Messages Queues
- Message queues allow different parts of a system to communicate and process operations asynchronously. A message queue provides a lightweight buffer which temporarily stores messages, and endpoints that allow software components to connect to the queue in order to send and receive messages.
- The messages are usually small, and can be things like request, replies, error messages, or just plain information. To send a message, a component called a producer adds a message to the queue.
- The message is stored on the queue until another component called a consumer retrieves the message and does something with it.
- Amazon SQS is a reliable, highly-scalable hosted queue for storing messages as they travel between applications or microservices. Amazon SQS moves data between distributed application components and helps you decouple these applications.

SQS
- Amazon SQS is a fully managed **message queuing service** that makes it easy to decouple and scale microservices, distributed systems, and serverless applications. Building applications from individual components that each perform a discrete function improves scalability and reliability, and is best practice design for modern applications.
- SQS makes it simple and cost-effective to decouple and co-ordinate the components of a cloud application.
- Using SQS, you can send, store and receive messages between software components at any volume, without losing messages or requiring other services to be always available.
- It is a Pull-Based based (for certification exam)
- There are thing involved such as encryption, security, scalability, ease of integration and operational efficiency as well with SQS service.

There are 2 types of Queues
1) SQS Standard - It offers maximum throughput, best-effort ordering, and at-least-once delivery.

2) SQS FIFO - It is designed to guarantee that messages are processed exactly once, in the exact order that they are sent, with limited throughput.

- You can get started with SQS in a matter of minutes using the AWS console or SDK of your choice and just three simple commands.
- SQS lets you eliminate the complexity and overhead associated with managing and operating dedicated messaging software and infrastructure.

LAB :

Login to console

Click on SQS then click on get started

You will see the below Screen

Create New Queue

What do you want to name your queue?

Queue Name ℹ

orders ✓

Region ℹ Asia Pacific (Mumbai)

For more information, see the Amazon SQS FAQs and the *Amazon SQS Developer Guide.*

You can change these default parameters.

Queue Attributes

Default Visibility Timeout ℹ	30	seconds ▾	Value must be between 0 seconds and 12 hours.
Message Retention Period ℹ	4	days ▾	Value must be between 1 minute and 14 days.
Maximum Message Size ℹ	256	KB	Value must be between 1 and 256 KB.
Delivery Delay ℹ	0	seconds ▾	Value must be between 0 seconds and 15 minutes.
Receive Message Wait Time ℹ	0	seconds	Value must be between 0 and 20 seconds.

Dead Letter Queue Settings

Use Redrive Policy ℹ	☐	
Dead Letter Queue ℹ		Value must be an existing queue name.
Maximum Receives ℹ		Value must be between 1 and 1000.

Cancel   **Create Queue** ✓

Select the Queue and see Actions

Create New Queue   Queue Actions ▾ ✓

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

Filter by Prefix: 🔍 En   ✕

☑	Name	▾	Messages Available ▾	Messages in Fligh
☑	orders		0	0

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1 SQS Queue selected

Details | Permissions | Redrive Policy | Monitoring | Tags

Name: orders
URL: https://sqs.ap-south-1.amazonaws.com/609875419534/orders
ARN: arn:aws:sqs:ap-south-1:609875419534:orders
Created: 2018-03-23 23:46:46 GMT-04:00
Last Updated: 2018-03-23 23:46:46 GMT-04:00
Delivery Delay: 0 seconds
Messages Delayed: 0

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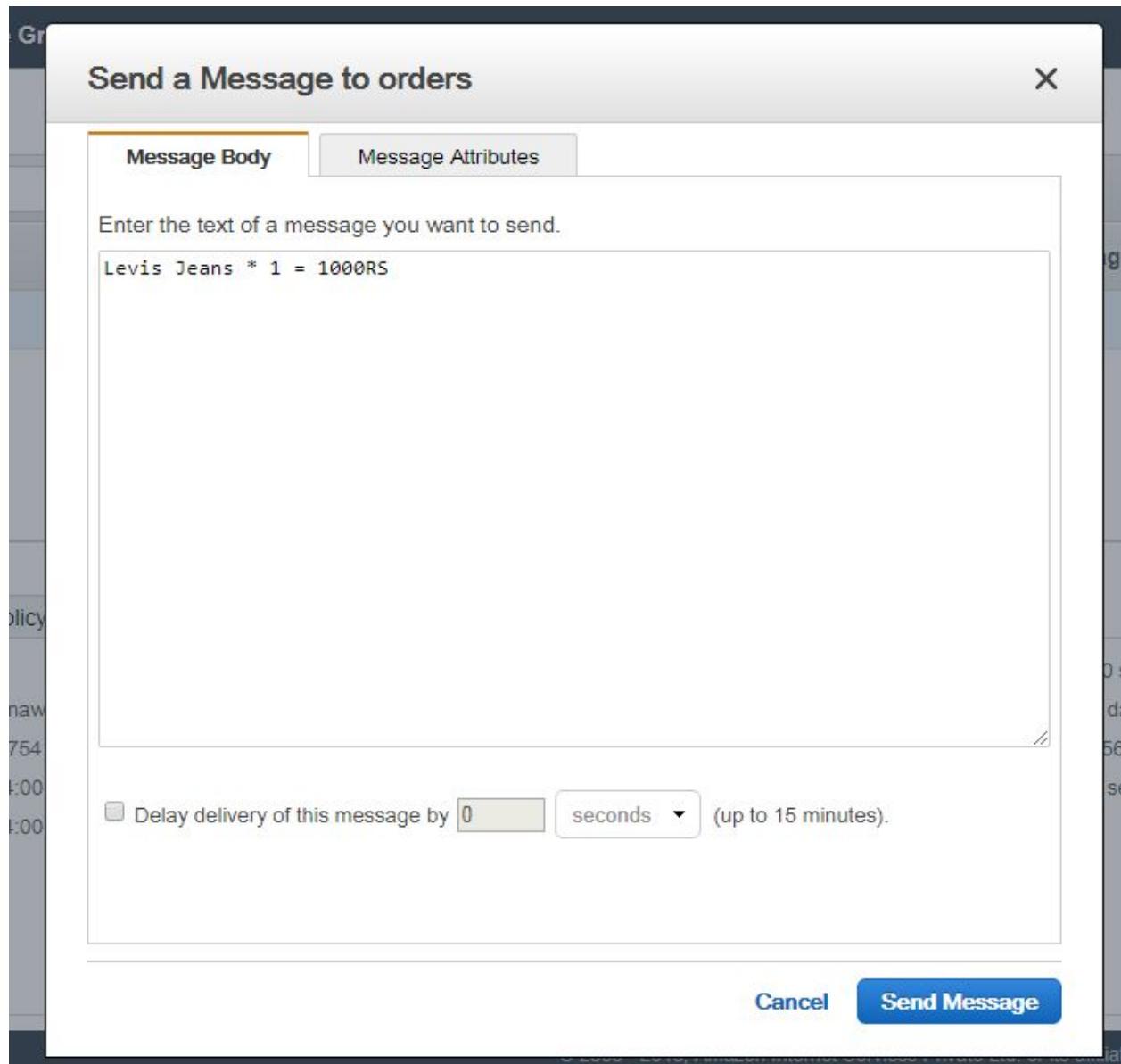**Message Retention Period:** 4 days
Maximum Message Size: 256 KB
Receive Message Wait Time: 0 seconds
Messages Available (Visible): 0
Messages in Flight (Not Visible): 0

So for practice , click on Send messages

Send a Message to orders   ✕

Message Body   Message Attributes

Enter the text of a message you want to send.

```
Levis Jeans * 1 = 1000RS
```

☐ Delay delivery of this message by [0]   [seconds ▼]   (up to 15 minutes).

Cancel   **Send Message**

You can define the metadata of the message in Message attributes

Send a Message to orders

×

Message Body | **Message Attributes**

Name Order Type ✓

Type String ▾

(Custom Type: Optional)

Value Online ✓

Enter a string value.

Add Attribute   What is Message Attribute?

Name	Type	Values

Cancel   **Send Message**

Send a Message to orders

×

Message Body | Message Attributes

Enter the text of a message you want to send.

```
Levis Jeans * 1 = 1000RS
```

☐ Delay delivery of this message by [0] [seconds ▼] (up to 15 minutes).

Cancel   **Send Message**

Now we are done with below message

Send a Message to orders ✕

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: f3eda2f5-64b8-4ee7-990f-03f777ccf8f6
MD5 of Body: 1b74d659d8e6747e7efca30dfcb0075e

You can even see the main console of SQS that we have one message

Now lets see how we can consume it

Go to Queue Actions - > View/ Delete Messages
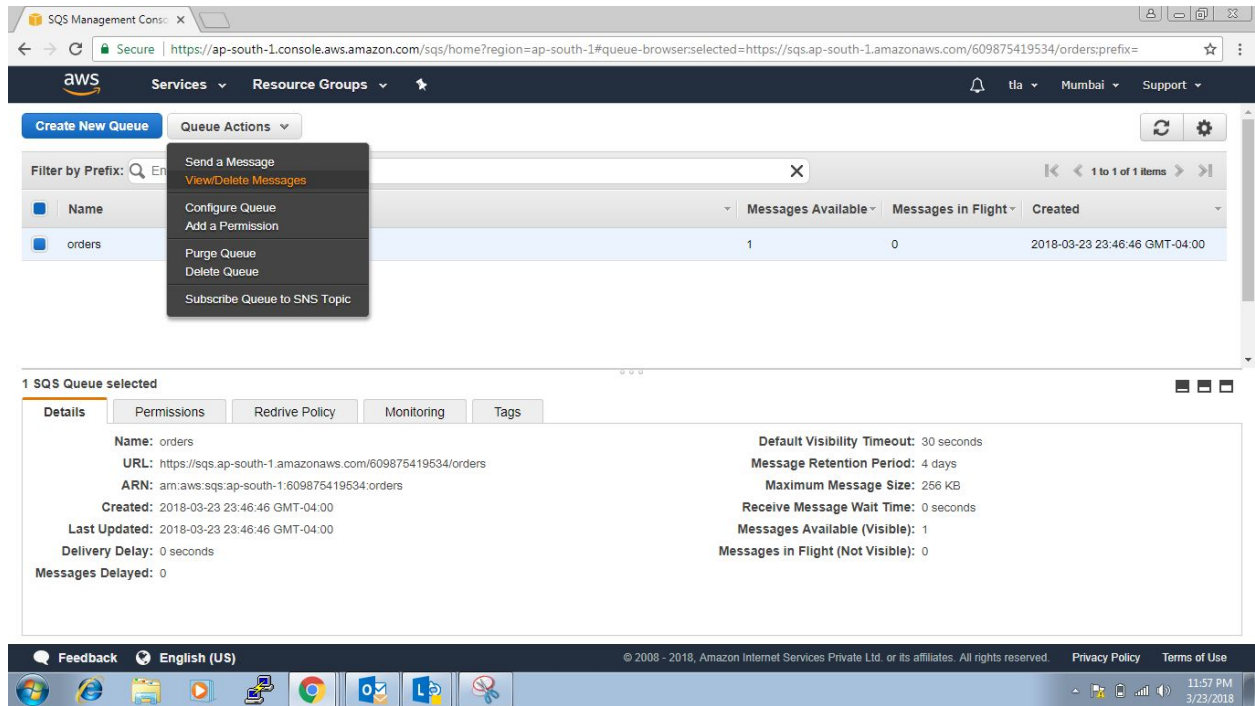
You will get below screen
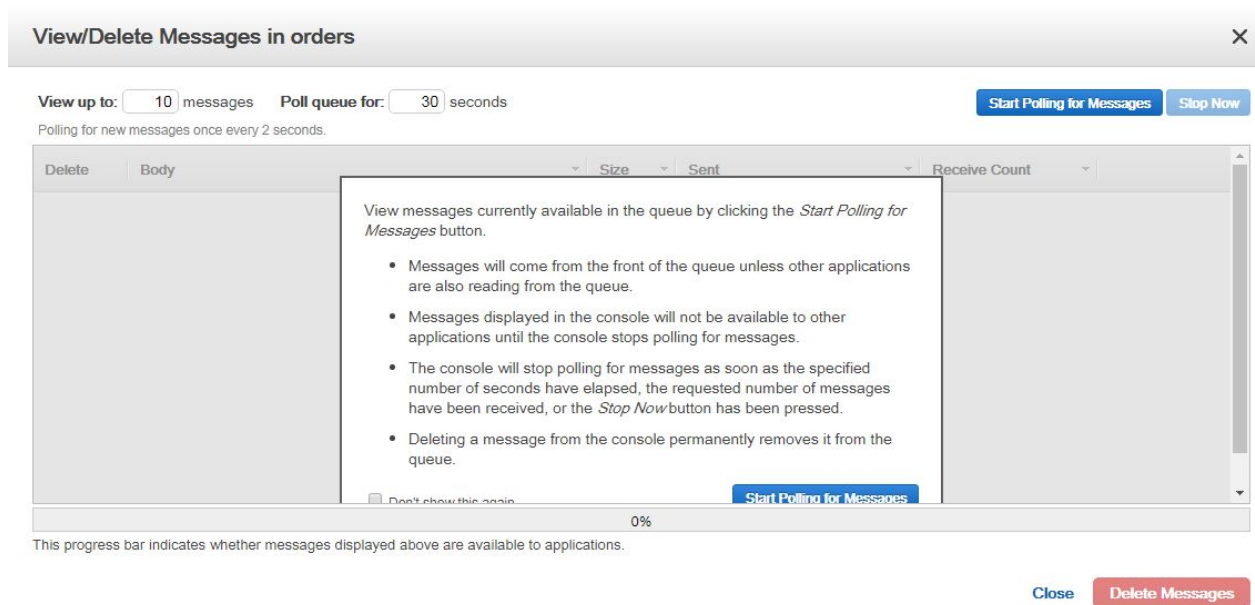
Click on **Start Polling for Messages**

View/Delete Messages in orders   ✕

View up to: 10 messages   **Poll queue for:** 30 seconds   Polling for Messages...   **Stop Now**
Polling for new messages once every 2 seconds.

Delete	Body	Size	Sent	Receive Count	
☐	Levis Jeans * 1 = 1000RS	24 bytes	2018-03-23 23:54:34 GMT-04:00	1	More Details

20%

Polling the queue at 0.6 receives/second. Stopping in 23.8 seconds. Messages shown above are currently hidden from other consumers.

Close   **Delete Messages**

View/Delete Messages in orders   ✕

View up to: 10 messages   **Poll queue for:** 30 seconds   **Start Polling for Messages**   **Stop Now**
Polling for new messages once every 2 seconds.

Delete	Body	Size	Sent	Receive Count	
☐	Levis Jeans * 1 = 1000RS	24 bytes	2018-03-23 23:54:34 GMT-04:00	1	More Details

100%

Stopped after polling the queue at 0.5 receives/second for 30.4 seconds. Messages shown above are now available to other consumers.

Close   **Delete Messages**

Once you are done, please delete the message

Also delete the Queue