

Module 5 Lab 3: System Manager

EC2 Quick Start

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

Cancel and Exit

Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace, or you can select one of your own AMIs.

Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type

Search by Systems Manager parameter

Quick Start (1)

My AMIs (0)

AWS Marketplace (4207)

Community AMIs (0)

☐ Free tier only ①

Amazon Linux

Free tier eligible

Root device type: ebs

Virtualization type: hvm

ENA Enabled: Yes

Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type ~ ami-0915e09cc7ccee3ab

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

The following results for "Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type" were found in other catalogs:

- 4207 results in AWS Marketplace

AWS Marketplace provides partnered Software that is pre-configured to run on AWS.

Select

64-bit (x86)

Choosing Amazon Linux AMI: “Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type”.

EC2 Quick Start

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

CancelPreviousReview and LaunchNext: Configure Instance Details

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

Filter by: All Instance typesCurrent generationShow/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

	Family	Type	vCPUs ①	Memory (GiB)	Instance Storage (GiB) ①	EBS-Optimized Available ①	Network Performance ①	IPv6 Support ①
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input type="checkbox"/>	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
<input type="checkbox"/>	General purpose	t3a.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	General purpose	t3a.micro	2	1	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	General purpose	t3a.small	2	2	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	General purpose	t3a.medium	2	4	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	General purpose	t3a.large	2	8	EBS only	Yes	Up to 5 Gigabit	Yes
<input type="checkbox"/>	General purpose	t3a.xlarge	4	16	EBS only	Yes	Up to 5 Gigabit	Yes

t2.micro instance selected.

EC2 Quick Start

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances (i) 2 Launch into Auto Scaling Group (i)

You may want to consider launching these instances into an Auto Scaling Group to help you maintain application availability and for easy scaling in the future. Learn how Auto Scaling can help your application stay healthy and cost effective.

Purchasing option (i) ☐ Request Spot Instances

Network (i) vpc-c64599bc (default) Create new VPC

Subnet (i) No preference (default subnet in any Availability Zone) Create new subnet

Auto-assign Public IP (i) ☐ Use subnet setting (Enable)

Placement group (i) ☐ Add instance to placement group

Capacity Reservation (i) Open Create new Capacity Reservation

IAM role (i) None Create new IAM role

Shutdown behavior (i) Stop

Stop - Hibernate behavior (i) ☐ Enable hibernation as an additional stop behavior

Enable termination protection (i) ☐ Protect against accidental termination

Monitoring (i) ☐ Enable CloudWatch detailed monitoring
Additional charges apply

Tenancy (i) Shared - Run a shared hardware instance
Additional charges will apply for dedicated tenancy

Elastic Inference (i) ☐ Add an Elastic Inference accelerator
Additional charges apply

T2/T3 Unlimited (i) ☐ Enable
Additional charges may apply

File systems (i) Add file system Create new file system

Advanced Details

Cancel Previous Review and Launch Next: Add Storage

Number of instances is set to 2, all other options default.

EC2 Quick Start

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. Learn more about storage options in Amazon EC2

Volume Type (i)	Device (i)	Snapshot (i)	Size (GiB) (i)	Volume Type (i)	IOPS (i)	Throughput (MB/s) (i)	Delete on Termination (i)	Encryption (i)
Root	/dev/xvda	snap-024a04301b0b0d170a	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

Add New Volume

Free tier eligible customers can get up to 30 GiB of EBS General Purpose (SSD) or Magnetic storage. Learn more about free usage tier eligibility and usage restrictions.

Cancel Previous Review and Launch Next: Add Tags

Storage is set to 8gb.

EC2 Quick Start

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. A copy of a tag can be applied to volumes, instances or both. Tags will be applied to all instances and volumes. Learn more about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances (1)	Volumes (1)	
staff	jaguar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
use	sysmanager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Add another tag (Up to 50 tags maximum)

CancelPreviousReview and LaunchNext: Configure Security Group

Two tags defined for later use.

EC2 Quick Start

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.

Assign a security group: ☒ Create a new security group ☐ Select an existing security group

Security group name:

Description:

Type (1)	Protocol (1)	Port Range (1)	Source (1)	Description (1)	
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop	<input type="checkbox"/>

Add Rule

Warning

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

CancelPreviousReview and Launch

New Security group created.

EC2 Quick Start


1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

⚠ Improve your instances' security. Your security group, sshOnlySG, is open to the world.
Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.
You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details

 **Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-0915e09cc7ceee2ab**

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

[Read Device Type info](#) [Virtualization type info](#)

[Edit AMI](#)

Instance Type

Instance Type	ECUs	vCPUs	Memory (GB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

[Edit instance type](#)

Security Groups

Security group name

sshOnlySG

Description

launch-wizard-2 created 2020-05-11T20:25:20.161-07:00

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	0.0.0.0/0	

[Edit security groups](#)

Instance Details

[Edit instance details](#)

Storage

[Edit storage](#)

Tags

Key	Value	Instances	Volumes
stack	jaguirm	✓	✓
use	systemmanager	✓	✓

[Edit tags](#)







[Cancel](#) [Previous](#) [Launch](#)

Review page before instance launch. KeyPair downloaded.

EC2 Dashboard

Launch Instance [Connect](#) [Actions](#)

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP	IPv6 IPs	Key Name	Monitoring	Launch Time	Security Groups
	i-017b812e549e02b6d	t2.micro	us-east-1c	 running	 2/2 checks	None	ec2-54-211-8-11.compu...	54.211.8.11	-	sysManagerTest	disabled	May 11, 2020 at 8:28:38 PM	sshOnlySG
	i-0549b47c0843859f	t2.micro	us-east-1c	 running	 2/2 checks	None	ec2-34-207-164-0.com...	34.207.164.0	-	sysManagerTest	disabled	May 11, 2020 at 8:28:38 PM	sshOnlySG

Select an instance above

1 / 2

EC2 instances created successfully.

IAM - Create Role

Create role 1 2 3 4

Select type of trusted entity

AWS service
EC2, Lambda and others

Another AWS account
Belonging to you or 3rd party

Web identity
Cognito or any OpenID provider

SAML 2.0 federation
Your corporate directory

Allows AWS services to perform actions on your behalf. [Learn more](#)

Choose a use case

Common use cases

EC2
Allows EC2 instances to call AWS services on your behalf.

Lambda
Allows Lambda functions to call AWS services on your behalf.

Or select a service to view its use cases

API Gateway	CodeDeploy	EKS	IoT Things Graph	Rekognition
AWS Backup	CodeGuru	EMR	KMS	RoboMaker
AWS Chatbot	CodeStar Notifications	ElastiCache	Kinesis	S3
AWS Support	Comprehend	Elastic Beanstalk	Lake Formation	SMS
Amplify	Config	Elastic Container Service	Lambda	SNS
AppStream 2.0	Connect	Elastic Transcoder	Lex	SWF
AppSync	DMS	ElasticLoadBalancing	License Manager	SageMaker
Application Auto Scaling	Data Lifecycle Manager	Forecast	Machine Learning	Security Hub
Application Discovery Service	Data Pipeline	GameLift	Macie	Service Catalog
Batch	DataSync	Global Accelerator	MediaConvert	Step Functions
Chime	DeepLens	Glue	Migration Hub	Storage Gateway
CloudFormation	Directory Service	Groqgrass	OpsWorks	Texttract
CloudHSM	DynamoDB	GuardDuty	Personalize	Transfer
CloudTrail	EC2	Health Organizational View	QLDB	Trusted Advisor
CloudWatch Application	EC2 - Fleet	IAM Access Analyzer	RAM	VPC
	EC2 Auto Scaling	Inspector	RDS	Worklink

* Required

Cancel **Next: Permissions**

A role must first be established for AWS System Manager to work.

IAM - Create Role

Create role 1 2 3 4

▼ Attach permissions policies

Choose one or more policies to attach to your new role.

Create policy

Filter policies Showing 3 results

	Policy name	Used as
<input type="checkbox"/>	AmazonEC2RoleforAWSCodeDeploy	None
<input type="checkbox"/>	AmazonEC2RoleforDataPipelineRole	None
<input checked="" type="checkbox"/>	AmazonEC2RoleforSSM	None

► Set permissions boundary

* Required

Cancel Previous **Next: Tags**

AmazonEC2RoleforSSM is selected.

IAM - Create Role

Create role

1234

Add tags (optional)

IAM tags are key-value pairs you can add to your role. Tags can include user information, such as an email address, or can be descriptive, such as a job title. You can use the tags to organize, track, or control access for this role. [Learn more](#)

Key	Value (optional)	Remove
staff	jaguirne	✕
role	SysManager	✕
Add new key		

You can add 48 more tags.

Cancel

Previous

Next: Review

Two tags were established for the IAM role.

IAM - Create Role

Create role

1234

Review

Provide the required information below and review this role before you create it.

Role name*

smRole

Use alphanumeric and "+", "@", "_" characters. Maximum 64 characters.

Role description

Allows EC2 instances to call AWS services on your behalf.

Maximum 1000 characters. Use alphanumeric and "+", "@", "_" characters.

Trusted entities

AWS service: ec2.amazonaws.com

Policies

AmazonEC2RoleforSSM

Permissions boundary

Permissions boundary is not set

The new role will receive the following tags:

Key	Value
staff	jaguirne
role	SysManager

* Required

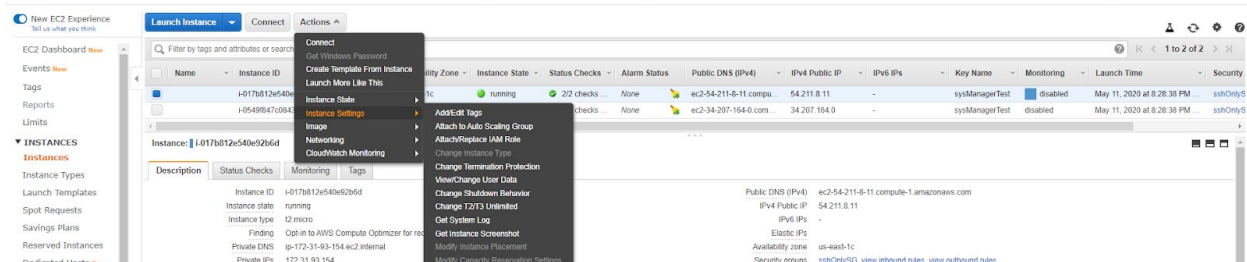
Cancel

Previous

Create role

The AWS System Manager role is defined as “smRole”.

EC2 Dashboard



Back in the EC2 Dashboard, “Attach/Replace IAM Role” is selected.

Instances - Attach/Replace IAM Role

Instances > Attach/Replace IAM Role

Attach/Replace IAM Role

Select an IAM role to attach to your Instance. If you don't have any IAM roles, choose Create new IAM role to create a role in the IAM console. If an IAM role is already attached to your Instance, the IAM role you choose will replace the existing role.

Instance ID: i-017b812e540e92b6d ⓘ

IAM role:

[Create new IAM role](#) ⓘ

* Required

[Cancel](#) [Apply](#)

The role options to choose pertain only to EC2 instances.

Instances - Attach/Replace IAM Role

Instances > Attach/Replace IAM Role

Attach/Replace IAM Role

Select an IAM role to attach to your instance. If you don't have any IAM roles, choose Create new IAM role to create a role in the IAM console. If an IAM role is already attached to your instance, the IAM role you choose will replace the existing role.

Instance ID i-0549647c0043059 (1)

IAM role*

[Create new IAM role](#)

* Required

[Cancel](#) [Apply](#)

Same Role for the other EC2 instance created.

AWS Systems Manager

The screenshot displays the AWS Systems Manager console interface. On the left is a navigation sidebar with categories: Manager, Operations Management (Explorer, OpsCenter, CloudWatch Dashboard, Trusted Advisor & PHD), Application Management (Resource Groups, AppConfig, Parameter Store), Actions & Change (Automation, Change Calendar, Maintenance Windows), and Instances & Nodes (Compliance, Inventory, Managed Instances, Hybrid Activations, Session Manager, Run Command, State Manager, Patch Manager, Distributor). The main content area has a dark header with 'MANAGEMENT TOOLS' and 'Resource Groups' in large text, followed by the subtitle 'Find and group your AWS resources by using queries.' Below this is a brief description: 'You can create unlimited, single-region groups in your account, use your groups to view group-related insights, and automate tasks on group resources. Groups can be based on resource types and tag queries, or AWS CloudFormation stacks.' A 'Start to use Resource Groups' section includes the text 'Find and group your AWS resources.' and a 'Create a resource group' button. The 'How it works' section is divided into three steps: 'Find AWS resources in a selected region.', 'Create a group based on tag queries or an AWS CloudFormation stack.', and 'View resource group specific insights.' The 'Benefits and features' section includes 'Query and group resources' (Find AWS resources that share tags or that are in a CloudFormation stack, and create and manage logical groups of resources), 'Run operations on group resources' (Run complex tasks on your grouped resources by using AWS Systems Manager Automation), and 'View group-related insights' (View group-specific insights from AWS Config and AWS CloudTrail). A 'More resources' sidebar on the right lists 'Documentation', 'API reference', 'FAQ', and 'Support forums'.

The Resource group will be based on tag queries created earlier.

AWS Resource Groups

The screenshot shows the AWS Resource Groups console. On the left, there's a sidebar with 'Resources' and 'Tagging' sections. The main area is titled 'Grouping criteria' and 'Group resources (4)'. The 'Grouping criteria' section shows 'Resource types' as 'All supported resource types' and 'Tags' as 'staff:jaguirre'. The 'Group resources' section shows a table of 4 resources, all of which are EC2 instances or volumes, all in the 'us-east-1' region, and all tagged with 'staff:jaguirre'.

Name	Service	Type	ID	Region	Tags
EC2 Instance i-0549f847c084385f9	EC2	Instance	i-0549f847c084385f9	us-east-1	staff:jaguirre
EC2 Instance i-017b812e540e92b6d	EC2	Instance	i-017b812e540e92b6d	us-east-1	staff:jaguirre
EC2 Volume vol-0de5583a9fbcf6ed	EC2	Volume	vol-0de5583a9fbcf6ed	us-east-1	staff:jaguirre
EC2 Volume vol-021de76e0450c5	EC2	Volume	vol-021de76e0450c5	us-east-1	staff:jaguirre

The listed Group resources reference the jaguirre tag.

AWS System Manager - Start a Session

The screenshot shows the AWS Systems Manager console. On the left, there's a sidebar with 'Operations Management', 'Application Management', 'Actions & Change', and 'Instances & Nodes' sections. The main area is titled 'Start a session' and shows a table of 'Target instances'. There are two instances listed, both of which are EC2 instances, both in the 'us-east-1c' availability zone, and both running on Amazon Linux AMI. The first instance is selected.

Instance name	Instance ID	Agent version	Instance state	Availability zone	Platform
	i-0549f847c084385f9	2.3.714.0	running	us-east-1c	Amazon Linux AMI
	i-017b812e540e92b6d	2.3.714.0	running	us-east-1c	Amazon Linux AMI

A session can be started on either EC2 instance created.

AWS System Manager - Session

```
Instances | EC2 Management Co... AWS Systems Manager - Session x AWS Systems Manager - Session x +
us-east-1.console.aws.amazon.com/systems-manager/session-manager/i-017b812e540e92b6d/region=us-east-1#
Session ID: root-0a8333ab9dfff8366 Instance ID: i-017b812e540e92b6d Terminate

Installing:
nginx x86_64 1:1.16.1-1.37.amzn1 amzn-updates 598 k
Installing for dependencies:
gperftools-libs x86_64 2.0-11.5.amzn1 amzn-main 570 k
libunwind x86_64 1.1-10.8.amzn1 amzn-main 72 k

Transaction Summary
-----
Install 1 Package (+2 Dependent packages)

Total download size: 1.2 M
Installed size: 3.0 M
Is this ok [y/d/N]: y
Downloading packages:
(1/3): libunwind-1.1-10.8.amzn1.x86_64.rpm | 72 kB 00:00:00
(2/3): nginx-1.16.1-1.37.amzn1.x86_64.rpm | 598 kB 00:00:00
(3/3): gperftools-libs-2.0-11.5.amzn1.x86_64.rpm | 570 kB 00:00:00
-----
Total 1.9 MB/s | 1.2 MB 00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : libunwind-1.1-10.8.amzn1.x86_64 1/3
  Installing : gperftools-libs-2.0-11.5.amzn1.x86_64 2/3
  Installing : 1:nginx-1.16.1-1.37.amzn1.x86_64 3/3
  Verifying : libunwind-1.1-10.8.amzn1.x86_64 1/3
  Verifying : gperftools-libs-2.0-11.5.amzn1.x86_64 2/3
  Verifying : 1:nginx-1.16.1-1.37.amzn1.x86_64 3/3

Installed:
  nginx.x86_64 1:1.16.1-1.37.amzn1

Dependency Installed:
  gperftools-libs.x86_64 0:2.0-11.5.amzn1 libunwind.x86_64 0:1.1-10.8.amzn1

Complete!
sh-4.2$
```

The nginx server install completed successfully.

AWS System Manager - Session

```
Instances | EC2 Management Co... AWS Systems Manager - Session x AWS Systems Manager - Session x +
us-east-1.console.aws.amazon.com/systems-manager/session-manager/i-017b812e540e92b6d/region=us-east-1#
Session ID: root-0a8333ab9dfff8366 Instance ID: i-017b812e540e92b6d Terminate

nginx x86_64 1:1.16.1-1.37.amzn1 amzn-updates 598 k
Installing for dependencies:
gperftools-libs x86_64 2.0-11.5.amzn1 amzn-main 570 k
libunwind x86_64 1.1-10.8.amzn1 amzn-main 72 k

Transaction Summary
-----
Install 1 Package (+2 Dependent packages)

Total download size: 1.2 M
Installed size: 3.0 M
Is this ok [y/d/N]: y
Downloading packages:
(1/3): libunwind-1.1-10.8.amzn1.x86_64.rpm | 72 kB 00:00:00
(2/3): nginx-1.16.1-1.37.amzn1.x86_64.rpm | 598 kB 00:00:00
(3/3): gperftools-libs-2.0-11.5.amzn1.x86_64.rpm | 570 kB 00:00:00
-----
Total 1.9 MB/s | 1.2 MB 00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : libunwind-1.1-10.8.amzn1.x86_64 1/3
  Installing : gperftools-libs-2.0-11.5.amzn1.x86_64 2/3
  Installing : 1:nginx-1.16.1-1.37.amzn1.x86_64 3/3
  Verifying : libunwind-1.1-10.8.amzn1.x86_64 1/3
  Verifying : gperftools-libs-2.0-11.5.amzn1.x86_64 2/3
  Verifying : 1:nginx-1.16.1-1.37.amzn1.x86_64 3/3

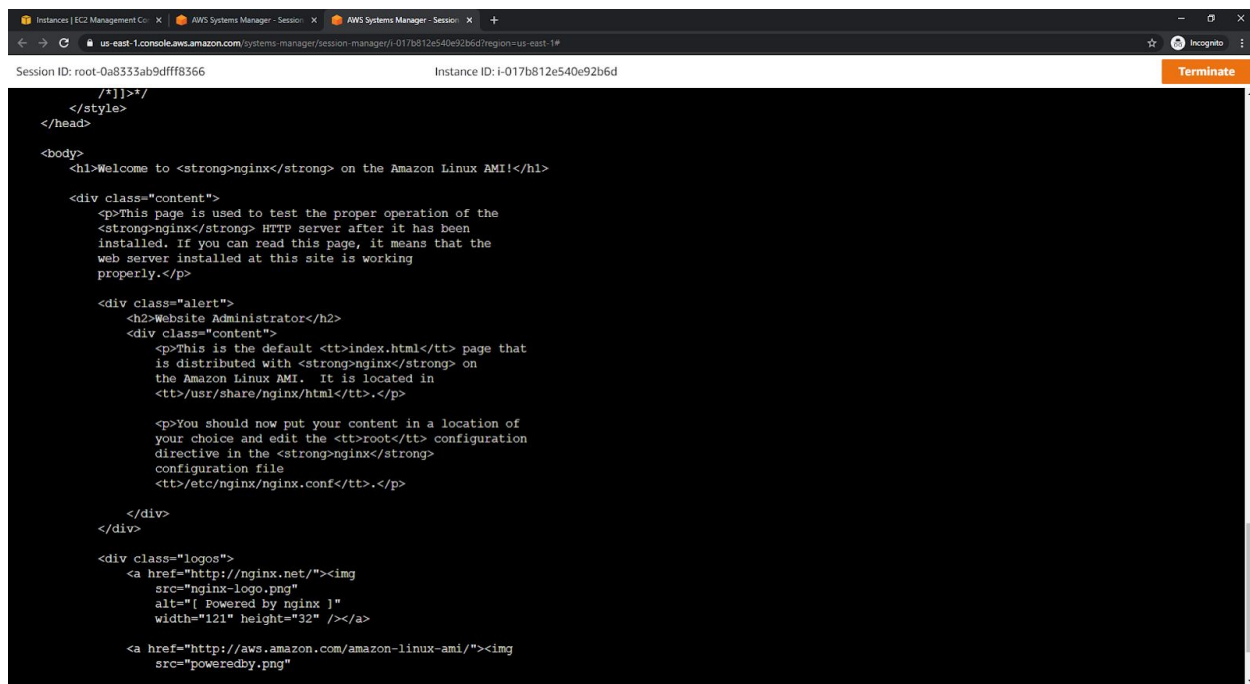
Installed:
  nginx.x86_64 1:1.16.1-1.37.amzn1

Dependency Installed:
  gperftools-libs.x86_64 0:2.0-11.5.amzn1 libunwind.x86_64 0:1.1-10.8.amzn1

Complete!
sh-4.2$ sudo service nginx start [ OK ]
Starting nginx:
sh-4.2$
```

A command issued the start for nginx server.

AWS System Manager - Session



The screenshot shows the AWS Systems Manager console with an active session. The session ID is root-0a8333ab9dfff8366 and the instance ID is i-017b812e540e92b6d. The session content displays the output of a curl command, showing the nginx welcome page. The page includes a header, a body with a welcome message, and a footer with logos for nginx and Amazon Linux AMI.

```
Session ID: root-0a8333ab9dfff8366 Instance ID: i-017b812e540e92b6d Terminate
```

```
    />]]>*/
  </style>
</head>
<body>
  <h1>Welcome to <strong>nginx</strong> on the Amazon Linux AMI!</h1>

  <div class="content">
    <p>This page is used to test the proper operation of the
    <strong>nginx</strong> HTTP server after it has been
    installed. If you can read this page, it means that the
    web server installed at this site is working
    properly.</p>

    <div class="alert">
      <h2>Website Administrator</h2>
      <div class="content">
        <p>This is the default <tt>index.html</tt> page that
        is distributed with <strong>nginx</strong> on
        the Amazon Linux AMI. It is located in
        <tt>/usr/share/nginx/html</tt>.</p>

        <p>You should now put your content in a location of
        your choice and edit the <tt>root</tt> configuration
        directive in the <strong>nginx</strong>
        configuration file
        <tt>/etc/nginx/nginx.conf</tt>.</p>

      </div>
    </div>

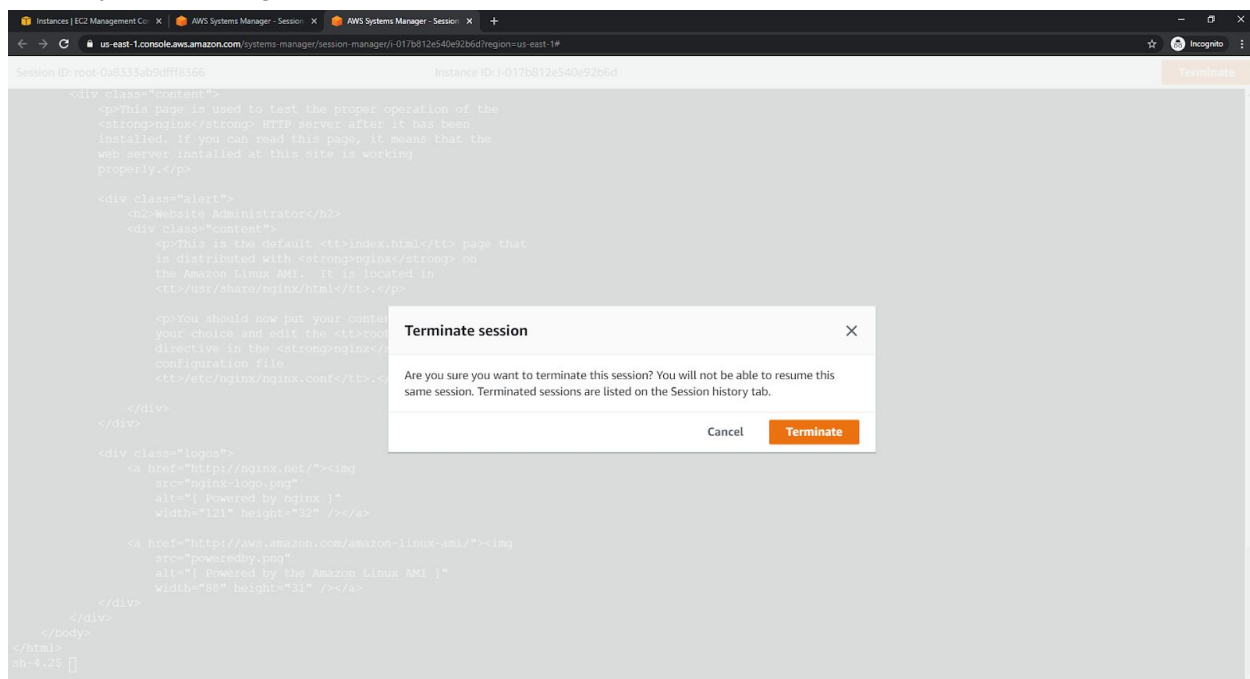
    <div class="logos">
      <a href="http://nginx.net/"></a>

      <a href="http://aws.amazon.com/amazon-linux-ami/"></a>

    </div>
  </div>
</body>
</html>
sh-4.2$
```

A curl localhost command shows a successfully started nginx server welcome page.

AWS System Manager - Session



The screenshot shows the AWS Systems Manager console with the same session as before. A modal dialog box titled "Terminate session" is displayed, asking for confirmation to terminate the session. The dialog includes a "Cancel" button and a "Terminate" button. The session content is partially visible behind the dialog.

```
Session ID: root-0a8333ab9dfff8366 Instance ID: i-017b812e540e92b6d Terminate
```

```
    <div class="content">
      <p>This page is used to test the proper operation of the
      <strong>nginx</strong> HTTP server after it has been
      installed. If you can read this page, it means that the
      web server installed at this site is working
      properly.</p>

      <div class="alert">
        <h2>Website Administrator</h2>
        <div class="content">
          <p>This is the default <tt>index.html</tt> page that
          is distributed with <strong>nginx</strong> on
          the Amazon Linux AMI. It is located in
          <tt>/usr/share/nginx/html</tt>.</p>

          <p>You should now put your content in a location of
          your choice and edit the <tt>root</tt> configuration
          directive in the <strong>nginx</strong>
          configuration file
          <tt>/etc/nginx/nginx.conf</tt>.</p>

        </div>
      </div>

      <div class="logos">
        <a href="http://nginx.net/"></a>

        <a href="http://aws.amazon.com/amazon-linux-ami/"></a>

      </div>
    </div>
  </div>
</body>
</html>
sh-4.2$
```

Terminate session X
Are you sure you want to terminate this session? You will not be able to resume this same session. Terminated sessions are listed on the Session history tab.
Cancel Terminate

The session was terminated and logged.

AWS Systems Manager - Create Maintenance Window

The screenshot shows the AWS Systems Manager console with the 'Maintenance Windows' page selected in the left-hand navigation pane. The main content area is divided into two sections: 'Provide maintenance window details' and 'Schedule'.

Provide maintenance window details

- Name:** prodWeekend2am (Type a name for this maintenance window. It has to be between 3 and 128 characters. Valid characters contain the following: a-z, A-Z, 0-9, and _.)
- Description - optional:** Production System Weekend 2am (Type description for this maintenance window. It has to be between 1 and 128 characters.)
- Unregistered targets:** ☒ Allow unregistered targets (Allow maintenance tasks scheduled for this maintenance window to run on targets that are not currently registered with this maintenance window.)

Schedule

- Specify with:** ☒ Cron schedule builder, ☐ Rate schedule builder, ☐ CRON/Rate expression
- Window starts:** ☐ Every 30 minutes, ☐ Every 1 hours, ☒ Every Saturday at 02:00
- Duration:** Maintenance window duration: 4 hours (Value from 1 to 24.)
- Stop initiating tasks:** (Link to documentation)

In order to patch a system, a maintenance windows must be created first.

AWS Systems Manager - Create Maintenance Window

The screenshot shows the AWS Systems Manager console with the 'Maintenance Windows' page selected in the left-hand navigation pane. The main content area is divided into two sections: 'Schedule' and 'Manage tags'.

Schedule

- Window starts:** ☐ Every 30 minutes, ☐ Every 1 hours, ☒ Every Saturday at 02:00
- Duration:** Maintenance window duration: 4 hours (Value from 1 to 24.)
- Stop initiating tasks:** Time to stop starting scheduled task before maintenance window ends: 1 hour before the window closes (Value from 0 to 23.)
- Window start date - optional:** Date time to start the maintenance window: 05/13/2020 00:00:00 GMT+00:00
- Window end date - optional:** Date time to stop the maintenance window: 05/12/2022 00:00:00 GMT+00:00
- Schedule timezone - optional:** Timezone applied to window executions, not applied to start and end dates: (GMT-07:00) America/Los_Angeles (IANA timezone)

Manage tags

- No tags associated with the resource.
- Add tag** button

At the bottom of the console, there are two buttons: 'Cancel' and 'Create maintenance window'.

It's important to set the maintenance window during a low demand time of the day. In this case 2am was selected.

AWS Systems Manager - Maintenance Windows

The screenshot shows the AWS Systems Manager console with the 'Maintenance Windows' page selected. The left-hand navigation pane includes sections for Quick Setup, Operations Management (Explorer, OpsCenter, CloudWatch Dashboard, Trusted Advisor & PHD), Application Management (Resource Groups, AppConfig, Parameter Store), Actions & Change (Automation, Change Calendar, Maintenance Windows), and Instances & Nodes (Compliance, Inventory, Managed Instances, Hybrid Activations, Session Manager, Run Command, State Manager, Patch Manager, Distributor). The main content area displays a table of maintenance windows. A single window is listed with the ID 'mw-02b3bde0552d9c574', named 'prodWeekend2am', in an 'Enabled' state, with a next execution time of 'Sat, May 16, 2020, 9:00:00 AM UTC'. Above the table are buttons for 'View details', 'Edit', 'Delete', 'Actions', and a prominent orange 'Create maintenance window' button.

Window ID	Name	State	Next execution time
mw-02b3bde0552d9c574	prodWeekend2am	Enabled	Sat, May 16, 2020, 9:00:00 AM UTC

The maintenance window has been established.

AWS Systems Manager - Patch Baselines

The screenshot shows the AWS Systems Manager console with the 'Patch Manager' page selected. The left-hand navigation pane is similar to the previous screenshot, with 'Patch Manager' highlighted under the 'Actions & Change' section. The main content area displays a table of patch baselines. Above the table are buttons for 'Configure patching', 'View details', 'Edit', 'Delete', 'Actions', and a prominent orange 'Create patch baseline' button. The table lists various default patch baselines for different operating systems, including CentOS, Oracle Linux, SUSE, Windows, Debian, Amazon Linux 2, Amazon Linux, Ubuntu, and Red Hat Enterprise Linux. Each row includes a radio button for selection, a baseline ID, the baseline name, a description, the operating system, and a 'Default baseline' status (Yes/No).

Baseline ID	Baseline name	Description	Operating system	Default baseline
pb-05e3f588ee25344c	AWS-CentOSDefaultPatchBaseline	Default Patch Baseline for CentOS Provided by AWS.	CentOS	Yes
pb-06bf38e95fe85c02	AWS-OracleLinuxDefaultPatchBaseline	Default Patch Baseline for Oracle Linux Server Provided by AWS.	Oracle Linux	Yes
pb-07d8884178197b66b	AWS-SuseDefaultPatchBaseline	Default Patch Baseline for Suse Provided by AWS.	SUSE	Yes
pb-096d816473f2bd03	AWS-WindowsPredefinedPatchBaseline-OS	Approves all Windows Server operating system patches that are classified as CriticalUpdates or SecurityUpdates and that have an MSRC severity of Critical or Important. Patches are auto-approved seven days after release.	Windows	No
pb-09a5f8e62bd80b1	AWS-DebianDefaultPatchBaseline	Default Patch Baseline for Debian Provided by AWS.	Debian	Yes
pb-09ca3fb51f0412ec3	AWS-DefaultPatchBaseline	Default Patch Baseline Provided by AWS.	Windows	Yes
pb-0be8c81cde3be63f3	AWS-AmazonLinux2DefaultPatchBaseline	Default Patch Baseline for Amazon Linux 2 Provided by AWS.	Amazon Linux 2	Yes
pb-0c10e657807c7a700	AWS-AmazonLinuxDefaultPatchBaseline	Default Patch Baseline for Amazon Linux Provided by AWS.	Amazon Linux	Yes
pb-0c7e89f711c3095f4	AWS-UbuntuDefaultPatchBaseline	Default Patch Baseline for Ubuntu Provided by AWS.	Ubuntu	Yes
pb-0cbb3a633de00f07c	AWS-RedHatDefaultPatchBaseline	Default Patch Baseline for Redhat Enterprise Linux Provided by AWS.	Red Hat Enterprise Linux	Yes

A patchbase line defining which patches are okay to install.

AWS Systems Manager - Create Patch Baselines

The screenshot shows the 'Create patch baseline' page in the AWS Systems Manager console. The left sidebar contains navigation links for various AWS services. The main content area is titled 'Create patch baseline' and contains two sections: 'Patch baseline details' and 'Approval rules for operating systems'.

Patch baseline details

- Name:** ProdAmzLinuxBaseline
- Description - optional:** Production Amazon Linux Baseline
- Operating system:** Amazon Linux
- Default patch baseline:** ☐ Set this patch baseline as the default patch baseline for Amazon Linux instances.

Approval rules for operating systems

Create auto-approval rules to specify that certain types of operating system patches are approved automatically.

Rule 1

- Product:** Select patches by product.
- Severity:** Select patches by severity.
- Classification:** Select patches by classification.
- Auto-approval:** Specify how to select updates for automatic approval.

The Patch Baseline rules are defined for the operating system running on the EC2 instance.

AWS Systems Manager

The screenshot shows the 'Baseline ID: pb-0f69e2b0b944c175e' page in the AWS Systems Manager console. The page displays the details of the created patch baseline, including its description, approval rules, and patch exceptions.

Baseline ID: pb-0f69e2b0b944c175e

Description

Baseline ID	pb-0f69e2b0b944c175e	Baseline name	ProdAmzLinuxBaseline
Description	Production Amazon Linux Baseline	Operating system	Amazon Linux
Default baseline	No	Patch groups	-
Created date (UTC)	Tue, 12 May 2020 20:25:08 GMT	Modified date (UTC)	Tue, 12 May 2020 20:25:08 GMT

Approval rules

Product	Classification	Severity	Auto approval delay	Approve Until Date	Compliance reporting	Include non-security updates
*	Security,Bugfix	Critical,Important	Wait 0 days before approving	-	Unspecified	<input checked="" type="checkbox"/> No

Patch exceptions

Patch sources

Name	Product	Configuration
------	---------	---------------

The Baseline has been created.

AWS Systems Manager - Configure Patching

Configure patching

Instances to patch

How do you want to select instances?

- ☐ Enter instance tags
- ☐ Select a patch group
- ☒ Select instances manually

Select one or more instances you want to patch.

<input checked="" type="checkbox"/>	Name	Instance ID	Platform Type	Operating System	State	Agent Version
<input checked="" type="checkbox"/>	Production Web Server 2	i-0549f947c084385f9	Linux	Amazon Linux AMI	running	2.3.714.0
<input checked="" type="checkbox"/>	Production Web Server 1	i-017b812e54d92b6d	Linux	Amazon Linux AMI	running	2.3.714.0

Patching schedule

How do you want to specify a patching schedule?

- ☒ Select an existing Maintenance Window
- ☐ Schedule in a new Maintenance Window
- ☐ Skip scheduling and patch instances now

Maintenance Window: [Select a Maintenance Window](#)

Patching operation

- ☒ Scan and install: Scan each target instance and compares its installed patches with the list of approved patches in the patch baseline. Downloads and installs all approved patches that are missing from the instance.
- ☐ Scan only: Scan each target instance and generates a list of missing patches for you to review.

The two EC2 instances are selected for patching during the predefined maintenance window.

AWS Systems Manager - Tasks

AWS Systems Manager > Maintenance Windows > Window ID: mw-02b3bde0552d9c574 > Tasks

Window ID: mw-02b3bde0552d9c574

Description **Tasks** **History** **Targets** **Tags**

Tasks

Window task ID	Priority	Name	Task ARN	Type	Targets
a526a7bb-ac40-4a90-a921-bf90b40cb7a7	1	PatchingTask	AWS-RunPatchBaseline	RUN_COMMAND	1

The Patching is scheduled via the Run Command from AWS System Manager.

AWS Systems Manager - Patch Baselines

The screenshot shows the AWS Systems Manager Patch Manager console. The left sidebar contains the navigation menu with categories like Operations Management, Application Management, Actions & Change, and Instances & Nodes. The main content area is titled 'Patch Manager' and has tabs for 'Patch Baselines', 'Patches', and 'Patch groups'. The 'Patch Baselines' tab is active, displaying a table of patch baselines. At the top of the table, there are buttons for 'Configure patching', 'View details', 'Edit', 'Delete', 'Actions', and a 'Create patch baseline' button. The table has columns for Baseline ID, Baseline name, Description, Operating system, and Default baseline. Two baselines are listed: 'AWS- WindowsPredefinedPatchBaseline- OS-Applications' for Windows and 'ProdAmzLinuxBaseline' for Amazon Linux. The 'ProdAmzLinuxBaseline' is selected with a radio button.

Baseline ID	Baseline name	Description	Operating system	Default baseline
pb-0fa8379afee7c83	AWS- WindowsPredefinedPatchBaseline- OS-Applications	For the Windows Server operating system, approves all patches that are classified as CriticalUpdates or SecurityUpdates and that have an MSRC severity of Critical or Important. For Microsoft applications, approves all patches. Patches are auto-approved seven days after release.	Windows	No
pb-0f69e2b0b944c175e	ProdAmzLinuxBaseline	Production Amazon Linux Baseline	Amazon Linux	No

To configure a Patch to run now, a new patch configuration must be established.

AWS Systems Manager - Configure Patching

The screenshot shows the 'Configure patching' page in the AWS Systems Manager Patch Manager console. The left sidebar is the same as the previous screenshot. The main content area is titled 'Configure patching' and has a section for 'Instances to patch'. Under this section, there are radio buttons for 'Enter instance tags', 'Select a patch group', and 'Select instances manually'. The 'Select instances manually' option is selected. Below this, there is a text input field with two instance IDs: 'i-017b812e540e92b6d' and 'i-0549f847c084385f9'. Below the input field is a table of instances. The table has columns for Name, Instance ID, Platform Type, Operating System, State, and Agent Version. Two instances are listed: 'Production Web Server 2' and 'Production Web Server 1'. Both instances are running and have the 'Patch Manager' checkbox checked. Below the table is a section for 'Patching schedule' with radio buttons for 'Select an existing Maintenance Window', 'Schedule in a new Maintenance Window', and 'Skip scheduling and patch instances now'. The 'Skip scheduling and patch instances now' option is selected. Below this is a section for 'Patching operation'.

Name	Instance ID	Platform Type	Operating System	State	Agent Version
Production Web Server 2	i-0549f847c084385f9	Linux	Amazon Linux AMI	running	2.3.714.0
Production Web Server 1	i-017b812e540e92b6d	Linux	Amazon Linux AMI	running	2.3.714.0

The same EC2 instance has been selected as patch instances now.

AWS Systems Manager - Run Command History

AWS Systems Manager

Quick Setup

▼ Operations Management

Explorer new

OpsCenter

CloudWatch Dashboard

Trusted Advisor & PHD

▼ Application Management

Resource Groups

AppConfig new

Parameter Store

▼ Actions & Change

Automation

Change Calendar new

Maintenance Windows

▼ Instances & Nodes

Compliance

Inventory

Managed Instances

Hybrid Activations

Session Manager

Run Command

State Manager

Patch Manager

Distributor

▼ Shared Resources

AWS Systems Manager > Run Command > Command ID: 6702fd03-5bf6-475b-ae2d-94bca364f199

Command ID: 6702fd03-5bf6-475b-ae2d-94bca364f199

↺

Cancel command

Retry new

Copy to new new

Command status

Overall status

Detailed status

targets

completed

error

delivery timed out

Success

Success

2

2

0

0

Targets and outputs

View output

Q

< 1 >

	Instance ID	Instance name	Status	Detailed Status	Start time	Finish time
<input type="radio"/>	i-0549f847c084385f9	ip-172-31-92-58.ec2.internal	Success	Success	Tue, 12 May 2020 20:46:20 GMT	Tue, 12 May 2020 20:46:32 GMT
<input type="radio"/>	i-017b612e540e92b6d	ip-172-31-93-154.ec2.internal	Success	Success	Tue, 12 May 2020 20:46:20 GMT	Tue, 12 May 2020 20:46:32 GMT

▶ Command description

▶ Command parameters

The patches were completed under a minute for the two EC2 instances.

17