

## Guided Lab: Backing Up an Amazon DynamoDB Table

### Description

DynamoDB is a fully-managed NoSQL database service that offers fast and predictable performance along with seamless scalability. While DynamoDB takes care of many complex tasks such as replication and failover, it's crucial to create backups of your tables for data protection, compliance, and disaster recovery purposes.

Amazon DynamoDB provides on-demand backups, allowing you to easily create full backups of your tables without affecting the performance and availability of your applications. These backups can be restored at any time, ensuring that your data can be recovered in case of accidental deletion, corruption, or other unforeseen issues.

This guide will teach you how to back up an Amazon DynamoDB table, an essential step in ensuring the durability and recoverability of your data.

### Prerequisites

This lab assumes you have basic knowledge of DynamoDB and its table structure.

If you find any gaps in your knowledge, consider taking the following lab:

- Creating an Amazon DynamoDB table
- Querying a Global Secondary Index
- Querying a Local Secondary Index

### Objectives

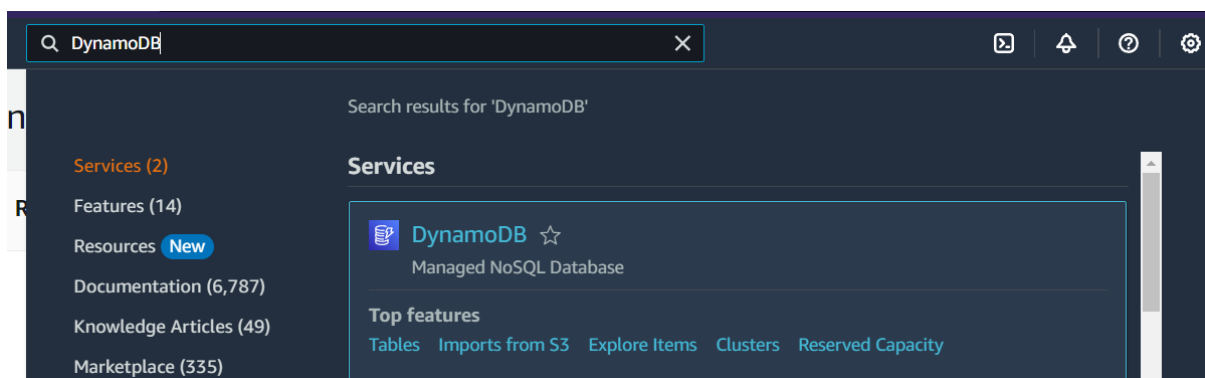
By the end of this lab, you will:

- Understand how to create on-demand backups for a DynamoDB table.
- Learn how to restore a DynamoDB table from a backup.
- Simulate the backup and restoration process using the DynamoDB console.

### Lab Steps

#### Create the DynamoDB Table and Items

1. Navigate to the DynamoDB service in the AWS Management Console.



2. Create a new table with the following configurations:

- Table name: MyDynamoDBTable
- Primary key: ItemID (String)
- Table settings: Select Default settings

[DynamoDB](#) > [Tables](#) > [Create table](#)

## Create table

### Table details [Info](#)

DynamoDB is a schemaless database that requires only a table name and a primary key when you create the table.

**Table name**  
This will be used to identify your table.

Between 3 and 255 characters, containing only letters, numbers, underscores (\_), hyphens (-), and periods (.).

**Partition key**  
The partition key is part of the table's primary key. It is a hash value that is used to retrieve items from your table and allocate data across hosts for scalability and availability.

1 to 255 characters and case sensitive.

**Sort key - optional**  
You can use a sort key as the second part of a table's primary key. The sort key allows you to sort or search among all items sharing the same partition key.

1 to 255 characters and case sensitive.

### Table settings

☒ **Default settings**  
The fastest way to create your table. You can modify these settings now or after your table has been created.

☐ **Customize settings**  
Use these advanced features to make DynamoDB work better for your needs.

- Click **Create table**

3. Ensure the table status is set to Active before proceeding to the next step.

4. Create the following items:

**Item 1:**

- - **ItemID:** "001" (String)
  - **ProductName:** "Wireless Mouse" (String)




- **Category:** "Electronics" (String)
- **Price:** 29.99 (Number)
- **StockQuantity:** 150 (Number)

**Item 2:**

- - **ItemID:** "002" (String)
  - **ProductName:** "Bluetooth Headphones" (String)
  - **Category:** "Electronics" (String)
  - **Price:** 79.99 (Number)
  - **StockQuantity:** 85 (Number)

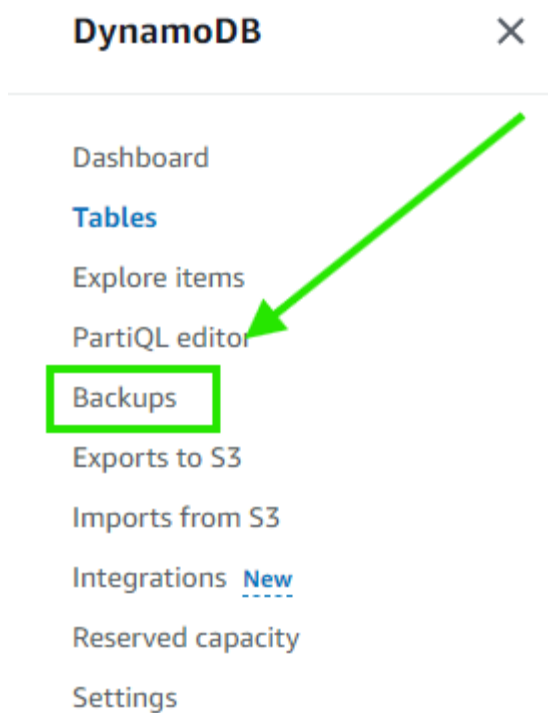
**Item 3:**

- - **ItemID:** "003" (String)
  - **ProductName:** "Laptop Stand" (String)
  - **Category:** "Accessories" (String)
  - **Price:** 39.99 (Number)
  - **StockQuantity:** 200 (Number)

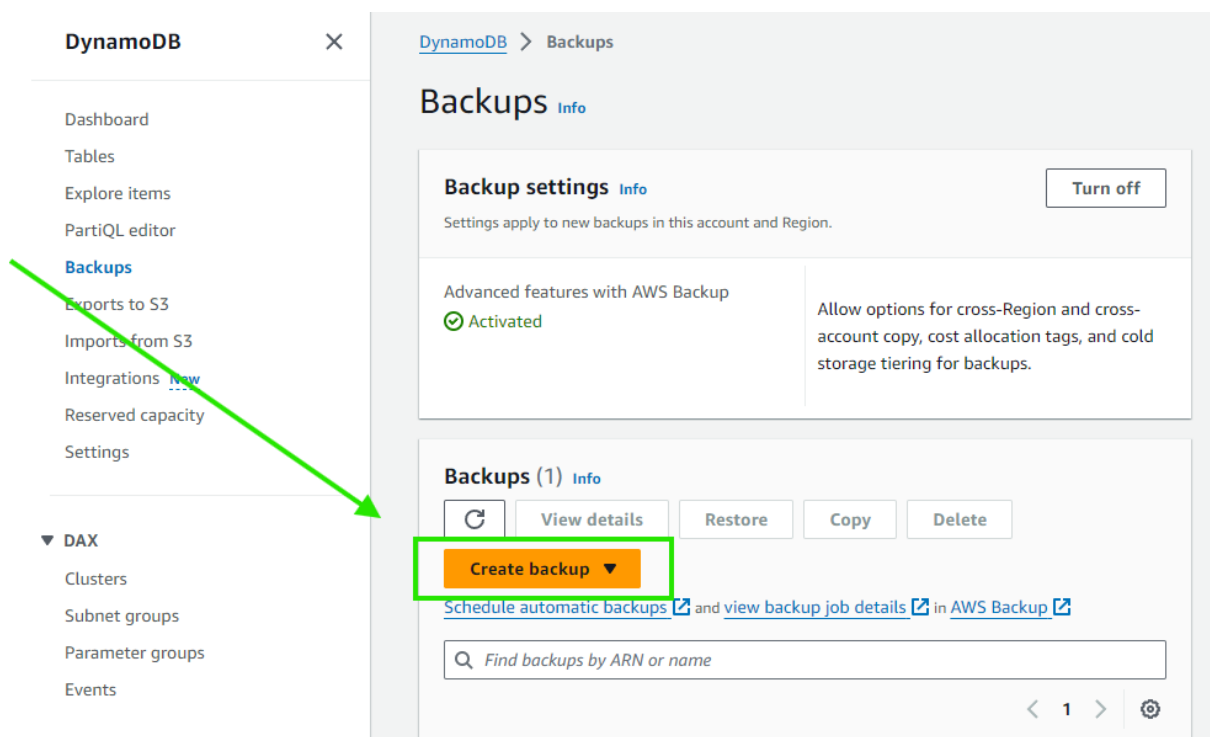
Items returned (3)					
				Actions ▼	Create item
			< 1 >  		
<input type="checkbox"/>	ItemID ... ▲	Category ▼	Price ▼	ProductNa... ▼	StockQuantity ▼
<input type="checkbox"/>	<a href="#">001</a>	Electronics	29.99	Wireless Mouse	150
<input type="checkbox"/>	<a href="#">002</a>	Electronics	79.99	Bluetooth He...	85
<input type="checkbox"/>	<a href="#">003</a>	Accessories	39.99	Laptop Stand	200

**Create an On-Demand Backup**

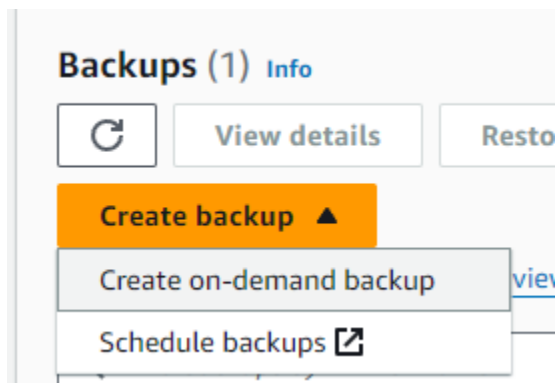
1. Navigate to the **Backups** tab in the DynamoDB console.



2. Click **Create backup**.



3. Select **Create on-demand backup**



4. Add in the **Source table** : MyDynamoDBTable (The name of the created Dynamo DB earlier)

DynamoDB > Backups > Create on-demand backup

## Create on-demand backup

Create a one-time snapshot backup of your table. Schedule automatic backups of your table in [AWS Backup](#)

**Source table** Info

Source table

×
↺

**Backup settings** Info

A backup name will be created automatically.

☒ **Default settings**  
Create a backup that stays in warm storage.

☐ **Customize settings**  
Create a backup that can transition to cold storage and be deleted as it ages.

Backup window Start in 1 hour	Backup management AWS Backup	Transition to cold storage Never
Retention period Always	Backup vault Default	IAM Role AWSBackupDefaultServiceRole

**Tags - optional**

AWS Backup copies tags from the DynamoDB table to the recovery point upon creation. You can specify additional tags to add to the recovery point.

No tags are associated with the resource.

Add new tag

You can add 50 more tags.

Cancel
Create backup

5. For the **Backup Settings**:

- Select **Customize settings**
- Backup management: Select **Backup with DynamoDB**
  - Backup name: MyDynamoDBTableBackup

### Backup settings [Info](#)

☐ Default settings  
Create a backup that stays in warm storage.

☒ Customize settings  
Create a backup that can transition to cold storage and be deleted as it ages.

#### Backup management [Info](#)

☐ Backup with AWS Backup  
Creates a backup with AWS Backup encryption and ARN. Includes options for cross-Region and cross-account copy, tags and cold storage.
 ☒ Backup with DynamoDB  
Creates a backup with DynamoDB encryption and ARN. Additional features not supported.

#### Backup name

This will be used to identify your backup.

Between 3 and 255 characters in length. Only A-Z, a-z, 0-9, underscore characters, hyphens, and periods are allowed.

Cancel
Create backup

- Click **Create backup**

*The backup process may take a few minutes, depending on the size of the table.*

6. Once the backup is created, it will appear in the list under the **Backups** tab.

DynamoDB > Backups

## Backups [Info](#)

### Backup settings [Info](#)

Settings apply to new backups in this account and Region.

Advanced features with AWS Backup  
☒ Activated

Allow options for cross-Region and cross-account copy, cost allocation tags, and cold storage tiering for backups.

Backups (1) [Info](#)

[Schedule automatic backups](#) and [view backup job details](#) in [AWS Backup](#)

<
1
>

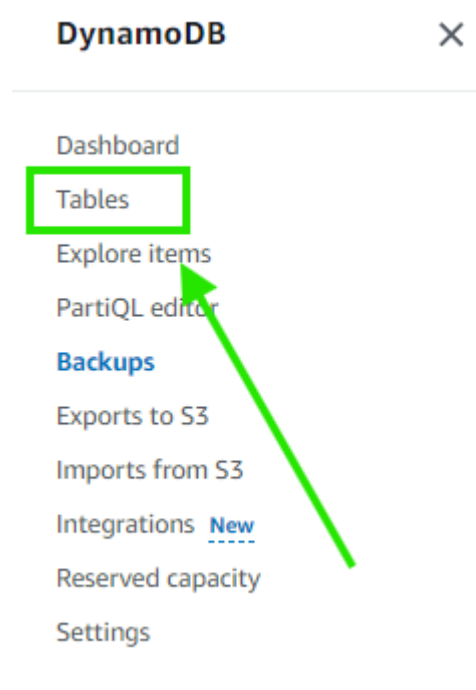
<input type="checkbox"/>	Name	Table	Status	Creatio...	ARN	Size
<input type="checkbox"/>	<a href="#">MyDynamoDBTableBa...</a>	MyDynamoDBTable	<input checked="" type="checkbox"/> Available	August 20...	arn:aws:dynamodb:us-e	

Verify that the backup is complete and check the details to ensure it includes all the items from your table.

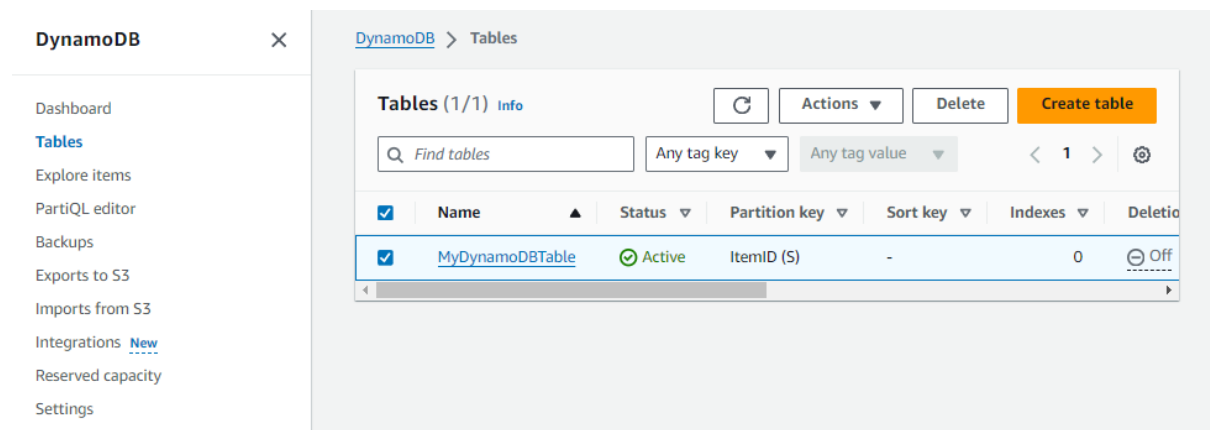
## Simulate Data Loss or Table Deletion

**Important:** Do not delete the table if you are practicing in a production environment. For this lab, assume that data loss has occurred or the table was deleted accidentally.

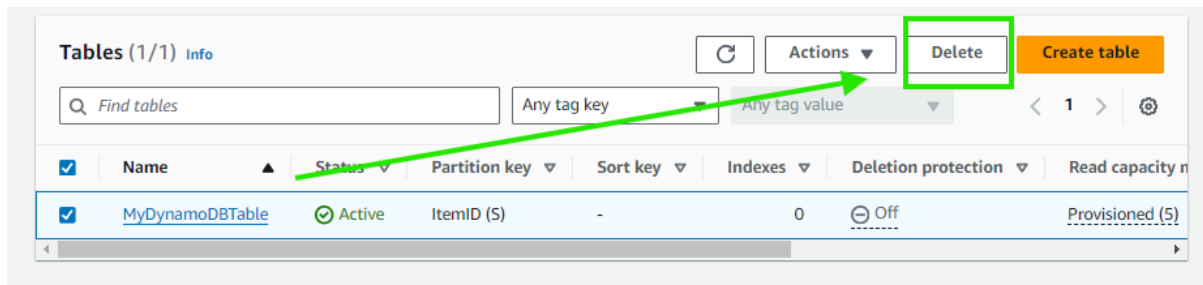
1. Navigate to the Tables Tab of the DynamoDB



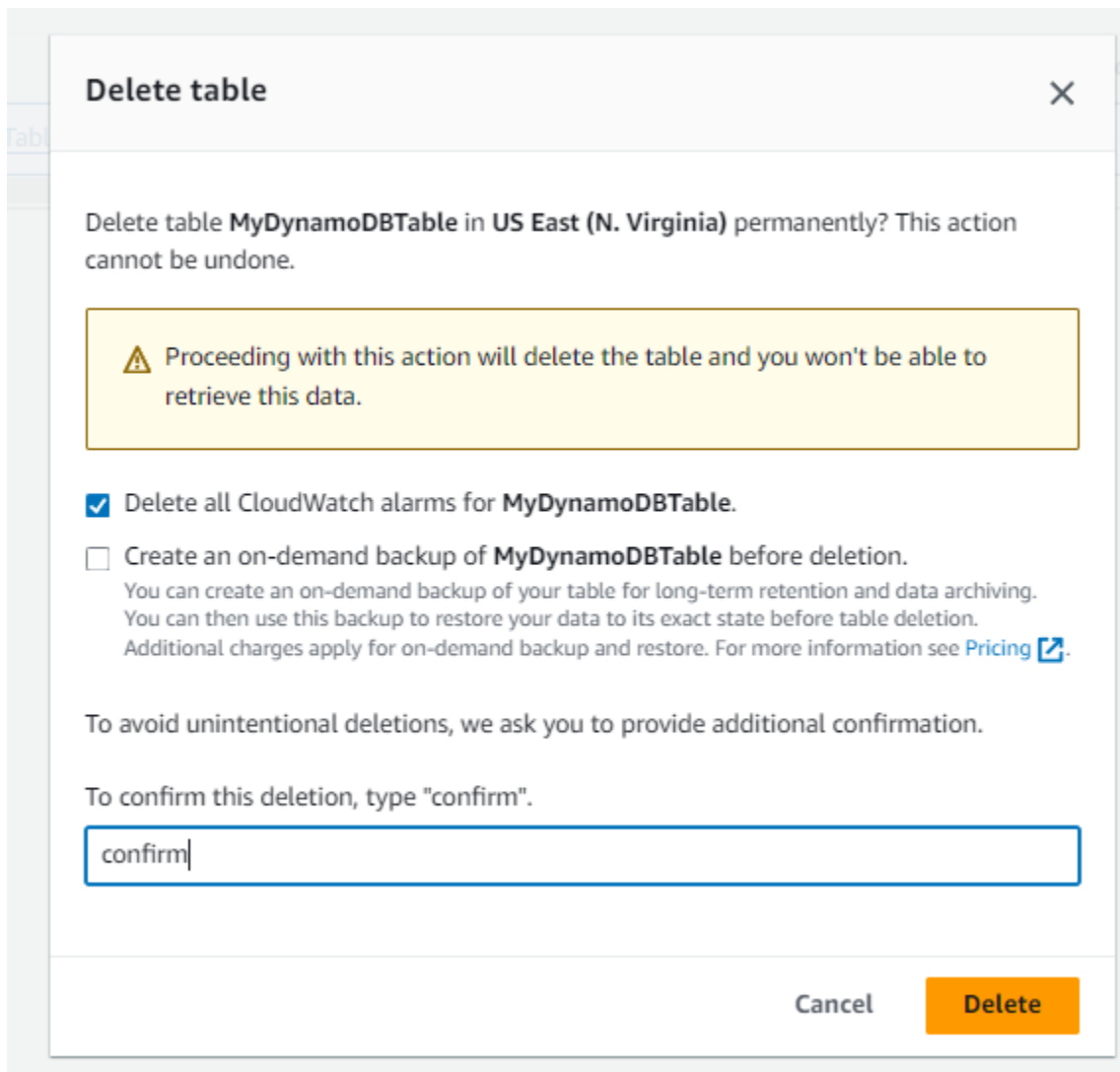
2. Select the table we created earlier, that is MyDynamoDBTable



3. Click on the **Delete** button



4. A Delete table dialog will pop up. Type confirm in the confirmation text box.



5. Click on **Delete**.

*Ignore the Red notification above and focus on the green notification below. This means the table is being deleted.*



⊗ Your delete table request encountered issues. User: arn:aws:iam::086709117320:user/Playcloud-juanEX1NCV is not authorized to perform: application-autoscaling:DeregisterScalableTarget on resource: arn:aws:application-autoscaling:us-east-1:086709117320:scalable-target/\* because no identity-based policy allows the application-autoscaling:DeregisterScalableTarget action. ✕

✔ The request to delete the "MyDynamoDBTable" table has been submitted successfully. ✕

[DynamoDB](#) > Tables

Tables (1) Info ↻ Actions ▼ Delete Create table

Any tag key ▼ Any tag value ▼ < 1 > ⚙️

<input type="checkbox"/>	Name ▲	Status ▼	Partition key ▼	Sort key ▼	Indexes ▼	Deletion protection ▼	Read capacity
<input type="checkbox"/>	MyDynamoDBTable	⚠️ Deleting	-	-	0	⊖ Off	⊖ Provisioned

6. Wait for it to be deleted. Click the Refresh icon or refresh the page itself if necessary.

[DynamoDB](#) > Tables

Tables (0) Info ↻ Actions ▼ Delete Create table

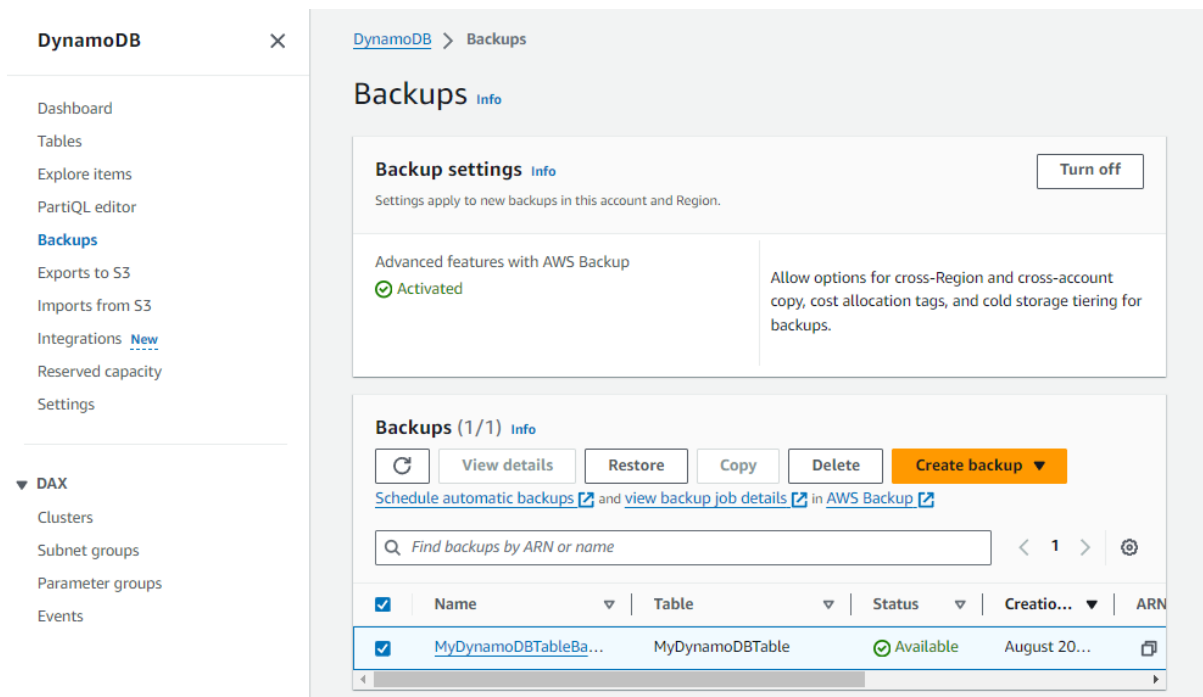
Any tag key ▼ Any tag value ▼ < 1 > ⚙️

<input type="checkbox"/>	Na... ▲	Stat... ▼	Partition key ▼	Sort key ▼	Indexes ▼	Deletion protection ▼	Read capacity mode ▼
You have no tables in this account in this AWS Region.							

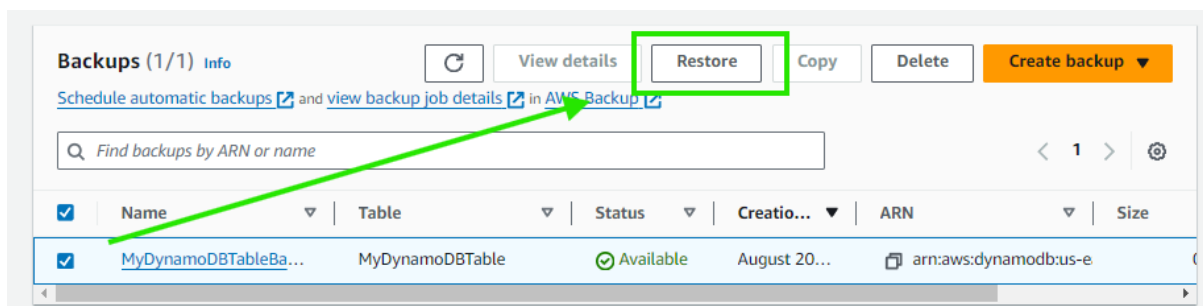
Create table

## Restore the Table from Backup

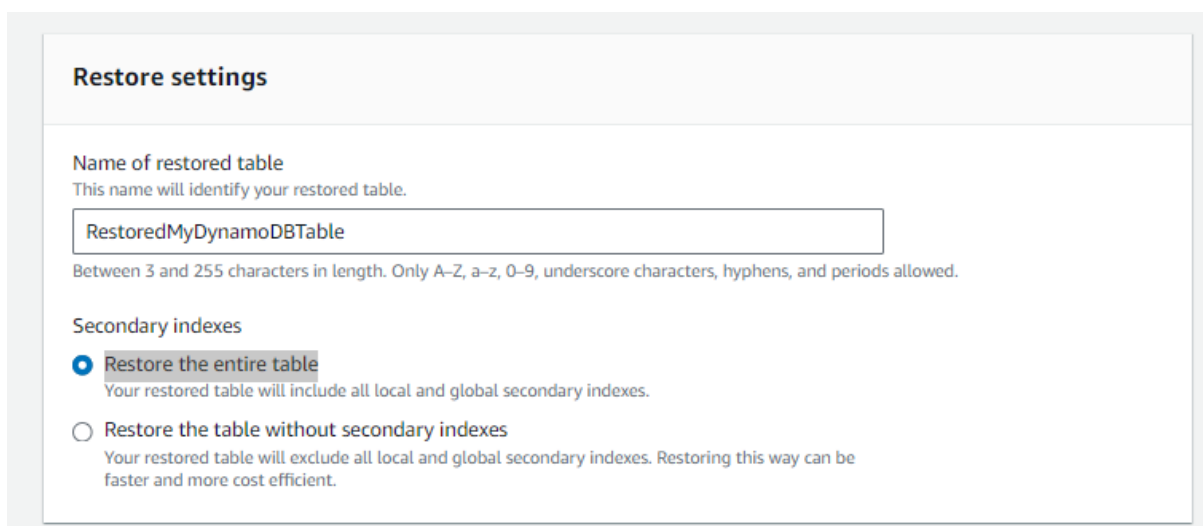
1. Go to the **Backups** tab and select the backup you created earlier.



2. Click **Restore**.



3. Enter a new table name, e.g., RestoredMyDynamoDBTable, and select **Restore the entire table** for the Secondary indexes.



4. Let the rest as default.

### Destination AWS Region

☒ Same Region (N. Virginia)  
Restore the table to the same Region as the original table.

☐ Cross-Region  
Restore the table to a different Region for greater redundancy but with higher data transfer costs.

### Encryption at rest settings [Info](#)

All user data stored in Amazon DynamoDB is fully encrypted at rest. By default, Amazon DynamoDB manages the encryption key, and you are not charged any fee for using it.

#### Encryption key management

☒ Owned by Amazon DynamoDB  
The AWS KMS key is owned and managed by DynamoDB. You are not charged an additional fee for using this key.

☐ AWS managed key  
Key alias: aws/dynamodb. The key is stored in your account and is managed by AWS Key Management Service (AWS KMS). AWS KMS charges apply.

☐ Stored in your account, and owned and managed by you  
Choose a key that is owned and managed by you, and stored in AWS KMS.

**Restores can take several hours to complete. After your table is restored from the backup, you might need to reapply configuration settings. [Learn more](#)**

Cancel
Restore

5. Click **Restore** to create a new table from the backup.

You will be redirected to the tables tab. Please wait for the status to become **active**. This will take time, so click on the **refresh** icon or refresh the page occasionally.

DynamoDB

Dashboard
 Tables
 Explore items
 PartiQL editor
 Backups
 Exports to S3
 Imports from S3
 Integrations [New](#)
 Reserved capacity
 Settings

DynamoDB > Tables

Tables (1) [Info](#)

Any tag key

Any tag value

< 1 >

<input type="checkbox"/>	Name	Status	Partition key	Sort key	Indexes
<input type="checkbox"/>	<a href="#">RestoredMyDynamoDBTable</a>	<span>Active</span>	ItemID (S)	-	0

6. Once the restoration is complete, navigate to the new table (RestoredMyDynamoDBTable) and verify that all the data has been restored correctly.

[DynamoDB](#) > [Explore items](#) > RestoredMyDynamoDBTable

Tables (1) ×

Any tag key ▾

Any tag value ▾

Find tables

< 1 > ⚙

RestoredMyDynamoDBTable

RestoredMyDynamoDBTable

Autopreview View table details

▼ Scan or query items

☒ Scan

☐ Query

Select a table or index

Table - RestoredMyDynamoDBTable ▾

Select attribute projection

All attributes ▾

► Filters

Run

Reset

✔ Completed. Read capacity units consumed: 3.5

×

Items returned (3)

↻ Actions ▾ Create item

< 1 > ⚙

<input type="checkbox"/>	ItemID (String) ▾	Category ▾	Price ▾	ProductNa... ▾	StockQuantity ▾
<input type="checkbox"/>	<a href="#">001</a>	Electronics	29.99	Wireless Mouse	150
<input type="checkbox"/>	<a href="#">003</a>	Accessories	39.99	Laptop Stand	200
<input type="checkbox"/>	<a href="#">002</a>	Electronics	79.99	Bluetooth He...	85

That's it! Congratulations! You successfully backed up and restored an Amazon DynamoDB table, demonstrating essential skills for managing data resilience in the cloud. By creating an on-demand backup, you ensure that your data is safeguarded against accidental deletion or corruption. You also learned how to restore a table from a backup, simulate a recovery scenario, and verify the integrity of the restored data. Happy learning!