CTX-AWS
User Guide

Contents

Versions

Document Revisions

The following revisions have been made to this document

Date	Revision	Notes
14/03/2018	0.1	First Draft
24/09/2018	1.0	Updates to document to include additional functionality

Module Versions

The following revisions have been made to this document

Date	Revision	Notes
14/03/2018	1.0	Creation of: • Create Instance • Get Instance • Start Instance • Stop Instance • Restart Instance • Terminate Instance • Change Instance • Create CPU Alarm for Instance
25/09/2018	1.1	Creation of: • Get Cost • Get Users

Preface

About this Manual

This document is a user guide for the Cortex Amazon Web Interface Subtasks.

Audience

The audience for this document is those wanting to understand how to use CTX-AWS module.

Related Material

Document
CTX-AWS – Deployment Plan
CTX-AWS.studiopkg

Abbreviations used in this Document

AWS	Amazon Web Services
CW	CloudWatch
EBS	Elastic Block Storage
EC2	Elastic Compute Cloud
SNS	Simple Notification Service
VM	Virtual Machine
IAM	Identity and Access Management
ID	Identification

Requirements

The Cortex subtasks require the following:

- AWS Account Subscription
- Cortex PowerShell OCI
- PowerShell v5
- AWSPowerShell Module to be installed

Instructions for how to install these are included in the deployment plan.

Integration

Integration with Third-Party Systems

Amazon Web Services

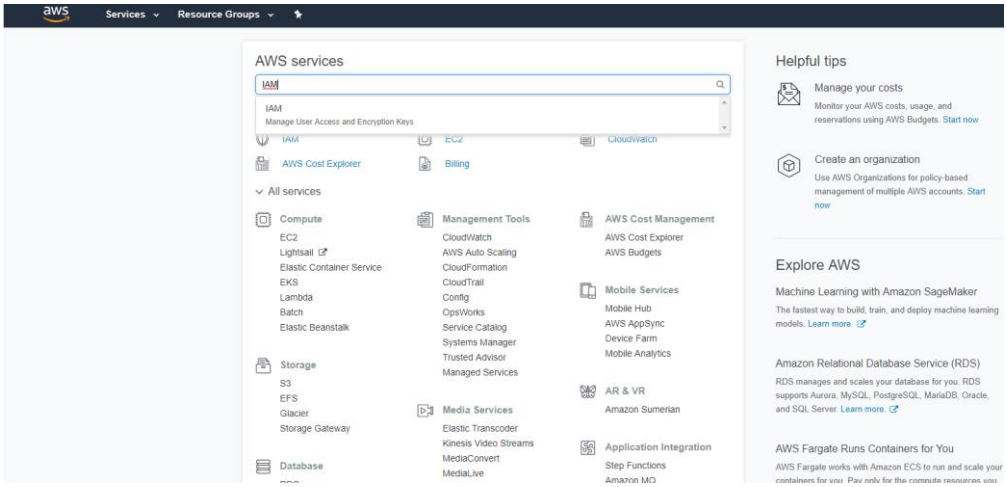
The Cortex AWS Subtasks will interact with the following third-party systems:

- Amazon Web Services systems

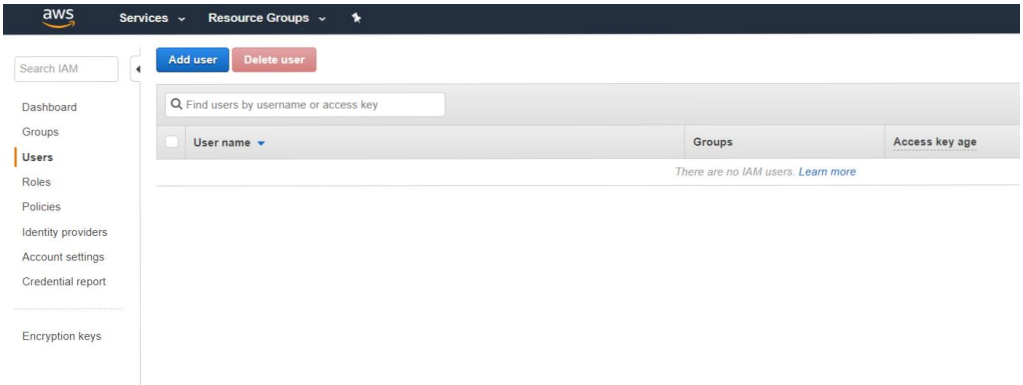
There is a need to configure at least one IAM user that has relevant authorisations for the CTX-AWS subtasks to be functional. In this example, one user will be configured with the relevant authorisations. It is possible to configure several users each with different permissions thereby giving a user authorisation to some functionality but not all.

Creating IAM Users

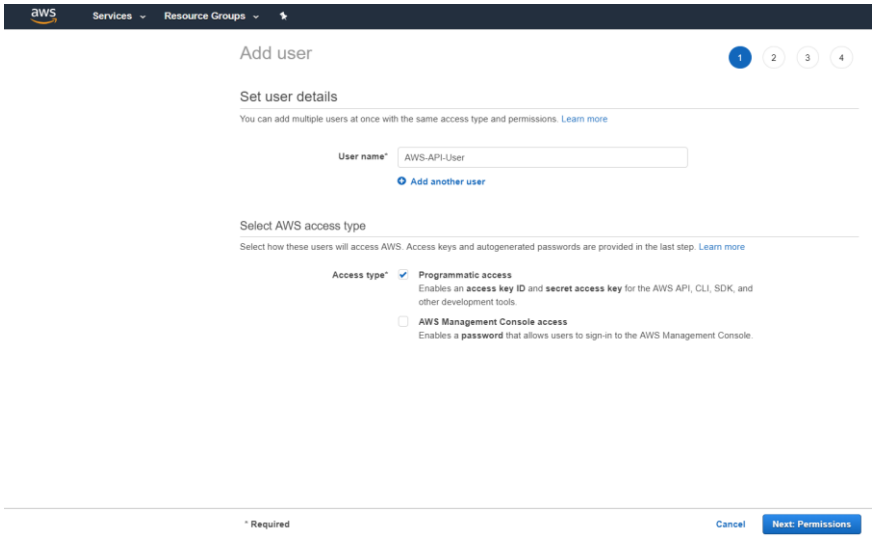
To create a new IAM user sign in to 'Amazon Management Console' and navigate to 'IAM Management Console'.



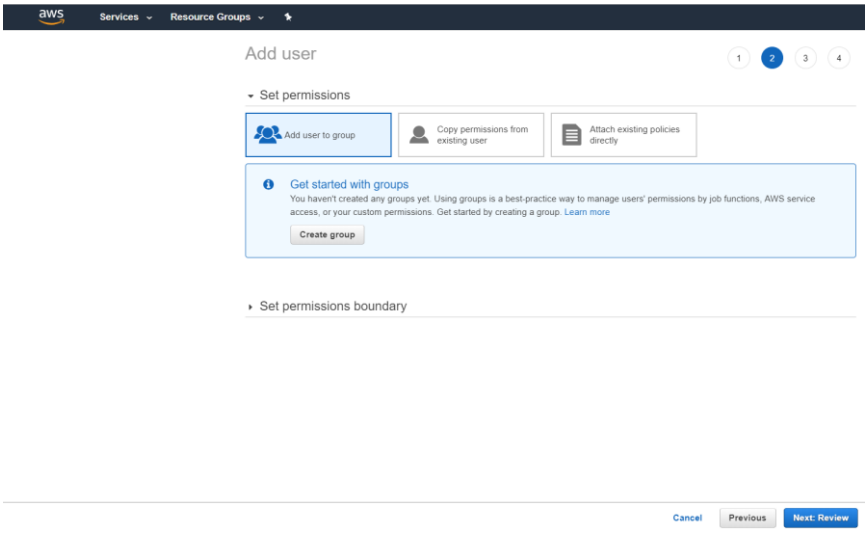
From here click 'Users' then 'Add user' to add a new user.



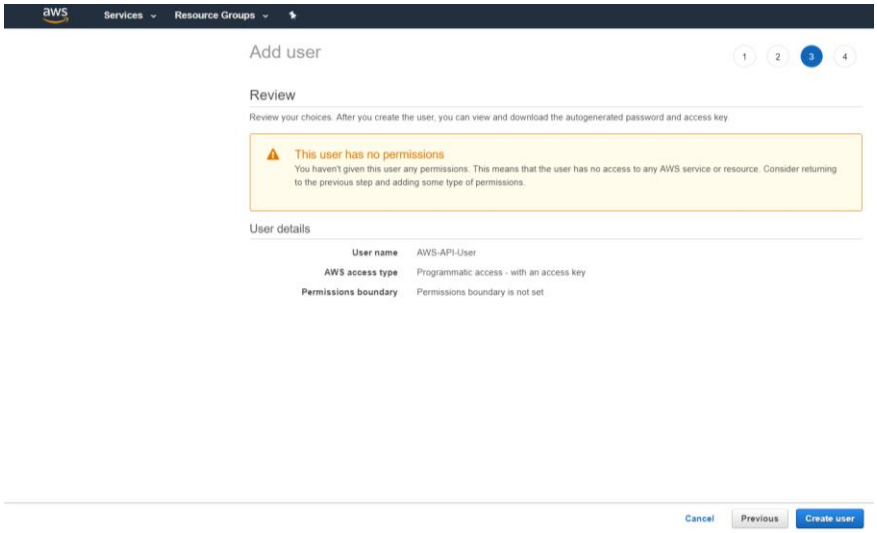
The name of the 'User name' needs to be specified and it is **paramount** that the user is given 'Programmatic Access'. Then click 'Next: Permissions'.



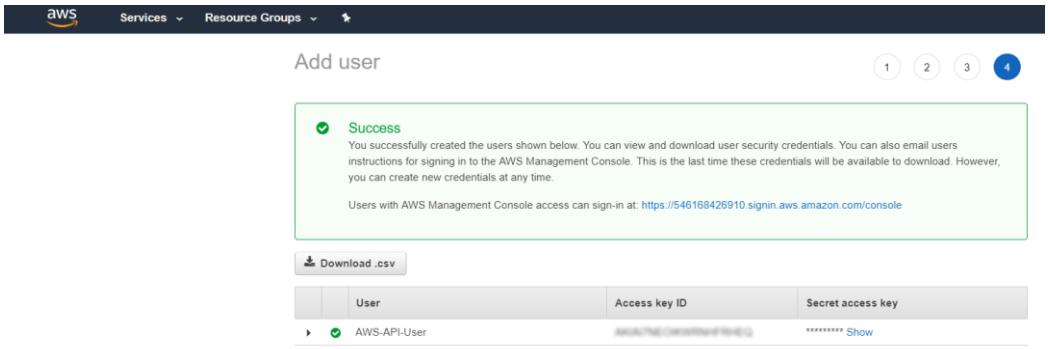
Groups will be created later, and the user added to this group. For this reason, click 'Next: Review'.



Then click 'Create User'.

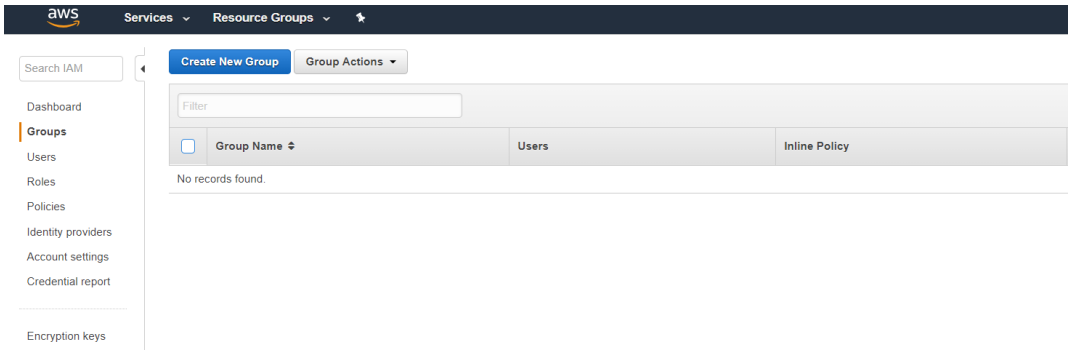


The security credentials need to be downloaded once the user has been created as these cannot be accessed later. It is possible to download the credentials as a csv or they can be copied to location of choice.

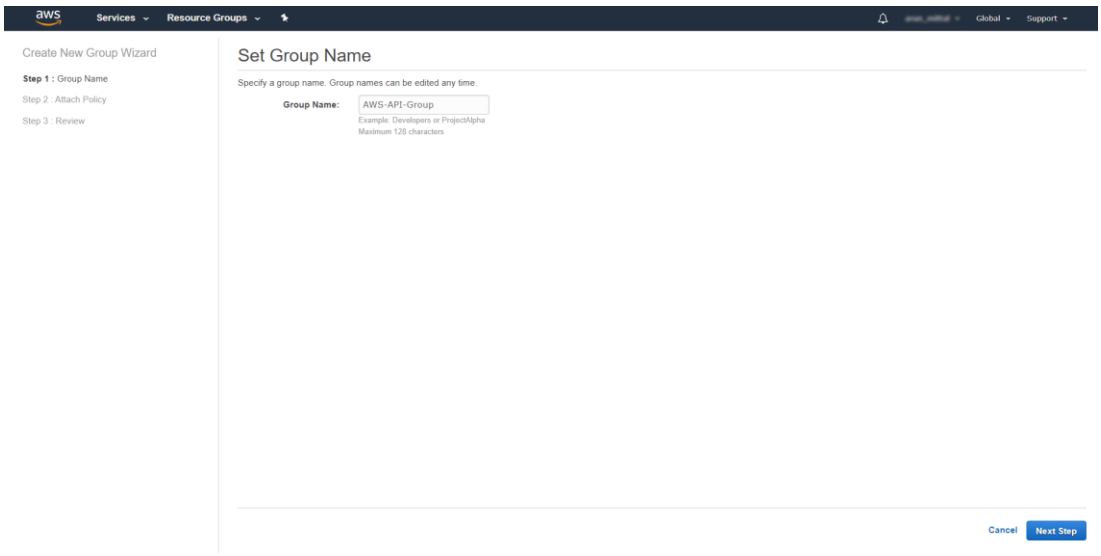


Creating IAM Groups and Attaching Policies

To create an IAM group navigate to the 'IAM Management Console'. Then click 'Groups' then 'Create New Group'.



Give the group an appropriate name and click 'Next Step'.



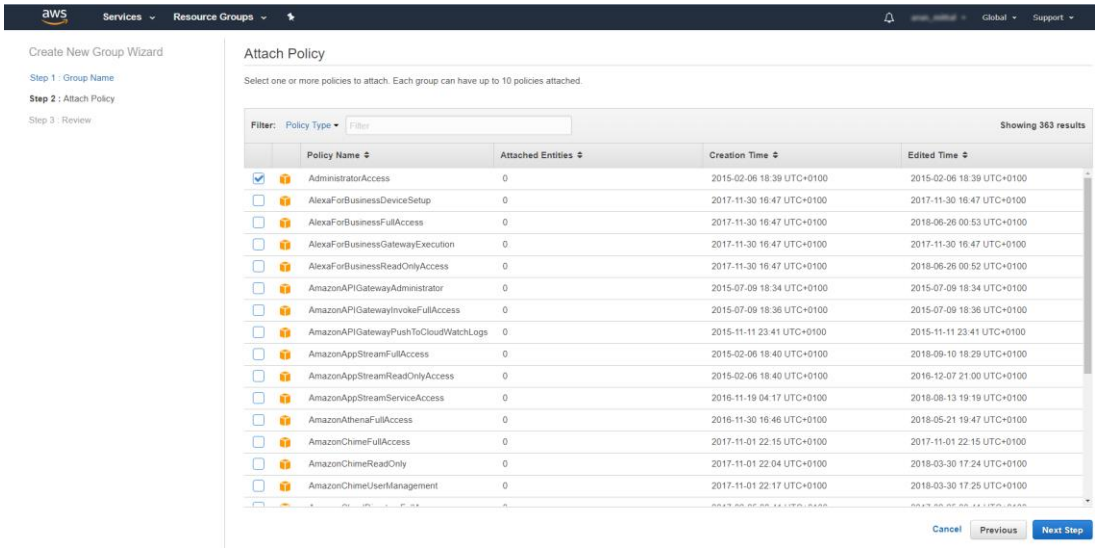
The following 'Policies' need to be attached to the group for the CTX-AWS subtasks to be functional:

- AdministratorAccess (Required for Cost and Usage otherwise this policy may be omitted)
- AmazonEC2FullAccess

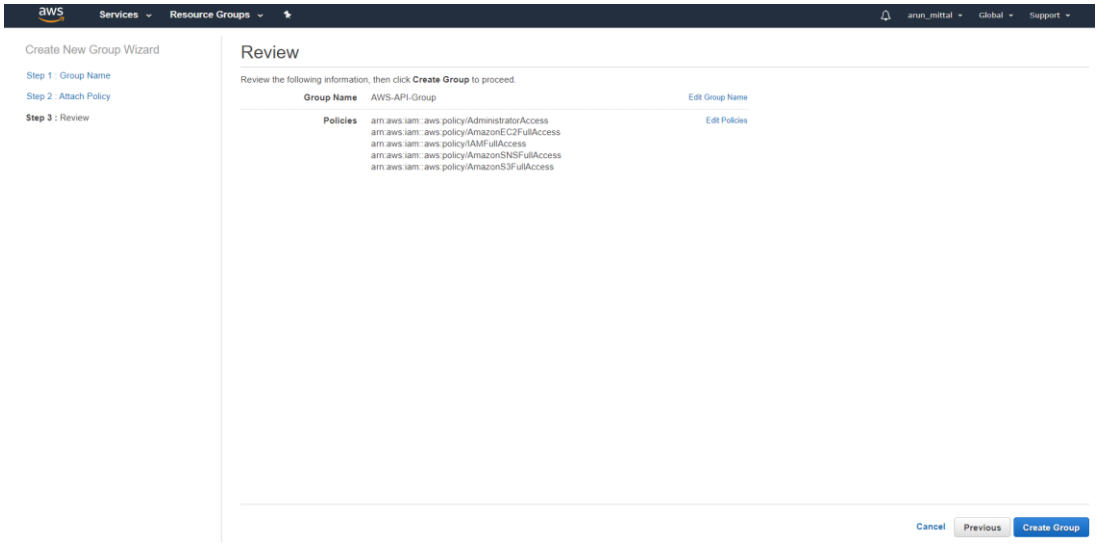
- IAMFullAccess
- AmazonSNSFullAccess
- AmazonS3FullAccess

Note: If AdministratorAccess has been added as a policy, then there is no need to attach any of the other policies.

Then click 'Next Step'.

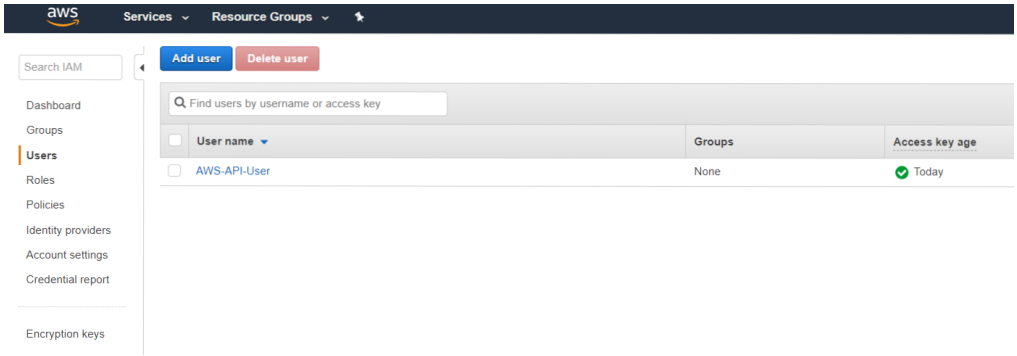


Then verify the policies listed above have been attached to the group, then click 'Create Group'.

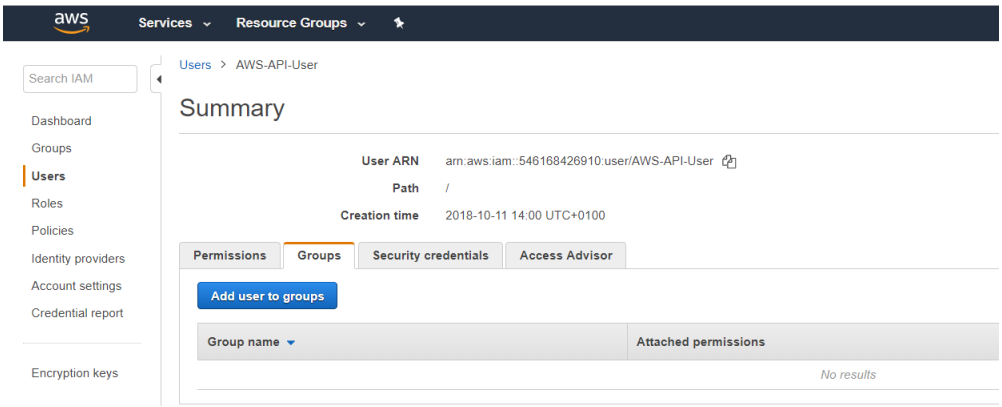


Adding Users to Groups

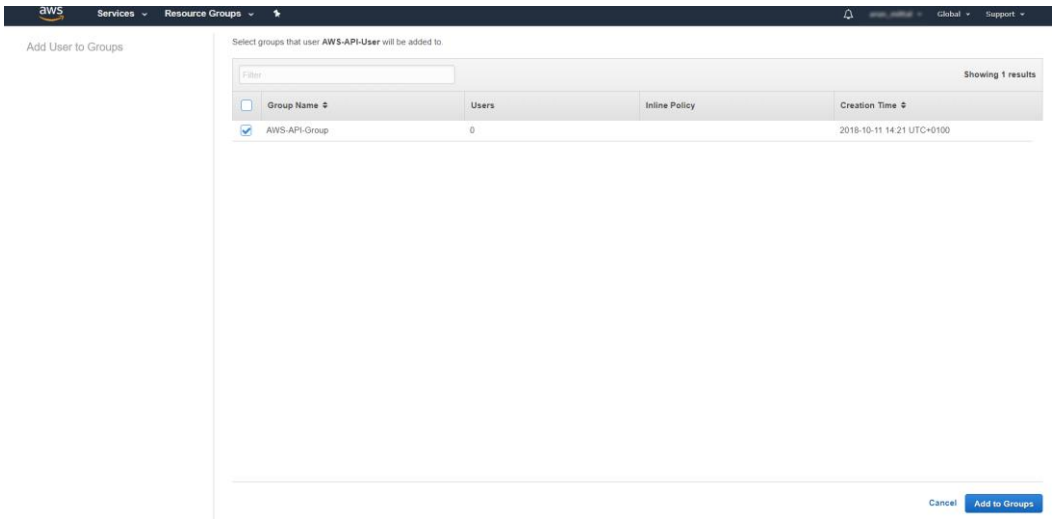
Users need to be added to the group that was created in Section 0. To do this, navigate to 'IAM Management Console' as shown in Section 0. Then click 'Users'.



Click on the user that was created previously, then click 'Groups' then click 'Add user to groups'.



From here select the group that was created previously and then click 'Add to Groups'.



The user should now have the relevant authorisation to perform actions using CTX-AWS subtasks.

PowerShell

Integrating with Existing Infrastructure

None Required.

1 AWS-EC2-CREATE-INSTANCE

1.1 Overview

This subtask creates an instance of server in a region.

1.2 Inputs

Input Variables	Type	Description
AECI_i_Instance-Type	Text	The type of instance, for the free tier “t2.micro” or “t2.nano”.
AECI_i_Key-Name	Text	The name of the keypair which will be used to logon to the VM.
AECI_i_Region	Text	The region where the instance is created. For Ireland “eu-west-1”, for London “eu-west-2”.
AECI_i_image-id	Text	The name of the image used to create the instance. E.g. ami-fbce3b9c
AECI_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

1.3 Outputs

Output Variables	Type	Description
AECI_o_Instance-Id	Text	The Instance-Id of the instance created

2 AWS-EC2-GET-INSTANCE

2.1 Overview

This subtask gets the list of instances in a region.

2.2 Inputs

Input Variables	Type	Description
AEGI_i_Instance-Id (Optional)	Text	The instance id, if blank it gets all instances.
AEGI_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

2.3 Outputs

Output Variables	Type	Description
AEGI_o_Instances	List	A list of all instances - instances are structures.

Example of an instance structure:


```
{
  "AMILAUNCHINDEX": 0,
  "ARCHITECTURE": {
    "VALUE": "x86_64"
  },
  "BLOCKDEVICEMAPPINGS": [
    "Amazon.EC2.Model.InstanceBlockDeviceMapping"
  ],
  "CLIENTTOKEN": null,
  "EBSOPTIMIZED": false,
  "ELASTICGPUASSOCIATIONS": [],
  "ENASUPPORT": true,
  "HYPERVISOR": {
    "VALUE": "xen"
  },
  "IAMINSTANCEPROFILE": {
    "ARN": "arn:aws:iam::708202619230:instance-profile/SytemManagerRole",
    "ID": "AIPAJMG2XFWSYWK7XWE76"
  },
  "IMAGEID": "ami-b8cd29df",
  "INSTANCEID": "i-053a7059a55509c88",
```

```
"INSTANCELIFECYCLE": null,
"INSTANCETYPE": {
  "VALUE": "t2.micro"
},
"KERNELID": null,
"KEYNAME": "WinSrv2012KeyPair",
"LAUNCHTIME": "2018-03-12 12:02:40",
"MONITORING": {
  "STATE": "disabled"
},
"NETWORKINTERFACES": [
  "Amazon.EC2.Model.InstanceNetworkInterface"
],
"PLACEMENT": {
  "AFFINITY": null,
  "AVAILABILITYZONE": "eu-west-2a",
  "GROUPNAME": null,
  "HOSTID": null,
  "SPREADDOMAIN": null,
  "TENANCY": "default"
},
"PLATFORM": {
  "VALUE": "Windows"
},
"PRIVATEDNSNAME": "ip-172-31-22-197.eu-west-2.compute.internal",
"PRIVATEIPADDRESS": "172.31.22.197",
"PRODUCTCODES": [],
"PUBLICDNSNAME": "ec2-52-56-244-217.eu-west-2.compute.amazonaws.com",
"PUBLICIPADDRESS": "52.56.244.217",
"RAMDISKID": null,
"ROOTDEVICENAME": "/dev/sda1",
"ROOTDEVICETYPE": {
  "VALUE": "ebs"
},
"SECURITYGROUPS": [
  "Amazon.EC2.Model.GroupIdentifier"
],
"SOURCEDESTCHECK": true,
"SPOTINSTANCEREQUESTID": null,
"SRIOVNETSUPPORT": null,
```

```
  "STATE": {
    "CODE": 16,
    "NAME": "running"
  },
  "STATEREASON": null,
  "STATETRANSITIONREASON": null,
  "SUBNETID": "subnet-a3a1bcd8",
  "TAGS": [],
  "VIRTUALIZATIONTYPE": {
    "VALUE": "hvm"
  },
  "VPCID": "vpc-9514fefd",
  "TAG": []
}
```

3 AWS-EC2-START-INSTANCE

3.1 Overview

This subtask starts an instance in a region.

3.2 Inputs

Input Variables	Type	Description
AESI_i_Instance-Id	Text	The instance id, if blank it gets all instances.
AESI_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

3.3 Outputs

Output Variables	Type	Description
AESI_o_State	Text	The state of the instance that has been started.

4 AWS-EC2-STOP-INSTANCE

4.1 Overview

This subtask stops an instance in a region.

4.2 Inputs

Input Variables	Type	Description
AESI_i_Instance-Id	Text	The instance id, if blank it gets all instances.
AESI_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

4.3 Outputs

Output Variables	Type	Description
AESI_o_State	Text	The state of the instance that has been stopped.

5 AWS-EC2-RESTART-INSTANCE

5.1 Overview

This subtask restarts an instance in a region.

5.2 Inputs

Input Variables	Type	Description
AERI_i_Instance-Id	Text	The instance id, if blank it gets all instances.
AERI_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

5.3 Outputs

None.

6 AWS-EC2-TERMINATE-INSTANCE

6.1 Overview

This subtask removes an instance from a region.

6.2 Inputs

Input Variables	Type	Description
AETI_i_Instance-Id	Text	The instance id, if blank it gets all instances.
AETI_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

6.3 Outputs

Output Variables	Type	Description
AETI_O_State	Text	The state of the instance that has been terminated.

7 AWS-EC2-CHANGE-INSTANCE-TYPE

7.1 Overview

This subtask changes the instance type of an instance in a region.

7.2 Inputs

Input Variables	Type	Description
AECIT_i_Instance-Id	Text	The instance id, if blank it gets all instances.
AECIT_I_Type	Text	the new type of the instance, e.g t2.nano (https://aws.amazon.com/ec2/instance-types/)
AECIT_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

7.3 Outputs

Output Variables	Type	Description
AECIT_O_State	Text	The state of the instance that has been changed.

8 AWS-EC2-CREATE-CPU-ALARM-FOR-INSTANCE

8.1 Overview

This subtask sets up a CPU alarm for an instance in a region.

8.2 Inputs

Input Variables	Type	Description
AECCAFI_i_Alarm-Name	Text	Name of the alarm.
AECCAFI_i_Period-in-sec	Integer	Evaluation period time in seconds. Accepted values are: 60, 300 (5 mins), 900 (15 mins), 3600 (1 hour), 21600 (6 hours), 86400 (1 day).
AECCAFI_i_CPU-Threshold	integer	CPU percentatge to fire the alarm, e.g 70.
AECCAFI_i_Alarm-Action	Text	Notification topic, e.g. "arn:aws:sns:eu-west-2:708202619230:CPUAlarm"
AECCAFI_i_Instance-Id	Text	The instance id, if blank it gets all instances.
AECCAFI_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

8.3 Check if CPU alarm is created

Alarm can be check in two places, the EC2 console and the CW console

ClouldWatch console:

1. Open the CW console
2. Select Alarms on the left panel
3. Check if the new create alarm is there

EC2 console:

1. Open the EC2 console
2. Select Instances on the left panel
3. Select the Instance where the alarm was created
4. Click the Monitoring tab
5. Check that on the top of this tab there is a CloudWatch alarms section containing the alarm created.

9 AWS-CE-GET-COST

9.1 Overview

Retrieves cost and usage metrics for your account.

9.2 Inputs

Input Variables	Type	Description
ACGC_i_Start-Date	Text	The start date of the billing period.
ACGC_i_End-Date	Text	The end date of the billing period.
ACGC_i_Metric (optional)	Text	If the parameter is passed in, a detailed breakdown of cost will be provided.
ACGC_i_Granularity	Text	Can be either 'MONTHLY, or 'DAILY'
ACGC_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

9.3 Outputs

Output Variables	Type	Description
ACGC_o_Usage	List	Returns the usage for each billing period

10 AWS-IAM-GET-USERS

10.1 Overview

Get all users on AWS account and their roles and policies.

10.2 Inputs

Input Variables	Type	Description
AIGU_i_Credentials	Structure	Contains the elements access-key and secret-key for authentication.

10.3 Outputs

Output Variables	Type	Description
AIGU_o_Users	List	List containing all users, their roles and policies associated with each role.

