

# AWS DynamoDB

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## DynamoDB

### Dashboard

- Tables
- Backups
- Reserved capacity
- Preferences

### Create table

Amazon DynamoDB is a fully managed non-relational database service that provides fast and predictable performance with seamless scalability.

[Create table](#)

### Recent alerts

No CloudWatch alarms have been triggered.

[View all in CloudWatch](#)

### Total capacity for Canada (Central)

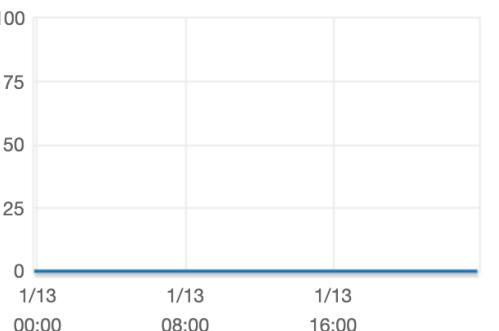
Provisioned read capacity	20 (Max: 80000)	Reserved read capacity	0
Provisioned write capacity	20 (Max: 80000)	Reserved write capacity	0

### Account capacity limits utilization for Canada (Central)

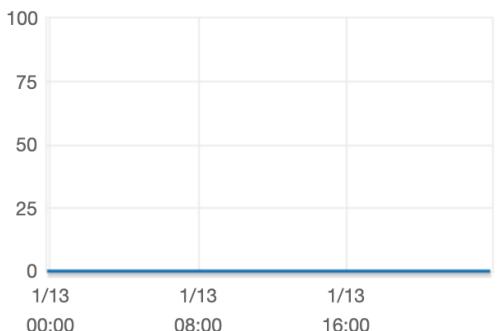
Time range:  
Last 24 Hours



#### Provisioned read capacity limit utilization (%)



#### Provisioned write capacity limit utilization (%)



[Request a service limit increase](#)

### Recommended for

#### Videos and Slide Deck

Browse the complete list from AWS re:Invent 2019, [Learn more](#)

#### NoSQL Workbench Ad

A client-side application to performance data models testing. [Learn more](#)

#### New Amazon Manager

Run your Cassandra workloads on Amazon Managed Apache Cassandra preview. [Learn more](#)

### Feature spotlight

- CloudWatch Contr...
- NoSQL Workben...
- DynamoDB on-de...
- Transactions
- Point-in-time Reco...

### Additional resource

- Report an issue
- Getting started gui
- Getting started har
- Developer guide
- FAQ
- DynamoDB Migrat...

ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:

DynamoDB

Services ▾ Resource Groups ▾

Deborah Stacey ▾ Central ▾ Support ▾

**Create table** Delete table

Tables

Backups

Reserved capacity

Preferences

Filter by table name Choose a table group Actions Viewing 1 of 1 Tables

Name	Status	Partition key	Sort key	Indexes	Total read capacity	Total write capacity
Movies	Active	year (Number)	title (String)	0	10	10

Feedback English (US)

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The screenshot shows the AWS DynamoDB console interface. On the left, there's a sidebar with links for 'Dashboard', 'Tables' (which is highlighted with a red oval), 'Backups', 'Reserved capacity', and 'Preferences'. The main area has tabs for 'Create table' and 'Delete table'. Below that is a search bar and a dropdown for 'Choose a table group'. A table lists one table: 'Movies'. The table has columns for Name, Status, Partition key, Sort key, Indexes, Total read capacity, and Total write capacity. The 'Movies' table is active, with 'year (Number)' as the partition key and 'title (String)' as the sort key. It has 0 indexes, 10 read capacity units, and 10 write capacity units. The entire table row is also highlighted with a red oval.

ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:selected=Movies;tab=overview

DynamoDB

Create table Delete table

Filter by table name

Choose a table ... Actions

Name

Movies

Movies Close

Overview Items Metrics Alarms Capacity Indexes Backups Contributor Insights Triggers More

view type -

Latest stream ARN -

Manage Stream

Table details

Table name	Movies
Primary partition key	year (Number)
Primary sort key	title (String)
Point-in-time recovery	DISABLED <a href="#">Enable</a>
Encryption Type	DEFAULT <a href="#">Manage Encryption</a>
KMS Master Key ARN	Not Applicable
Encryption Status	
CloudWatch Contributor Insights	DISABLED <a href="#">Manage Contributor Insights</a> PREVIEW
Time to live attribute	DISABLED <a href="#">Manage TTL</a>
Table status	Active
Creation date	January 12, 2020 at 12:30:37 PM UTC-5
Read/write capacity mode	Provisioned
Last change to on-demand mode	-
Provisioned read capacity units	10 (Auto Scaling Disabled)
Provisioned write capacity units	10 (Auto Scaling Disabled)
Last decrease time	-
Last increase time	-
Storage size (in bytes)	2.10 MB
Item count	4,610 <a href="#">Manage live count</a>
Region	Canada (Central)
Amazon Resource Name (ARN)	arn:aws:dynamodb:ca-central-1:739894181370:table/Movies

Storage size and item count are not updated in real-time. They are updated periodically, roughly every six hours.



## 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\* MovieInfo i

Primary key\* Partition key

Year Number i

Add sort key

Title String i

### 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".
- Encryption at Rest with DEFAULT encryption type.



You do not have the required role to enable Auto Scaling by default.

Please refer to [documentation](#).

+ Add tags NEW!

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](#)

ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#create-table:

Deborah Stacey Central Support

## 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	i
+ 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 \$3.20 / month ([Capacity calculator](#))

### Auto Scaling

Read capacity     Write capacity  
 Same settings as read

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ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#create-table:

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## Auto Scaling

Read capacity     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     Apply same settings to global secondary indexes

**Please check your IAM permissions to create new service linked role for enabling Auto Scaling.**  
See [permissions](#).

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\*

## Encryption At Rest

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

**DEFAULT**

The key is owned by Amazon DynamoDB. You are not charged any fee for using these CMKs.

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ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#create-table: ☆ ? ! ! ! ! !

**Services** **Resource Groups** Deborah Stacey Central Support

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\*

**Encryption At Rest**

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

**DEFAULT**

The key is owned by Amazon DynamoDB. You are not charged any fee for using these CMKs.

**KMS - Customer managed CMK**

The key is stored in your account that you create, own, and manage. AWS Key Management Service (KMS) charges apply. [Learn more](#)

**KMS - AWS managed CMK**

The key is stored in your account and is managed by AWS Key Management Service (KMS). AWS KMS charges apply.

[+ Add tags NEW!](#)

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

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**Create table** **Delete table**

Filter by table name  X

Choose a table ... Actions

Name
MovielInfo
Movies

## MovieInfo Close

Overview Items Metrics Alarms Capacity Indexes Backups Contributor Insights Triggers More

### Recent alerts

No CloudWatch alarms have been triggered for this table.

### Stream details

Stream enabled	No
View type	-
Latest stream ARN	-

[Manage Stream](#)

### Table details

Table name	MovielInfo
Primary partition key	year (Number)
Primary sort key	title (String)
Point-in-time recovery	DISABLED <a href="#">Enable</a>
Encryption Type	DEFAULT <a href="#">Manage Encryption</a>
KMS Master Key ARN	Not Applicable
Encryption Status	
CloudWatch Contributor Insights	DISABLED <a href="#">Manage Contributor Insights</a> PREVIEW
Time to live attribute	DISABLED <a href="#">Manage TTL</a>
Table status	Active
Creation date	January 13, 2020 at 7:26:53 PM UTC-5
Read/write capacity mode	Provisioned
Last change to on-demand mode	-
Provisioned read capacity units	5 (Auto Scaling Disabled)
Provisioned write capacity units	5 (Auto Scaling Disabled)



## 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\* MovieInfo i

Primary key\* Partition key

Year Number i

Add sort key

Title String i

### 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.
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You do not have the required role to enable Auto Scaling by default.

Please refer to [documentation](#).

+ Add tags NEW!

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](#)

The screenshot shows the AWS DynamoDB console interface. On the left, the navigation bar includes links for Dashboard, Tables, Backups, Reserved capacity, and Preferences. A sidebar for the 'MovieInfo' table provides options to Create table, Delete table, and a search bar. The main content area is titled 'MovieInfo' and shows the 'Items' tab selected. A red circle highlights the 'Items' tab. Below it, another red circle highlights the 'Scan' button in the search bar. The search bar also displays the query '[Table] MovieInfo: year, title'. A message box at the bottom explains what an item is: 'An item consists of one or more attributes. Each attribute consists of a name, a data type, and a value. When you read or write an item, the only attributes that are required are those that make up the primary key.' It includes a 'More info' link.

ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:selected=MovieInfo;tab=items

DynamoDB

Services Resource Groups

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MovieInfo

Items

Overview Metrics Alarms Capacity Indexes Backups Contributor Insights Triggers More

Create item Actions

Scan: [Table] MovieInfo: year, title Viewing 0 to 0 items

Scan [Table] MovieInfo: year, title Add filter Start search

An item consists of one or more attributes. Each attribute consists of a name, a data type, and a value. When you read or write an item, the only attributes that are required are those that make up the primary key. [More info](#)

entral-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:selected=MovieInfo;tab=items

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**MovieInfo** Close

Overview Items Metrics Alarms Capacity Indexes Backups Contributor Insights Triggers More

Create item Actions

Scan: [Table] MovieInfo: year, title Viewing 0 to 0 items

Query Table MovieInfo: year, title

Partition key year Number = Enter value

Sort key title String = Enter value

Add filter

Sort Ascending Descending

Attributes All Projected

Start search Cancel changes

year title

An item consists of one or more attributes. Each attribute consists of a name, a data type, and a value. When you read or write an item, the only attributes that are required are those that make up the primary key. [More info](#)

English (US)

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ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:selected=MovieInfo;tab=overview

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**Delete table**

MoviefInfo Close

Overview Items Metrics Alarms Capacity Indexes Backups Contributor Insights Triggers More

Stream enabled No  
View type -  
Latest stream ARN -  
Manage Stream

Table details

**Delete table**

Are you sure you want to delete this table: **MoviefInfo**?  
 Delete all CloudWatch alarms for this table  
 Create a backup before deleting this table

Cancel Delete

Creation date January 13, 2020 at 7:26:53 PM UTC-5  
Read/write capacity mode Provisioned  
Last change to on-demand mode -  
Provisioned read capacity units 5 (Auto Scaling Disabled)  
Provisioned write capacity units 5 (Auto Scaling Disabled)  
Last decrease time -  
Last increase time -  
Storage size (in bytes) 0 bytes  
Item count 0 Manage live count  
Region Canada (Central)  
Amazon Resource Name (ARN) arn:aws:dynamodb:ca-central-1:739894181370:table/MoviefInfo

Storage size and item count are not updated in real-time. They are updated periodically, roughly every six hours.

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ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:selected=MovieInfo;tab=overview

DynamoDB

Dashboard

Tables

Backups

Reserved capacity

Preferences

Create table Delete table

Filter by table name Choose a table group Actions Viewing 1 of 1 Tables

Name	Status	Partition key	Sort key	Indexes	Total read capacity	Total write capacity
Movies	Active	year (Number)	title (String)	0	10	10

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# Operations in Python and Boto3

- Create table
- Create item
- Query and Scan
- Delete item

<https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/GettingStarted.Python.html>

# Creating a Table

```
#  
# Example code to create a NoSQL DynamoDB table  
#
```

```
In [1]: from __future__ import print_function # Python 2/3 compatibility  
import boto3
```

```
# Establish a connection to the AWS resource dynamodb
```

```
In [2]: dynamodb = boto3.resource('dynamodb', region_name='ca-central-1')
```



```
# Create a new table called MovieInfo
```

```
In [3]: table = dynamodb.create_table(  
    TableName='MoviesInfo', ←  
    KeySchema=[  
        {  
            'AttributeName': 'year',  
            'KeyType': 'HASH' #Partition key ←  
        },  
        {  
            'AttributeName': 'title',  
            'KeyType': 'RANGE' #Sort key ←  
        }  
    ],  
    AttributeDefinitions=[  
        {  
            'AttributeName': 'year', ←  
            'AttributeType': 'N'  
        },  
        {  
            'AttributeName': 'title', ←  
            'AttributeType': 'S'  
        },  
    ],  
    ProvisionedThroughput={  
        'ReadCapacityUnits': 10,  
        'WriteCapacityUnits': 10  
    }  
)
```

```
In [4]: print("Table status:", table.table_status, table.table_name)
```

Table status: CREATING MoviesInfo

ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:

DynamoDB

Dashboard

Tables

Backups

Reserved capacity

Preferences

Create table Delete table

Filter by table name Choose a table group Actions Viewing 2 of 2 Tables

Name	Status	Partition key	Sort key	Indexes	Total read capacity	Total write capacity
Movies	Active	year (Number)	title (String)	0	10	10
MoviesInfo	Active	year (Number)	title (String)	0	10	10

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ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:selected=MoviesInfo;tab=overview

DynamoDB

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Deborah Stacey ▾ Central ▾ Support ▾

Create table Delete table

Filter by table name X

Choose a table ... Actions

Name

Movies

MoviesInfo

Stream enabled No

View type -

Latest stream ARN -

Manage Stream

Table details

Table name MoviesInfo

Primary partition key year (Number)

Primary sort key title (String)

Point-in-time recovery DISABLED Enable

Encryption Type DEFAULT Manage Encryption

KMS Master Key ARN Not Applicable

Encryption Status

CloudWatch Contributor Insights DISABLED Manage Contributor Insights PREVIEW

Time to live attribute DISABLED Manage TTL

Table status Active

Creation date January 13, 2020 at 7:39:33 PM UTC-5

Read/write capacity mode Provisioned

Last change to on-demand mode -

Provisioned read capacity units 10 (Auto Scaling Disabled)

Provisioned write capacity units 10 (Auto Scaling Disabled)

Last decrease time -

Last increase time -

Storage size (in bytes) 0 bytes

Item count 0 Manage live count

Region Canada (Central)

Amazon Resource Name (ARN) arn:aws:dynamodb:ca-central-1:739894181370:table/MoviesInfo

Storage size and item count are not updated in real-time. They are updated periodically, roughly every six hours.

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# Loading Data from a JSON File into a Table

```
In [1]: from __future__ import print_function # Python 2/3 compatibility
import boto3
import json
import decimal
```

```
In [2]: dynamodb = boto3.resource('dynamodb', region_name='ca-central-1')

table = dynamodb.Table('Movies') ←
```

```
In [3]: with open("moviedata.json") as json_file:
    movies = json.load(json_file, parse_float = decimal.Decimal)
    for movie in movies:
        year = int(movie['year']) ←
        title = movie['title'] ←
        info = movie['info'] ←

        print("Adding movie:", year, title)

        table.put_item(←
            → Item={
                'year': year,
                'title': title,
                'info': info,
            }
        )
```

```
In [1]: from __future__ import print_function # Python 2/3 compatibility
import boto3
import json
import decimal
```

```
In [2]: dynamodb = boto3.resource('dynamodb', region_name='ca-central-1')

table = dynamodb.Table('Movies')
```

```
In [3]: with open("moviedata.json") as json_file:
    movies = json.load(json_file, parse_float = decimal.Decimal)
    for movie in movies:
        year = int(movie['year'])
        title = movie['title']
        info = movie['info']

        print("Adding movie:", year, title)

        table.put_item(
            Item={
                'year': year,
                'title': title,
                'info': info,
            }
        )
```

```
Adding movie: 2013 Rush
Adding movie: 2013 Prisoners
Adding movie: 2013 The Hunger Games: Catching Fire
Adding movie: 2013 Thor: The Dark World
Adding movie: 2013 This Is the End
Adding movie: 2013 Insidious: Chapter 2
Adding movie: 2013 World War Z
Adding movie: 2014 X-Men: Days of Future Past
Adding movie: 2014 Transformers: Age of Extinction
Adding movie: 2013 Now You See Me
Adding movie: 2013 Gravity
Adding movie: 2013 We're the Millers
Adding movie: 2013 Riddick
Adding movie: 2013 The Family
Adding movie: 2013 Star Trek Into Darkness
```



Create table Delete table

Filter by table name  X

Choose a table ... Actions

Name
<input checked="" type="radio"/> Movies
<input type="radio"/> MoviesInfo

Movies Close

Overview Items Metrics Alarms Capacity Indexes Backups Contributor Insights Trig

Stream enabled No  
View type -  
Latest stream ARN -  
[Manage Stream](#)

---

Table details

Table name	Movies
Primary partition key	year (Number)
Primary sort key	title (String)
Point-in-time recovery	DISABLED <a href="#">Enable</a>
Encryption Type	DEFAULT <a href="#">Manage Encryption</a>
KMS Master Key ARN	Not Applicable
Encryption Status	
CloudWatch Contributor Insights	DISABLED <a href="#">Manage Contributor Insights</a> PREVIEW
Time to live attribute	DISABLED <a href="#">Manage TTL</a>
Table status	Active
Creation date	January 12, 2020 at 12:30:37 PM UTC-5
Read/write capacity mode	Provisioned
Last change to on-demand mode	-
Provisioned read capacity units	10 (Auto Scaling Disabled)
Provisioned write capacity units	10 (Auto Scaling Disabled)
Last decrease time	-
Last increase time	-
Storage size (in bytes)	2.10 MB
Item count	4,610 <a href="#">Manage live count</a>
Region	Canada (Central)
Amazon Resource Name (ARN)	arn:aws:dynamodb:ca-central-1:739894181370:table/Movie

Storage size and item count are not updated in real-time. They are updated periodically, roughly every six hours.

Movies Close

Overview Items Metrics Alarms Capacity Indexes Backups Contributor Insights Triggers More ▾

Create item Actions ▾

Scan: [Table] Movies: year, title ▾ Viewing 1 to 100 items >

Scan [Table] Movies: year, title ▾ Add filter Start search

	year ⓘ	title	info
	1925	Bronenosets Potyomkin	{ "actors" : { "L" : [ { "S" : "Aleksandr Antonov" }, { "S" : "Vladimir Barsky" } ] }
	1925	The Big Parade	{ "actors" : { "L" : [ { "S" : "John Gilbert" }, { "S" : "Renee Adoree" }, { "S" : "Fay Wray" } ] }
	1933	King Kong	{ "actors" : { "L" : [ { "S" : "Fay Wray" }, { "S" : "Robert Armstrong" }, { "S" : "Cary Grant" } ] }
	1944	Arsenic and Old Lace	{ "actors" : { "L" : [ { "S" : "Cary Grant" }, { "S" : "Priscilla Lane" }, { "S" : "Bette Davis" } ] }
	1944	Double Indemnity	{ "actors" : { "L" : [ { "S" : "Fred MacMurray" }, { "S" : "Barbara Stanwyck" } ] }
	1944	I'll Be Seeing You	{ "actors" : { "L" : [ { "S" : "Ginger Rogers" }, { "S" : "Joseph Cotten" }, { "S" : "John Hodiak" } ] }
	1944	Lifeboat	{ "actors" : { "L" : [ { "S" : "Tallulah Bankhead" }, { "S" : "John Hodiak" }, { "S" : "Clark Gable" } ] }
	1958	Cat on a Hot Tin Roof	{ "actors" : { "L" : [ { "S" : "Elizabeth Taylor" }, { "S" : "Paul Newman" }, { "S" : "Brooks Atkinson" } ] }
	1958	Monster on the Campus	{ "actors" : { "L" : [ { "S" : "Arthur Franz" }, { "S" : "Joanna Moore" }, { "S" : "John Hodiak" } ] }
	1958	No Time for Sergeants	{ "actors" : { "L" : [ { "S" : "Andy Griffith" }, { "S" : "Myron McCormick" }, { "S" : "John Hodiak" } ] }
	1958	Teacher's Pet	{ "actors" : { "L" : [ { "S" : "Clark Gable" }, { "S" : "Doris Day" }, { "S" : "John Hodiak" } ] }
	1958	Touch of Evil	{ "actors" : { "L" : [ { "S" : "Charlton Heston" }, { "S" : "Orson Welles" }, { "S" : "Bogart" } ] }

ca-central-1.console.aws.amazon.com/dynamodb/home?region=ca-central-1#tables:selected=Movies;tab=items

DynamoDB

Services Resource Groups

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Movies Close

Overview Items Metrics Alarms Capacity Indexes Backups Contributor Insights Triggers More

Create item Actions

Scan: [Table] Movies Actions

Scan Edit Delete Export to .csv Manage TTL Manage live count

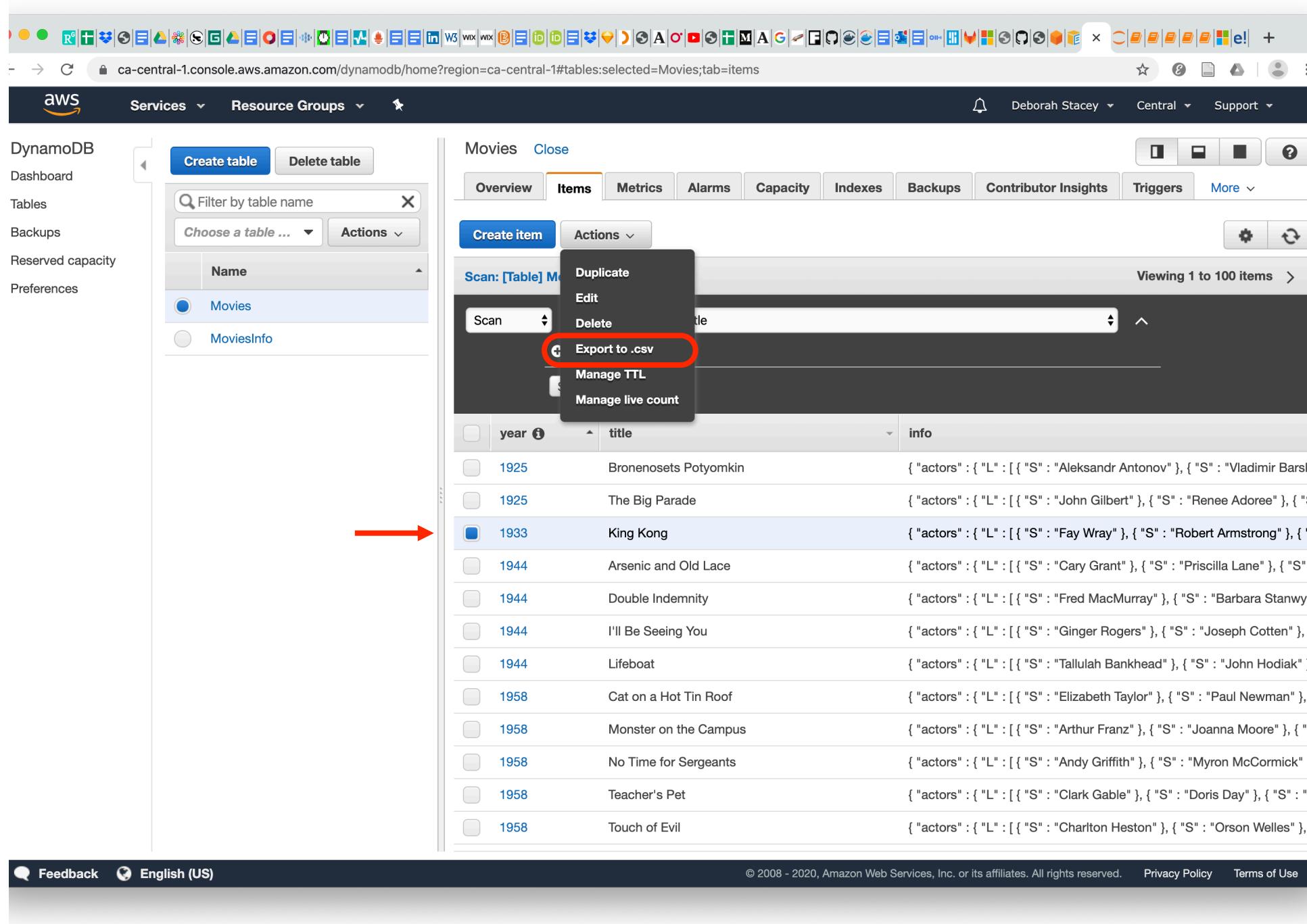
Viewing 1 to 100 items >

year title info

year	title	info
1925	Bronenosets Potyomkin	{ "actors" : { "L" : [ { "S" : "Aleksandr Antonov" }, { "S" : "Vladimir Barsky" } ] }
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1933	King Kong	{ "actors" : { "L" : [ { "S" : "Fay Wray" }, { "S" : "Robert Armstrong" }, { "S" : "Barbara Stanwyck" } ] }
1944	Arsenic and Old Lace	{ "actors" : { "L" : [ { "S" : "Cary Grant" }, { "S" : "Priscilla Lane" }, { "S" : "Bogart" } ] }
1944	Double Indemnity	{ "actors" : { "L" : [ { "S" : "Fred MacMurray" }, { "S" : "Barbara Stanwyck" } ] }
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1958	Cat on a Hot Tin Roof	{ "actors" : { "L" : [ { "S" : "Elizabeth Taylor" }, { "S" : "Paul Newman" } ] }
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1958	Teacher's Pet	{ "actors" : { "L" : [ { "S" : "Clark Gable" }, { "S" : "Doris Day" }, { "S" : "Orson Welles" } ] }
1958	Touch of Evil	{ "actors" : { "L" : [ { "S" : "Charlton Heston" }, { "S" : "Orson Welles" } ] }

Feedback English (US)

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# Data in the King Kong Item

```
"year (N)","title (S)","info (M)"

"1933","King Kong",

{  ""actors"" : { ""L"" : [      { ""S"" : "Fay Wray" },      { ""S"" : "Robert Armstrong" },      { ""S"" : "Bruce Cabot" }    ]  },
  ""directors"" : { ""L"" : [      { ""S"" : "Merian C. Cooper" },      { ""S"" : "Ernest B. Schoedsack" }    ]  },
  ""genres"" : { ""L"" : [      { ""S"" : "Adventure" },      { ""S"" : "Fantasy" },      { ""S"" : "Horror" }    ]  },
  ""image_url"" : { ""S"" : "http://ia.media-imdb.com/images/M/MV5BMTkxOTIxMDU2OV5BMl5BanBnXkFtZTcwNjM5NjQyMg@@._V1_SX400_.jpg" },
  ""plot"" : { ""S"" : "A film crew goes to a tropical island for an exotic location shoot and discovers a colossal giant gorilla who takes a shine to their female blonde star." },
  ""rank"" : { ""N"" : "3551" },  ""rating"" : { ""N"" : "8" },
  ""release_date"" : { ""S"" : "1933-03-07T00:00:00Z" },  ""running_time_secs"" : { ""N"" : "6000" }}"
```

Movies Close

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Create item Actions ▾

Query: [Table] Movies: year, title ▾ Viewing 1 to 6 items

Query [Table] Movies: year, title

Partition key year Number = 1950

Sort key title String = Enter value

+ Add filter

Sort Ascending

Attributes All

Start search

	year	title	info
	1950	All About Eve	{ "actors" : { "L" : [ { "S" : "Bette Davis" }, { "S" : "Anne Baxter" } ] }
	1950	Cinderella	{ "actors" : { "L" : [ { "S" : "Ilene Woods" }, { "S" : "James Mason" } ] }
	1950	Harvey	{ "actors" : { "L" : [ { "S" : "James Stewart" }, { "S" : "Joseph L. Mankiewicz" } ] }
	1950	Rashomon	{ "actors" : { "L" : [ { "S" : "Toshiro Mifune" }, { "S" : "Machiko Kyo" } ] }
	1950	Sunset Blvd.	{ "actors" : { "L" : [ { "S" : "William Holden" }, { "S" : "Gloria Grahame" } ] }
	1950	Tea for Two	{ "actors" : { "L" : [ { "S" : "Doris Day" }, { "S" : "Gordon MacRae" } ] }

# Query Operation

- The **Query** operation finds items based on primary key values
- Tables or secondary indices that has a composite primary key (a partition key and a sort key) can also be queried
- You must provide the name of the partition key attribute and a single value for that attribute and **Query** returns all items with that partition key value
- A sort key attribute and a comparison operator can be used to refine search results

<https://docs.aws.amazon.com/amazondynamodb/latest/developerguide/Query.html>

# Query Operation

```
In [1]: from __future__ import print_function # Python 2/3 compatibility
import boto3
import json
import decimal
from boto3.dynamodb.conditions import Key, Attr
```

```
# Helper class to convert a DynamoDB item to JSON.
```

```
In [2]: class DecimalEncoder(json.JSONEncoder):
    def default(self, o):
        if isinstance(o, decimal.Decimal):
            if o % 1 > 0:
                return float(o)
            else:
                return int(o)
        return super(DecimalEncoder, self).default(o)
```

```
In [3]: dynamodb = boto3.resource('dynamodb', region_name='ca-central-1')
```

```
In [4]: table = dynamodb.Table('Movies')
```

# Query Operation

```
# Use Query to find all movies in 1950
```

```
In [5]: response = table.query( ←  
    KeyConditionExpression=Key('year').eq(1950) ←  
)
```

```
In [6]: print("1950 Movies")
```

```
1950 Movies
```

```
In [7]: for i in response['Items']:  
    print ( i['year'], "-", i['title'])
```

```
1950 - All About Eve  
1950 - Cinderella  
1950 - Harvey  
1950 - Rashomon  
1950 - Sunset Blvd.  
1950 - Tea for Two
```

# Scan Operation

- A **Scan** operation reads every item in a table or a secondary index
- By default, a **Scan** operation returns all of the data attributes for every item in the table or index
- The **ProjectionExpression** parameter is used in **Scan** to only returns some of the attributes, rather than all of them
- **FilterExpression** can filter the **Scan** operation result set
- **Scan** always returns a result set. If no matching items are found, the result set is empty
- A single **Scan** request can retrieve a maximum of 1 MB of data

# Scan Operation

```
# Use Scan to find all movies with a rating greater than 9  
[8]: print("9+ Movies")  
9+ Movies  
[9]: response = table.scan(  
        FilterExpression=Attr('info.rating').gt(9)  
    )  
  
    for i in response['Items']:  
        print ( i['year'], "-", i['title'])  
  
1994 - The Shawshank Redemption
```



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[Viewing 0 to 0 items](#)

**Query:** [Table] Movies: year, title [^](#)

**Query** [Table] Movies: year, title

**Partition key** year Number = **2020**

**Sort key** title String = [Enter value](#)

[+ Add filter](#)

**Sort**  Ascending  Descending

**Attributes**  All  Projected

[Start search](#)

year title

No records found for the given filter. Remove filters to see all items

# Create Item Operation

```
In [1]: from __future__ import print_function # Python 2/3 compatibility
import boto3
import json
import decimal
```

```
# Helper class to convert a DynamoDB item to JSON.
```

```
In [2]: dynamodb = boto3.resource('dynamodb', region_name='ca-central-1')
```

```
In [3]: table = dynamodb.Table('Movies')
```

```
In [4]: title = "My Big New Movie" ←
year = 2020
```

```
In [5]: response = table.put_item( ←
    Item={
        'year': year,
        'title': title,
        'info': {
            'plot':"Nothing happens at all.",
            'rating': decimal.Decimal(0)
        }
    }
)
```

```
In [6]: print("PutItem succeeded")
```

```
PutItem succeeded
```

Delete table

Table name

Actions

Info

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Create item Actions

Query: [Table] Movies: year, title Viewing 1 to 1 items

Query [Table] Movies: year, title

Partition key year Number =

Sort key title String = Enter value

Add filter

Sort  Ascending  Descending

Attributes  All  Projected

Start search

year title info

2020 My Big New Movie { "plot": { "S": "Nothing happens at all." }, "rating": { "N": "

# Delete Item Operation

```
In [1]: from __future__ import print_function # Python 2/3 compatibility
import boto3
from botocore.exceptions import ClientError
import json
import decimal
```

```
# Helper class to convert a DynamoDB item to JSON.
```

```
In [2]: class DecimalEncoder(json.JSONEncoder):
    def default(self, o):
        if isinstance(o, decimal.Decimal):
            if o % 1 > 0:
                return float(o)
            else:
                return int(o)
        return super(DecimalEncoder, self).default(o)
```

```
In [3]: dynamodb = boto3.resource('dynamodb', region_name='ca-central-1')
```

```
In [4]: table = dynamodb.Table('Movies')
```

```
table = dynamodb.Table('Movies')
```

```
title = "My Big New Movie" ←  
year = 2020
```

```
print("Attempting a delete...")
```

Attempting a delete...

```
response = table.delete_item(←  
    Key={  
        'year': year,  
        'title': title  
    }  
)  
print("DeleteItem succeeded:")  
print(json.dumps(response, indent=4, cls=DecimalEncoder))
```

DeleteItem succeeded: ←

```
{  
    "ResponseMetadata": {  
        "RequestId": "2KS36TNJOR5R8C0PP4R1I6HBJBVV4KQNSO5AEMVJF66Q9ASUAAJG",  
        "HTTPStatusCode": 200,  
        "HTTPHeaders": {  
            "server": "Server",  
            "date": "Tue, 14 Jan 2020 15:31:15 GMT",  
            "content-type": "application/x-amz-json-1.0",  
            "content-length": "2",  
            "connection": "keep-alive",  
            "x-amzn-requestid": "2KS36TNJOR5R8C0PP4R1I6HBJBVV4KQNSO5AEMVJF66Q9ASUAAJG",  
            "x-amz-crc32": "2745614147"  
        },  
        "RetryAttempts": 0  
    }  
}
```

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Create item Actions ▾

Query: [Table] Movies: year, title ▾ Viewing 0 to 0 items

Query [Table] Movies: year, title

Partition key year Number = 2020

Sort key title String = Enter value

+ Add filter

Sort Ascending Descending

Attributes All Projected

Start search

year title

No records found for the given filter. Remove filters to see all items