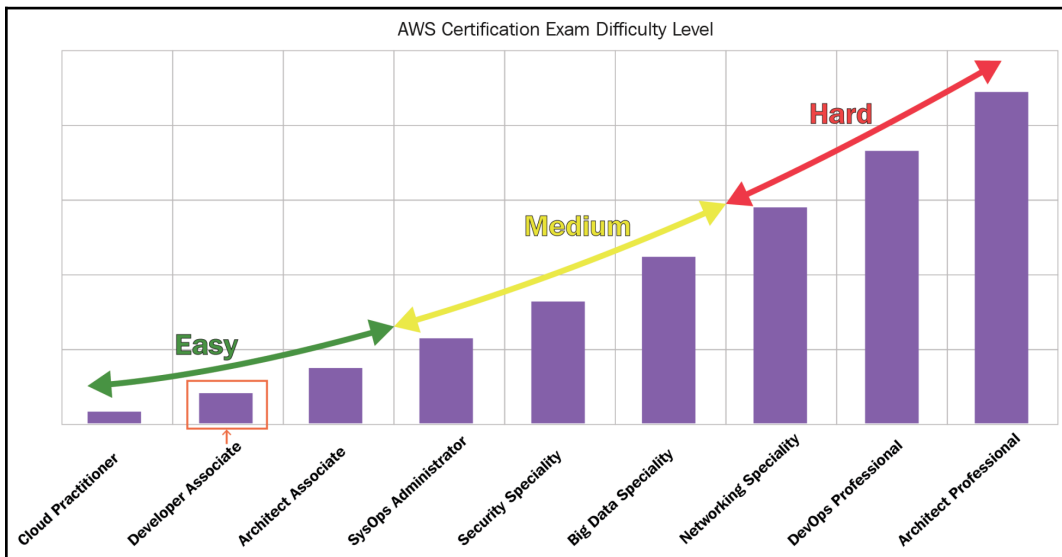
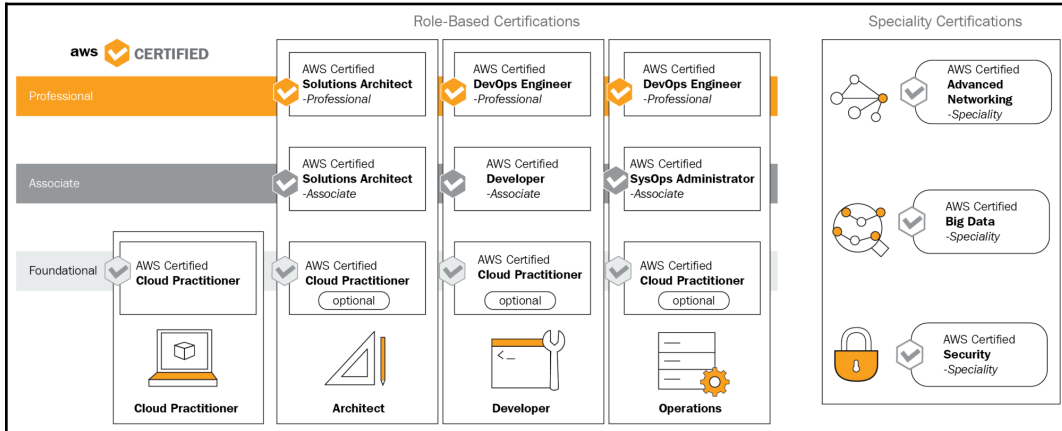
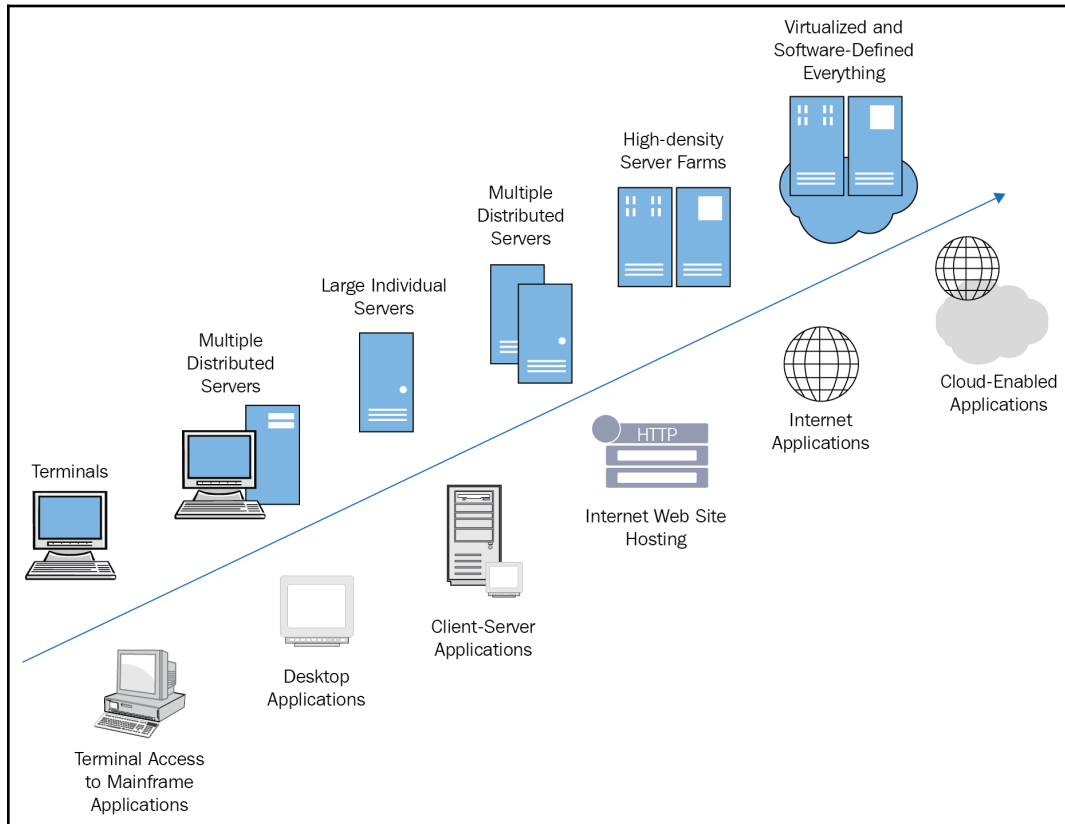


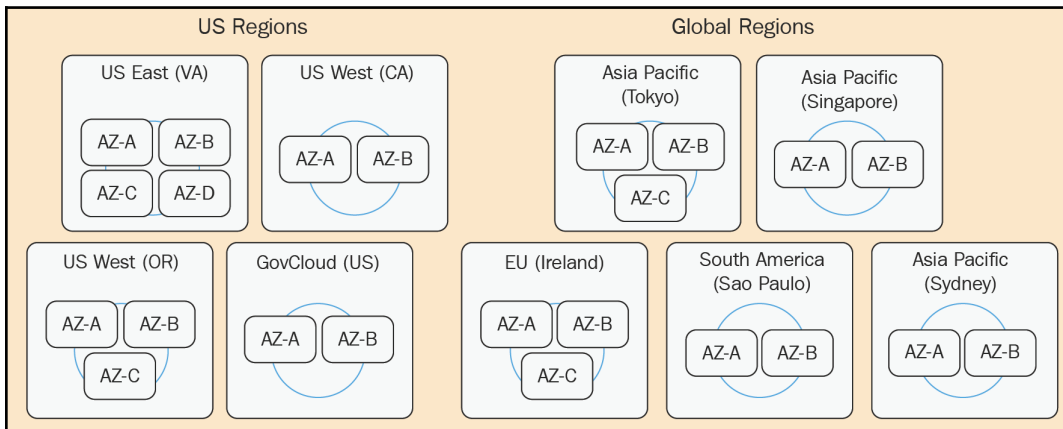
# Chapter 1: Overview of AWS Certified Developer - Associate Certification



# Chapter 2: Understanding the Fundamentals of Amazon Web Services

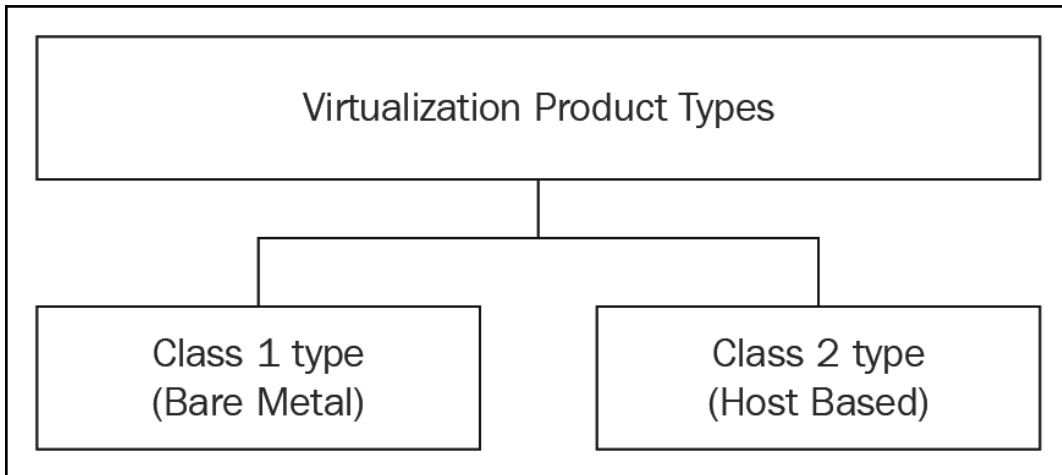


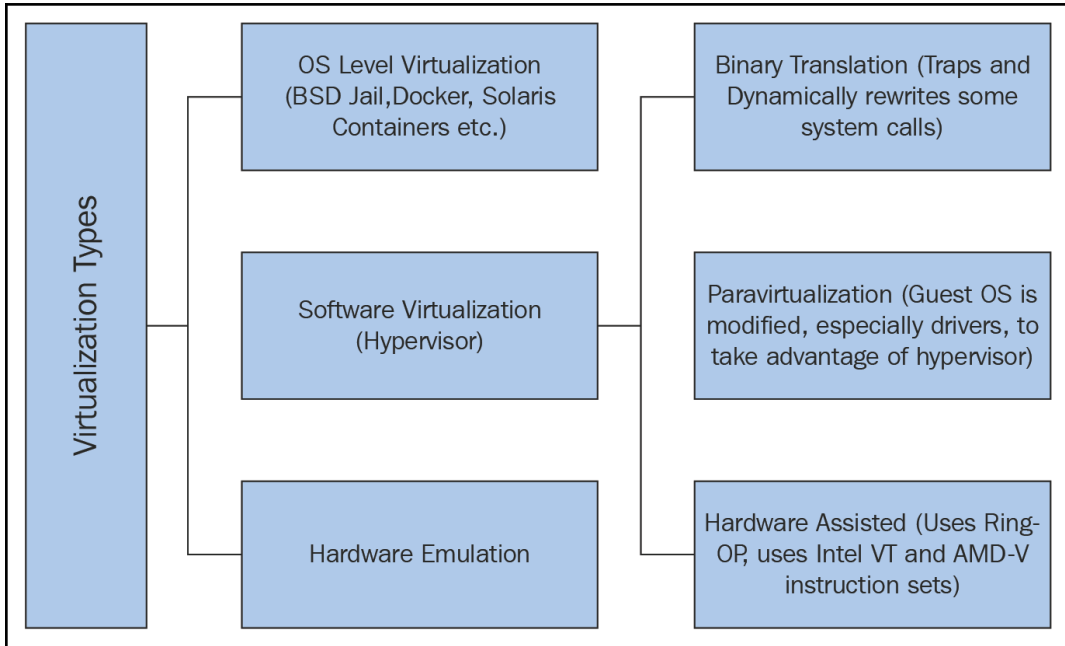
Geography	Currently available AWS Region	Number of Availability Zones
US-East	North Virginia	6
	Ohio	3
US-West	North California	3
	Oregon	3
Asia Pacific	Mumbai	2
	Seoul	2
	Singapore	3
	Sydney	3
	Tokyo	4
	Osaka-Local	1
Canada	Canada Central	2
China	Beijing	2
	Ningxia	2
Europe	Frankfurt	3
	Ireland	3
	London	3
	Paris	3
South America	Sao-Paolo	3
AWS GovCloud	US-West	3



My Software Package	IaaS	PaaS	SaaS
My Application	My Application	My Application	My Application
Data	Data	Data	Data
Runtime	Runtime	Runtime	Runtime
Middleware	Middleware	Middleware	Middleware
Operating Sys	Operating Sys	Operating Sys	Operating Sys
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Networking	Networking	Networking	Networking

Managed by Me  
Managed by Vendor






# Contact Information

All fields are required.

Please select the account type and complete the fields below with your contact details.

Account type 

Professional  Personal

Full name

Company name

Phone number

Country/Region

Address

City

State / Province or region

Postal code

Check here to indicate that you have read and agree to the terms of the [AWS Customer Agreement](#)

Create Account and Continue

## Confirm your identity

Before you can use your AWS account, you must verify your phone number. When you continue, the AWS automated system will contact you with a verification code.

### How should we send you the verification code?

Text message (SMS)  Voice call

Country or region code

India (+91) ▼

Cell Phone Number

Security check



Type the characters as shown above

Send SMS

# Select a Support Plan

AWS offers a selection of support plans to meet your needs. Choose the support plan that best aligns with your AWS usage. [Learn more](#)



## Basic Plan

Free

- Included with all accounts
- 24/7 self-service access to forums and resources
- Best practice checks to help improve security and performance
- Access to health status and notifications



## Developer Plan

From \$29/month

- For early adoption, testing and development
- Email access to AWS Support during business hours
- 1 primary contact can open an unlimited number of support cases
- 12-hour response time for nonproduction systems



## Business Plan

From \$100/month

- For production workloads & business-critical dependencies
- 24/7 chat, phone, and email access to AWS Support
- Unlimited contacts can open an unlimited number of support cases
- 1-hour response time for production systems

### Need Enterprise level support?

Contact your account manager for additional information on running business and mission critical-workloads on AWS (starting at \$15,000/month). [Learn more](#)

## ▼ Close Account

I understand that by clicking this checkbox, I am willing to close my AWS account. Monthly usage of certain AWS services is calculated and billed at the beginning of the following month. If you have used these types of services this month, then at the beginning of next month you will receive a bill for usage that occurred prior to termination of your account. If you own a Reserved Instance for which you have elected to pay in monthly installments, when your account is closed you will continue to be billed your monthly recurring payment until the Reserved Instance is sold on the Reserved Instance Marketplace or it expires.

[Close Account](#)



Services ▾ Resource Groups ▾ ☆

Oregon ▾ Support ▾

### AWS services

Find a service by name or feature (for example, EC2, S3 or VM, storage).

▾ Recently visited services

- CloudFormation
- VPC
- Support
- EC2
- S3

▾ All services

<ul style="list-style-type: none"> <li>Compute</li> <li>EC2</li> <li>EC2 Container Service</li> <li>Lightsail ↗</li> <li>Elastic Beanstalk</li> <li>Lambda</li> <li>Batch</li> </ul>	<ul style="list-style-type: none"> <li>Developer Tools</li> <li>CodeStar</li> <li>CodeCommit</li> <li>CodeBuild</li> <li>CodeDeploy</li> <li>CodePipeline</li> <li>X-Ray</li> </ul>	<ul style="list-style-type: none"> <li>Internet of Things</li> <li>AWS IoT</li> <li>AWS Greengrass</li> </ul>
<ul style="list-style-type: none"> <li>Storage</li> <li>S3</li> <li>EFS</li> </ul>	<ul style="list-style-type: none"> <li>Management Tools</li> <li>CloudWatch</li> <li>CloudFormation</li> </ul>	<ul style="list-style-type: none"> <li>Contact Center</li> <li>Amazon Connect</li> </ul>
		<ul style="list-style-type: none"> <li>Game Development</li> <li>Amazon GameLift</li> </ul>

### Helpful tips

**Manage your costs**  
Get real-time billing alerts based on your cost and usage budgets. [Start now](#)

**Create an organization**  
Use AWS Organizations for policy-based management of multiple AWS accounts. [Start now](#)

### Explore AWS

**Apache MXNet**  
Get started with the most scalable framework for deep learning in the cloud. [Learn more](#)

**Build Applications with AWS Lambda**  
Run and scale code for Python, Node.js, Java, or C# without



Services ▾

Resource Groups ▾

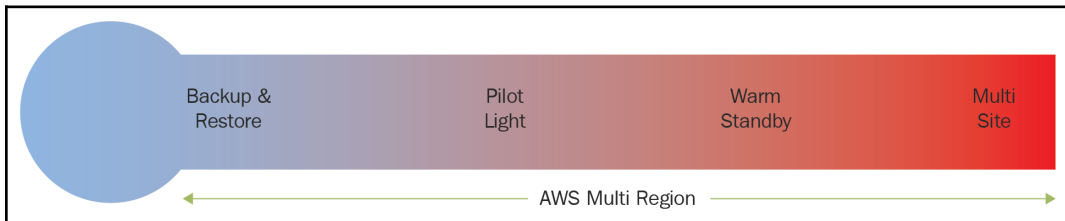
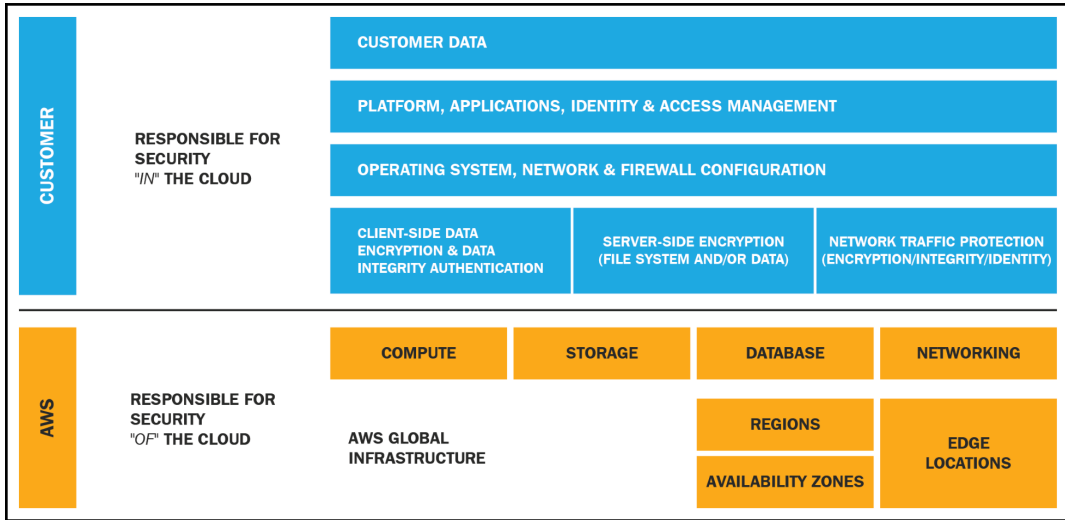


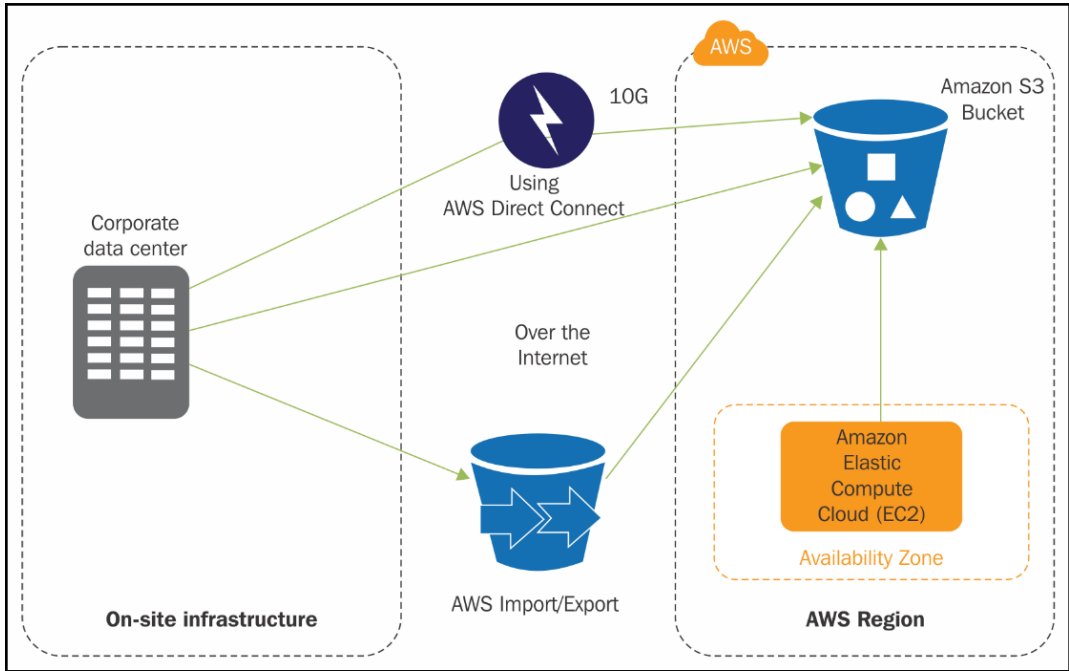
Name ▾

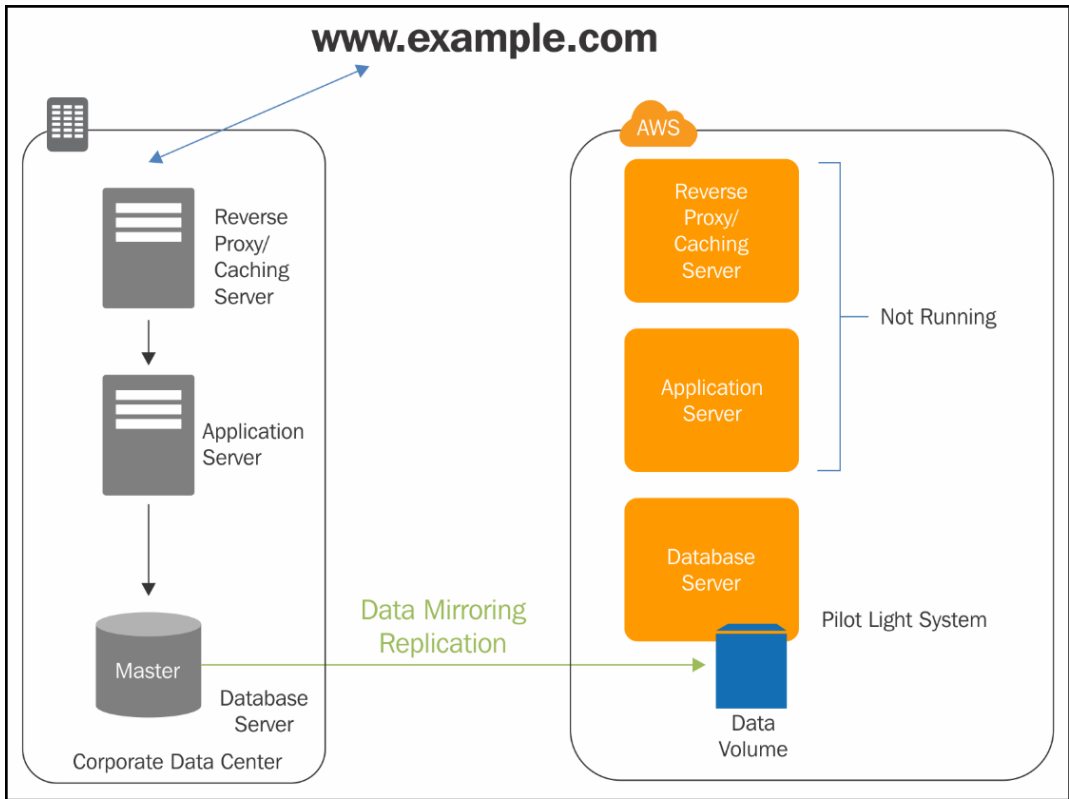
N. Virginia ▾

Support ▾





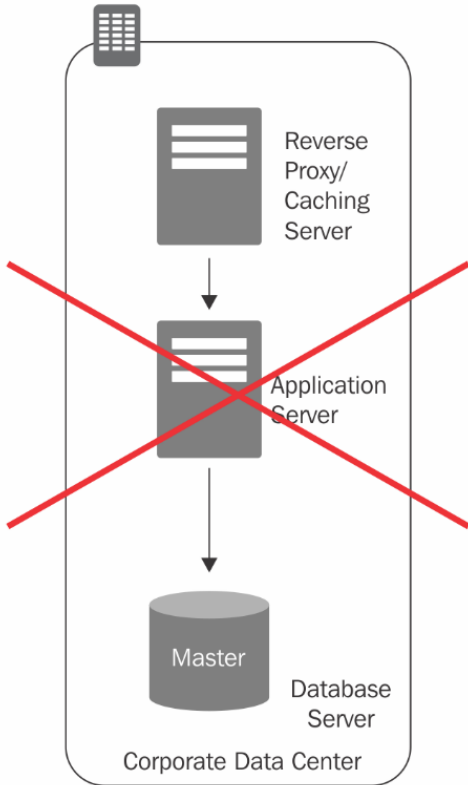




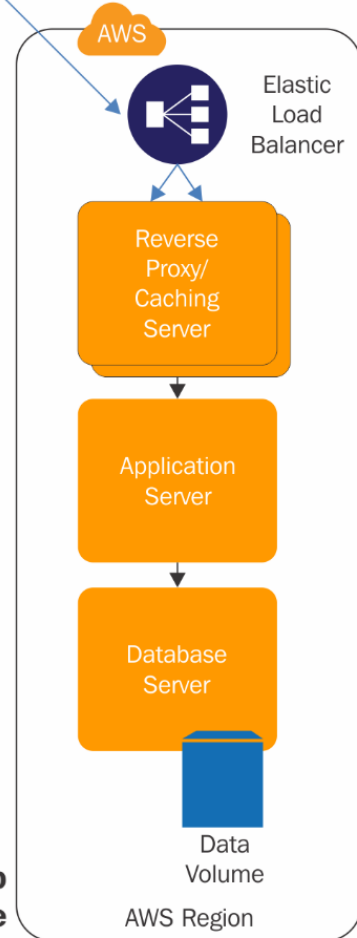
# www.example.com



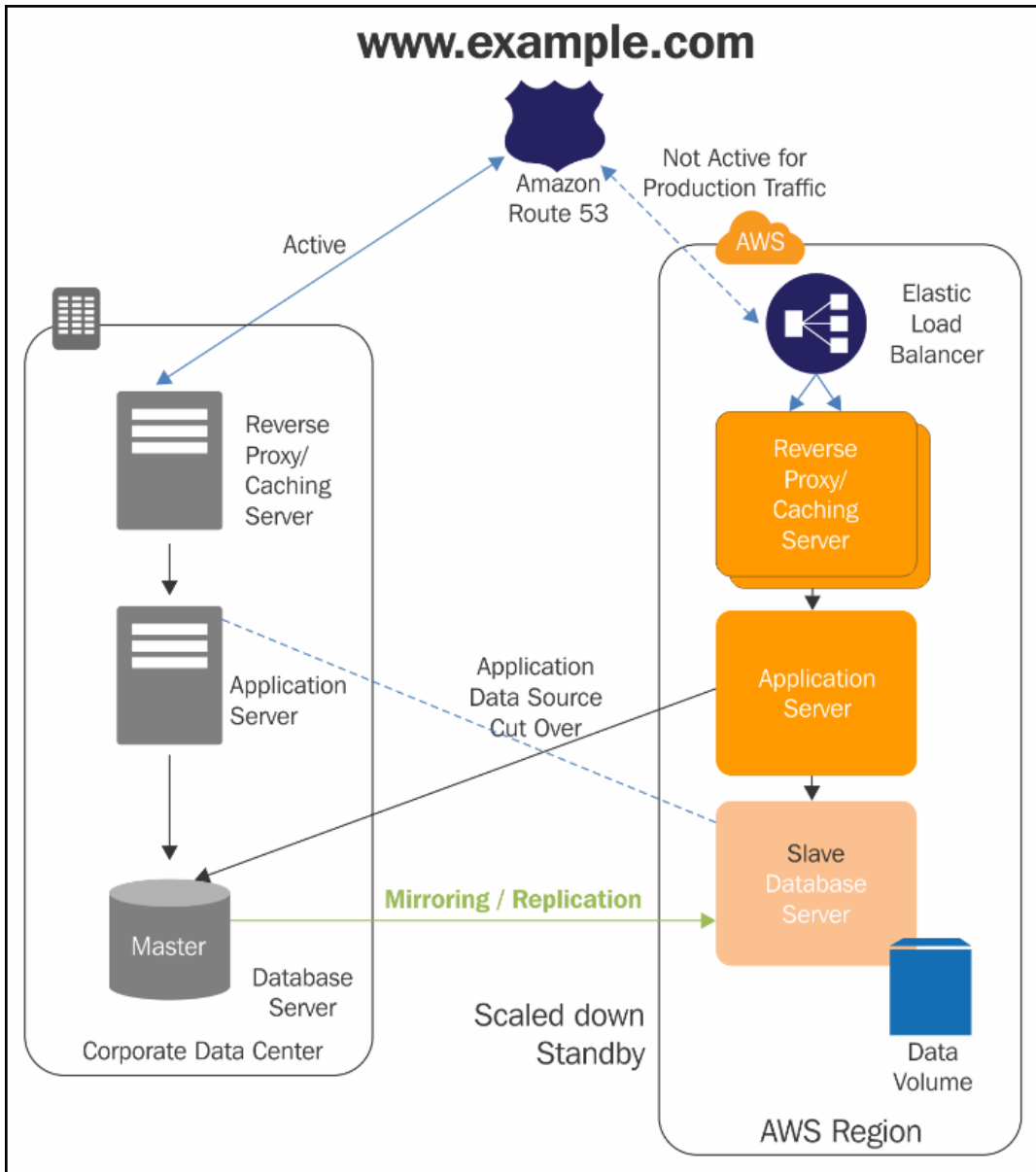
Amazon Route 53  
Active



**Scaled up  
for Production Use**



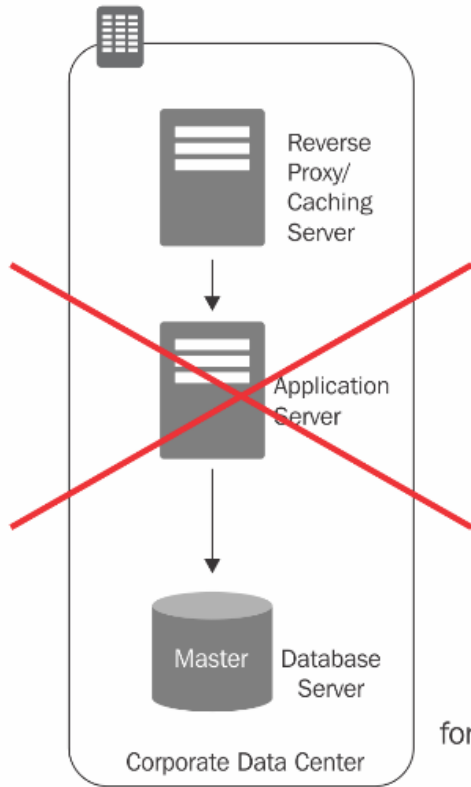
# www.example.com



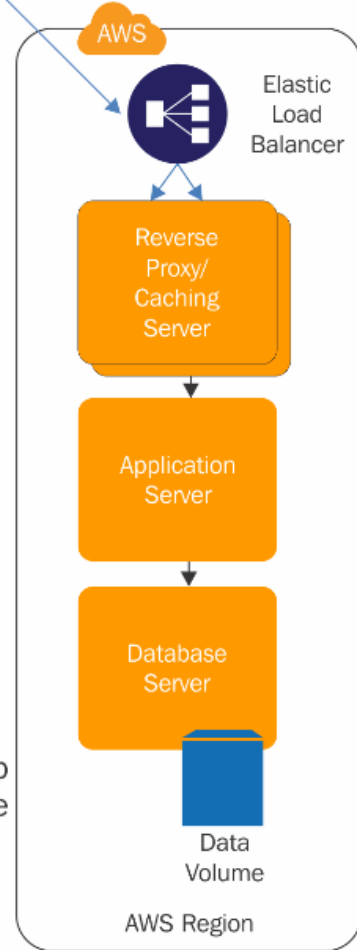
# www.example.com



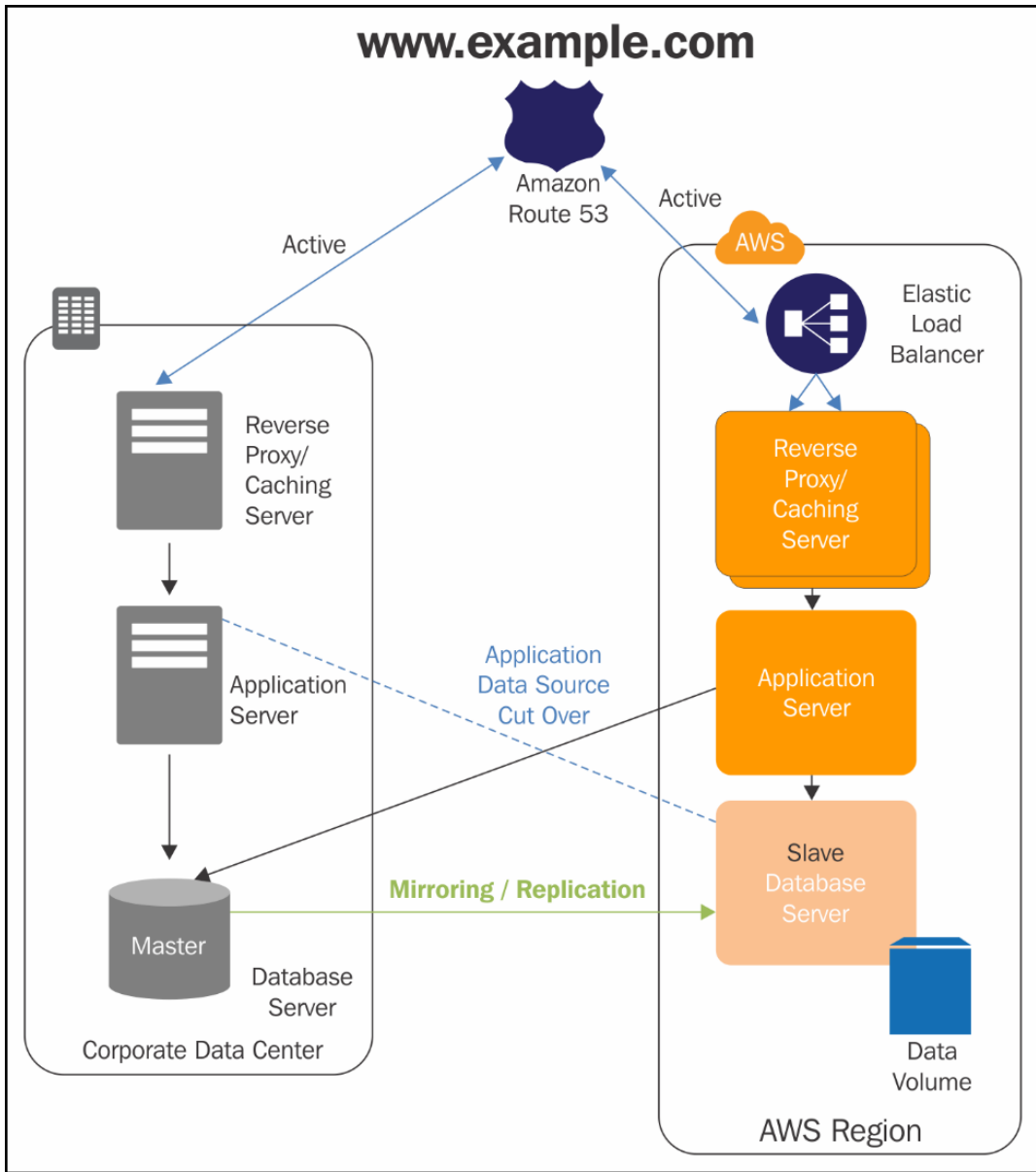
Amazon Route 53  
Active



Scaled up  
for Production Use



# www.example.com





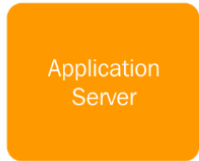
# www.example.com



Amazon Route 53  
Active



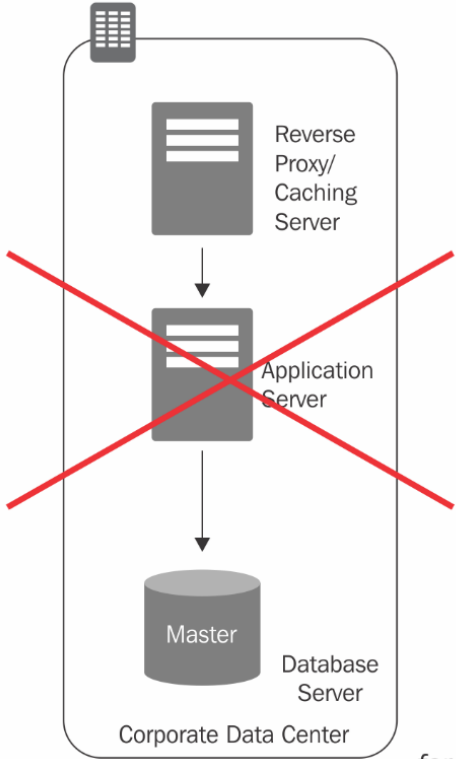
Elastic Load Balancer



Data Volume

AWS Region

Scaled up  
for Production Use



# **Chapter 3: Identity and Access Management (IAM)**

# AWS Account



**Tom**



**Hellen**

**Jim**

**ERPApp**



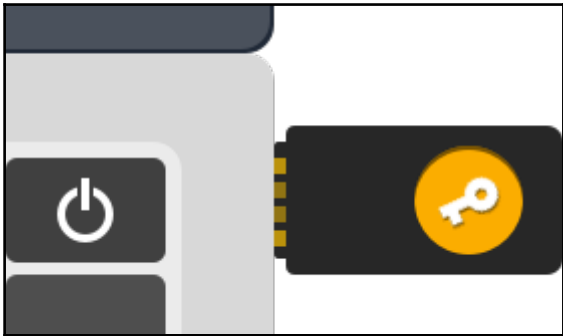
**PayrollApp**



Minimum password length:

- Require at least one uppercase letter ⓘ
- Require at least one lowercase letter ⓘ
- Require at least one number ⓘ
- Require at least one non-alphanumeric character ⓘ
- Allow users to change their own password ⓘ
- Enable password expiration ⓘ  
Password expiration period (in days):
- Prevent password reuse ⓘ  
Number of passwords to remember:
- Password expiration requires administrator reset ⓘ

[Apply password policy](#) [Delete password policy](#)





Services ▾ Resource Groups ▾ Vipul Tankariya ▾ Global ▾ Support ▾

Search IAM

**Add user** **Delete users**

Find users by username or access key

<input checked="" type="checkbox"/>	User name ▾	Groups	Password	Last sign-in	Access keys
<input checked="" type="checkbox"/>	vipul ←	0	✓	Never	1 active

Dashboard  
Groups  
**Users** ←  
Roles  
Policies  
Identity providers  
Account settings  
Credential report  
Encryption keys

Services ▾ Resource Groups ▾ Vipul Tankariya ▾ Global ▾ Support ▾

Search IAM

Users > vipul

## Users: vipul

**User ARN** arn:aws:iam::: :user/vipul  
**Path** /  
**Creation time** 2017-02-26 22:20 UTC+0530

**Select "Security credentials" tab**

Permissions **Groups (0)** **Security credentials** Access Advisor

**Add permissions** Number of attached policies 1

▲ IAMUserChangePassword - AWS Managed policy

[+ Add inline policy](#)

Dashboard  
Groups  
**Users**  
Roles  
Policies  
Identity providers  
Account settings  
Credential report  
Encryption keys

aws Services Resource Groups Vipul Tankariya Global Support

Search IAM

Users > bhavin

### Summary

Delete user

User ARN: arn:aws:iam:██████████:user/bhavin

Path: /

Creation time: 2019-03-25 12:18 UTC+0530

Permissions Groups Tags Security credentials Access Advisor

#### Sign-in credentials

Summary	• Console sign-in link: <a href="https://vipbhavin.signin.aws.amazon.com/console">https://vipbhavin.signin.aws.amazon.com/console</a>
Console password	Enabled (last signed in 5 days)   <a href="#">Manage</a>
Assigned MFA device	Not assigned   <a href="#">Manage</a> ←
Signing certificates	None

### Manage MFA device

Choose the type of MFA device to assign:

- Virtual MFA device** ←  
Authenticator app installed on your mobile device or computer
- U2F security key**  
YubiKey or any other compliant U2F device
- Other hardware MFA device**  
Gemalto token

For more information about supported MFA devices, see [AWS Multi-Factor Authentication](#)

Cancel **Continue**

## Set up virtual MFA device



1. **Install a compatible app on your mobile device or computer**  
See a [list of compatible applications](#)

### Virtual MFA Applications

Applications for your smartphone can be installed from the application store that is specific to your phone type. The following table lists some applications for different smartphone types.

Android	<a href="#">Google Authenticator</a> ; <a href="#">Authy 2-Factor Authentication</a>
iPhone	<a href="#">Google Authenticator</a> ; <a href="#">Authy 2-Factor Authentication</a>
Windows Phone	<a href="#">Authenticator</a>
Blackberry	<a href="#">Google Authenticator</a>

## Set up virtual MFA device



1. Install a compatible app on your mobile device or computer

See a [list of compatible applications](#)



2. Use your virtual MFA app and your device's camera to scan the QR code



Show QR code



Alternatively, you can type the secret key. [Show secret key](#)

3. Type two consecutive MFA codes below

MFA code 1



MFA code 2











Cancel

Previous

Assign MFA



Services ▾ Resource Groups ▾         Vipul Tankariya ▾ Global ▾ Support ▾

## Add user

1 Details — 2 Permissions — 3 Review — 4 Complete

### Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name\*

[+ Add another user](#)

### Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

Access type\*  **Programmatic access**  
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.

**AWS Management Console access**  
Enables a **password** that allows users to sign-in to the AWS Management Console.

\* Required Cancel [Next: Permissions](#)

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Console password\*  Autogenerated password  
 Custom password

Require password reset  User must create a new password at next sign-in  
Users automatically get the `IAMUserChangePassword` policy to allow them to change their own password.

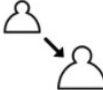
Services ▾ Resource Groups ▾

Details Permissions Review Complete


### Set permissions for bhavin



Add user to group



Copy permissions from existing user

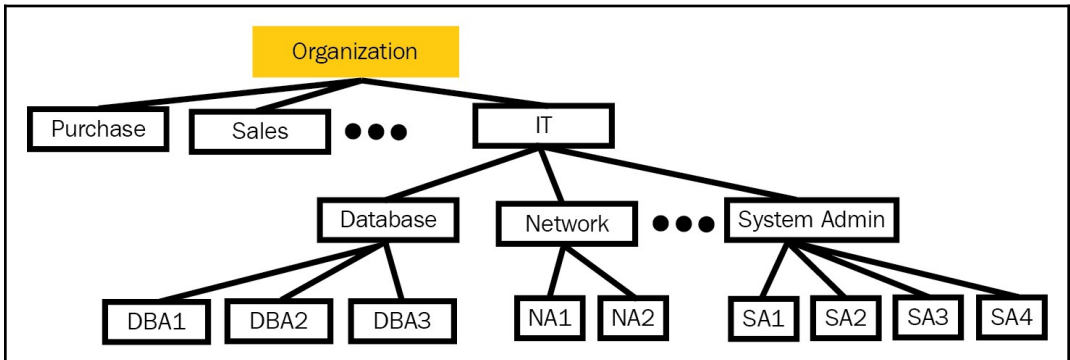


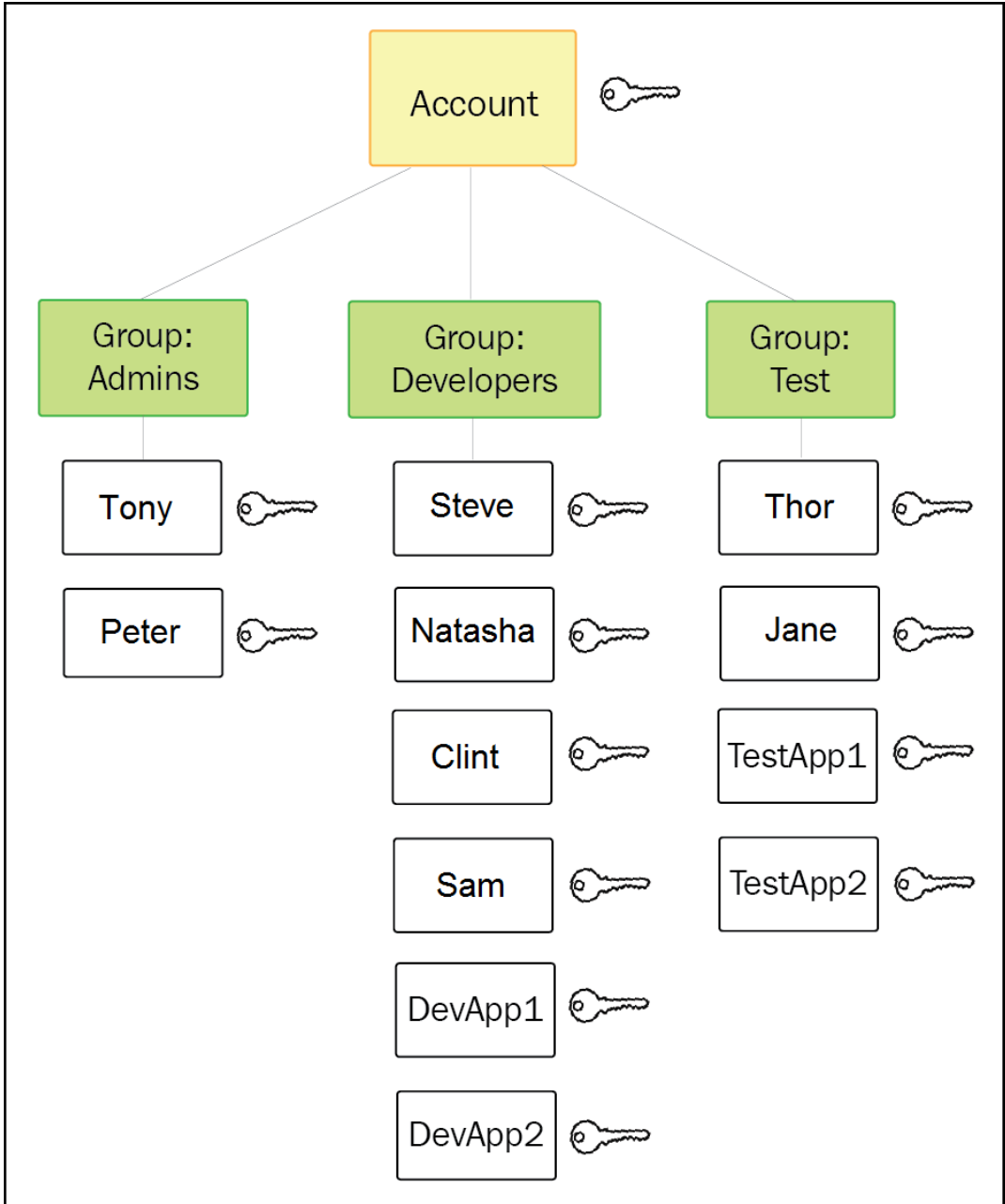
Attach existing policies directly

**i** **Get started with groups**

You haven't created any groups yet. Using groups is a best-practice way to manage users' permissions by job functions, AWS service access, or your custom permissions. Get started by creating a group. [Learn more](#)

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Services ▾ Resource Groups ▾ Vipul Tankariya ▾ Global ▾ Support ▾

Search IAM

Dashboard  
Groups  
Users  
**Roles**  
Policies  
Identity providers  
Account settings  
Credential report

Create New Role Role Actions ▾

Filter

Showing 1 results

<input type="checkbox"/>	Role Name ↕	Creation Time ↕
<input type="checkbox"/>	lambda_basic_execution	2015-08-14 00:18 UTC+0530

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Create Role

**Step 1 : Set Role Name**  
Step 2 : Select Role Type  
Step 3 : Establish Trust  
Step 4 : Attach Policy  
Step 5 : Review

## Set Role Name

Enter a role name. You cannot edit the role name after the role is created.

**Role Name**

Maximum 64 characters. Use alphanumeric and '+, @, \_' characters

Cancel **Next Step**

Services Resource Groups Vipul Tankariya Global Support

### Create Role

Step 1 : Set Role Name  
**Step 2 : Select Role Type**  
 Step 3 : Establish Trust  
 Step 4 : Attach Policy  
 Step 5 : Review

## Select Role Type

**AWS Service Roles**

- Amazon EC2**  
 Allows EC2 instances to call AWS services on your behalf. **Select**
- AWS Directory Service**  
 Allows AWS Directory Service to manage access for existing directory users and groups to AWS services. **Select**
- AWS Lambda**  
 Allows Lambda Function to call AWS services on your behalf. **Select**
- Amazon Redshift**  
 Allows Amazon Redshift Clusters to call AWS services on your behalf. **Select**
- Amazon API Gateway**  
 Allows API Gateway to call AWS resources on your behalf. **Select**

**Role for Cross-Account Access**  
 **Role for Identity Provider Access**

Cancel Previous **Next Step**

Services Resource Groups Vipul Tankariya Global Support

### Create Role

Step 1 : Set Role Name  
 Step 2 : Select Role Type  
 Step 3 : Establish Trust  
**Step 4 : Attach Policy**  
 Step 5 : Review

## Attach Policy

Select one or more policies to attach. Each role can have up to 10 policies attached.

Filter: Policy Type Filter Showing 252 results

	Policy Name	Attached Entities	Creation Time	Edited Time
<input type="checkbox"/>	AmazonRoute53ReadOnlyAcc...	0	2015-02-07 00:10 UTC+0530	2016-11-16 02:45 UTC+0530
<input type="checkbox"/>	AmazonS3FullAccess	0	2015-02-07 00:10 UTC+0530	2015-02-07 00:10 UTC+0530
<input type="checkbox"/>	AmazonS3ReadOnlyAccess	0	2015-02-07 00:10 UTC+0530	2015-02-07 00:10 UTC+0530
<input type="checkbox"/>	AmazonSESEFullAccess	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530
<input type="checkbox"/>	AmazonSESReadOnlyAccess	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530
<input type="checkbox"/>	AmazonSNSFullAccess	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530
<input type="checkbox"/>	AmazonSNSReadOnlyAccess	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530
<input type="checkbox"/>	AmazonSNSRole	0	2015-02-07 00:11 UTC+0530	2015-02-07 00:11 UTC+0530

Cancel Previous **Next Step**

Services ▾ Resource Groups ▾ Vipul Tankariya ▾ Global ▾ Support ▾

### Create Role

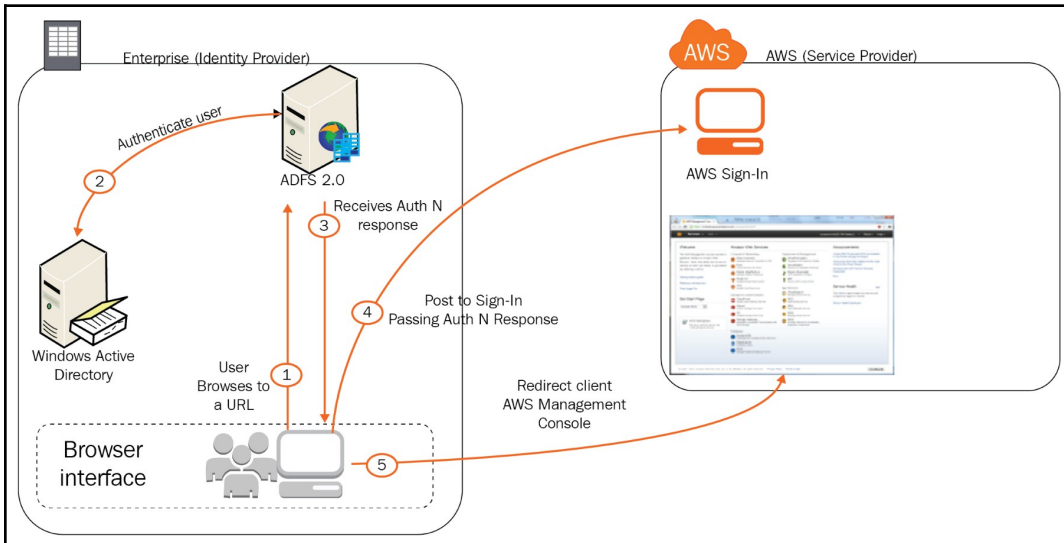
Step 1 : Set Role Name  
Step 2 : Select Role Type  
Step 3 : Establish Trust  
Step 4 : Attach Policy  
Step 5 : Review

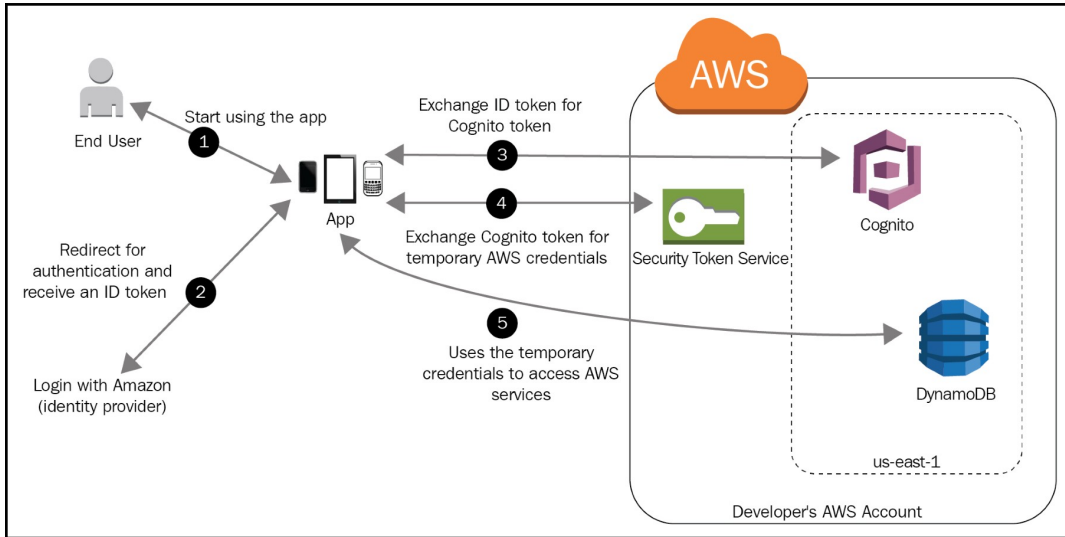
## Review

Review the following role information. To edit the role, click an edit link, or click **Create Role** to finish.

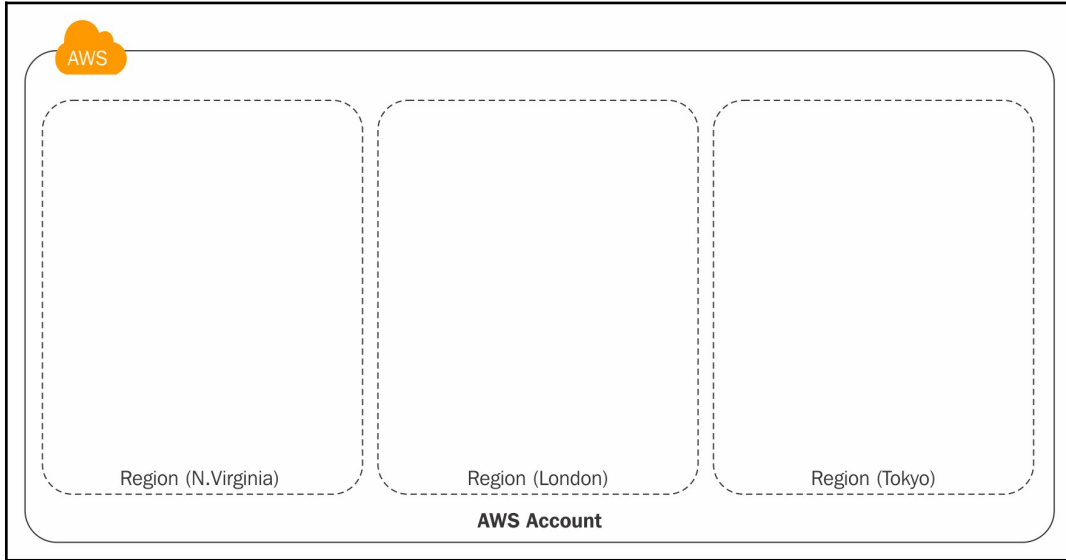
<b>Role Name</b>	myRole	<a href="#">Edit Role Name</a>
<b>Role ARN</b>	arn:aws:iam::[redacted]:role/myRole	
<b>Trusted Entities</b>	The identity provider(s) ec2.amazonaws.com	
<b>Policies</b>	arn:aws:iam::aws:policy/AmazonS3FullAccess	<a href="#">Change Policies</a>

[Cancel](#) [Previous](#) [Create Role](#)

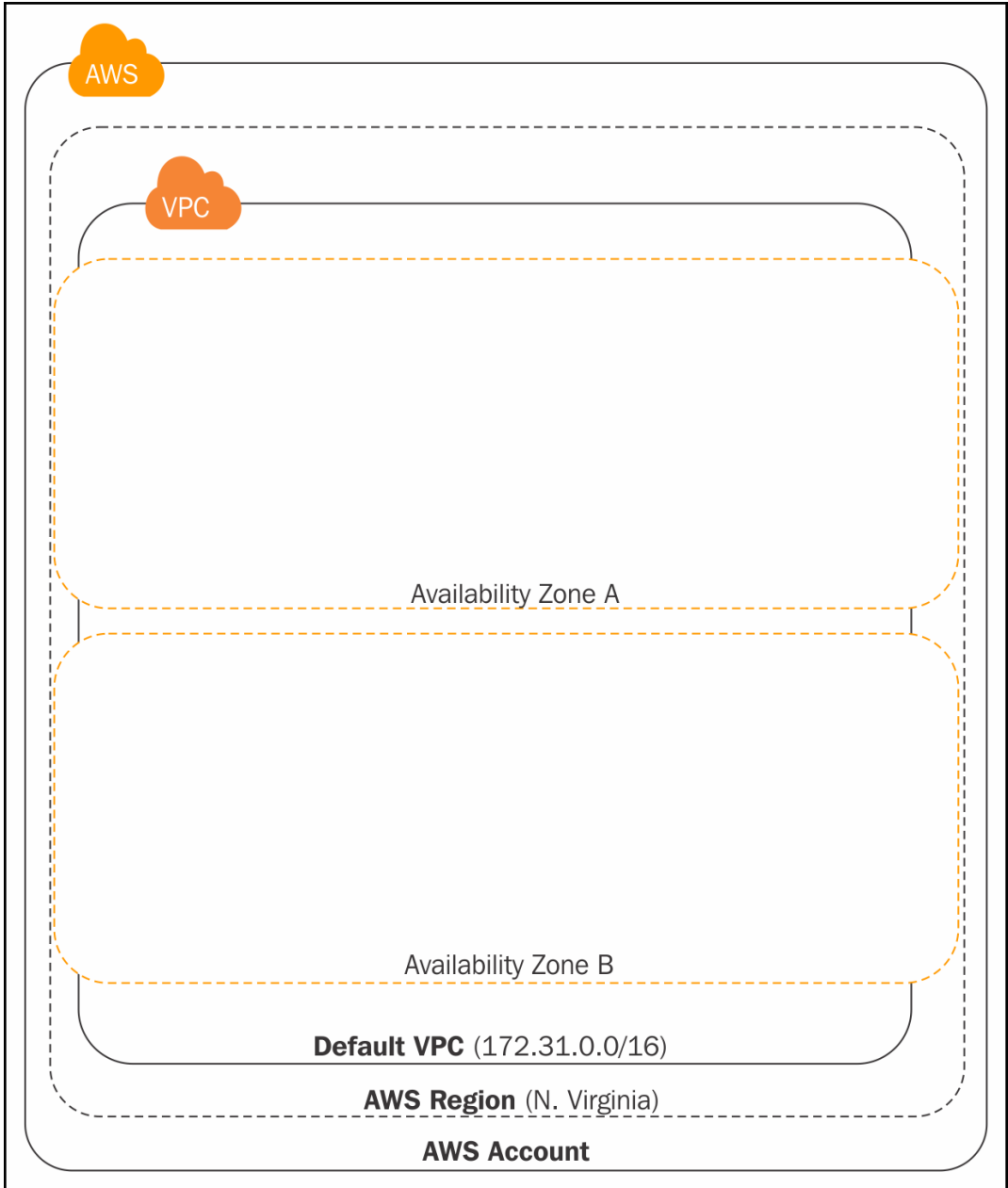


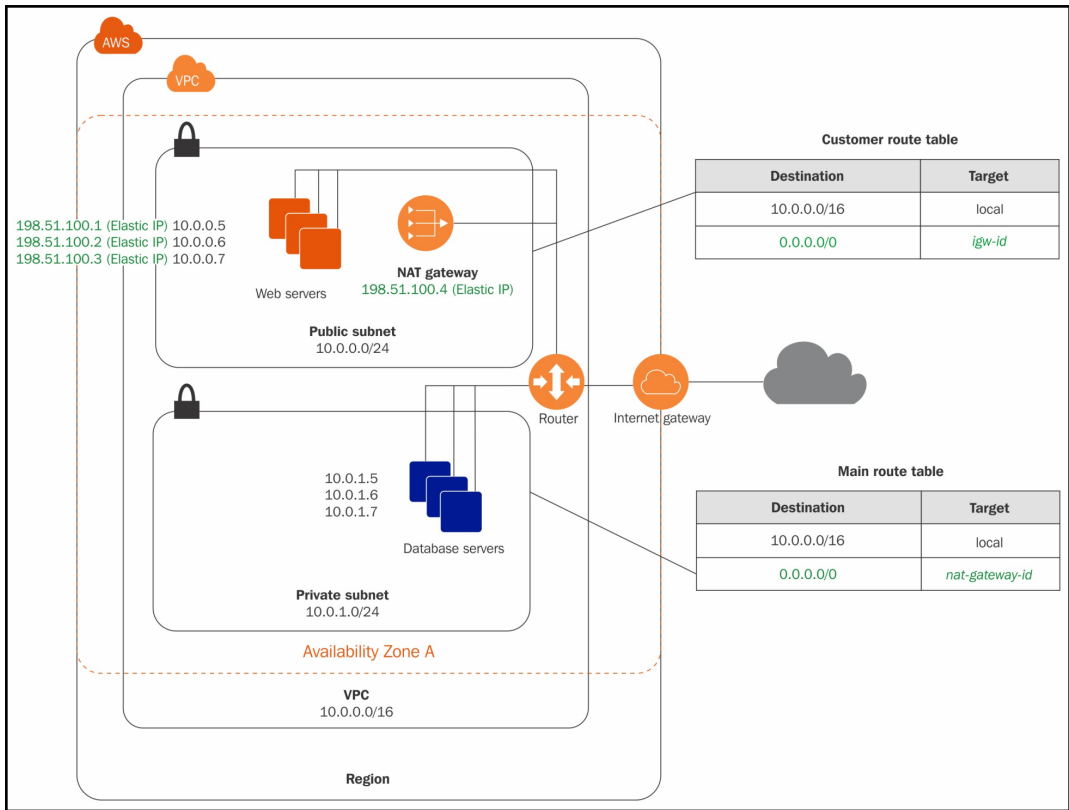


# Chapter 4: Virtual Private Clouds









## VPC Dashboard

Filter by VPC:

## Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

NAT Gateways

Peering Connections

## Security

[Launch VPC Wizard](#)[Launch EC2 Instances](#)

Note: Your Instances will launch in the US East (N. Virginia) region.

Resources by Region [Refresh Resources](#)

You are using the following Amazon VPC resources

VPCs

N. Virginia 2

[See all regions ▾](#)

NAT Gateways

N. Virginia 0

[See all regions ▾](#)

Subnets

N. Virginia 5

[See all regions ▾](#)

VPC Peering Connections

N. Virginia 0

[See all regions ▾](#)

Route Tables

N. Virginia 3

[See all regions ▾](#)

Network ACLs

N. Virginia 2

[See all regions ▾](#)

Internet Gateways

N. Virginia 2

[See all regions ▾](#)

Security Groups

N. Virginia 4

[See all regions ▾](#)

Egress-only Internet Gateways

N. Virginia 0

[See all regions ▾](#)

Customer Gateways

N. Virginia 0

[See all regions ▾](#)



## Step 1: Select a VPC Configuration

### VPC with a Single Public Subnet

VPC with Public and Private Subnets

VPC with Public and Private Subnets and Hardware VPN Access

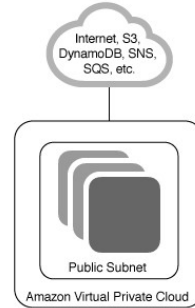
VPC with a Private Subnet Only and Hardware VPN Access

Your instances run in a private, isolated section of the AWS cloud with direct access to the Internet. Network access control lists and security groups can be used to provide strict control over inbound and outbound network traffic to your instances.

**Creates:**

A /16 network with a /24 subnet. Public subnet instances use Elastic IPs or Public IPs to access the Internet.

Select



Cancel and Exit



Services ▾ Resource Groups ▾

Vipul Tankariya ▾ N. Virginia ▾ Support ▾

### Step 2: VPC with a Single Public Subnet

IPv4 CIDR block:\*  (65531 IP addresses available)

IPv6 CIDR block:  No IPv6 CIDR Block  
 Amazon provided IPv6 CIDR block

VPC name:

---

Public subnet's IPv4 CIDR:\*  (251 IP addresses available)

Availability Zone:\*

Subnet name:

You can add more subnets after AWS creates the VPC.

---

Service endpoints

---

Enable DNS hostnames:\*  Yes  No

Hardware tenancy:\*

Enable ClassicLink:\*  Yes  No

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VPC Dashboard

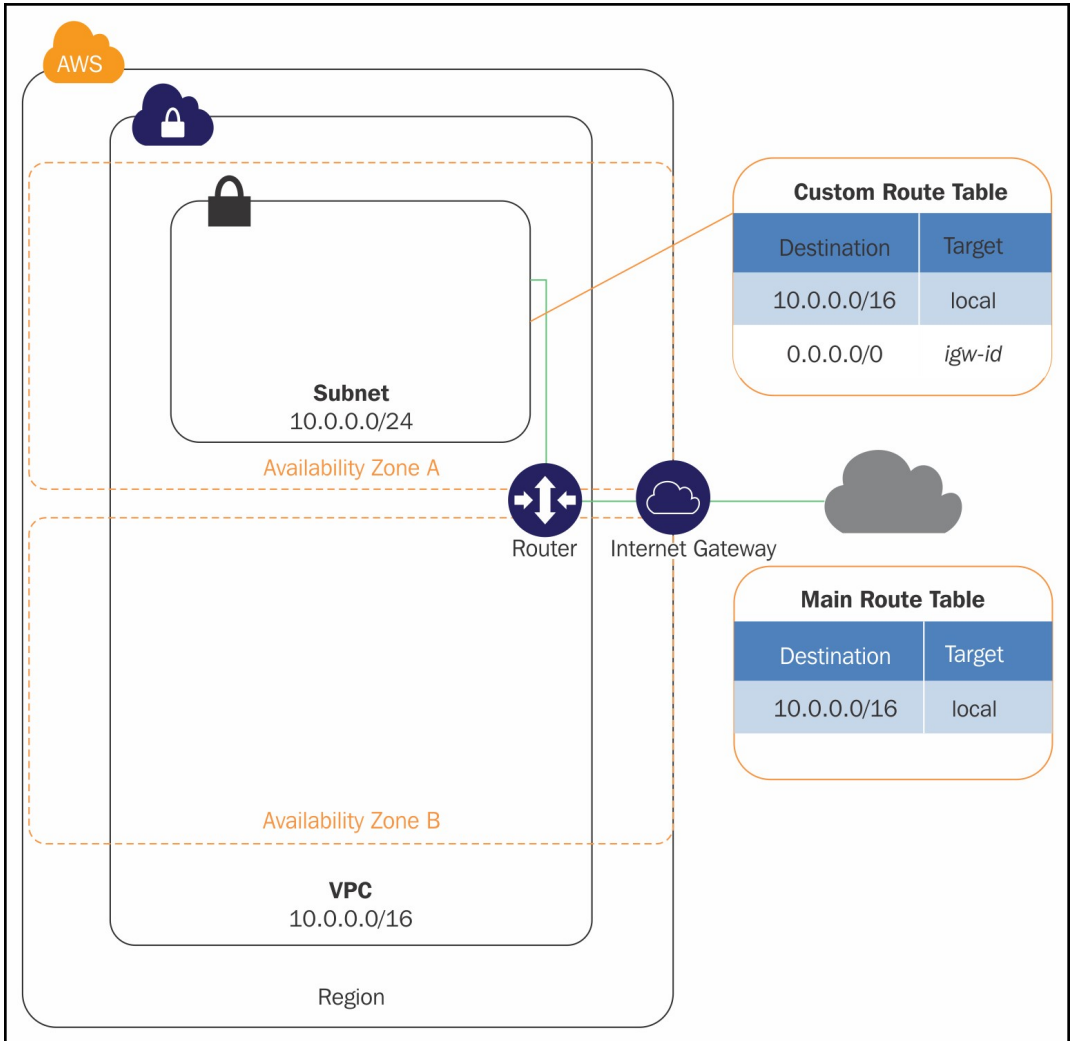
Filter by VPC:

Virtual Private Cloud

Your VPCs ←

Search VPCs and their properties

<input type="checkbox"/>	Name	VPC ID	State	IPv4 CIDR
<input checked="" type="checkbox"/>	Packtpub VPC	vpc-b8f0ebde	available	10.0.0.0/16
<input type="checkbox"/>	Default VPC	vpc-05449263	available	172.30.0.0/16



Services ▾ Resource Groups ▾ Vipul Tankariya ▾ N. Virginia ▾ Support ▾

### Step 1: Select a VPC Configuration

VPC with a Single Public Subnet

**VPC with Public and Private Subnets** ←

VPC with Public and Private Subnets and Hardware VPN Access

VPC with a Private Subnet Only and Hardware VPN Access

In addition to containing a public subnet, this configuration adds a private subnet whose instances are not addressable from the Internet. Instances in the private subnet can establish outbound connections to the Internet via the public subnet using Network Address Translation (NAT).

**Creates:**  
A /16 network with two /24 subnets. Public subnet instances use Elastic IPs to access the Internet. Private subnet instances access the Internet via Network Address Translation (NAT). (Hourly charges for NAT devices apply.)

**Select** ←

Cancel and Exit

Services ▾ Resource Groups ▾ Vipul Tankariya ▾ N. Virginia ▾ Support ▾

### Step 2: VPC with Public and Private Subnets

IPv4 CIDR block:\* 10.0.0.0/16 (65531 IP addresses available)

IPv6 CIDR block:  No IPv6 CIDR Block  
 Amazon provided IPv6 CIDR block

VPC name:

Public subnet's IPv4 CIDR:\* 10.0.0.0/24 (251 IP addresses available)

Availability Zone:\* No Preference ▾

Public subnet name:

Private subnet's IPv4 CIDR:\* 10.0.1.0/24 (251 IP addresses available) ←

Availability Zone:\* No Preference ▾

Private subnet name:

You can add more subnets after AWS creates the VPC.

Specify the details of your NAT gateway (NAT gateway rates apply). ← [Use a NAT instance instead](#) ↑

Elastic IP Allocation ID:\*

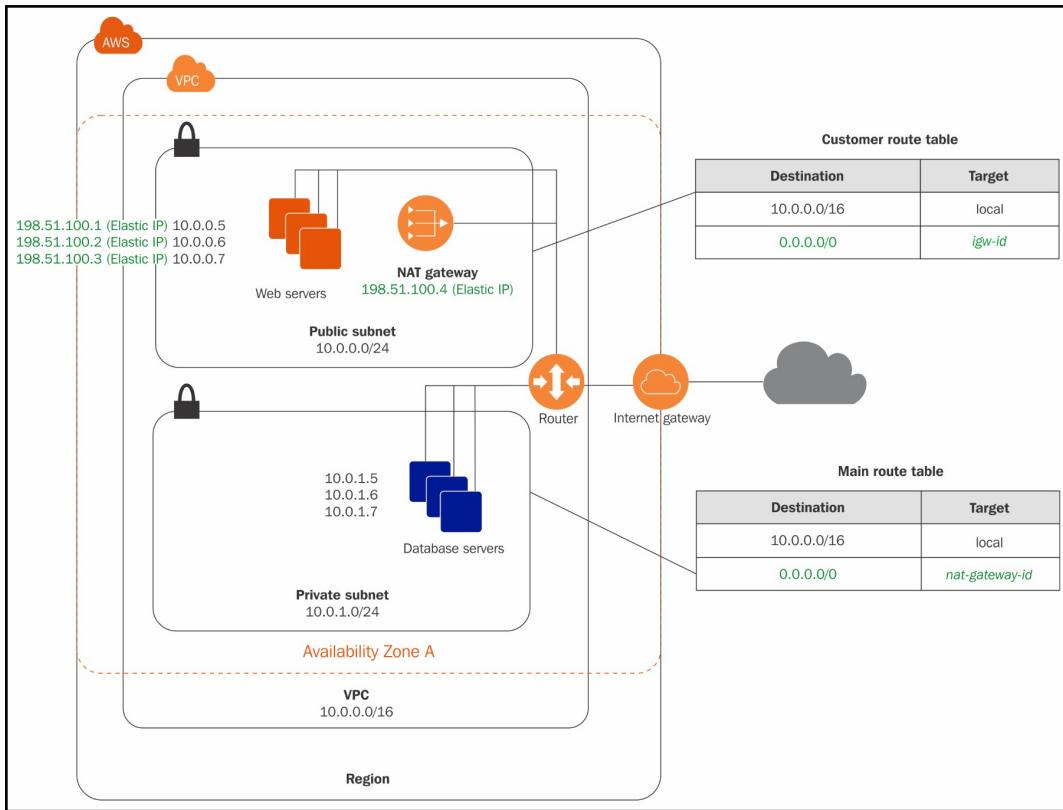
Service endpoints

Enable DNS hostnames:\*  Yes  No

Hardware tenancy:\* Default ▾

Enable ClassicLink:\*  Yes  No

Cancel and Exit



Services ▾ Resource Groups ▾ Vipul Tankariya ▾ N. Virginia ▾ Support ▾

### Step 3: Configure your VPN

Specify the public IP Address of your VPN router (Customer Gateway)

Customer Gateway IP:\*

Customer Gateway name:

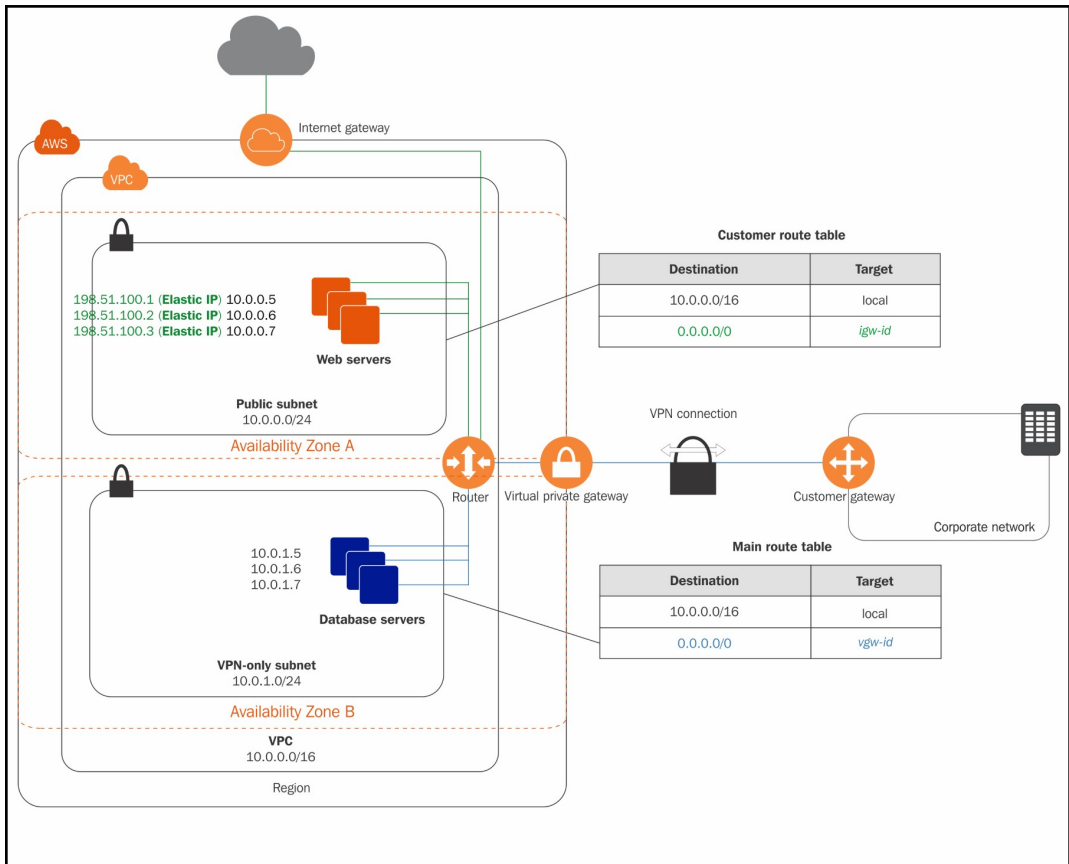
VPN Connection name:

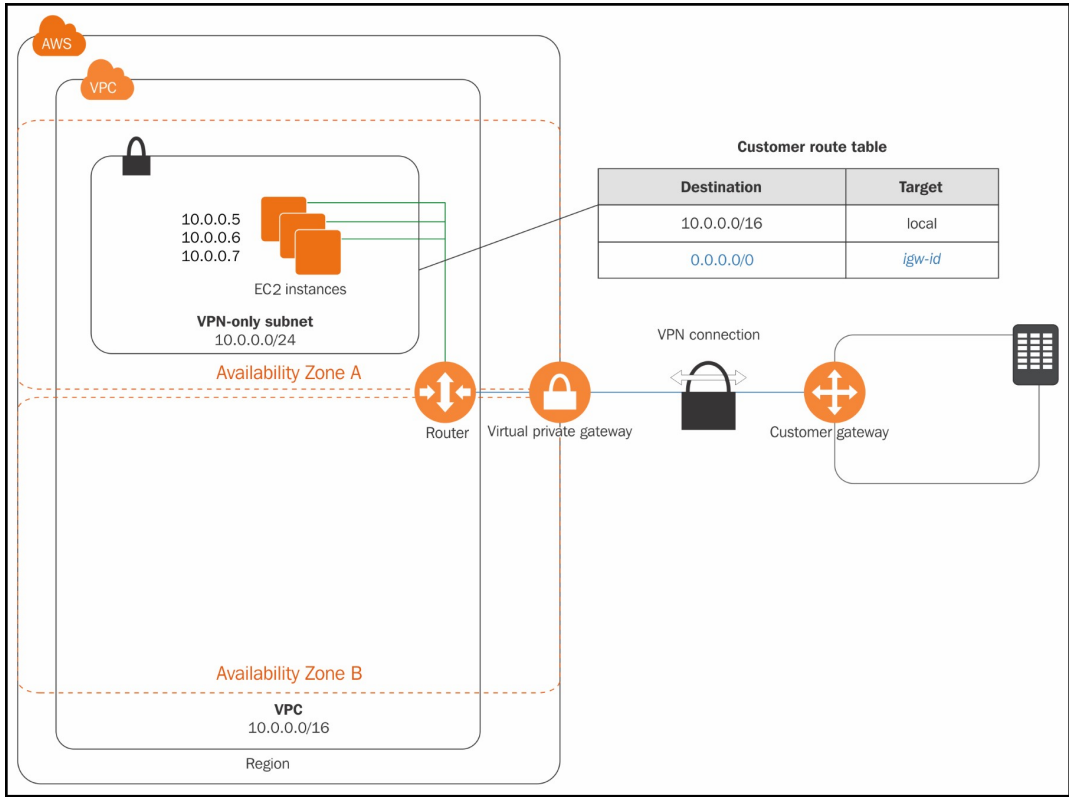
**Note:** VPN Connection rates apply.

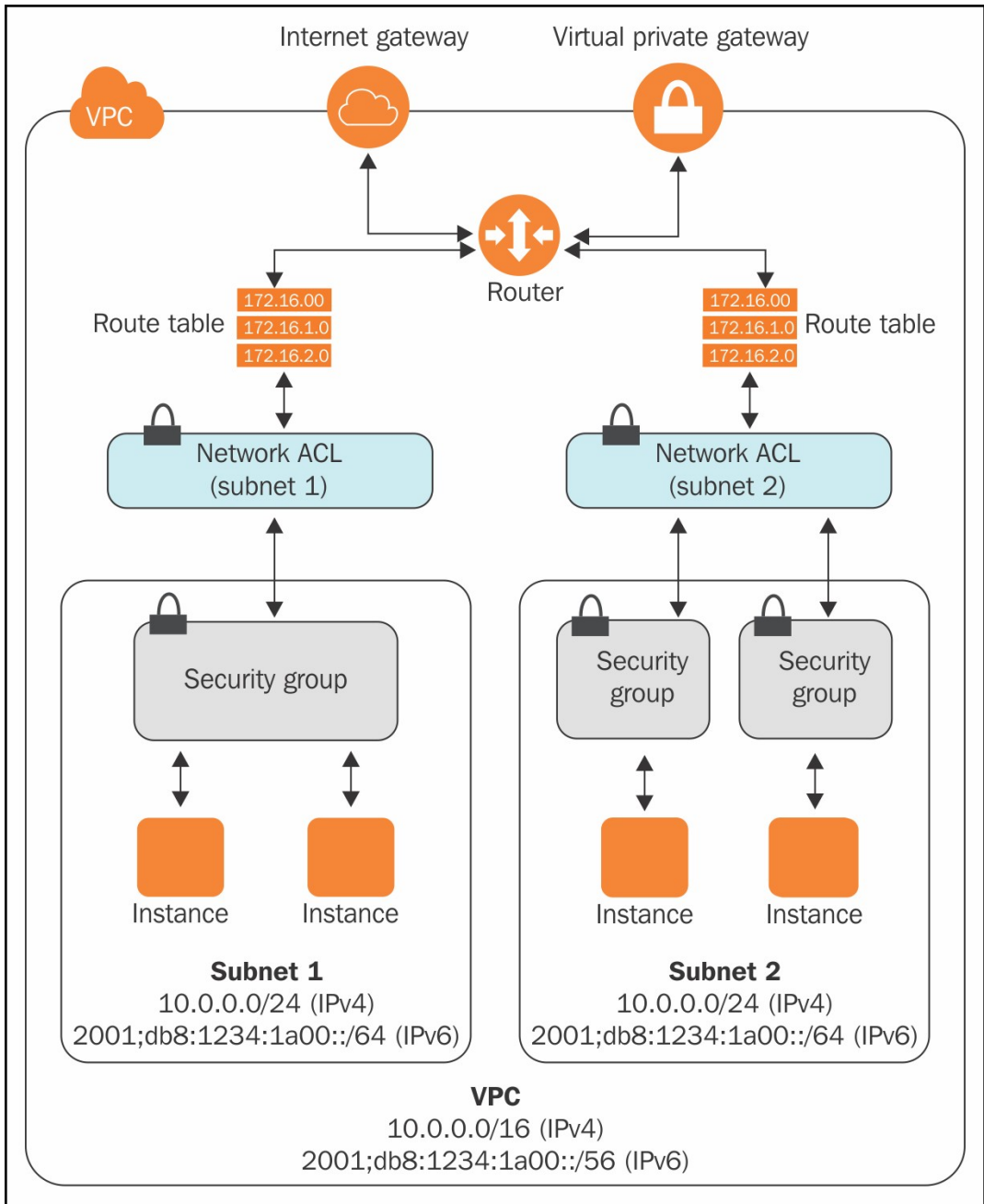
Specify the routing for the VPN Connection ([Help me choose](#))

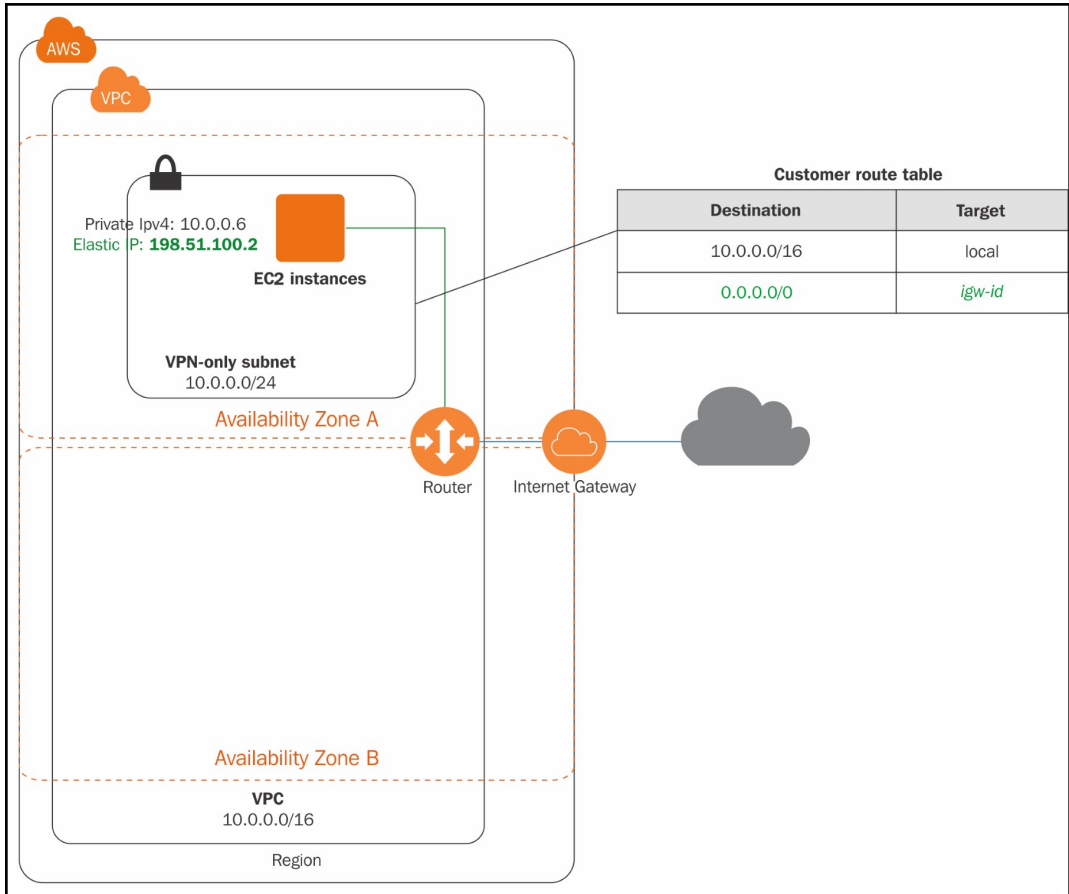
Routing Type:\*

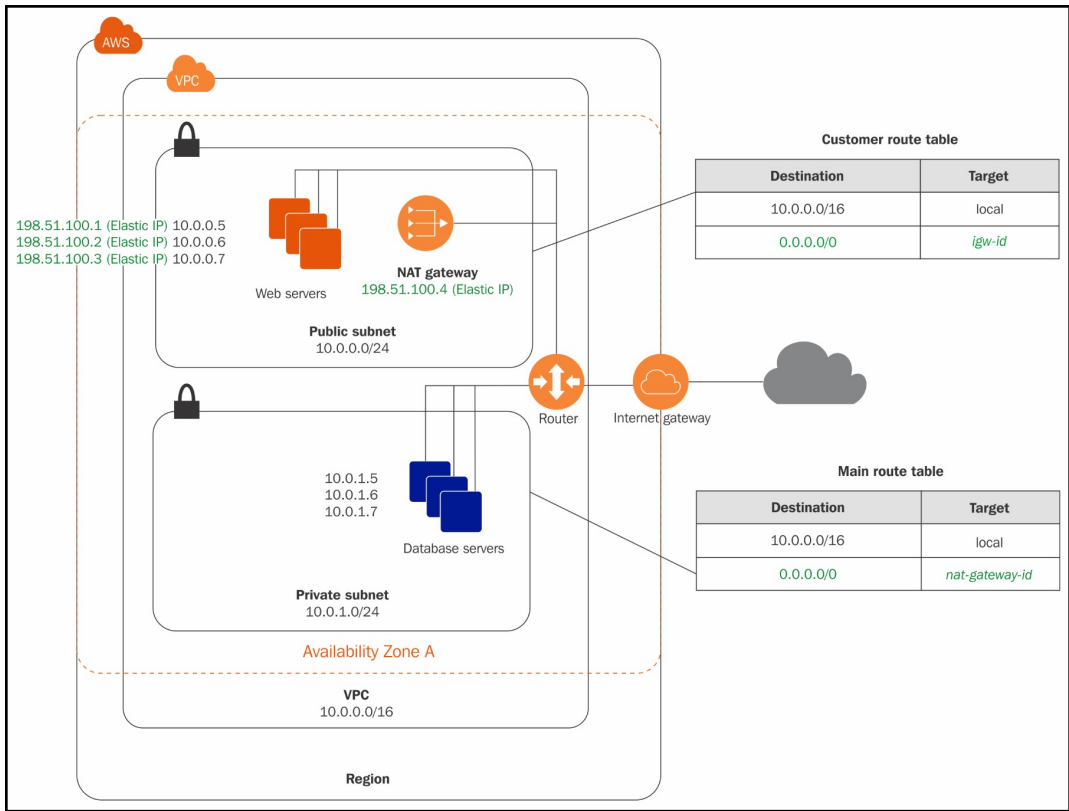




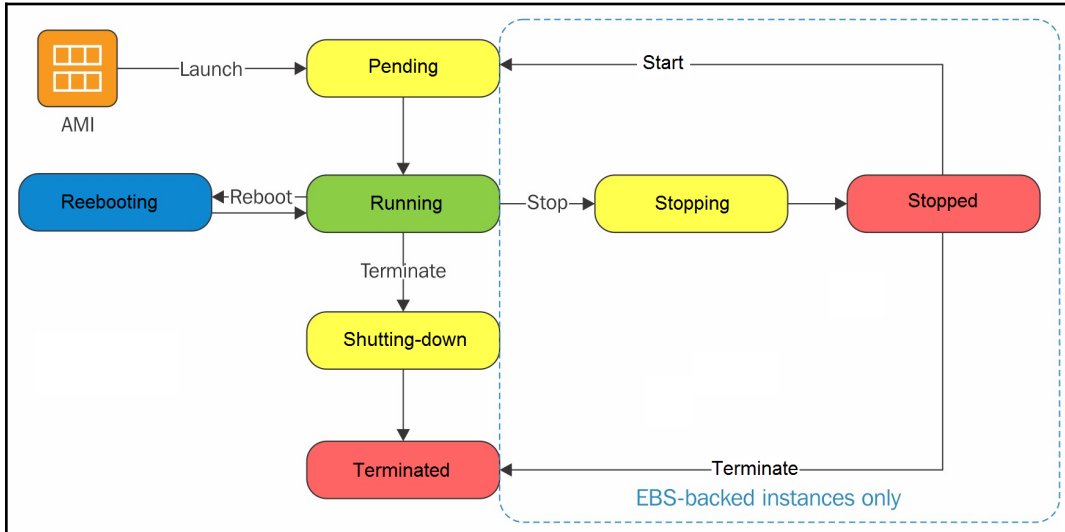


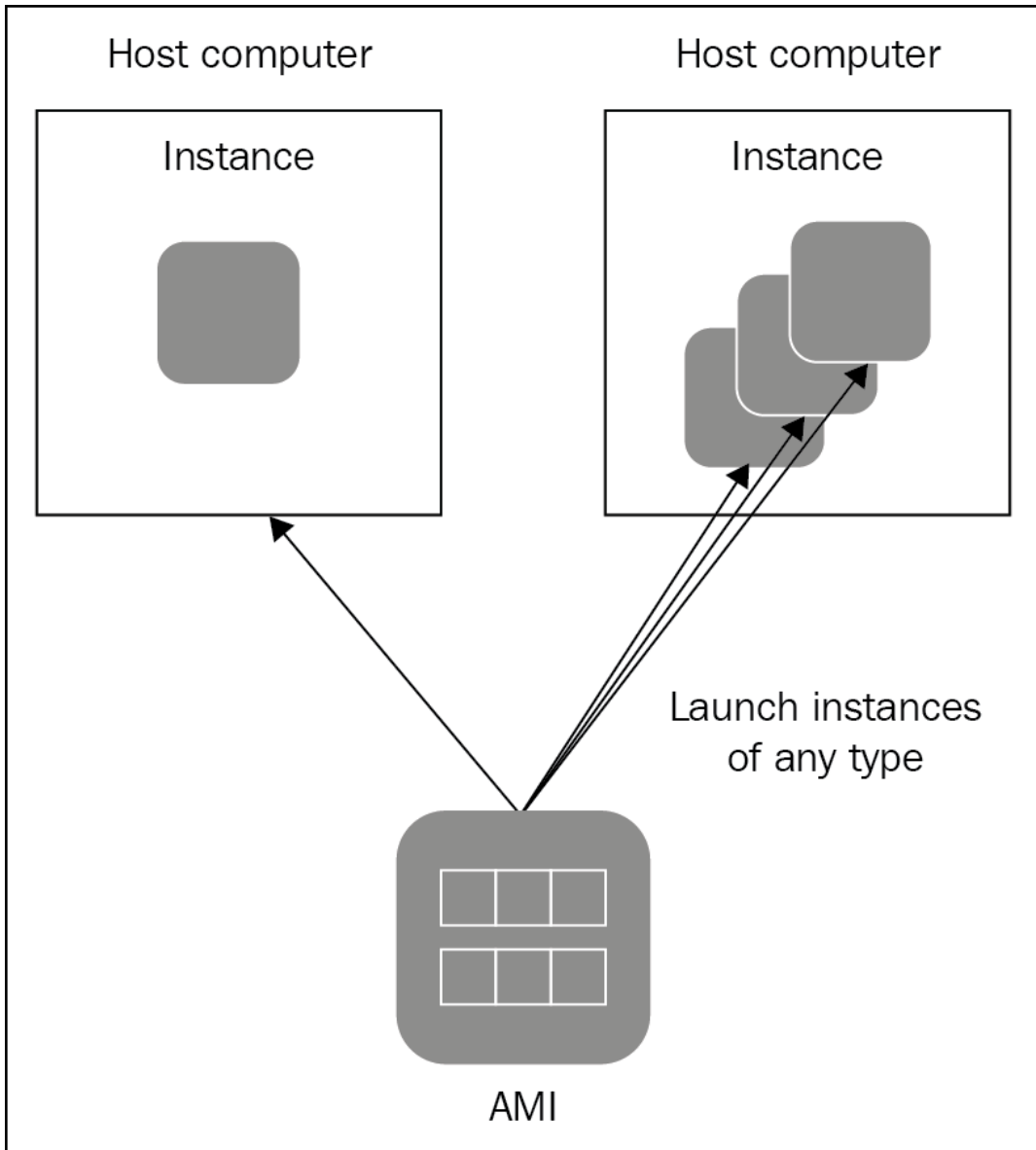







# Chapter 5: Getting Started with Elastic Compute Cloud (EC2)






**Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type** - ami-22ce4934 [Select](#)

**Amazon Linux** 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. 64-bit

Free tier eligible Root device type: ebs Virtualization type: hvm

**Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type - ami-22ce4934**

Free tier eligible

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.

Root device type: ebs    Virtualization type: hvm

**Select**

64-bit

Services ▾ Resource Groups ▾
Vipul Tankariya ▾ N. Virginia ▾ Support ▾

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

### 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.

**Quick Start**

- My AMIs
- AWS Marketplace
- Community AMIs
- Free tier only ⓘ

<< < 1 to 31 of 31 AMIs > >>

**Amazon Linux**  
Free tier eligible

**Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type - ami-c58c1dd3**

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.

Root device type: ebs    Virtualization type: hvm

**Select**

64-bit

**Red Hat**  
Free tier eligible

**Red Hat Enterprise Linux 7.3 (HVM), SSD Volume Type - ami-b63769a1**

Red Hat Enterprise Linux version 7.3 (HVM), EBS General Purpose (SSD) Volume Type

Root device type: ebs    Virtualization type: hvm

**Select**

64-bit

**SUSE Linux**  
Free tier eligible

**SUSE Linux Enterprise Server 12 SP2 (HVM), SSD Volume Type - ami-fde4e4bea**

SUSE Linux Enterprise Server 12 Service Pack 2 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.

Root device type: ebs    Virtualization type: hvm

**Select**

64-bit

Feedback   English
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Services ▾ Resource Groups ▾
Vipul Tankariya ▾ N. Virginia ▾ Support ▾

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

### 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 types ▾ Current generation ▾ Show/Hide Columns

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

	Family ▾	Type ▾	vCPUs ⓘ	Memory (GiB) ▾	Instance Storage (GB) ⓘ	EBS-Optimized Available ⓘ	Network Performance ⓘ	IPv6 Support ⓘ
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	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

Cancel   Previous   **Review and Launch**   Next: Configure Instance Details

Feedback   English
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aws Services Resource Groups prachis@te-books Ohio Support

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**  [Launch into Auto Scaling Group](#)

**Purchasing option**  Request Spot instances

**Network**  [Create new VPC](#)

**Subnet**  [Create new subnet](#)

**Auto-assign Public IP**

**Placement group**  Add instance to placement group.

**Capacity Reservation**  [Create new Capacity Reservation](#)

**IAM role**  [Create new IAM role](#)

**Shutdown behavior**

**Enable termination protection**  Protect against accidental termination

**Monitoring**  Enable CloudWatch detailed monitoring  
[Additional charges apply.](#)

**Tenancy**   
[Additional charges will apply for dedicated tenancy.](#)

**Elastic Inference**  Add an Elastic Inference accelerator  
[Additional charges apply.](#)

**T2/T3 Unlimited**  Enable  
[Additional charges may apply](#)

▶ **Advanced Details**

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

### 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	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/xvda	snap-0f2b695076fc43043	<input type="text" value="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 GB 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](#)

### 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 = Webservers.

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 (127 characters maximum)	Value (255 characters maximum)	Instances ⓘ	Volumes ⓘ
Name	Learn launch EC2 instance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Add another tag** (Up to 50 tags maximum)

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Security Group](#)

### 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 ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ
SSH	TCP	22	Custom 0.0.0.0/0

**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.

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

- 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.

### AMI Details

[Edit AMI](#)



#### Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type - ami-22ce4934

Free tier eligible

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.

Root Device Type: ebs Virtualization type: hvm

### Instance Type

[Edit instance type](#)

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

### Security Groups

[Edit security groups](#)

**Security group name** launch-wizard-44  
**Description** Security Group for Learning Launching a New EC2 Instance

Type ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ
SSH	TCP	22	103.26.232.66/32

### Instance Details

[Edit instance details](#)

### Storage

[Edit storage](#)

### Tags

[Edit tags](#)

Cancel Previous **Launch**

## Select an existing key pair or create a new key pair



A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. [Learn more about removing existing key pairs from a public AMI.](#)

Create a new key pair

### Key pair name

Dev-Pack1

Download Key Pair



You have to download the **private key file** (\*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel

Launch Instances

<input checked="" type="checkbox"/>	Demo 2	Connect	i-0aee7e5b4b6df3b1d	t2.micro
<input type="checkbox"/>		Get Windows Password	i-0c15963c87a23eb57	t2.micro
<input type="checkbox"/>	Sleep	Launch More Like This	i-02b9848ba60b89d59	m4.large
<input type="checkbox"/>		Instance State	i-05762375ff86b55cf	t2 medi

Instance ID	i-0aee7e5b4b6df3b1d
Instance state	stopped
Instance type	t2.micro
Elastic IPs	
Availability zone	us-east-1a

File name:  PuTTY Private Key Files (\*.ppk)

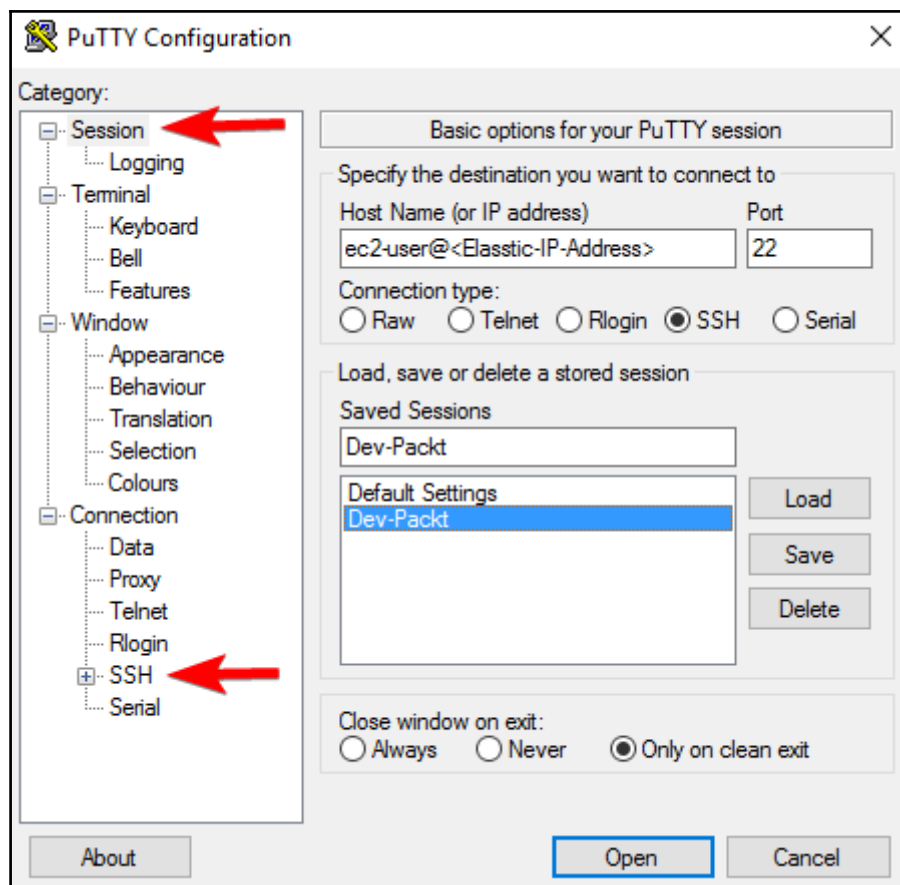
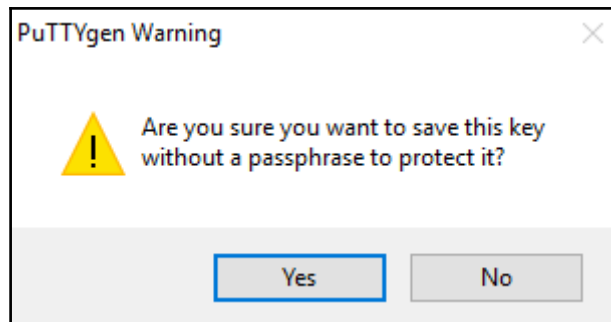
- PuTTY Private Key Files (\*.ppk)
- All Files (\*.\*)

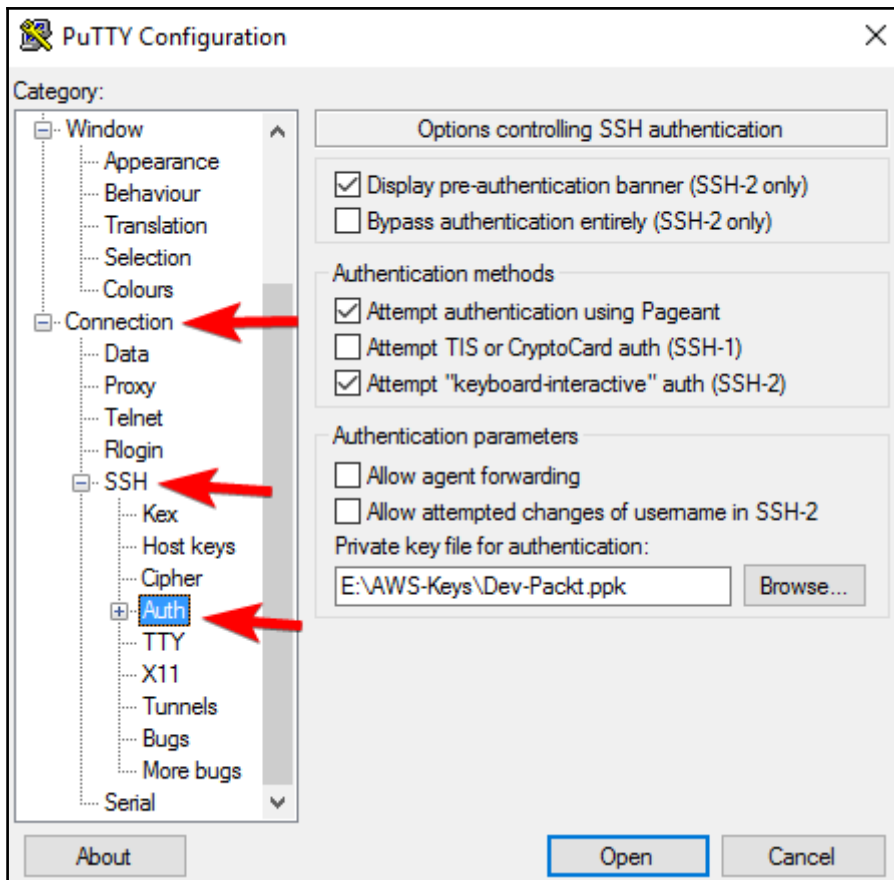
Parameters

Type of key to generate:

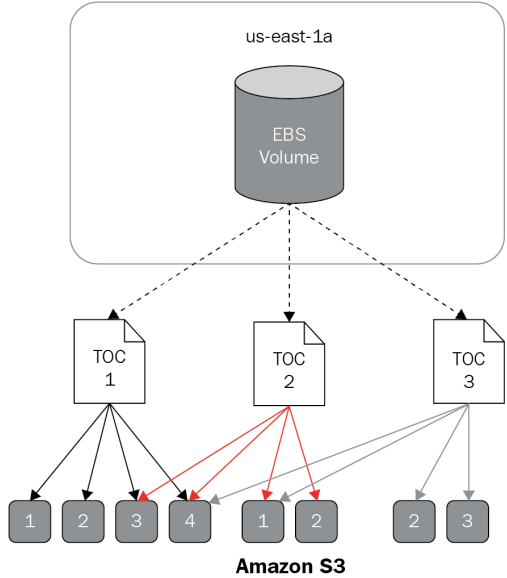
SSH-1 (RSA)     SSH-2 RSA     SSH-2 DSA

Number of bits in a generated key:

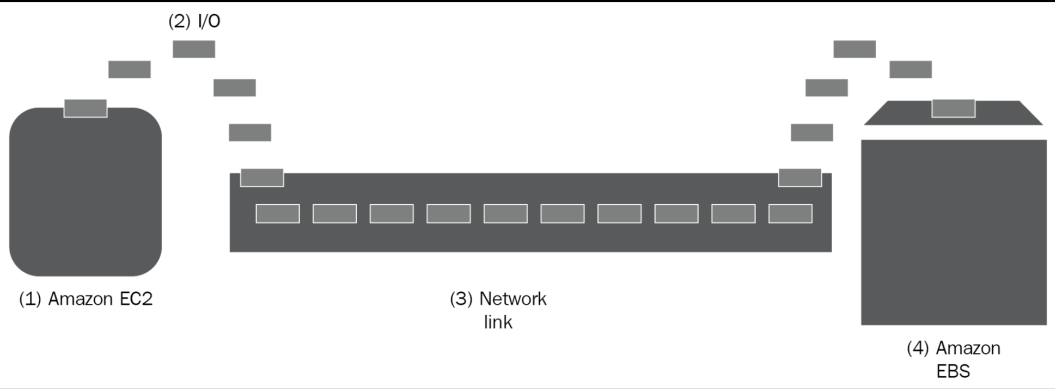
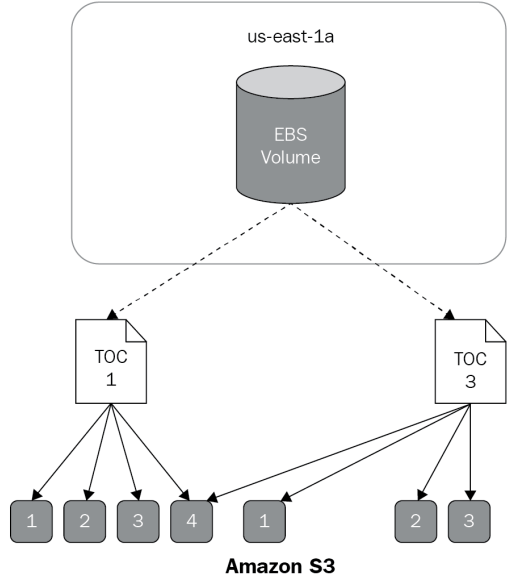




Snapshots are saved incrementally  
Each subsequent snapshot will not  
save modified data blocks to S3.  
A table of contents points to the  
latest version of each data block.

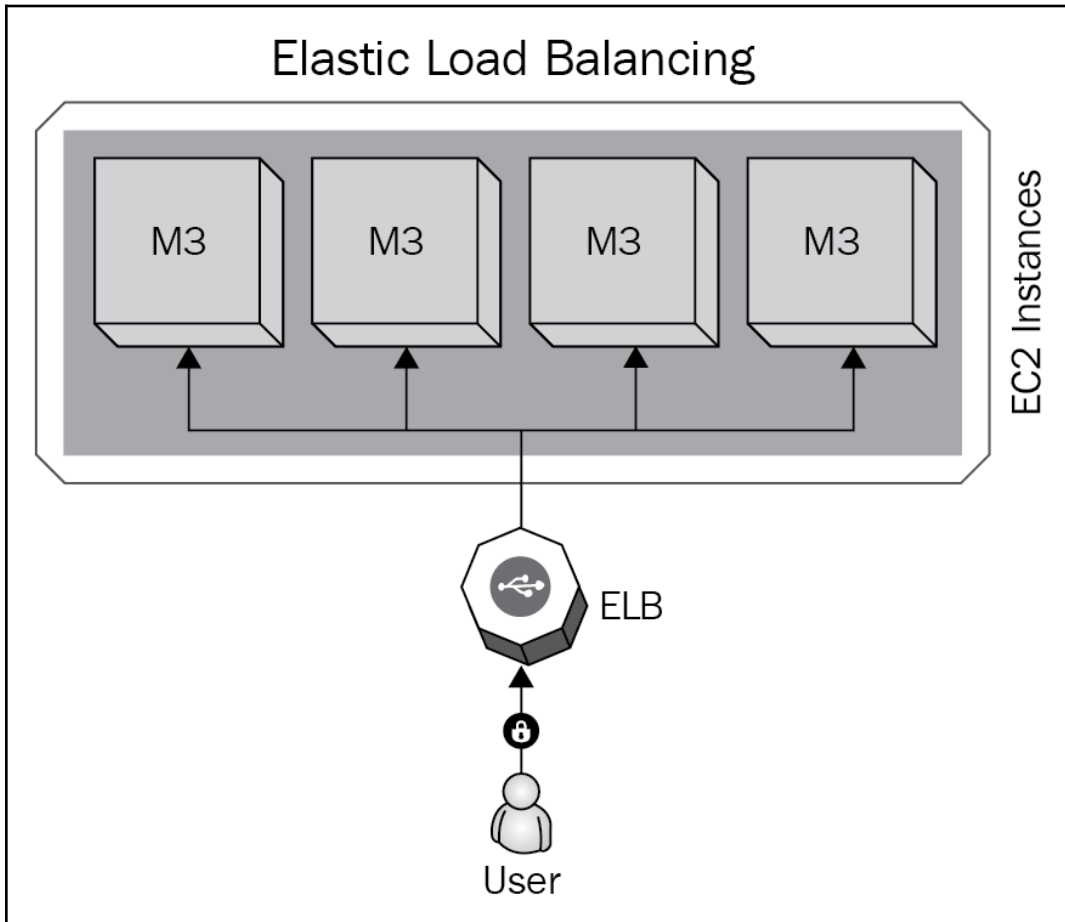


If Snapshot 2 is deleted, only Block 2  
will be deleted from S3 because a  
newer version has already been saved.





# Chapter 6: Handling Application Traffic with ELB



- LOAD BALANCING
  - Load Balancers**
  - Target Groups

EC2 Dashboard

Events

Tags

Reports

Limits

INSTANCES

- Instances
- Launch Templates
- Spot Requests
- Reserved Instances
- Dedicated Hosts
- Capacity Reservations

IMAGES

- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE

- Volumes
- Snapshots
- Lifecycle Manager

NETWORK & SECURITY

- Security Groups
- Elastic IPs
- Placement Groups
- Key Pairs
- Network Interfaces

LOAD BALANCING

- Load Balancers**
- Target Groups

Create Load Balancer Actions

Filter by tags and attributes or search by keyword

Name DNS name State VPC ID Availability Zones Type

You do not have any load balancers in this region.

Select a load balancer

### Select load balancer type

Elastic Load Balancing supports three types of load balancers: Application Load Balancers, Network Load Balancers (new), and Classic Load Balancers. Choose the load balancer type that meets your needs. [Learn more about which load balancer is right for you](#)

Application Load Balancer	Network Load Balancer	Classic Load Balancer
<p>HTTP HTTPS</p> <p>Create</p> <p>Choose an Application Load Balancer when you need a flexible feature set for your web applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.</p> <p><a href="#">Learn more &gt;</a></p>	<p>TCP TLS</p> <p>Create</p> <p>Choose a Network Load Balancer when you need ultra-high performance, the ability to terminate TLS connections at scale, centralize certificate deployment, and static IP addresses for your application. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second securely while maintaining ultra-low latencies.</p> <p><a href="#">Learn more &gt;</a></p>	<p>PREVIOUS GENERATION for HTTP, HTTPS, and TCP</p> <p>Create</p> <p>Choose a Classic Load Balancer when you have an existing application running in the EC2-Classical network.</p> <p><a href="#">Learn more &gt;</a></p>

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

### Step 1: Define Load Balancer

#### Basic Configuration

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80.

Load Balancer name:

Create LB Inside:

Create an internal load balancer:  (what's this?)

Enable advanced VPC configuration:

Listener Configuration:

Load Balancer Protocol	Load Balancer Port	Instance Protocol	Instance Port
<input type="text" value="HTTP"/>	<input type="text" value="80"/>	<input type="text" value="HTTP"/>	<input type="text" value="80"/>

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

### Step 2: Assign Security Groups

You have selected the option of having your Elastic Load Balancer inside of a VPC, which allows you to assign security groups to your load balancer. Please select the security groups to assign to this load balancer. This can be changed at any time.

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

Security group name:

Description:

Type (i)	Protocol (i)	Port Range (i)	Source (i)
<input type="text" value="Custom TCP"/>	<input type="text" value="TCP"/>	<input type="text" value="80"/>	<input type="text" value="Custom 0.0.0.0"/>

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

### Step 3: Configure Security Settings

Upload a certificate to IAM

Certificate name:\*

Private Key:\*

(pem encoded)

Certificate body:\*

(pem encoded)

Certificate chain: Optional

(pem encoded)

### Select a Cipher

Configure SSL negotiation settings for the HTTPS/SSL listeners of your load balancer. You may select one of the Security Policies listed below, or customize your own settings. [Learn more](#) about the Security Policies and configuring SSL negotiation settings.

Predefined Security Policy

Custom Security Policy

**SSL Protocols**

Protocol-TLSv1

Protocol-SSLv3

Protocol-TLSv1.1

Protocol-TLSv1.2

**SSL Options**

Server Order Preference

[Cancel](#)
[Previous](#)
[Next: Configure Health Check](#)

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

### Step 4: Configure Health Check

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that pass the health check. If an instance fails the health check, it is automatically removed from the load balancer. Customize the health check to meet your specific needs.

**Ping Protocol**

**Ping Port**

**Ping Path**

#### Advanced Details

**Response Timeout**  seconds

**Interval**  seconds

**Unhealthy threshold**

**Healthy threshold**

[Cancel](#)
[Previous](#)
[Next: Add EC2 Instances](#)

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

### Step 5: Add EC2 Instances

The table below lists all your running EC2 Instances. Check the boxes in the Select column to add those instances to this load balancer.

VPC vpc-ctc50dab (172.31.0.0/16)

<input type="checkbox"/>	Instance	Name	State	Security groups	Zone	Subnet ID	Subnet CIDR
No instances available.							

**Availability Zone Distribution**

Enable Cross-Zone Load Balancing ⓘ

Enable Connection Draining ⓘ  seconds

[Cancel](#)
[Previous](#)
[Next: Add Tags](#)

1. Define Load Balancer 2. Assign Security Groups 3. Configure Security Settings 4. Configure Health Check 5. Add EC2 Instances 6. Add Tags 7. Review

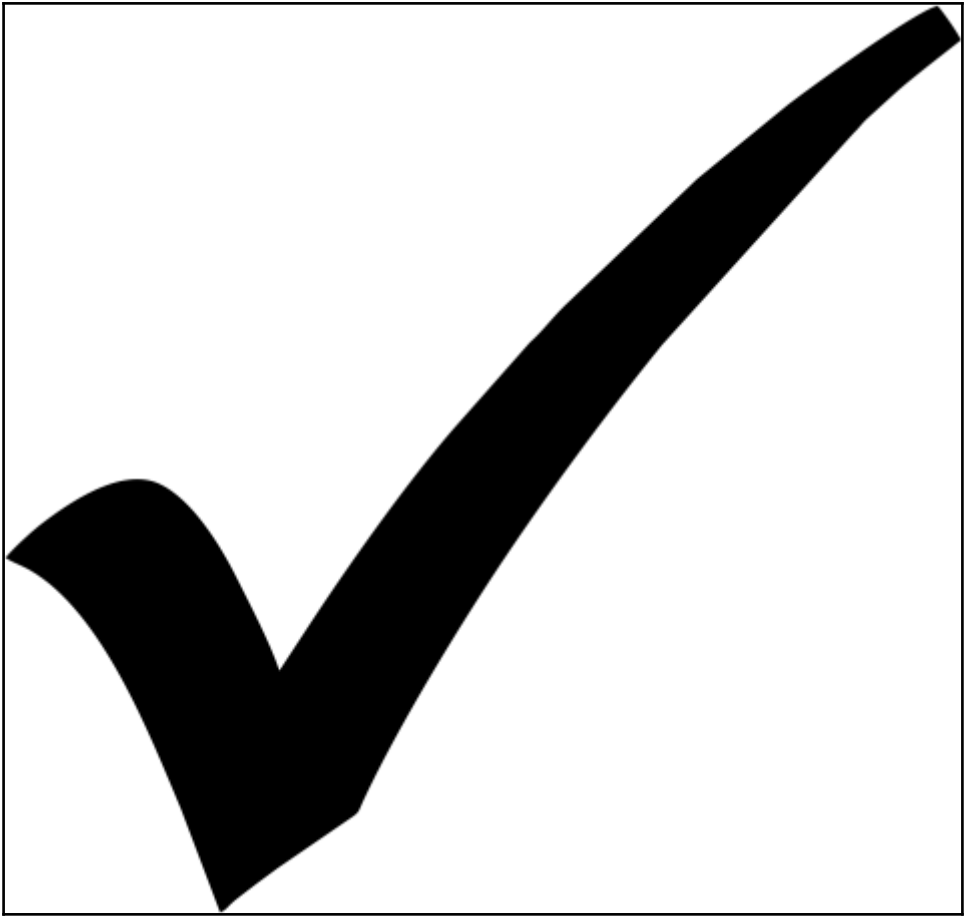
### Step 6: Add Tags

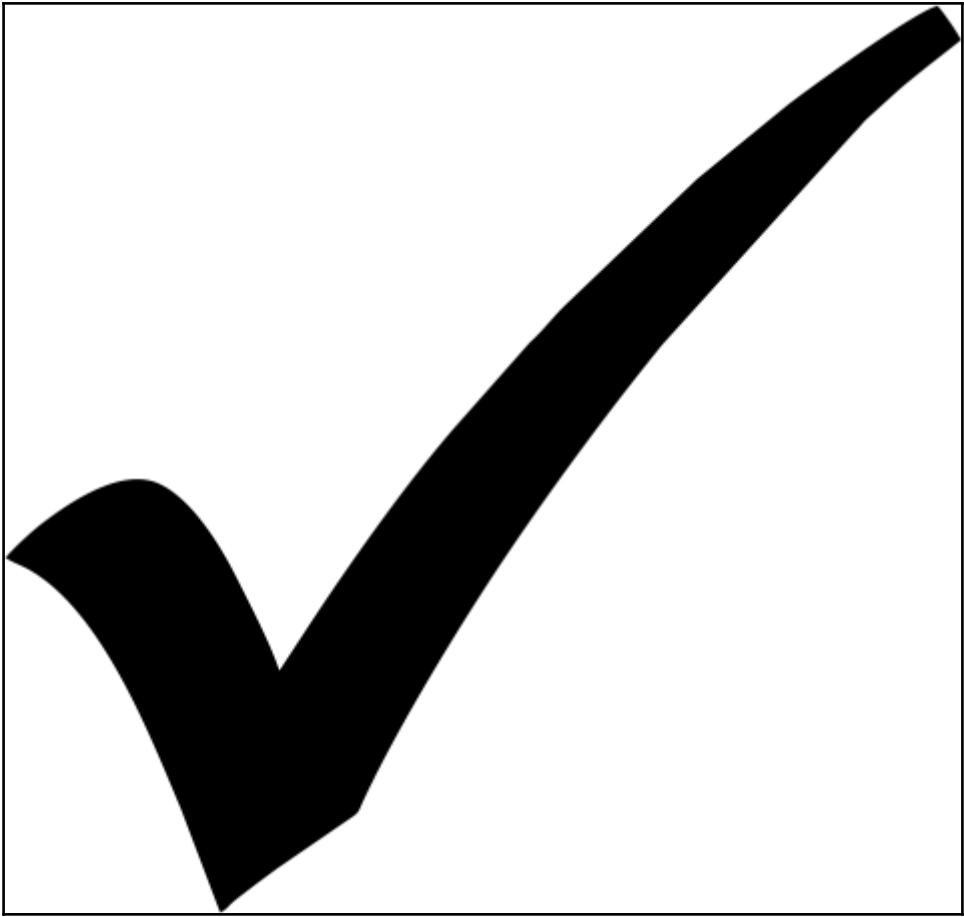
Apply tags to your resources to help organize and identify them.

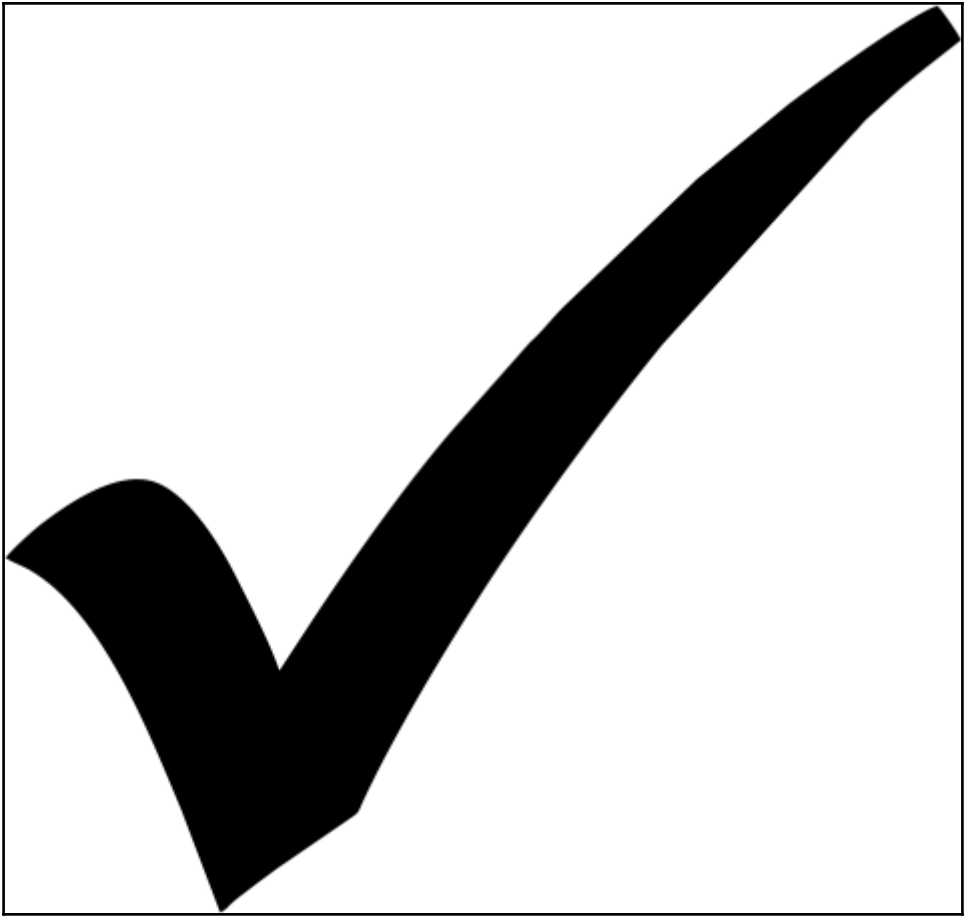
A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key	Value
<input type="text" value="Name"/>	<input type="text" value="Learn-ELB"/>

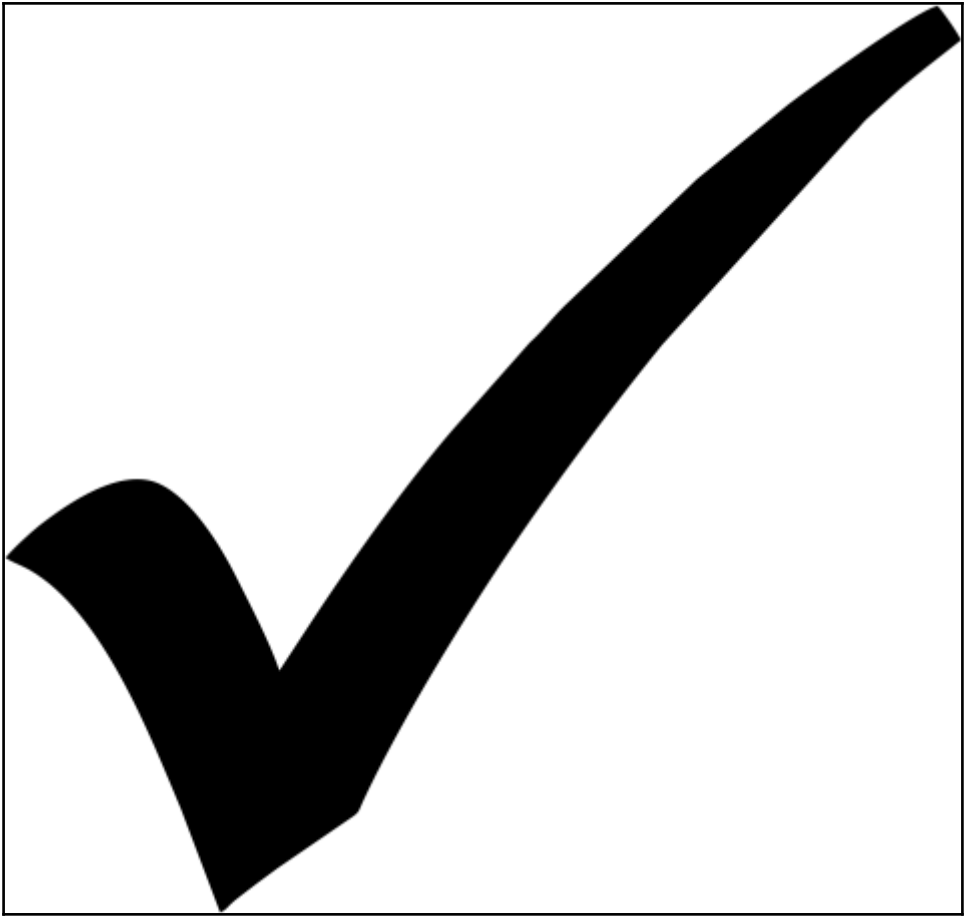
[Cancel](#)
[Previous](#)
[Review and Create](#)

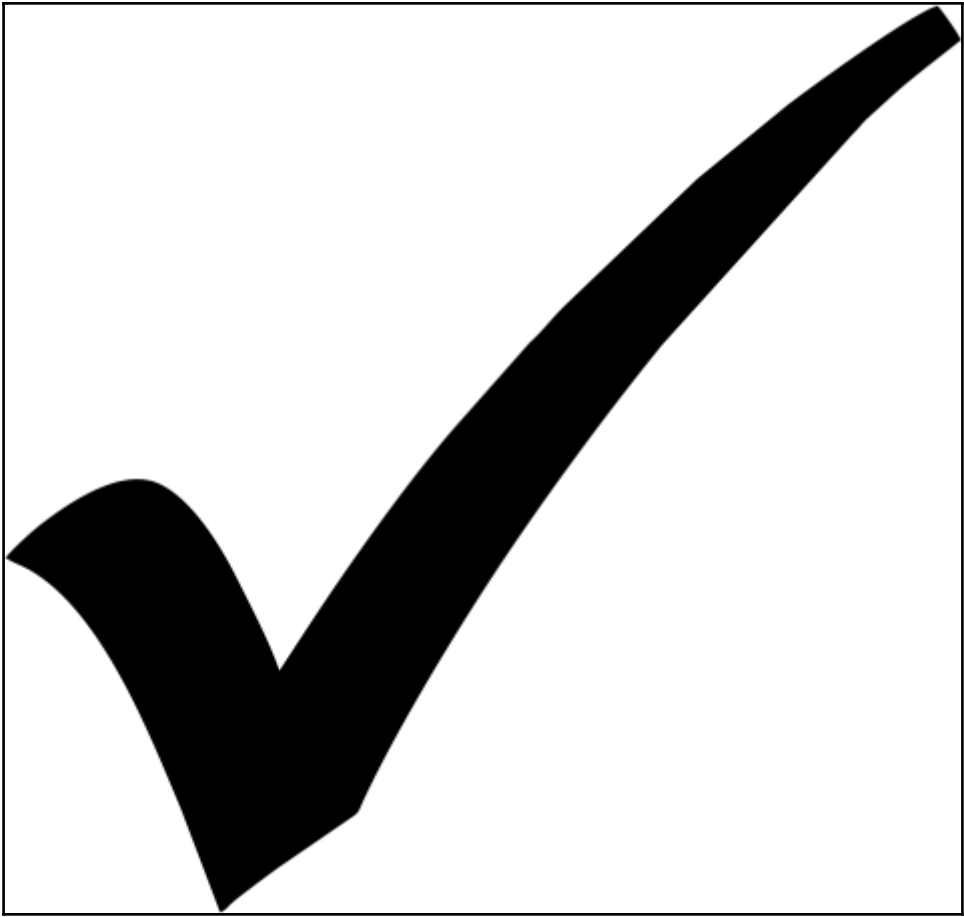


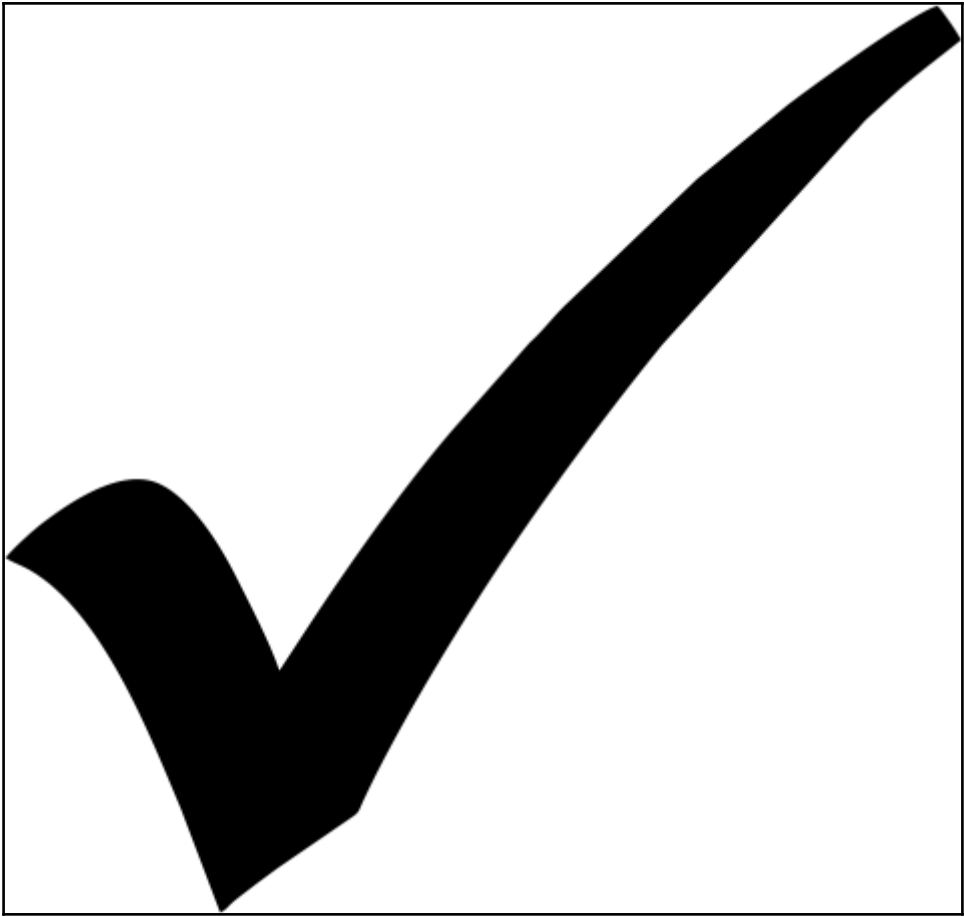


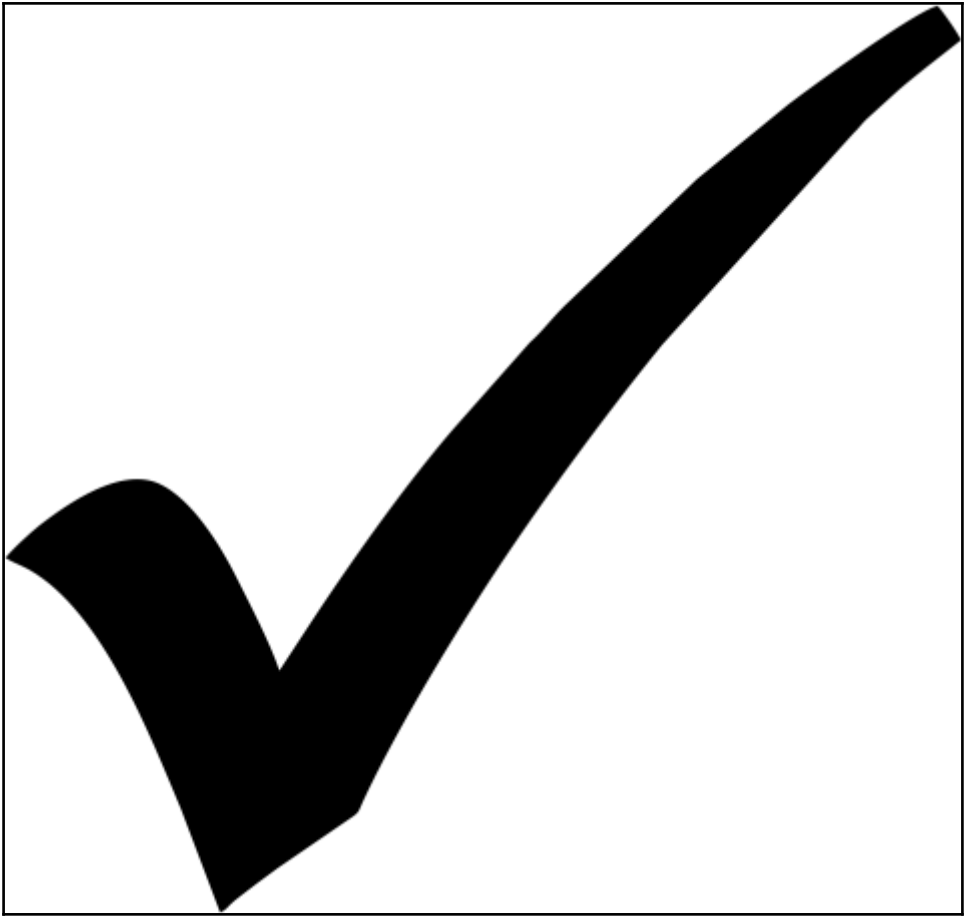


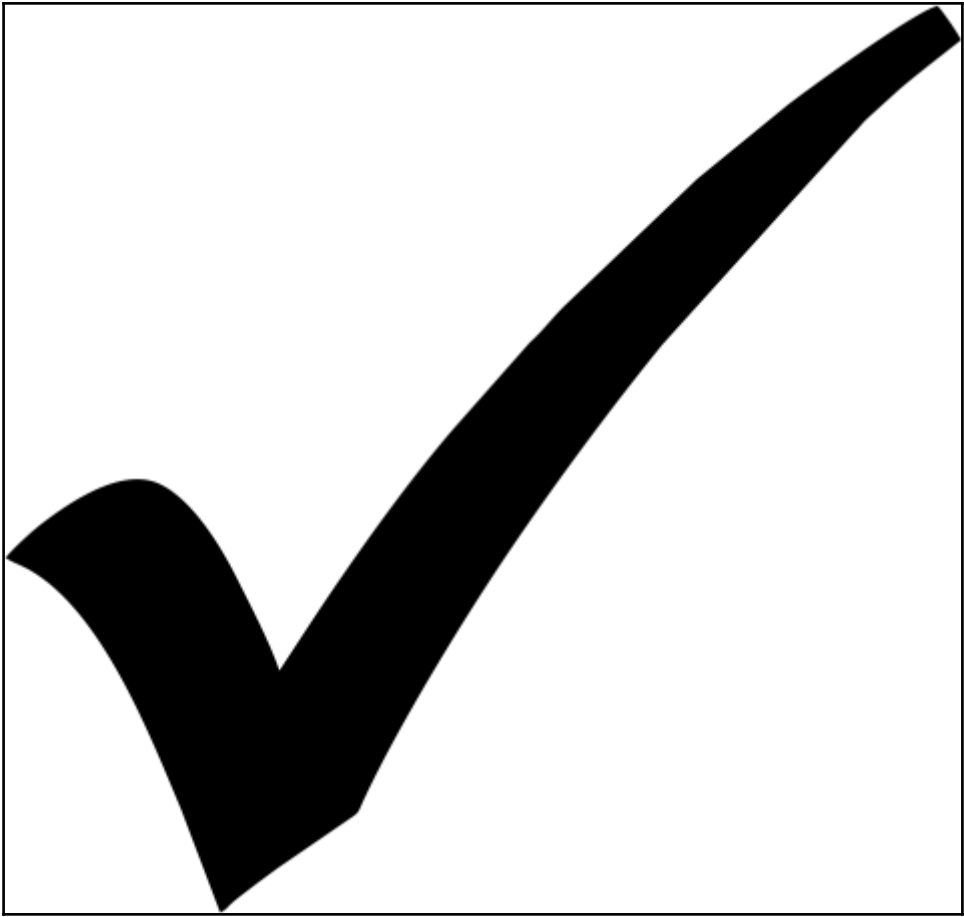


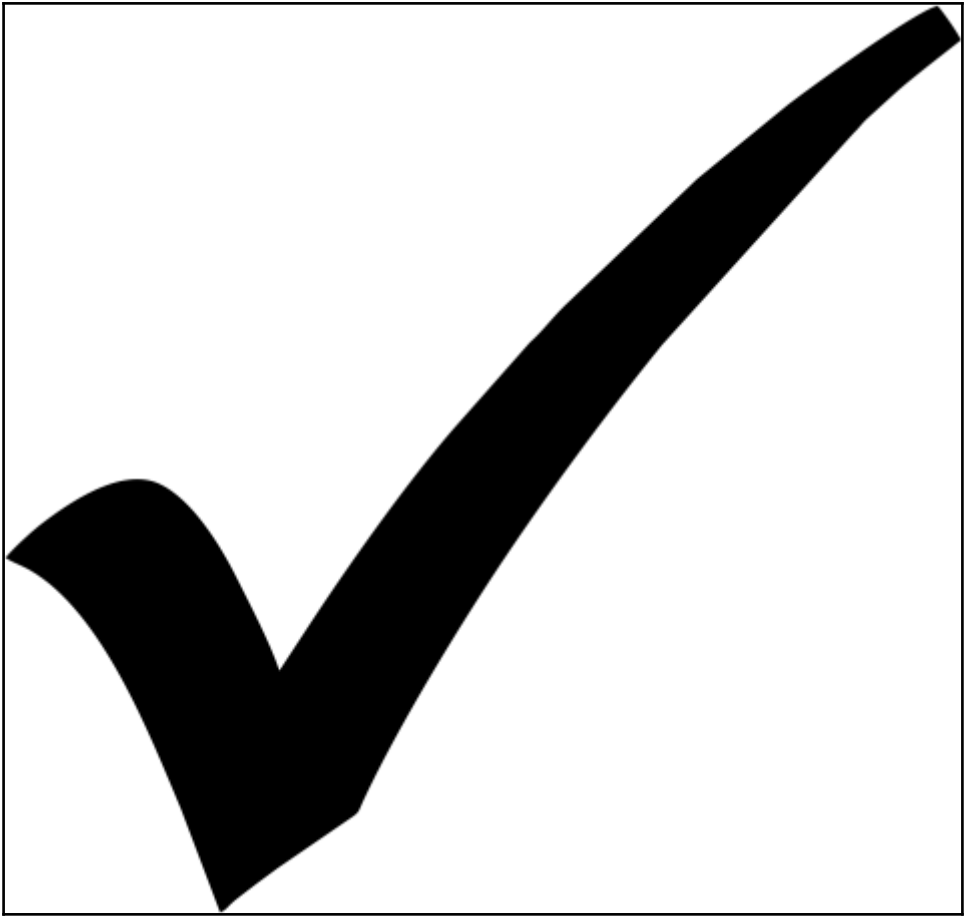


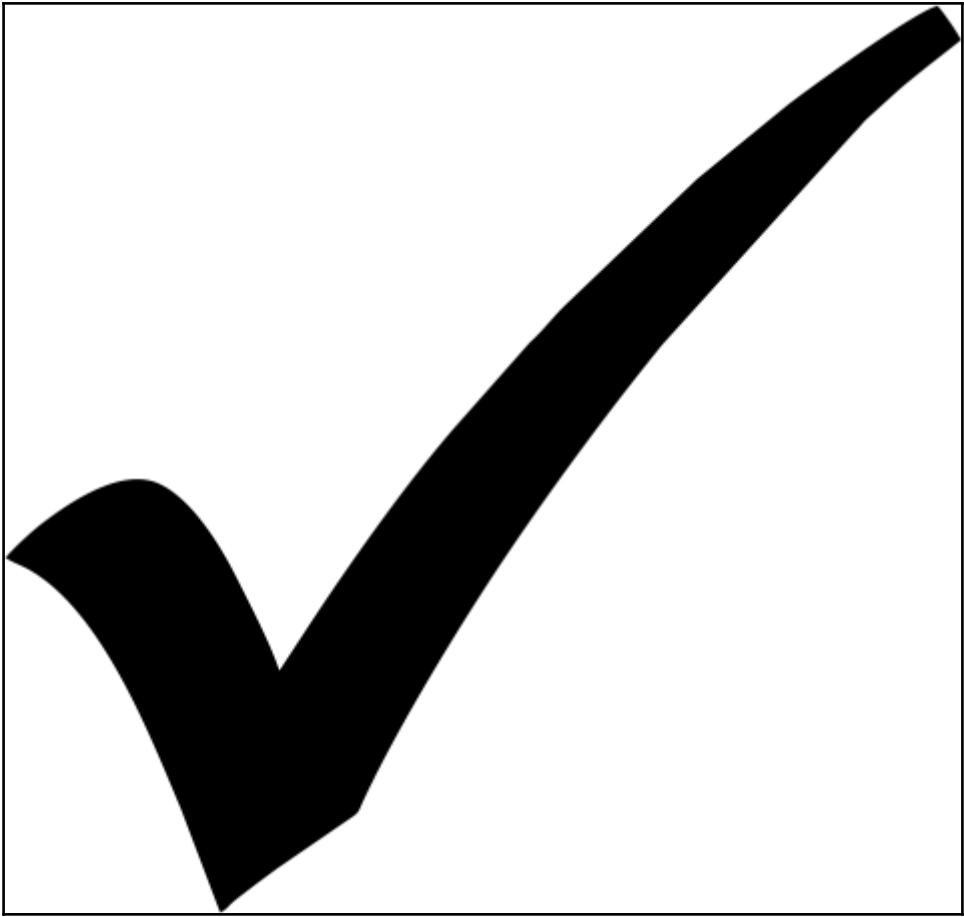


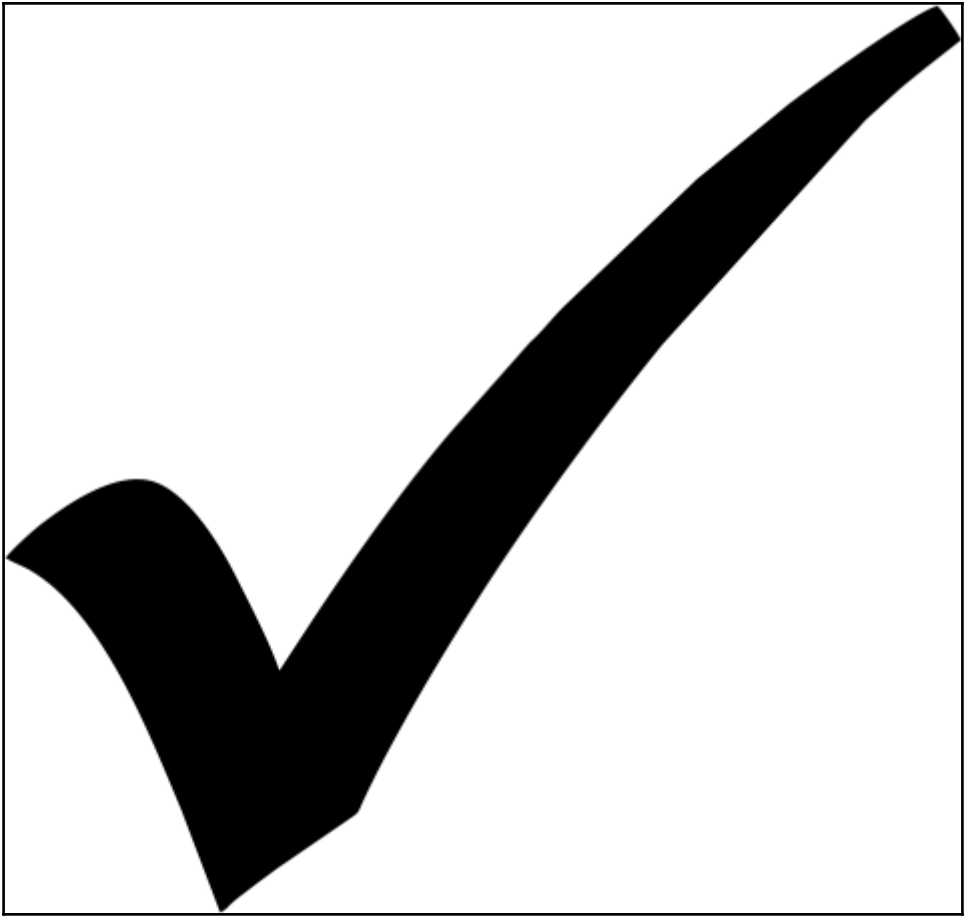




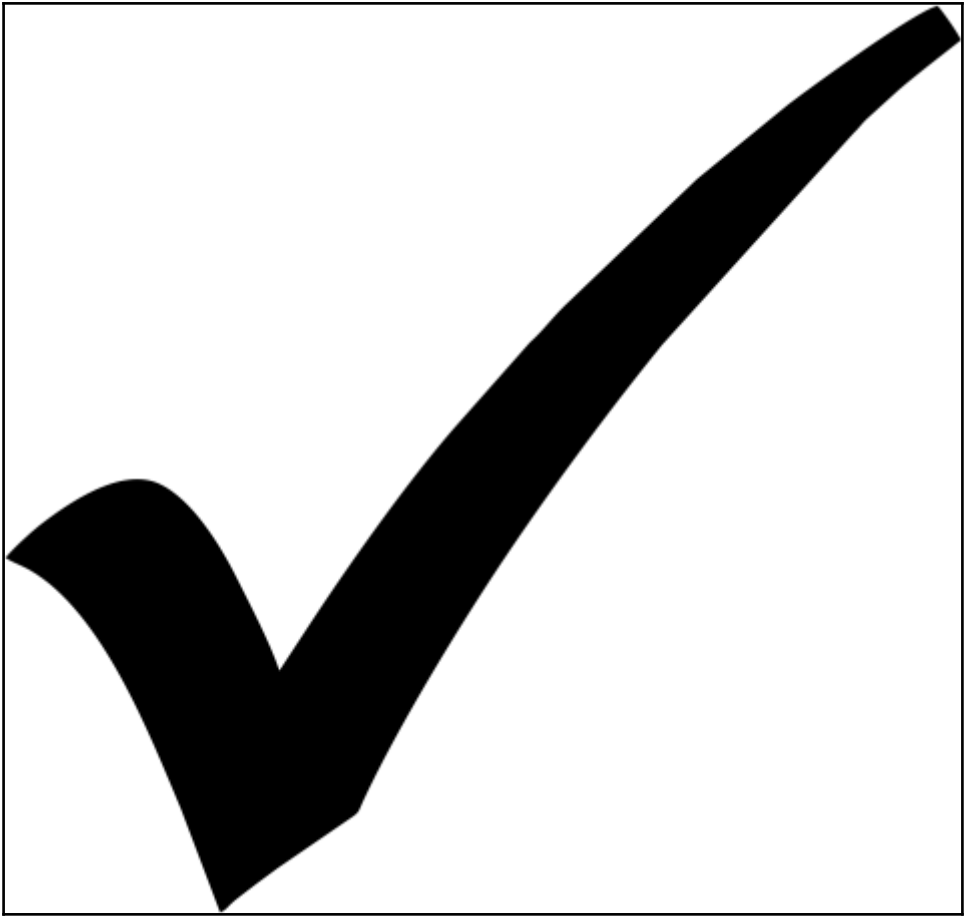


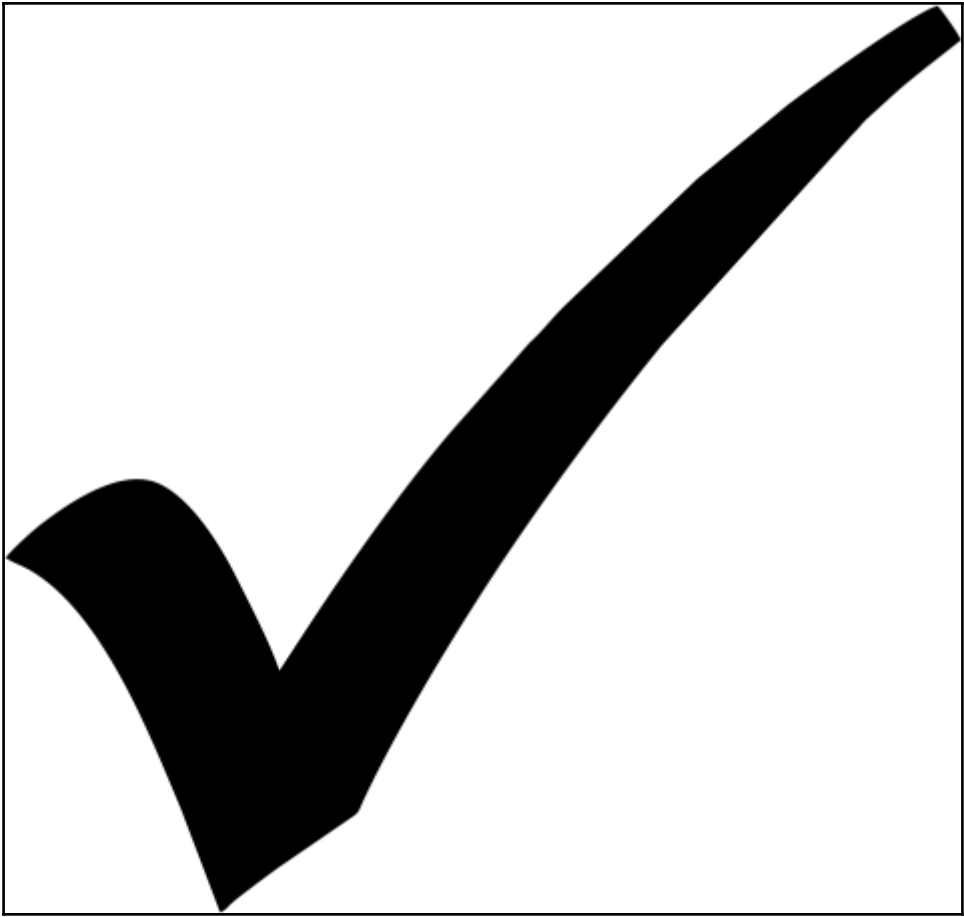


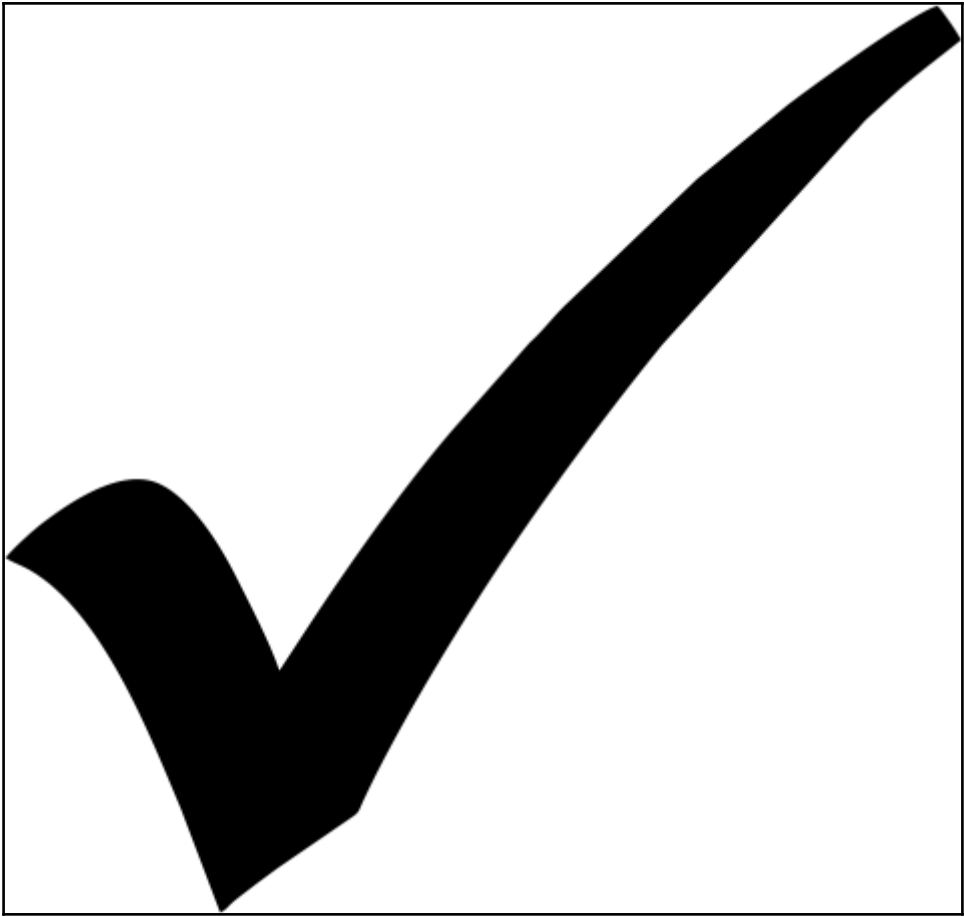


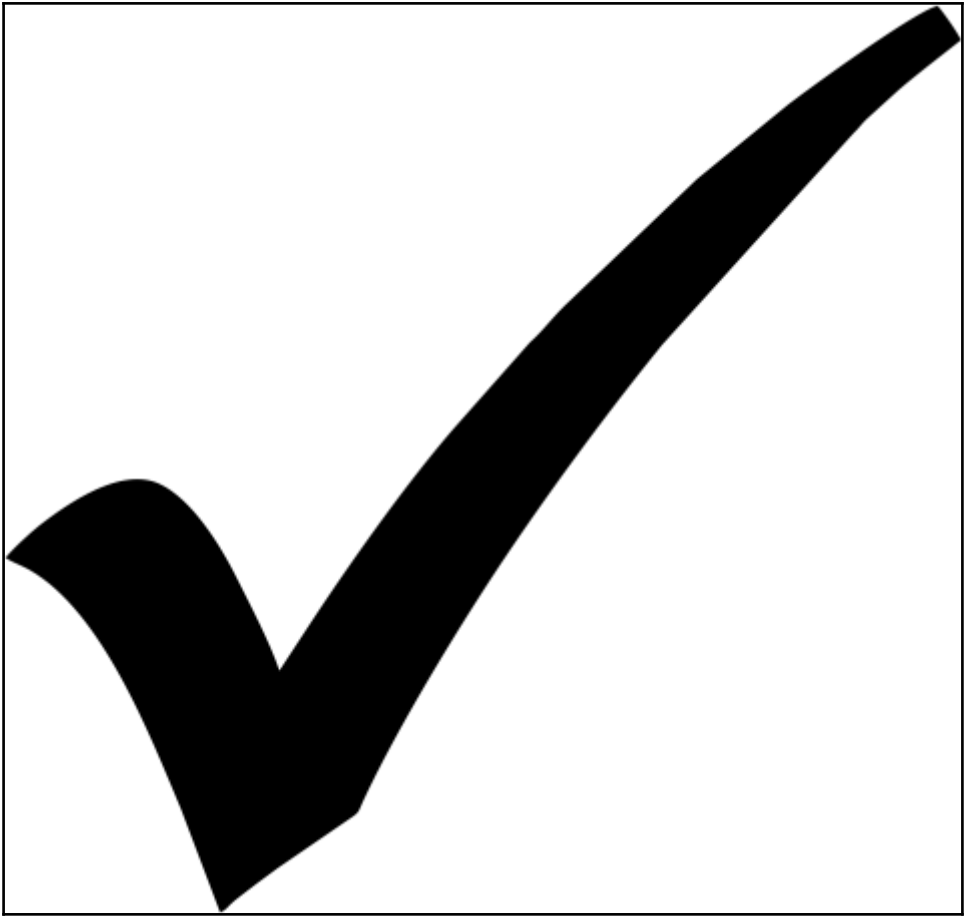


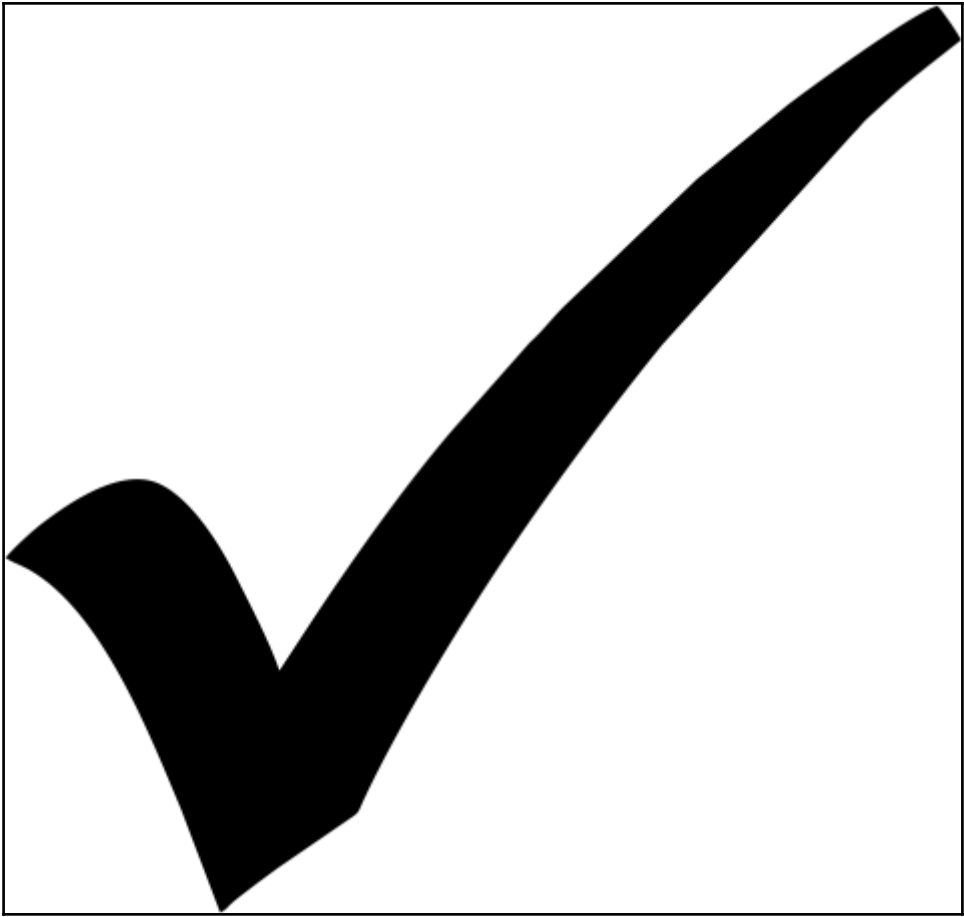


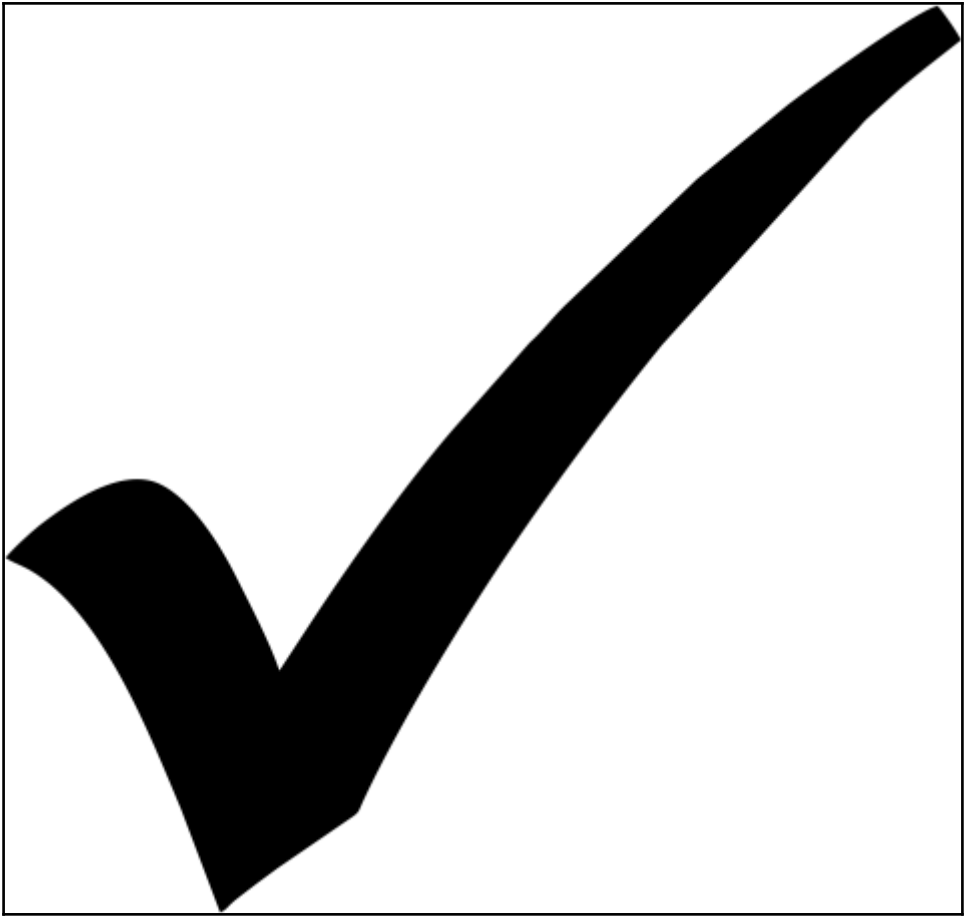


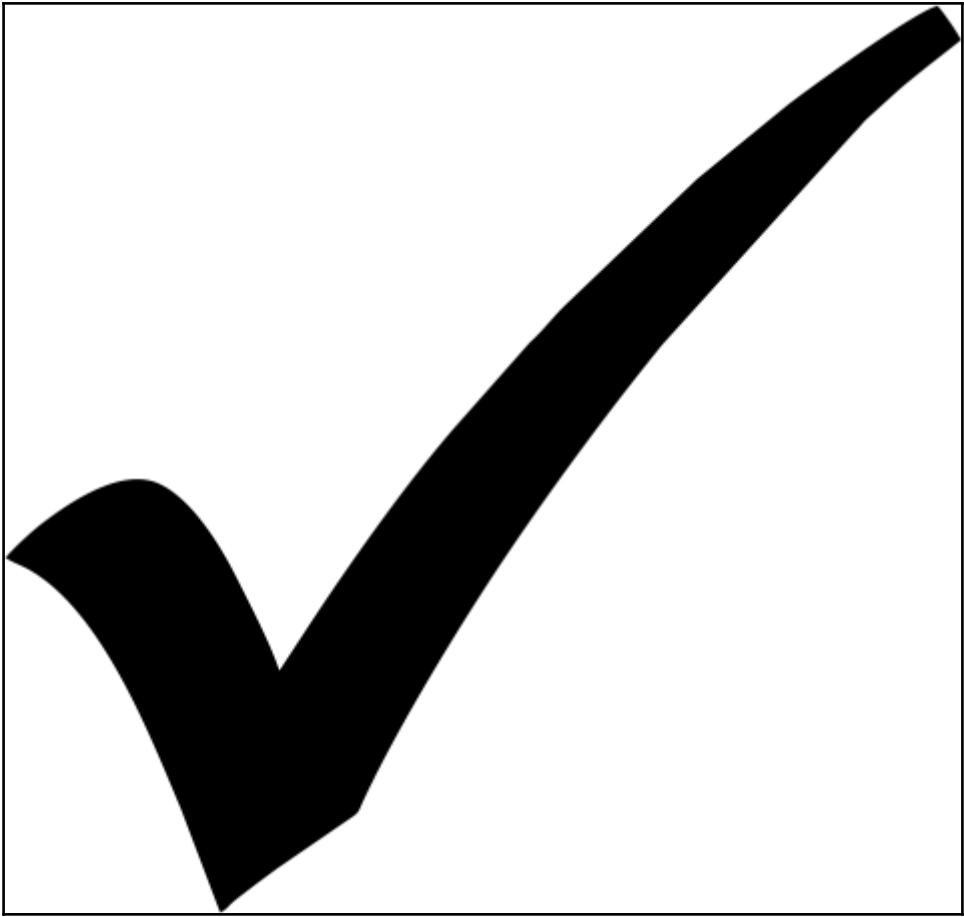


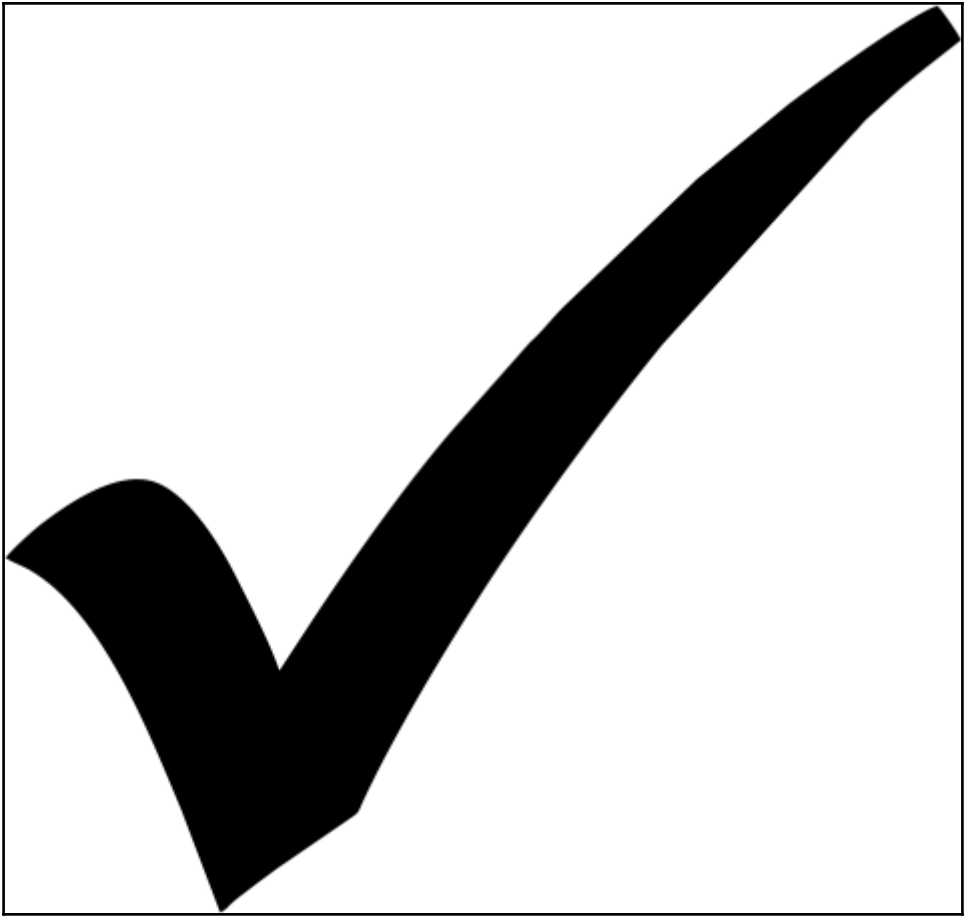




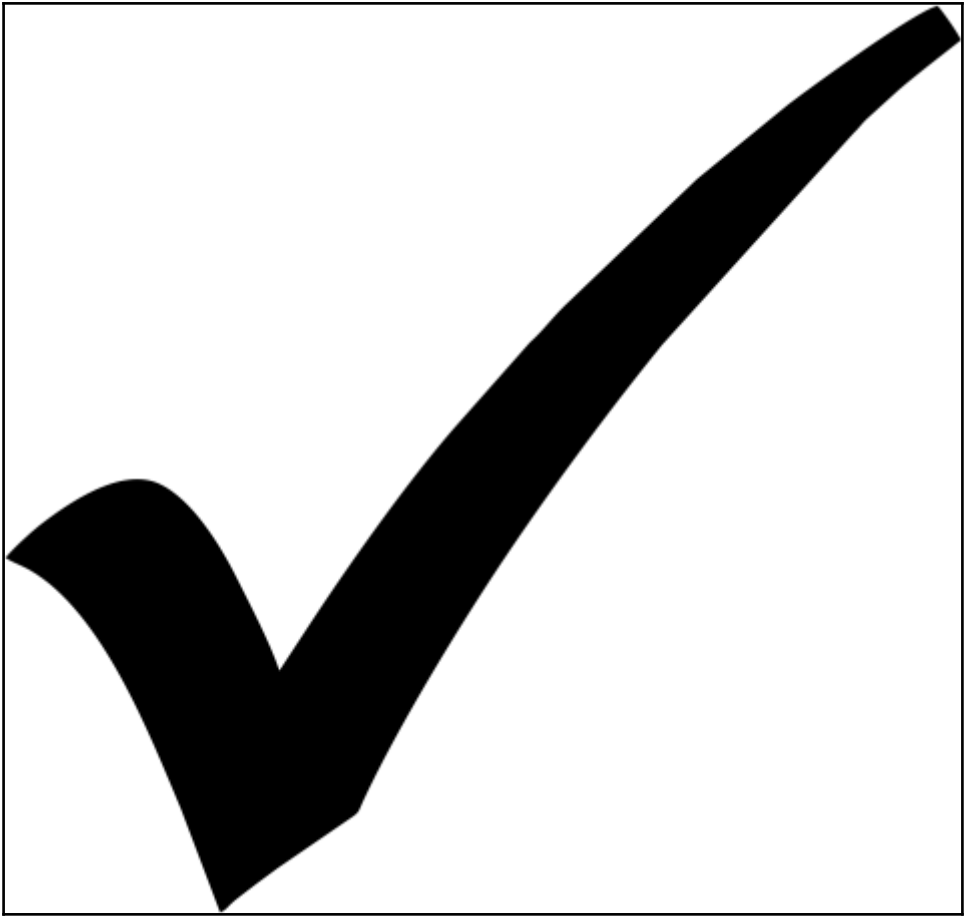


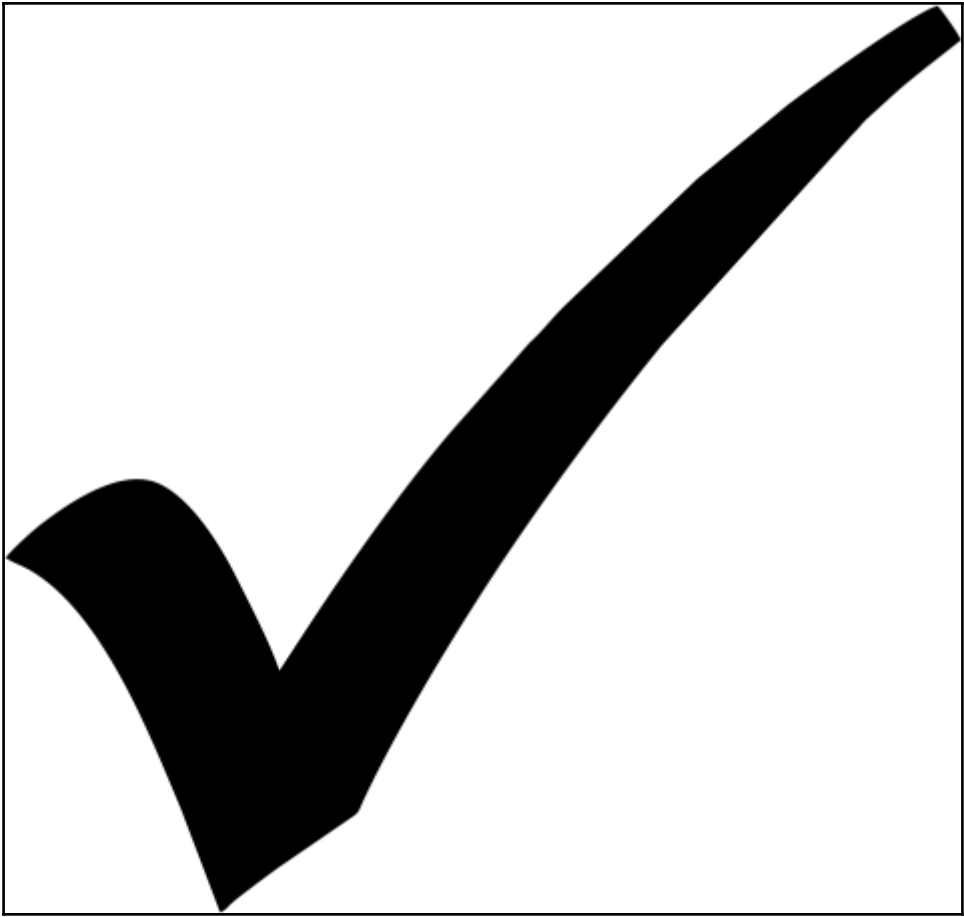


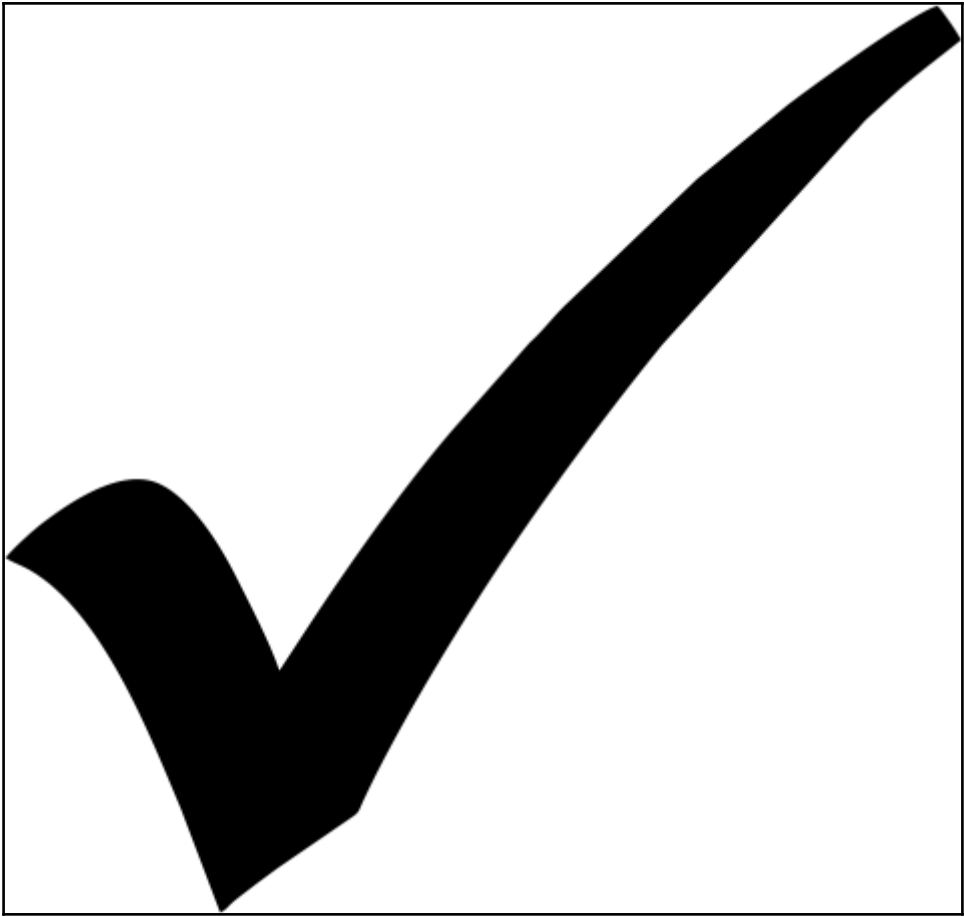


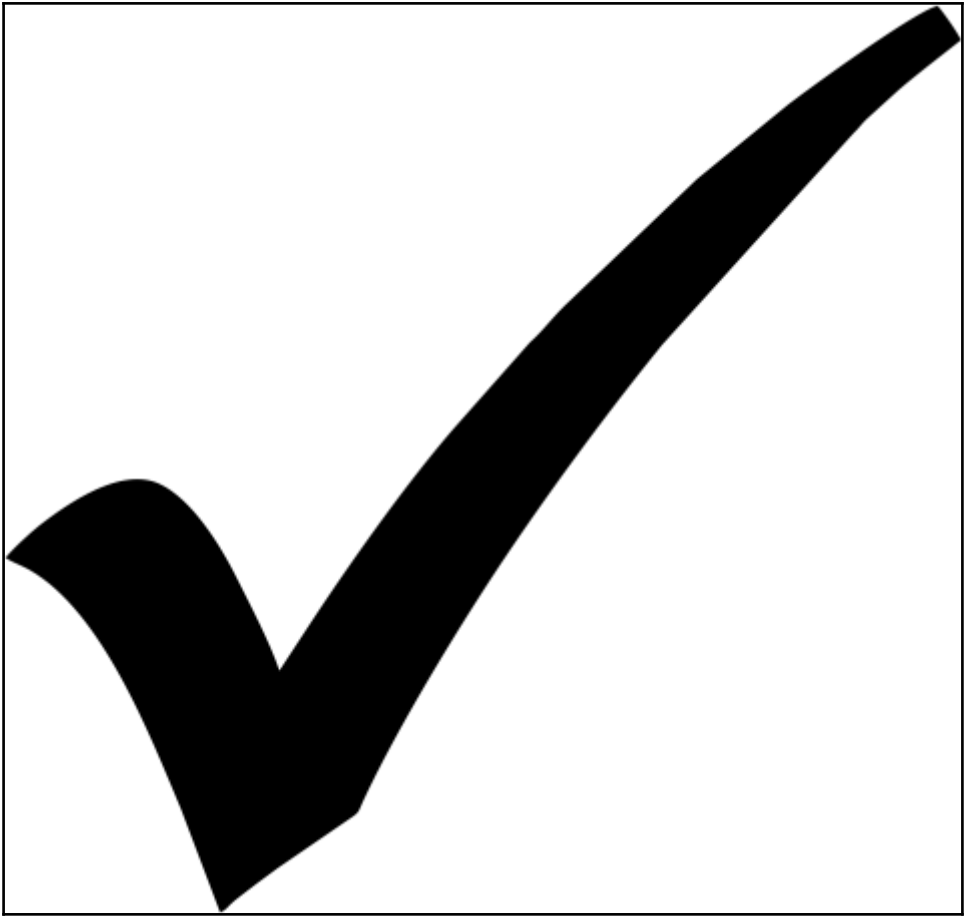


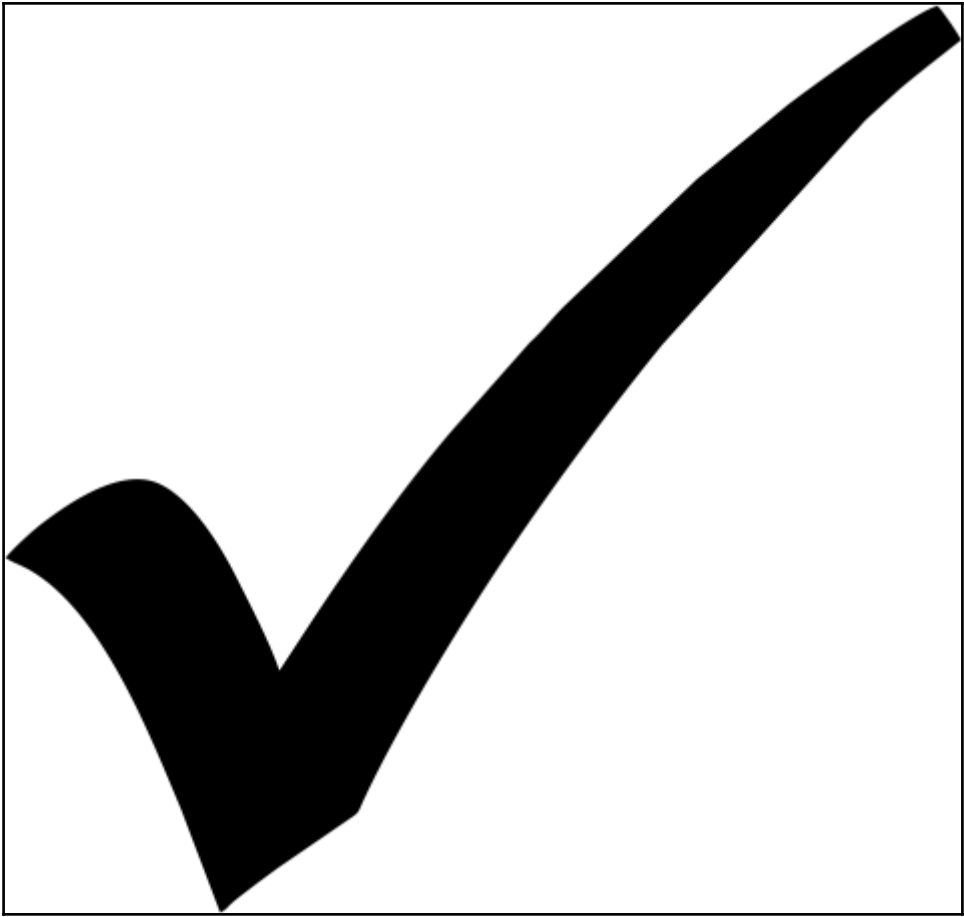


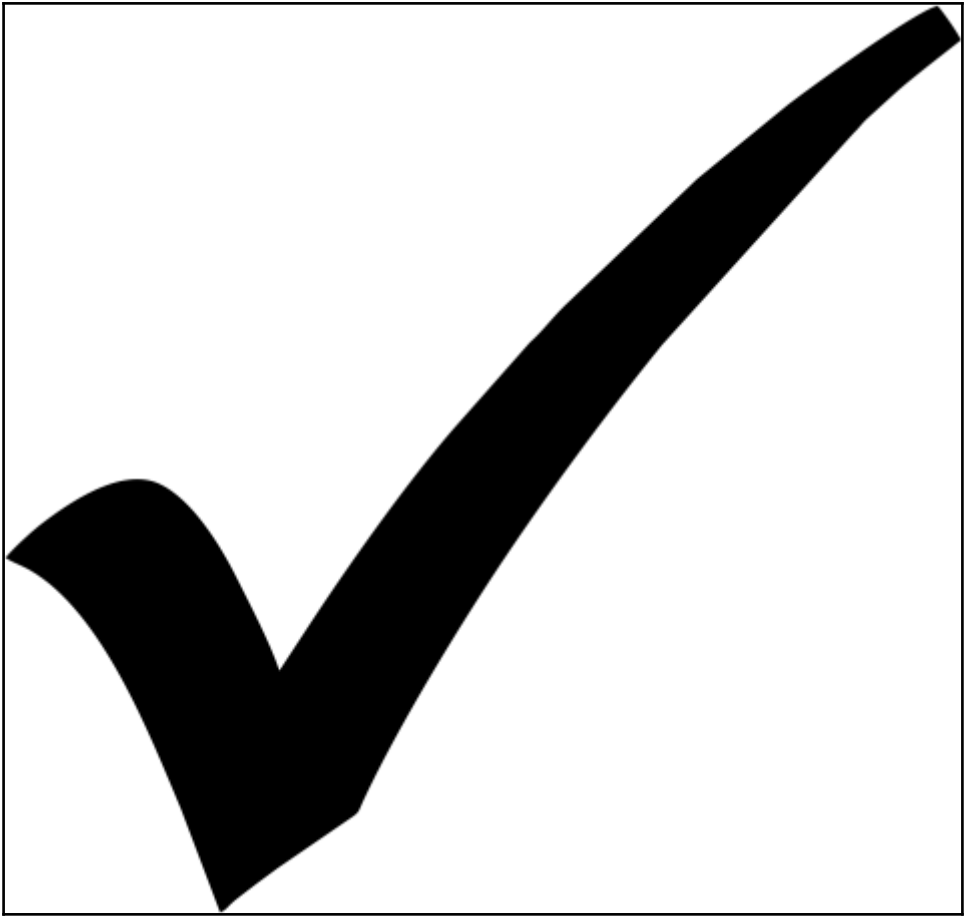


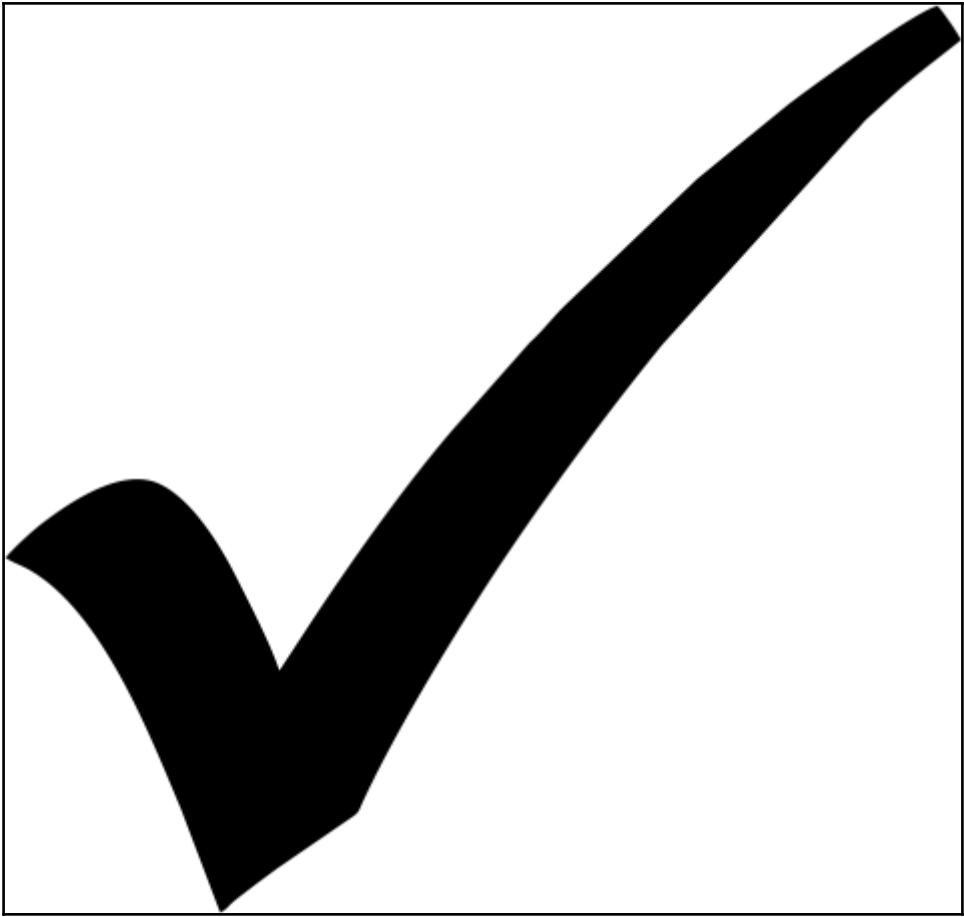


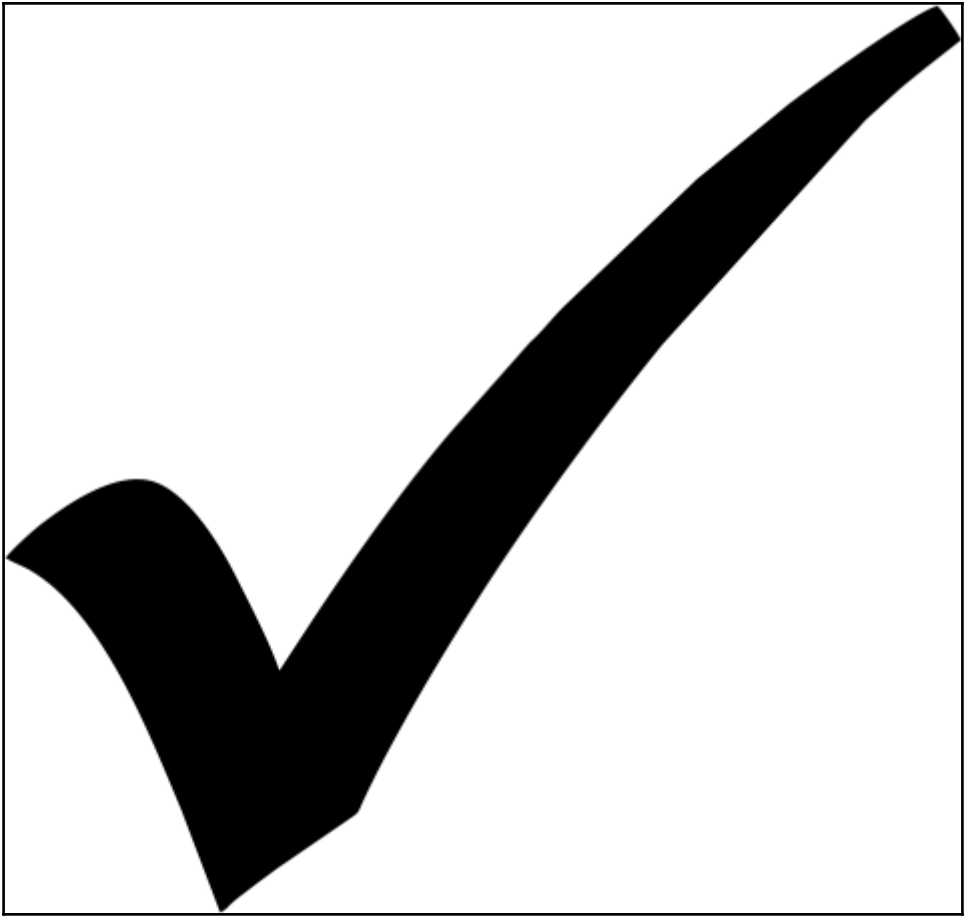




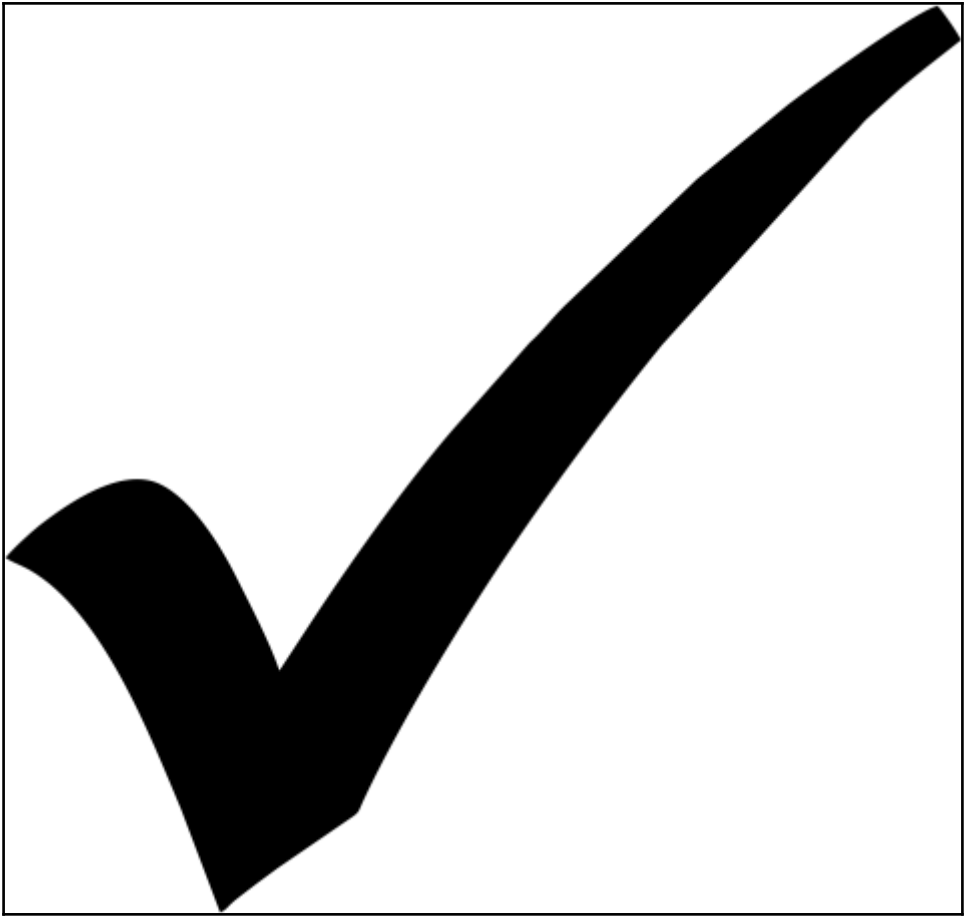


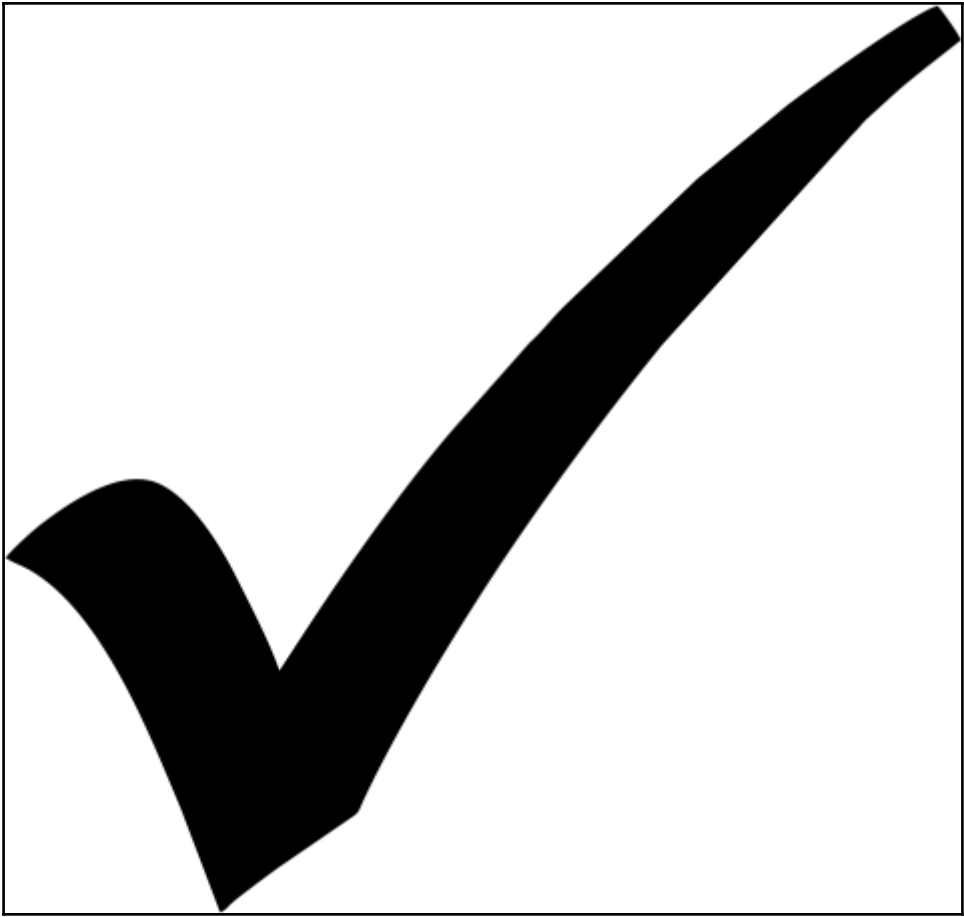


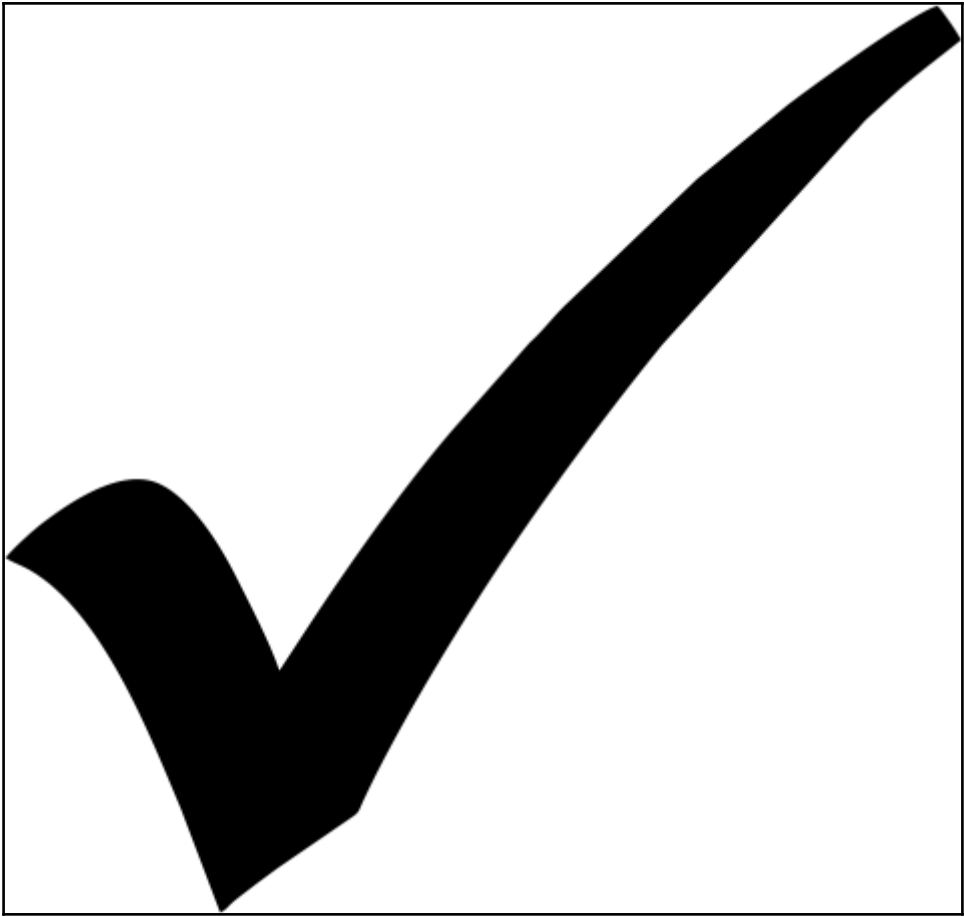


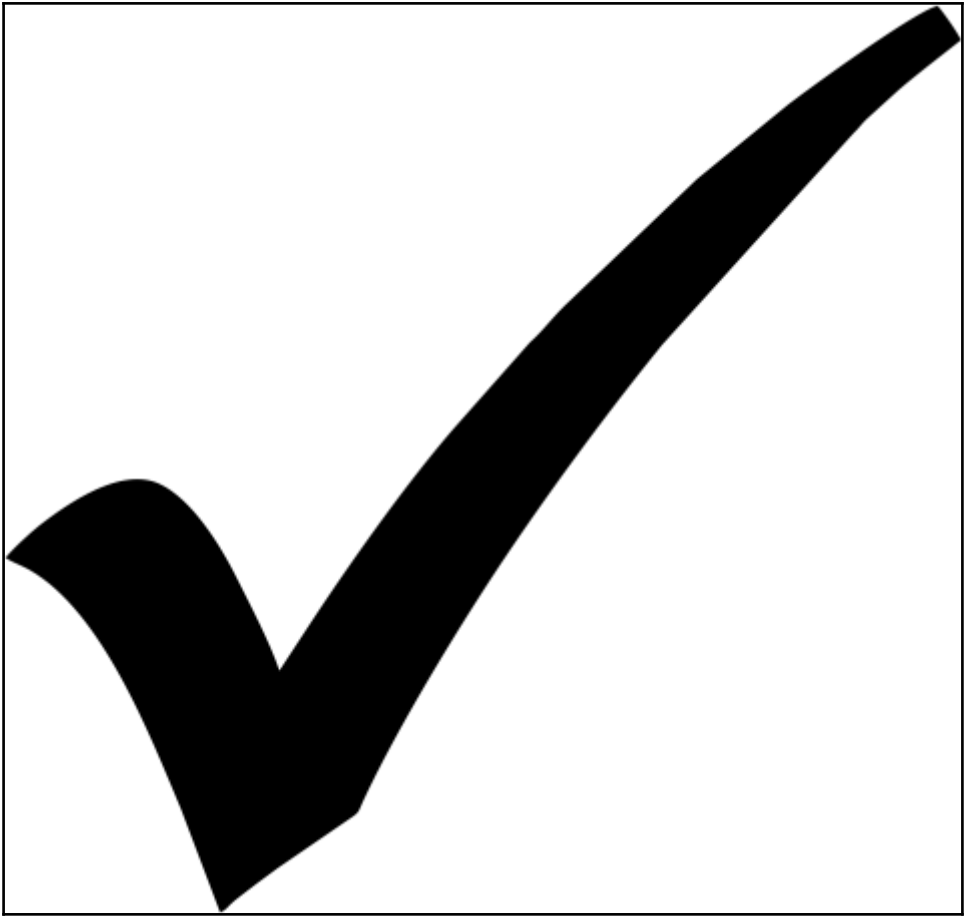


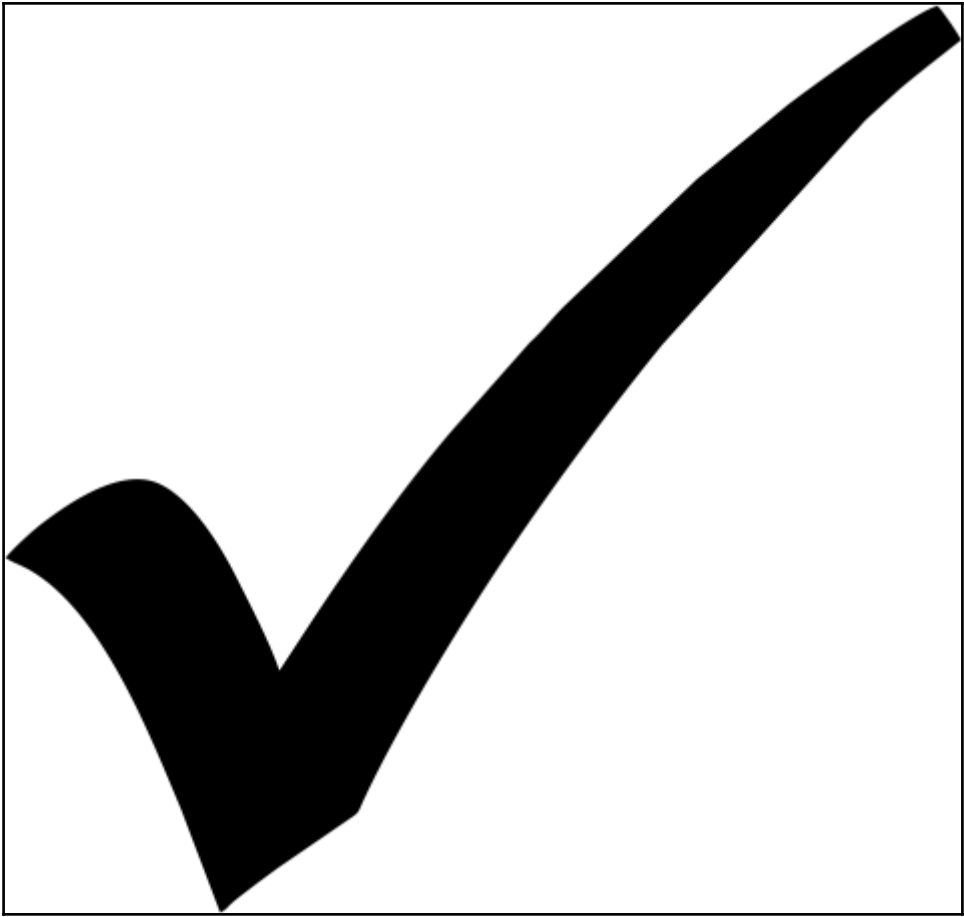


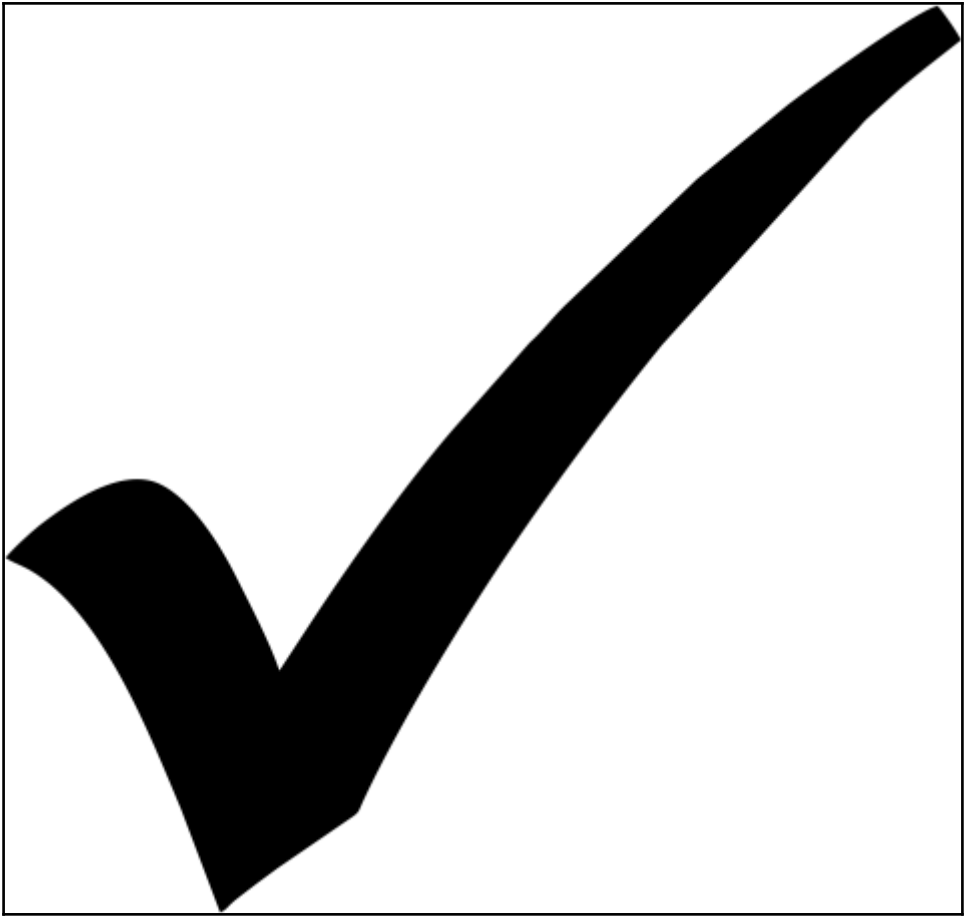


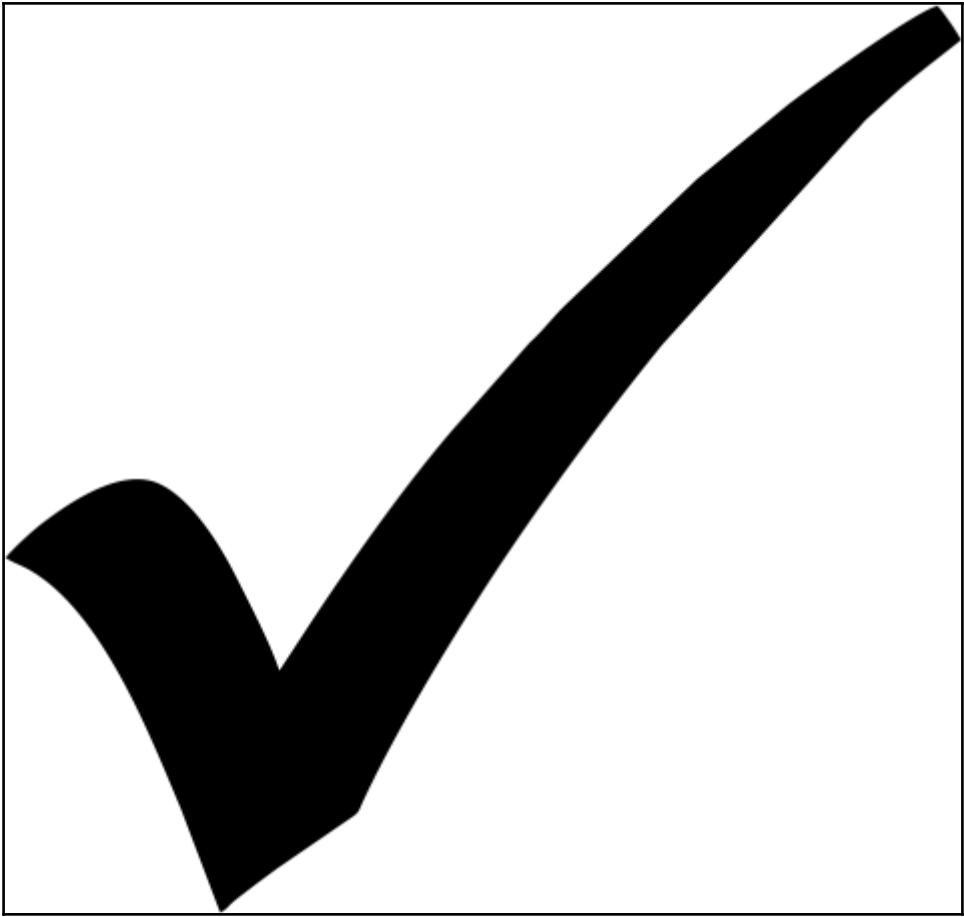


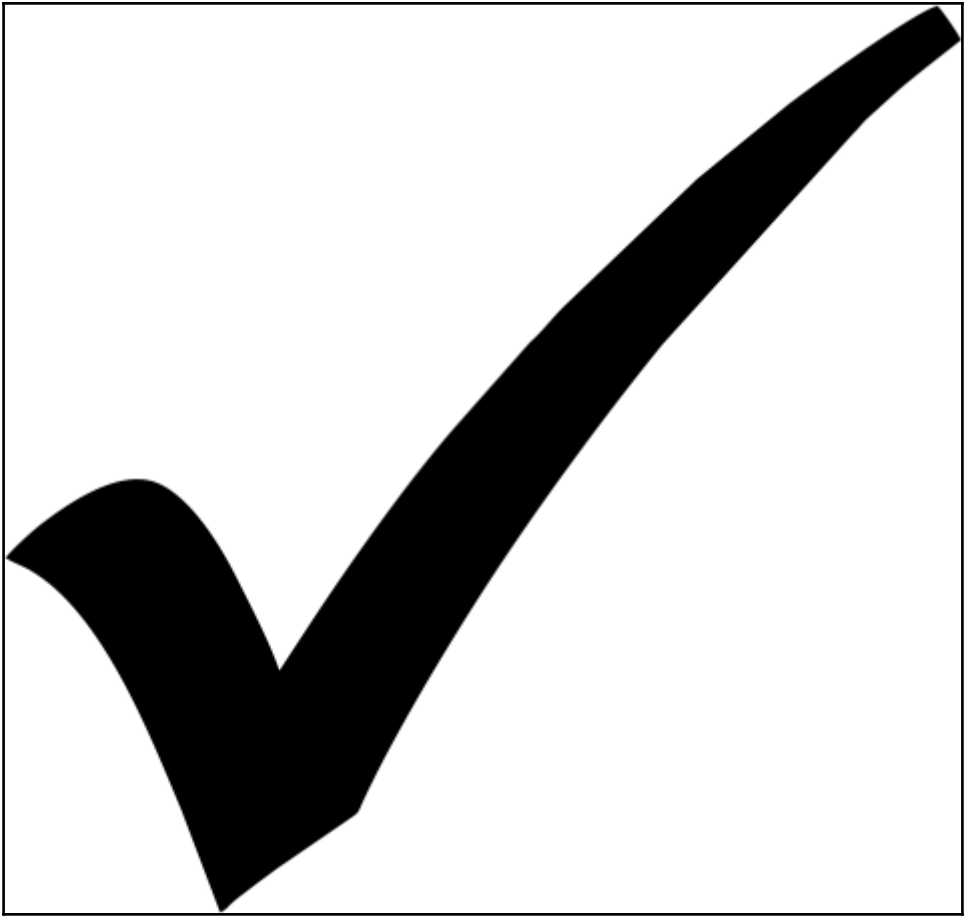




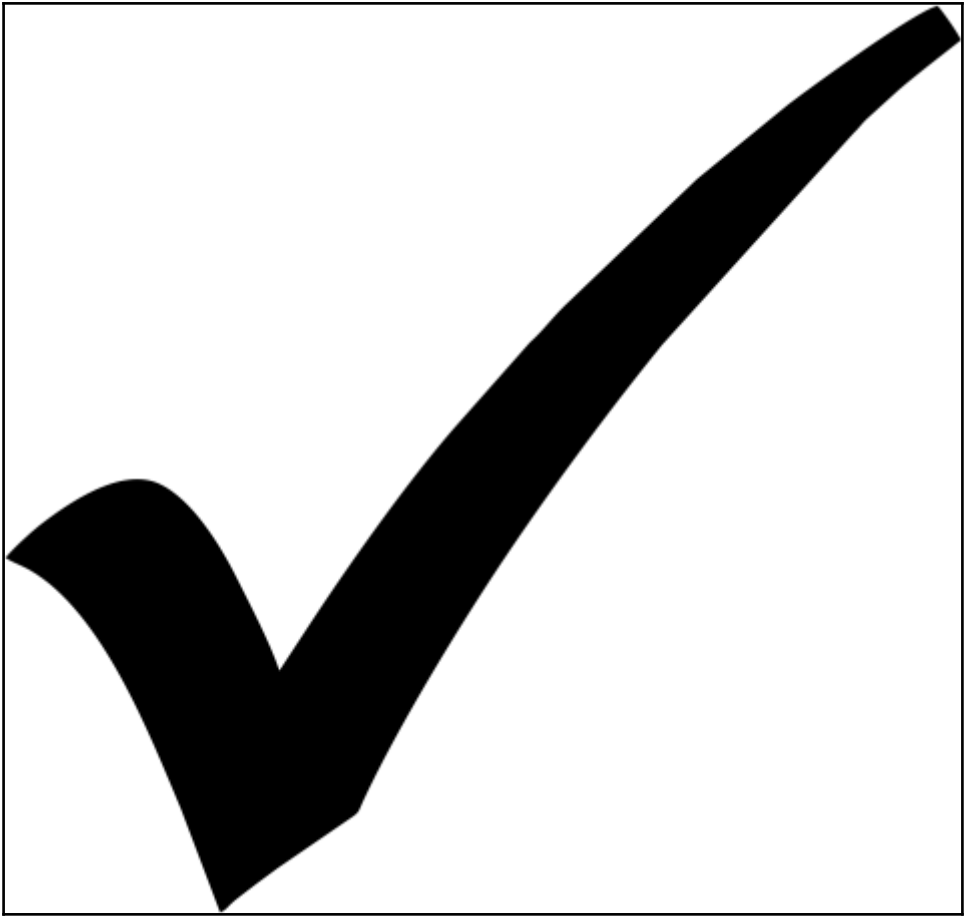


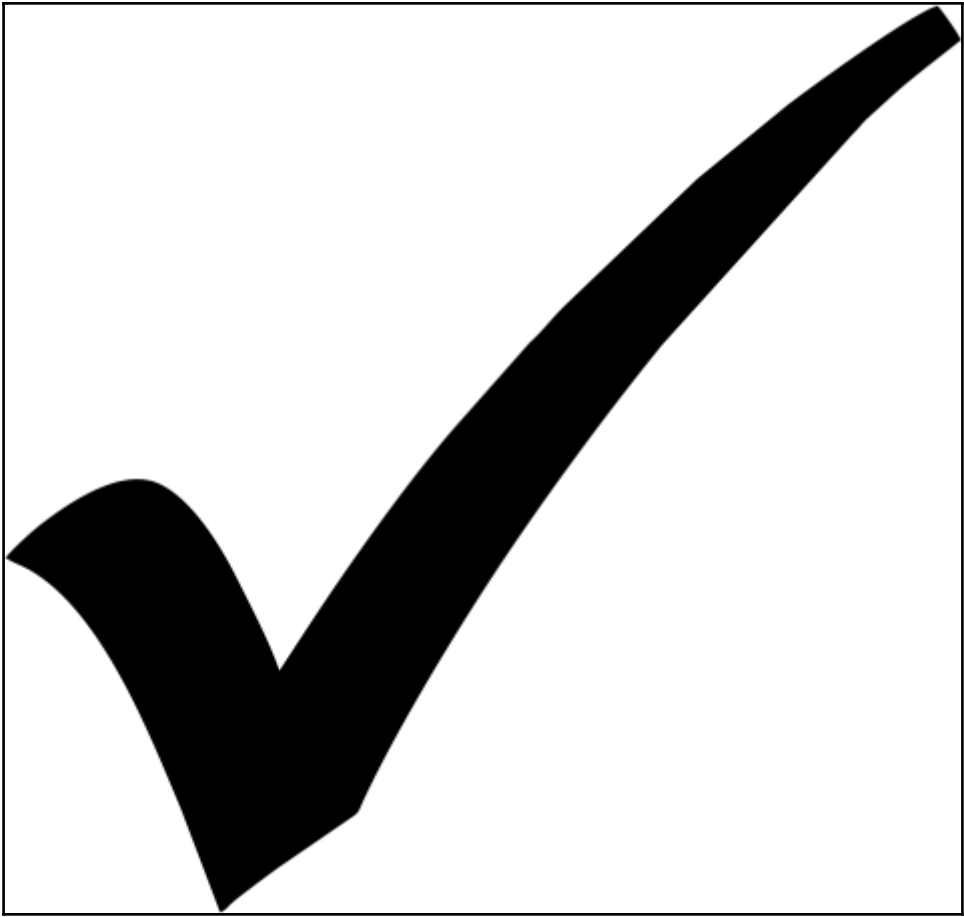


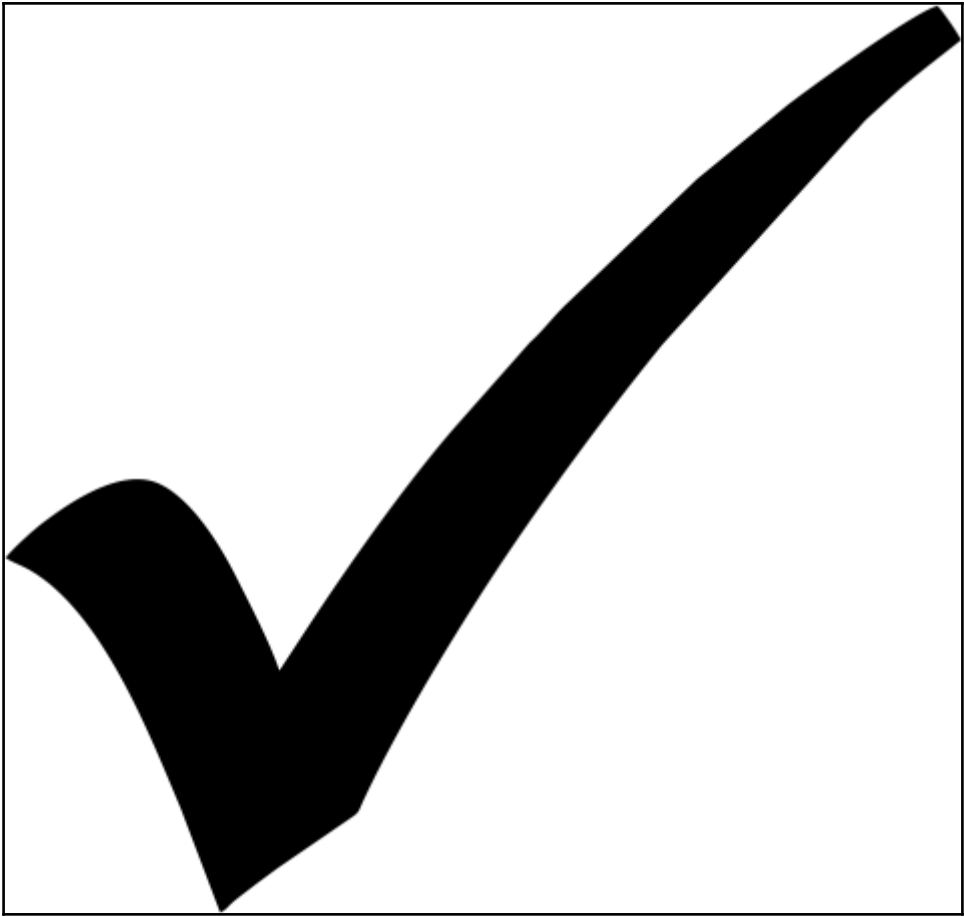


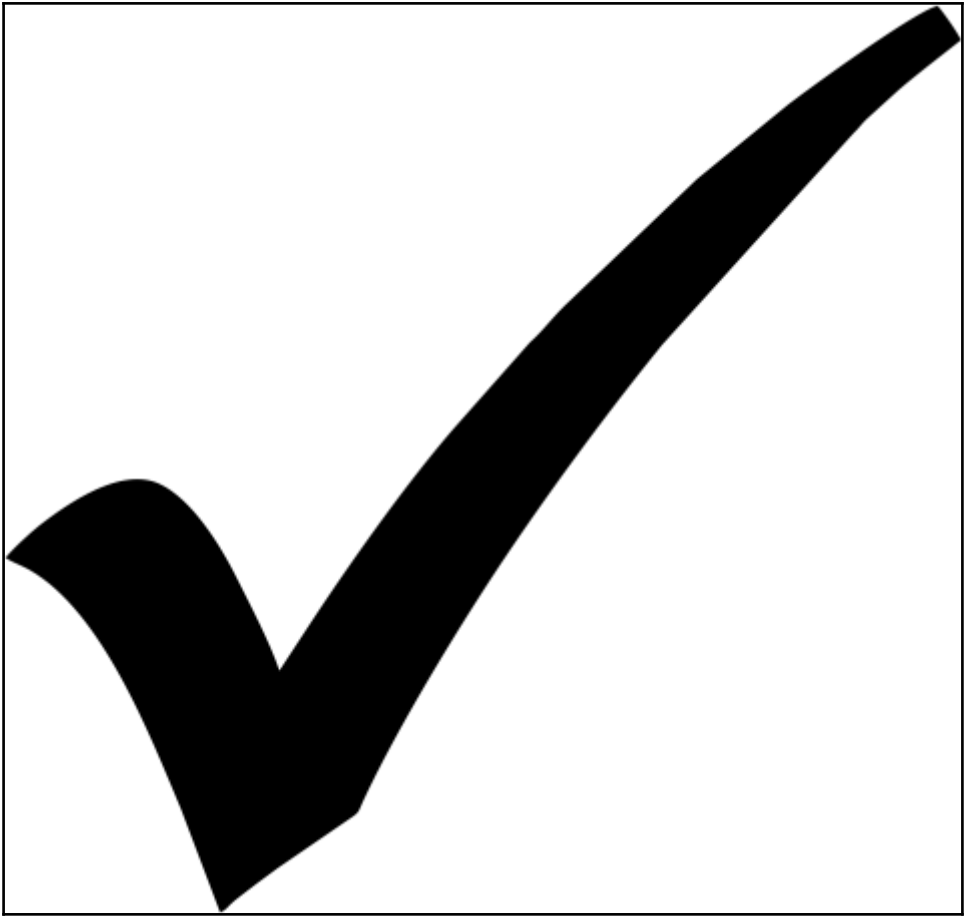


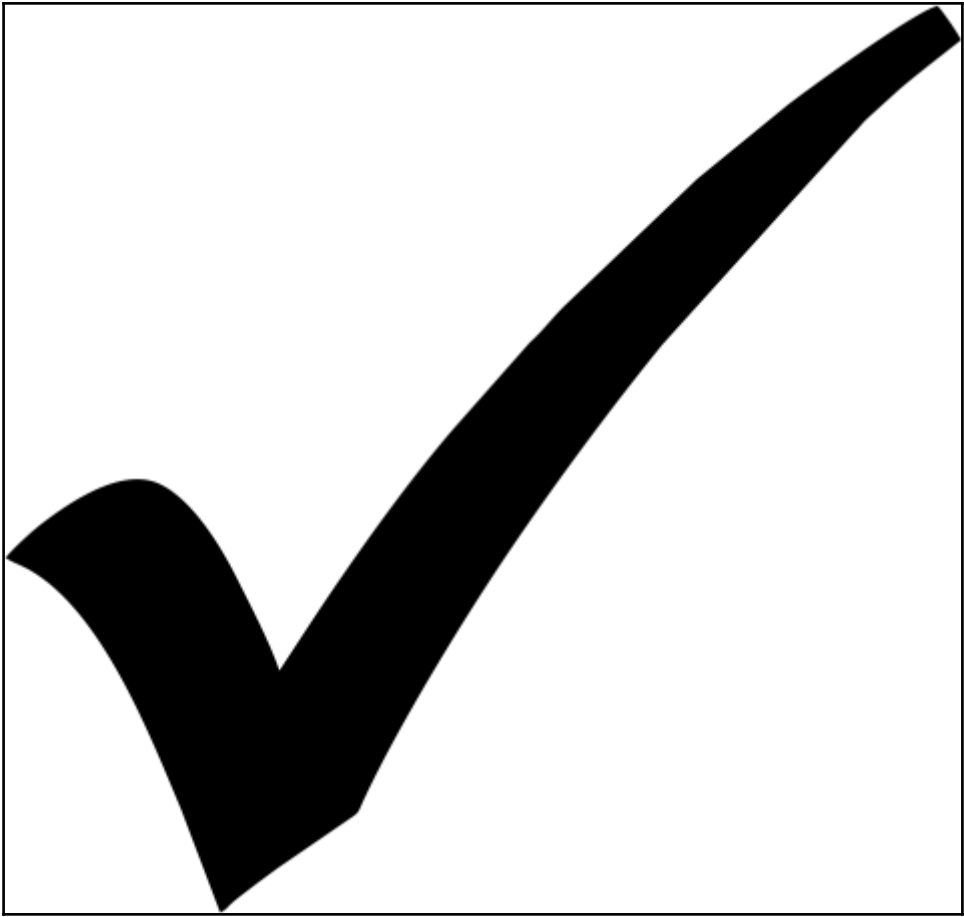


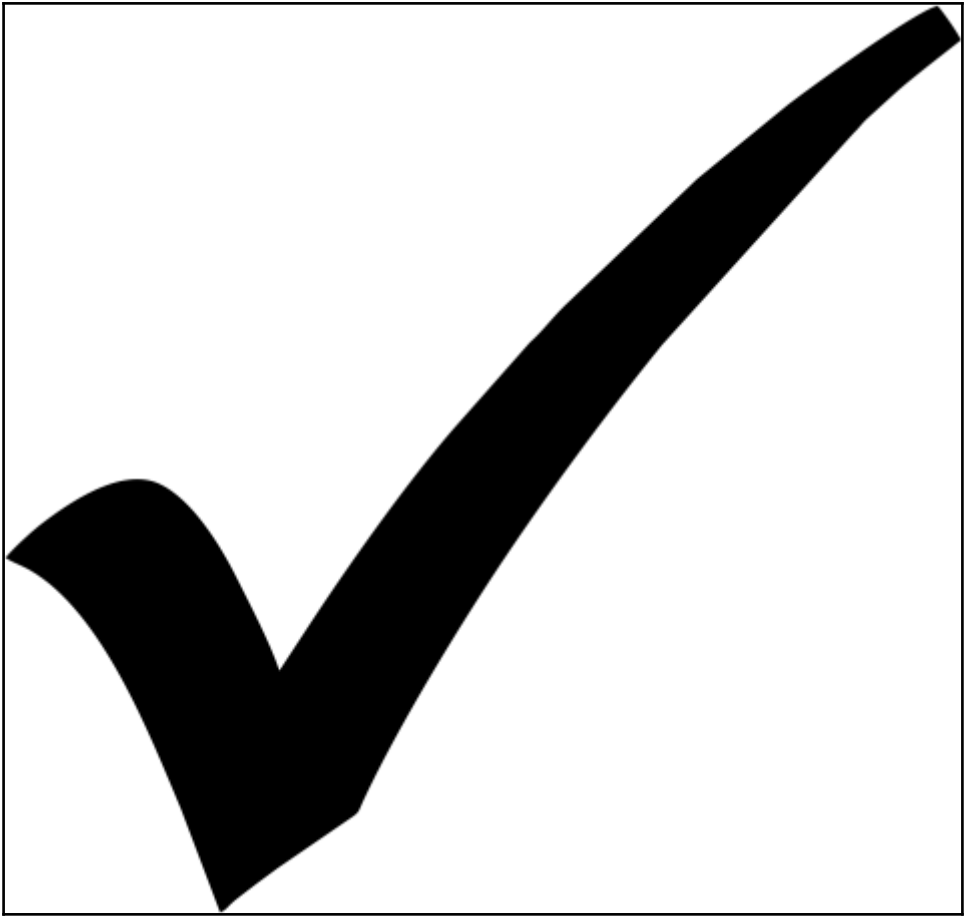


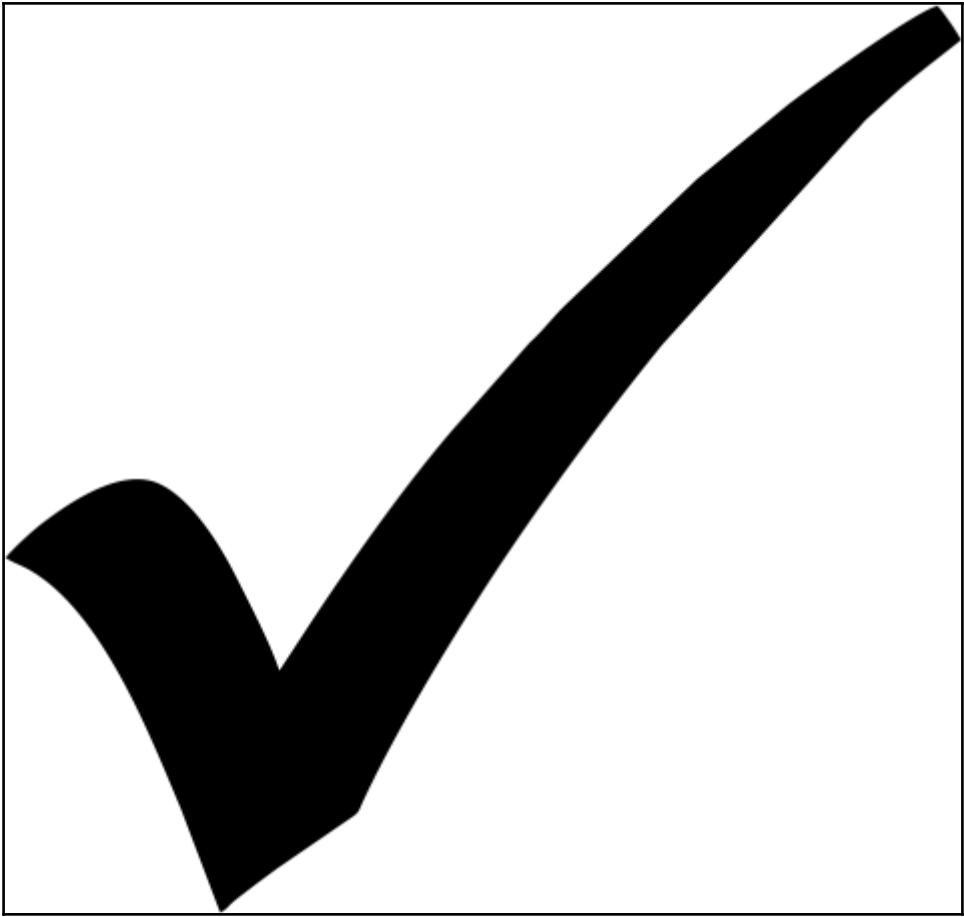


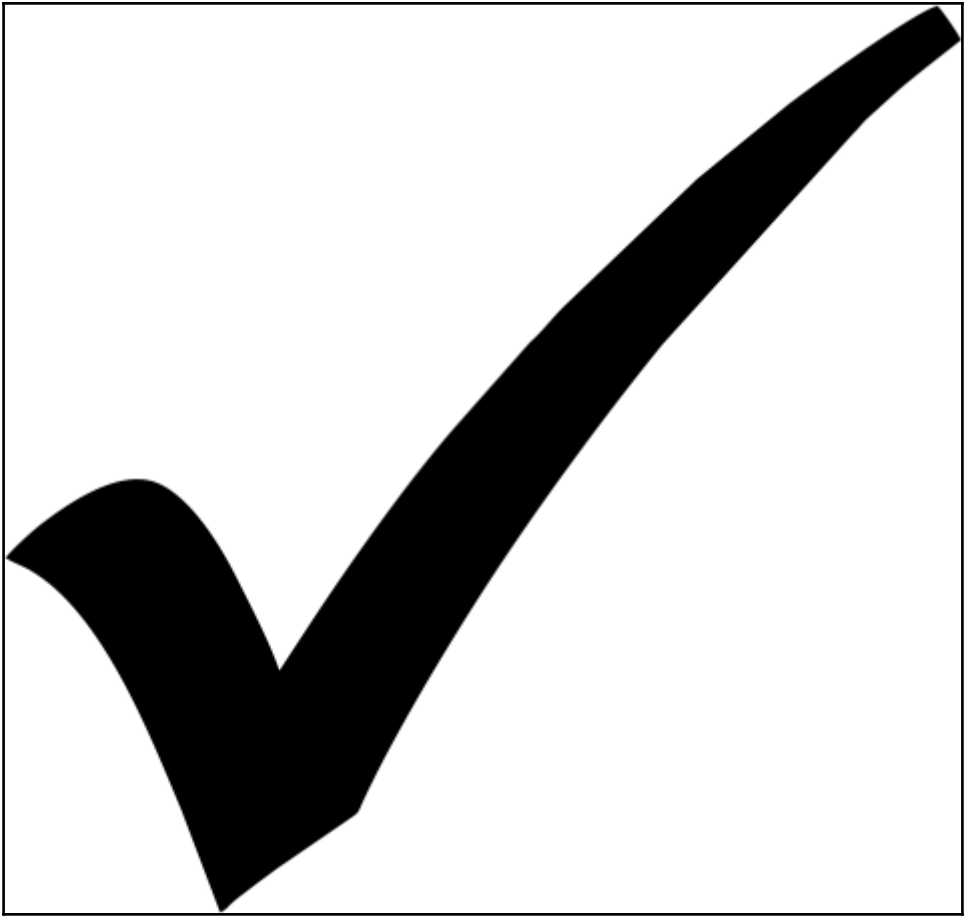




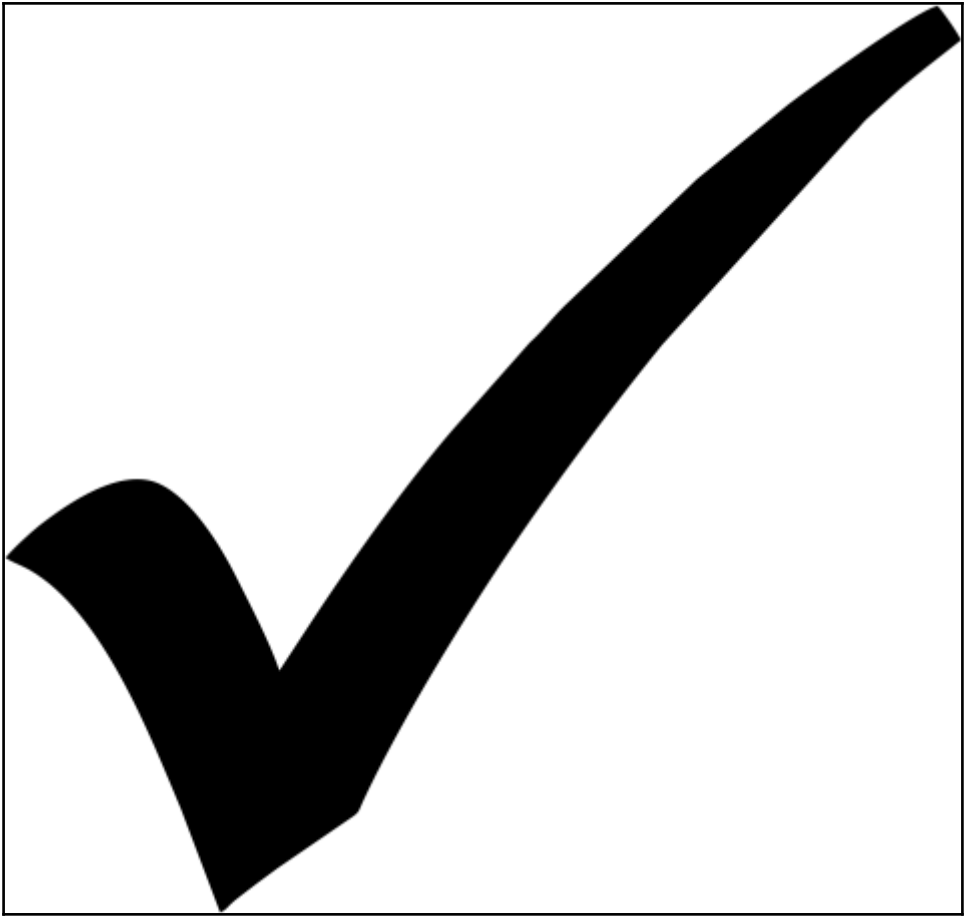


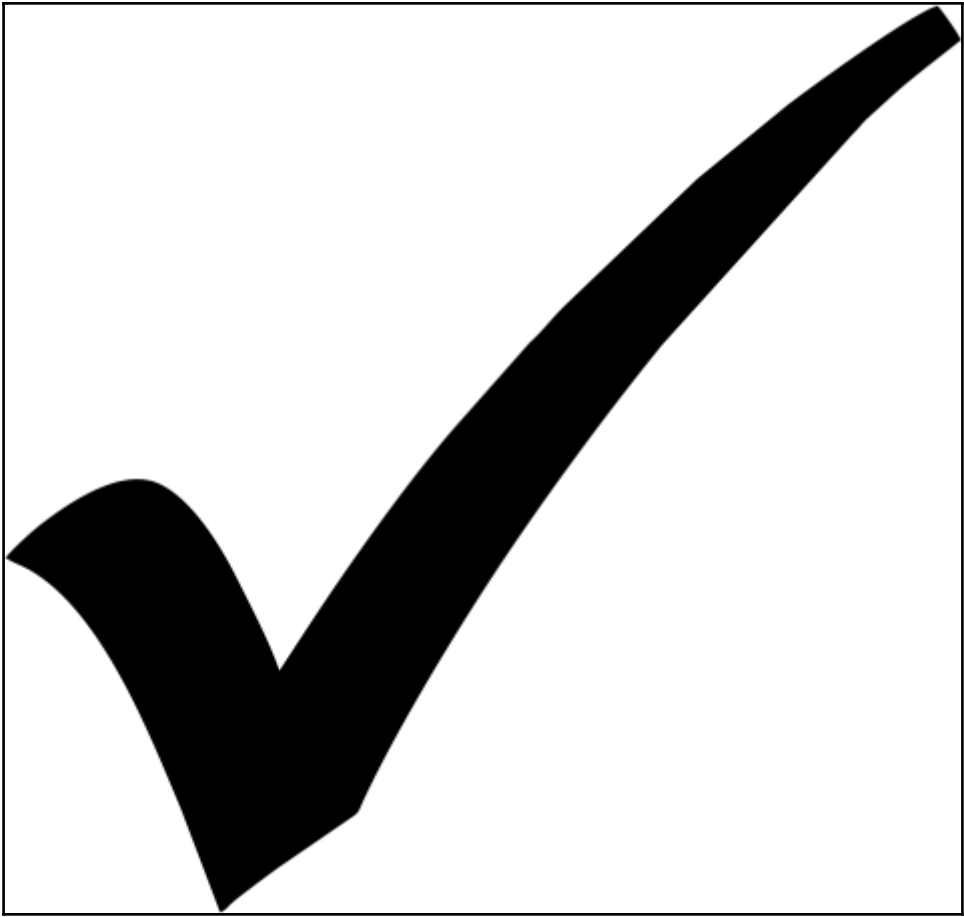


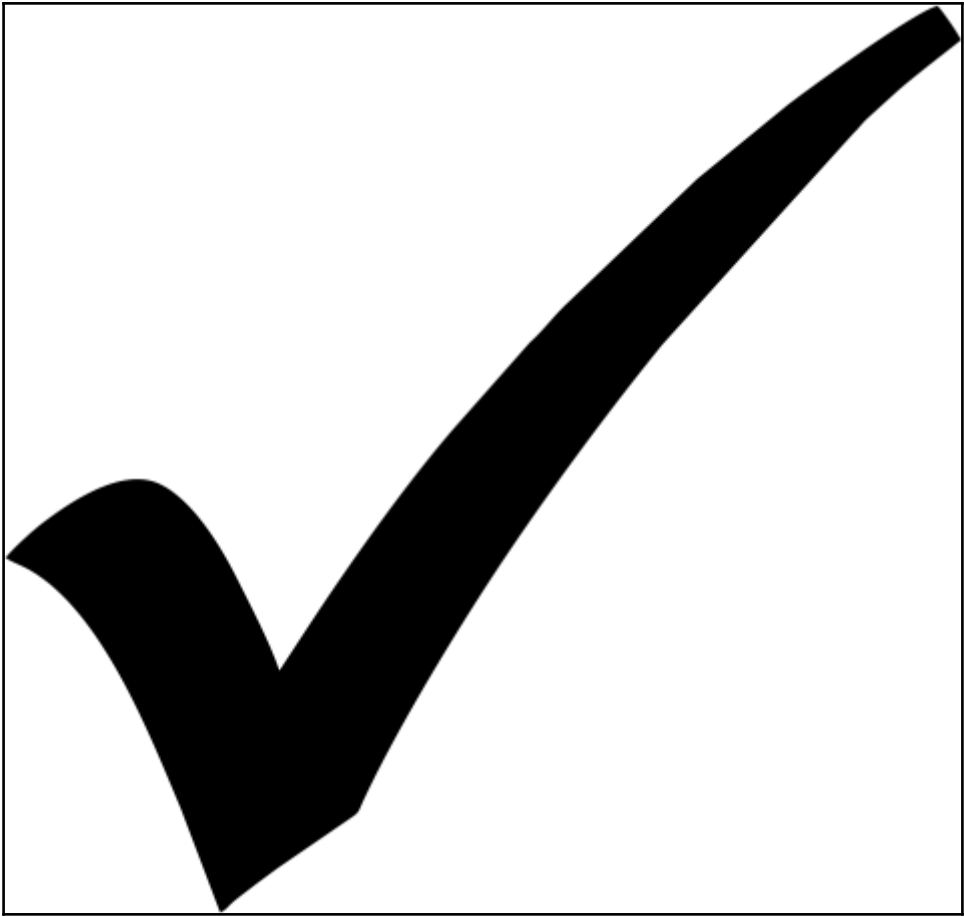


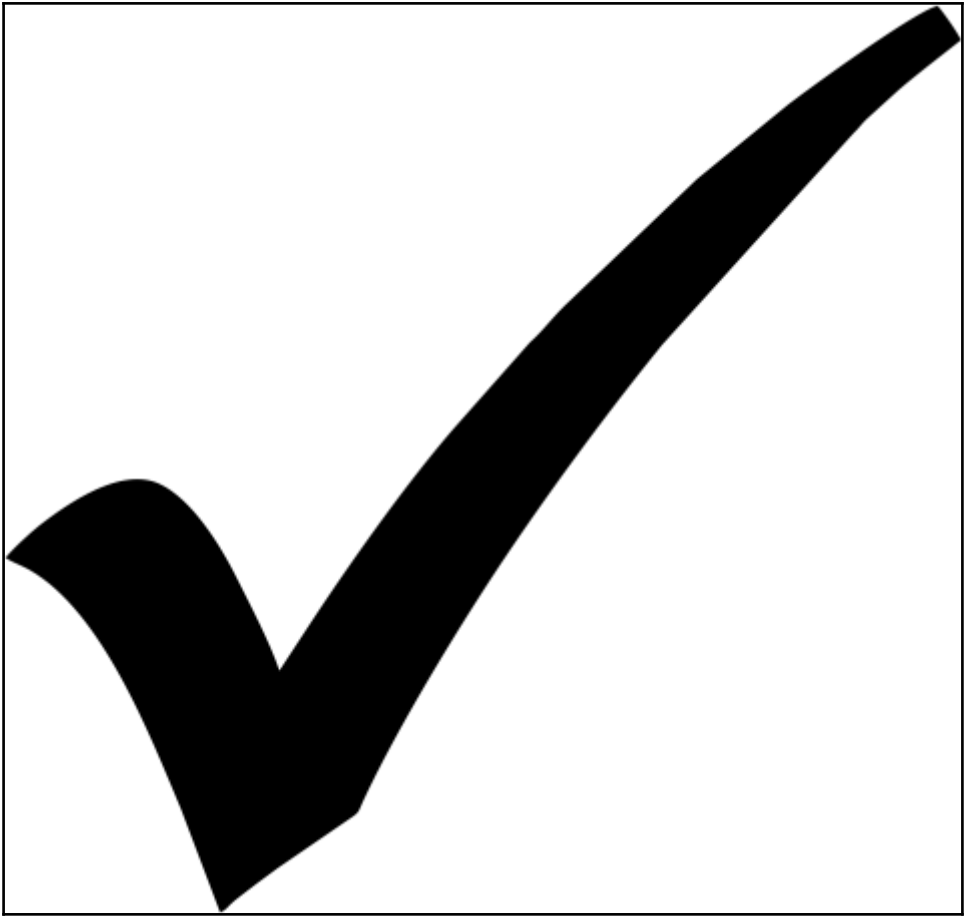


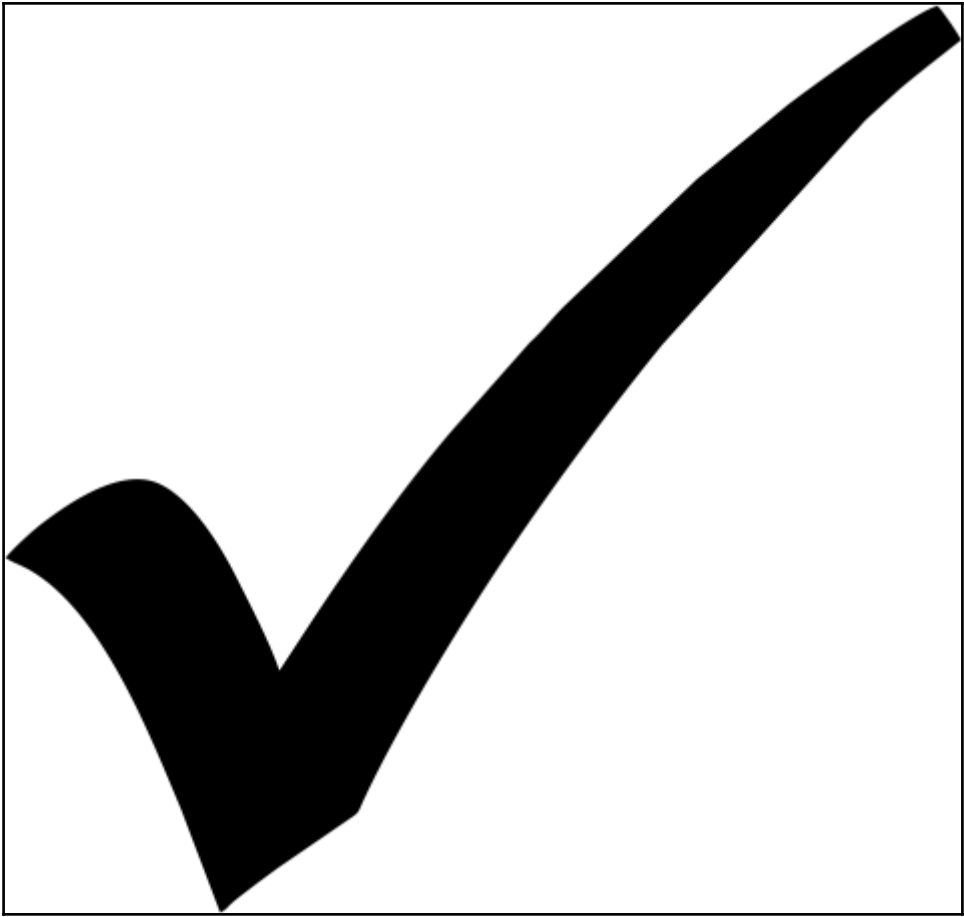


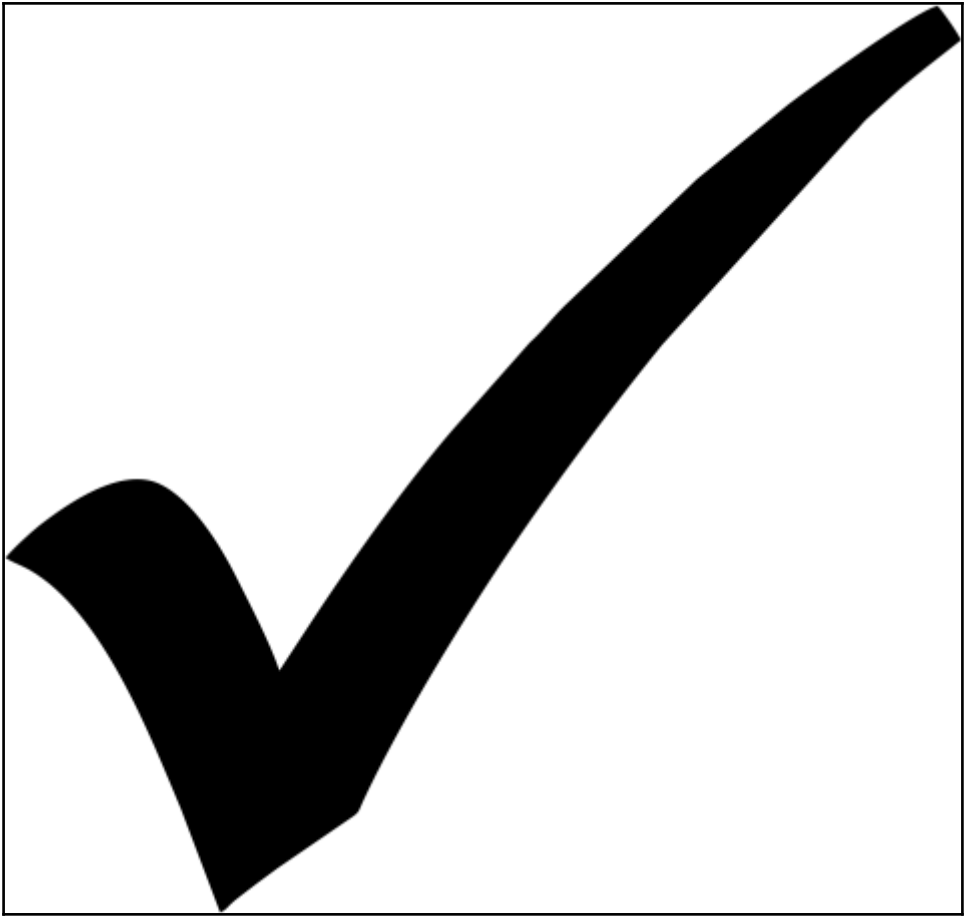


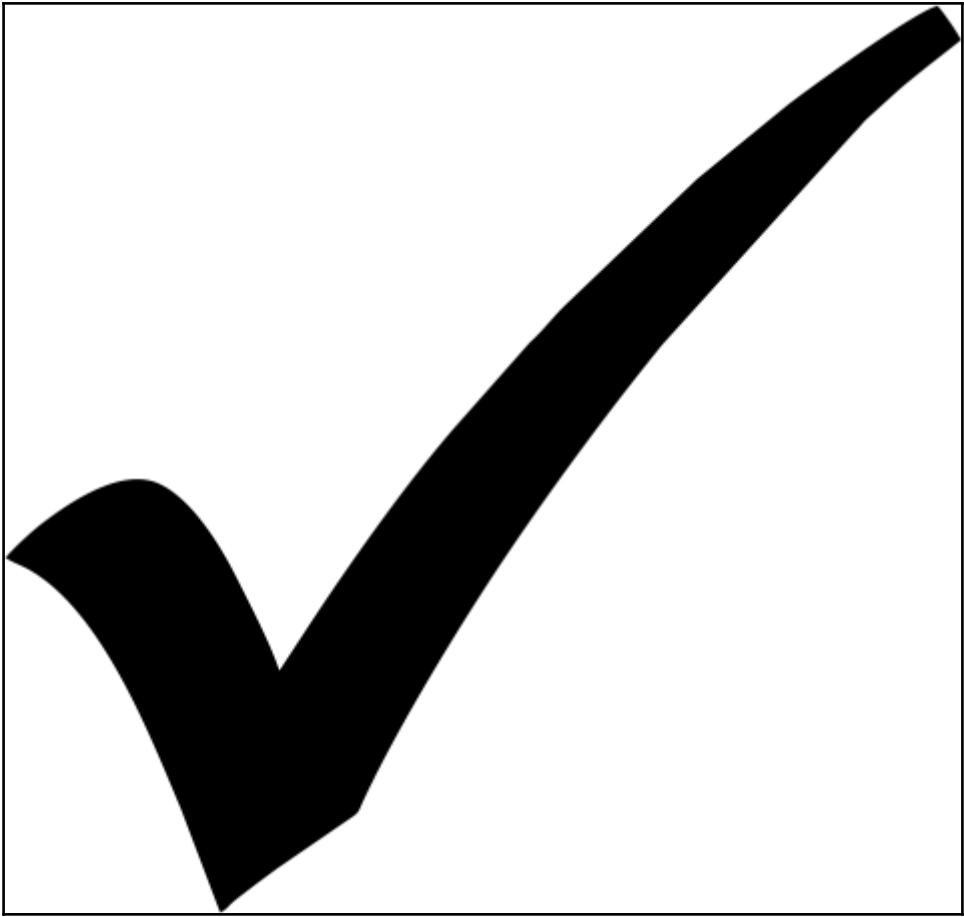






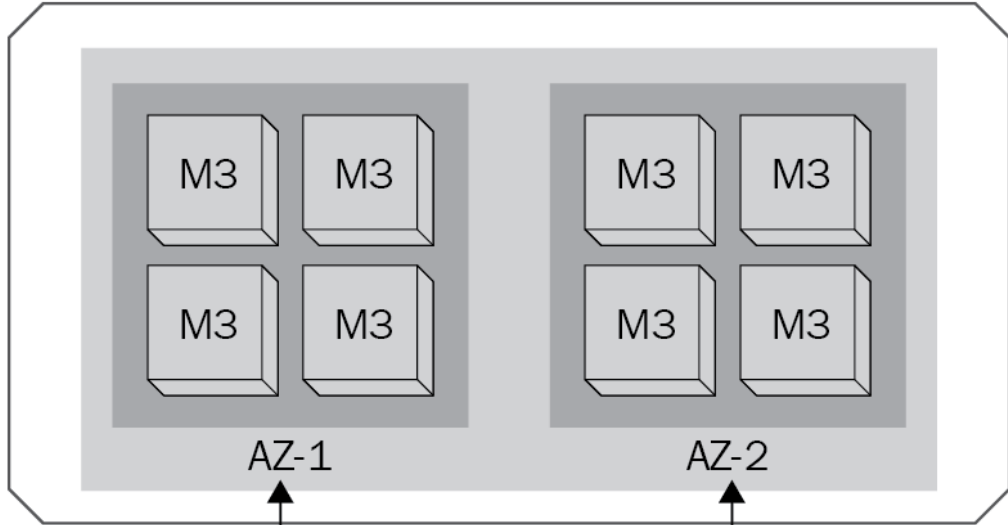






# Classic Load Balancer

AWS Region



AZ-1

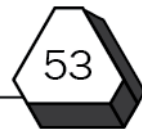
AZ-2



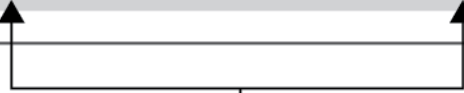
ELB



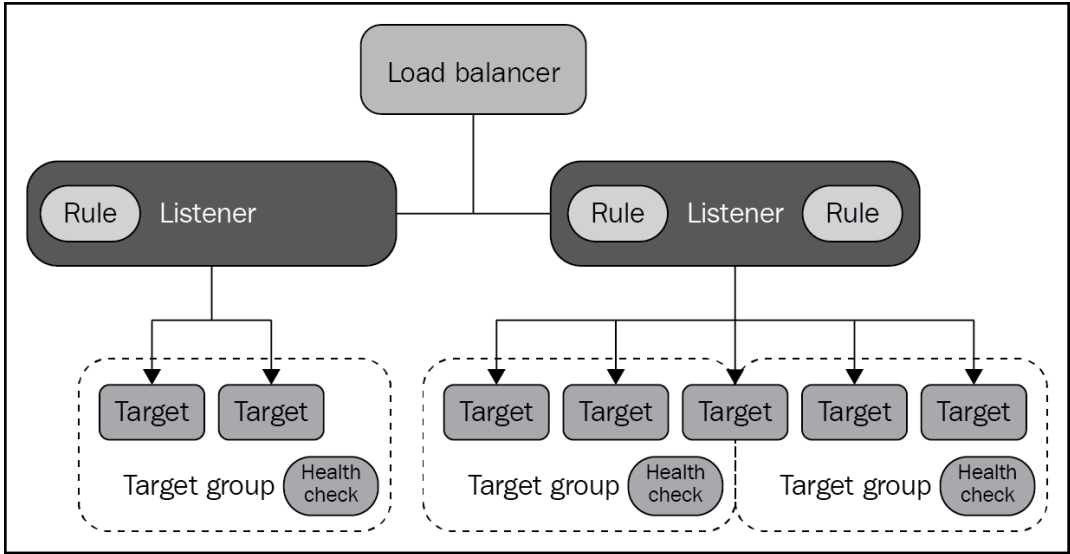
User



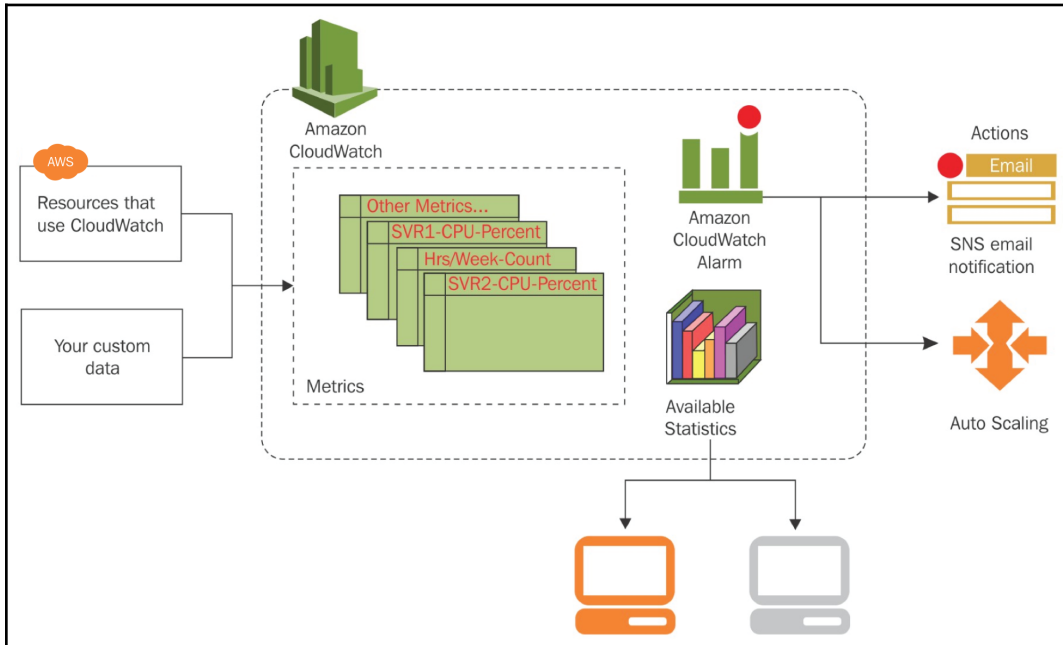
Route53







# Chapter 7: Monitoring with CloudWatch



The screenshot shows the AWS CloudWatch console interface. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information 'Bhavin Parmar' in the 'Frankfurt' region. The left sidebar shows the 'CloudWatch' menu with 'Alarms' selected and highlighted by a red arrow. The main content area is divided into three sections: 'Metric Summary', 'Alarm Summary', and 'Service Health'. The 'Metric Summary' section includes a 'Browse Metrics' button and a search bar. The 'Alarm Summary' section contains a 'Create Alarm' button and text explaining that no alarms are currently created in the EU (Frankfurt) region. The 'Service Health' section shows the 'Current Status' of the 'Amazon CloudWatch Service' as 'Service is operating normally'.

aws Services Resource Groups

Bhavin Parmar Frankfurt Support

CloudWatch  
Dashboards  
**Alarms**  
ALARM  
INSUFFICIENT  
OK  
Billing  
Events

Create Alarm Add to Dashboard Actions

Filter: All alarms Search Alarms Hide all AutoScaling alarms

State	Name	Threshold	Config Status
No records found.			

# Create new alarm

## Metric

Select a metric to alarm on.

Select metric



## Alarm details

Provide the details and threshold for your alarm. Use the graph to help set the appropriate threshold.

Name:

Description:


### Whenever:

is:

for: 1  out of  datapoints 

## Additional settings

Provide additional configuration for your alarm.

Treat missing data as:  

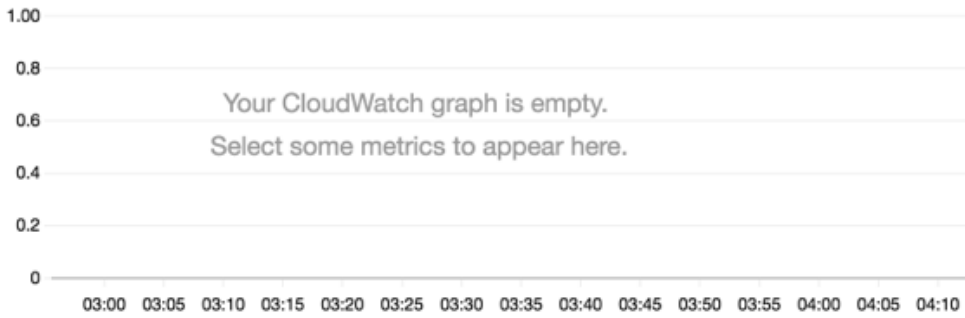
Select metric



Untitled graph

1h **3h** 12h 1d 3d 1w custom ▾

Line ▾



All metrics

Graphed metrics

Graph options

Source

Q Search for any metric, dimension or resource id

25 Metrics

EBS

9 Metrics

EC2

16 Metrics



Cancel

Select metric

## Select metric

×

Untitled graph 

1h **3h** 12h 1d 3d 1w custom ▾

Line ▾



1.00

0.8

0.6

0.4

0.2

0

Your CloudWatch graph is empty.  
Select some metrics to appear here.

03:30 03:35 03:40 03:45 03:50 03:55 04:00 04:05 04:10 04:15 04:20 04:25 04:30 04:35 04:40

All metrics

Graphed metrics

Graph options

Source

All > EC2

 Search for any metric, dimension or resource id

16 Metrics

Per-Instance Metrics

16 Metrics



Cancel

Select metric

**All metrics** | Graphed metrics (0/1) | Graph options | Source

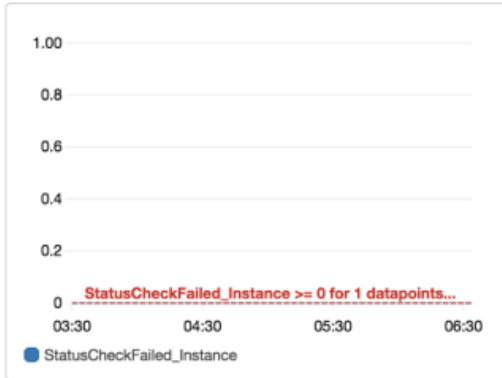
All > EC2 > Per-Instance Metrics

<input type="checkbox"/>	Instance Name (16)	Instanceid	Metric Name
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	DiskWriteOps
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	CPUUtilization
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	NetworkOut
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	NetworkIn
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	NetworkPacketsOut
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	NetworkPacketsIn
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	DiskReadOps
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	DiskWriteBytes
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	DiskReadBytes
<input checked="" type="checkbox"/>	Application Server	i-04ef7d265f7397d92	StatusCheckFailed_Instance
<input type="checkbox"/>	Application Server	i-04ef7d265f7397d92	CPUJSurplusCreditsCharond

# Create new alarm

## Metric [Edit](#)

This alarm will trigger when the blue line goes up to or above the red line for 1 datapoints within 5 minutes



**Namespace:** AWS/EC2  
**Metric Name:** StatusCheckFailed\_Instance  
**InstanceId:** i-04ef7d265f7397d92  
**InstanceName:** Application Server  
**Period:** 5 Minutes  
**Statistic:** Average

## Alarm details

Provide the details and threshold for your alarm. Use the graph to help set the appropriate threshold.

**Name:**

**Description:**

**Whenever:** StatusCheckFailed\_Instance

**is:**

**for:** 3 [✎](#) out of  datapoints [?](#)

## Additional settings

Provide additional configuration for your alarm.

**Treat missing data as:**  [?](#)

## Actions

Define what actions are taken when your alarm changes state.

Notification Delete

**Whenever this alarm:**

**Send notification to:**  [New list](#) [Enter list](#) [?](#)

[+ Notification](#)

[+ AutoScaling Action](#)

[+ EC2 Action](#)

[Cancel](#)

[Create Alarm](#)



## Actions


Define what actions are taken when your alarm changes state.

Notification Delete

Whenever this alarm: State is ALARM ▼

Send notification to: Select a notification list ▼ [New list](#) [Enter list](#) ⓘ

[+ Notification](#) [+ AutoScaling Action](#) [+ EC2 Action](#)



## EC2 Action


Delete

Whenever this alarm: State is ALARM ▼

Take this action:

- Recover this instance ⓘ
- Stop this instance ⓘ
- Terminate this instance ⓘ
- Reboot this instance ⓘ

This will auto recover your EC2 instance (i-Of33743a889356cfc).  
You can only recover certain EC2 instance types. [Please see documentation.](#)



Services ▾ Resource Groups ▾ ☆

Vipul Tankariya ▾ N. Virginia ▾ Support ▾

### AWS services

Find a service by name or feature (for example, EC2, S3 or VM, storage). 🔍


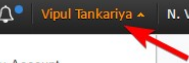
Recently visited services

- Billing
- CloudWatch
- EC2
- Lambda
- S3

All services

- My Account
- My Organization
- My Billing Dashboard**
- My Security Credentials alerts based on your cost and now
- Sign Out

Create an organization  
Use AWS Organizations for policy-based management of multiple AWS accounts. [Start now](#)



Services ▾ Resource Groups ▾ \* 🔔 Vipul Tankariya ▾ Global ▾ Support ▾

Dashboard  
Bills  
Cost Explorer  
Budgets  
Reports  
Cost Allocation  
Tags  
Payment Methods  
Payment History  
Consolidated Billing  
**Preferences**  
Credits  
Tax Settings  
DevPay

## Preferences

**Receive PDF Invoice By Email**  
Turn on this feature to receive a PDF version of your invoice by email. Invoices are generally available within the first three days of the month.

**Receive Billing Alerts** ←  
Turn on this feature to monitor your AWS usage charges and recurring fees automatically, making it easier to track and manage your spending on AWS. You can set up billing alerts to receive email notifications when your charges reach a specified threshold. Once enabled, this preference cannot be disabled. [Manage Billing Alerts](#) or [try the new budgets feature!](#)

**Receive Billing Reports**  
Turn on this feature to receive ongoing reports of your AWS charges once or more daily. AWS delivers these reports to the Amazon S3 bucket that you specify where indicated below. For consolidated billing customers, AWS generates reports only for paying accounts. Linked accounts cannot sign up for billing reports.

Save to S3 Bucket:

aws Services ▾ Resource Groups ▾ \* 🔔 Vipul Tankariya ▾ N. Virginia ▾ Support ▾

CloudWatch  
**Dashboards**  
Packet-Subscription-App  
Alarms  
ALARM 0  
INSUFFICIENT 0  
OK 0  
Billing  
Events  
Rules  
Event Buses  
Logs  
Insights  
Metrics  
Favorites  
[Add a dashboard](#)

## Dashboards

Name	Favorite	Last updated (UTC)
<a href="#">Packet-CRM-Dashboard</a>	☆	2019-05-14 06:26
<a href="#">Packet-DR-Infrastructure-Dashboard</a>	☆	2019-05-14 06:27
<a href="#">Packet-Management-Dashboard</a>	☆	2019-05-14 06:27
<a href="#">Packet-Subscription-Application-Dashboard</a>	☆	2019-05-14 06:28

### Additional Information

[Getting Started Guide](#)  
[Documentation](#)  
[Forums](#)  
[Report an Issue](#)

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Services Resource Groups

Vipul Tankariya N. Virginia Support

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**  [Launch into Auto Scaling Group](#)

**Purchasing option**  Request Spot instances

**Network**  [Create new VPC](#)

**Subnet**  [Create new subnet](#)  
251 IP Addresses available

**Auto-assign Public IP**

**IAM role**  [Create new IAM role](#)

**Shutdown behavior**

**Enable termination protection**  Protect against accidental termination

**Monitoring**  Enable CloudWatch detailed monitoring  
Additional charges apply.

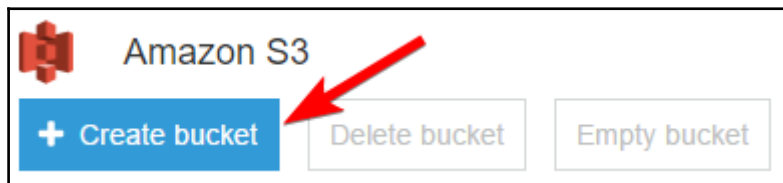
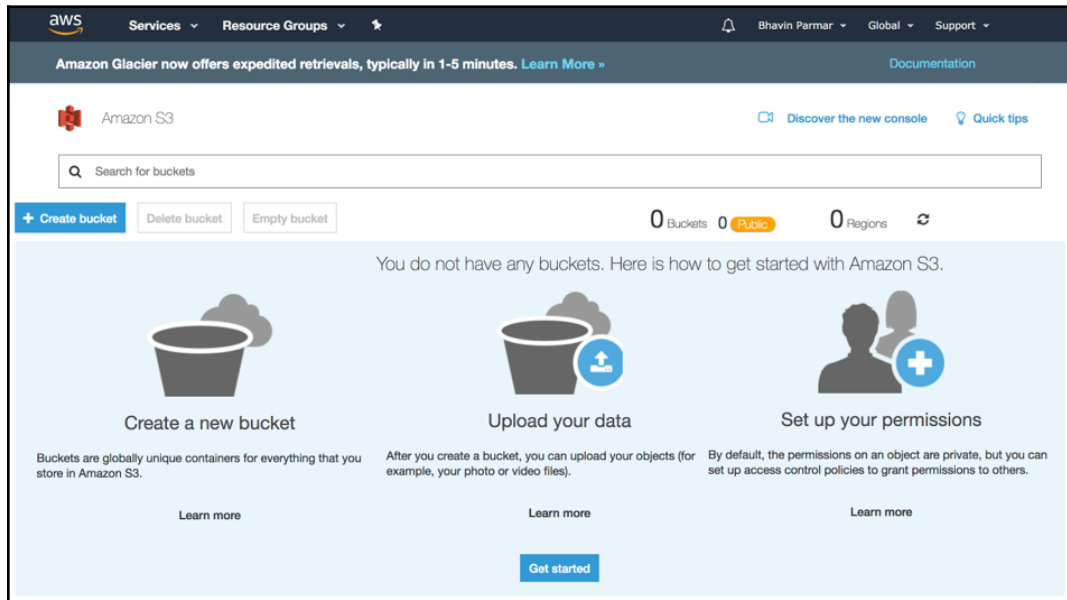
**Tenancy**   
Additional charges will apply for dedicated tenancy.

Cancel Previous **Review and Launch** Next: Add Storage

# Chapter 8: Simple Storage Service, Glacier, and CloudFront

`https://packtpub.s3.amazonaws.com/books/acda-guide.pdf`

Bucket Name      S3 Endpoint      Key



## Create bucket



- 1 Name and region
- 2 Set properties
- 3 Set permissions
- 4 Review

### Name and region

Bucket name ⓘ

packtpub

Region

US East (N. Virginia)

Copy settings from an existing bucket

*You have no buckets*

0 Buckets

Create

Cancel

Next

# Create bucket



Name and region



Configure options



Set permissions



Review

## Properties

### Versioning

Keep all versions of an object in the same bucket. [Learn more](#)

### Server access logging

Log requests for access to your bucket. [Learn more](#)

### Tags

You can use tags to track project costs. [Learn more](#)

[+ Add another](#)

### Object-level logging

Record object-level API activity using AWS CloudTrail for an additional cost. See [CloudTrail pricing](#) or [learn more](#)

### Default encryption

Automatically encrypt objects when they are stored in S3. [Learn more](#)

## Management

Previous

Next

# Create bucket



Name and region



Configure options



Set permissions



Review

## Manage users

User ID ⓘ	Objects ⓘ	Object permissions ⓘ	
bhavinjparmar(Owner)	<input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Write	<input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Write	×

Access for other AWS account

[+ Add account](#)

Account ⓘ	Objects ⓘ	Object permissions ⓘ
-----------	-----------	----------------------

## Manage public permissions

Do not grant public read access to this bucket (Recommended) ▼

## Manage system permissions

Do not grant Amazon S3 Log Delivery group write access to this bucket ▼

[Previous](#)

[Next](#)

# Create bucket



Name and region



Configure options



Set permissions



Review

## Name and region

[Edit](#)

**Bucket name** packtpubs **Region** Asia Pacific (Singapore)

## Options

[Edit](#)

<b>Versioning</b>	Disabled
<b>Server access logging</b>	Disabled
<b>Tagging</b>	0 Tags
<b>Object-level logging</b>	Disabled
<b>Default encryption</b>	None
<b>CloudWatch request metrics</b>	Disabled

## Permissions

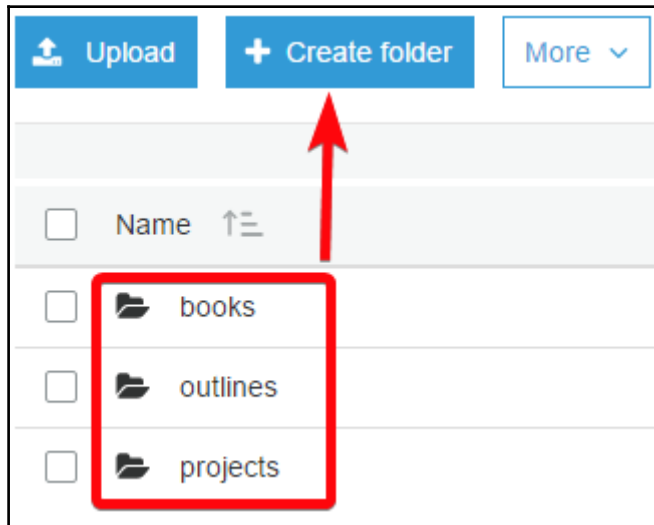
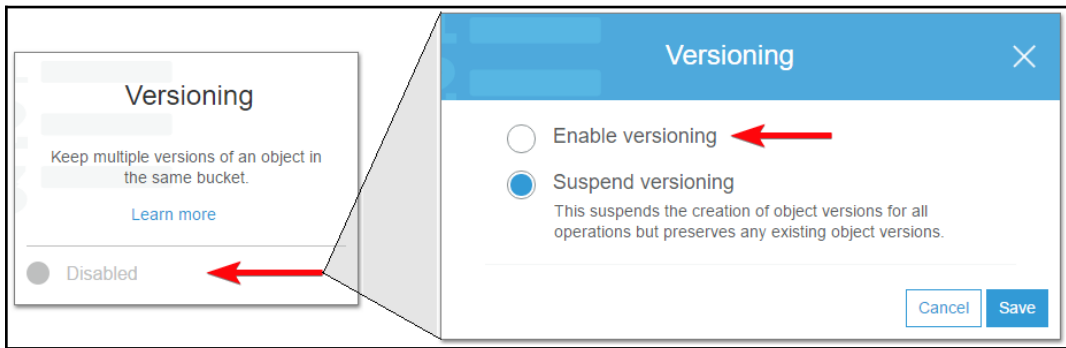
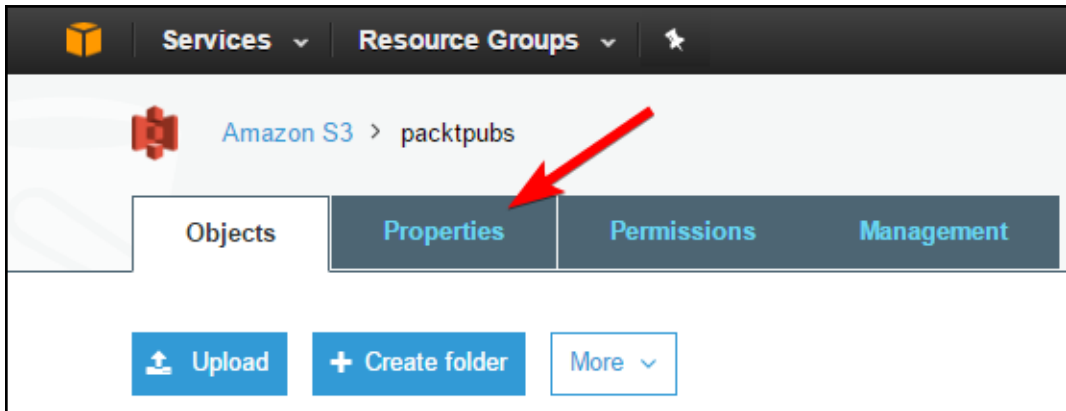
[Edit](#)

<b>Users</b>	1
<b>Public permissions</b>	Disabled
<b>System permissions</b>	Disabled

[Previous](#)

[Create bucket](#)






Amazon S3 > **Bucket** packtpubs > **Folder** books

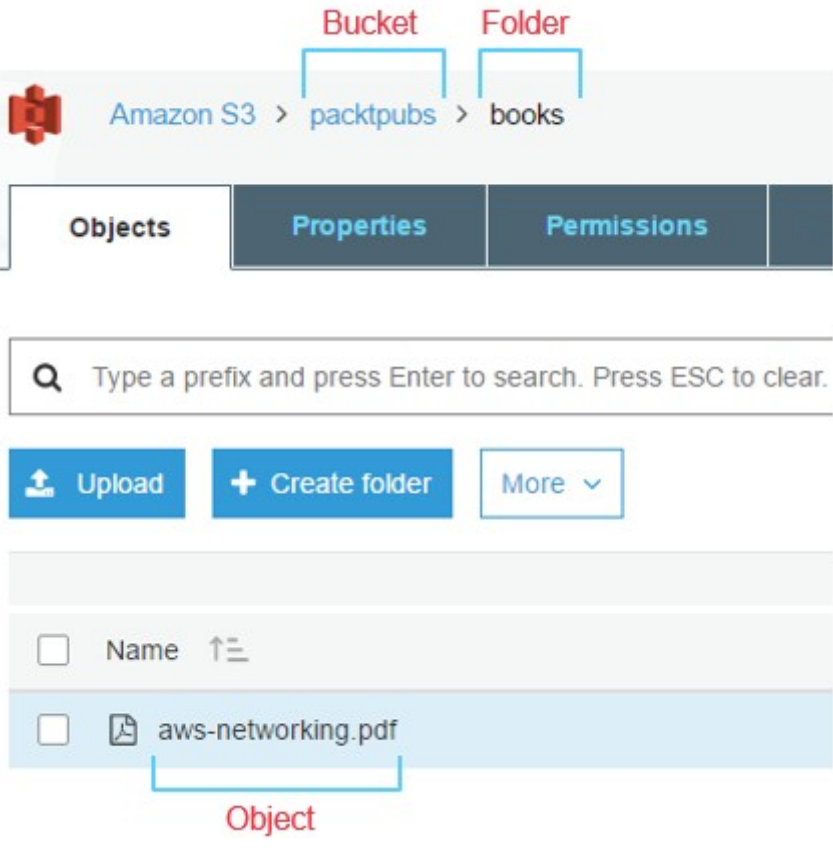
Objects Properties Permissions


🔍 Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder More

<input type="checkbox"/>	Name	↑	☰
<input type="checkbox"/>	 aws-networking.pdf		

**Object**







 Amazon S3

🔍 Search for buckets

**+ Create bucket** Delete bucket Empty bucket

Bucket name ↓☰

-  packtpubs ←
-  books-vipul
-  books-bhavin

 Amazon S3 > packtpubs

Objects **Properties** Permissions Management

**Versioning**

Keep multiple versions of an object in the same bucket.  
[Learn more](#)

Enabled ←

Suspend versioning ←  
This suspends the creation of object versions for all operations but preserves any existing object versions.

Disabled ←

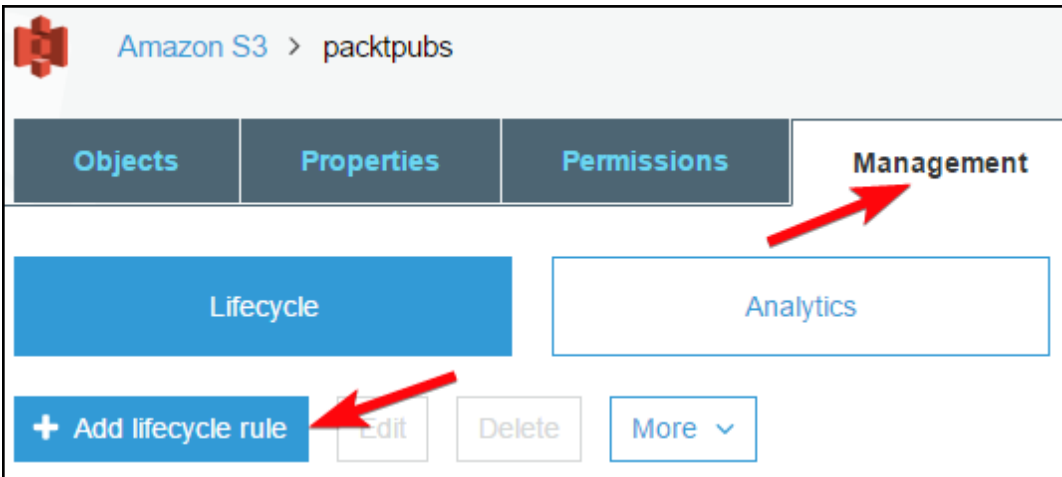
Cancel Save

Amazon S3 > packtpubs

Objects Properties Permissions **Management**

Lifecycle Analytics

+ Add lifecycle rule Edit Delete More ▾



### Lifecycle rule

1 Name and scope 2 Transitions 3 Expiration 4 Review

Enter a rule name

backuplifecycle

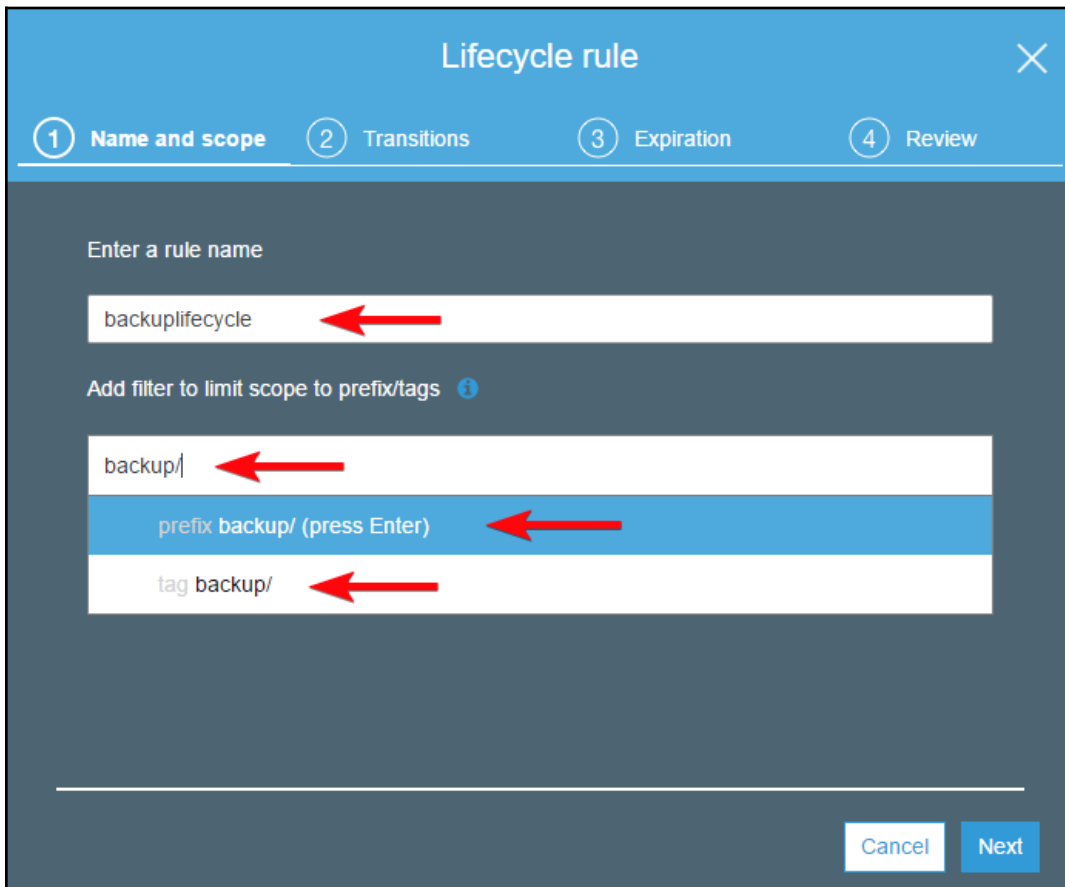
Add filter to limit scope to prefix/tags ⓘ

backup/

prefix backup/ (press Enter)

tag backup/

Cancel Next



## Lifecycle rule



Name and scope



Transitions



Expiration



Review



### Configure transition

Current version

Previous versions

For current version of objects

You don't have any transitions set up for **current version** of objects.

[+ Add transition](#)

For previous versions of objects 

You don't have any transitions set up for **previous versions** of objects.

[+ Add transition](#)

Previous

Next

# Lifecycle rule



Name and scope



**Transitions**



Expiration



Review

## Storage class transition

You can add rules in a lifecycle configuration to tell Amazon S3 to transition objects to another storage class. [Learn more](#)

Current version  Previous versions

For current versions of objects [+ Add transition](#)

Object creation

Days after creation

- Transition to Standard-IA after
- Transition to Standard-IA after
- Transition to One Zone-IA after
- Transition to Amazon Glacier after

30 X

[+ Add transition](#)

previous versions of objects.

Previous

Next

## Configure expiration

Current version  Previous versions

Clean up expired object delete markers and incomplete multipart uploads

Clean up expired object delete markers [?](#)

Clean up incomplete multipart uploads [?](#)

## Lifecycle rule

✓ Name and scope✓ Transitions③ Expiration④ Review

### Configure expiration

Current version    Previous versions

Expire current version of object ⓘ

After  days from object creation

#### Clean up expired object delete markers and incomplete multipart uploads

Clean up expired object delete markers ⓘ

You cannot enable clean up expired object delete markers if you enable Expiration.

Clean up incomplete multipart uploads ⓘ

After  Days from start of upload

 Amazon S3 > packtpubs

Objects

Properties

Permissions

Management



**Static website hosting**

Host a static website, which does not require server-side technologies.

[Learn more](#)

Disabled

**Static website hosting** ×

Endpoint : <http://packtpubs.s3-website-us-east-1.amazonaws.com>

- Use this bucket to host a website [Learn more](#)
- Redirect requests [Learn more](#)
- Disable website hosting

## Static website hosting



Endpoint : <http://packtpubs.s3-website-us-east-1.amazonaws.com>

Use this bucket to host a website [i](#) [Learn more](#)

Index document [i](#)

index.html

Error document [i](#)

error.html

Redirection rules (optional) [i](#)

Redirect requests [i](#) [Learn more](#)

Disable website hosting

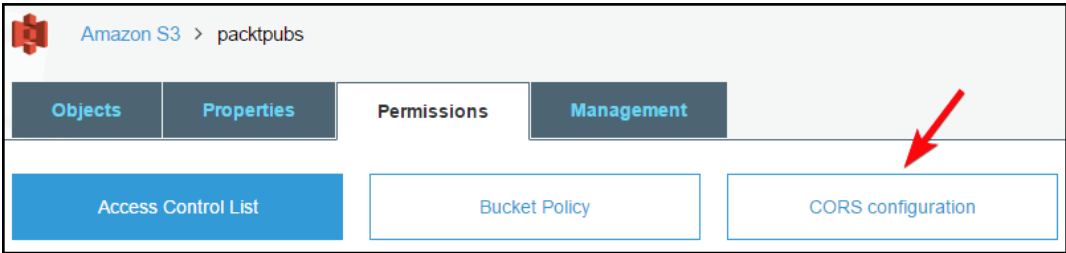
Cancel

Save

Amazon S3 > packtpubs

Objects Properties Permissions Management

Access Control List Bucket Policy CORS configuration



Amazon S3 > packtpubs

Objects Properties Permissions Management

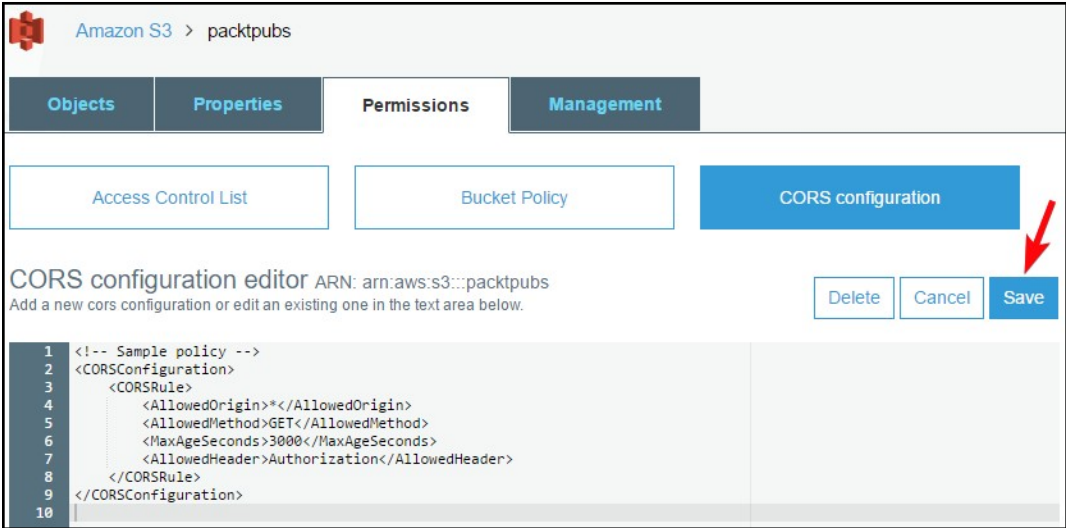
Access Control List Bucket Policy CORS configuration

CORS configuration editor ARN: arn:aws:s3:::packtpubs

Add a new cors configuration or edit an existing one in the text area below.

Delete Cancel Save

```
1 <!-- Sample policy -->
2 <CORSConfiguration>
3   <CORSRule>
4     <AllowedOrigin>*/</AllowedOrigin>
5     <AllowedMethod>GET</AllowedMethod>
6     <MaxAgeSeconds>3000</MaxAgeSeconds>
7     <AllowedHeader>Authorization</AllowedHeader>
8   </CORSRule>
9 </CORSConfiguration>
10
```

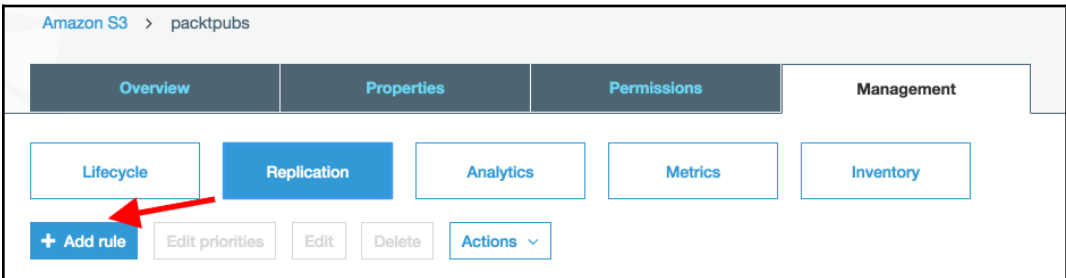


Amazon S3 > packtpubs

Overview Properties Permissions Management

Lifecycle Replication Analytics Metrics Inventory

+ Add rule Edit priorities Edit Delete Actions



## Replication rule



1 Set source


2 Set destination

3 Configure options

4 Review

### Set source

Entire bucket  packtpubs

Prefix or tags 

### Replication criteria

Replicate objects encrypted with AWS KMS 

#### Your CRR rule will be created using the new schema

Cross-region replication (CRR) now has a new schema that supports replication based on prefixes, one or more object tags or a combination of the two. As part of the new schema, you can set overlapping rules with priorities. The new schema does not support delete marker replication, which would prevent any delete actions from replicating. [Learn more](#) about cross-region replication.

Cancel

Next

## Replication rule ✕

✓ Set source2 Set destination3 Configure options4 Review

Destination bucket

*You have no buckets* ▼

Options

Change the storage class for the replicated object(s)

Change object ownership to destination bucket owner ℹ

---

Previous Next

*You have no buckets* ▼

Buckets in this account     Buckets in another account

*Select or enter bucket name* 🔍

Create new bucket

No matches found.

## Replication rule



Set source



Set destination



Configure options



Review

IAM role

Select a role



Rule name

Type a name

Status



Enabled



Disabled

Previous

Next

## Replication rule



Set source



Set destination



Configure options



Review

### Source

[Edit](#)

<b>Bucket</b>	packtpubs
<b>Scope</b>	Entire bucket
<b>Region</b>	Asia Pacific (Singapore)

### Destination

[Edit](#)

<b>Bucket</b>	test-packt-rep-buck
<b>Region</b>	Asia Pacific (Sydney)
<b>Storage class</b>	Same as source

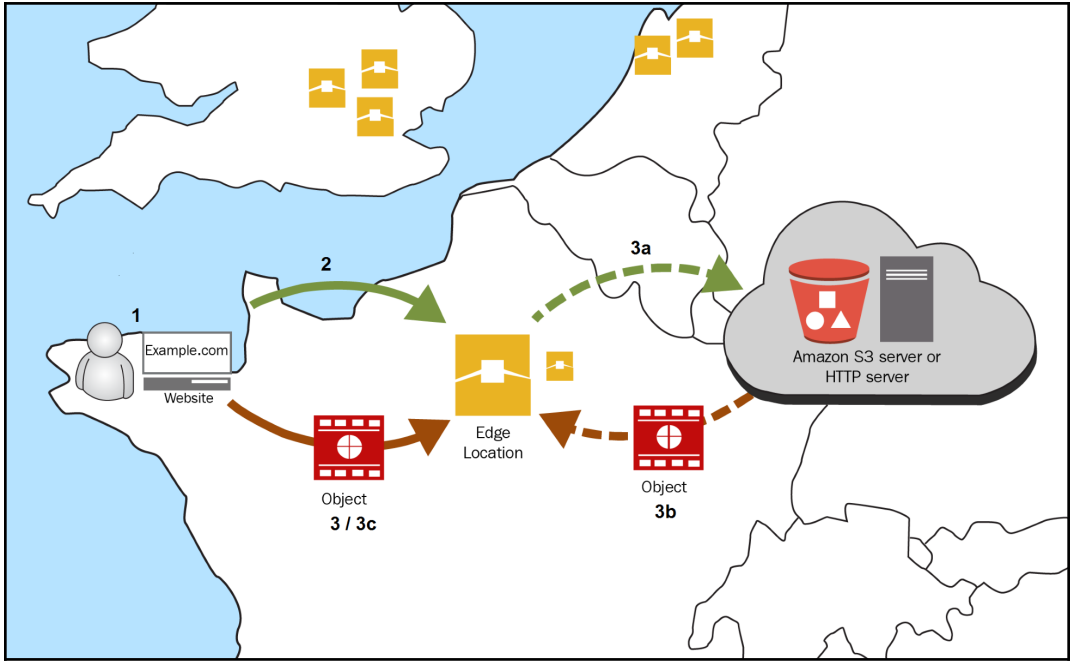
### Options

[Edit](#)

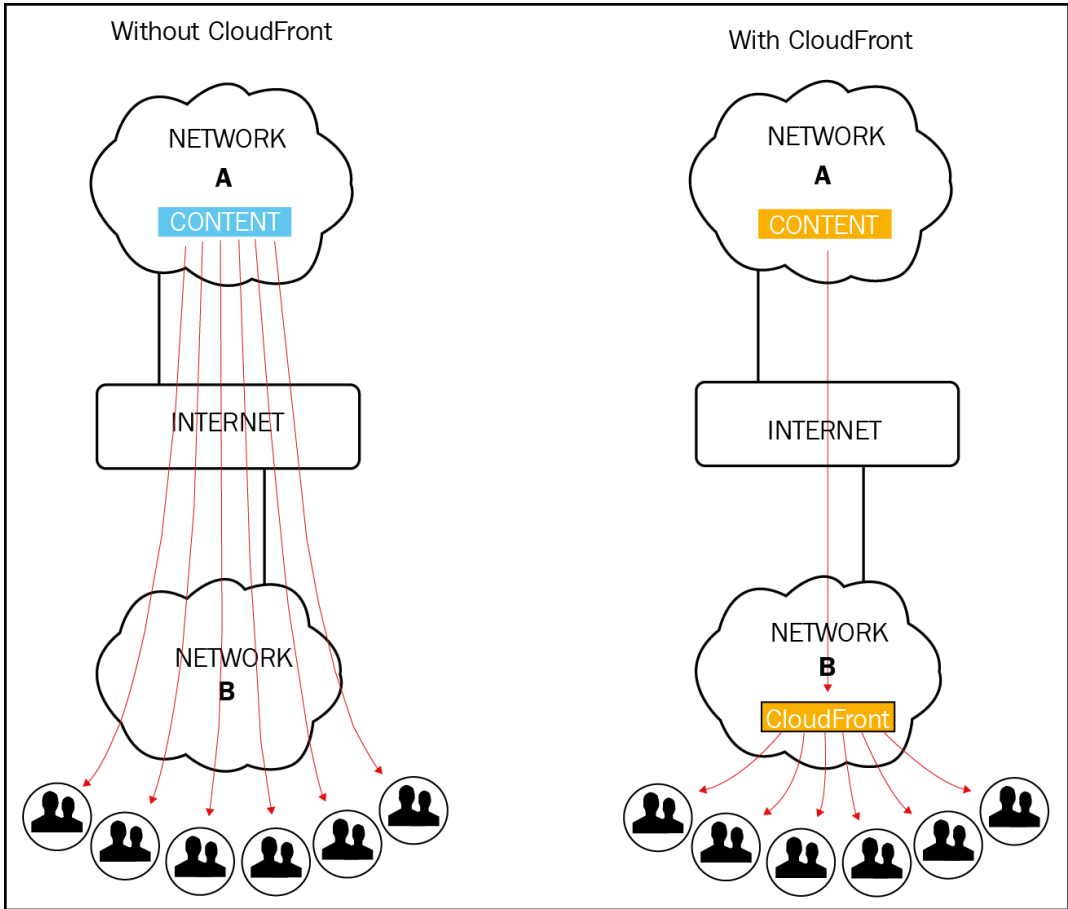
<b>IAM role</b>	Create new role
<b>Rule name</b>	One
<b>Priority</b>	1
<b>Status</b>	Enabled

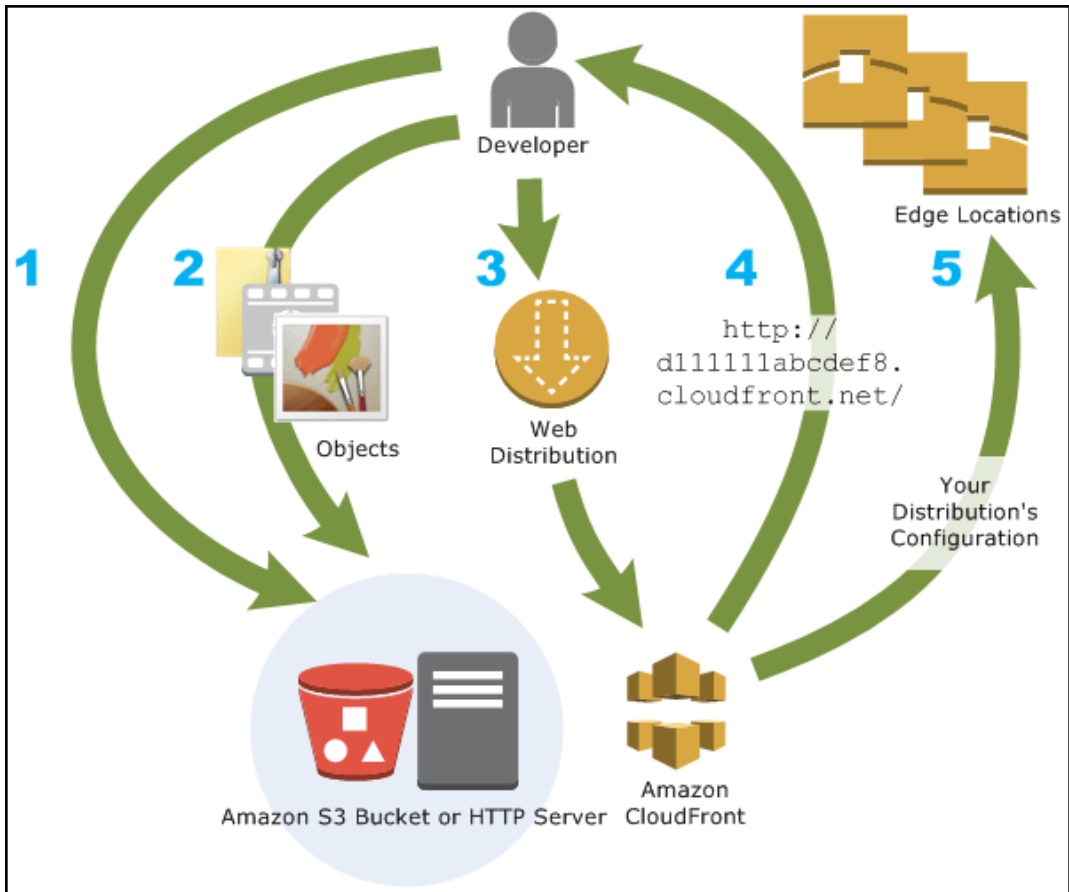
Previous

Save

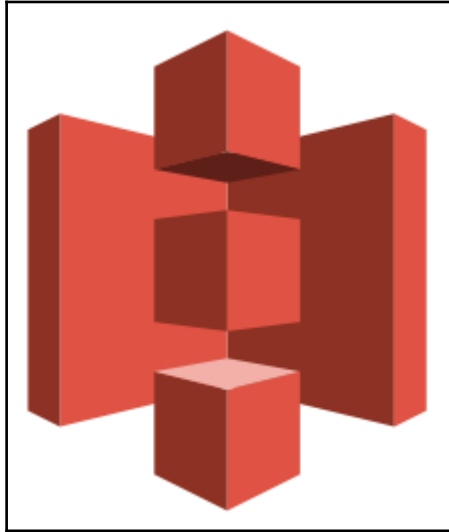




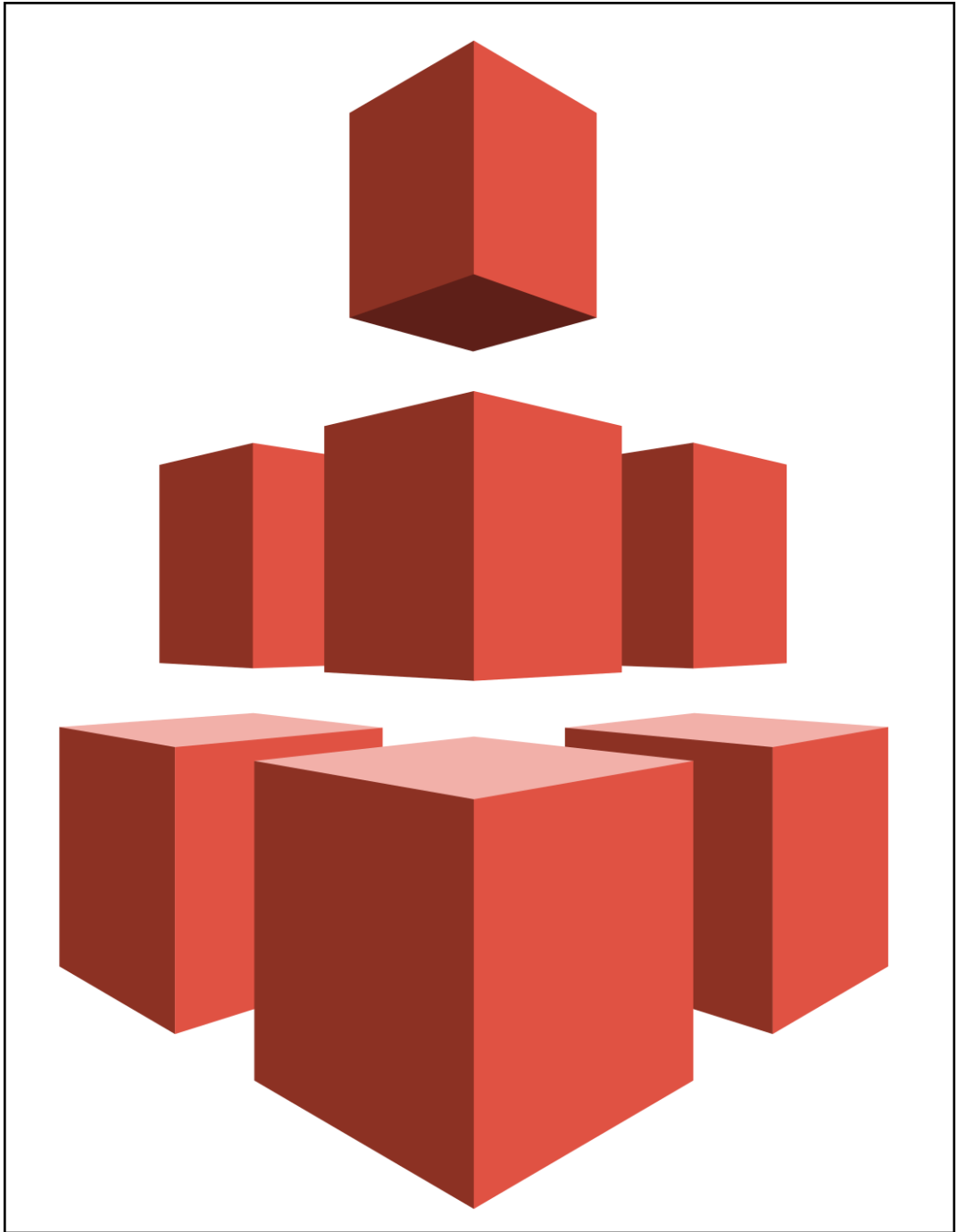


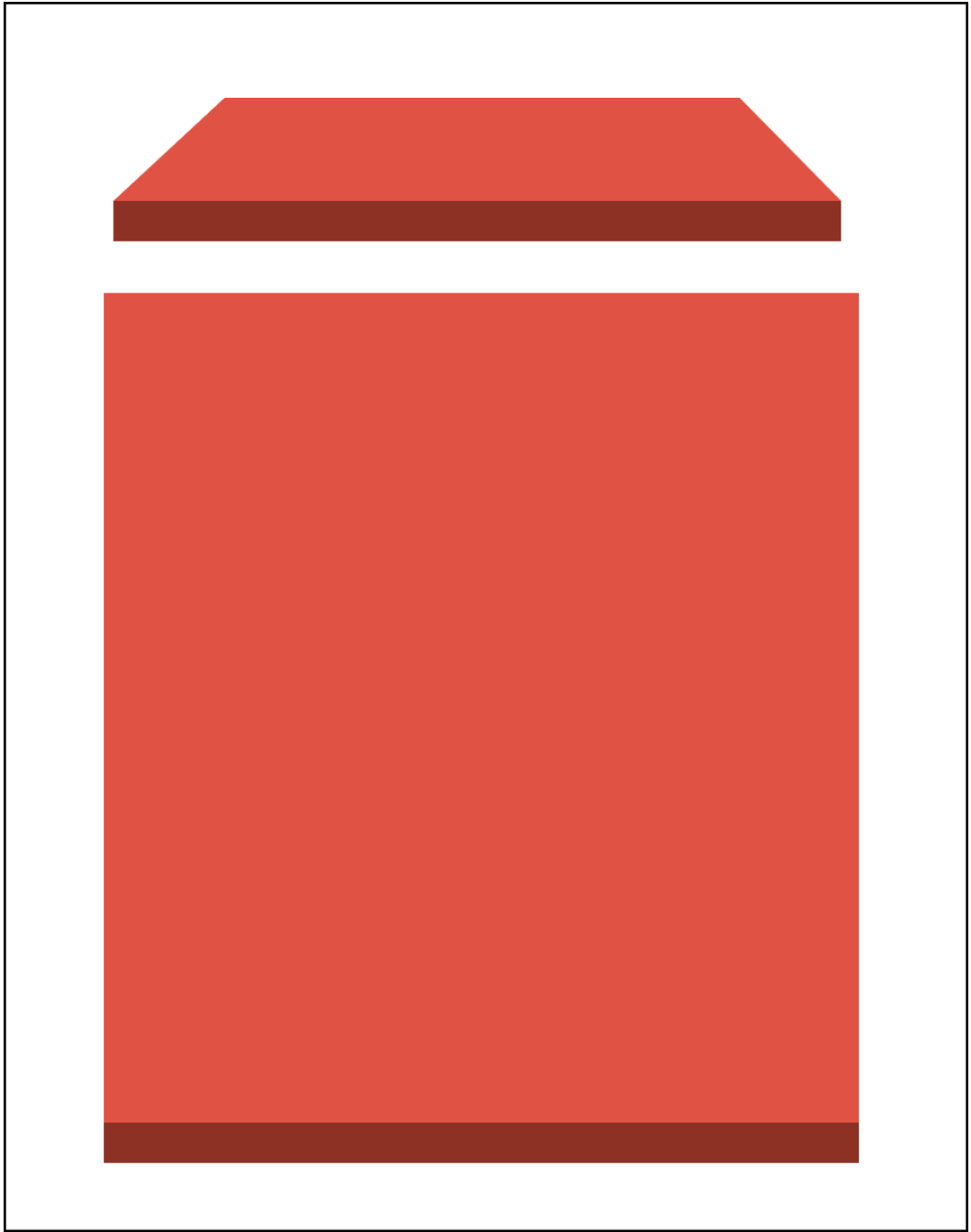


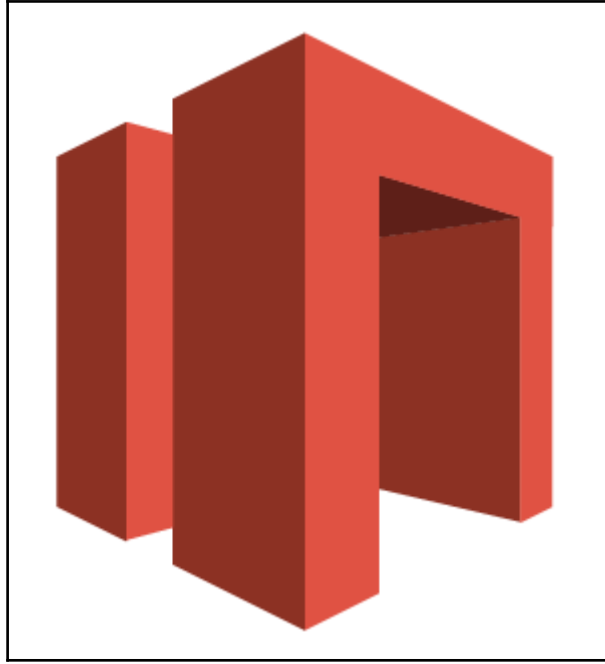
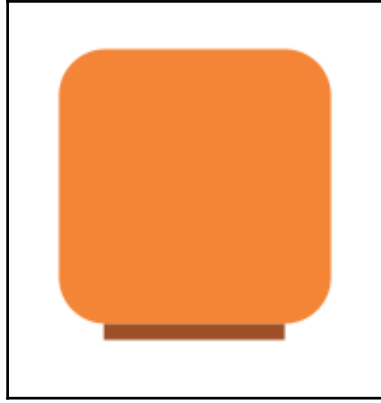
## Chapter 9: Other AWS Storage Options

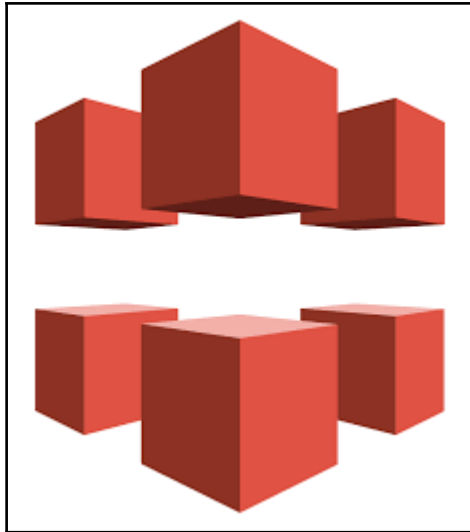




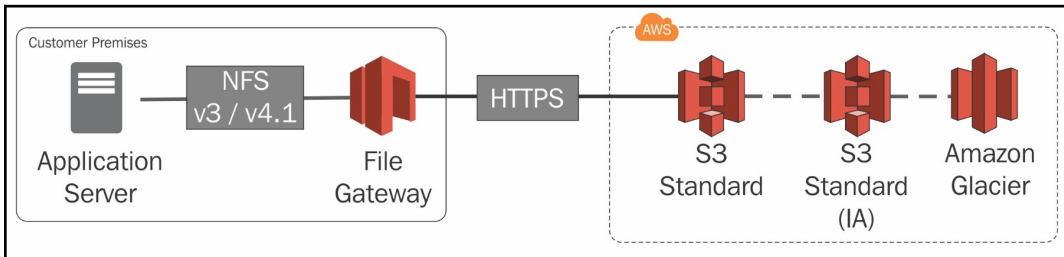
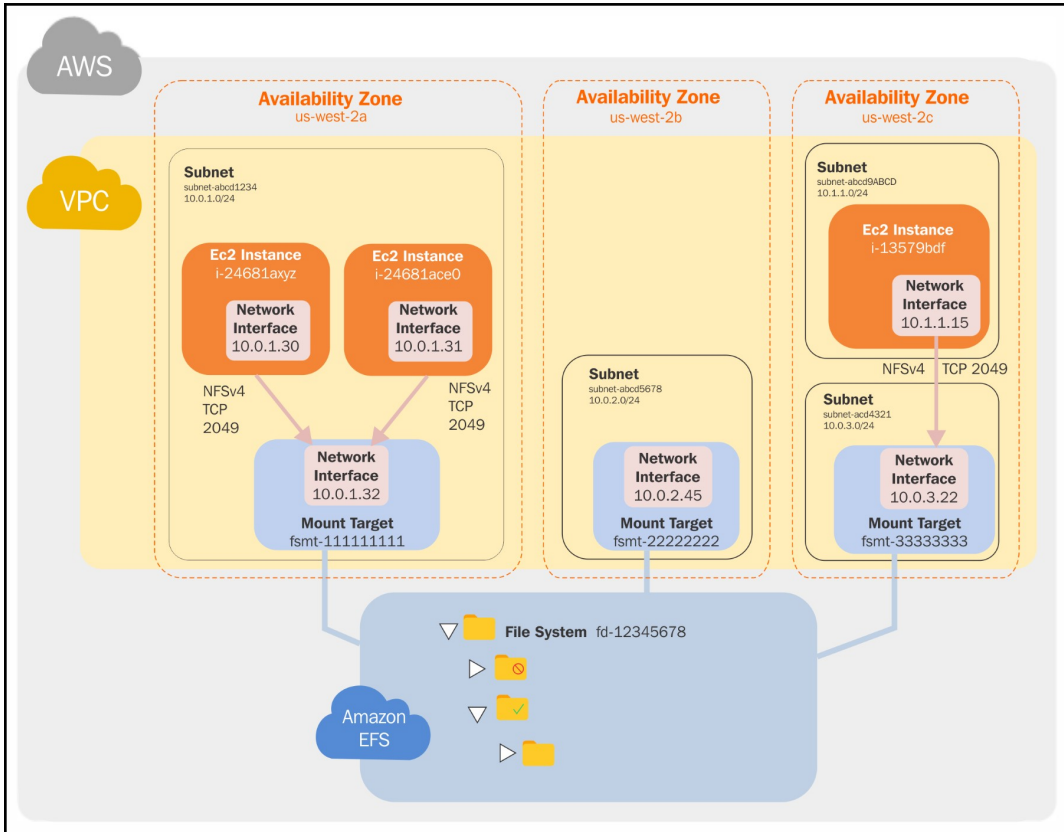


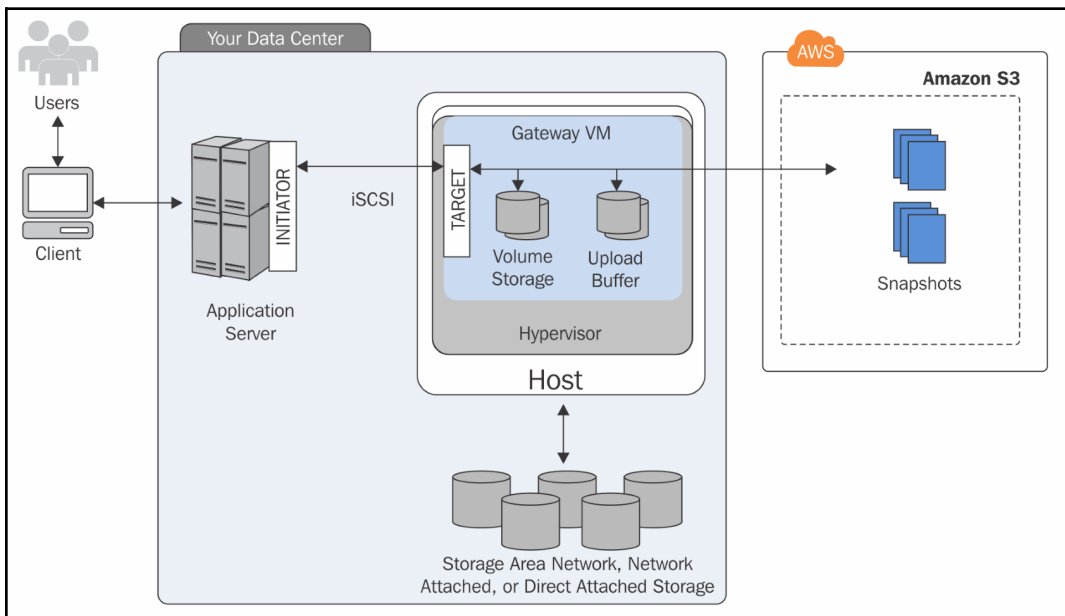
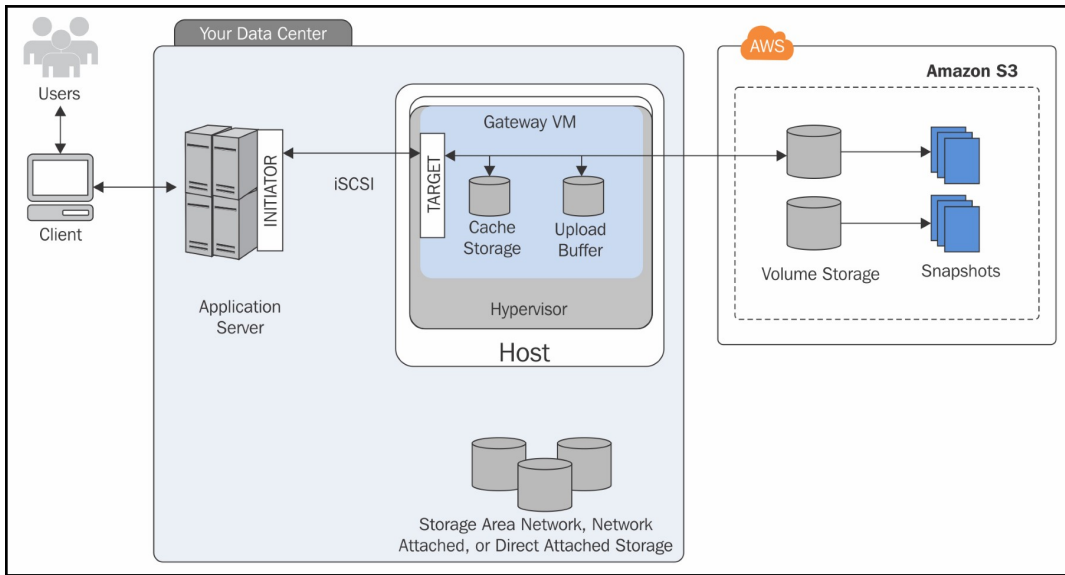


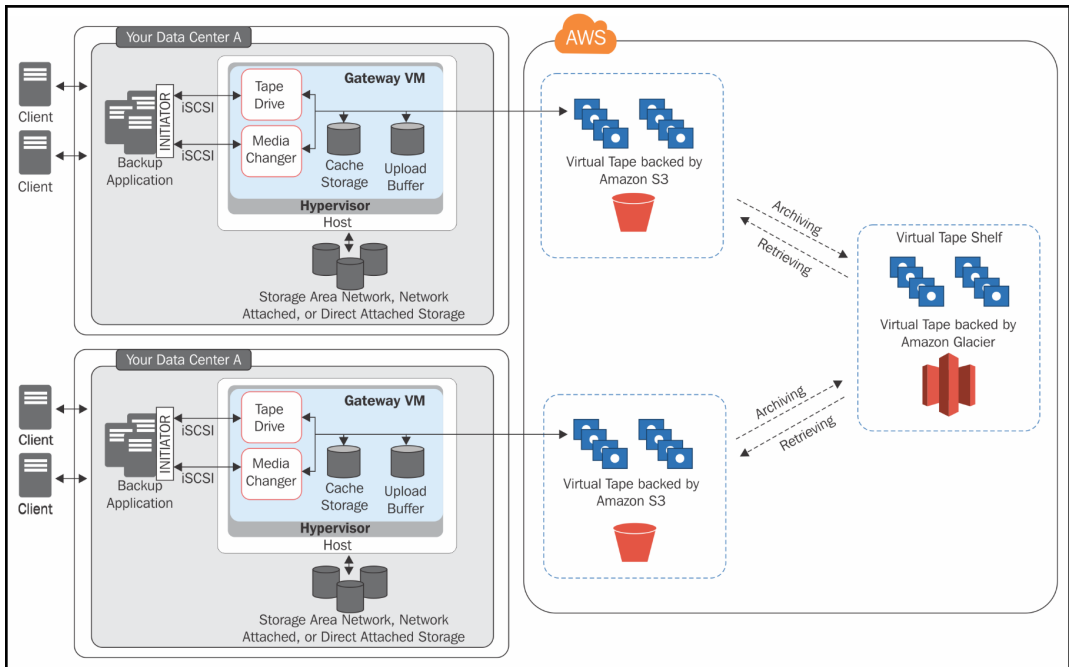






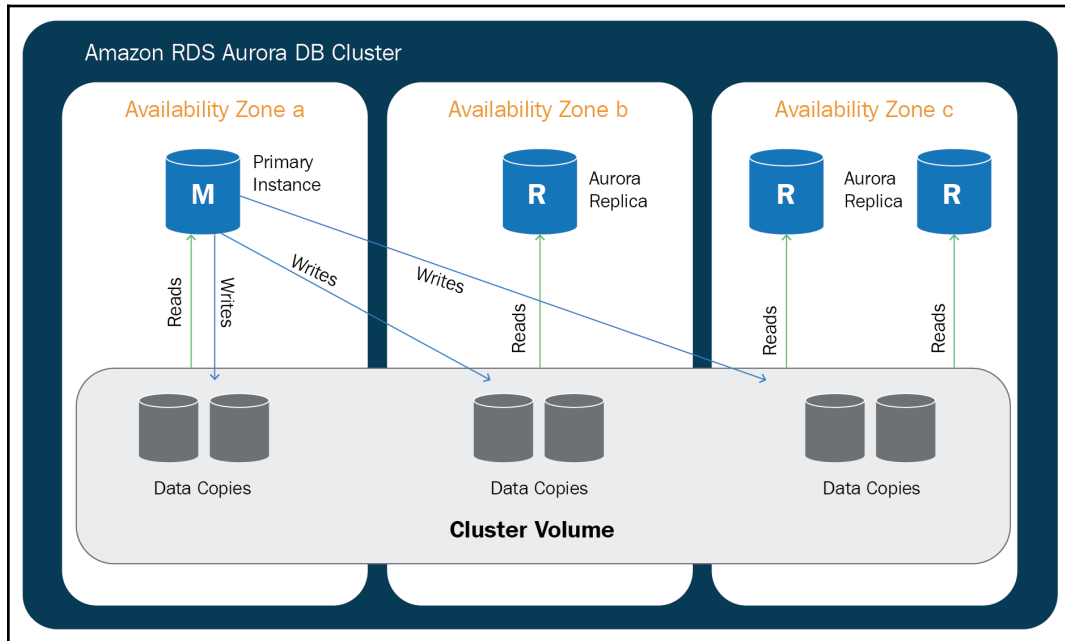






# Chapter 10: AWS Relational Database Service

## Service



aws Services Resource Groups

### Amazon RDS

- Dashboard
- Databases
- Query Editor
- Performance Insights
- Snapshots
- Automated backups
- Reserved instances
- Subnet groups
- Parameter groups
- Option groups
- Events
- Event subscriptions
- Recommendations

#### Resources

Refresh

You are using the following Amazon RDS resources in the US East (N. Virginia) region (used/quota)

DB Instances (0/40)	Parameter groups (0)
Allocated storage (0 bytes/100.00 TB)	Default (0)
<a href="#">Click here to increase DB instances limit</a>	Custom (0/100)
Reserved instances (0/40)	Option groups (0)
Snapshots (154)	Default (0)
Manual (0/100)	Custom (0/20)
Automated (0)	Subnet groups (0/50)
Recent events (0)	Supported platforms VPC
Event subscriptions (0/20)	Default network vpc-d56996b2

#### Create database

Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale a relational database in the cloud.

[Restore from S3](#) [Create database](#)

Note: your DB instances will launch in the US East (N. Virginia) region

aws Services Resource Groups

Bhavin Parmar N. Virginia Support

### Amazon RDS

- Dashboard
- Databases
- Query Editor
- Performance Insights
- Snapshots
- Automated backups
- Reserved instances
- Subnet groups
- Parameter groups
- Option groups
- Events
- Event subscriptions
- Recommendations

Step 1 Select engine

Step 2 Choose use case

Step 3 Specify DB details

Step 4 Configure advanced settings

#### Select engine

##### Engine options

- Amazon Aurora
- MySQL
- MariaDB
- PostgreSQL
- Oracle
- Microsoft SQL Server

##### MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 32 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 5 Read Replicas per instance, within a single Region or cross-region.

**Aurora global database feature is now available.**  
This feature is now available in our new database creation flow.


[Try it now](#)

Only enable options eligible for RDS Free Usage Tier [Info](#) [Cancel](#) [Next](#)

### MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

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 **Aurora global database feature is now available.**  
This feature is now available in our new database creation flow.

[Try it now](#)

Only enable options eligible for RDS Free Usage Tier [Info](#) Cancel Next

Step 1 [Select engine](#) RDS > Create database

Step 2 **Choose use case**

Step 3 [Specify DB details](#)

Step 4 [Configure advanced settings](#)

### Choose use case

Do you plan to use this database for production purposes?

Use case

- Production - Amazon Aurora** Recommended  
MySQL-compatible, enterprise-class database at 1/10th the cost of commercial databases.
- Production - MySQL**  
Use Multi-AZ Deployment and Provisioned IOPS Storage as defaults for high availability and fast, consistent performance.
- Dev/Test - MySQL**  
This instance is intended for use outside of production or under the RDS Free Usage Tier.

Billing is based on [RDS pricing](#).

Cancel Previous Next

RDS > Create database

Step 1 Select engine

Step 2 Choose use case

Step 3 Specify DB details

Step 4 Configure advanced settings

## Specify DB details

### Instance specifications

Estimate your monthly costs for the DB Instance using the [AWS Simple Monthly Calculator](#)

DB engine  
MySQL Community Edition

License model [Info](#)  
general-public-license

DB engine version [Info](#)  
MySQL 5.7.23

**Known Issues/Limitations**  
Review the [Known Issues/Limitations](#) to learn about potential compatibility issues with specific database versions.

**Free tier**  
The Amazon RDS Free Tier provides a single db.t2.micro instance as well as up to 20 GiB of storage, allowing new AWS customers to gain hands-on experience with Amazon RDS. Learn more about the RDS Free Tier and the instance restrictions here.  
 Only enable options eligible for RDS Free Usage Tier [Info](#)

DB instance class [Info](#)  
db.t2.micro — 1 vCPU, 1 GiB RAM

Multi-AZ deployment [Info](#)  
 Create replica in different zone  
Creates a replica in a different Availability Zone (AZ) to provide data redundancy, eliminate I/O freezes, and minimize latency spikes during system backups.  
 No

Storage type [Info](#)  
General Purpose (SSD)

Allocated storage  
20 GiB  
(Minimum: 20 GiB, Maximum: 16384 GiB) Higher allocated storage may improve IOPS performance.

**Provisioning less than 100 GiB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance. Click here for more details.**

### Estimated monthly costs

DB Instance	24.82 USD
Storage	4.60 USD
<b>Total</b>	<b>29.42 USD</b>

Billing estimate is based on on-demand usage as described in [Amazon RDS Pricing](#). Estimate does not include costs for backup storage, IOs (if applicable), or data transfer.

Estimate your monthly costs for the DB Instance using the [AWS Simple Monthly Calculator](#)

### Settings

DB instance identifier [Info](#)  
Specify an alphanumeric string that is unique for all DB instances owned by your AWS account in the current region.  
learnamazonrdsmysql

DB instance identifier is case insensitive, but stored as all lower-case, as in "mydbinstance". Must contain from 1 to 63 alphanumeric characters or hyphens (1 to 15 for SQL Server). First character must be a letter. Cannot end with a hyphen or contain two consecutive hyphens.

Master username [Info](#)  
Specify an alphanumeric string that defines the login ID for the master user.  
admin

Master Username must start with a letter. Must contain 1 to 16 alphanumeric characters.

Master password [Info](#)  Confirm password [Info](#)

Master Password must be at least eight characters long, as in "mypassword". Can be any printable ASCII character except "", "", or "0".

RDS > Databases > learnamazonrdsmysql

learnamazonrdsmysql

### Summary

DB Name learnamazonrdsmysql	CPU 15.83%	Info Backing-up	Class db.t2.micro
Role Instance	Current activity 0 Connections	Engine MySQL	Region & AZ us-east-1b

Connectivity | Monitoring | **Logs & events** | Configuration | Maintenance & backups | Tags

### CloudWatch alarms (0)

Name	State	More options
Empty alarms table		

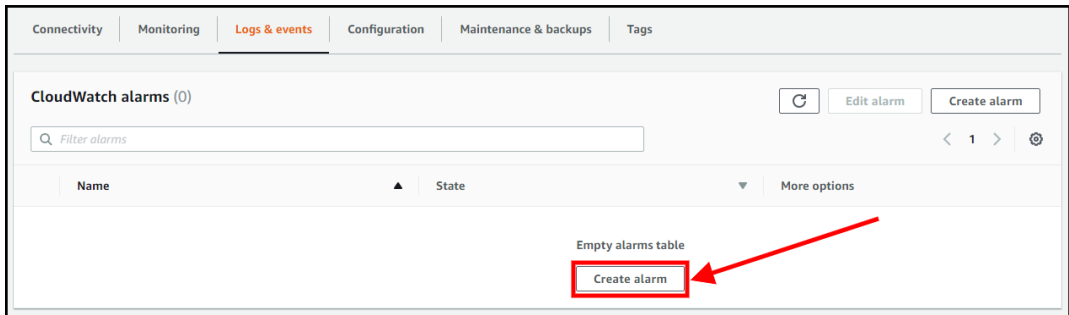
Connectivity | Monitoring | **Logs & events** | Configuration | Maintenance & backups | Tags

CloudWatch alarms (0) Refresh Edit alarm Create alarm

< 1 > ⌘

Name	State	More options
Empty alarms table		

Create alarm





# Create alarm

You can use CloudWatch alarms to be notified automatically whenever metric data reaches a level you define.

## Settings

Refresh

To edit an alarm, first choose whom to notify and then define when the notification should be sent.

### Send notifications

- Yes
- No

### Send notifications to

- ARN
- New email or SMS topic

### ARN

ARN to send notifications to.

### Metric

Average ▼ of CPU Utilization ▼

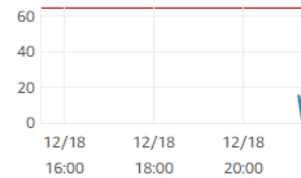
### Threshold

>= ▼ 65 Percent

### Evaluation period

1 consecutive period(s) of 5 Minutes ▼

### CPU Utilization Percent



learnamazonrdsmysql

### Name of alarm

awsrds-learnamazonrdsmysql-High-CPU-Utilization

Cancel

Create alarm

RDS > Databases

Databases Group resources Modify Actions Restore from S3 Create database

Filter databases

DB Name	Role	Engine	Region & AZ	Size	Status
learnamazonrdsmysql	Instance	MySQL	us-east-1b	db.t2.micro	Available

- Stop
- Reboot
- Delete
- Create read replica
- Promote read replica
- Take snapshot**
- Restore to point in time
- Migrate snapshot

RDS > Databases > Take snapshot

## Take DB Snapshot

This feature is currently supported for InnoDB storage engine only. If you are using MyISAM, refer to details [here](#).

### Settings

To take a snapshot of this DB instance you must provide a name for the snapshot.

**DB instance**  
The unique key that identifies a DB instance. This parameter isn't case-sensitive.  
learnamazonrdsmysql

**Snapshot name**  
The Identifier for the DB Snapshot.

Cancel Take Snapshot

RDS > Databases > learnamazonrdsmysql

## learnamazonrdsmysql

Modify Actions

### Summary

DB Name learnamazonrdsmysql	CPU <div style="width: 1.36%;"><div style="width: 1.36%;"></div></div> 1.36%	Info Available	Class db.t2.micro
Role Instance	Current activity 0 Connections	Engine MySQL	Region & AZ us-east-1b

## Summary of modifications

You are about to submit the following modifications. Only values that will change are displayed. Carefully verify your changes and click Modify DB Instance.

Attribute	Current value	New value
DB instance class	db.t2.micro	db.t2.small

## Scheduling of modifications

When to apply modifications

Apply during the next scheduled maintenance window

Current maintenance window: tue:05:38-tue:06:08

Apply immediately

The modifications in this request and any pending modifications will be asynchronously applied as soon as possible, regardless of the maintenance window setting for this database instance.



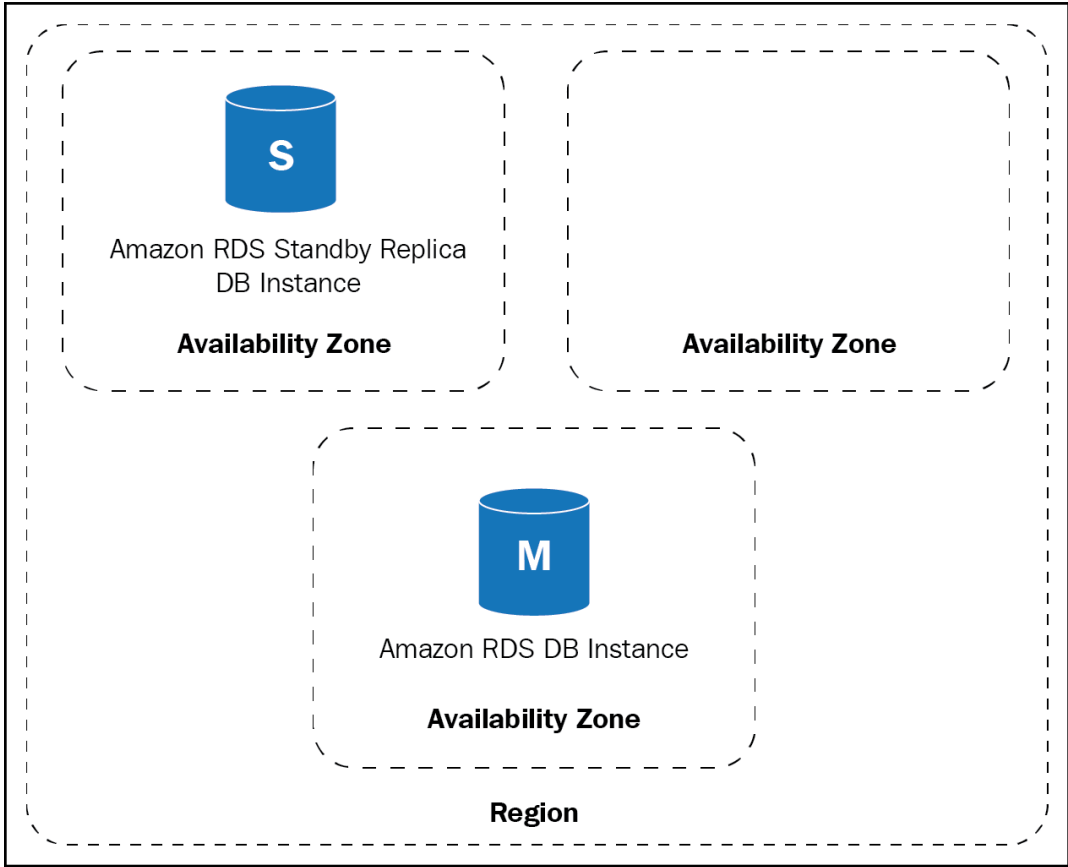
### Potential unexpected downtime

If you choose to apply changes immediately, please note that any changes in the pending modifications queue are also applied. If any of the pending modifications require downtime, choosing this option can cause unexpected downtime.

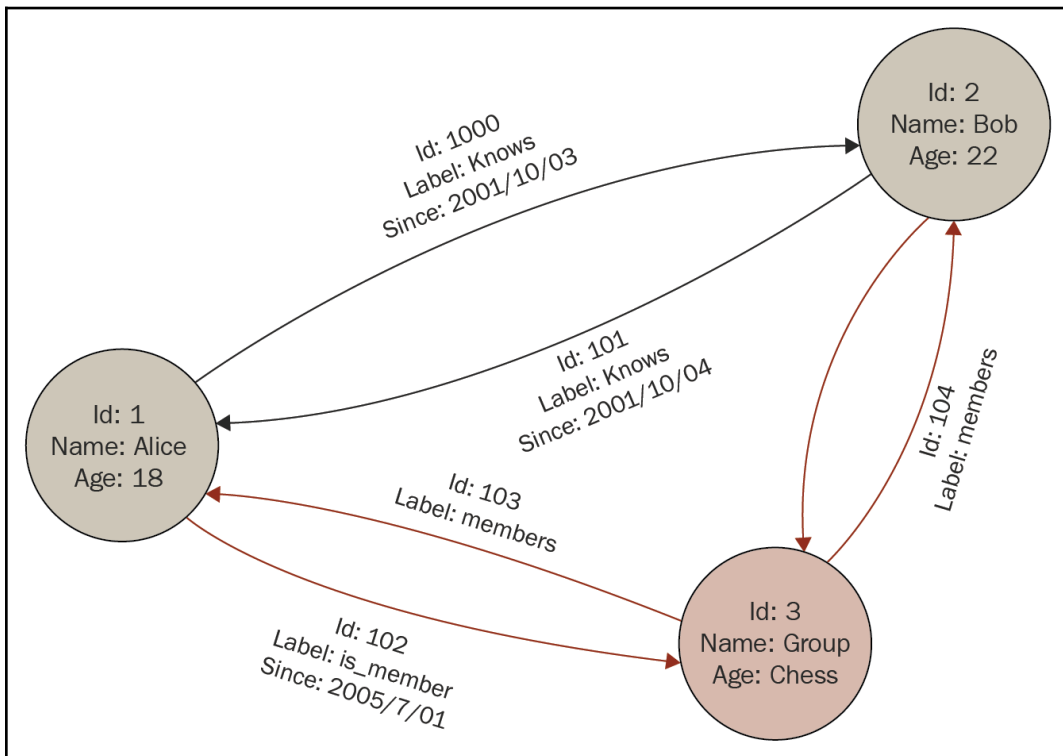
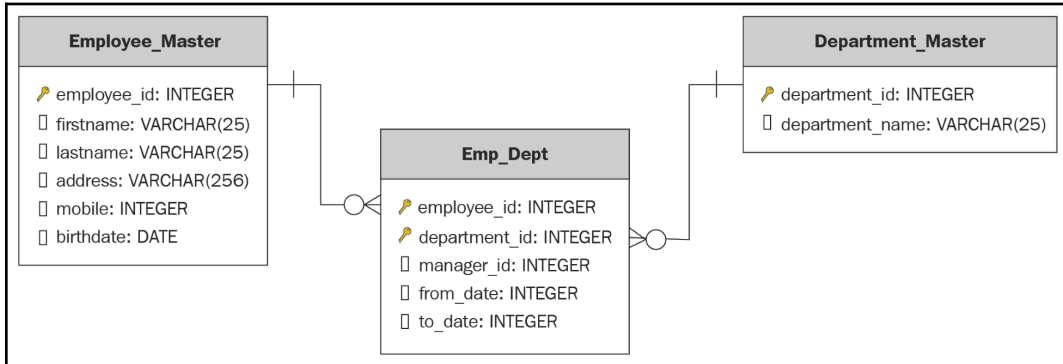
Cancel

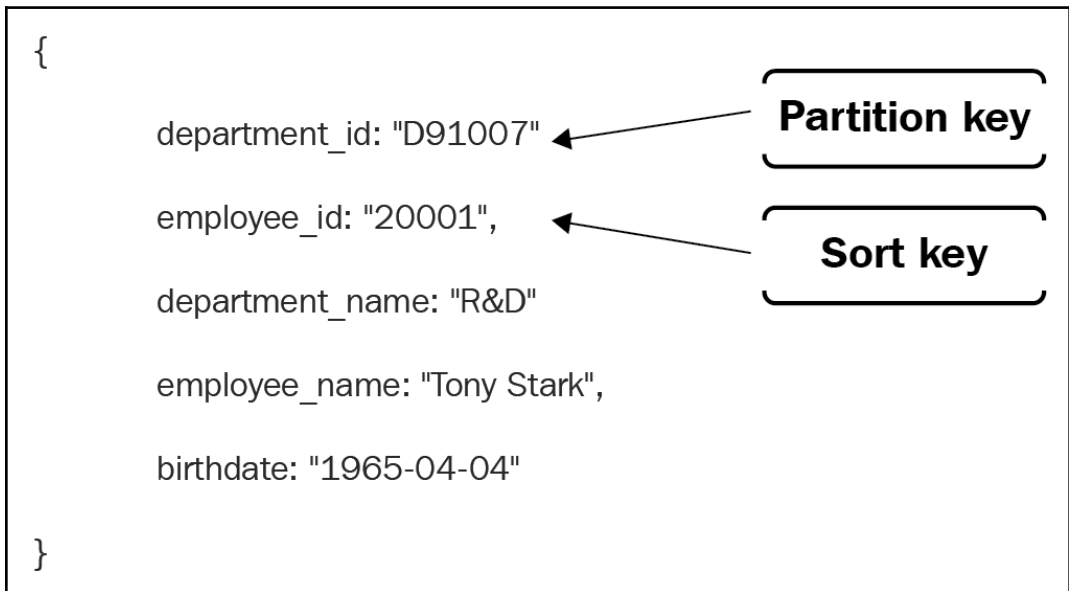
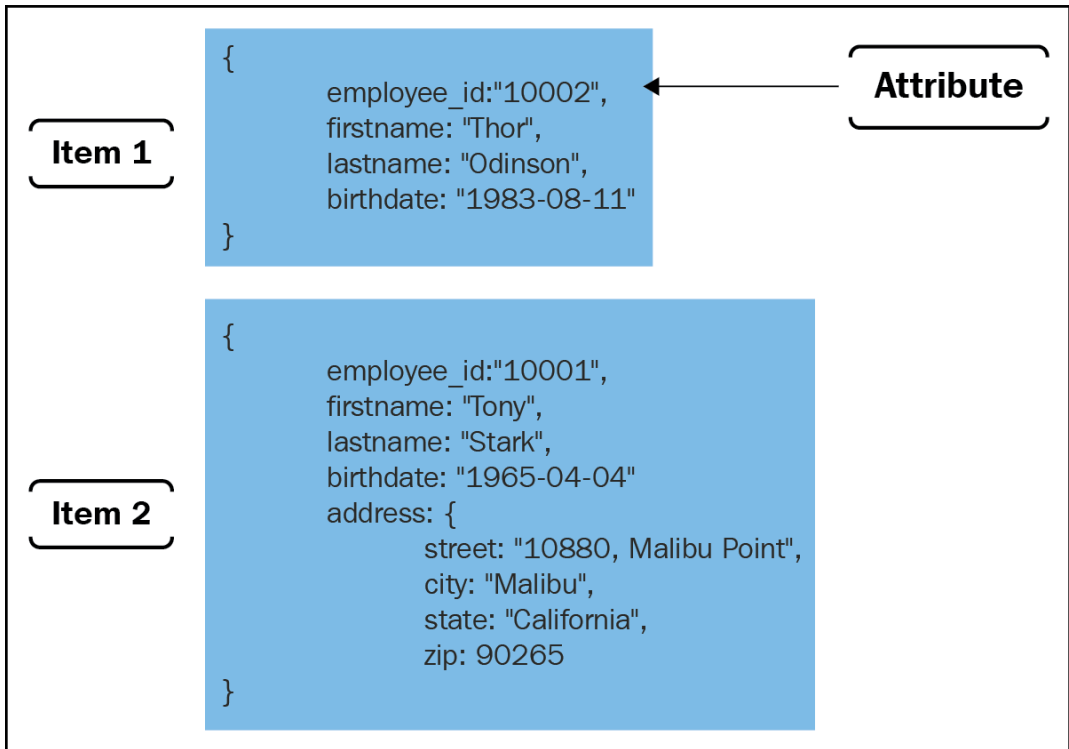
Back

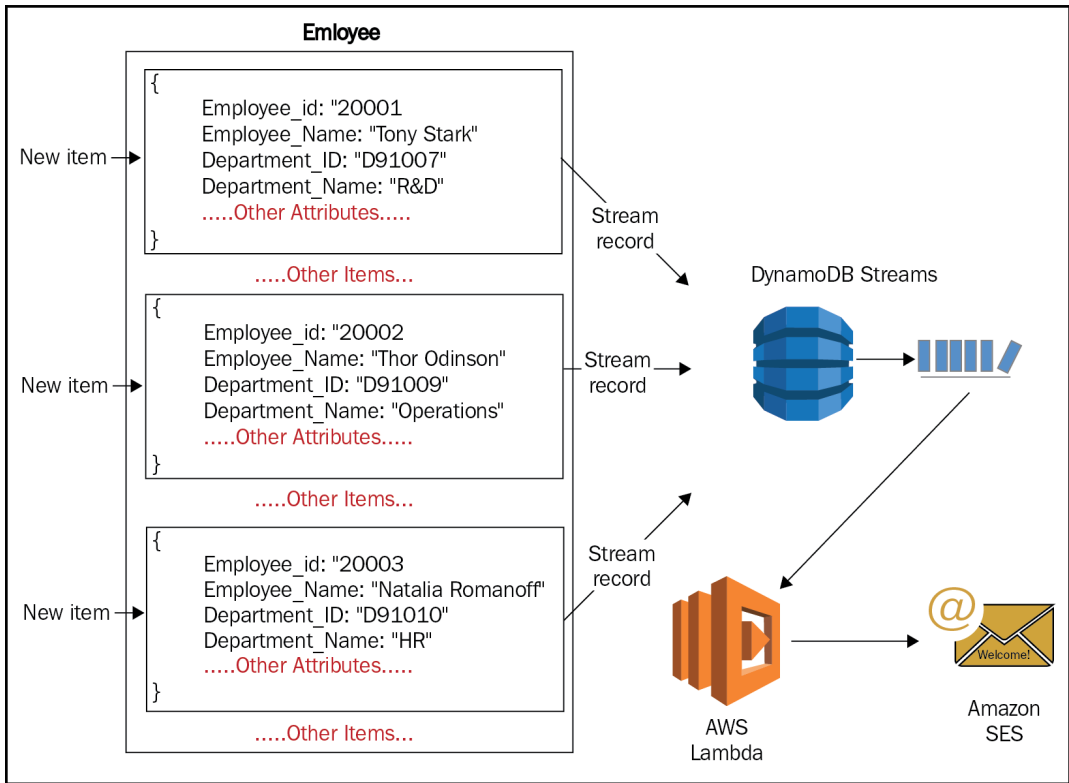
Modify DB Instance



# Chapter 11: AWS DynamoDB - A NoSQL Database Service







## Create DynamoDB table

Tutorial



DynamoDB is a schema-less database that only requires a table name and primary key. The table's primary key is made up of one or two attributes that uniquely identify items, partition the data, and sort data within each partition.

Table name\*  Between 3 and 255 characters long. (A-Z,a-z,0-9,\_,-)

Primary key\* Partition key

String String Binary Number

Add sort key

### Table settings

Default settings provide the fastest way to get started with your table. You can modify these default settings now or after your table has been created.

- Use default settings
- No secondary indexes.
  - Provisioned capacity set to 5 reads and 5 writes.
  - Basic alarms with 80% upper threshold using SNS topic "dynamodb".

**i** You do not have the required role to enable Auto Scaling by default.  
Please refer to [documentation](#).

Additional charges may apply if you exceed the AWS Free Tier levels for CloudWatch or Simple Notification Service. Advanced alarm settings are available in the CloudWatch management console.

Cancel **Create**

Primary key\* Partition key

String

Add sort key

String



**Table settings**

Default settings provide the fastest way to get started with your table. You can modify these default settings now or after your table has been created.

Use default settings

**Secondary indexes**

Name	Type	Partition key	Sort key	Projected Attributes
+ Add index				

**Read/write capacity mode**

Select on-demand if you want to pay only for the read and writes you perform, with no capacity planning required. Select provisioned to save on throughput costs if you can reliably estimate your application's throughput requirements. See the [DynamoDB pricing page](#) and [DynamoDB Developer Guide](#) to learn more.

Read/write capacity mode can be changed later.

Provisioned (free-tier eligible)

On-demand

**Provisioned capacity**

Table	Read capacity units	Write capacity units
	5	5

Estimated cost: \$2.91 / month (Capacity calculator)

**Auto Scaling**

Read capacity

Target utilization: 70 %

Minimum provisioned capacity: 5 units

Maximum provisioned capacity: 40000 units

Apply same settings to global secondary indexes

Write capacity

Same settings as read

Target utilization: 70 %

Minimum provisioned capacity: 5 units

Maximum provisioned capacity: 40000 units

Apply same settings to global secondary indexes

**Encryption At Rest**

Select Encryption settings for your DynamoDB table to help protect data at rest. [Learn more](#)

**DEFAULT**

Server-side encryption using AWS owned CMK (Customer Master Key)

**KMS**

Server-side encryption using AWS managed CMK (Customer Master Key)

**IAM Role**

I authorize DynamoDB to scale capacity using the following role:

- DynamoDB AutoScaling Service Linked Role**
- Existing role with pre-defined policies [\[Instructions\]](#)

**Note:** If you have the required IAM permissions, a Service Linked Role will automatically be created on your behalf. [Learn more](#)

Role Name\*

**Add index**

**Primary key\*** Partition key

Department\_ID String

Add sort key

String

**Index name\*** Department\_ID-index

**Projected attributes** All

Create as Local Secondary Index

Cancel **Add index**

The primary key is made up of a partition key (hash key) and an optional sort key. The partition key is used to partition data across hosts for scalability and availability. Choose an attribute which has a wide range of values and is likely to have evenly distributed access patterns. For example Customerid is good while Gamelid is bad if most of your traffic relates to a few popular games.

The sort key allows for searching within a partition. For example, an Orders table with primary attribute Customerid and sort attribute OrderTimestamp would allow for queries for all orders by a specific customer in a given date range.

When you issue query requests using the index, you will need to specify the index name. The name must be unique per table.

Projected attributes are attributes stored in the index, and can be returned by queries and scans performed on the index. Local secondary index queries can also return attributes that are not projected by fetching them from the table. Global secondary index queries can only return projected attributes. Note, that projected attributes incur write and storage costs.

An Index that shares the same partition key as the table may be created as an LSI. An LSI needs both, a partition key and a sort key, and an LSI will utilize the table's provisioned capacities.

**Table settings**

Default settings provide the fastest way to get started with your table. You can modify these default settings now or after your table has been created.

Use default settings

**Secondary indexes**

Name	Type	Partition key	Sort key	Projected Attributes
+ Add index				

**Read/write capacity mode**

Select on-demand if you want to pay only for the read and writes you perform, with no capacity planning required. Select provisioned to save on throughput costs if you can reliably estimate your application's throughput requirements. See the [DynamoDB pricing page](#) and [DynamoDB Developer Guide](#) to learn more.

Read/write capacity mode can be changed later.

Provisioned (free-tier eligible)
   
 On-demand

**Provisioned capacity**

	Read capacity units	Write capacity units
Table	5	5
Estimated cost	\$2.91 / month (Capacity calculator)	

**Auto Scaling**

Read capacity
   
 Write capacity

Same settings as read

Target utilization:  %

Minimum provisioned capacity:  units

Maximum provisioned capacity:  units

Apply same settings to global secondary indexes

**IAM Role**

I authorize DynamoDB to scale capacity using the following role:

- DynamoDB AutoScaling Service Linked Role
  - Existing role with pre-defined policies

Note: If you have the required IAM permissions, a Service Linked Role will automatically be created on your behalf. Learn more

Role Name\*

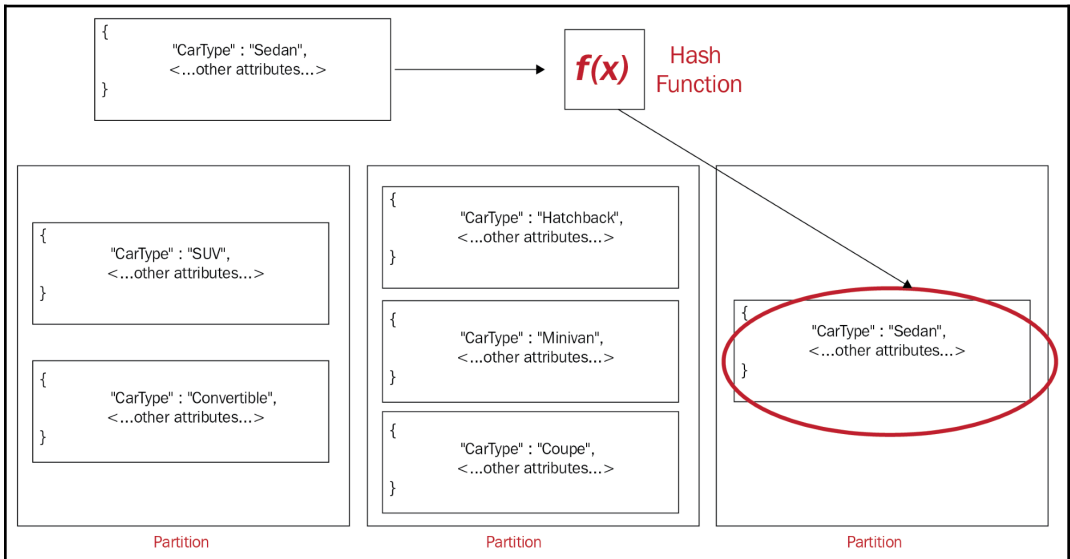
**Encryption At Rest**

Select Encryption settings for your DynamoDB table to help protect data at rest. Learn more

DEFAULT
   
 KMS

Server-side encryption using AWS owned CMK (Customer Master Key)

Server-side encryption using AWS managed CMK (Customer Master Key)



Movies [Close](#)

Overview

Items

Metrics

Alarms

Capacity

Indexes

Triggers

Access control

Tags

Create item

Actions

Query: [Table] Movies: year, title

Query

[Table] Movies: year, title

Partition key

year

Number

=

2014

Sort key

title

String

Begins with

Enter value

Add filter

Sort

Ascending

Descending

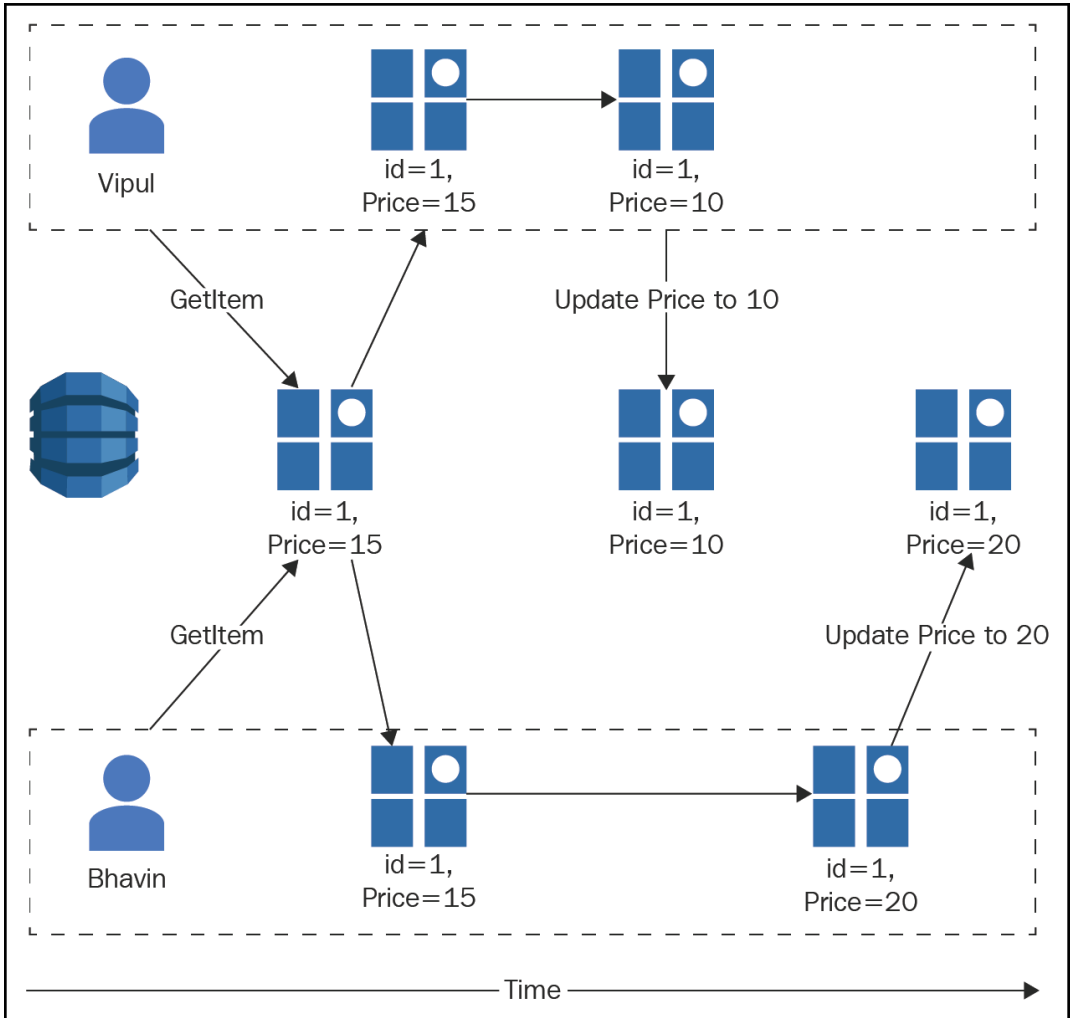
Attributes

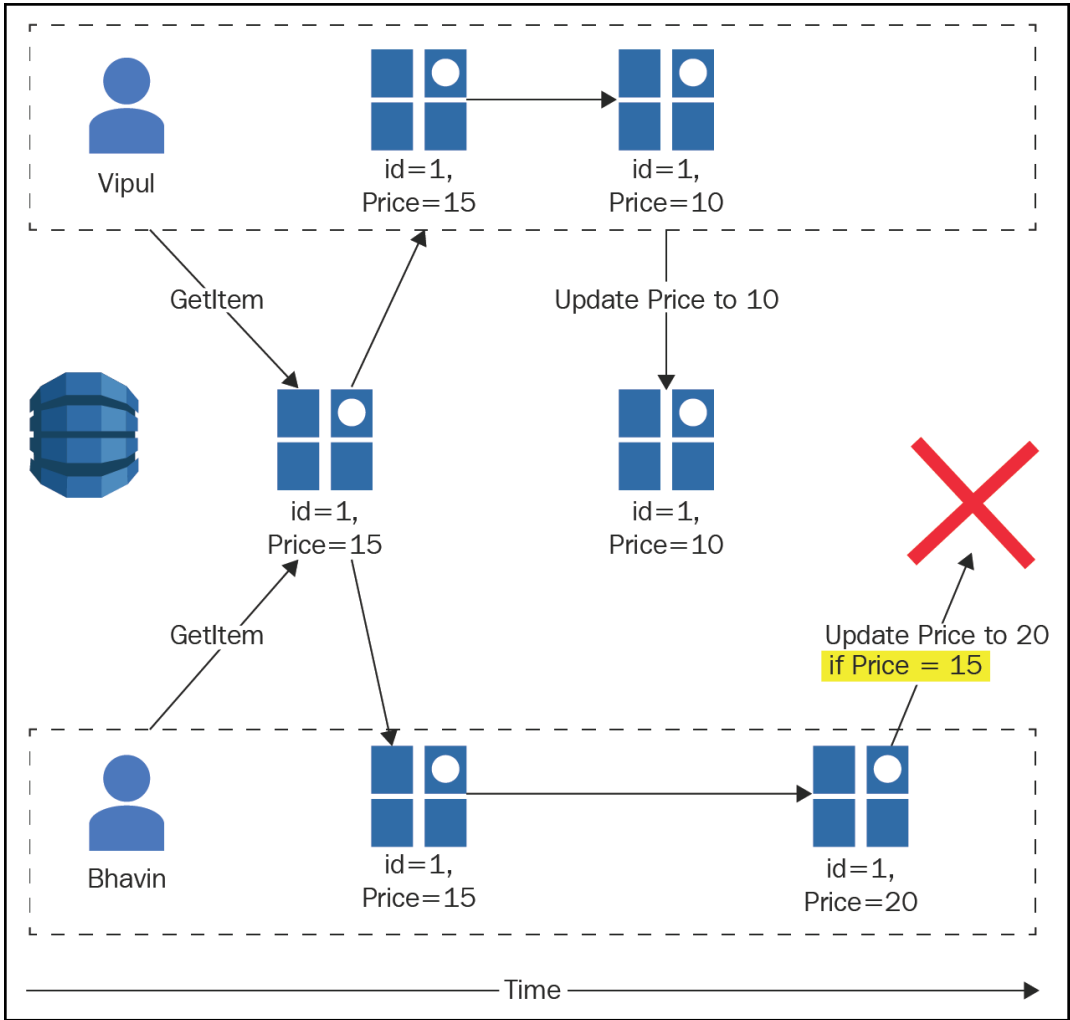
All

Projected

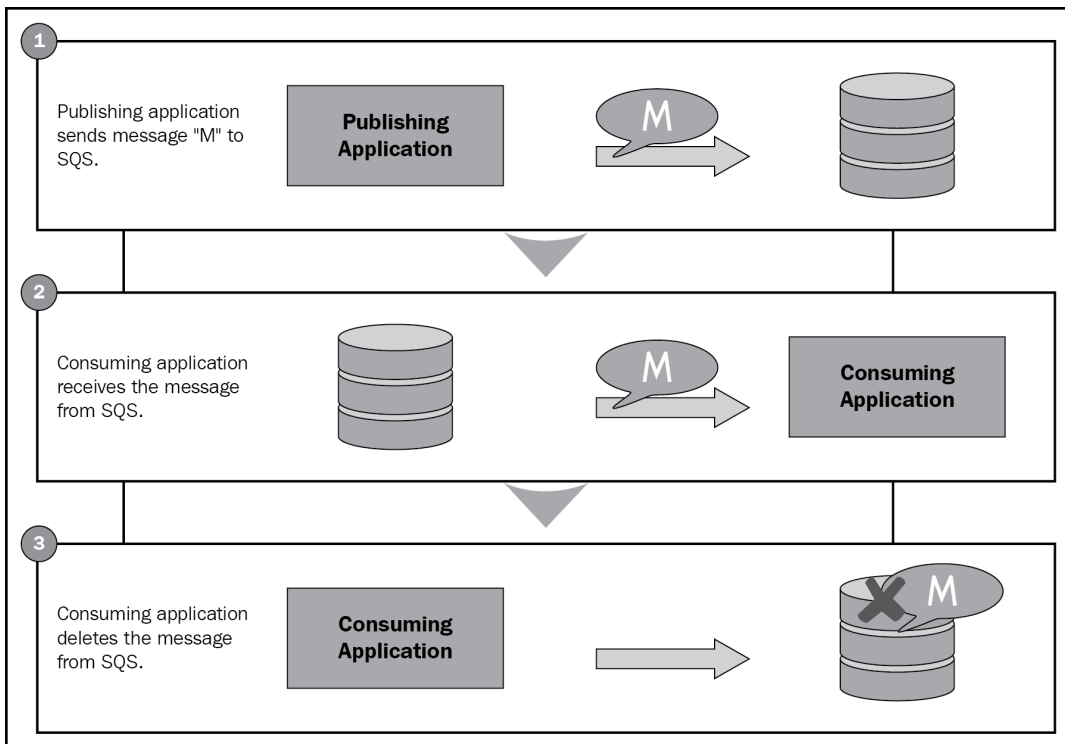
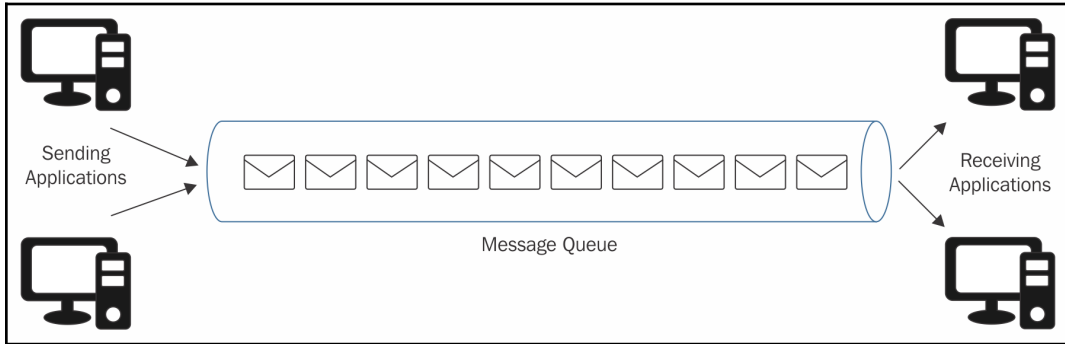
Start search

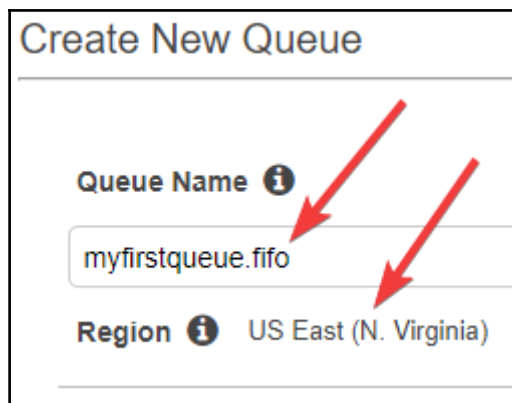
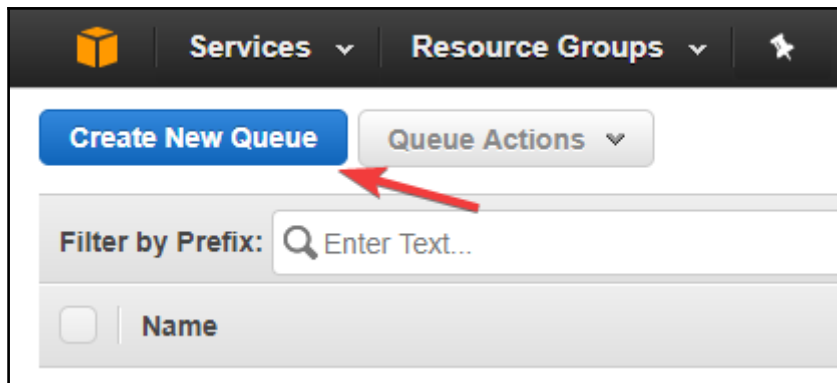
<input type="checkbox"/>	year	title	info
<input type="checkbox"/>	2014	300: Rise of an Empire	{"actors": {"L": [{"S": "Sullivan Stapleton"}, {"S": ...
<input type="checkbox"/>	2014	Captain America: The Winter Soldier	{"actors": {"L": [{"S": "Chris Evans"}, {"S": "Fran...
<input type="checkbox"/>	2014	Divergent	{"actors": {"L": [{"S": "Shailene Woodley"}, {"S": ...
<input type="checkbox"/>	2014	Dumb and Dumber To	{"actors": {"L": [{"S": "Jennifer Lawrence"}, {"S": ...





# Chapter 12: Amazon Simple Queue Service (SQS)





## What type of queue do you need?

Standard

FIFO

**High Throughput:** Standard queues have nearly-unlimited transactions per second (TPS).

**At-Least-Once Delivery:** A message is delivered at least once, but occasionally more than one copy or a message is delivered.

**Best-Effort Ordering:** Occasionally, messages are delivered in an order different from which they were sent.



Send data between applications when the throughput is important, for example:

- Decouple live user requests from intensive background work: let users upload media while resizing or encoding it.
- Allocate tasks to multiple worker nodes: process a high number of credit card validation requests.
- Batch messages for future processing: schedule multiple entries to be added to a database.

**First-In-First-out Delivery:** The order in which messages are sent and received is strictly preserved.

**Exactly-Once Processing:** A message is guaranteed to be delivered at least once, but all duplicates of the message are removed.

**Limited Throughput:** 300 transactions per second (TPS).



Send data between applications when the order of events is important, for example:

- Ensure that user-entered commands are executed in the right order.
- Display the correct product price by sending price modifications in the right order.
- Prevent a student from enrolling in a course before registering for an account.

## You can change these default parameters.

### Queue Attributes

**Default Visibility Timeout** ⓘ 30 seconds Value must be between 0 seconds and 12 hours.

**Message Retention Period** ⓘ 4 days Value must be between 1 minute and 14 days.

**Maximum Message Size** ⓘ 256 KB Value must be between 1 and 256 KB.

**Delivery Delay** ⓘ 0 seconds Value must be between 0 seconds and 15 minutes.

**Receive Message Wait Time** ⓘ 0 seconds Value must be between 0 and 20 seconds.

**Content-Based Deduplication** ⓘ



### Dead Letter Queue Settings

Use Redrive Policy 

Dead Letter Queue 

Value must be an existing queue name.

Maximum Receives 

Value must be between 1 and 1000.

### Server-Side Encryption (SSE) Settings

Use SSE 

AWS KMS Customer Master Key (CMK) 

(Default) aws/sqs

Description

Default master key that protects my SQS messages when no other key is defined

Account

835808778612

Key ARN

arn:aws:kms:us-east-1:XXXXXXXXXXXX:key/XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX

Data Key Reuse Period 

minutes

This value must be between 1 minute and 24 hours.

Filter by Prefix:

1 to 1 of 1 items

<input type="checkbox"/>	Name	Queue Type	Content-Based Deduplication	Messages Available	Messages in Flight	Created
<input type="checkbox"/>	myfirstqueue.fifo	FIFO	Disabled	0	0	2017-09-16 12:22:11 GMT+05:30

<input type="checkbox"/>	Name	Queue Type
<input type="checkbox"/>	myfirstqueue	Standard
<input checked="" type="checkbox"/>	myfirstqueue.fifo	FIFO

The image shows a screenshot of the AWS IAM console interface. At the top left, there is a blue button labeled "Create New Queue". To its right is a "Queue Actions" dropdown menu. The dropdown menu is open, displaying several options: "Send a Message", "View/Delete Messages", "Configure Queue", "Add a Permission", "Purge Queue", "Delete Queue", and "Subscribe Queue to SNS Topic". A red arrow points to the "Send a Message" option. Below the dropdown, there is a "Filter by Prefix:" search bar with a magnifying glass icon and the text "En". Below the search bar is a table with a "Name" column. The table has two rows: one with a checkbox and the name "myfirstqueue", and another with a checked checkbox and the name "myfirstqueue.fifo".

Create New Queue Queue Actions ▾

Filter by Prefix: 🔍 En

<input type="checkbox"/>	Name ▾
<input type="checkbox"/>	myfirstqueue
<input checked="" type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

## Send a Message to myfirstqueue.fifo



Message Body


Message Attributes

Enter the text of a message you want to send.

My first queue message.

Message Group ID 

MyFirstMessageGroupId9876543210

Message Deduplication ID 

MyFirstDeduplicationId9876543210

Cancel

Send Message

### Send a Message to myfirstqueue.fifo

Message Body
Message Attributes

Name:

Type: String (Custom Type: Optional)

Value:

Enter a string value.

Add Attribute [What is Message Attribute?](#)

Name	Type	Values	
city	String	<input type="text" value="Bangalore"/>	✕
empname	String	<input type="text" value="Ankur Sharma"/>	✕
pincode	String	<input type="text" value="560076"/>	✕

Cancel
Send Message

Your message has been sent and is ready to be received.

Note: It may take up to 60 seconds for the *Messages Available* column to update.

**Sent Message Attributes:**

Message Identifier: 83fd7112-6ce8-4723-8a9c-3c8f222f5397

MD5 of Body: 634404ebecf889e4e4a8f26097127553

MD5 of Message Attributes: 06c8bc6f7034c7ecd2e1bbcb8d7b52eb

Sequence Number: 18832165418875119616

<input type="checkbox"/>	Name	Queue Type
<input type="checkbox"/>	myfirstqueue	Standard
<input checked="" type="checkbox"/>	myfirstqueue.fifo	FIFO

**Create New Queue** Queue Actions ▾

Filter by Prefix: 🔍 Enter

<input type="checkbox"/>	Name
<input type="checkbox"/>	myfirstqueue
<input checked="" type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

### View/Delete Messages in myfirstqueue.fifo

View up to:  messages    Poll queue for:  seconds

Polling for new messages once every 2 seconds.

### View/Delete Messages in myfirstqueue.fifo

View up to:  messages Poll queue for:  seconds Start Polling for Messages Stop Now

Polling for new messages once every 2 seconds.

Delete	Body	Message Group ID	Message Deduplication ID	Sequence Number	Size	Sent
<input checked="" type="checkbox"/>	My first queue message.	MyFirstMessageGroupd98...	MyFirstDeduplicationId9876543...	18832165418875119616	23 bytes	2017-09-16 14:25:29 GMT+

100%

Stopped after polling the queue at 0.5 receives/second for 30.7 seconds. Messages shown above are now available to other consumers.

Close Delete 1 Message

### Delete Messages

Are you sure you want to delete the following message?

*You may uncheck messages that you do not want to delete.*

My first queue message. (23 bytes)

Cancel Yes, Delete Checked Messages

<input type="checkbox"/>	Name	Queue Type
<input type="checkbox"/>	myfirstqueue	Standard
<input checked="" type="checkbox"/>	myfirstqueue.fifo	FIFO

Create New Queue Queue Actions

Filter by Prefix:

<input type="checkbox"/>	Name
<input type="checkbox"/>	myfirstqueue
<input checked="" type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

### Purge Queues

Are you sure you want to purge the following queue (removing all the messages left in it)?

- myfirstqueue.fifo - contains 1 message.

[Cancel](#) [Yes, Purge Queue](#)

<input type="checkbox"/>	Name	Queue Type
<input type="checkbox"/>	myfirstqueue	Standard
<input checked="" type="checkbox"/>	myfirstqueue.fifo	FIFO

Create New Queue Queue Actions

Filter by Prefix:

<input type="checkbox"/>	Name
<input type="checkbox"/>	myfirstqueue
<input checked="" type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

### Delete Queues

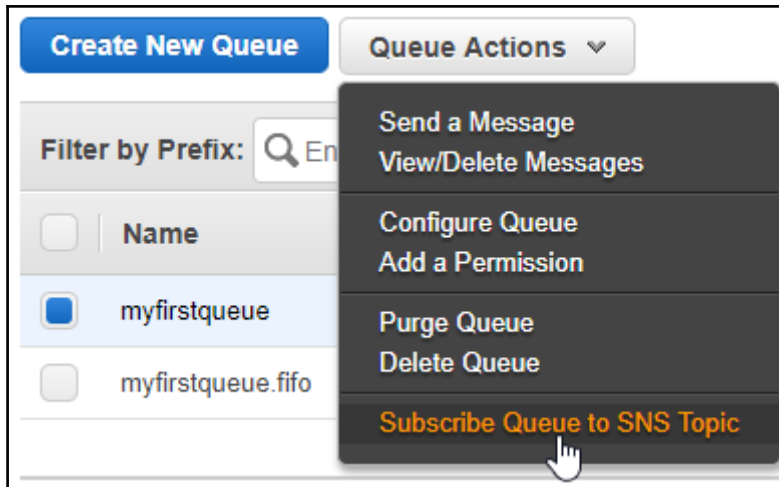
Are you sure you want to delete the following queue, and any messages left in it?

- myfirstqueue.fifo - contains 1 message.

[Cancel](#) [Yes, Delete Queue](#)

<input type="checkbox"/>	Name	Queue Type
<input checked="" type="checkbox"/>	myfirstqueue	Standard
<input type="checkbox"/>	myfirstqueue.fifo	FIFO





### Subscribe to a Topic

Select an SNS Topic from the *Choose a Topic* drop-down or enter a topic's ARN in the *Topic ARN* text box and then press *Subscribe* to allow your queue(s) to receive SNS notifications from the topic and to subscribe your queue(s) to the topic.

Topic Region ⓘ US East (N. Virginia) ←

Choose a Topic ⓘ MyFirstSNSTopic ←


Topic ARN ⓘ arn:aws:sns:us-east-1:XXXXXXXXXXXX:MyFirstSNSTopic ←

Cancel **Subscribe**

### Topic Subscription Result ✕

Successfully subscribed the following queue to the SNS topic MyFirstSNSTopic. Permission to receive SNS notifications was added to the queue.

- myfirstqueue


[OK](#)  


<input type="checkbox"/>	Name	Queue Type
<input checked="" type="checkbox"/>	myfirstqueue	Standard
<input type="checkbox"/>	myfirstqueue.fifo	FIFO

[Create New Queue](#) Queue Actions ▾

Filter by Prefix:

<input type="checkbox"/>	Name
<input checked="" type="checkbox"/>	myfirstqueue
<input type="checkbox"/>	myfirstqueue.fifo

- Send a Message
- View/Delete Messages
- Configure Queue
- Add a Permission 
- Purge Queue
- Delete Queue
- Subscribe Queue to SNS Topic

## Add a Permission to myfirstqueue



Permissions enable you to control which operations a user can perform on a queue. [Click here](#) to learn more about access control concepts.

Effect   Allow

Deny

Principal 

Everybody (\*)

Use commas between multiple values.

Actions 

--- 1 Specific Action ---

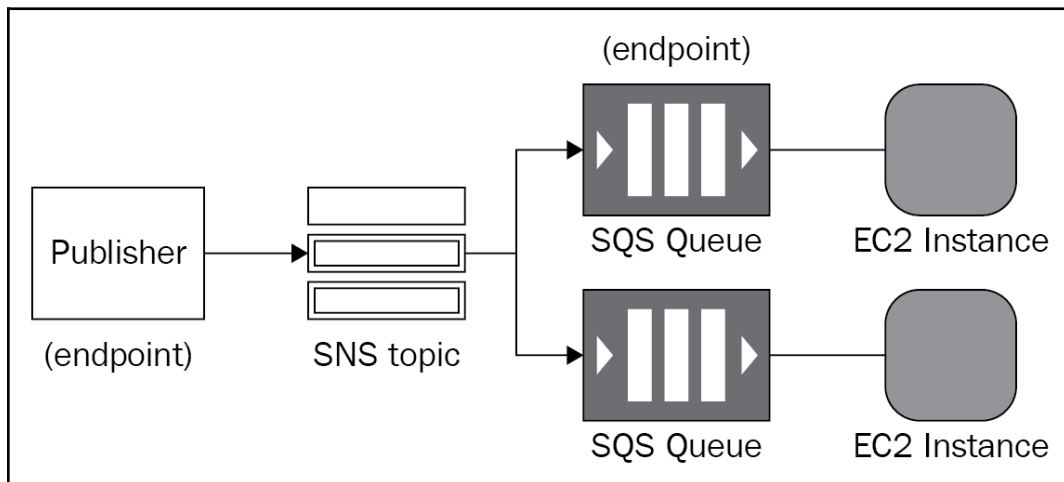
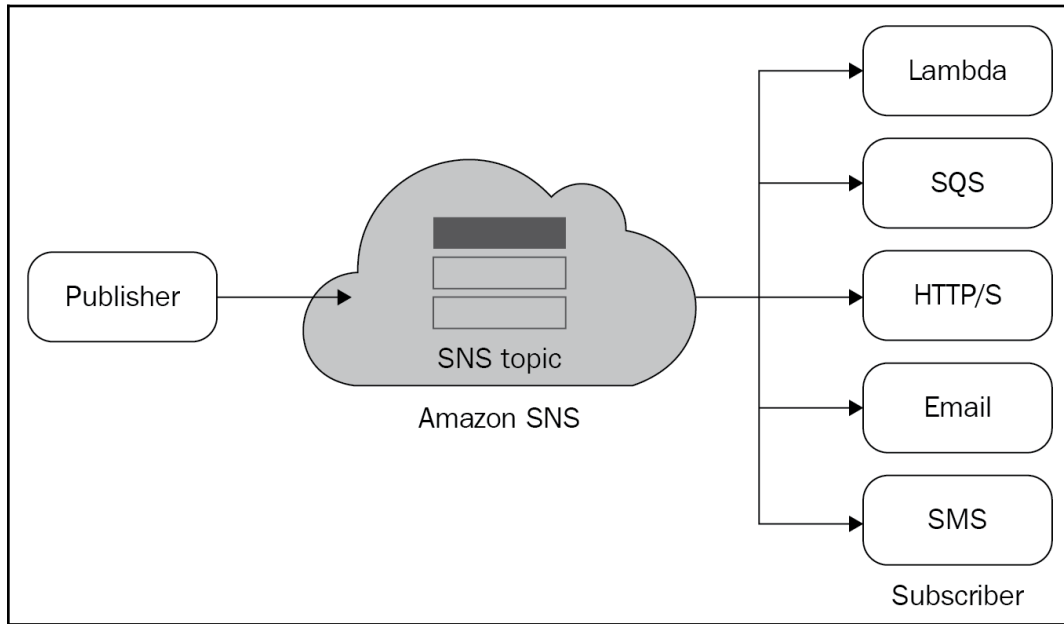
All SQS Actions (SQS:\*)

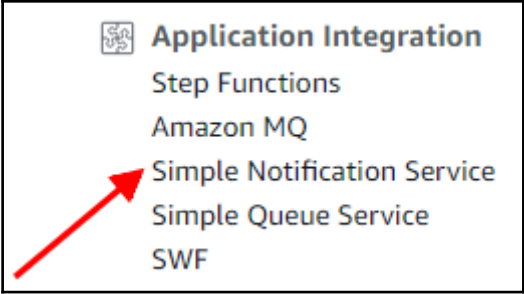
- SendMessage
- ReceiveMessage
- PurgeQueue
- DeleteMessage
- ChangeMessageVisibility
- GetQueueAttributes
- GetQueueUrl

Cancel

Add Permission

# Chapter 13: Simple Notification Service (SNS)





aws Services ▾ Resource Groups ▾

Application Integration

# Amazon Simple Notification Service

Pub/sub messaging for microservices and serverless applications.

Amazon SNS is a highly available, durable, secure, fully managed pub/sub messaging service that enables you to decouple microservices, distributed systems, and event-driven serverless applications. Amazon SNS provides topics for high-throughput, push-based, many-to-many messaging.

### Create topic

Topic name

A topic is a message channel. When you publish a message to a topic, it fans out the message to all subscribed endpoints.

[Next step](#)

[Start with an overview](#)

### Benefits and features

- Reliably deliver messages with durability**  
Amazon SNS uses cross-availability zone message storage to provide high message durability. Amazon SNS reliably delivers messages to valid AWS endpoints, such as Amazon SQS queues and AWS Lambda functions.
- Automatically scale your workload**  
Amazon SNS leverages the proven AWS cloud to dynamically scale with your application. Amazon SNS is a fully managed service, taking care of the heavy lifting related to capacity planning, provisioning, monitoring, and patching.

### Pricing

Amazon SNS has no upfront costs. You pay based on the number of messages you publish, the number of messages you deliver, and any additional API calls for managing topics and subscriptions. Delivery pricing varies by endpoint type.

[Learn more](#)

### Documentation

## Create topic

### Details

#### Name

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (\_).

#### Display name - *optional*

To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message. [Info](#)

Maximum 100 characters, including hyphens (-) and underscores (\_).

#### ► Encryption - *optional*

Amazon SNS provides in-transit encryption by default. Enabling server-side encryption adds at-rest encryption to your topic.

#### ► Access policy - *optional*

This policy defines who can access your topic. By default, only the topic owner can publish or subscribe to the topic. [Info](#)


#### ► Delivery retry policy (HTTP/S) - *optional*

The policy defines how Amazon SNS retries failed deliveries to HTTP/S endpoints. To modify the default settings, expand this section. [Info](#)

#### ► Delivery status logging - *optional*

These settings configure the logging of message delivery status to CloudWatch Logs. [Info](#)

#### ► Tags - *optional*

A tag is a metadata label that you can assign to an Amazon SNS topic. Each tag consists of a key and an optional value. You can use tags to search and filter your topics and track your costs. [Learn more](#) 

Cancel

Create topic



The screenshot shows the Amazon SNS Dashboard for the us-east-1 region. The left-hand navigation menu includes 'Dashboard', 'Topics', 'Subscriptions', and 'Mobile'. The main content area is titled 'Resources for us-east-1' and displays two summary cards: 'Topics' with a count of 1 and 'Subscriptions' with a count of 0. A red arrow points to the 'Topics' card. Below this is an 'Overview of Amazon SNS' section with a diagram illustrating the flow from a 'Publisher' to 'Amazon SNS', then to an 'SNS Topic', and finally to 'Subscribers' (AWS Lambda, Amazon SQS, and HTTP/S).

The screenshot shows the 'Topics (1)' page in the Amazon SNS console. The left-hand navigation menu is visible, with 'Topics' highlighted. The main content area shows a table with one topic: 'LearnSNS' with ARN 'arn:aws:sns:us-east-1:..:LearnSNS'. A red arrow points to the 'Topics' menu item. At the top right of the table, there are buttons for 'Edit', 'Delete', 'Publish message', and 'Create topic'.

This screenshot is identical to the first one, showing the Amazon SNS Dashboard for us-east-1. The 'Topics' count is 1 and the 'Subscriptions' count is 0. A red arrow points to the 'Subscriptions' menu item in the left-hand navigation.

The screenshot shows the 'Subscriptions (0)' page in the Amazon SNS console. The left-hand navigation menu is visible, with 'Subscriptions' highlighted. The main content area shows an empty table with columns for 'ID', 'Endpoint', 'Status', 'Protocol', and 'Topic'. A red arrow points to the 'Create subscription' button at the top right of the page.

# Create subscription

## Details

### Topic ARN

arn:aws:sns:us-east-1: :Learn X

### Protocol

The type of endpoint to subscribe

Email

### Endpoint

An email address that can receive notifications from Amazon SNS.

test@example.com

After your subscription is created, you must confirm it. [Info](#)

### Subscription filter policy - optional

This policy filters the messages that a subscriber receives. [Info](#)

Cancel

Create subscription

aws Services Resource Groups bhavn @ vipbhavn N. Virginia Support

Amazon SNS x Amazon SNS > Topics

Dashboard  
Topics  
Subscriptions  
Mobile  
Push notifications  
Text messaging (SMS)

Topics (1) Edit Delete Publish message Create topic

Search

Name	ARN
LearnSNS	arn:aws:sns:us-east-1: :LearnSNS

aws Services Resource Groups bhavn @ vipbhavn N. Virginia Support

Amazon SNS x Amazon SNS > Topics

Dashboard  
Topics  
Subscriptions  
Mobile  
Push notifications  
Text messaging (SMS)

Topics (1) Edit Delete Publish message Create topic

Search

Name	ARN
LearnSNS	arn:aws:sns:us-east-1: :LearnSNS



# LearnSNS

Edit

Delete

Publish message



## Details

Name

LearnSNS

Display name

LEARN-SNS

ARN

arn:aws:sns:us-east-1:[redacted]:LearnSNS

Topic owner

[redacted]

Subscriptions

Access policy

Delivery retry policy (HTTP/S)

Delivery status logging

Encryption

Tags

## Subscriptions (2)

Edit

Delete

Request confirmation

Confirm subscription

Create subscription

Search

< 1 > ⚙

ID	Endpoint	Status	Protocol
<input type="radio"/>	[redacted]	Confirmed	EMAIL
<input type="radio"/>	[redacted]	Confirmed	SMS

## Publish message to topic

### Message details

Topic ARN

arn:aws:sns:us-east-1:██████████:LearnSNS

Subject - *optional*

Maximum 100 printable ASCII characters

Time to Live (TTL) - *optional*

This setting applies only to mobile application endpoints. The number of seconds that the push notification service has to deliver the message to the endpoint. [Info](#)

### Message body

Message structure

Identical payload for all delivery protocols.

The same payload is sent to endpoints subscribed to the topic, regardless of their delivery protocol.

Custom payload for each delivery protocol.

Different payloads are sent to endpoints subscribed to the topic, based on their delivery protocol.

Message body to send to the endpoint

1 Enter raw message

### Message attributes

Message attributes let you provide structured metadata items (such as timestamps, geospatial data, signatures, and identifiers) for the message. [Info](#)

Type

Name

Value

## Message body

### Message structure

**Identical payload for all delivery protocols.**

The same payload is sent to endpoints subscribed to the topic, regardless of their delivery protocol.

**Custom payload for each delivery protocol.**

Different payloads are sent to endpoints subscribed to the topic, based on their delivery protocol.

### Message body to send to the endpoint

1 Enter raw message

## Message body

### Message structure

Identical payload for all delivery protocols.  
The same payload is sent to endpoints subscribed to the topic, regardless of their delivery protocol.

Custom payload for each delivery protocol.  
Different payloads are sent to endpoints subscribed to the topic, based on their delivery protocol.

### Message body to send to the endpoint

```
1 {
2   "default": "Sample fallback message",
3   "email": "Sample message for email endpoints",
4   "sqs": "Sample message for Amazon SQS endpoints",
5   "lambda": "Sample message for AWS Lambda endpoints",
6   "http": "Sample message for HTTP endpoints",
7   "https": "Sample message for HTTPS endpoints",
8   "sms": "Sample message for SMS endpoints",
9   "APNS": "{\"aps\":{\"alert\": \"Sample message for iOS endpoints\"}}",
10  "APNS_SANDBOX": "{\"aps\":{\"alert\": \"Sample message for iOS development
11  endpoints\"}}",
12  "APNS_VOIP": "{\"aps\":{\"alert\": \"Sample message for Apple VoIP
13  endpoints\"}}",
14  "APNS_VOIP_SANDBOX": "{\"aps\":{\"alert\": \"Sample message for Apple VoIP
15  development endpoints\"}}",
16  "MQTT": "{\"topic\": \"alert\", \"payload\": \"Sample message for MQTT endpoints\"}"
```

The message body must be a JSON object with an attribute for each delivery protocol. [Info](#)

String

String.Array

Number

Binary

Select attribute type ▼

...red metadata items (such as timestamps, geospatial data, signatures, and identifiers) for the message. [Info](#)

Name

Value

Enter attribute name

value or ["value1", "value2"]

Remove

Add another attribute

## Publish message to topic

### Message details

Topic ARN

arn:aws:sns:us-east-1:.....:LearnSNS

Subject - *optional*

Test subject line.

Maximum 100 printable ASCII characters

Time to Live (TTL) - *optional*

This setting applies only to mobile application endpoints. The number of seconds that the push notification service has to deliver the message to the endpoint. [Info](#)

30

### Message body

Message structure

Identical payload for all delivery protocols.  
The same payload is sent to endpoints subscribed to the topic, regardless of their delivery protocol.

Custom payload for each delivery protocol.  
Different payloads are sent to endpoints subscribed to the topic, based on their delivery protocol.

Message body to send to the endpoint

```
1 {
2   "default": "Test notification from Amazon SNS.",
3   "email": "Test notification from Amazon SNS.",
4   "sqs": "Test notification from Amazon SNS.",
5   "lambda": "Test notification from Amazon SNS.",
6   "http": "Test notification from Amazon SNS.",
7   "https": "Test notification from Amazon SNS.",
8   "sms": "Test notification from Amazon SNS.",
9   "APNS": "{\"aps\":{\"alert\": \"Test notification from Amazon SNS.\"}}",
10  "APNS_SANDBOX": "{\"aps\":{\"alert\": \"Test notification from Amazon
11  SNS.\"}}",
12  "APNS_VOIP": "{\"aps\":{\"alert\": \"Test notification from Amazon SNS.\"}}",
13  "APNS_VOIP_SANDBOX": "{\"aps\":{\"alert\": \"Test notification from Amazon
14  SNS.\"}}",
15  "MACOS": "{\"aps\":{\"alert\": \"Test notification from Amazon SNS.\"}}",
16  "MACOS_SANDBOX": "{\"aps\":{\"alert\": \"Test notification from Amazon
17  SNS.\"}}"
```

The message body must be a JSON object with an attribute for each delivery protocol. [Info](#)

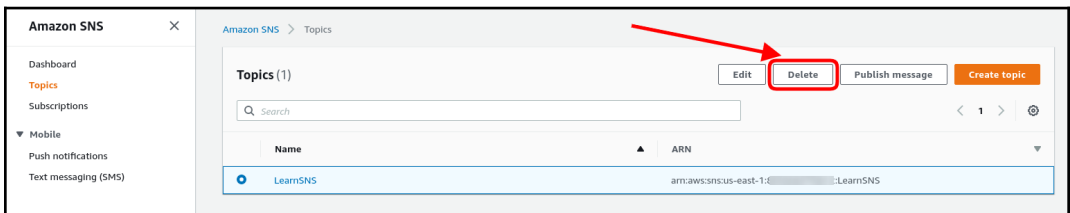
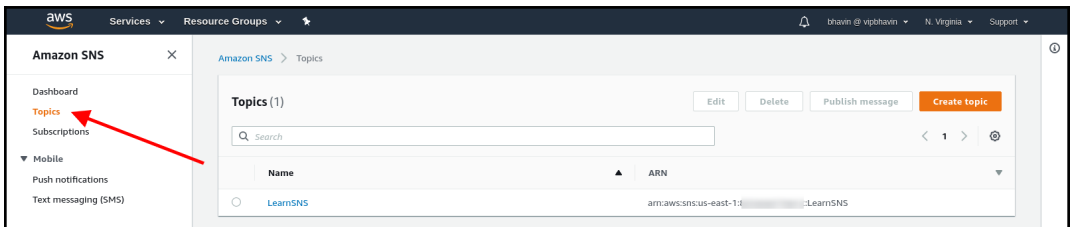
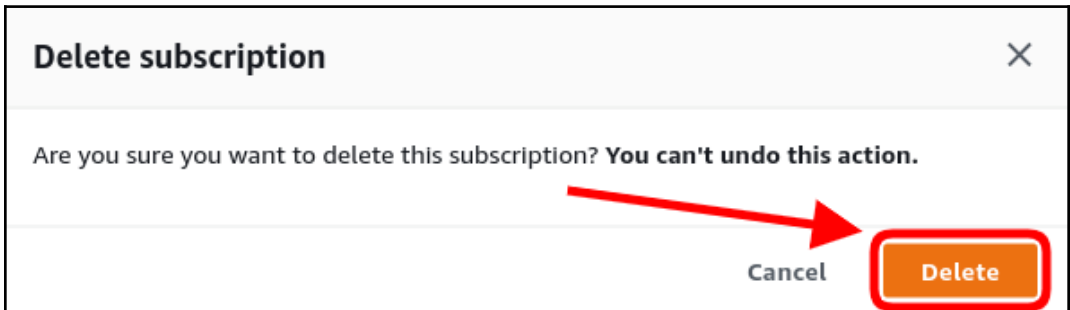
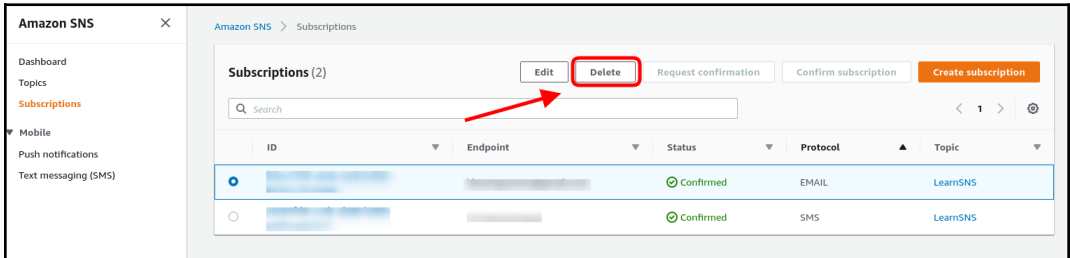
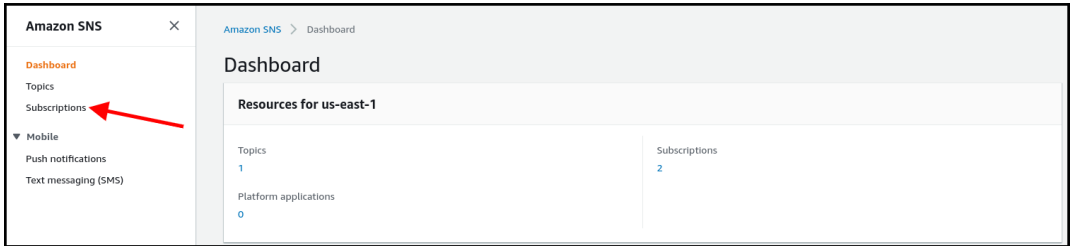
### Message attributes

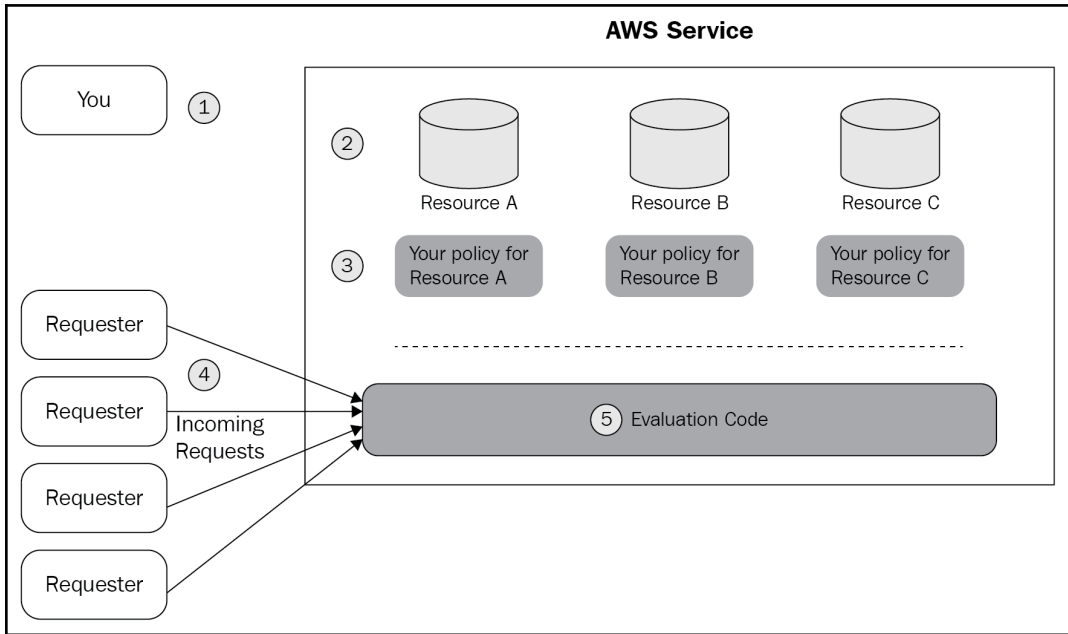
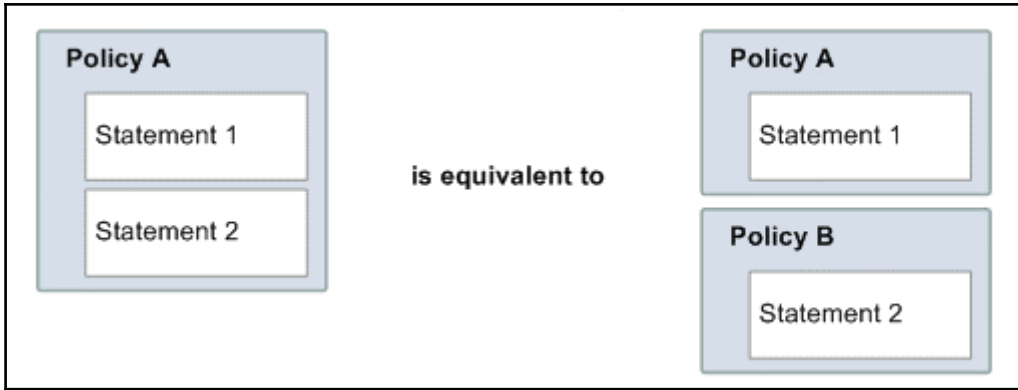
Message attributes let you provide structured metadata items (such as timestamps, geospatial data, signatures, and identifiers) for the message. [Info](#)

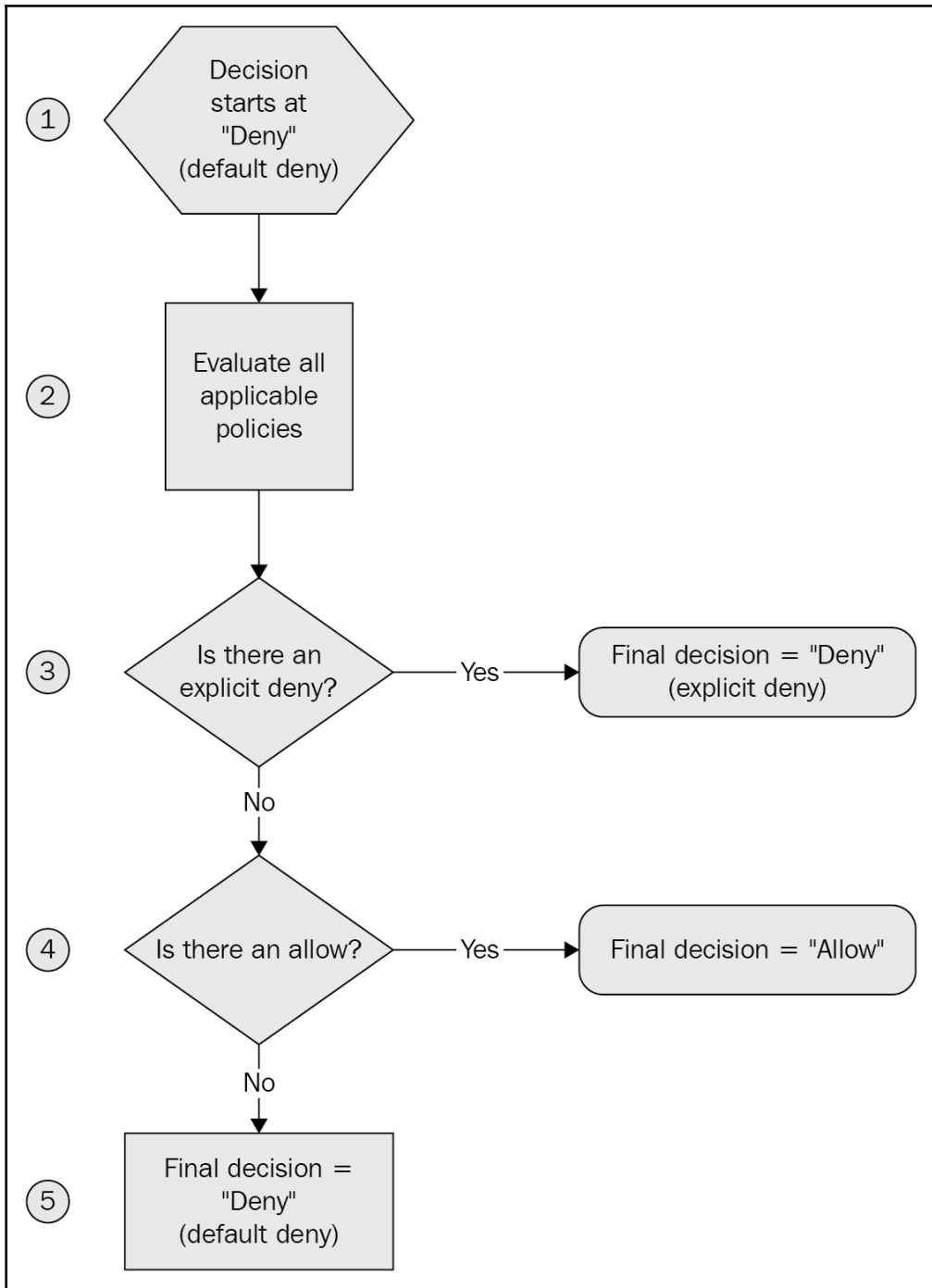
Type	Name	Value	
String	Signature	LearnSNS	Remove
<input type="button" value="Add another attribute"/>			

Cancel

Publish message









aws Services Resource Groups

Amazon SNS

Dashboard  
Topics  
Subscriptions

Mobile  
Push notifications  
Text messaging (SMS)

Amazon SNS > Topics

Topics (1)

Search

Edit Delete Publish message Create topic

Name	ARN
LearnSNS	arn:aws:sns:us-east-1:.....:LearnSNS

aws Services Resource Groups

Amazon SNS

Dashboard  
Topics  
Subscriptions

Mobile  
Push notifications  
Text messaging (SMS)

Amazon SNS > Topics

Topics (1)

Search

Edit Delete Publish message Create topic

Name	ARN
LearnSNS	arn:aws:sns:us-east-1:.....:LearnSNS

Amazon SNS

Dashboard  
Topics  
Subscriptions

Mobile  
Push notifications  
Text messaging (SMS)

Amazon SNS > Topics > LearnSNS

### LearnSNS

Edit Delete Publish message

**Details**

Name	LearnSNS	Display name	LEARN-SNS
ARN	arn:aws:sns:us-east-1:.....:LearnSNS	Topic owner	.....

Subscriptions Access policy Delivery retry policy (HTTP/S) Delivery status logging Encryption Tags

Subscriptions (1)

Edit Delete Request confirmation Confirm subscription Create subscription

Search

ID	Endpoint	Status	Protocol
.....	.....	Confirmed	SMS

## Create subscription

### Details

Topic ARN

arn:aws:sns:us-east-1:.....:Learn X

Protocol

The type of endpoint to subscribe

AWS Lambda

Endpoint

An AWS Lambda function that can receive notifications from Amazon SNS.

arn:aws:lambda:us-east-1:.....:f X

After your subscription is created, you must confirm it. [Info](#)

### ► Subscription filter policy - optional

This policy filters the messages that a subscriber receives. [Info](#)

Cancel

Create subscription

aws Services Resource Groups

Filter by Prefix: Enter Text...

Name	Queue Type	Content-Based Deduplication	Messages Available	Messages in Flight	Created
TextSQS	Standard	N/A	1	0	2019-05-18 11:46:03 GMT+05:30

The screenshot shows the AWS Management Console interface for a TestSQS queue. The 'Queue Actions' menu is open, and the 'Subscribe Queue to SNS Topic' option is highlighted with a red box and a red arrow. Below the menu, the details for the TestSQS queue are displayed, including its name, URL, ARN, and various configuration parameters.

Name	Queue Type	Content-Based Deduplication	Messages Available	Messages in Flight	Created
TestSQS	Standard	N/A	1	0	2019-05-18 11:46:03 GMT+05:30

1 SQS Queue selected

Details | Permissions | Redrive Policy | Monitoring | Tags | Encryption | Lambda Triggers

Name: TestSQS  
URL: https://sqs.us-east-1.amazonaws.com/.../TestSQS  
ARN: arn:aws:sqs:us-east-1:...:TestSQS  
Created: 2019-05-18 11:46:03 GMT+05:30  
Last Updated: 2019-05-18 11:46:28 GMT+05:30  
Delivery Delay: 0 seconds  
Queue Type: Standard  
Content-Based Deduplication: N/A

Default Visibility Timeout: 30 seconds  
Message Retention Period: 4 days  
Maximum Message Size: 256 KB  
Receive Message Wait Time: 0 seconds  
Messages Available (Visible): 1  
Messages in Flight (Not Visible): 0  
Messages Delayed: 0

## Subscribe to a Topic

Select an SNS Topic from the *Choose a Topic* drop-down or enter a topic's ARN in the *Topic ARN* text box and then press *Subscribe* to allow your queue(s) to receive SNS notifications from the topic and to subscribe your queue(s) to the topic.

Topic Region ⓘ US East (N. Virginia) ▼

Choose a Topic ⓘ LearnSNS ▼

Topic ARN ⓘ arn:aws:sns:us-east-1:...:LearnSNS

Cancel **Subscribe**

## Topic Subscription Result ✕

Successfully subscribed the following queue to the SNS topic LearnSNS.  
Permission to receive SNS notifications was added to the queue.

- TestSQS

**OK**

Amazon SNS ✕ Amazon SNS > Topics > LearnSNS

Dashboard  
Topics  
Subscriptions  
▼ Mobile  
Push notifications  
Text messaging (SMS)

### LearnSNS Edit Delete Publish message

**Details**

Name LearnSNS	Display name LEARN-SNS
ARN arn:aws:sns:us-east-1:██████████:LearnSNS	Topic owner ██████████

**Subscriptions** | Access policy | Delivery retry policy (HTTP/S) | Delivery status logging | Encryption | Tags

**Subscriptions (2)** Edit Delete Request confirmation Confirm subscription Create subscription

Search

ID	Endpoint	Status	Protocol
██████████	██████████	Confirmed	SMS
██████████	arn:aws:sqs:us-east-1:██████████:TestSQS	Confirmed	SQS

aws Services Resource Groups

Filter by Prefix: Enter Text...

Name	Queue Type	Content-Based Deduplication	Messages Available	Messages in Flight	Created
TestSQS	Standard	N/A	1	0	2019-05-18 11:46:03 GMT+05:30

1 SQS Queue selected

Details Permissions Redrive Policy Monitoring Tags Encryption Lambda Triggers

Name: TestSQS  
URL: https://sqs.us-east-1.amazonaws.com/.../TestSQS  
ARN: arn:aws:sqs:us-east-1:...:TestSQS  
Created: 2019-05-18 11:46:03 GMT+05:30  
Last Updated: 2019-05-18 11:46:26 GMT+05:30  
Delivery Delay: 0 seconds  
Queue Type: Standard  
Content-Based Deduplication: N/A

Default Visibility Timeout: 30 seconds  
Message Retention Period: 4 days  
Maximum Message Size: 256 KB  
Receive Message Wait Time: 0 seconds  
Messages Available (Visible): 1  
Messages in Flight (Not Visible): 0  
Messages Delayed: 0

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aws Services Resource Groups

CloudWatch Dashboards Alarms Billing Events Rules Event Buses Logs Insights Metrics Favorites

Untitled graph 1h 3h 12h 1d 3d 1w custom Line Actions

Your CloudWatch graph is empty. Select some metrics to appear here.

All metrics Graphed metrics Graph options Source

Search for any metric, dimension or resource id Graph search

135 Metrics

ApplicationELB 30 Metrics	EBS 27 Metrics	EC2 61 Metrics	NetworkELB 11 Metrics
SNS 6 Metrics			

aws Services Resource Groups

CloudWatch Dashboards

Alarms

ALARM

INSUFFICIENT

OK

Billing

Events

Rules

Event Buses

Logs

Insights

Metrics

Favorites

Untitled graph

1h 3h 12h 1d 3d 1w custom Line Actions

Your CloudWatch graph is empty. Select some metrics to appear here.

All metrics Graphed metrics Graph options Source

Search for any metric, dimension or resource id Graph search

135 Metrics

ApplicationELB 30 Metrics

EBS 27 Metrics

EC2 61 Metrics

NetworkELB 11 Metrics

SNS 6 Metrics

aws Services Resource Groups

CloudWatch Dashboards

Alarms

ALARM

INSUFFICIENT

OK

Billing

Events

Rules

Event Buses

Logs

Insights

Metrics

Favorites

Untitled graph

1h 3h 12h 1d 3d 1w custom Line Actions

Your CloudWatch graph is empty. Select some metrics to appear here.

All metrics Graphed metrics Graph options Source

All > SNS Search for any metric, dimension or resource id Graph search

6 Metrics

Country, SMSType 1 Metric

Topic Metrics 4 Metrics

Metrics with no dimensions 1 Metric

aws Services Resource Groups

bhavin @ vipbhavin N. Virginia Support

CloudWatch Dashboards Alarms

ALARM INSUFFICIENT OK Billing Events Rules Event Buses Logs Insights Metrics Favorites

Untitled graph 1h 3h 12h 1d 3d 1w custom Line Actions

Count

2

1

0

03:45 04:00 04:15 04:30 04:45 05:00 05:15 05:30 05:45 06:00 06:15 06:30

Number of Messages Published

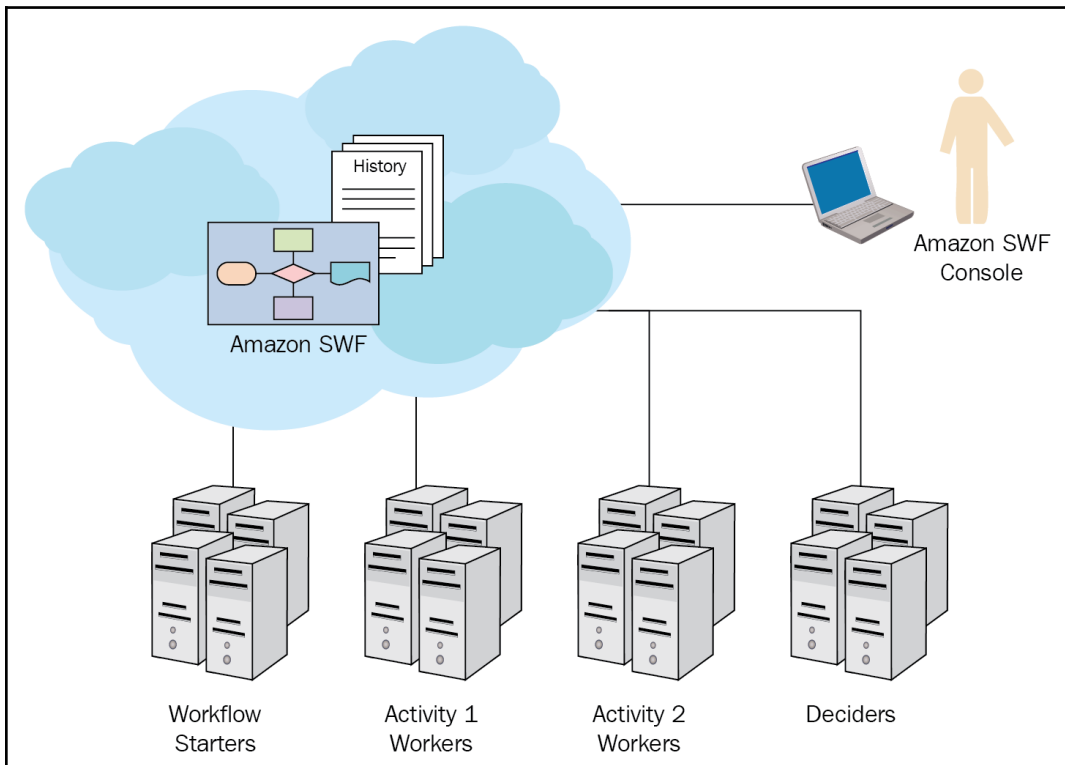
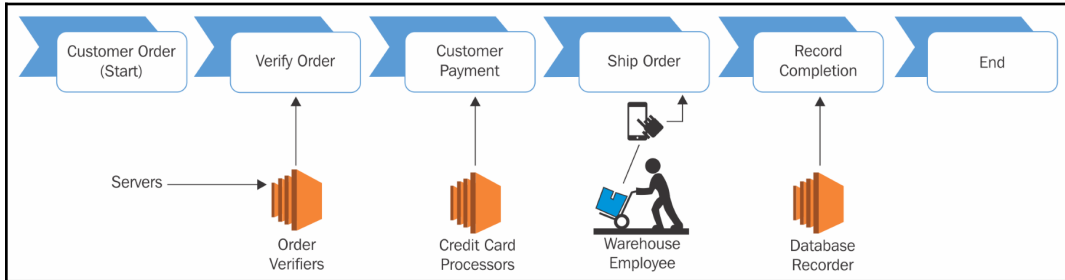
All metrics Graphed metrics (1) Graph options Source

All > SNS > Topic Metrics Search for any metric, dimension or resource id Graph search

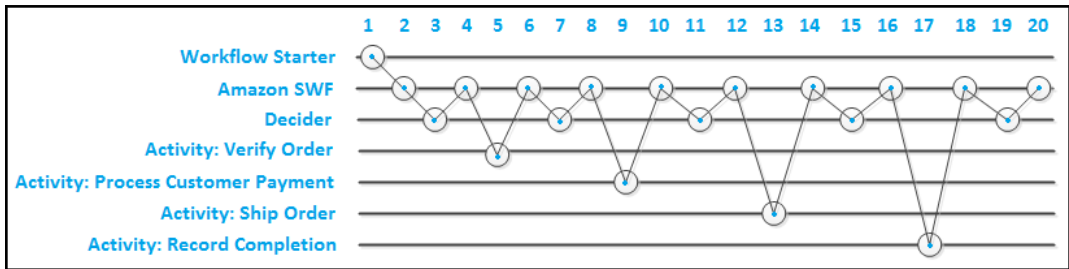
TopicName (4)	Metric Name
<input type="checkbox"/> LearnSNS	Number of Notifications Failed
<input type="checkbox"/> LearnSNS	Number of Notifications Delivered
<input checked="" type="checkbox"/> LearnSNS	Number of Messages Published
<input type="checkbox"/> LearnSNS	PublishSize

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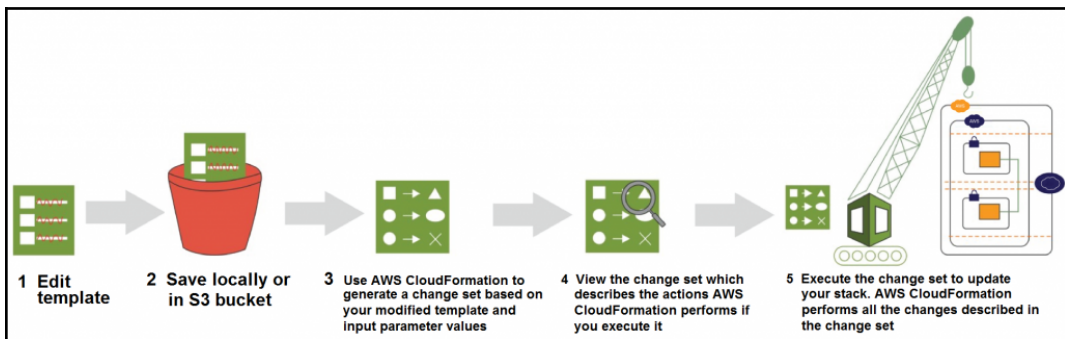
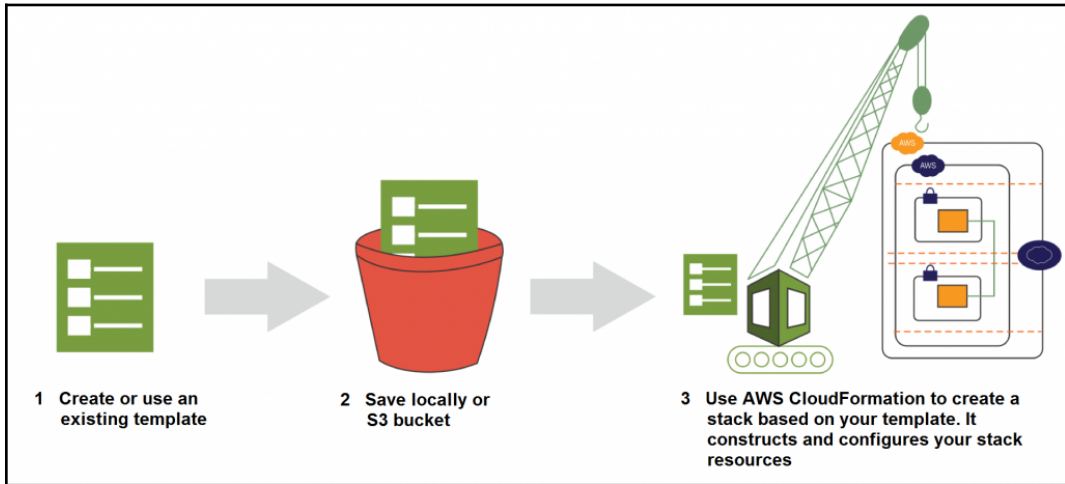
# Chapter 14: AWS Simple Workflow Service (SWF)



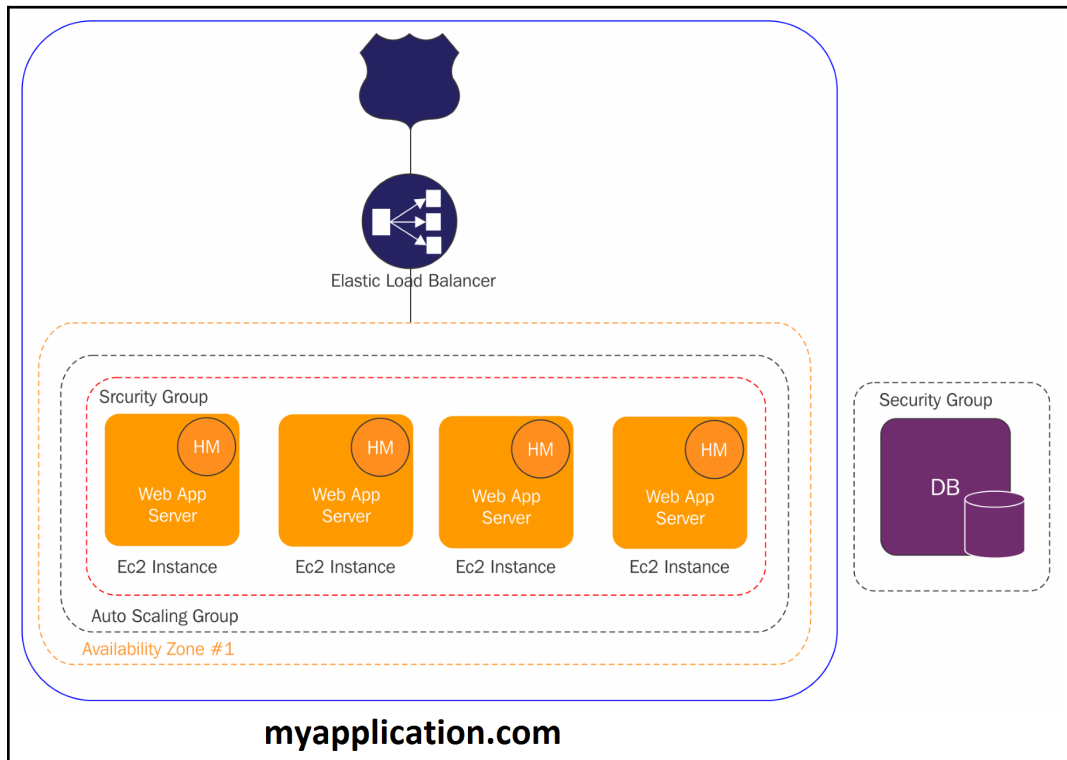
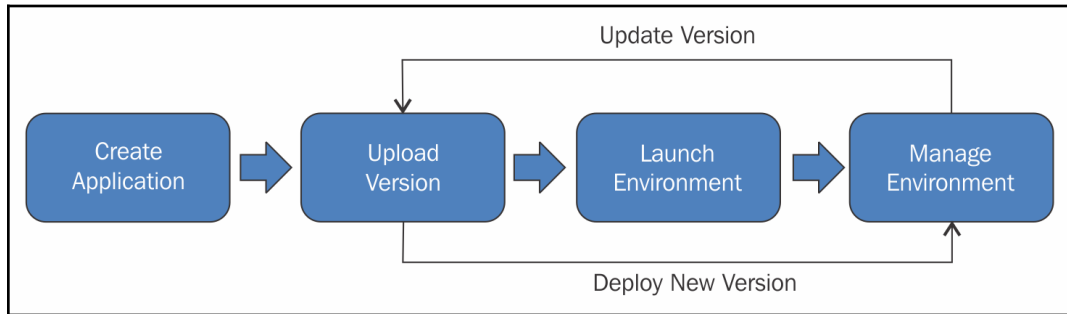


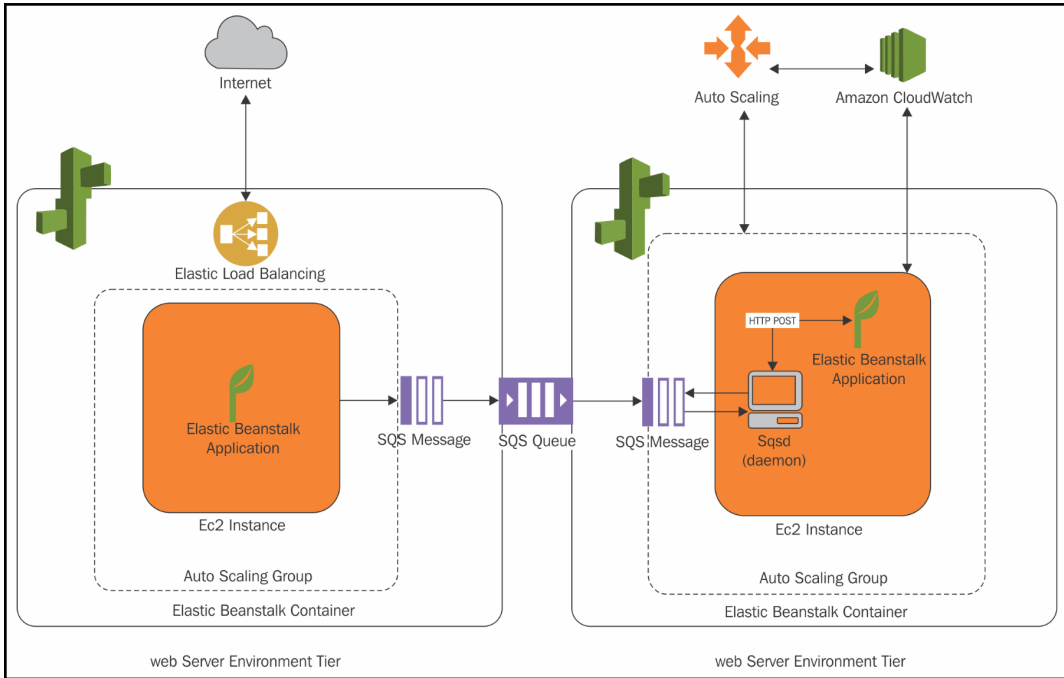


# Chapter 15: CloudFormation Overview




# Chapter 16: Understanding Elastic Beanstalk





N. Virginia ▼ Support ▼

-  **Compute**
- EC2
- EC2 Container Service
- Lightsail [↗](#)
- Elastic Beanstalk ➔
- Lambda
- Batch



## Create a web app

Create a new application and environment with a sample application or your own code. By creating an environment, you allow AWS Elastic Beanstalk to manage AWS resources and permissions on your behalf. [Learn more](#)

### Application information

**Application name**

Up to 100 Unicode characters, not including forward slash (/).

### Environment information

Choose the name, subdomain, and description for your environment. These cannot be changed later.

**Environment name**

**Domain**

**Description**

### Base configuration

**Tier** Web Server ([Choose tier](#))

**Platform**  Preconfigured platform  
Platforms published and maintained by AWS Elastic Beanstalk.

Custom platform **NEW**  
Platforms created and owned by you. [Learn more](#)

**Application code**  Sample application  
Get started right away with sample code.

Upload your code  
Upload a source bundle from your computer or copy one from Amazon S3.

ZIP or WAR

**Platform**

Preconfigured platform

Platforms published and maintained by AWS Elastic Beanstalk.

-- Choose a platform --

-- Choose a platform --

**Preconfigured**

- .NET (Windows/IIS)
- Java
- Node.js
- PHP
- Python
- Ruby
- Tomcat**
- Go
- Packer

**Preconfigured – Docker**

- GlassFish
- Go
- Python

**Generic**

- Docker
- Multi-container Docker



**Validation Error**



Solution stack is required.



## Configure GettingStarted-env

Start from a preset that matches your use case or choose *Custom configuration* to unset recommended values and use the service's default values.

- Configuration presets**
- Low cost (*Free Tier eligible*)
  - High availability
  - Custom configuration

Platform 64bit Amazon Linux 2017.03 v2.6.3 running Tomcat 8 Java 8 [Change platform configuration](#)

<h3>Tags</h3> <p>Tags: <i>none</i></p> <p><a href="#">Modify</a></p>	<h3>Software</h3> <p>AWS X-Ray: disabled Rotate logs: disabled (default) Log streaming: disabled (default) Environment properties: 0</p> <p><a href="#">Modify</a></p>	<h3>Instances</h3> <p>EC2 instance type: t1.micro EC2 image ID: ami-5d063026 Root volume type: container default Root volume size (GB): container default Root volume IOPS: container default</p> <p><a href="#">Modify</a></p>
<h3>Capacity</h3> <p>Environment type: load balancing, auto scaling Availability Zones: Any Instances: 1-4</p> <p><a href="#">Modify</a></p>	<h3>Load balancer</h3> <p>Port: HTTP on port 80 Secure port: disabled Cross-zone load balancing: disabled Connection draining: disabled (de</p> <p><a href="#">Modify</a></p>	<h3>Rolling updates and deployments</h3> <p>Deployment policy: All at once Rolling updates: disabled Health check: disabled</p> <p><a href="#">Modify</a></p>
<h3>Security</h3> <p>Service role: aws-elasticbeanstalk-service-role Virtual machine key pair: -- Virtual machine instance profile: aws-elasticbeanstalk-ec2-role</p> <p><a href="#">Modify</a></p>	<h3>Monitoring</h3> <p>Health check path: <i>blank</i> Health reporting system: basic</p> <p><a href="#">Modify</a></p>	<h3>Notifications</h3> <p>Email address: --</p> <p><a href="#">Modify</a></p>
<h3>Network</h3> <p>VPC: -- Load balancer visibility: public Load balancer subnets: <i>none</i> Associate public IP address: -- Instance subnets: <i>none</i> Security groups: <i>none</i></p> <p><a href="#">Modify</a></p>	<h3>Database</h3> <p>Engine: -- Instance class: -- Storage (GB): -- Multi-AZ: --</p> <p><a href="#">Modify</a></p>	

[Cancel](#)

[Previous](#)

[Create app](#)

**i** Creating GettingStarted-env

This will take a few minutes.

- 2:19pm Created Auto Scaling launch configuration named:  
awseb-e-9caxqmkzg8-stack-AWSEBAutoScalingLaunchConfiguration-1Q9U3WVGQ2C6O
- 2:19pm Created security group named:  
awseb-e-9caxqmkzg8-stack-AWSEBSecurityGroup-QKTWLTOK39FG
- 2:19pm Created load balancer named:  
awseb-e-9-AWSEBLoa-1BDBXR8WQ6FZX
- 2:19pm Created security group named:  
sg-21c94b51
- 2:18pm Using elasticbeanstalk-us-east-1-508708549947 as Amazon S3 storage bucket for environment data.
- 2:18pm createEnvironment is starting.

Elastic Beanstalk getting-started My First Elastic Beanstalk Application [Create New Application](#)

Learn More ◀ **All Applications** Filter by Application Name:  Actions ▾

getting-started

GettingStarted-env

Environment tier: Web Server

Platform: 64bit Amazon Linux 2017.03 v2.6.3 running Tomcat 8 Java 8

Running versions: Sample Application

Last modified: 2017-08-22 14:22:19 UTC-0530

URL: GettingStarted-env.kqdc2wkvng.us-east-1.elas...

My First Elastic Beanstalk Application Actions ▾

No environments currently exist for this application. [Create one now.](#)

**Get started using Elastic Beanstalk**  
Modify the code  
Create and connect to a database  
Add a custom domain

**Featured**  
Create your own custom platform

**Command Line Interface (v3)**  
Installing the AWS EB CLI  
EB CLI Command Reference

If you want to use a command line to create, manage, and scale your Elastic Beanstalk applications, please use the Elastic Beanstalk Command Line Interface (EB CLI).

**Get Started**  
\$ mkdir HelloWorld  
\$ cd HelloWorld  
\$ eb init -p PHP




Elastic Beanstalk getting-started My First Elastic Beanstalk Application Create New Application

All Applications > getting-started > GettingStarted-env (Environment ID: e-9caxqmzkg8, URL: GettingStarted-env.kqdc2wkvng.us-east-1.elasticbeanstalk.com) Actions

Dashboard Overview Refresh

Configuration

Logs

Health  **Health Green** Causes


Monitoring

Alarms

Managed Updates

Events

Tags

Running Version **Sample Application**  Upload and Deploy

Configuration **64bit Amazon Linux 2017.03 v2.6.3 running Tomcat 8 Java 8** Change

Recent Events Show All

Time	Type	Details
2017-08-22 14:22:19 UTC+0530	INFO	Successfully launched environment: GettingStarted-env
2017-08-22 14:21:25 UTC+0530	INFO	Environment health has been set to GREEN
2017-08-22 14:20:26 UTC+0530	INFO	Created CloudWatch alarm named: awseb-e-9caxqmzkg8-stack-AWSEBCloudwatchAlarmHigh-LA0042MM2H52


Elastic Beanstalk getting-started Create New Application

All Applications > getting-started > GettingStarted-env (Environment ID: e-kqn9dd5av, URL: GettingStarted-env.yzsv3m9dd.us-west-2.elasticbeanstalk.com) Actions

Dashboard Overview Refresh


Configuration

Logs


Health  **Health Green** Causes

Monitoring

Alarms

Running Version **Sample Application**  Upload and Deploy

Configuration **64bit Amazon Linux 2017.03 v2.6.4 running Tomcat 8 Java 8** Change



## Upload and Deploy

**i** To deploy a previous version, go to the [Application Versions page](#).

Upload application:  java-tomcat-v3.zip **← 1.**

Version label:  **← 2.**

► **Deployment Preferences**

---


Current number of instances: 1 **3.**

All Applications > getting-started > GettingStarted-env-1 (Environment ID: e-kqv9dd6av, URL: GettingStarted-env-1.yzsvt3m9dd.us-west-2.elasticbeanstalk.com)

Dashboard Overview

Configuration

Logs


Health  **Health Green**


Monitoring


Alarms

Managed Updates

Recent Events

**Running Version**  
java-tomcat-v3 

 **Configuration**  
64bit Amazon Linux 2017.03  
v2.6.4 running Tomcat 8 Java 8

**Scaling** 


**Environment type:** Load balanced, auto scaling

**Number instances:** 1 - 4

**Scale based on:** Average network out

**Add instance when:** > 6000000

**Remove instance when:** < 2000000



▼ Auto Scaling

Use the following settings to control auto scaling behavior. [Learn more.](#)

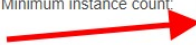
Minimum instance count:  Minimum number of instances to run.

Maximum instance count:  Maximum number of instances to run.

Availability Zones:  Number of Availability Zones to run in.

Custom Availability Zones:  Specific Availability Zones to launch instances in.

Scaling cooldown (seconds):  The amount of time after a scaling activity before any further trigger-related scaling activities can occur.



Filter:  1 to 1 of 1

Name	DNS name	State	VPC ID	Availability Zones	Type
awseb-e-9-AWSEBLoa-1BD...	awseb-e-9-AWSEBLoa-1BD...		vpc-3473d353	us-east-1a, us-east-1b,...	classic

Load balancer: **awseb-e-9-AWSEBLoa-1BDBXR8WQ6FZX**


Description **Instances** Health Check Listeners Monitoring Tags

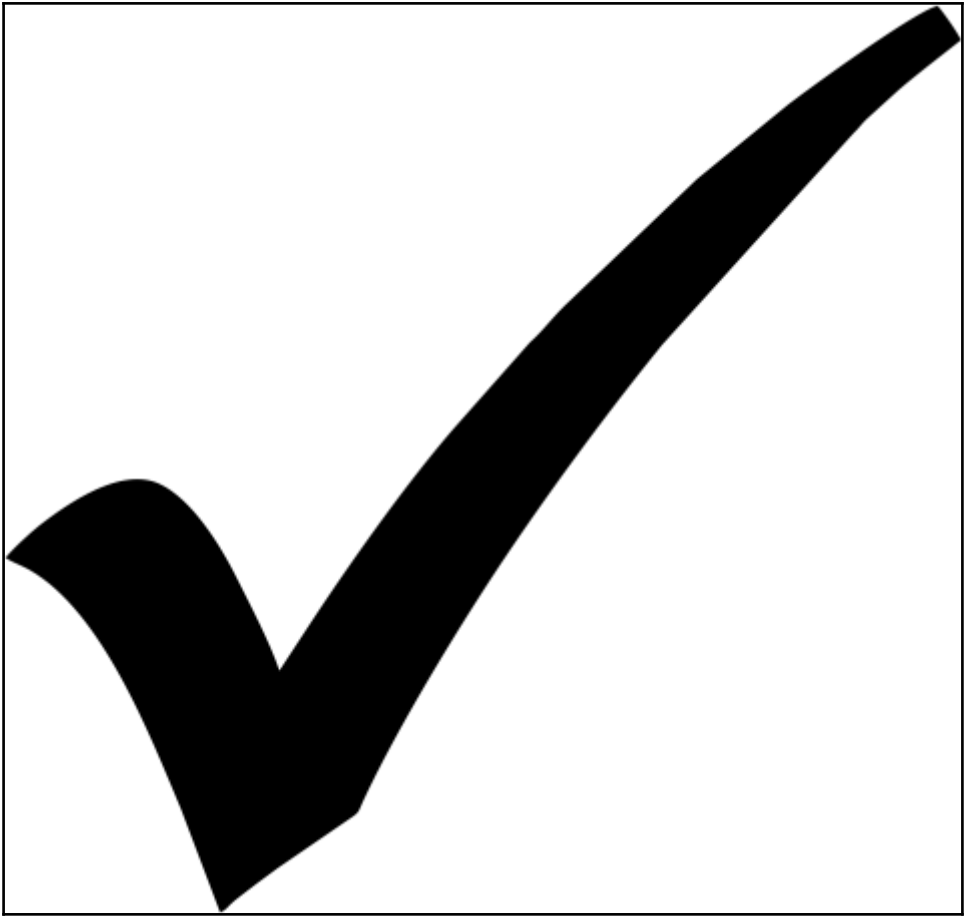
Connection Draining: Disabled (Edit)

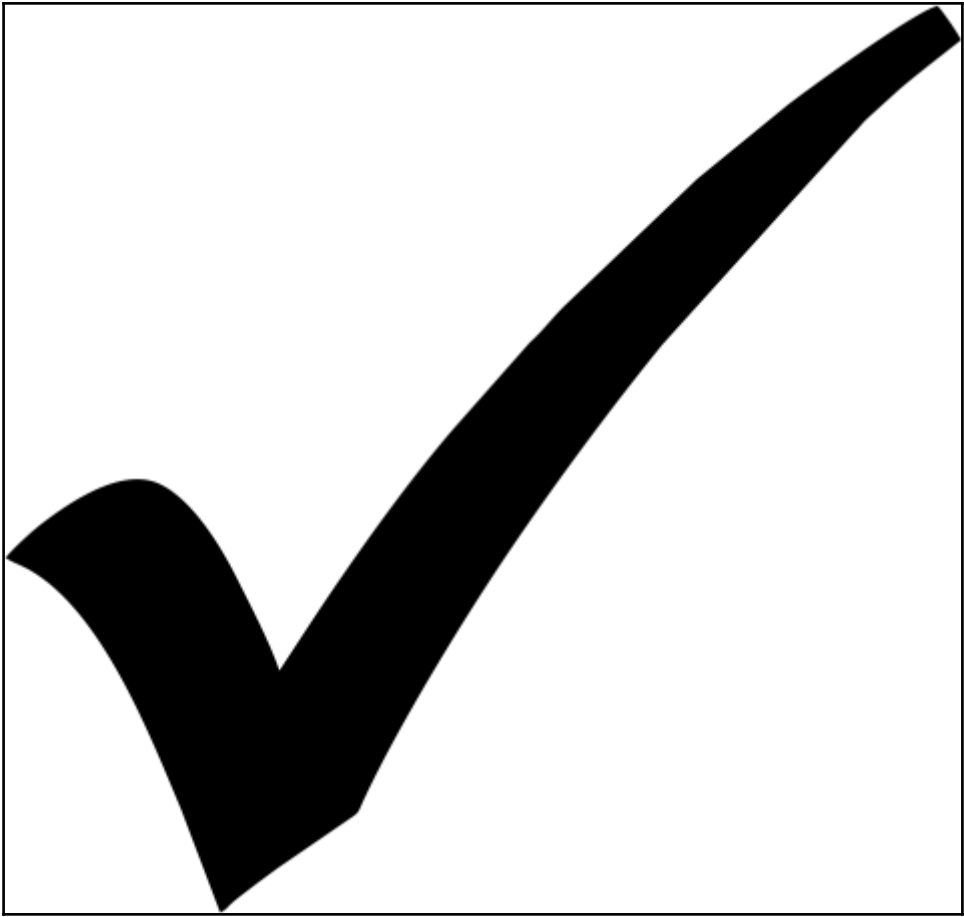
Edit Instances

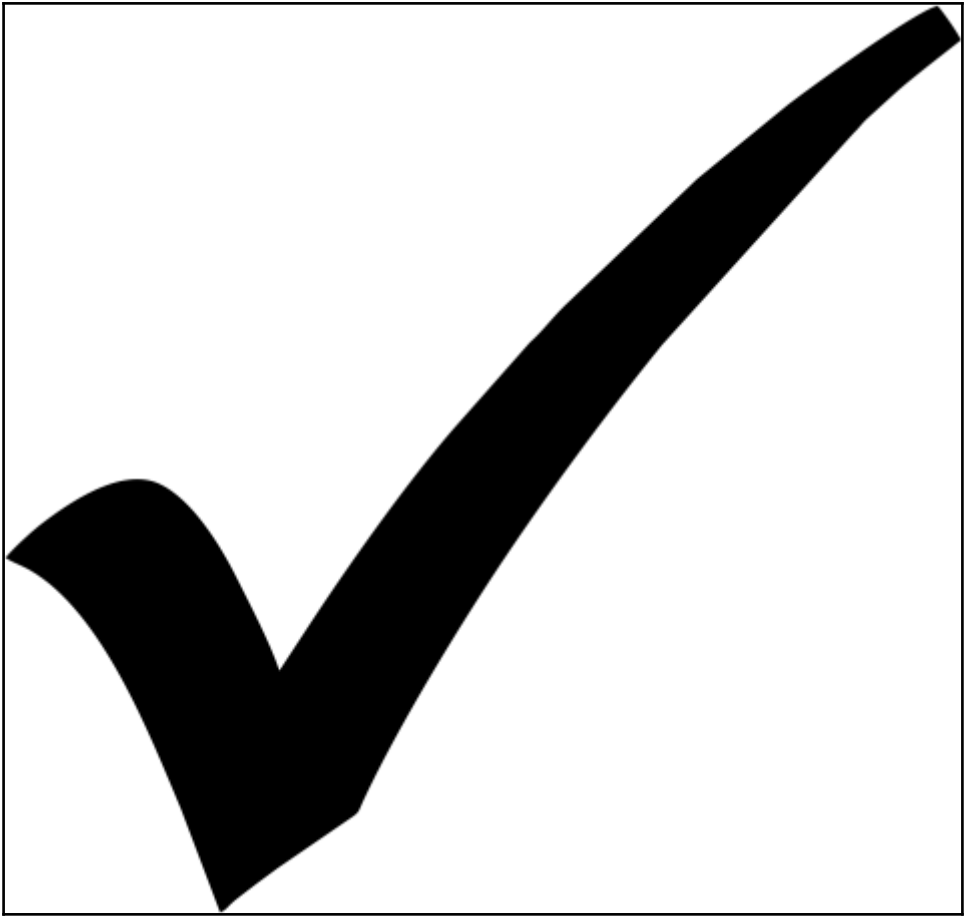
Instance ID	Name	Availability Zone	Status	Actions
i-07acc1cd261eb70f9	GettingStarted-env	us-east-1a	InService ⓘ	Remove from Load Balancer
i-08469c88a1b402474	GettingStarted-env	us-east-1b	InService ⓘ	Remove from Load Balancer

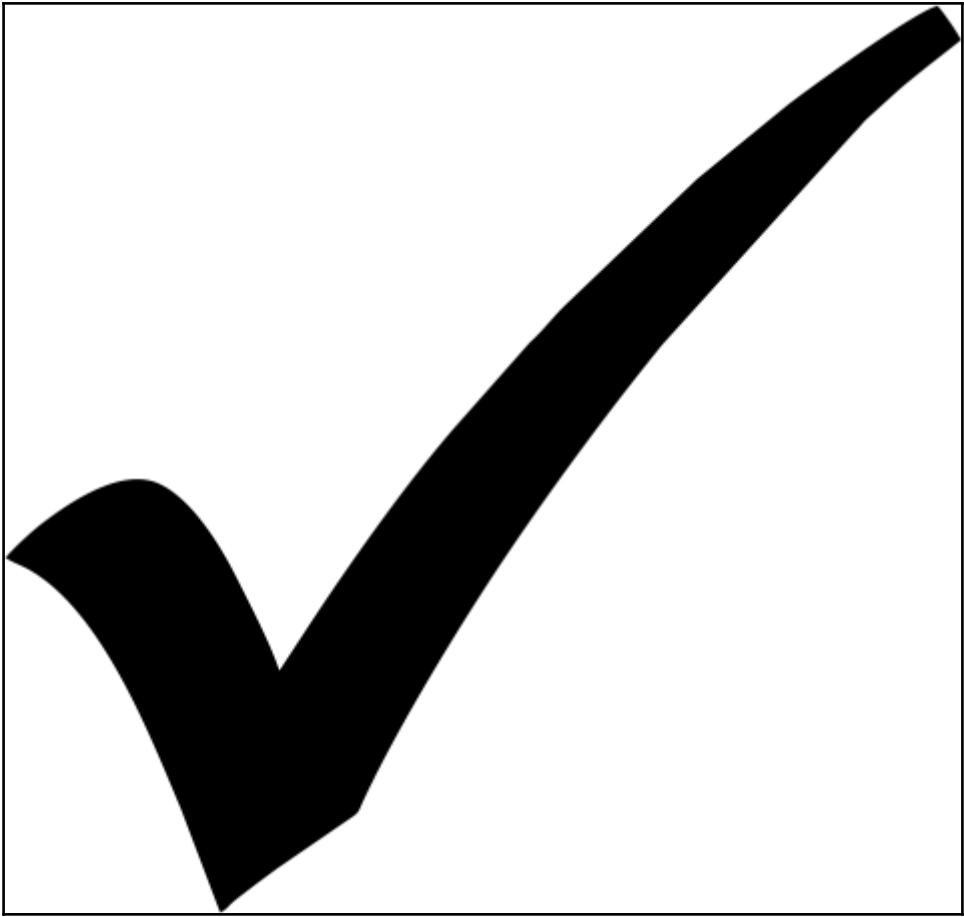
Edit Availability Zones

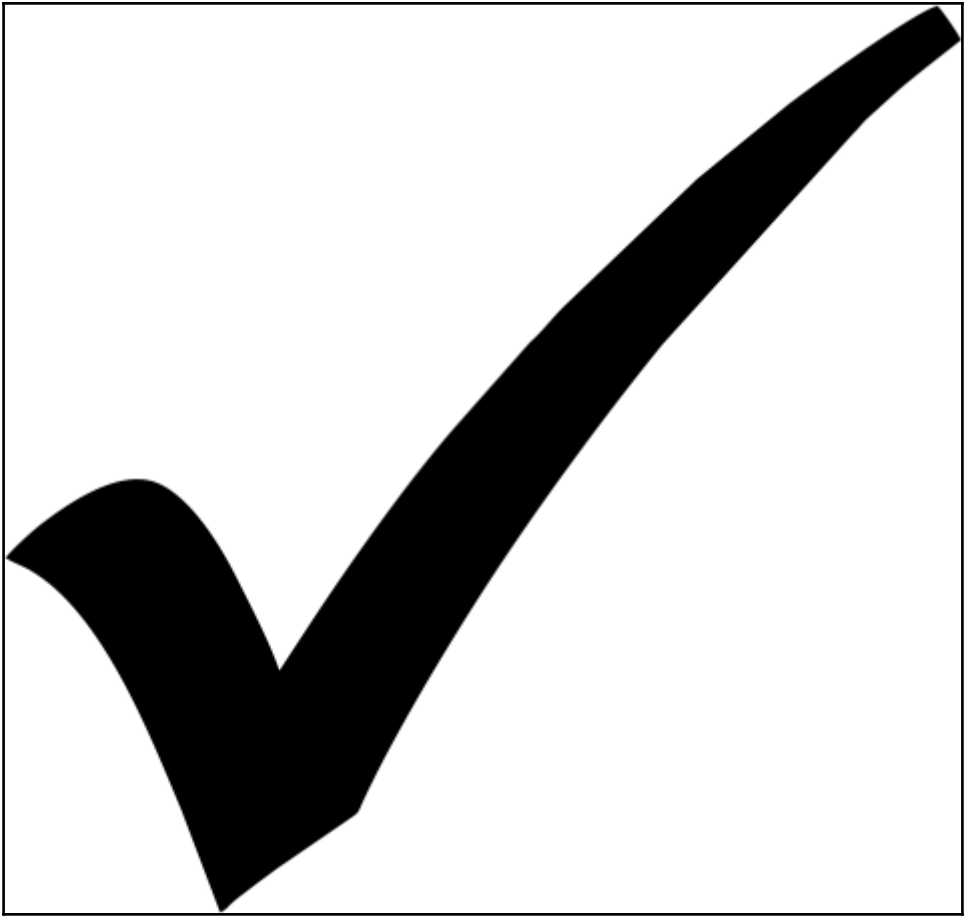




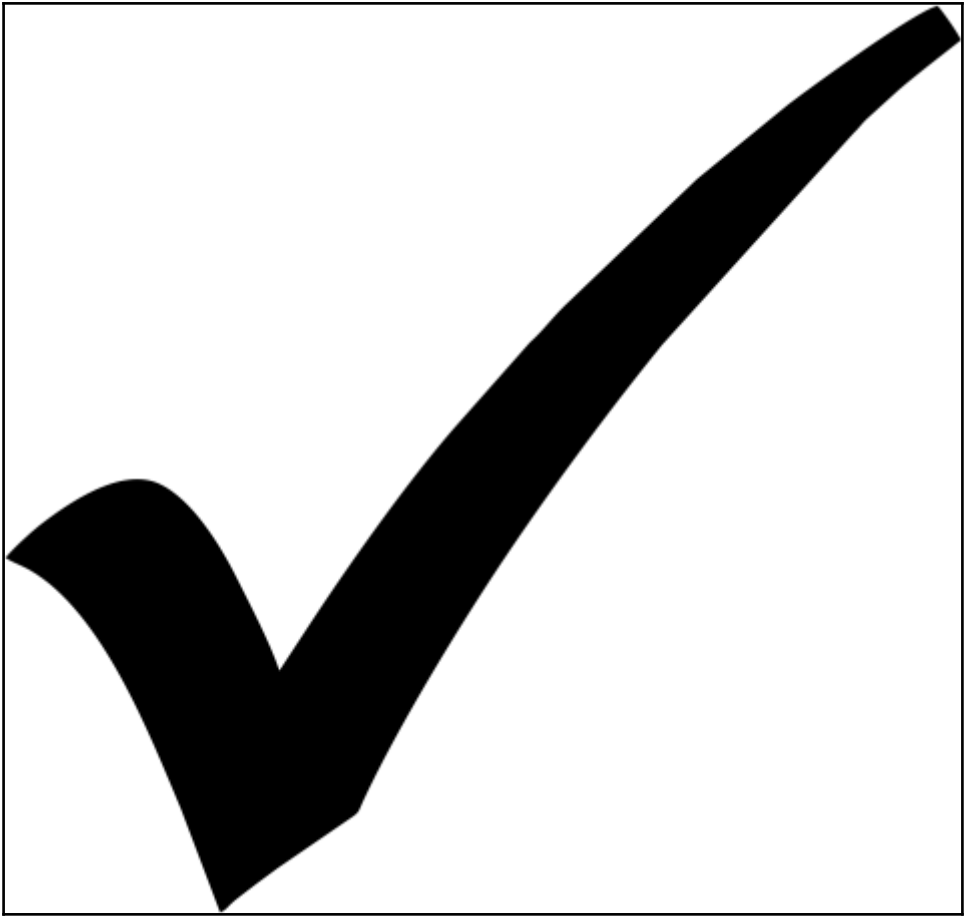


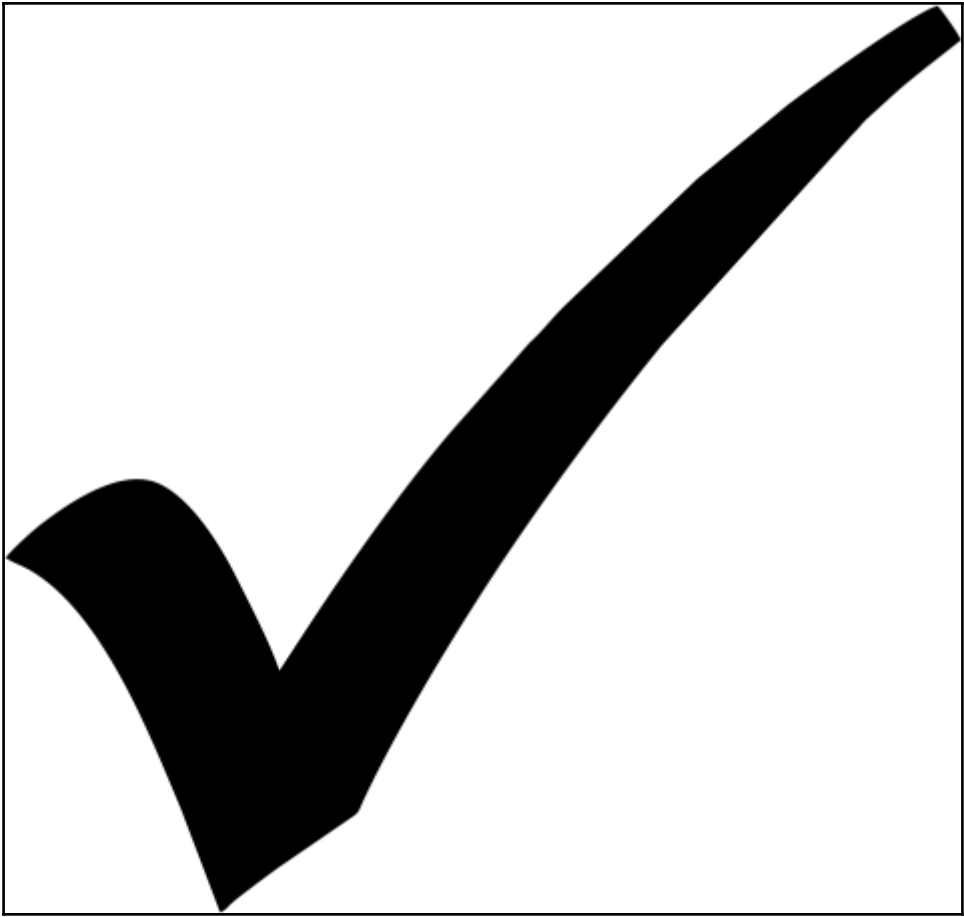


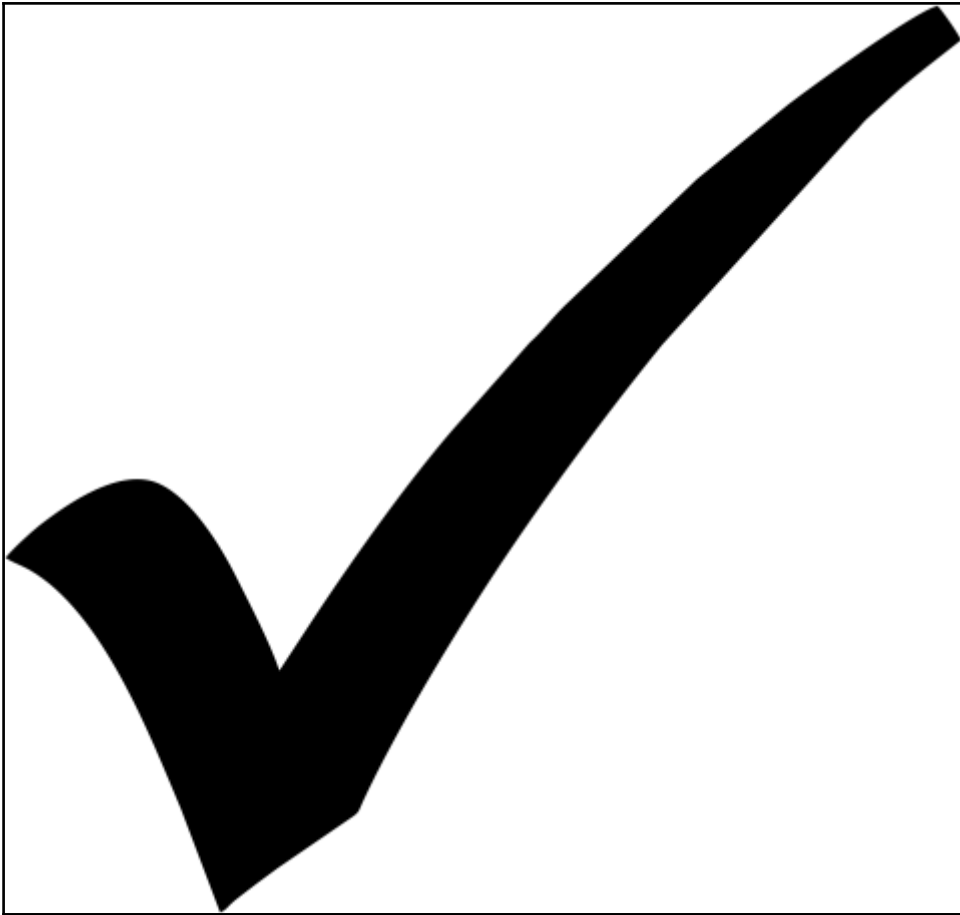












All Applications > getting-started > GettingStarted-env (Environment ID: e-vncrj85v3, URL: GettingStarted-env.shdcy28cn.us-west-2.elasticbeanstalk.com) Actions

Dashboard Overview Period 1 hour Edit

Configuration

Logs

Health **1.0** **55.0%** **2.2** **1.0** **26KB** **14KB**  
Healthy Host Count CPU Utilization Average Latency in Seconds Sum Requests Max Network In Max Network Out

**Monitoring** ←

Alarms

Managed Updates Monitoring Time Range 3 hours Period 1 minute Edit

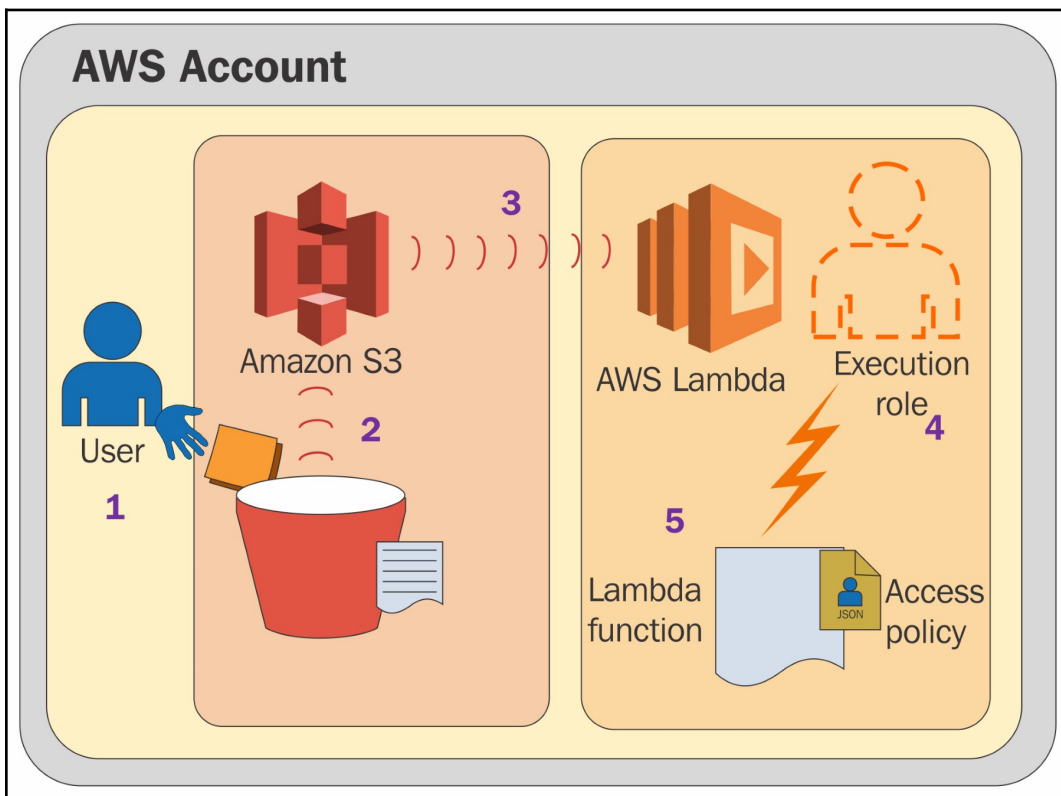
Events

Tags

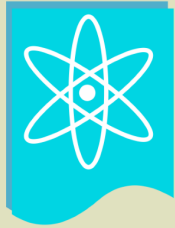
Average Latency in seconds	Sum Requests by count
2.5	1.25
2.0	1.00
1.5	0.75
1.0	0.50

# Chapter 17: Overview of AWS Lambda

This PC > New Volume (E:) > Lambda-Function > MyFunctionFolder			
Name	Date modified	Type	Size
node_modules	23-09-2017 22:03	File folder	
index.js	23-09-2017 22:07	JavaScript File	27 KB



# AWS Account



Custom app

1



Amazon Kinesis



Stream

2



Execution role



AWS Lambda

Event source mapping

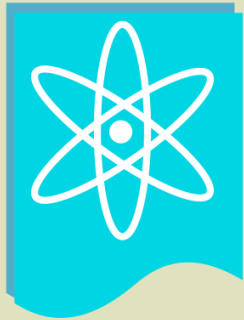


3

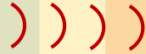
Lambda function



# AWS Account



Custom app



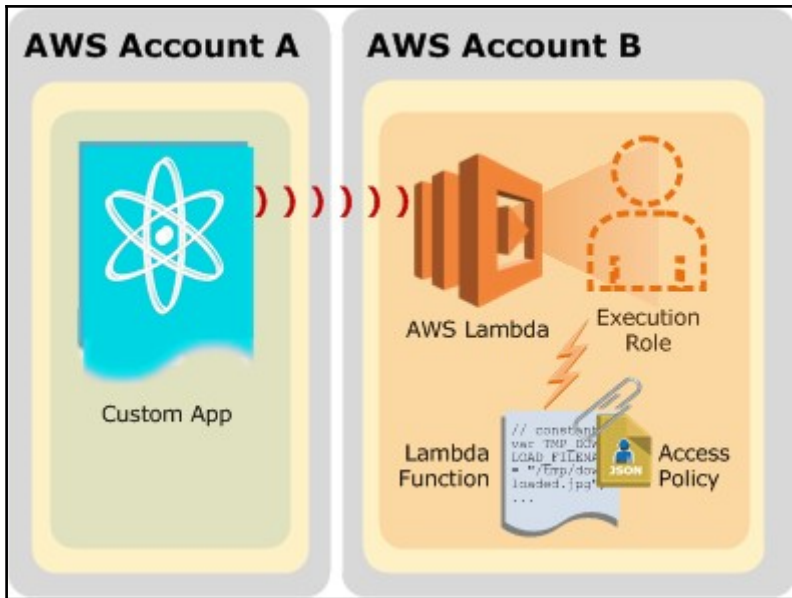
AWS Lambda



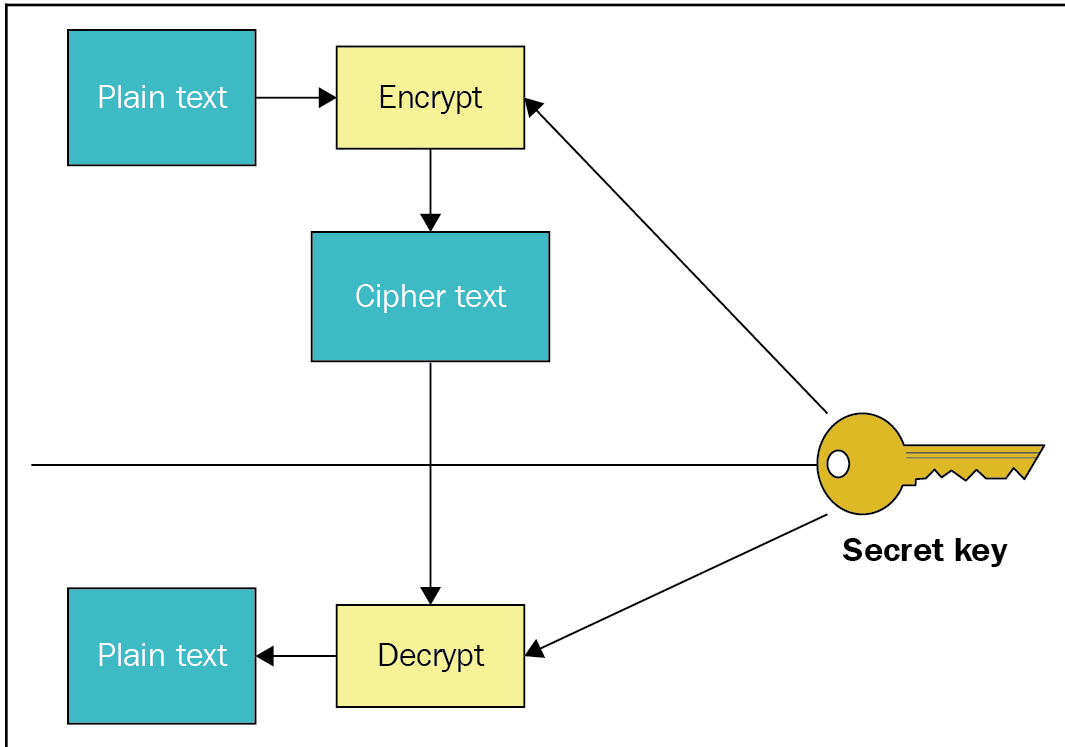
Execution Role



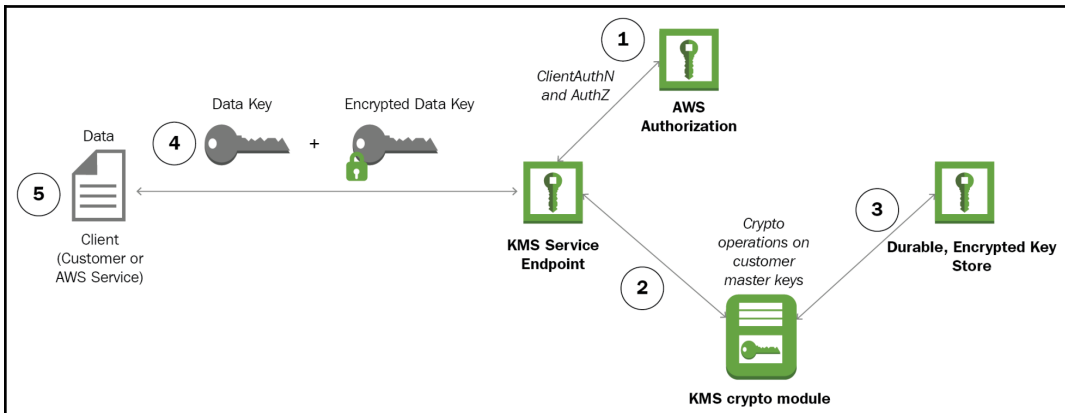
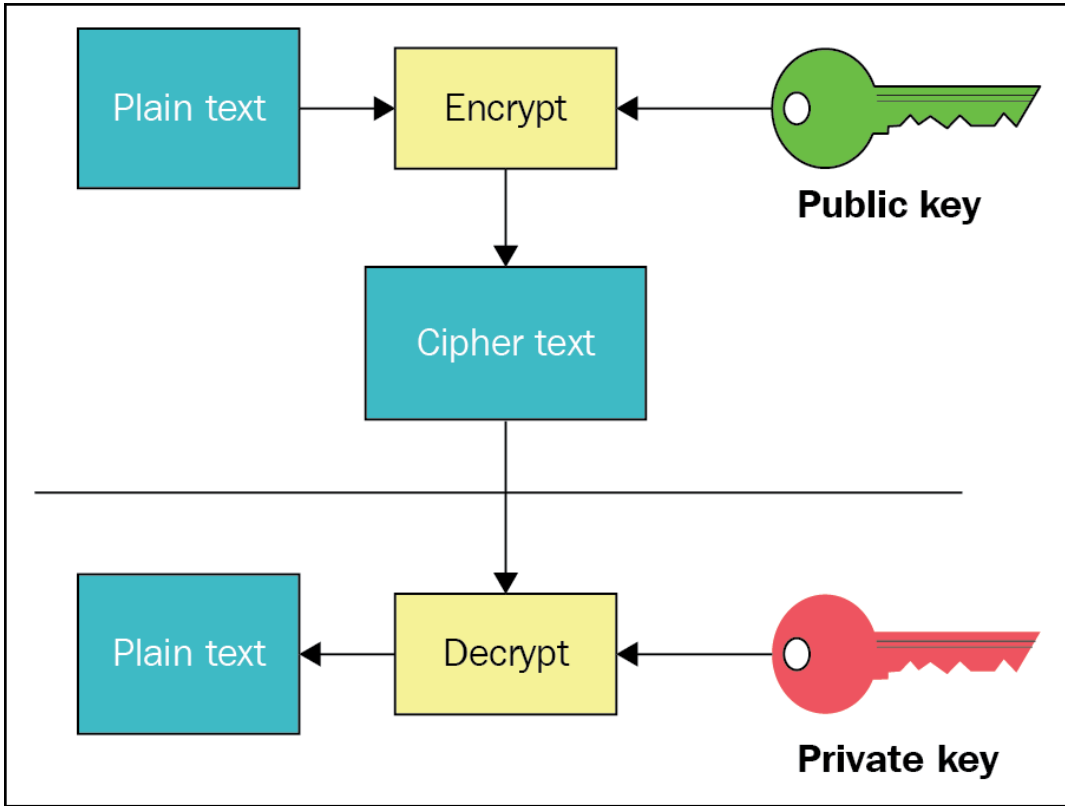
Lambda function

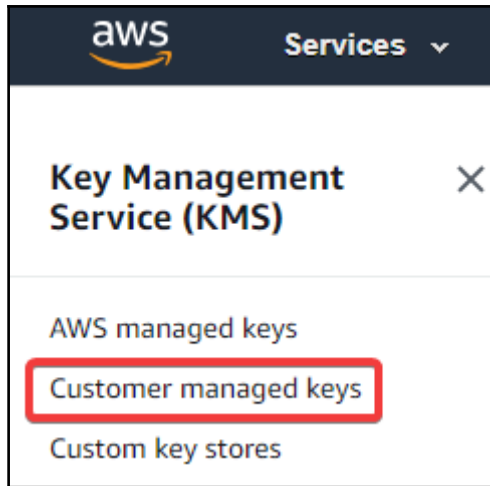


# Chapter 18: Key Management Services









KMS > Customer managed keys > Create key

## Add alias and description

Step 1 of 5

### Create alias and description

Enter an alias and a description for this key. You can change the properties of the key at any time. [Learn more](#)

Alias

 ←

Description

 ←

▶ Advanced options

Cancel **Next**

## Define key administrative permissions

### Key administrators

Choose the IAM users and roles who can administer this key through the KMS API. You may need to add additional permissions for the users or roles to administer this key from this console. [Learn more](#)

 < 1 >

<input type="checkbox"/>	Name	Path	Type
<input type="checkbox"/>	bhavin	/	User
<input checked="" type="checkbox"/>	vipul	/	User
<input type="checkbox"/>	AWSServiceRoleForSupport	/aws-service-role/support.amazonaws.com/	Role
<input type="checkbox"/>	AWSServiceRoleForTrustedAdvisor	/aws-service-role/trustedadvisor.amazonaws.com/	Role
<input type="checkbox"/>	lambda_basic_execution	/	Role

### Key deletion

Allow key administrators to delete this key.

Cancel

Previous

Next

## Define key usage permissions

### This account

Select the IAM users and roles that can use the CMK to encrypt and decrypt data with the AWS KMS API. [Learn more](#)

 < 1 >

<input type="checkbox"/>	Name	Path	Type
<input checked="" type="checkbox"/>	bhavin	/	User
<input type="checkbox"/>	vipul	/	User
<input type="checkbox"/>	AWSServiceRoleForSupport	/aws-service-role/support.amazonaws.com/	Role
<input type="checkbox"/>	AWSServiceRoleForTrustedAdvisor	/aws-service-role/trustedadvisor.amazonaws.com/	Role
<input type="checkbox"/>	lambda_basic_execution	/	Role

### Other AWS accounts

Specify the AWS accounts that can use this key. Administrators of the accounts you specify are responsible for managing the permissions that allow their IAM users and roles to use this key. [Learn more](#)

Add another AWS account

Cancel

Previous

Next

# Review and edit key policy

Step 5 of 5

```
1 {
2   "Id": "key-consolepolicy-3",
3   "Version": "2012-10-17",
4   "Statement": [
5     {
6       "Sid": "Enable IAM User Permissions",
7       "Effect": "Allow",
8       "Principal": {
9         "AWS": "arn:aws:iam::123456789012:root"
10      },
11      "Action": "kms:*",
12      "Resource": "*"
13    },
14    {
15      "Sid": "Allow access for Key Administrators",
```

Cancel

Previous

Finish

**Success**  
Your customer master key was created with alias **Packtpub** and key ID **b105164d-2deb-46ea-bdb7-148e680b668e**.

Customer managed keys		Key actions	Create key
Alias	Key ID	Status	Creation date
<input type="checkbox"/> Packtpub	b105164d-2deb-46ea-bdb7-148e680b668e	Enabled	2019-03-23 17:51 GMT+5:30

**Key Management Service (KMS)**

AWS managed keys  
Customer managed keys  
Custom key stores

KMS > Customer managed keys

### Customer managed keys

Key actions Create key

Search

< 1 > ⚙️

<input type="checkbox"/>	Alias	Key ID	Status	Creation date
<input type="checkbox"/>	Packtpub	b105164d-2deb-46ea-bdb7-148e680b668e	Enabled	2019-03-23 17:51 GMT+5:30

### Key policy

Switch to policy view

#### Key administrators

Choose the IAM users and roles who can administer this key through the KMS API. You might need to add additional permissions for the users or roles to administer this key from this console. [Learn more](#)

Add Remove

Search

< 1 >

<input type="checkbox"/>	Name	Path	Type
<input type="checkbox"/>	vipul	/	User

#### Key deletion

Allow key administrators to delete this key

#### Key users

The following IAM users and roles can use this key to encrypt and decrypt data from within applications and when using AWS services integrated with KMS. [Learn more](#)

Add Remove

Search

< 1 >

<input type="checkbox"/>	Name	Path	Type
<input type="checkbox"/>	bhavin	/	User

KMS > Customer managed keys

### Customer managed keys

Key actions Create key

Search

<input checked="" type="checkbox"/>	Alias	Key ID	Status
<input checked="" type="checkbox"/>	Packtpub	b105164d-2deb-46ea-bdb7-148e680b668e	Enabled

Key actions dropdown menu:

- Enable
- Disable
- Schedule key deletion
- Cancel key deletion
- Delete key material
- Add or edit tags

### Customer managed keys

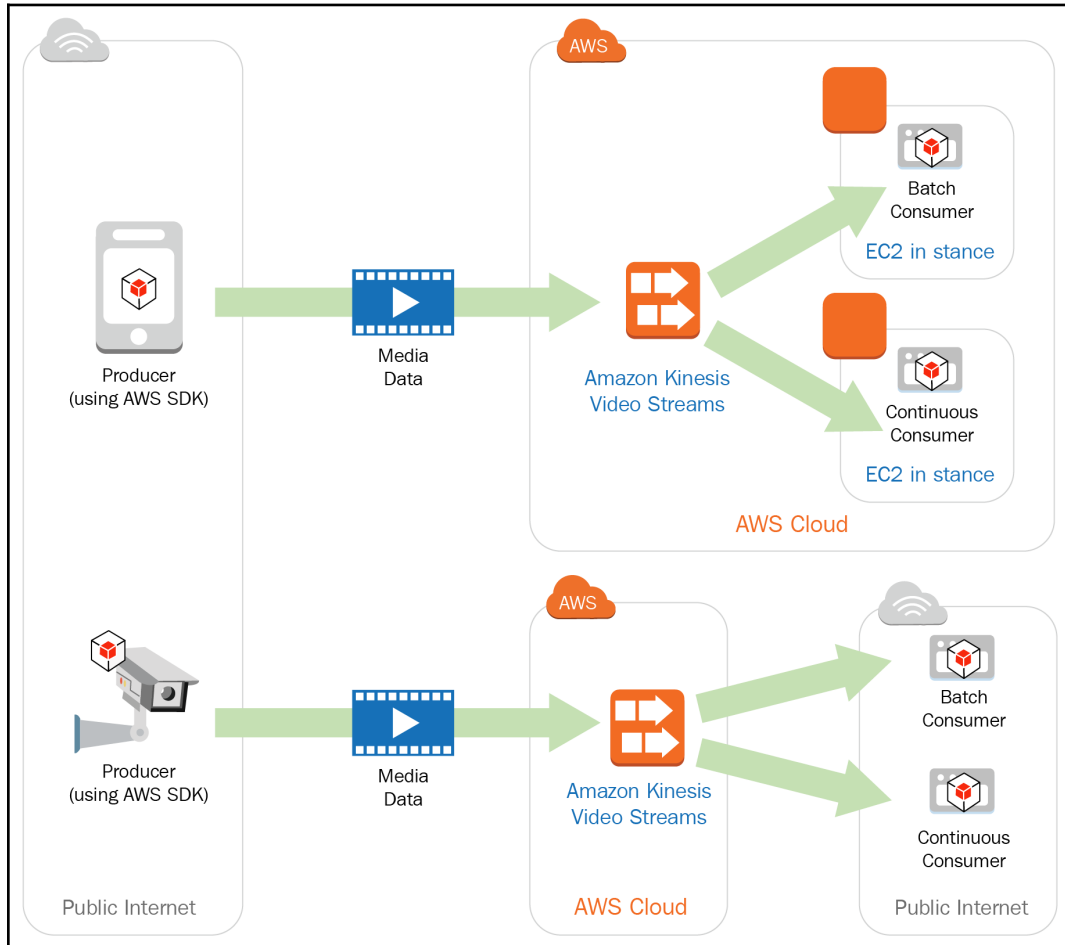
<input checked="" type="checkbox"/>	Alias	Key ID	Status	
<input checked="" type="checkbox"/>	Packtpub	b105164d-2deb-46ea-bdb7-148e680b668e	Enabled	MT+5:30

- Key actions ▾
- Enable
  - Disable
  - Schedule key deletion
  - Cancel key deletion
  - Delete key material
  - Add or edit tags

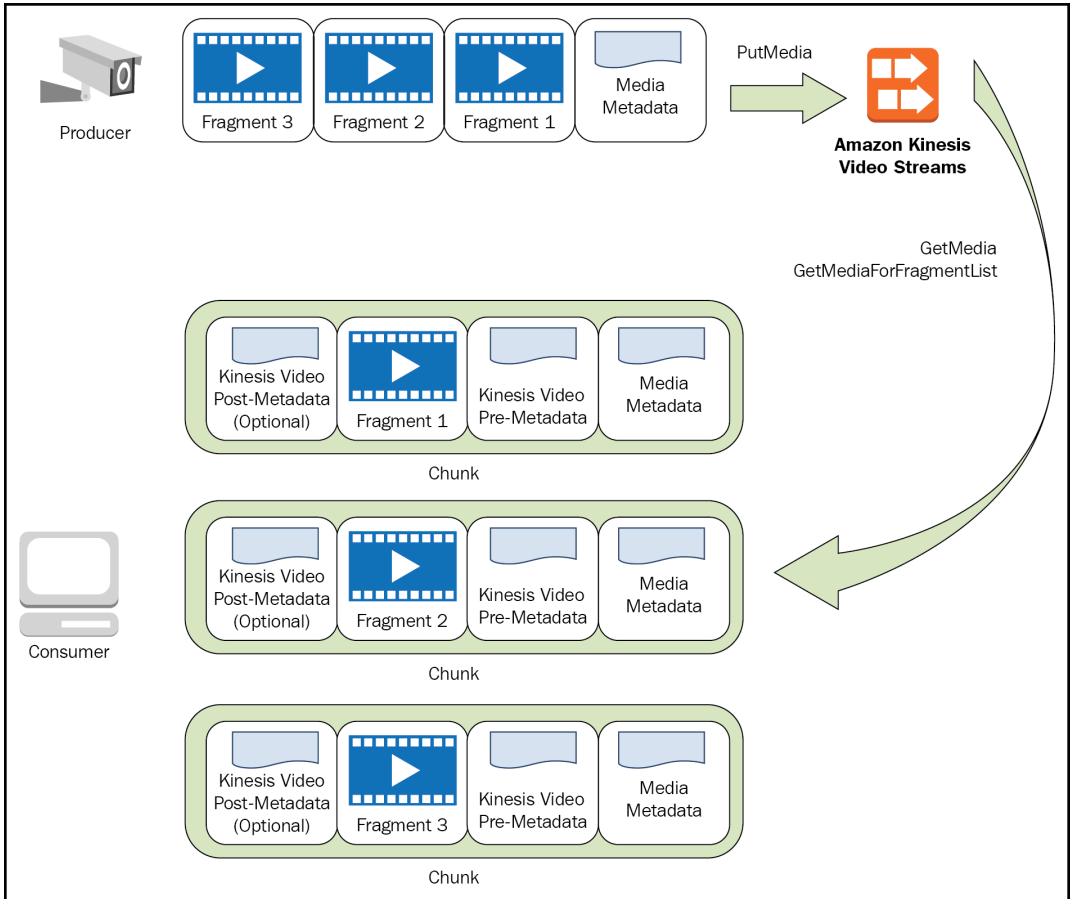
Create key

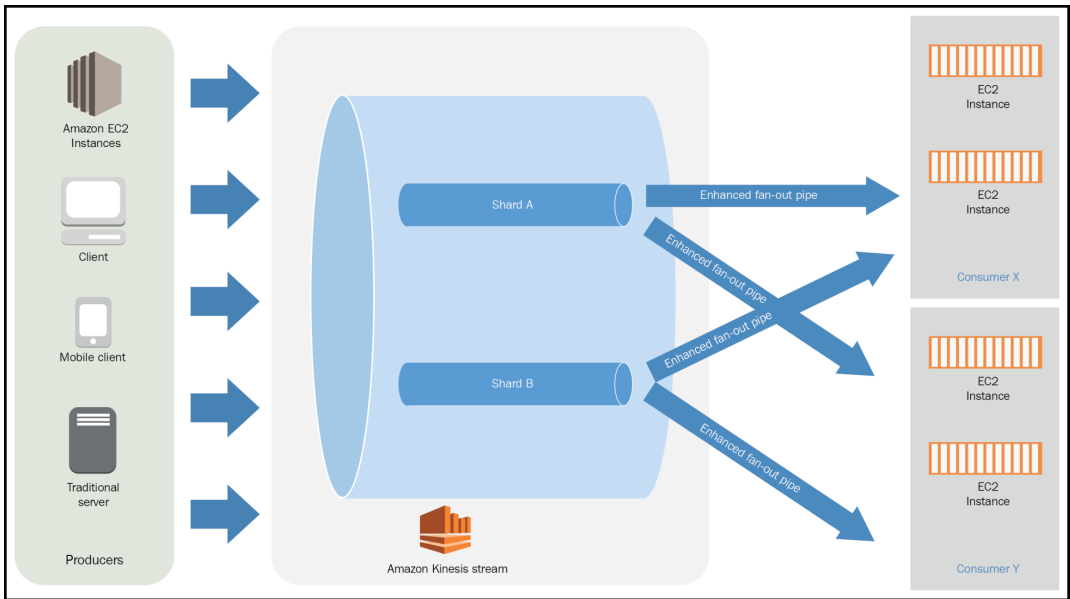
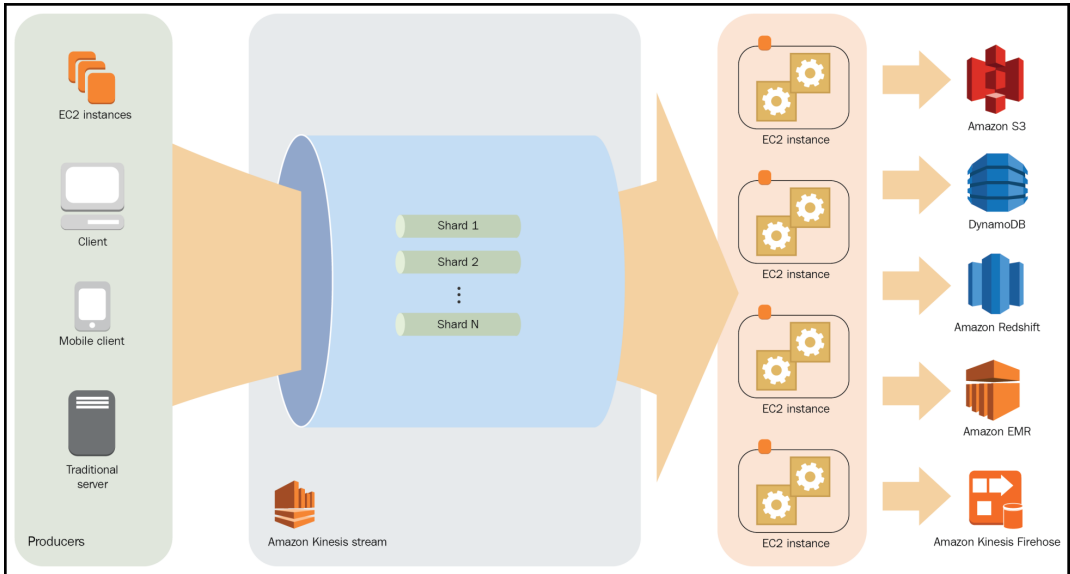
> ⚙

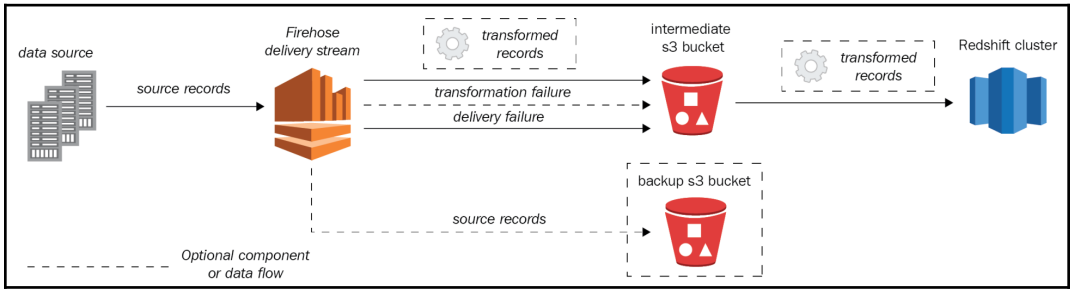
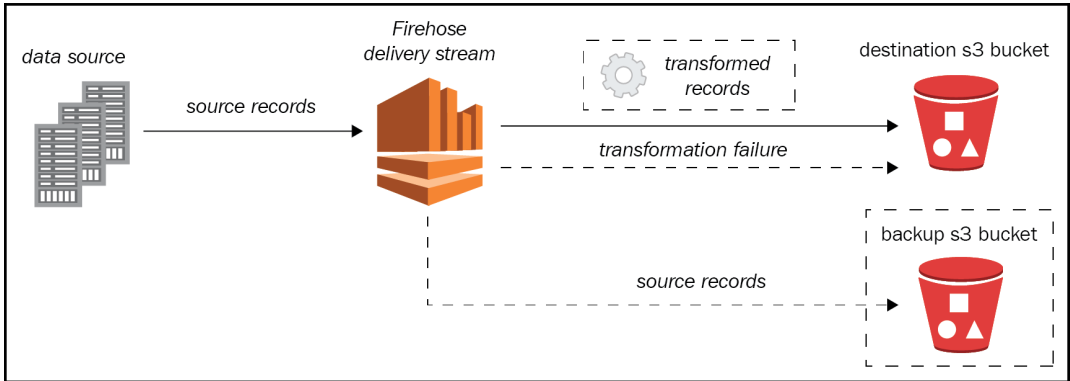
# Chapter 19: Working with AWS Kinesis

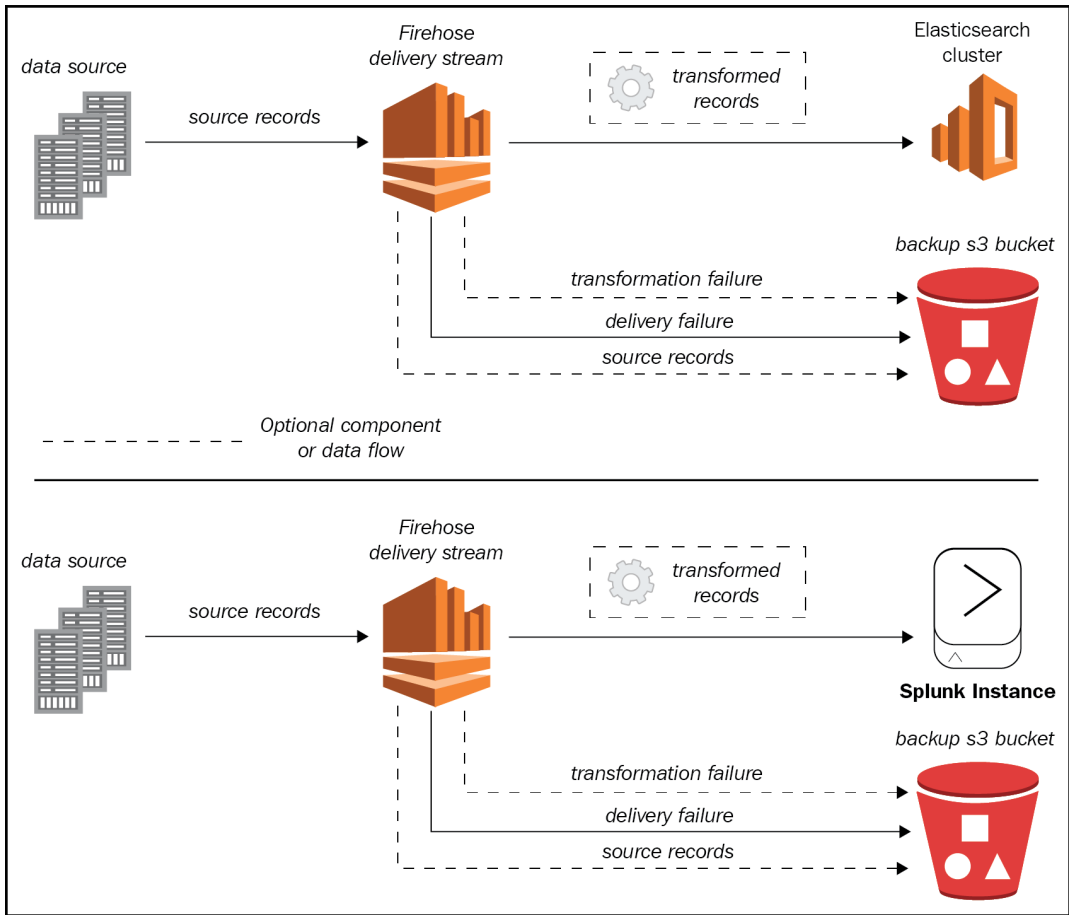


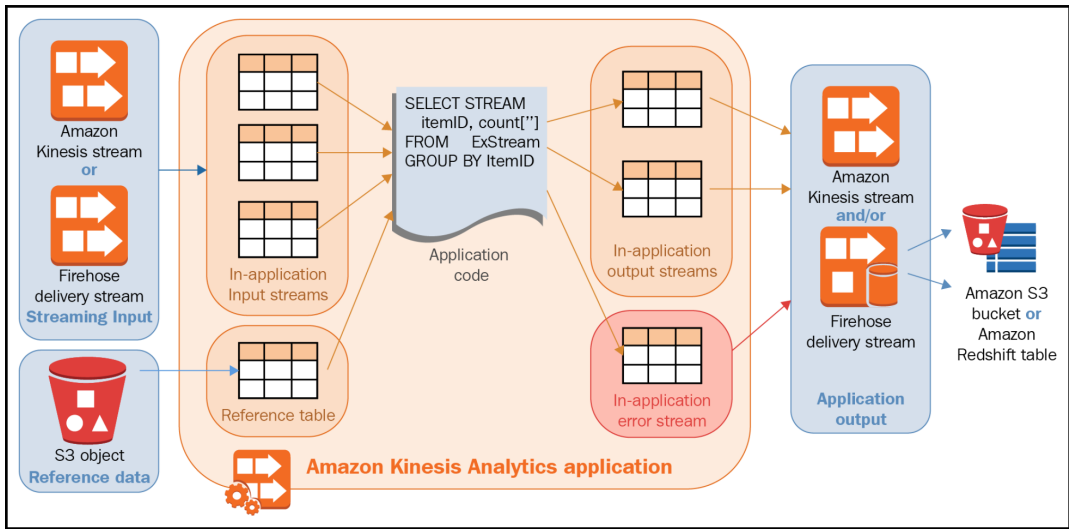




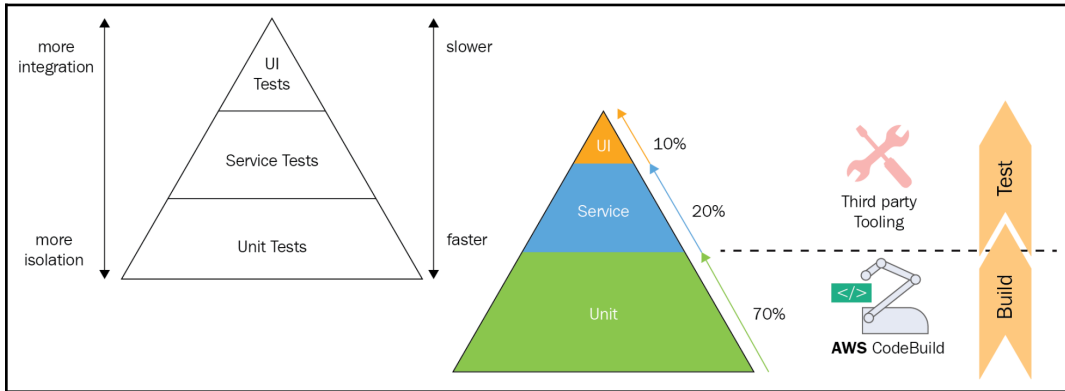


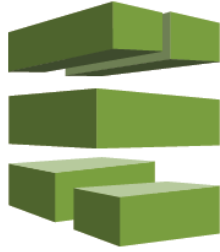




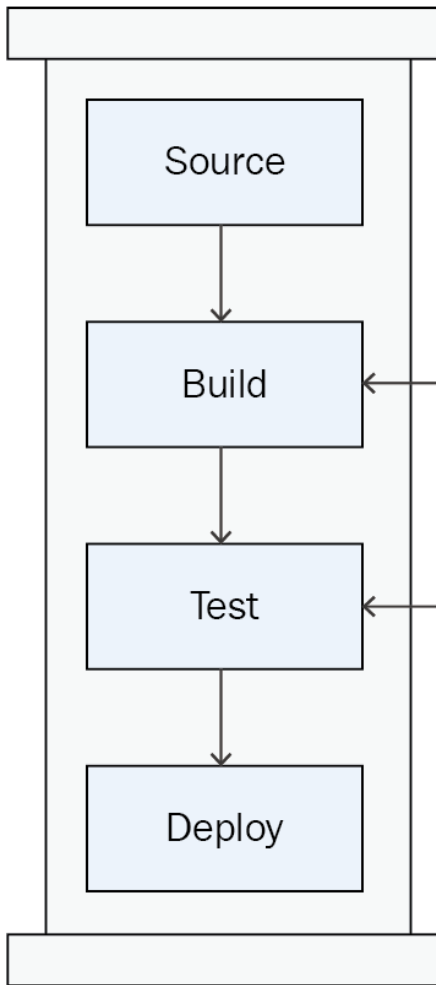


# Chapter 20: Working with AWS CodeBuild



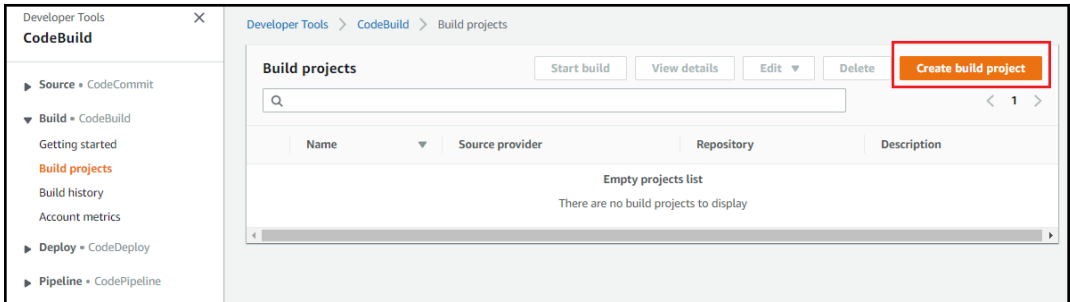
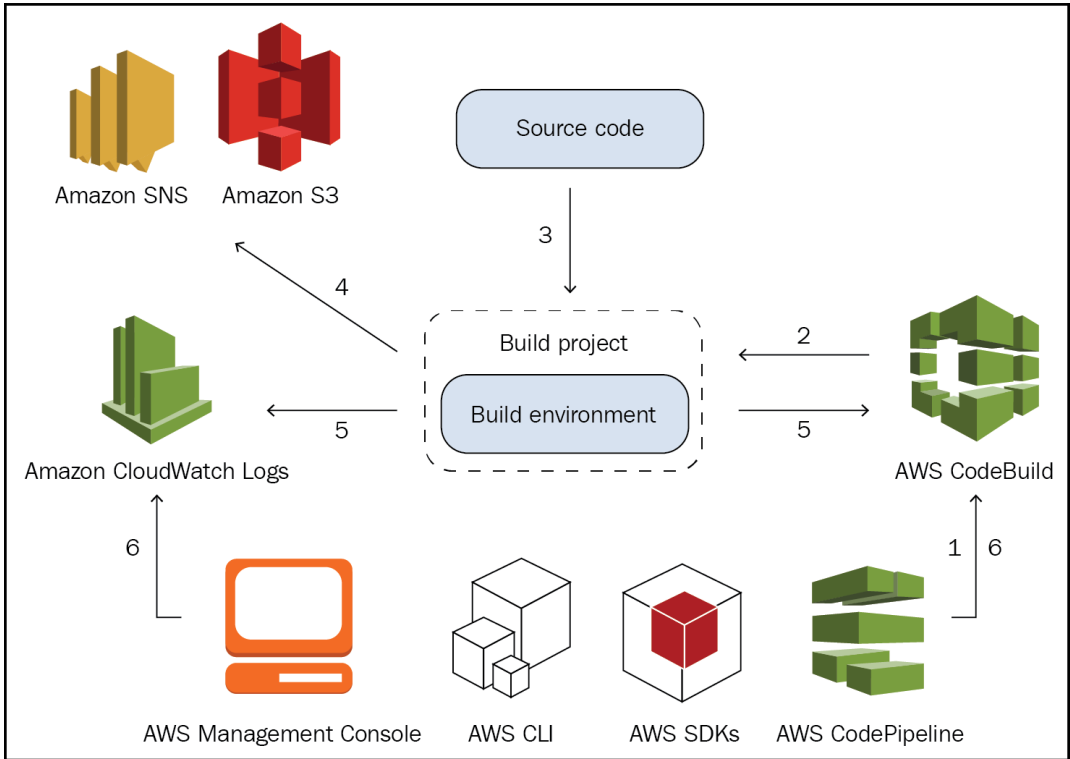


AWS CodePipeline



AWS CodeBuild







## Project configuration

Project name



A project name must be 2 to 255 characters. It can include the letters A-Z and a-z, the numbers 0-9, and the special characters - and \_.

Description - *optional*

Build badge - *optional*

Enable build badge

### ▼ Additional configuration

Tags

Key

Value

## Source

Add source

### Source 1 - Primary

Source provider

AWS CodeCommit



Repository

LearnCodeCommit



▼ **Additional configuration**

Git clone depth, Git submodules

Git clone depth - *optional*

1



Git submodules - *optional*

Enable git submodules


### Environment image

**Managed image**  
Use an image managed by AWS CodeBuild

**Custom image**  
Specify a Docker image

### Operating system

Ubuntu ▼

 The programming language runtimes are now included in the standard image of Ubuntu 18.04, which is recommended for new CodeBuild projects created in the console. See [Docker Images Provided by CodeBuild](#) for details [↗](#).

### Runtime(s)

Java ▼

### Image

aws/codebuild/java:openjdk-11 ▼

### Image version

Always use the latest image for this runtime version ▼

### Privileged

Enable this flag if you want to build Docker images or want your builds to get elevated privileges

### Service role

**New service role**  
Create a service role in your account

**Existing service role**  
Choose an existing service role from your account

### Role name

codebuild-Learn Codebuild-service-role

Type your service role name

### ▶ Additional configuration

Timeout, certificate, VPC, compute type, environment variables

### Environment image

**Managed image**  
Use an image managed by AWS CodeBuild

**Custom image**  
Specify a Docker image

### Environment type

Choose an environment type

Linux ▼

### Image registry

**Amazon ECR**  
Use an image from Amazon ECR

**Other registry**  
Use an image hosted in an external Docker registry

### ECR account

You can use an ECR image from your account or another that you have access to.

**My ECR account**

**Other ECR account**

### Amazon ECR repository

Choose an Amazon ECR repository

▼

### Amazon ECR image

Choose an Amazon ECR image

▼

### Image pull credentials

Choose which service role will be authorized to pull the selected image

**AWS CodeBuild credentials**  
Use the AWS CodeBuild default service role

**Project service role**  
Use the service role associated with this project to pull the image

### Privileged

Enable this flag if you want to build Docker images or want your builds to get elevated privileges

### Environment image

**Managed image**  
Use an image managed by AWS CodeBuild

**Custom image**  
Specify a Docker image

### Environment type

Choose an environment type

Linux ▼

### Image registry

**Amazon ECR**  
Use an image from Amazon ECR

**Other registry**  
Use an image hosted in an external Docker registry

### External registry URL

docker|

<docker repository>/<docker image name>

### Registry credential - *optional*

You can supply a secret name or ARN from AWS Secrets Manager to authenticate to an external registry. Providing a credential requires using the project's service role to pull the image.

### Privileged

Enable this flag if you want to build Docker images or want your builds to get elevated privileges

▼ **Additional configuration**

Timeout, certificate, VPC, compute type, environment variables

**Timeout**

Default timeout is 1 hour

Hours

Minutes

Timeout must be between 5 minutes and 8 hours

**Queued timeout**

Default time in build queue is 8 hours

Hours

Minutes

Timeout must be between 5 minutes and 8 hours

**Certificate**

If you have a self-signed certificate or a certificate signed by a certification authority, choose the option to install it from your S3 bucket.

Do not install any certificate

Install certificate from your S3 bucket

**VPC**

Select a VPC that your AWS CodeBuild project will access.

vpc-d56996b2 ▼

**Subnets**

Select the VPC subnets that AWS CodeBuild should use to set up your VPC configuration. For high availability, we recommend selecting multiple subnets from multiple Availability Zones. Ensure that your subnets include a NAT gateway.

▼

subnet-1c97f436 us-east-1b ✕  
Default Subnet AZ-1b

subnet-35670c50 us-east-1a ✕  
Default Subnet AZ-1a

**Security groups**

Select the VPC security groups that AWS CodeBuild should use to work with your VPC. Ensure that your security groups allow outbound connections.

▼

sg-70e41d0b ✕  
default

**Compute**

- 3 GB memory, 2 vCPUs
- 7 GB memory, 4 vCPUs
- 15 GB memory, 8 vCPUs

**Environment variables**

Name	Value	Type	
<input type="text"/>	<input type="text"/>	Plaintext ▼	Remove

Add environment variable

Create parameter

## Buildspec

### Build specifications

Use a buildspec file  
Store build commands in a YAML-formatted buildspec file

Insert build commands  
Store build commands as build project configuration

### Buildspec name - *optional*

By default, CodeBuild looks for a file named buildspec.yml in the source code root directory. If your buildspec file uses a different name or location, enter its path from the source root here (for example, buildspec-two.yml or configuration/buildspec.yml).

### Build specifications

Use a buildspec file  
Store build commands in a YAML-formatted buildspec file

Insert build commands  
Store build commands as build project configuration

### Build commands

```
9     # key: "value"
10
11  phases:
12  #install:
13  #runtime-versions:
14    # name: version
15    # name: version
16  #commands:
17    # - command
18    # - command
19  #pre_build:
20  #commands:
21    # - command
22    # - command
23  build:
24  #commands:
25  |
26    # - command
27  #post_build:
28  #commands:
29    # - command
30    # - command
```

Switch to single line

## Artifacts

Add artifact

### Artifact 1 - Primary

#### Type

Amazon S3

You might choose no artifacts if you are running tests or pushing a Docker image to Amazon ECR.

#### Bucket name

codebuildtestartifacts

#### Name - *optional*

The name of the folder or compressed file in the bucket that will contain your output artifacts. Use Artifacts packaging under Additional configuration to choose whether to use a folder or compressed file.

**Enable semantic versioning**

Use the artifact name specified in the buildspec file

#### Path - *optional*

The path to the build output ZIP file or folder.

Example: MyPath/MyArtifact.zip.

#### Namespace type - *optional*

None

Choose Build ID to insert the build ID into the path to the build output ZIP file or folder, e.g. MyPath/MyBuildID/MyArtifact.zip. Otherwise, choose None.

#### Artifacts packaging

**None**

The artifact files will be uploaded to the bucket.

**Zip**

AWS CodeBuild will upload artifacts into a compressed file that is put into the specified bucket.

**Remove artifact encryption**

Remove encryption if using the artifact to publish a static website or sharing content with others

► **Additional configuration**

Cache, encryption key



## Logs

### CloudWatch

- CloudWatch logs - *optional***  
Checking this option will upload build output logs to CloudWatch.

Group name

Stream name

### S3

- S3 logs - *optional***  
Checking this option will upload build output logs to S3.

Bucket

Path prefix

- Remove S3 log encryption**

# Chapter 21: Getting Started with AWS CodeDeploy

## Application configuration

Application name  
Enter an application name

100 character limit

Compute platform  
Choose a compute platform

EC2/On-premises  
AWS Lambda  
Amazon ECS

[Create application](#)

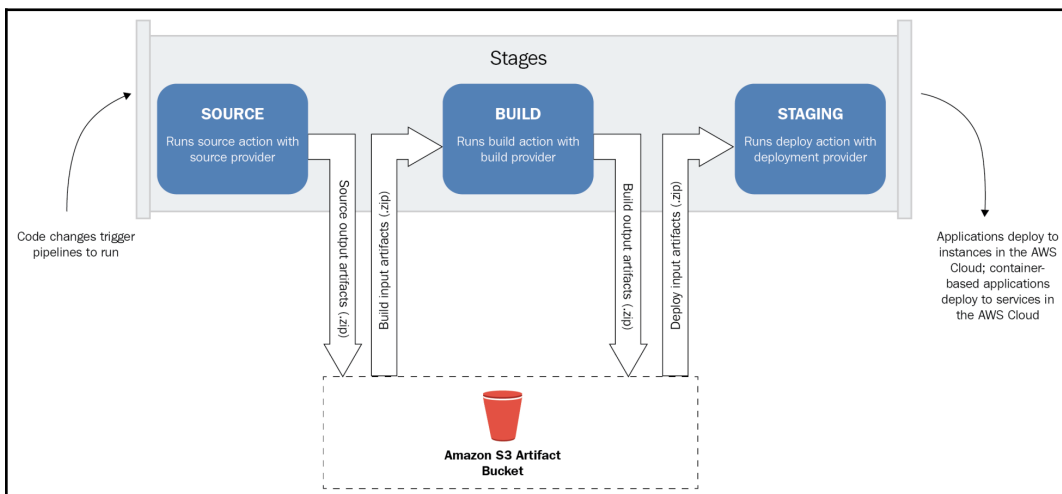
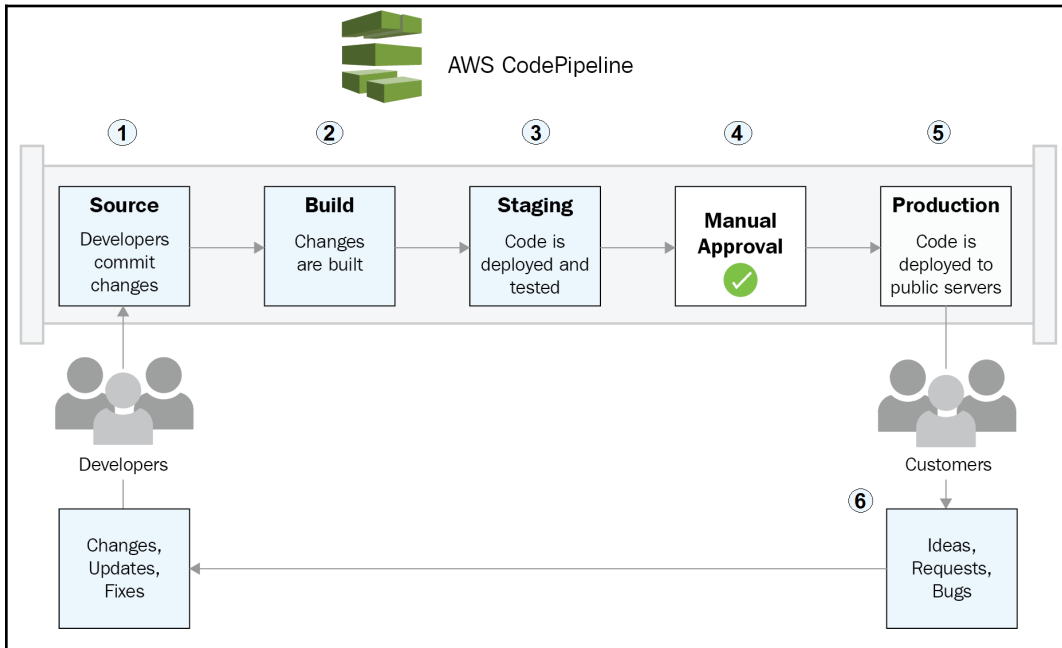
### Applications

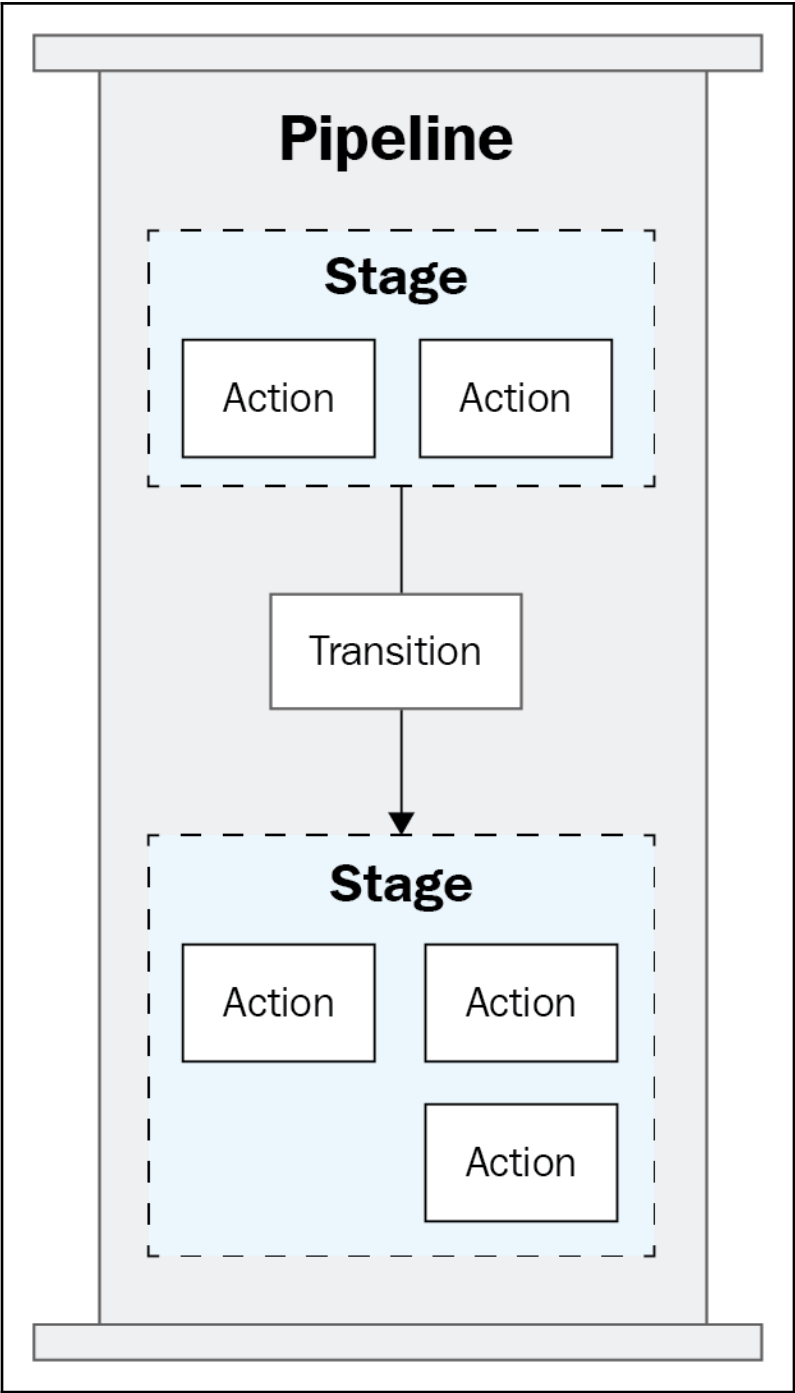
[View details](#) [Deploy application](#) [Create application](#)

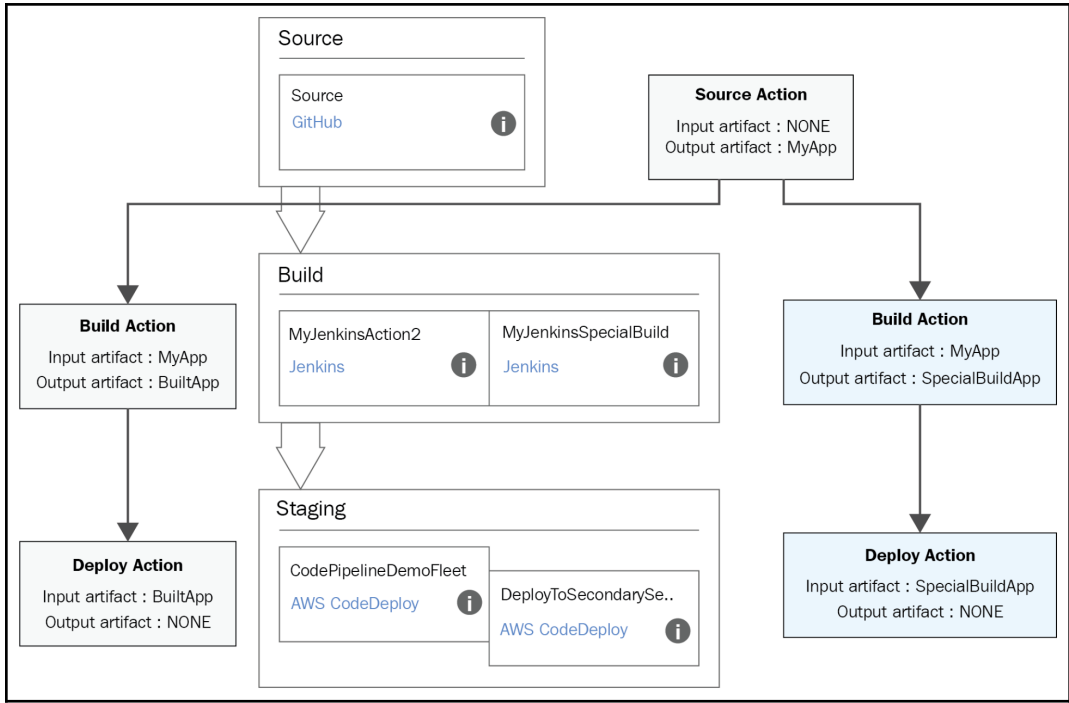
< 1 >

Application name	Compute platform	Created
<a href="#">LearnCodeDeploy</a>	AWS Lambda	Just now

# Chapter 22: Working with AWS CodePipeline







# AnyCompanyPipeline

Edit

View history

Release change

## ✔ Source

View current revisions

Source



CodeCommit

✔ Succeeded - Just now

dbb74de

Source: Added codepipeline-codecommit-events.yml dbb74de

Disable transition

## Deploy

View current revisions

Deploy



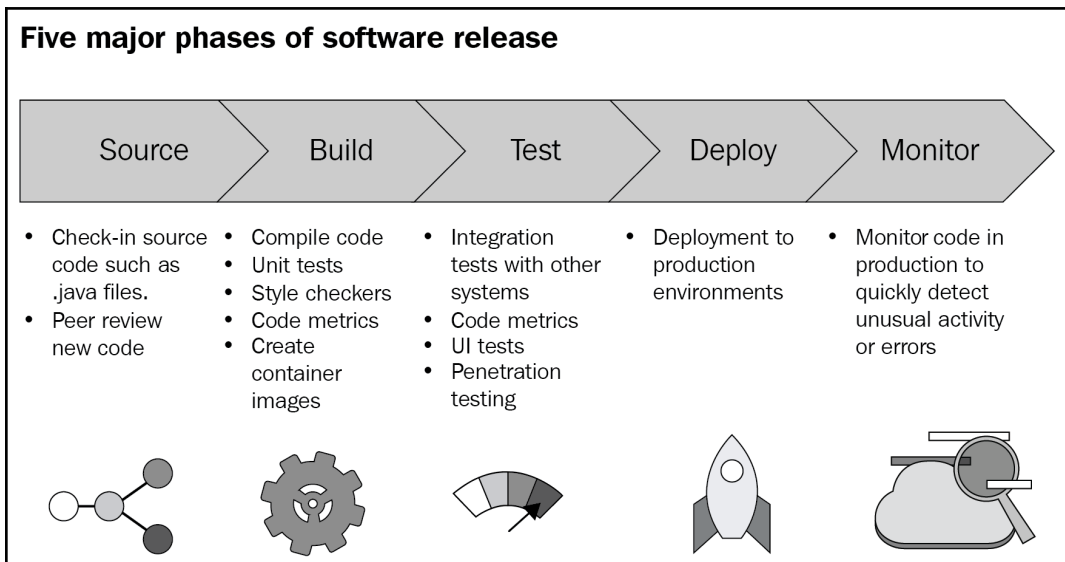
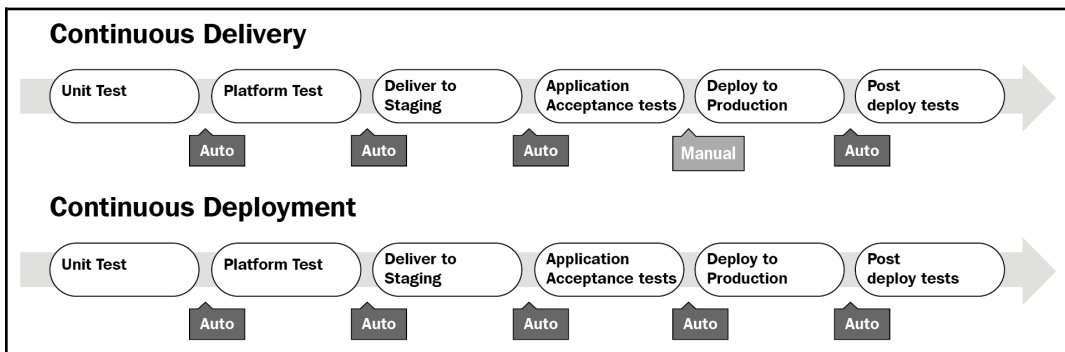
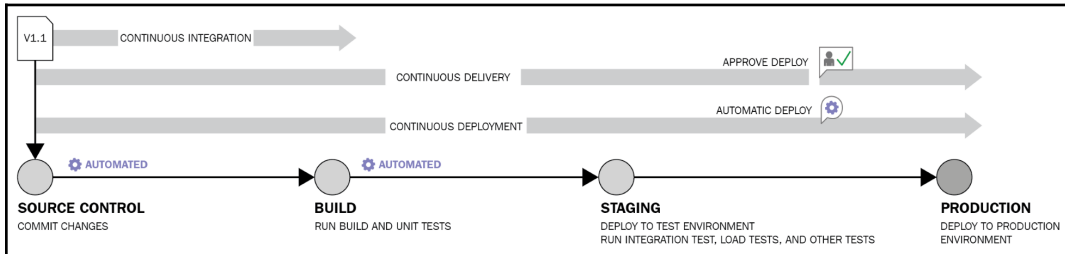
CodeDeploy

⌵ In progress - Just now

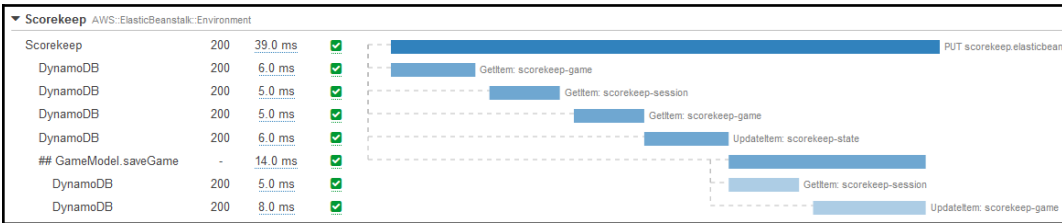
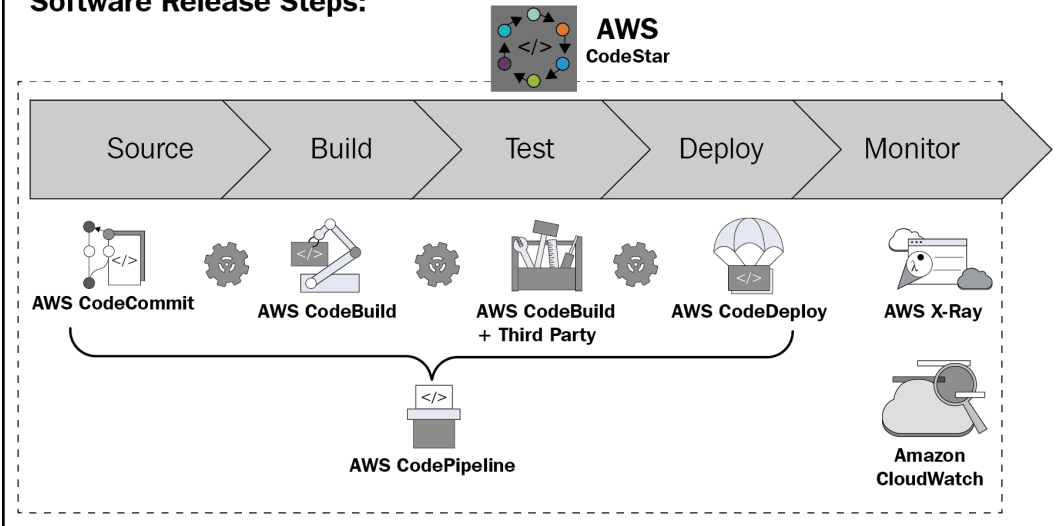
Details

Source: Added codepipeline-codecommit-events.yml dbb74de

# Chapter 23: CI/CD on AWS

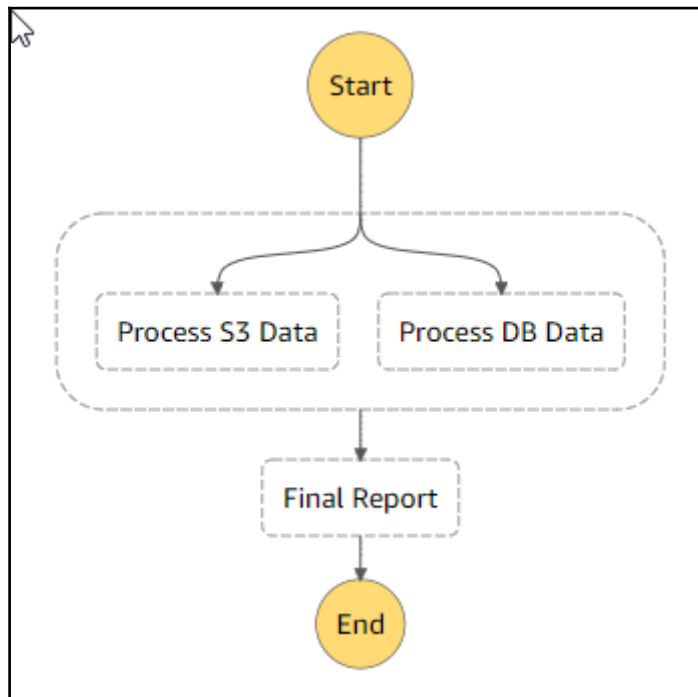


## AWS Code Services Software Release Steps:





# Chapter 24: Serverless Computing



Step Functions > State machines > Create state machine

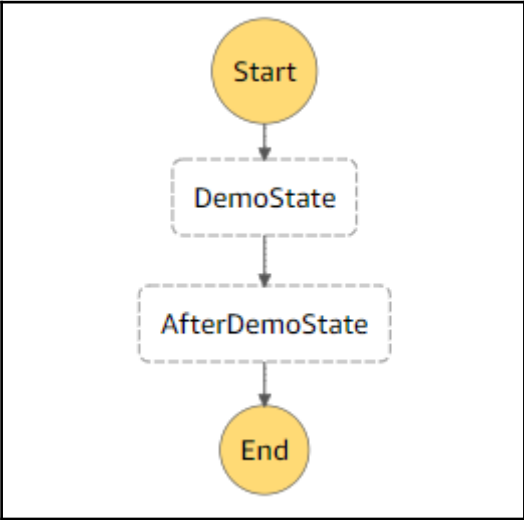
Step 1  
**Define state machine**

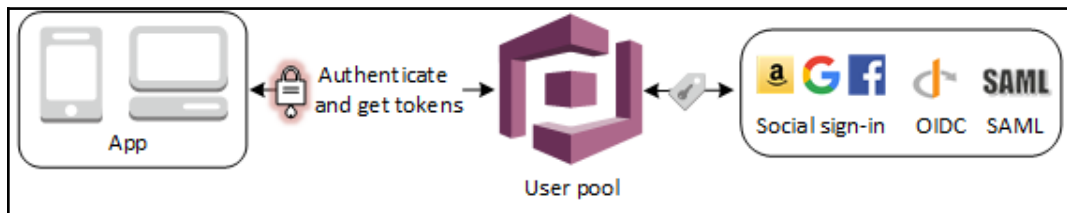
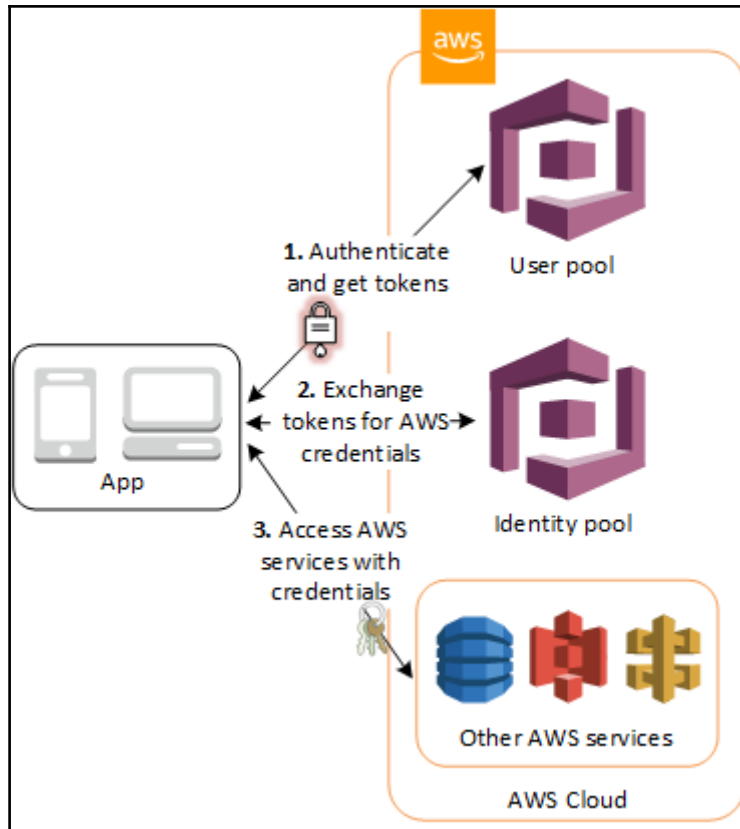
Step 2  
Configure settings

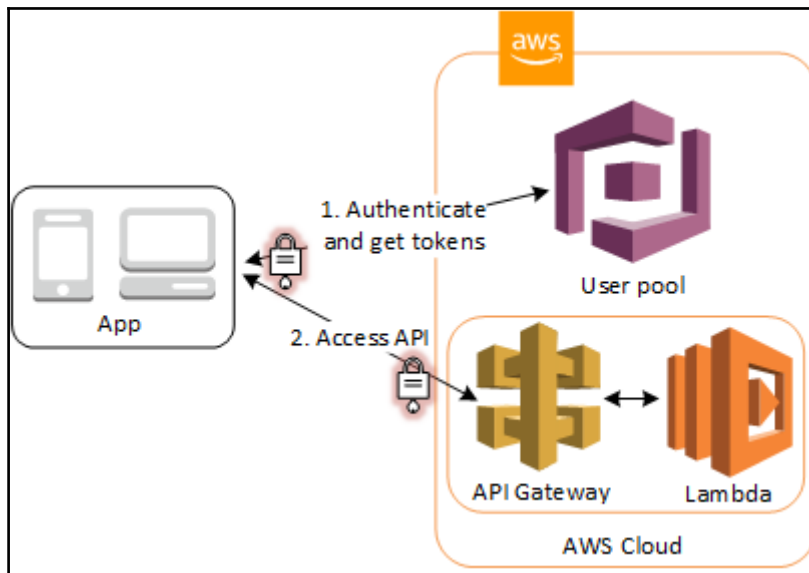
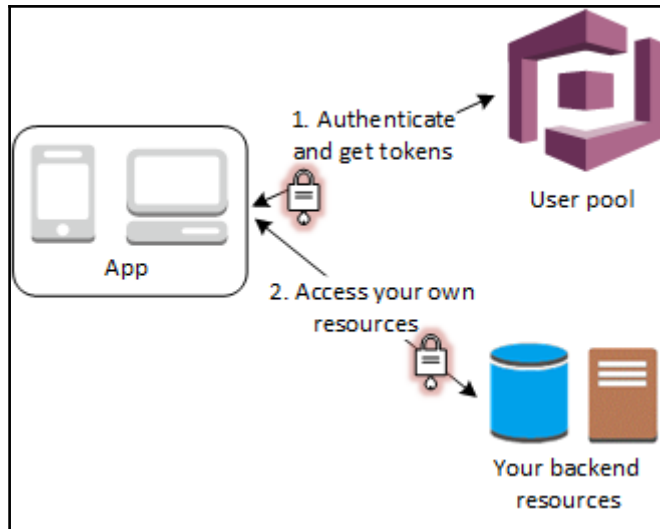
**Author with code snippets**   
Author a new state machine using Amazon States Language (ASL). Use code snippets to easily build out your workflow.

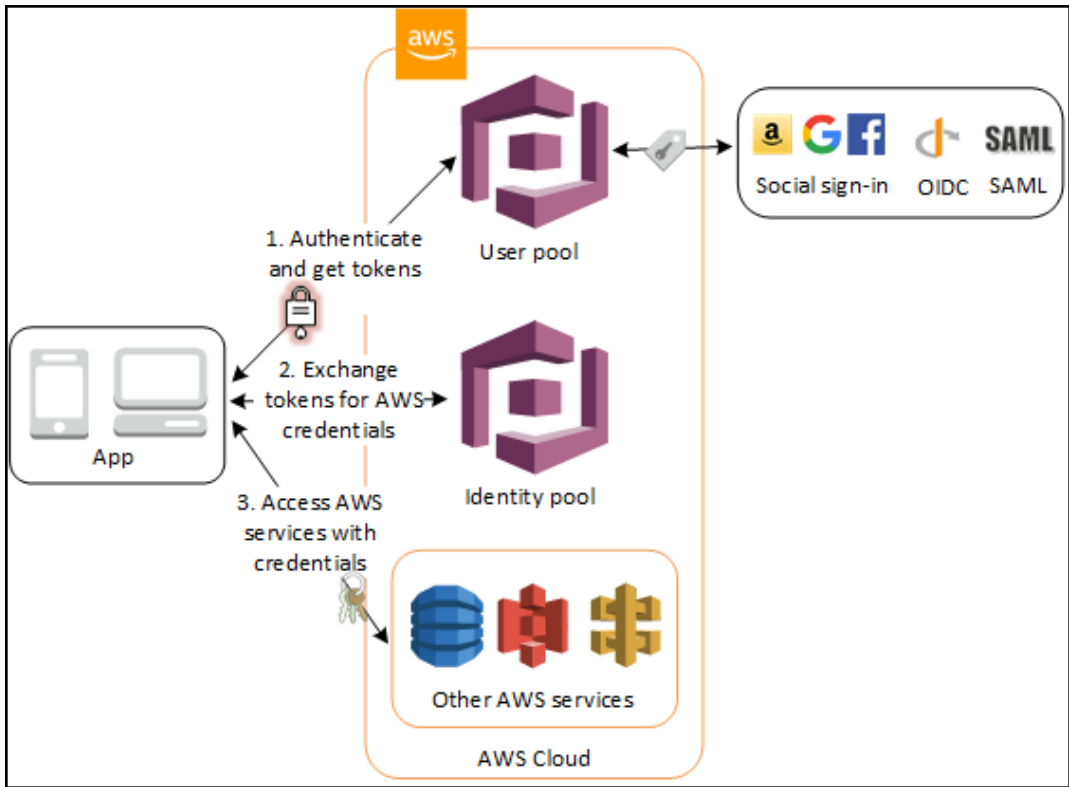
**Sample Projects (2-10 minutes)**   
Get started quickly by using a sample project. If you're curious how Step Functions works, do this!

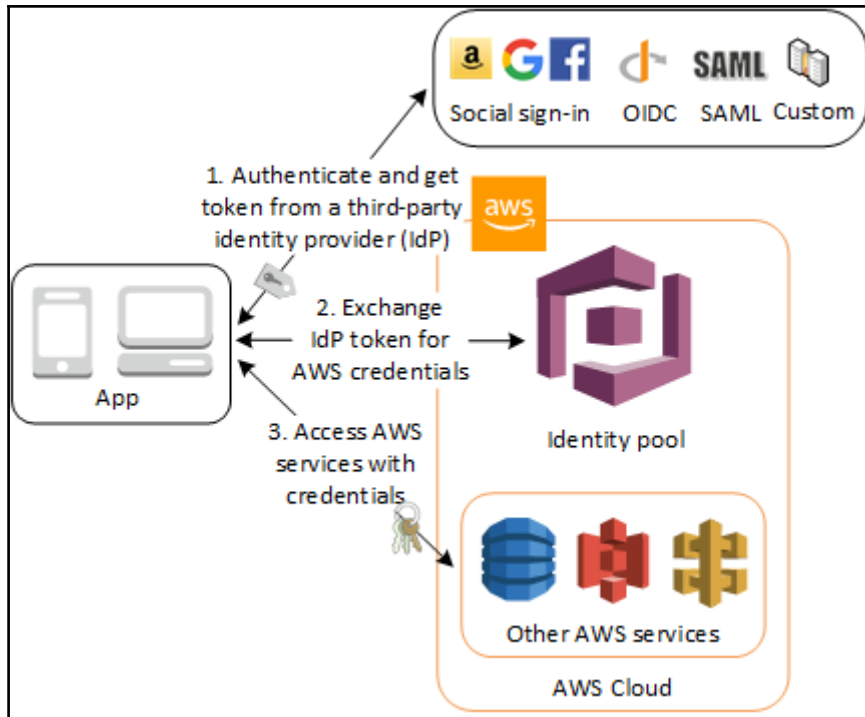
**Templates**   
Get started quickly with a common Step Functions template.

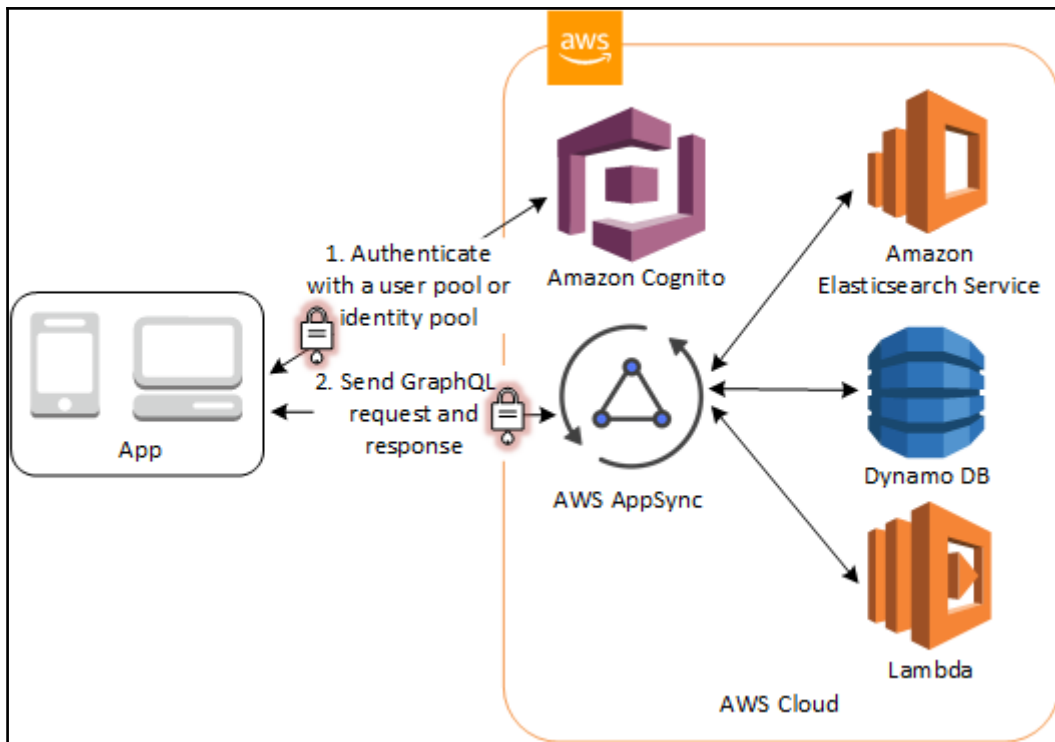




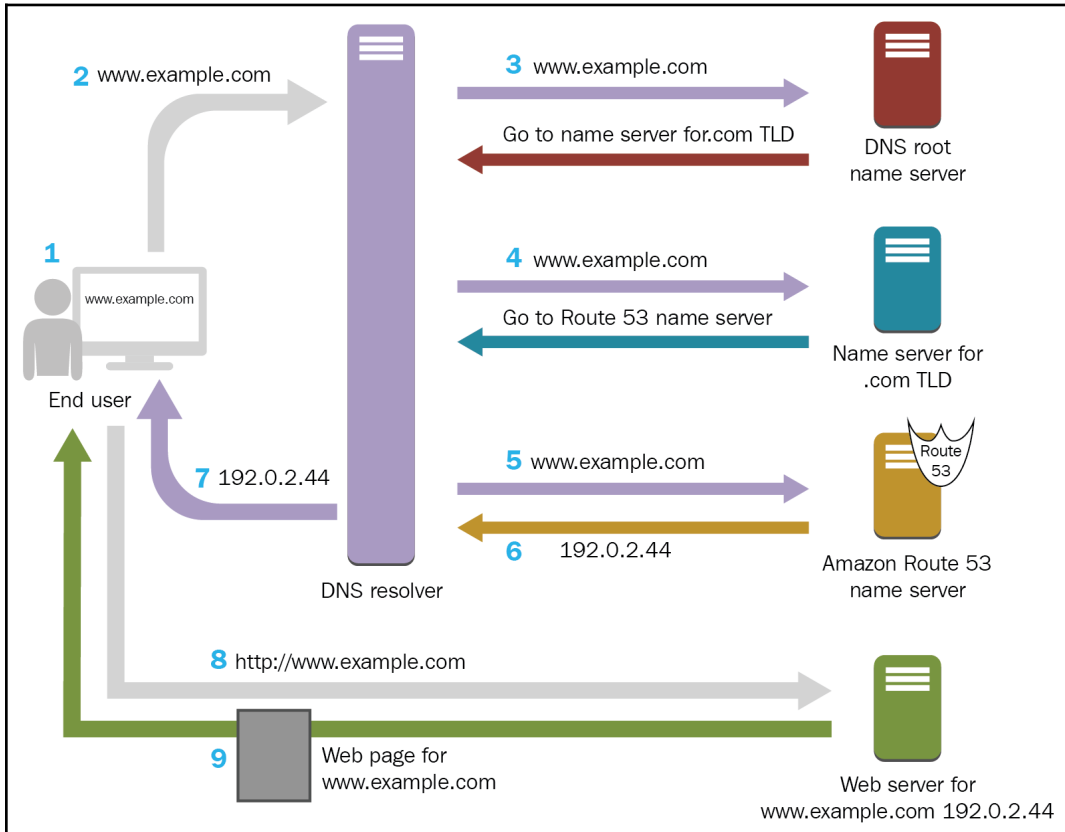




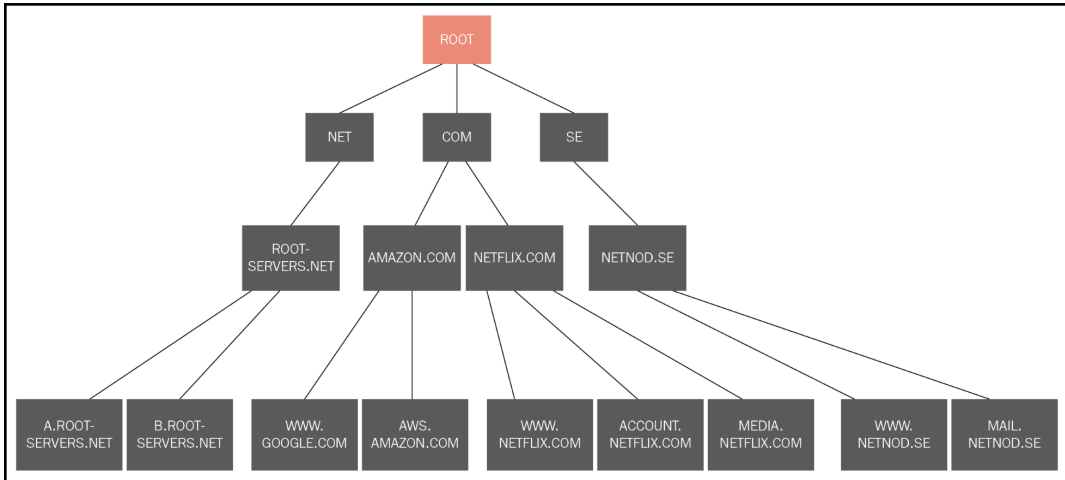




# Chapter 25: Amazon Route 53





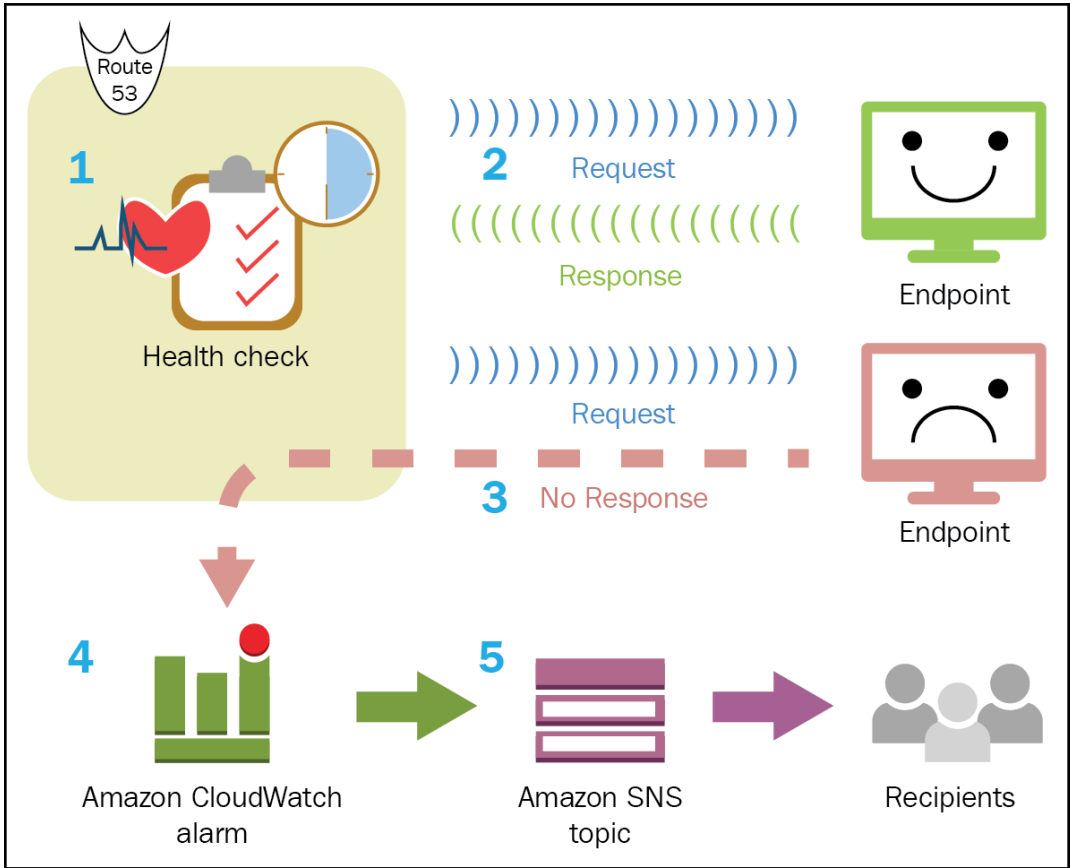


[Back to Hosted Zones](#)
[Create Record Set](#)
[Import Zone File](#)
[Delete Record Set](#)
[Test Record Set](#)

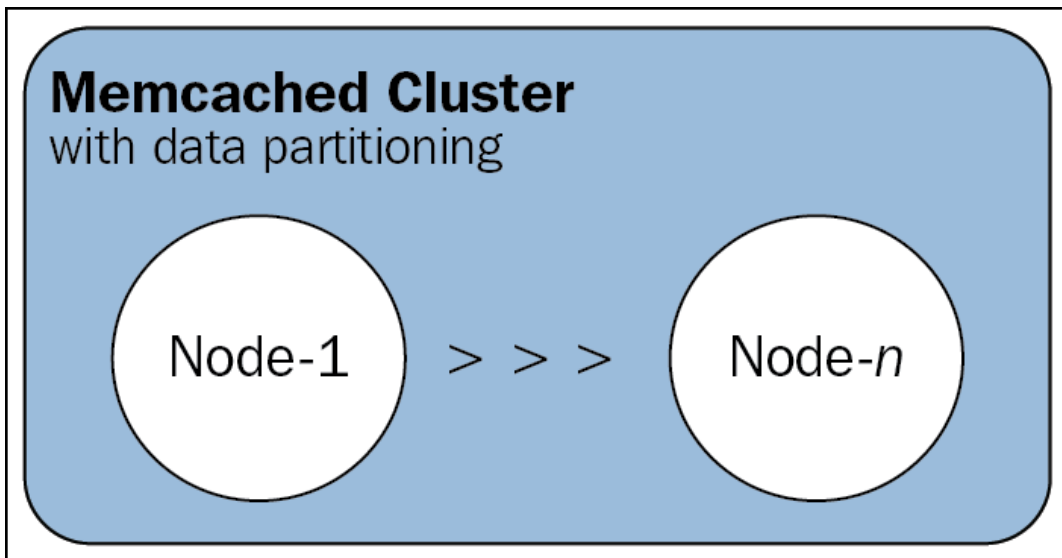
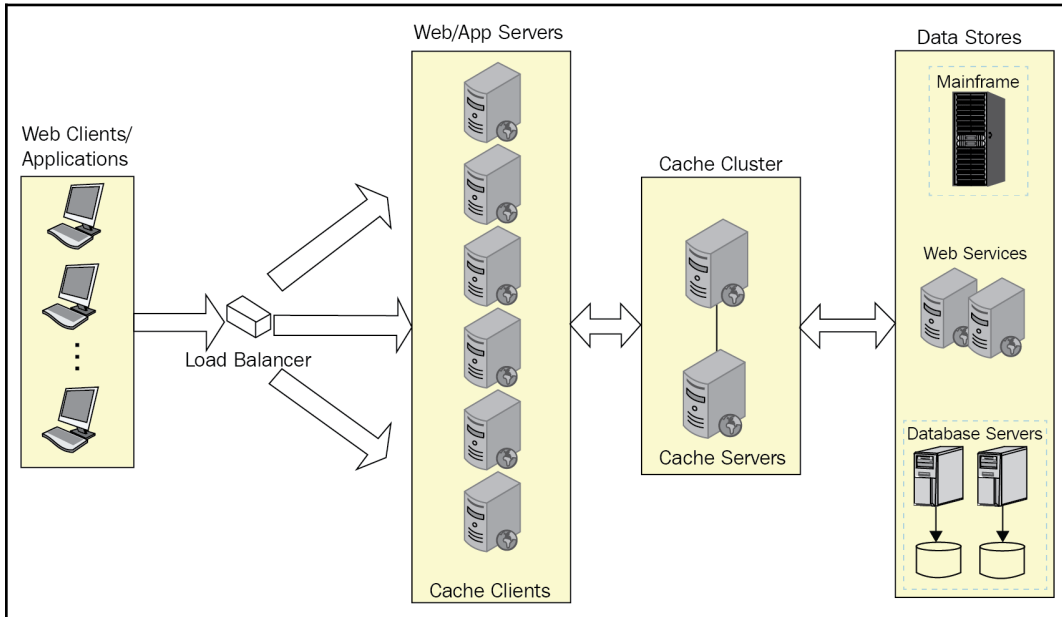
Aliases Only
  Weighted Only

<< < Displaying 1 to 2 out of 2 Record Sets > >>

<input type="checkbox"/>	Name	Type	Value	Evaluate Target Health	Health Check ID	TTL	Region
<input type="checkbox"/>	box.com.	NS	ns-652.awsdns-17.net. ns-1441.awsdns-52.org. ns-243.awsdns-30.com. ns-1781.awsdns-30.co.uk.	-	-	172800	
<input type="checkbox"/>	box.com.	SOA	ns-652.awsdns-17.net. awsdns-hostmaster.amazon.	-	-	900	



# Chapter 26: ElastiCache Overview



**Redis (cluster mode disabled)**

Supported by Redis 2.8.x and 3.2.x

Replication

Single Shard

Modifiable

No data partitioning

**Redis (cluster mode enabled)**

Supported by Redis 3.2.x

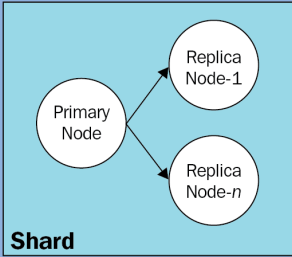
Replication within each shard

Multiple shards

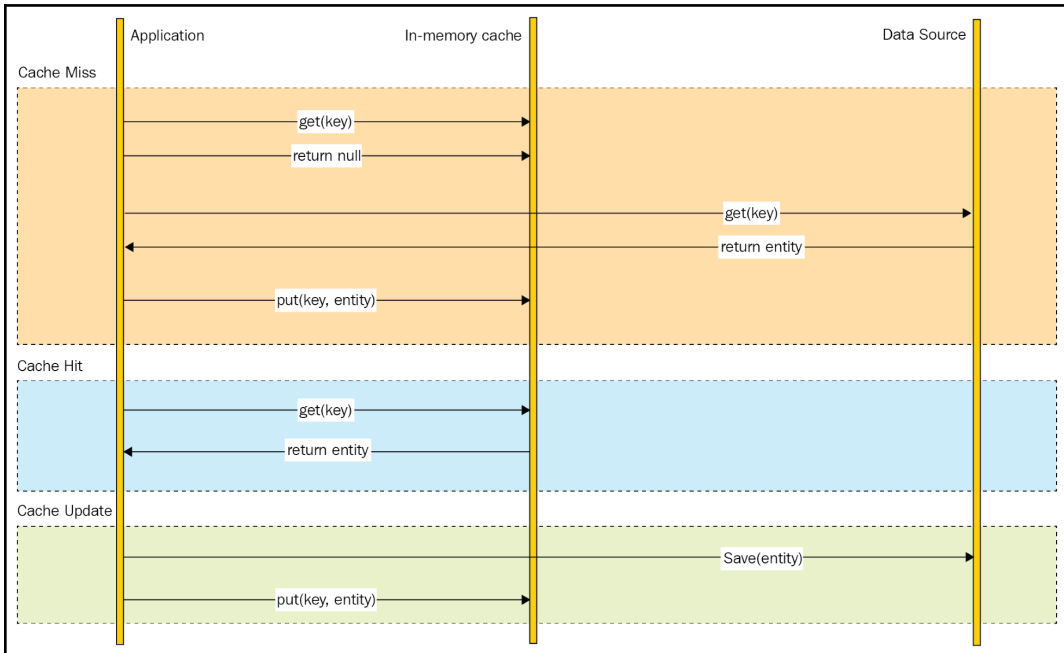
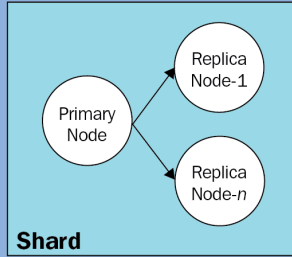
Static/not modifiable

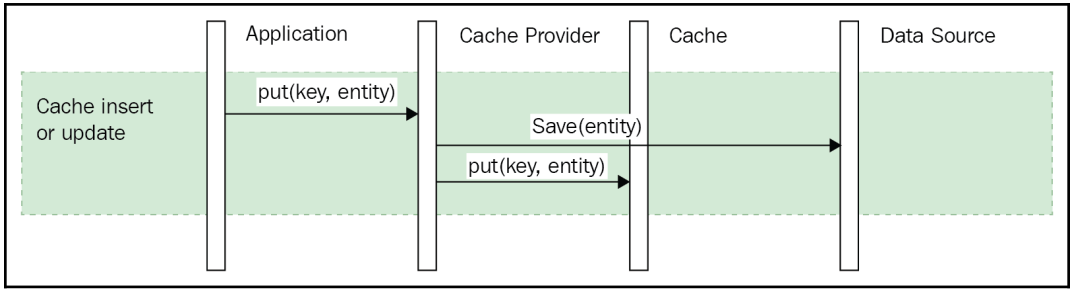
Data partitioning supported

**Redis Cluster  
Cluster mode disabled**

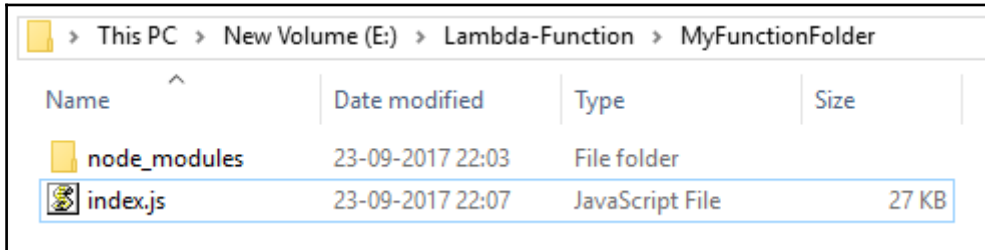


**Redis Cluster  
Cluster mode enabled**





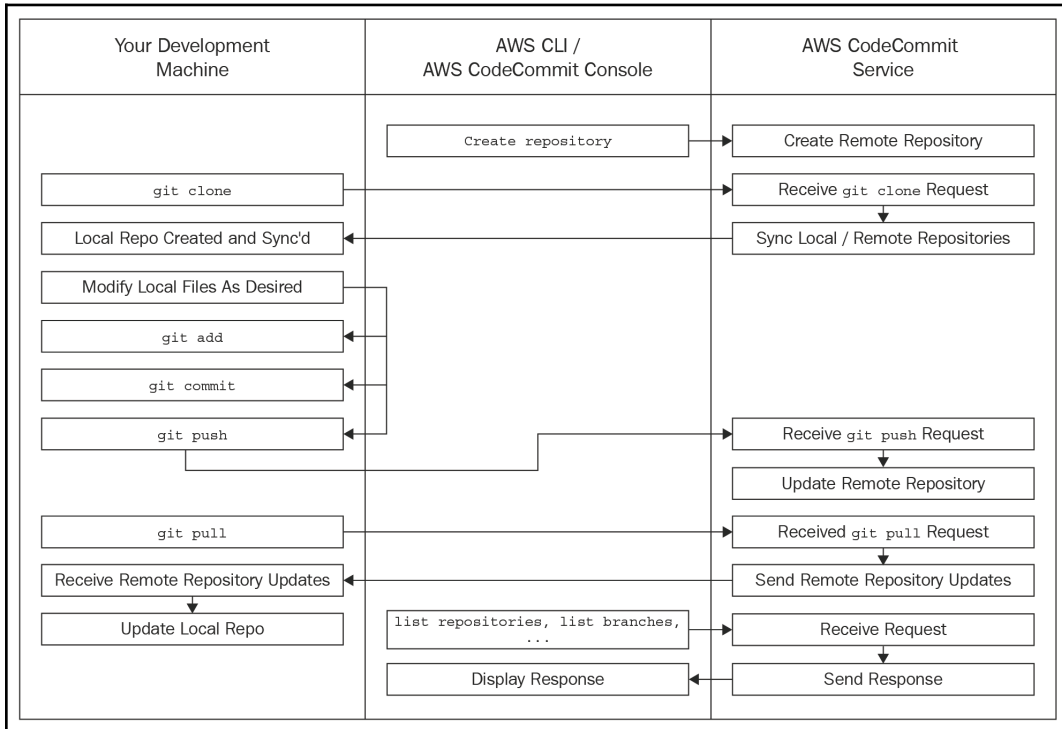
# Chapter 27: Mock Tests



The screenshot shows a Windows File Explorer window with the address bar displaying the path: This PC > New Volume (E:) > Lambda-Function > MyFunctionFolder. The main area contains a table of files and folders.

Name	Date modified	Type	Size
node_modules	23-09-2017 22:03	File folder	
index.js	23-09-2017 22:07	JavaScript File	27 KB

# Chapter 28: Exploring AWS CodeCommit



# Summary

Delete user



User ARN    arn:aws:iam::[redacted]:user/bhavin

Path    /

Creation time    2019-02-20 11:38 UTC+0530

- Permissions
- Groups
- Tags
- Security credentials**
- Access Advisor

## Sign-in credentials

**Summary**    • User does not have console management access

**Console password**    Disabled | [Manage](#)

**Assigned MFA device**    Not assigned | [Manage](#)

**Signing certificates**    None

## Access keys

Use access keys to make secure REST or HTTP Query protocol requests to AWS service APIs. For your protection, you should never share your secret keys with anyone. As a best practice, we recommend frequent key rotation. [Learn more](#)

Create access key

Access key ID	Created	Last used	Status
No results			

## SSH keys for AWS CodeCommit

Use SSH public keys to authenticate access to AWS CodeCommit repositories. [Learn more](#)

Upload SSH public key

SSH key ID	Uploaded	Status
No results		

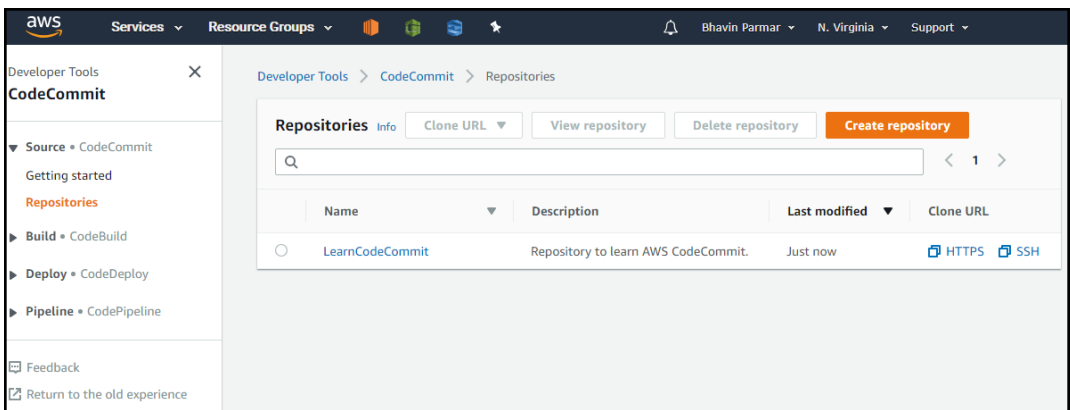
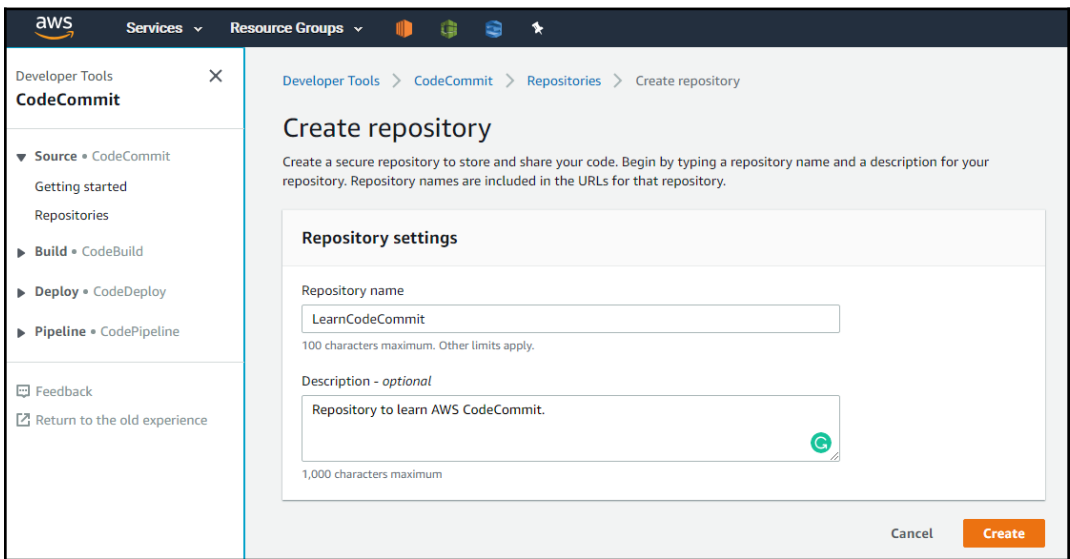
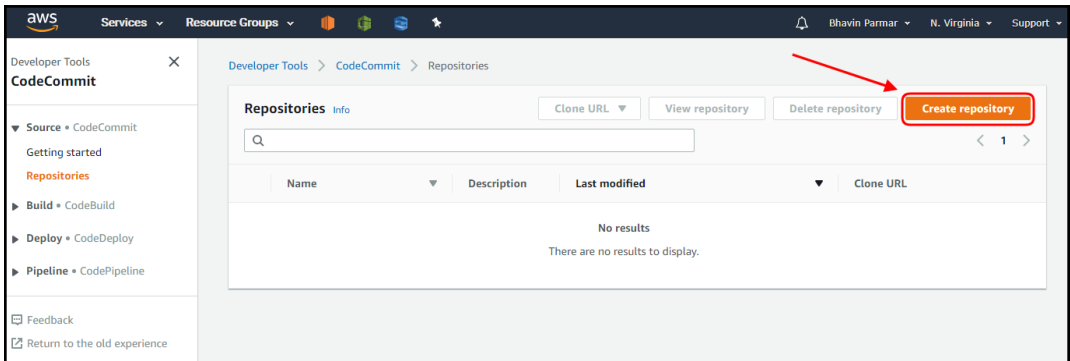
## HTTPS Git credentials for AWS CodeCommit

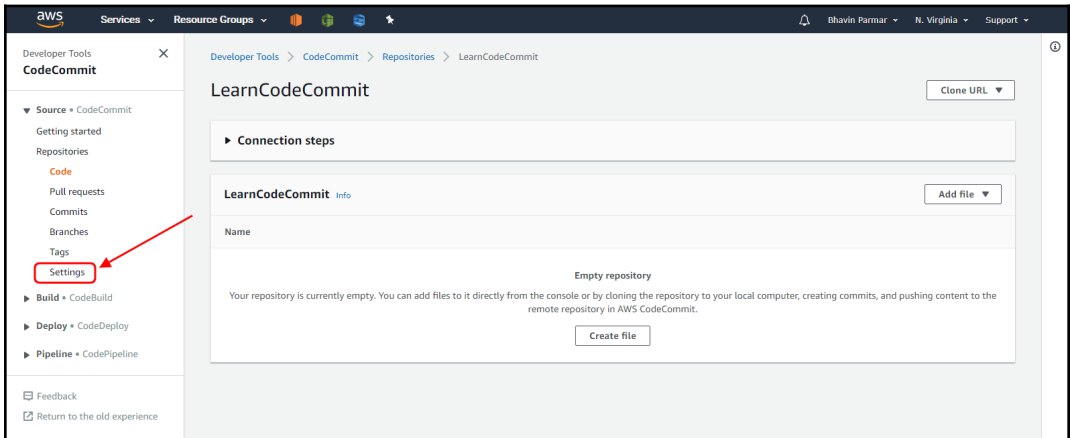
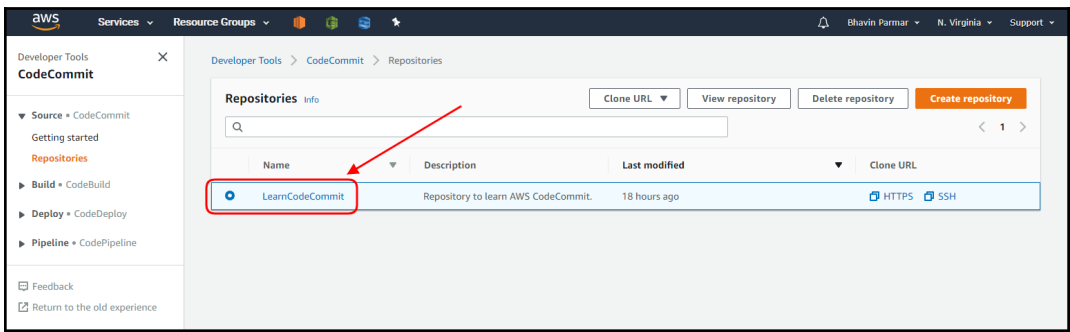
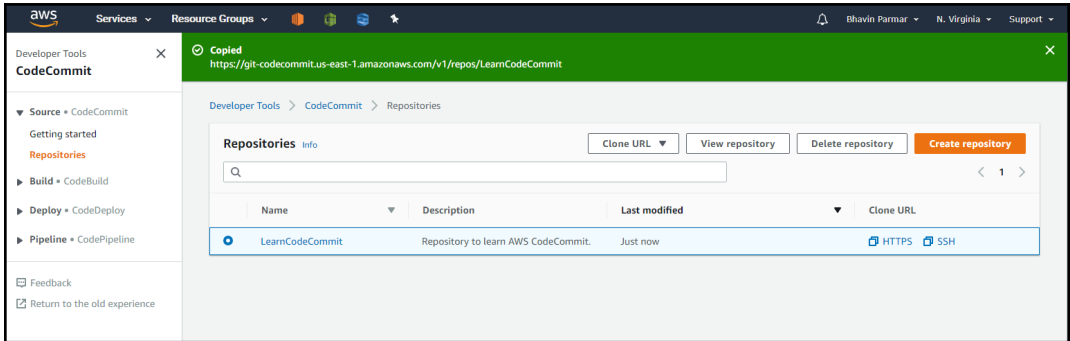
Generate a user name and password you can use to authenticate HTTPS connections to AWS CodeCommit repositories. You can generate and store up to 2 sets of credentials. [Learn more](#)

Generate









aws Services Resource Groups Bhavin Parmar N. Virginia Support

Developer Tools CodeCommit

Developer Tools > CodeCommit > Repositories > LearnCodeCommit > Settings

## LearnCodeCommit

Settings Notifications Triggers

**Repository name**

Repository name  
LearnCodeCommit  
100 characters maximum

Repository ID  
-f66d33e977b9

Repository ARN  
arn:aws:codecommit:us-east-1::LearnCodeCommit

Developer Tools > CodeCommit > Repositories > LearnCodeCommit > Settings

## LearnCodeCommit

Settings Notifications Triggers

**Notifications** Info

Set up notifications so that repository users will receive emails about repository events. Specify the users that will receive emails in Subscriptions after you set up notifications.

SNS topic	CloudWatch event rule	Event status
<b>Pull request update events</b> Notify subscribers when a pull request is created, updated, or closed.	<b>Pull request comment events</b> Notify subscribers when someone comments on a pull request.	<b>Commit comment events</b> Notify subscribers when comments and replies are added to commits.

Edit

## Configure notifications

### Notifications

#### SNS topic

Choose an SNS topic to use to send email notifications.

arn:aws:sns:us-east-1:[:redacted]:CodeCommitEvent  or

#### CloudWatch event rule

An Amazon CloudWatch Event rule will be created for your repository in your AWS account. Do not manually edit or modify this rule, or notifications might not work as expected.

codecommit-notification-1925e44220f6b6919b63681994b87cccf278c7e1

#### Event types

- Pull request update events  
Notify subscribers when a pull request is created, updated, or closed.
- Pull request comment events  
Notify subscribers when someone comments on a pull request.
- Commit comment events  
Notify subscribers when comments and replies are added to commits.

#### Event status

Enable notifications

Cancel

Save

### Notifications [Info](#)

Edit

Set up notifications so that repository users will receive emails about repository events. Specify the users that will receive emails in Subscriptions after you set up notifications.

#### SNS topic

arn:aws:sns:us-east-1:[:redacted]:CodeCommitEvent

#### CloudWatch event rule

codecommit-notification-1925e44220f6b6919b63681994b87cccf278c7e1

#### Event status

Enabled

#### Pull request update events

Notify subscribers when a pull request is created, updated, or closed.

Enabled

#### Pull request comment events

Notify subscribers when someone comments on a pull request.

Enabled

#### Commit comment events

Notify subscribers when comments and replies are added to commits.

Enabled

### Subscribers

Choose the users or services you want to receive notifications of repository events.

Delete

Add

< 1 >

Protocol	Address or endpoint	Subscription status
<input type="radio"/> email	[:redacted]	<input type="radio"/> Unconfirmed

