

Lesson 08 Demo 07

Creating a Kinesis Data Stream

Objective: To create a Kinesis Data Stream in Amazon Kinesis to set up a data stream, configure its capacity, and understand the concept of shards as a fundamental resource in Kinesis

Tools required: Amazon Workspaces

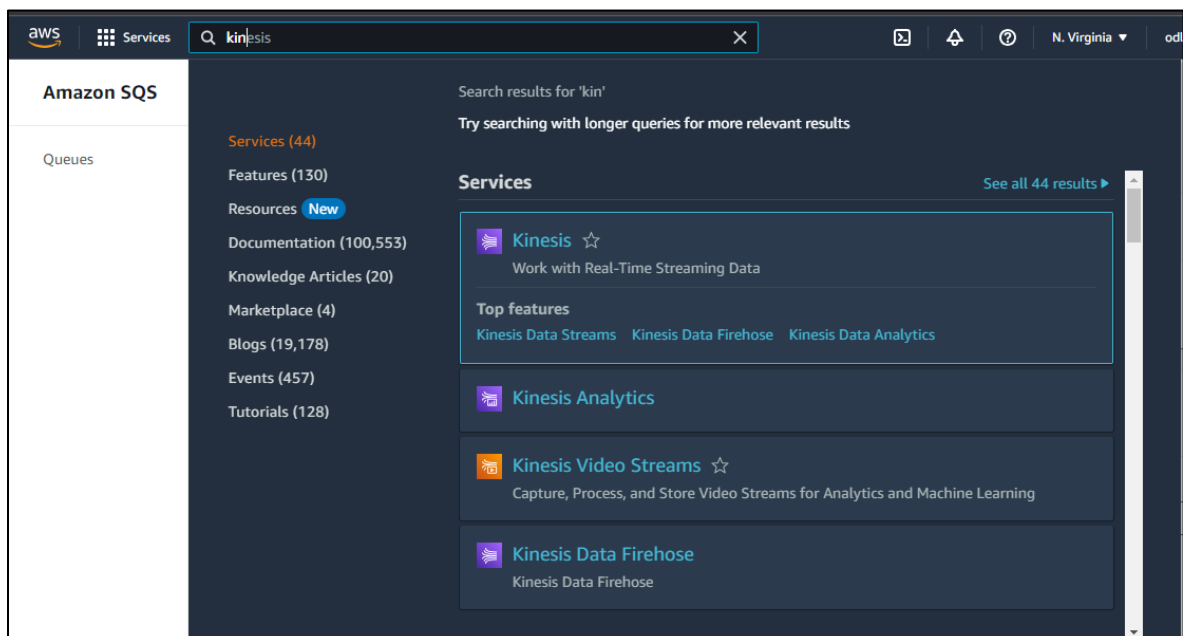
Prerequisites: AWS account

Steps to be followed:

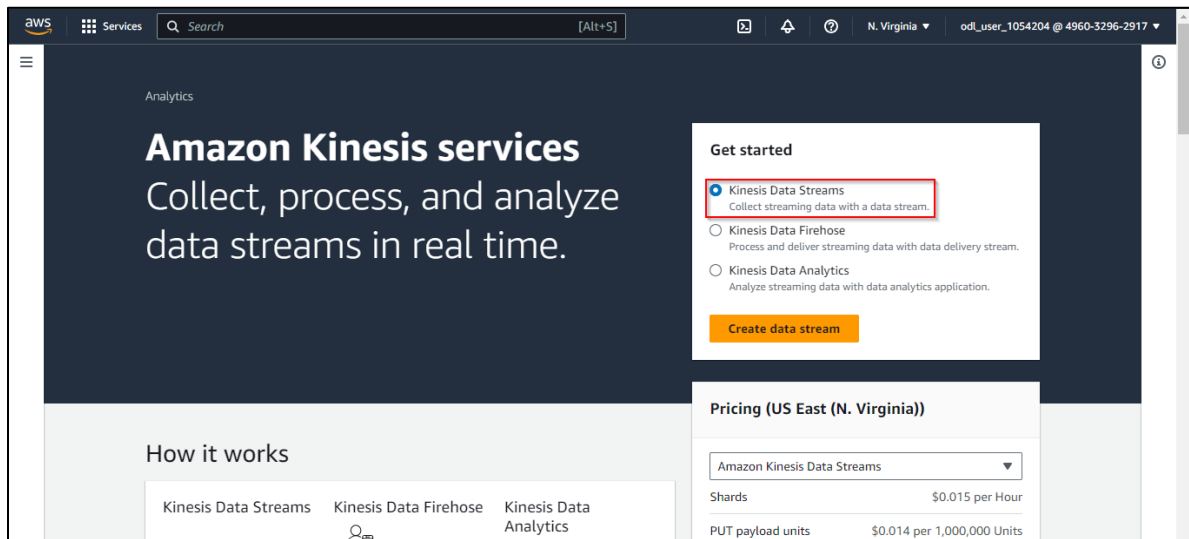
1. Configure a Kinesis Data Stream

Step 1: Configure a Kinesis Data Stream

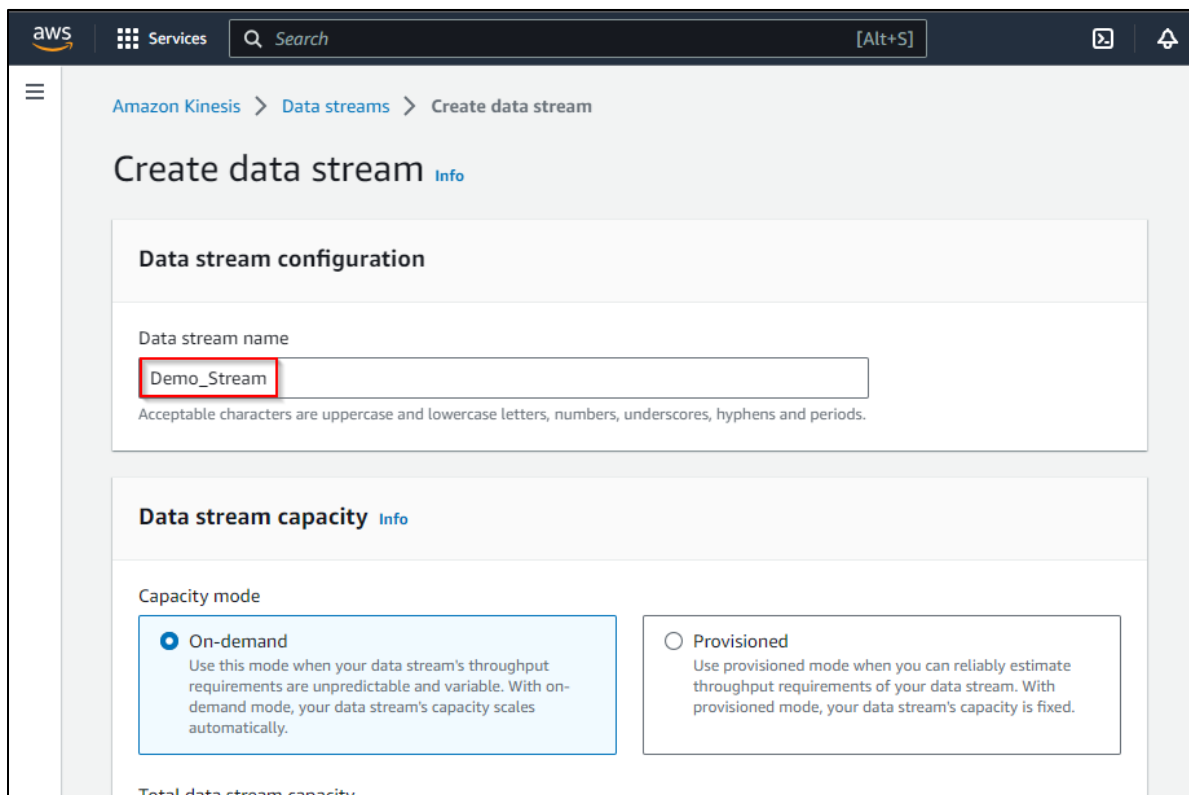
- 1.1 Navigate to the Amazon homepage, search for **Kinesis**, and select it



1.2 Click on **Kinesis Data Streams** and then select **Create data stream**



1.3 Name the data stream **Demo_Stream**



1.4 Click on the **Create data stream** button

ℹ On-demand mode has a pay-per-throughput pricing model. See [Kinesis pricing for on-demand mode](#)

Data stream settings

You can edit the settings after the data stream has been created and is in the active status.

Setting	Value	Editable after creation
Capacity mode	On-demand	✔ Yes
Data retention period	1 day	✔ Yes
Server-side encryption	Disabled	✔ Yes
Monitoring enhanced metrics	Disabled	✔ Yes
Tags	-	✔ Yes

Cancel Create data stream

Services [Alt+S]

N. Virginia odl_user_1054204 @ 4960-3296-2917

Amazon Kinesis

Dashboard

Data streams

Data Firehose

Analytics applications

▼ Resources

CloudFormation templates

AWS Glue Schema Registry

Data stream Demo_Stream successfully created.

Amazon Kinesis > Data streams > Demo_Stream
Delete

Demo_Stream Info

Data stream summary

Status ✔ Active	Capacity mode On-demand	ARN arn:aws:kinesis:us-east-1:496032962917:stream/Demo_Stream	Creation time August 30, 2023 at 16:30 GMT+5:30
Data retention period 1 day			

Applications
Monitoring
Configuration
Data viewer
Enhanced fan-out (0)

Producers Info

Producers put records into Kinesis Data Streams.

Amazon Kinesis Agent	AWS SDK	Amazon Kinesis Producer Library (KPL)
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The data stream **Demo_Stream** has been successfully created.

1.5 Navigate to **Configuration** and click **Edit capacity mode**

The screenshot shows the AWS Kinesis console for a stream named 'Demo_Stream'. The 'Configuration' tab is selected, and the 'Edit capacity mode' button is highlighted. The 'Data stream capacity' section shows the current capacity mode as 'On-demand'.

Data stream summary			
Status	Capacity mode	ARN	Creation time
Active	On-demand	arn:aws:kinesis:us-east-1:496032962917:stream/Demo_Stream	August 30, 2023 at 16:30 GMT+5:30
	Data retention period		
	1 day		

Data stream capacity		
Capacity mode	Write capacity	Read capacity
On-demand	Maximum	Maximum
	200 MiB/second	400 MiB/second
	200,000 records/second	

The screenshot shows the 'Edit capacity mode of Demo_Stream' page. The 'Provisioned' mode is selected. The 'Provisioned shards' section shows a value of 4. The 'Total data stream capacity' section explains that shard capacity is determined by the number of provisioned shards. The 'Write capacity' and 'Read capacity' sections show the maximum values for each.

Capacity mode	
<input type="radio"/> On-demand	Use this mode when your data stream's throughput requirements are unpredictable and variable. With on-demand mode, your data stream's capacity scales automatically.
<input checked="" type="radio"/> Provisioned	Use provisioned mode when you can reliably estimate throughput requirements of your data stream. With provisioned mode, your data stream's capacity is fixed.

Provisioned shards
The total capacity of a stream is the sum of the capacities of its shards. You can update provisioned shards after updating capacity mode.

4

Total data stream capacity
Shard capacity is determined by the number of provisioned shards. Each shard ingests up to 1 MiB/second and 1,000 records/second and emits up to 2 MiB/second. If writes and reads exceed capacity, the application will receive throttles.

Write capacity	Read capacity
Maximum	Maximum
4 MiB/second and 4,000 records/second	8 MiB/second

Under Capacity mode, if the user clicks on **Provisioned**, the user should enter the number of Provisioned and the number of shards to see the total data stream capacity.

1.6 Click on the **Edit provisioned shards** button

The screenshot shows the Amazon Kinesis console interface. On the left is a navigation menu with 'Amazon Kinesis' selected. The main content area is titled 'Data stream summary'. It includes a status bar showing 'Active' and a table with details like Capacity mode (Provisioned), ARN, and Creation time. Below this is a 'Data stream capacity' section with a table showing Capacity mode (Provisioned), Provisioned shards (4), Write capacity (4 MiB/second), and Read capacity (8 MiB/second). The 'Edit provisioned shards' button is highlighted with a red box.

1.7 Click on the **Shard estimator** button

The screenshot shows the 'Edit provisioned shards for Demo_Stream' page in the Amazon Kinesis console. The page has a breadcrumb trail: 'Amazon Kinesis > Data streams > Demo_Stream > Edit provisioned shards'. The main heading is 'Edit provisioned shards for Demo_Stream'. Below this is a 'Provisioned shards' section with a text input field containing '4' and a 'Shard estimator' button highlighted with a red box. The page also displays 'Total data stream capacity' and 'Write capacity' (4 MiB/second and 4000 records/second) and 'Read capacity' (8 MiB/second). At the bottom right are 'Cancel' and 'Save changes' buttons.

The total capacity of a Kinesis Data Stream is calculated by summing the capacities of its individual shards. By entering the number of provisioned shards, participants can understand the concept of data stream capacity.

Shard estimator

Use the shard estimator to generate the recommended optimal number of shards for your stream based on your usage.

Data stream specifications

Writing to the stream

Maximum number of records written per second

Average record size (in KiB)

Minimum: 1 KiB, maximum: 1024 KiB.

Total record size

1024 KiB

Reading from the stream

Total number of consumers

The number of applications consuming data concurrently and independently from the data stream.

Recommendations

Number of provisioned shards required for your data stream (estimated)

1

CancelUse this shard count

Following these steps, you have successfully created a Kinesis Data Stream, configured its capacity, and gained insights into allocating shards for stream processing.