SSM - Change Management - Automation

## Service Overview

Systems Manager Automation simplifies common maintenance and deployment tasks of Amazon EC2 instances and other AWS resources. Automation enables you to do the following:

* Build automations to configure and manage instances and AWS resources.
* Create custom runbooks or use pre-defined runbooks maintained by AWS.
* Receive notifications about Automation tasks and runbooks by using Amazon EventBridge.
* Monitor Automation progress and details by using the AWS Systems Manager console.

**Primary components**

**Automation runbook** - defines the automation. Automation includes several pre-defined runbooks that you can use to perform common tasks like restarting one or more EC2 instances or creating an Amazon Machine Image (AMI). You can create your own runbooks as well.

**Automation action** - the automation defined in a runbook includes one or more steps. Each step is associated with a particular action. The action determines the inputs, behavior, and outputs of the step. Steps are defined in the mainSteps section of your runbook.

## Use cases / Considerations

**Automation use cases:**

**Perform common IT tasks** - automation can simplify common IT tasks such as changing the state of one or more instances (using an approval automation) and managing instance states according to a schedule

**Safely perform disruptive tasks in bulk** - Systems Manager includes features that help you target large groups of instances by using Amazon EC2 tags, and velocity controls that help you roll out changes according to the limits you define.

**Simplify complex tasks** - Automation offers one-click automations for simplifying complex tasks such as creating golden Amazon Machines Images (AMIs), and recovering unreachable EC2 instances

**Enhance operations security** - Using delegated administration, you can restrict or elevate user permissions for various types of tasks. Delegated administration enables you to provide permissions for certain tasks on certain resource without having to give a user direct permission to access the resources.

**Share best practices** - Automation lets you share best practices with the rest of your organization. You can create best practices for resource management in runbooks and easily share the runbooks across AWS Regions and groups

## Governance

[Monitoring Systems Manager events with Amazon EventBridge](https://docs.aws.amazon.com/systems-manager/latest/userguide/monitoring-eventbridge-events.html)

## Cautions

**Automation quota** - each AWS account can run 100 automations simultaneously. This includes child automations (automations that are started by another automation), and rate control automations. If you attempt to run more automations than this, Systems Manager adds the additional automations to a queue and displays a status of Pending.

**Automation queue quota** - if you attempt to run more automations than the concurrent automation limit, subsequent automations are added to a queue. Each AWS account can queue 1,000 automations. When an automation completes (or reaches a terminal state), the first automation in the queue is started.

**Rate control automation quota** - each AWS account can run 25 rate control automations simultaneously. If you attempt to run more rate control automations than the concurrent rate control automation limit, Systems Manager adds the subsequent rate control automations to a queue and displays a status of Pending

**Rate control automation queue quota** - if you attempt to run more automations than the concurrent rate control automation limit, subsequent automations are added to a queue. Each AWS account can queue 1,000 rate control automations. When an automation completes (or reaches a terminal state), the first automation in the queue is started.

## Pricing considerations

[Automation pricing](https://aws.amazon.com/systems-manager/pricing/#Automation)

## More details

* [Create own SSM Document and Execute Automation (Video)](https://www.youtube.com/watch?v=WenPNoKrIgM)
* [Setting up Automation](https://docs.aws.amazon.com/systems-manager/latest/userguide/automation-setup.html)
* [Working with automations](https://docs.aws.amazon.com/systems-manager/latest/userguide/automation-working.html)
* [Systems Manager Automation actions reference](https://docs.aws.amazon.com/systems-manager/latest/userguide/automation-actions.html)
* [Working with runbooks](https://docs.aws.amazon.com/systems-manager/latest/userguide/automation-documents.html)
* [Systems Manager Automation runbook reference](https://docs.aws.amazon.com/systems-manager/latest/userguide/automation-documents-reference.html)
* [Automation walkthroughs](https://docs.aws.amazon.com/systems-manager/latest/userguide/automation-walk.html)
* [Understanding automation statuses](https://docs.aws.amazon.com/systems-manager/latest/userguide/automation-statuses.html)
* [Troubleshooting Systems Manager Automation](https://docs.aws.amazon.com/systems-manager/latest/userguide/automation-troubleshooting.html)