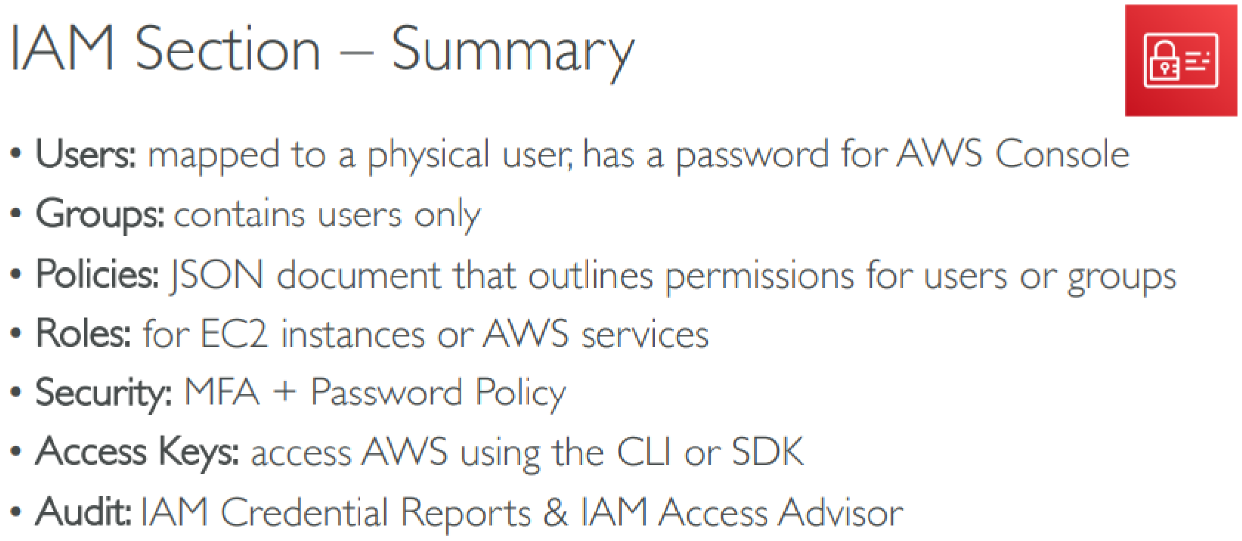
- Don't use the root account except for AWS account setup
- One physical user = One AWS **user**
- **Assign users to groups** and assign permissions to groups
- Create a **strong password policy**
- Use and enforce the use of **Multi Factor Authentication (MFA)**
- Create and use **Roles** for giving permissions to AWS services
- Use Access Keys for Programmatic Access (CLI / SDK)
- Audit permissions of your account with the IAM Credentials Report
- **Never share IAM users & Access Keys**

Shared Responsibility Model for IAM



- Infrastructure (global network security)
- Configuration and vulnerability analysis
- Compliance validation

- Users, Groups, Roles, Policies management and monitoring
- Enable MFA on all accounts
- Rotate all your keys often
- Use IAM tools to apply appropriate permissions
- Analyze access patterns & review permissions



IAM Section – Summary

- **Users:** mapped to a physical user, has a password for AWS Console
- **Groups:** contains users only
- **Policies:** JSON document that outlines permissions for users or groups
- **Roles:** for EC2 instances or AWS services
- **Security:** MFA + Password Policy
- **Access Keys:** access AWS using the CLI or SDK
- **Audit:** IAM Credential Reports & IAM Access Advisor