Introduction to AWS CLI:

The AWS Command Line Interface (AWS CLI) is an open-source tool that allows you to use commands in your command-line shell to interact with AWS services.

* The AWS CLI controls the AWS resources on your own or any device from a terminal session, which allows you to control, monitor and configure multiple AWS services.
* The AWS CLI allows you to start running commands with a minimal configuration that enforce functionality similar to that offered by the browser-based AWS Management Console from the command prompt in your favorite terminal program: Linux, Mac, or Windows.
* The AWS CLI is available in two versions (v1 and v2) and version 2 is the most recent major version of the AWS CLI and supports all of the latest features. The AWS CLI version 2 is available to install only as a bundled installer. AWS recommends that you install the AWS CLI from only the official AWS distribution points.

### **AWS CLI - Command Structure**

AWS CLI is a management interface that allows us to do everything we do via the management console by entering the commands.

* Knowing and learning this really well will make our life much easier.
* As we dive deep into the AWS world, we will see that this is like a huge sea that will grow day by day as we work on the environment. Therefore, it will become almost impossible to manage manually after a while.
* Therefore, it is important to understand the command structure well.
* It is not possible to learn this structure completely at once. As we use the AWS CLI and become familiar with AWS services, it will evolve in our competence on AWS CLI commands.

After configuring AWS on the terminal, we are now connected to the AWS world. The AWS Command Line Interface (AWS CLI) uses a multipart structure on the command line that must be specified in this order:

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

* The base call to the aws program.
* The top-level commands , which typically corresponds to an **AWS service** supported by the AWS CLI.
* The *subcommands subcommand* that specifies which operation to perform.
* General CLI *options*or parameters required by the operation. You can specify these in any order as long as they follow the first three parts. If an exclusive parameter is specified multiple times, only the *last value* applies.

### **AWS CLI – Example:**

* aws is the beginning of all commands, it is mandatory to write this.
* With the aws help command, we can get help from AWS about the commands we can use in AWS.

**$ aws help**

If we use the aws iam help command, we can only see the CLI information, parameters, usage details for the iam service.

**$ aws iam help**

If we use the aws iam ls help command, we see how to use this ls command.

**$ aws iam ls help**

### **AWS CLI - Creating IAM User**

Let's see how to create an IAM user via using CLI command generally.

* Begin with aws command as it is the beginning of all commands.
* Specify the AWS service that you want to work with. Because we want to create an IAM user, this command is iam in this case.
* Then, use create-user   subcommand and --user-name   parameter to specify user-name.
* Finally type the user-name you want to give to the new user, for example, MyUser.

**$ aws iam create-user --user-name MyUser**

Now, let's create a new user using AWS CLI.

* First, list the users currently on our AWS account.
* Then create a new user.
* Finally, check the process of creating a new user by re-listing the users.

**Listing IAM users:**

**$ aws iam list-users**

* After running this command, the terminal will return to us the existing users in our AWS account with some identifying information as below.

**{**

**"Users": [**

**{**

**"Path": "/",**

**"UserName": "Callahan",**

**"UserId": "AIDAY7KQYXISSEOT3CBI7",**

**"Arn": "arn:aws:iam::617034070565:user/Callahan",**

**"CreateDate": "2020-02-02T01:33:06Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "ElonAdmin",**

**"UserId": "AIDAY7KQYXISRS4QSCBXJ",**

**"Arn": "arn:aws:iam::617034070565:user/ElonAdmin",**

**"CreateDate": "2020-01-28T22:40:48Z",**

**"PasswordLastUsed": "2020-02-04T05:51:41Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "Eric",**

**"UserId": "AIDAY7KQYXISWL3DE5V6D",**

**"Arn": "arn:aws:iam::617034070565:user/Eric",**

**"CreateDate": "2020-02-02T01:32:07Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "Mary",**

**"UserId": "AIDAY7KQYXISUCYE3Z66C",**

**"Arn": "arn:aws:iam::617034070565:user/Mary",**

**"CreateDate": "2020-02-02T01:32:43Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "Osvaldo",**

**"UserId": "AIDAY7KQYXISU7RJFZCTA",**

**"Arn": "arn:aws:iam::617034070565:user/Osvaldo",**

**"CreateDate": "2020-02-04T08:56:05Z"**

**}**

**]**

**}**

* As you can see, we have currently five IAM users who are: Callahan, ElonAdmin, Eric, Mary, Osvaldo.

**Creating a New user:**

* Type the needed command described above with the user-name of John.

**$ aws iam create-user --user-name John**

* After running this command, the terminal will return to us the newly created user with some identifying information.

**$ {**

**"User": {**

**"Path": "/",**

**"UserName": "John",**

**"UserId": "AIDAY7KQYXISTFCNOE77M",**

**"Arn": "arn:aws:iam::617034070565:user/John",**

**"CreateDate": "2020-02-04T09:19:38Z"**

**}**

**}**

**Re-listing IAM users:**

**$ aws iam list-users**

When we list the IAM users with this command again, if we have successfully created the user, the user named John should also be listed as follows.

**$ {**

**"Users": [**

**{**

**"Path": "/",**

**"UserName": "Callahan",**

**"UserId": "AIDAY7KQYXISSEOT3CBI7",**

**"Arn": "arn:aws:iam::617034070565:user/Callahan",**

**"CreateDate": "2020-02-02T01:33:06Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "ElonAdmin",**

**"UserId": "AIDAY7KQYXISRS4QSCBXJ",**

**"Arn": "arn:aws:iam::617034070565:user/ElonAdmin",**

**"CreateDate": "2020-01-28T22:40:48Z",**

**"PasswordLastUsed": "2020-02-04T05:51:41Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "Eric",**

**"UserId": "AIDAY7KQYXISWL3DE5V6D",**

**"Arn": "arn:aws:iam::617034070565:user/Eric",**

**"CreateDate": "2020-02-02T01:32:07Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "John",**

**"UserId": "AIDAY7KQYXISTFCNOE77M",**

**"Arn": "arn:aws:iam::617034070565:user/John",**

**"CreateDate": "2020-02-04T09:19:38Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "Mary",**

**"UserId": "AIDAY7KQYXISUCYE3Z66C",**

**"Arn": "arn:aws:iam::617034070565:user/Mary",**

**"CreateDate": "2020-02-02T01:32:43Z"**

**},**

**{**

**"Path": "/",**

**"UserName": "Osvaldo",**

**"UserId": "AIDAY7KQYXISU7RJFZCTA",**

**"Arn": "arn:aws:iam::617034070565:user/Osvaldo",**

**"CreateDate": "2020-02-04T08:56:05Z"**

**}**

**]**

**}**

Congratulations! The user creation process using AWS CLI has been successfully completed.

### **AWS CLI - Creating IAM Group**

Let's see how to create an IAM group via using CLI command generally.

* Begin with aws command as it is the beginning of all commands.
* Specify the AWS service that you want to work with. Because we want to create an IAM group, this command is iam in this case.
* Then, use create-group  subcommand and --group-name  parameter to specify user-name.
* Finally type the user-name you want to give to the new user, for example, MyIamgroup.

**$ aws iam create-group --group-name MyIamGroup**

Now, let's create a new group using AWS CLI.

* First, list the groups currently on our AWS account.
* Then create a new group.
* Finally, check the process of creating a new group by re-listing the groups.

**Listing IAM users:**

**$ aws iam list-groups**

* After running this command, the terminal will return to us the existing users in our AWS account with some identifying information as below.

**{**

**"Groups": [**

**{**

**"Path": "/",**

**"GroupName": "Admins",**

**"GroupId": "AGPAY7KQYXISVILJ7OEPE",**

**"Arn": "arn:aws:iam::617034070565:group/Admins",**

**"CreateDate": "2020-02-02T00:59:47Z"**

**},**

**{**

**"Path": "/",**

**"GroupName": "Instructors",**

**"GroupId": "AGPAY7KQYXIS2TZKDAGSB",**

**"Arn": "arn:aws:iam::617034070565:group/Instructors",**

**"CreateDate": "2020-02-02T01:22:48Z"**

**},**

**{**

**"Path": "/",**

**"GroupName": "Mentors",**

**"GroupId": "AGPAY7KQYXISSIGZS55PL",**

**"Arn": "arn:aws:iam::617034070565:group/Mentors",**

**"CreateDate": "2020-02-02T01:25:12Z"**

**}**

**]**

**}**

* As you can see, we have currently three IAM groups which are: Admins, Instructors, Mentors.

**Creating a New group:**

* Type the needed command described above with the group-name of **TestCLI.**

**$ aws iam create-group --group-name TestCLI**

* After running this command, the terminal will return to us the newly created group with some identifying information.

**{**

**"Group": {**

**"Path": "/",**

**"GroupName": "TestCLI",**

**"GroupId": "AGPAY7KQYXIS3UYR6KEJJ",**

**"Arn": "arn:aws:iam::617034070565:group/TestCLI",**

**"CreateDate": "2020-02-04T09:40:39Z"**

**}**

**}**

**Re-listing IAM Groups:**

**$ aws iam list-groups**

When we list the IAM groups with this command again, if we have successfully created the testCLI group, it should also be listed as follows.

**{**

**"Groups": [**

**{**

**"Path": "/",**

**"GroupName": "Admins",**

**"GroupId": "AGPAY7KQYXISVILJ7OEPE",**

**"Arn": "arn:aws:iam::617034070565:group/Admins",**

**"CreateDate": "2020-02-02T00:59:47Z"**

**},**

**{**

**"Path": "/",**

**"GroupName": "Instructors",**

**"GroupId": "AGPAY7KQYXIS2TZKDAGSB",**

**"Arn": "arn:aws:iam::617034070565:group/Instructors",**

**"CreateDate": "2020-02-02T01:22:48Z"**

**},**

**{**

**"Path": "/",**

**"GroupName": "Mentors",**

**"GroupId": "AGPAY7KQYXISSIGZS55PL",**

**"Arn": "arn:aws:iam::617034070565:group/Mentors",**

**"CreateDate": "2020-02-02T01:25:12Z"**

**},**

**{**

**"Path": "/",**

**"GroupName": "TestCLI",**

**"GroupId": "AGPAY7KQYXIS3UYR6KEJJ",**

**"Arn": "arn:aws:iam::617034070565:group/TestCLI",**

**"CreateDate": "2020-02-04T09:40:39Z"**

**}**

**]**

**}**

Congratulations! The group creation process using AWS CLI has been successfully completed.

### **AWS CLI - Adding Users to IAM Groups**

Now we will practice how to add the newly created user to a group.

* Begin with aws command.
* Specify the AWS service as iam .
* Use add-user-to-group  subcommand and --user-name  parameter and the **value (John)** to specify which user to add to the group.
* Use  --group-name  parameter and **value (TestCLI)** to specify which group the user will be added.

**$ aws iam add-user-to-group --user-name John --group-name TestCLI**

* After running this command, the terminal will return no output, but AWS CLI will add an IAM user named John to the IAM group named TestCLI.