INTEGRATION PACK FOR AMAZON EC2

For Microsoft System Center Orchestrator

For System Center 2016 and 2019, you must use the 32-bit version of the integration pack, which has the name **Kelverion_Integration_Pack_for_Amazon_EC2 _3.0**

For System Center 2022 and later, you must use the 64-bit version of the integration pack, which has the name **Kelverion_IP_Amazon_EC2_x64_3.0**

User Guide

Version 3.0

Kelverion Integration Pack for Amazon EC2

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Feedback

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Introduction

The Integration Pack for Amazon EC2 is an add-on for System Center 2012 Orchestrator that enables you to integrate with Amazon Elastic Compute Cloud and automate virtualization processes.

System Requirements

The Integration Pack for Amazon EC2 requires the following software to be installed and configured prior to implementing the integration. For more information about installing and configuring Orchestrator, refer to the respective product documentation.

Kelverion_Integration_Pack_for_Amazon_EC2 (32-bit)

- Microsoft System Center Orchestrator 2016, 2019
- Microsoft .NET Framework 4.6.2
- Amazon EC2 (December 2023)

Kelverion_IP_Amazon_EC2_x64 (64-bit)

- Microsoft System Center Orchestrator 2022
- Microsoft .NET Framework 4.6.2
- Amazon EC2 (December 2023)

Registering and Deploying the Integration Pack

After you download the integration pack file, you must register it with the Orchestrator management server and then deploy it to Runbook Servers and Runbook Designers. For more information about how to install integration packs, see the [How to Install an Integration Pack](https://technet.microsoft.com/en-us/library/hh420346.aspx) (https://technet.microsoft.com/en-us/library/hh420346.aspx).

IMPORTANT: Ensure that you are deploying the correct version of the Integration Pack.

- For System Center 2016 and 2019, you must use the 32-bit version of the integration pack, which has the name **Kelverion_Integration_Pack_for_Amazon_EC2**
- For System Center 2022 and later, you must use the 64-bit version of the integration pack, which has the name **Kelverion_IP_Amazon_EC2_x64**

To register the integration pack:
1. On the management server, copy the **.OIP** file for the integration pack to a local hard drive or network share.
2. Confirm that the file is not set to **Read Only** to prevent unregistering the integration pack later.

3. Start the **Deployment Manager**.

4. In the navigation pane of the Deployment Manager, expand **Orchestrator Management Server**, right-click **Integration Packs** to select **Register IP with the Orchestrator Management Server**. The **Integration Pack Registration Wizard** opens.

5. Click **Next**.

6. In the **Select Integration Packs or Hotfixes** dialog box, click **Add**.

7. Locate the **.OIP** file that you copied locally from step 1, click **Open** and then click **Next**.

8. In the **Completing the Integration Pack Wizard** dialog box, click **Finish**.

9. On the **End User Agreement** dialog box, read the Kelverion License Terms**,** and then click **Accept**.

10. The **Log Entries** pane displays a confirmation message when the integration pack is successfully registered.

To deploy the integration pack:

1. In the navigation pane of the **Deployment Manager**, right-click **Integration Packs**, click **Deploy IP to Runbook Server or Runbook Designer**.

2. Select the integration pack that you want to deploy, and then click **Next**.

3. Enter the name of the runbook server or computers with the Runbook Designer installed, on which you want to deploy the integration pack, click **Add**, and then click **Next**.

4. Continue to add additional runbook servers and computers running the Runbook Designer, on which you want to deploy the integration pack. Click **Next**.

5. In the **Installation Options** dialog box configure the following settings.

6. To choose a time to deploy the integration pack, select the **Schedule installation** check box, and then select the time and date from the **Perform installation** list.

7. Click one of the following:

    a. **Stop all running runbooks before installing the integration pack** to stop all running runbooks before deploying the integration pack.

    b. **Install the Integration Packs without stopping the running Runbooks** to install the integration pack without stopping any running runbooks.

8. Click **Next**.

9. In the **Completing Integration Pack Deployment Wizard** dialog box, Click **Finish**.

10. When the integration pack is deployed, the **Log Entries** pane displays a confirmation message.

Licensing the Integration Pack

After you register and deploy the integration pack, you must provide a valid Kelverion license before running any runbooks that contain activities from the integration pack.

To deploy the integration pack license file to System Center Orchestrator 2019 or earlier:

1. Copy the .KAL license file to %PROGRAMFILES(X86)%\Kelverion Automation\Licenses

2. Repeat for each Orchestrator Runbook Server and Runbook Designer host system.

To deploy the integration pack license file to System Center Orchestrator 2022 or later:

1. Copy the .KAL license file to %PROGRAMFILES%\Kelverion Automation\Licenses

2. Repeat for each Orchestrator Runbook Server and Runbook Designer host system.

Configuring Amazon EC2 in Orchestrator

A connection establishes a reusable link between Orchestrator and Amazon Web Services. You can create as many connections as you require specifying links to multiple Amazon Web Services Accounts. You can also create multiple connections to the same table to allow for differences in security permissions for different user accounts.

To setup an Amazon EC2 configuration in Orchestrator:

1. In the Client, click the **Options** menu, and select **KA Amazon EC2**. The KA Amazon EC2 dialog box appears.

2. On the **Configurations** tab, click **Add** to begin the configuration setup. The Add Configuration dialog box appears.

3. In the **Name** box, enter a name for the configuration. This could be the name of the Amazon EC2 account or a descriptive name to distinguish the type of configuration.

4. Click the ellipsis button (…) next to the **Type** box and select Amazon EC2.

5. In the **Region** box, select the regional endpoint that you want to connect to.

6. In the **Access Key ID** and **Secret Access Key** boxes, type the credentials that Orchestrator will use to connect to your Amazon Web Services.

7. Click **OK** to close the configuration dialog box, and then click **Finish**.

Amazon EC2 Activities

This integration pack adds the KA Amazon EC2 category to the **Activities** pane in the Client. This category contains the following activities:

- Attach Network Interface
- Attach Volume
- Copy AMI
- Copy Snapshot
- Create AMI
- Create Snapshot
- Create Volume
- Delete Snapshot
- Delete Volume
- Deregister AMI

- Detach Network Interface
- Detach Volume
- Get Objects
- Launch Instances
- Reboot Instance
- Run EC2 Action
- Start Instance
- Stop Instance
- Terminate Instance

Common Configuration Instructions for All Activities

The following configuration instructions apply to all activities in this integration pack. Links to this section are included in the configuration instructions for each activity.

Activity Properties

Each activity has a set of required or optional properties that define the configuration of that activity. This includes how it connects to other activities or how the activity performs its actions. You can view or modify activity properties in the Orchestrator Client.:

To configure the properties for an activity:

1. Double-click the activity. Alternatively, you can right-click the activity, and then click **Properties**.
2. To save your configuration entries, click **Finish**.

In the activity properties dialog box, several tabs along the left side provide access to general and specific settings for the activity. Although the number of available tabs for activity properties differs from activity to activity, all activities will have a **General** tab, a **Properties** tab and/or **Filters** tab, and a **Run Behavior** tab. Some activities may have additional tabs.

General Tab

This tab contains the **Name** and **Description** properties for the activity. By default, the **Name** of the activity is the same as its activity type, and the **Description** is blank. You can modify these properties to create more descriptive names or provide detailed descriptions of the actions of the activity.

Properties/Filters Tab

These tabs contain properties that are specific to the activity.

All activities in this integration pack have the **Configuration Name** property at the top of the **Properties** tab. This property is used to specify the connection to a SQL table.

To configure the Configuration Name proper:

1. Click the ellipsis **(…)** button next to the **Name** field, and then select the applicable connection name. Connections displayed in the list have been previously configured as described in [Configuring Amazon EC2 in Orchestrator](#).

Filter Behavior

The Select activities use filters to determine the values that will invoke a runbook or retrieve activities. Property values of potential candidates are compared to the values of the filters to determine if they meet the criteria. When matching against values, you can select one of the available methods of comparison. An option is provided to either match or not match the filter using each method. For example, the "Does not" version of a method finds messages that do not match the filter to start the activity. All text filters are case sensitive.

- **Equals**: the column of the record exactly matches the text or number specified in the filter.

Run Behavior Tab

This tab contains the properties that determine how the activity manages multi-value published data and what notifications will be sent if the activity fails or runs for an excessive period.

Multi-Value Published Data Behavior

The Get activities retrieve information from another activity or outside source and can return one or more values in the published data. For example, when you use the Get Collection Member activity, the data output from that activity might be a list of computers that belong to the specified collection.

By default, the data from the Get activity will be passed on as multiple individual outputs. This invokes the next activity as many times as there are items in the output. Alternatively, you can provide a single output for the activity by enabling the **Flatten** option. When you enable this option, you also choose a formatting option:

- **Separate with line breaks**. Each item is on a new line. This format is useful for creating human-readable text files for the output.
- **Separate with _** . Each item is separated by one or more characters of your choice.
- **Use CSV format**. All items are in CSV (comma-separated value) format. This format is useful for importing data into spreadsheets or other applications.

The activity will produce a new set of data every time it runs. The **Flatten** feature does not flatten data across multiple instances of the same activity.

Event Notifications

Some activities are expected to take a limited amount of time to complete. If they do not complete within that time they may be stalled or there may be another issue preventing them from completing. You can define the number of seconds to wait for completion of the action. After this period, a platform event will be sent, and the issue will be reported. You can also choose whether to generate a platform event if the activity returns a failure.

To be notified when the activity takes longer than a specified time to run or fails to run:

1. In the **Event Notifications** box, enter the **number of seconds** of run time before a notification is generated.
2. Select **Report if activity fails to run** to generate run failure notifications.

For more information about Orchestrator events, see the "Event Notifications " topics in the [Runbook Prhoperties](https://technet.microsoft.com/en-us/library/hh489610.aspx#Event) (https://technet.microsoft.com/en-us/library/hh489610.aspx#Event Notifications).

Published Data

Published data is the foundation of a working runbook. It is the data produced because of the actions of an activity. This data is published to an internal data bus that is unique for each runbook. Subsequent activities in the runbook can subscribe to this data and use it in their configuration. Link conditions also use this information to add decision-making capabilities to runbooks.

An activity can subscribe only to data from the activities that are linked before it in the runbook. You can use published data to automatically populate the property values needed by activities.

To use published data:

1. Right-click the property value box, click **Subscribe**, and then click **Published Data**.
2. Click the **Activity** drop-down box and select the activity from which you want to obtain the data.
3. To view additional data elements common to all activities, select **Show Common Published Data**.
4. Click the published data element that you want to use, and then click **OK**.

For a list of the data elements published by each activity, see the Published Data tables in the activity topic. For information about the common published data items, see the [Published Data](http://technet.microsoft.com/en-us/library/hh403821.aspx) (http://technet.microsoft.com/en-us/library/hh403821.aspx).

Attach Network Interface Activity

The **Attach Network Interface** activity is used in a runbook to attach a network interface to an instance.

Required Properties
You must configure the following properties:

Device Index	The index of the device for the network interface attachment
Instance ID	The ID of the instance
Network Interface ID	The ID of the network interface

Published Data
The activity generates the following published data:

Name	Description	Valid Values
Attachment ID	The ID of the network interface attachment	String
Request ID	The ID of attachment request	String

Attach Volume Activity

The **Attach Volume** activity is used in a runbook to attach an Amazon EBS volume to a running or stopped instance and exposes it to the instance with the specified device name.

Required Properties

You must configure the following properties:

Device	The device name to expose the instance (for example, /dev/sdh or xdvh).
Instance ID	The ID of the instance
Volume ID	The ID of the Amazon EBS volume. The volume and instance must be within the same Availability Zone.

Published Data

The activity generates the following published data:

Attach Time	The time stamp when the attachment initiated.
Device	The device name.
Instance ID	The ID of the instance.
Request ID	The ID of attachment request
Status	The attachment state of the volume
Volume ID	The ID of the volume.

Copy AMI Activity

The **Copy AMI** activity is used in a runbook to initiate the copy of an AMI from the specified source region to the region specified in the configuration that was selected when the activity was defined.

Required Properties
You must configure the following properties:

Source AMI ID	The ID of the AMI to copy.
Source Region	The name of the region that contains the AMI to be copied.

Optional Properties
The following properties are not required and can be used, as necessary.

Client Token	Unique, case-sensitive identifier you provide to ensure idempotency of the request.
Description	A description of the new AMI in the destination region.
Name	The name of the new AMI in the destination region.

Published Data
The activity generates the following published data:

Image ID	The ID of the new AMI.
Request ID	The ID of attachment request

Copy Snapshot Activity

The **Copy Snapshot** activity is used in a runbook to copy a point-in-time snapshot of an Amazon EBS volume and stores it in Amazon S3.

Required Properties

You must configure the following properties:

Volume ID	The ID of the Amazon EBS volume.

Optional Properties

The following properties are not required and can be used, as necessary.

Description	A description of the new Amazon EBS snapshot.

Published Data

The activity generates the following published data:

Request ID	The ID of attachment request
Snapshot ID	The ID of the new snapshot.

Create AMI Activity

The **Create AMI** activity is used in a runbook to create an Amazon EBS-backed AMI from an Amazon EBS-backed instance that is either running or stopped.

Required Properties
You must configure the following properties:

AMI Name	The name for the new image.
Instance ID	The ID of the instance.

Optional Properties
The following properties are not required and can be used, as necessary.

Description	A description of the new image.
No Reboot	Specifies whether to shut down the instance before creating the image.

Published Data
The activity generates the following published data.

Image ID	The ID of the new AMI
Request ID	The ID of attachment request

Create Volume Activity

The **Create Volume** activity is used in a runbook to create an Amazon EBS volume that can be attached to any instance in the same Availability Zone.

Required Properties
You must configure the following properties:

Volume Type	The volume type.
Zone	The name of the Availability Zone in which to create the volume.

Optional Properties
The following properties are not required and can be used, as necessary.

Capacity (GiB)	The size of the volume in GiBs. If the Volume Type is io1, the minimum size of the volume is 10 GiB.
IOPS	The number of I/O operations per second (IOPS) that the volume supports. Required when a Volume Type of io1 is selected.
Snapshot ID	The ID of the snapshot from which to create the volume. Required if you are creating the volume from a snapshot and do not specify a volume size, the default is the snapshot size.

Published Data
The activity generates the following published data.

Capacity (GiB)	The size of the volume in GiB.
IOPS	The number of I/O operations per second that the volume supports.
Request ID	The ID of the request.
Snapshot ID	The snapshot from which the volume was created, if applicable.
Status	The volume state.
Volume ID	The ID of the volume.
Volume Type	The volume type.
Zone	The Availability Zone for the volume.

Create Snapshot Activity

The **Create Snapshot** activity is used in a runbook to create a snapshot of an Amazon EBS volume and store it in Amazon S3.

Required Properties
You must configure the following properties:

Volume ID	The ID of the Amazon EBS volume.

Optional Properties
The following properties are not required and can be used, as necessary.

Description	A description of the Amazon EBS snapshot.

Published Data
The activity generates the following published data.

Description	The description of the snapshot.
Owner	The AWS account ID of the EBS snapshot owner.
Request ID	The ID of attachment request
Snapshot ID	The ID of the new snapshot.
Started	The time stamp when the snapshot was initiated.
Status	The snapshot status.
Volume ID	The ID of the volume.
Capacity (GiB)	The size of the volume in GiB

Delete Snapshot Activity

The **Delete Snapshot** activity is used in a runbook to delete a specified snapshot.

Required Properties
You must configure the following properties:

Snapshot ID	The ID of the Amazon EBS snapshot.

Published Data
The activity generates the following published data.

Request ID	The ID of attachment request

Delete Volume Activity

The **Delete Volume** activity is used in a runbook to delete a specified Amazon EBS volume. The volume must be in the available state (not attached to an instance).

Required Properties
You must configure the following properties:

Volume ID	The ID of the Amazon EBS volume.

Published Data
The activity generates the following published data.

Request ID	The ID of attachment request

Detach Network Interface Activity

The **Detach Network** Interface activity is used in a runbook to detach a network interface from an instance.

Required Properties
You must configure the following properties:

Instance ID	The ID of the instance
Network Interface ID	The ID of the network interface

Optional Properties
The following properties are not required and can be used, as necessary.

Force	Specifies whether to force a detachment

Published Data
The activity generates the following published data.

Request ID	The ID of attachment request

Deregister AMI Activity

The **Deregister AMI** activity is used in a runbook to deregister a specified AMI. After you deregister an AMI, it cannot be used to launch new instances.

Required Properties
You must configure the following properties:

AMI ID	The ID of the AMI

Published Data
The activity generates the following published data.

Request ID	The ID of attachment request

Get Objects Activity

The **Get Objects** activity retrieves objects of a specified type from Amazon EC2 using filter criteria that you specify. The Get Objects activity supports the following Amazon EC2 object types:

- AMIs
- Availability Zones
- Bundle Tasks
- DHCP Options
- Customer Gateways
- DHCP Options
- Elastic IPs
- Instances

- Internet Gateways
- Key Pairs
- Network Interfaces
- Placement Groups
- Regions
- Route Tables
- Routes
- Security Groups
- Snapshots

- Subnets
- Tags
- Virtual Private Gateways
- Volumes
- VPCs
- VPN Connection

Required Properties

You must configure the following properties:

Object Type	Identifies the type of Amazon EC2 object to retrieve.

Published Data

The activity generates the following published data:

Object Type	Identifies the type of Amazon EC2 object that was retrieved.
<Object Type> Count	The number of objects that were retrieved

Filters

The activity will provide filter options based on the **Object Type** that was selected. Filter operators are limited to the **Equals** operator.

Published Data

The activity will provide published data based on the **Object Type** that was selected.

Launch Instances Activity

The **Launch Instances** activity is used in a runbook to launch a specified number of instances of an AMI for which you have permissions.

Required Properties

You must configure the following properties:

AMI ID	The ID of the AMI
Number of Instances	The number of instances to launch. If you specify a number that is more instances than Amazon EC2 can launch in the target Availability Zone, Amazon EC2 launches no instances.

Optional Properties

The following properties are not required and can be used, as necessary.

Disable Termination Protection	If you set this property to True, you cannot terminate the instance from the Amazon EC2 console, CLI or API; otherwise, you can.
IAM Role	The name of the IAM Instance Profile (IIP) to associate with the instances.
Instance Type	The Instance type.
Key Pair Name	The name of the key pair. Important: If you launch an instance without specifying a key pair, you cannot connect to the instance.
Monitoring	Indicates whether monitoring is enabled.
Placement Group	The name of an existing placement group.
Security Groups	Comma or space separated list of Security Group IDs.
Shutdown Behavior	Indicates whether an instance stops or terminates when you initiate shutdown from the instance (using the operating system command for system shutdown).
Subnet ID	[EC2-VPC] The ID of the subnet to launch the instances into.
Tenancy	The tenancy of the instance. An instance with tenancy dedicated runs on single-tenant hardware and can only be launched into a VPC.
User Data	The user data for the instances.
Zone	The Availability Zone for the instance.

Published Data

The activity generates the following published data.

AMI ID	The ID of the AMI used to launch the instance.
Architecture	The architecture of the image.
Client Token	The idempotency token you provided when you launched the instance.
Instance ID	The ID of the instances that was launched.
Instance Type	
Key Pair Name	The key pair name.
Launch Index	The AMI launch index, which can be used to find this instance in the launch group.
Launch Time	The time that the instance was launched.
Network Interface ID	Comma separated list of Network Interface IDs.
Owner ID	The ID of the AWS account that owns the reservation.
Placement Group	The name of the placement group where the instance was launched.
Platform	The value is *windows* for Windows AMIs; otherwise, blank.
Private DNS	The private DNS name assigned to the instance.
Private IP	The private IP address assigned to the instance
Product Code	The product codes attached to this instance.
Public DNS	The public DNS name that is assigned to the instance. The item remains empty until the instance enter the *running* state.
Public IP	The IP address of the instance.
Request ID	The ID of attachment request
Reservation ID	The ID of the reservation
Root Device	The root device name.
Root Device Type	The root device type used by the AMI.
Security Group ID	The IDs of the security groups for the instance.
Security Group Name	The names of the security groups for the instance.
Source/Dest. Check	Specifies whether to enable an instance launched in a VPC to perform NAT.
State	The state of the instance.

Tags	The tags assigned to this instance.
VPC ID	The ID of the VPC in which the instance is running.

Reboot Instance Activity

The **Reboot Instance** activity is used in a runbook to reboot a specified instance.

Required Properties
You must configure the following properties:

Instance ID	The ID of the instance to reboot.

Published Data
The activity generates the following published data.

Request ID	The ID of attachment request

Run EC2 Action Activity

The **Run EC2 Action** activity is used in a runbook to run a specified Amazon EC2 action. This activity provides the ability to run many Amazon EC2 actions beyond the set of dedicated activities that are included for convenience.

Required Properties

You must configure the following properties. Additional properties are generated based on the **Category** and **Action** that are selected.

Category	The category of Amazon EC2 action to run.
Action	The Amazon EC2 action to perform

Run EC2 Action Published Data

Request ID	The ID of attachment request

Actions for the Account Attribute Category

Confirm Product Instance	Determines whether a product code is associated with an instance.

Actions for AMIs

Add Launch Permissions	Adds one or more AWS Accounts to the list of launch permissions.
Add Product Code	Adds one or more product codes to a specified AMI. Note that once a product code is added to an AMI it cannot be removed.
Change Description	Changes the description of the specified AMI.
Copy AMI	Initiates the copy of an AMI from the specified source region to the region specified in the configuration that was selected when the activity was defined.
Create AMI	Creates an Amazon EBS-backed AMI from an Amazon EBS-backed instance that is either running or stopped.
Deregister AMI	Deregisters the specified AMI.
Describe AMIs	Describes the images that are available to you.
Register AMI	Registers an AMI.
Remove Launch Permissions	Removes one or more AWS Accounts from the list of launch permissions.
Reset Launch Permissions	Resets the launch permissions of the specified AMI.

Actions for Bundle Tasks

The following **Actions** are available when you select **Bundle Tasks** as the **Category**.

Bundle Instance	Bundles an Amazon instance store-backed Windows instance.
Cancel Bundle Task	Cancels a bundling operation for an instance-backed Windows instance.
Describe Bundle Tasks	Describes active bundling tasks.

Actions for Customer Gateways

The following **Actions** are available when you select **Customer Gateways** as the **Category**.

Create Customer Gateway	Provides information to AWS about your VPN customer gateway device.
Delete Customer Gateway	Deletes the specified VPN customer gateway. You must delete the VPN connection before you can delete the customer gateway.
Describe Customer Gateways	Describes your VPN customer gateways.

Actions for DHCP Options

The following **Actions** are available when you select **DHCP Options** as the **Category**.

Associate DHCP Options	Associates a set of DHCP options (that you have previously created) with the specified VPC or associates no DHCP options with the VPC.
Create DHCP Options	Creates a set of DHCP options for your VPC. After creating the set, you must associate with it with the VPC, causing all existing and new instances that you launch into the VPC to use this set of DHCP options.
Delete DHCP Options	Deletes the specified set of DHCP options. You must disassociate the set of DHCP options by associating either a new set of options or the default set of options with the VPC.
Describe DHCP Options	Describes your DHCP options sets.

Actions for Elastic IPs

The following **Actions** are available when you select **Elastic IPs** as the **Category**.

Allocate Address	Acquires an Elastic IP address.
Associate Address	Associates an Elastic IP address with an instance or a network interface.
Describe Addresses	Describes the Elastic IP addresses that are available.

Disassociate Address	Disassociates an Elastic IP address from the instance or network interface with which it is associated.
Release Address	Releases the specified Elastic IP address.

Actions for Network Interface

The following **Actions** are available when you select **Network Interface** as the **Category**.

Add Security Group	Adds the network interface to the specified security group.
Assign Private IP Address	Assigns one or more secondary private IP addresses to the specified network interface.
Attach Network Interface	Attaches a network interface to an instance.
Change Description	Changes the description of the specified network interface.
Change Source/Dest. Check	Changes whether source/destination checking is enabled.
Create Network Interface	Creates a network interface in the specified subnet
Delete Network Interface	Deletes the specified network interface. You must detach the network interface before you can delete it.
Describe Network Interfaces	Describes the network interfaces that are available.
Detach Network Interface	Detaches a network interface from an instance.
Remove Security Group	Removes the network interface from the specified security group.

Actions for Instances

The following **Actions** are available when you select **Instances** as the **Category**.

Add Security Group	Adds the instance to the specified security group.
Change Instance Type	Changes the instance type of the specified instance.
Change Source/Dest. Check	Changes whether source/destination checking is enabled.
Change Termination Protection	Changes whether termination protected is enabled.
Change user Data	Changes the instance's user data.
Describe Instances	Describes the instances that are available.
Describe Instance Status	Describes the status of the specified instance.
Get Console Output	Gets the console output for the specified instance. For Windows systems, the instance console output displays the last three system event error logs.
Get Windows Password	Retrieves and decrypts the encrypted administrator password for an instance running Windows.

Launch Instances	Launches the specified number of instances of an AMI for which you have permissions.
Monitor Instance	Enables monitoring for a running instance.
Reboot Instance	Requests a reboot on the specified instance.
Remove Security Group	Removes the instance from the specified security group.
Reset Source/Dest. Check	Changes whether source/destination checking is enabled.
Start Instance	Starts an Amazon EBS-backed instance that you have previously stopped.
Stop Instance	Stops an Amazon EBS-backed instance.
Terminate Instance	Terminates the specified instance. Note, you can stop, start, and terminate EBS-backed instances. You can only terminate S3-backed instances. What happens to an instance differs if you stop or terminate it. For example, when you stop an instance, the root device and any other devices attached to the instance persist. When you terminate an instance, the root device and any other devices attached during the instance launch are automatically deleted.
Unmonitor Instance	Disables monitoring of a specified running instance.

Actions for Internet Gateways

The following **Actions** are available when you select **Internet Gateways** as the **Category**.

Attach Internet Gateway	Attaches an Internet gateway to a VPC, enabling connectivity between the Internet and the VPC.
Create Internet Gateway	Creates an Internet gateway for use with a VPC. After creating the Internet gateway, you can attach it to a VPC.
Delete Internet Gateway	Deletes the specified Internet gateway. You must detach the Internet gateway from the VPC before you can delete it.
Describe Internet Gateway	Describes the internet gateways that are available.
Detach Internet Gateway	Detaches the specified Internet gateway from a VPC, disabling connectivity between the Internet and the VPC. The VPC must not contain any running instances with Elastic IP addresses.

Actions for Key Pairs

The following **Actions** are available when you select **Key Pairs** as the **Category**.

Create Key Pair	Creates a 2048-bit RSA key pair with the specified name. Amazon EC2 stores the public key and displays the private key for you to save to a file. The private key is returned as an

	unencrypted PEM encoded PKCS#8 private key. This private key file can be used to decrypt the password for instances running Windows.
Delete Key Pair	Deletes the specified key pair, by removing the public key from Amazon EC2. You must own the key pair.
Describe Key Pairs	Describes the key pairs that are available.
Import Key Pair	Imports the public key from an RSA key pair that you created with a third-party tool. The private key is never transferred between you and AWS.

Actions for Placement Group

The following **Actions** are available when you select **Placement Groups** as the **Category**.

Create Placement Group	Creates a placement group that you can launch cluster instances into. You must give the group a unique name within the scope of your account.
Delete Placement Group	Deletes the specified placement group. You must terminate all instances in the placement group before you can delete the placement group.
Describe Placement Groups	Describes the placement groups that are available.

Actions for Route Tables

The following **Actions** are available when you select **Route Tables** as the **Category**.

Associate Route Table	Associates a subnet with a route table. The subnet and route table must be in the same VPC. The association causes traffic originating from the subnet to be routed to the routes in the route table. A route table can be associated with multiple subnets.
Create Route	Creates a route in a route table within a VPC. The route's target can be either a gateway attached to the VPC or a NAT instance in the VPC.
Create Route Table	Creates a route table for the specified VPC. After you create a route table you can add routes and associated the table.
Delete Route	Deletes the specified route from the specified route table.
Delete Route Table	Deletes the specified route table. You must disassociate the route table from any subnets before you can delete it. You cannot delete the main route table.
Describe Route Tables	Describes the route tables that are available.
Disassociate Route Table	Disassociates a subnet from a route table.

Disable VGW Route Propagation	Disables a virtual private gateway from propagating routes to the routing tables of a VPC.
Enable VGW Route Propagation	Enables a virtual private gateway to propagate routes to the routing table of a VPC.
Replace Route	Replaces an existing route within a route table in a VPC.
Replace Route Table Association	Changes the route table associated with a given subnet in a VPC. After you execute this action, the subnet uses the routes in the new route table it is associated with.

Actions for Security Groups

The following **Actions** are available when you select **Security Groups** as the **Category**.

Authorize Security Group Egress	Adds an egress rule to the security group for use with a VPC. Specifically, this action permits instances to send traffic to a destination CIDR IP range.
Authorize Security Group Ingress	Adds an ingress rule to the security group.
Create Security Group	Creates a security group.
Delete Security Group	Deletes the specified security group.
Describe Security Groups	Describes the security groups that are available.
Revoke Security Group Egress	Removes an egress rule from a security group. The values that you specify (for example Port Range) must match the existing rule's values for the rule to be removed.
Revoke Security Group Ingress	Removes an ingress rule from a security group. The values that you specify (for example Port Range) must match the existing rule's values for the rule to be removed.

Actions for Regions and Availability Zones

The following **Actions** are available when you select **Availability Zones** as the **Category**.

Describe Availability Zones	Describes the Availability Zones that are available. The results only include zones for the region that was specified in the configuration that you selected when you defined the activity.
Describe Regions	Describes the regions that are currently available.

Actions for Snapshot

The following **Actions** are available when you select **Snapshot** as the **Category**.

Add Create Volume Permissions	Adds the specified AWS account number to the snapshot's list of create volume permissions.
Copy Snapshot	Copies a point-in-time snapshot of an Amazon EBS volume and stores it in Amazon S3. You can copy the snapshot within the same region or from one region to another. You can use the snapshot to create Amazon EBS volumes or AMIs.
Create Snapshot	Creates a snapshot of an Amazon EBS volume and stores it in Amazon S3. You can use snapshots for backups, to make copies of instance store volumes and to save data before shutting down an instance.
Delete Snapshot	Deletes the specified snapshot.
Describe Snapshot	Describes the Amazon EBS snapshots that are available.
Remove Create Volume Permissions	Removes the specified AWS account number from the snapshots list of create volume permissions.
Reset Create Volume Permissions	Resets permission settings for the specified snapshot.

Actions for Subnets

The following **Actions** are available when you select **Subnets** as the **Category**.

Create Subnet	Creates a subnet in an existing VPC.
Delete Subnet	Deletes the specified subnet. You must terminate all running instances in the subnet before you can delete the subnet.
Describe Subnets	Describes the subnets that are available.

Actions for Tags

The following **Actions** are available when you select **Tags** as the **Category**.

Create Tag	Adds or overwrites a tag for the specified EC2 resource.
Delete Tag	Deletes the specified for the specified resource.
Describe Tags	Describes the tags that are available for an Amazon EC2 resource.

Actions for VPCs

The following **Actions** are available when you select **VPCs** as the **Category**.

Create VPC	Creates a VPC with the specified CIDR block. The smallest VPC you can create uses a /28 netmask (16 IP addresses) and the largest uses a /16 netmack (65,536 IP addresses).

Delete VPC	Deletes the specified VPC. You must detach or delete all gateways and resources that are associated with the VPC before you can delete it.
Describe VPCs	Describes the VPCs that are available.
Change DNS Settings	Changes the DNS settings assigned to the VPC.

Actions for VPN Connections

The following **Actions** are available when you select **VPN Connections** as the **Category**.

Create VPN Connection	Creates a VPN connection between an existing virtual private gateway and a VPN customer gateway.
Create VPN Connection Route	Creates a static route associated with a VPN connection between an existing virtual private gateway and a VPN customer gateway. The static route allows traffic to be routes from the virtual private gateway to the VPN customer gateway.
Delete VPN Connection	Deletes the specified VPN connection.
Describe VPN Connections	Describe the VPN connections that are available.

Actions for Virtual Private Gateway

The following **Actions** are available when you select **Virtual Private Gateway** as the **Category**.

Attach VPN Gateway	Attaches a virtual private gateway to a VPC.
Create VPN Gateway	Creates a virtual private gateway. A virtual private gateway is the VPC-side endpoint for your VPN connection.
Delete VPN Gateway	Deletes the specified virtual private gateway. Before deleting the virtual private gateway, it should be detached and the VPC and the VPN connection should be deleted.
Describe VPN Gateways	Describe the VPN connections that are available.
Detach VPN Gateway	Detaches the specified virtual private gateway. You do this if you are planning to turn off the VPC and not use it anymore.

Volume Actions

The following **Actions** are available when you select **Volume** as the **Category**.

Attach Volume	Attaches an Amazon EBS volume to a running or stopped instance and exposes it to the instance with the specified device name.
Change Auto-Enable IO Settings	

Create Volume	Creates an Amazon EBS volume that can be attached to any instance in the same Availability Zone.
Delete Volume	Deletes the specified Amazon EBS volume. The volume must be in the *available* state (not attached to an instance).
Describe Volumes	Describes the Amazon EBS volumes that are available.
Detach Volume	Detaches an Amazon EBS volume from an instance. Make sure to unmounts any file systems on the device within your operating system before detaching the volume. Failure to do so will result in the volume being stuck in 'busy' state while detaching.
Enable Volume I/O	Enables I/O operations for a volume that had I/O operations disabled because the data on the volume was potentially inconsistent.

Start Instance Activity

The **Start Instance** activity is used in a runbook to start a specified EBS-backed instance that you have previously stopped.

Required Properties

You must configure the following properties:

Instance ID	The ID of the instance to start.

Published Data

The activity generates the following published data.

Request ID	The ID of attachment request

Stop Instance Activity

The **Stop Instance** activity is used in a runbook to stop an Amazon EBS-backed instance.

Required Properties
You must configure the following properties:

Instance ID	The ID of the instance to stop.

Published Data
The activity generates the following published data.

Request ID	The ID of attachment request

Terminate Instance Activity

The **Terminate Instance** activity is used in a runbook to terminate a specified instance.

Required Properties
You must configure the following properties:

Instance ID	The ID of the instance to terminate.

Published Data
The activity generates the following published data.

Request ID	The ID of attachment request