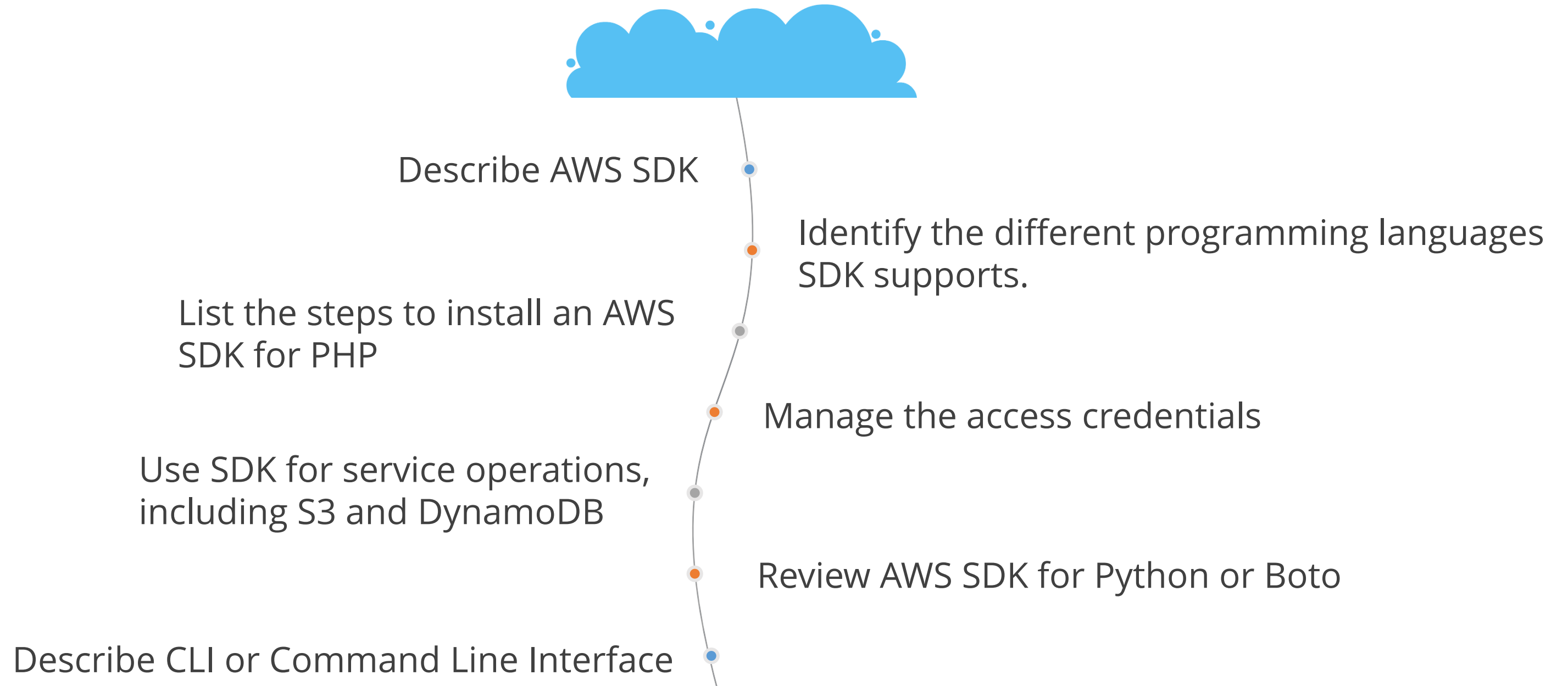


AWS Certified Developer Associate

Lesson 12: SDK and CLI



What You'll Learn



Basic Concepts of AWS SDK

AWS SDK Overview



- A **programming package** to develop applications for a specific platform
- AWS SDK helps you develop applications on top of **AWS services**
- AWS SDK is available for C++, Java, Go, JavaScript for browser, JavaScript for Node.js, .NET, PHP, Python, and Ruby
- SDK for Python is called Boto; the current version of Boto is **Boto 3**

Installing PHP SDK

```
php composer.phar require aws/aws-sdk-php
```

Download and
Install the
Composer

Install the
latest SDK

Include the
“require”
statement

```
curl -sS https://getcomposer.org/installer | php
```

```
<?php  
require 'vendor/autoload.php';
```

SDK Usage – Client Object

Client Object

Managing Credentials

SDK Class

Service Operation

Step 1: Create or Instantiate a client object for the AWS service you want to use

Step 2: Call one of the methods of client object

```
<?php
// Include the SDK using the Composer autoloader
require 'vendor/autoload.php';

$s3 = new Aws\S3\S3Client([
    'version' => 'latest',
    'region'  => 'us-east-1'
]);
```

SDK Usage – Managing Credentials

Client Object

Managing Credentials

SDK Class

Service Operation

Hardcoded Credentials

```
// Hardcoded credentials.  
$s3 = new Aws\S3\S3Client([  
    'version'    => 'latest',  
    'region'     => 'us-west-2',  
    'credentials' => [  
        'key'     => 'abc',  
        'secret'  => '123'  
    ]  
]);
```

Multiple Profiles

```
[default]  
aws_access_key_id = YOUR_AWS_ACCESS_KEY_ID  
aws_secret_access_key = YOUR_AWS_SECRET_ACCESS_KEY  
  
[project1]  
aws_access_key_id = ANOTHER_AWS_ACCESS_KEY_ID  
aws_secret_access_key = ANOTHER_AWS_SECRET_ACCESS_KEY
```

Using Profile to Instantiate Object

```
$client = new DynamoDbClient([  
    'profile' => 'project1',  
    'region'  => 'us-west-2',  
    'version' => 'latest'  
]);
```

SDK Usage – SDK Class

Client Object

Shared Configuration

Creating SDK Class

```
$sharedConfig = [  
    'region' => 'us-west-2',  
    'version' => 'latest'  
];
```

```
$sdk = new Aws\Sdk($sharedConfig);
```

Create S3 Client using SDK Class

Create DynamoDB Client using SDK Class

```
$client = $sdk->createS3();
```

Service Operation

```
$client = $sdk->createDynamoDb();
```


SDK Usage – Service Operation

Client Object

Create S3 Client using SDK Class

```
$client = $sdk->createS3();
```

Call S3 putObject Method

```
$result = $s3Client->putObject([  
    'Bucket' => 'my-bucket',  
    'Key'    => 'my-key',  
    'Body'   => 'this is the body!' ]]);
```

Call S3 GetObject Method

```
$result = $s3Client->getObject([  
    'Bucket' => 'my-bucket',  
    'Key'    => 'my-key' ]]);
```

Print the result

Service Operation

```
echo $result['Body'];
```

Python AWS SDK or Boto 3 - Installation

```
for bucket in s3.buckets.all():  
    print(bucket.name)
```

```
pip install boto3
```

Install BOTO

Print all
bucket names

Create S3
Resource

Upload new
title

```
import boto3
```

```
# Let's use Amazon S3
```

```
s3 = boto3.resource('s3')
```

```
data = open('test.jpg', 'rb')
```

```
s3.Bucket('my-bucket').put_object(Key='test.jpg', Body=data)
```



Knowledge Check

KNOWLEDGE
CHECK

What are the two steps needed for a service operation when PHP SDK is used?

- a. Download client object and Instantiate a client object
- b. Instantiate a client object and Call one of the method
- c. Call one of the method and Download client object
- d. Upload client method and Call one of the method



KNOWLEDGE
CHECK

What are the two steps needed for a service operation when PHP SDK is used?

- a. Download client object and Instantiate a client object
- b. Instantiate a client object and Call one of the method
- c. Call one of the method and Download client object
- d. Upload client method and Call one of the method



The correct answer is **Instantiate a client object and Call one of the method**

Explanation: The SDK usage pattern follows a few logical steps irrespective of the programming language. The first step is to create or instantiate a client object for the AWS service that you want to use. The next step is to call one of the methods of client object.

Basic Concepts of AWS CLI

AWS CLI- Installation and Setup

Install Python, Pip, and AWS CLI

```
$ sudo apt-get install python2.7
```

```
$ curl -O https://bootstrap.pypa.io/get-pip.py
```

```
$ sudo python27 get-pip.py
```

```
$ sudo pip install awscli
```

Configure AWS CLI

```
$ aws configure
AWS Access Key ID [None]: AKIAIOSFODNN7EXAMPLE
AWS Secret Access Key [None]: wJalrXUtnFEMI/K7MDENG/bPxrFiCYEXAMPLEKEY
Default region name [None]: us-west-2
Default output format [None]: json
```

```
~/.aws/credentials
```

```
[default]
aws_access_key_id=AKIAIOSFODNN7EXAMPLE
aws_secret_access_key=wJalrXUtnFEMI/K7MDENG/bPxrFiCYEXAMPLEKEY
```

```
~/.aws/config
```

```
[default]
region=us-west-2
output=json
```

Content of config and
credentials files

AWS CLI – Service Operation

1

AWS CLI command structure

```
$ aws <command> <subcommand> [options and parameters]
```

2

Create an S3 bucket

```
$ aws s3 mb s3://bucket-name
```

3

List all objects from a bucket

```
$ aws s3 ls s3://bucket-name
Bucket: my-bucket
Prefix:

      LastWriteTime         Length Name
      -
2013-09-04 19:05:48          3 PRE path/
                               3 MyFile1.txt
```

4

Copy a file under non-default storage class

```
$ aws s3 cp file.txt s3://my-bucket/ --storage-class REDUCED_REDUNDANCY
```

5

Copy a file and set permissions

```
$ aws s3 cp file.txt s3://my-bucket/ --grants
read=uri=http://acs.amazonaws.com/groups/global/AllUsers
full=emailaddress=user@example.com
```




Knowledge Check

KNOWLEDGE
CHECK

What is the CLI command to list the content of a bucket?

- a. `aws ls`
- b. `aws cp`
- c. `aws dir`
- d. `aws bucket -list`



KNOWLEDGE
CHECK

What is the CLI command to list the content of a bucket?

- a. `aws ls`
- b. `aws cp`
- c. `aws dir`
- d. `aws bucket -list`



The correct answer is **aws ls**

Explanation: The `aws ls` command lists the content of a bucket.



Practice Assignment

AWS SDK using Boto 3

List all buckets in S3 account



How do you list all the bucket names in your S3 account using AWS SDK Boto3?

Prerequisites:

SDK Client is installed

Credentials are already specified.

Task:

List all buckets in your Amazon S3 using Boto 3.



QUIZ

1

Which of the following is not a valid AWS SDK?

- a. SDK for Python
- b. SDK for Perl
- c. SDK for Java
- d. SDK for Ruby



QUIZ

1

Which of the following is not a valid AWS SDK?

- a. SDK for Python
- b. SDK for Perl
- c. SDK for Java
- d. SDK for Ruby



The correct answer is **SDK for Perl**

Explanation: AWS SDK is available for C++, Java, Go, JavaScript for browser, JavaScript for Node.js, .NET, PHP, Python, and Ruby.

QUIZ

2

What is the right syntax to include SDK in the PHP code?

- a. require
- b. include
- c. call
- d. None of the above



QUIZ

2

What is the right syntax to include SDK in the PHP code?

- a. require
- b. include
- c. call
- d. None of the above



The correct answer is **require**

Explanation: Irrespective of the method of installation, you have to use the “require” statement to include SDK in your PHP code.

QUIZ

3

What is the right syntax to include Boto in the Python code?

- a. require
- b. include
- c. import
- d. add



QUIZ

3

What is the right syntax to include Boto in the Python code?

- a. require
- b. include
- c. import
- d. add



The correct answer is **import**

Explanation: To use Boto 3, you must first import it and tell it what service you are going to use.

QUIZ

4

What is the default output format from CLI when you don't specify one?

- a. text
- b. table
- c. json
- d. xml



QUIZ

4

What is the default output format from CLI when you don't specify one?

- a. text
- b. table
- c. json
- d. xml



The correct answer is **json**

Explanation: Default output format can be either json, text, or table. If you don't specify an output format, json will be used.

QUIZ

5

Which command do you use to set up CLI?

- a. Setup
- b. Configure
- c. Install
- d. startCLI



QUIZ

5

Which command do you use to set up CLI?

- a. Setup
- b. Configure
- c. Install
- d. startCLI



The correct answer is **configure**

Explanation: Before you start using CLI, you need to perform some initial configuration, such as credentials and region. AWS configure command is the quickest way of doing this.

Key Takeaways

- AWS SDK is available for C++, Java, Go, JavaScript for browser, JavaScript for Node.js, .NET, PHP, Python, and Ruby
- If you don't provide credential options in your code, the SDK will try to load credentials from your environment
- The `Aws\Sdk` class acts as a client factory and is used to manage shared configuration options across multiple clients
- To install CLI, you can use windows installer for windows operating system and use Pip for Linux based operating systems



This concludes “SDK and CLI”.
The next lesson is “AWS Shared Security”