

DYNAMODB LAB GUIDE

AWS Management Console

Login onto the AWS Management console using your own credentials

Preferable to set your region to **US East (N. Virginia)** which is us-east-1

Navigate to the database service section and, click on “DynamoDB”

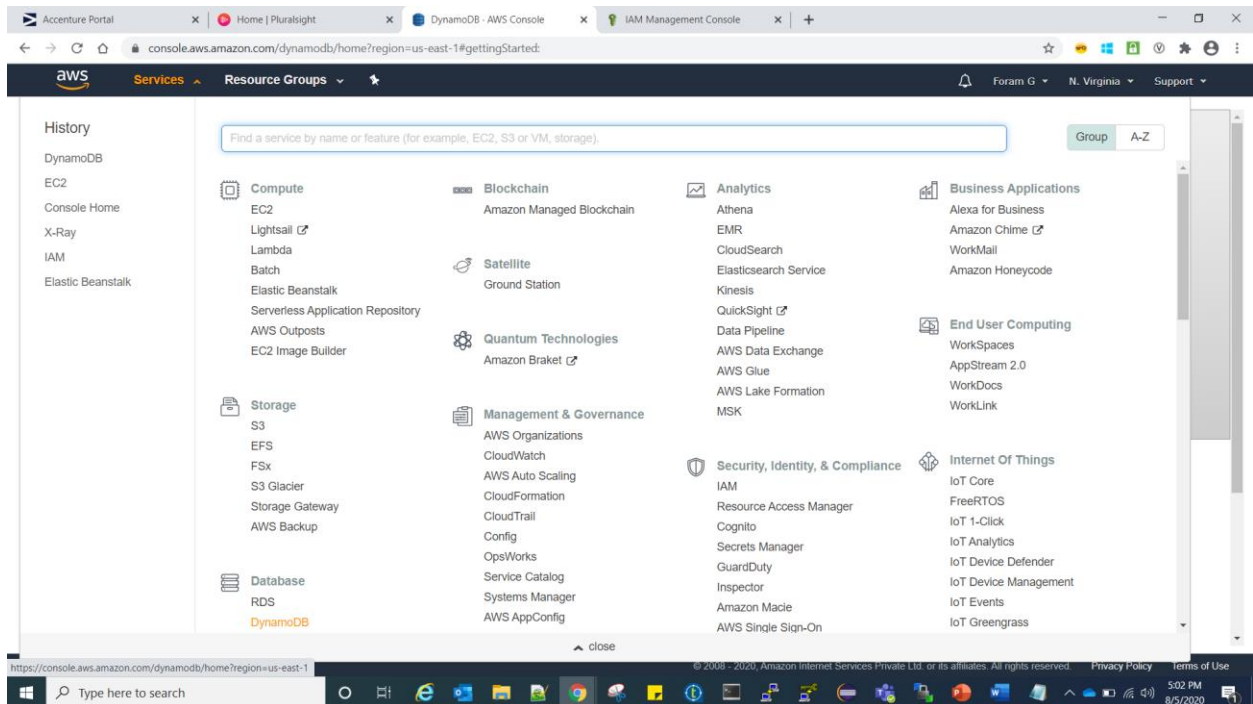
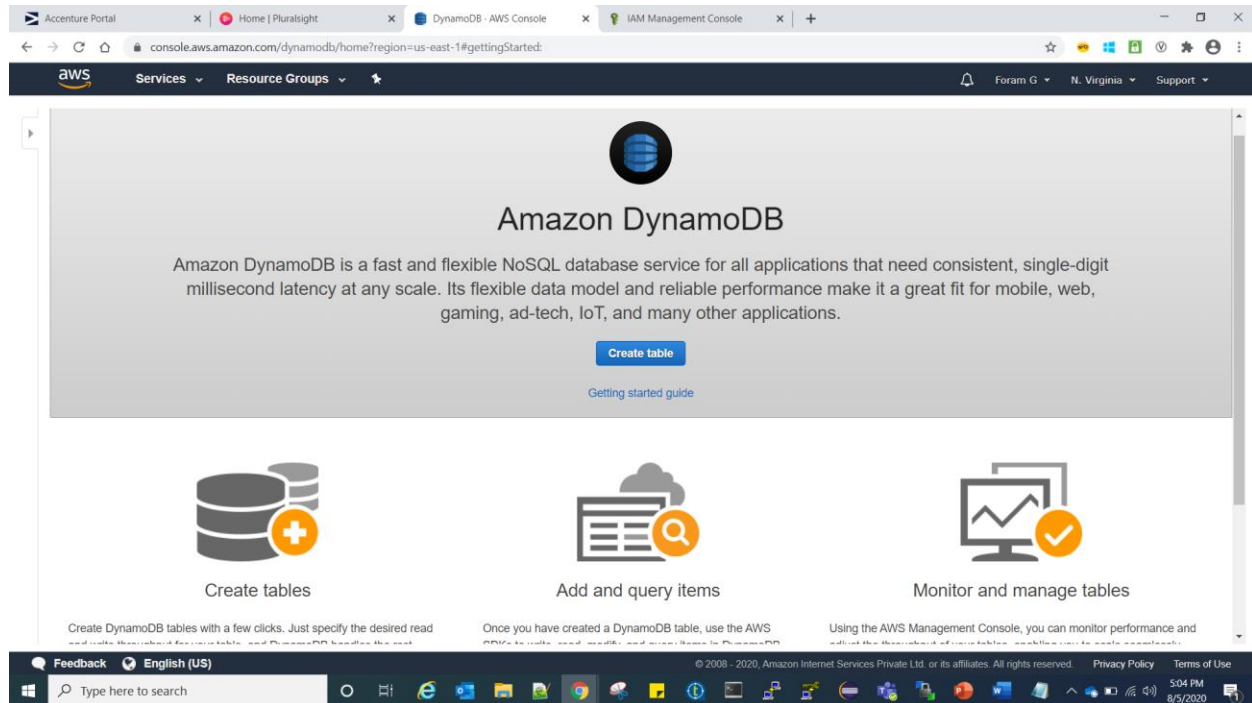


Table creation

Select the “create table” button



Mention details for

Table name: iucr

primary key: iucr_code and change the datatype to “Number”, as shown below

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* ⓘ

Primary key* Partition key

ⓘ

☐ 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.

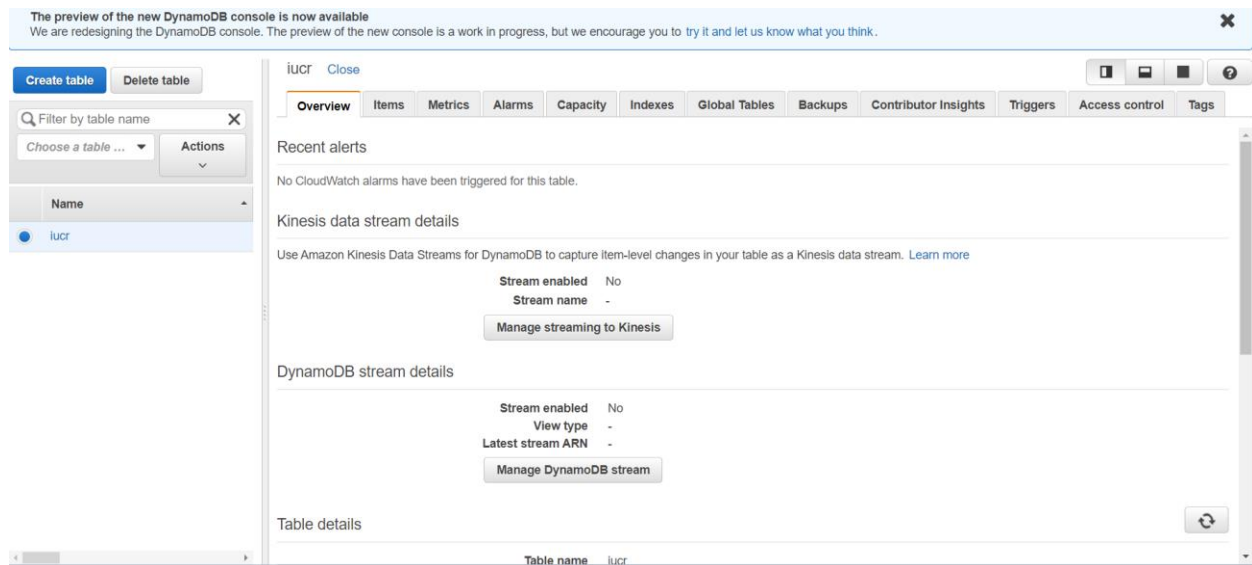
☒ Use default settings

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

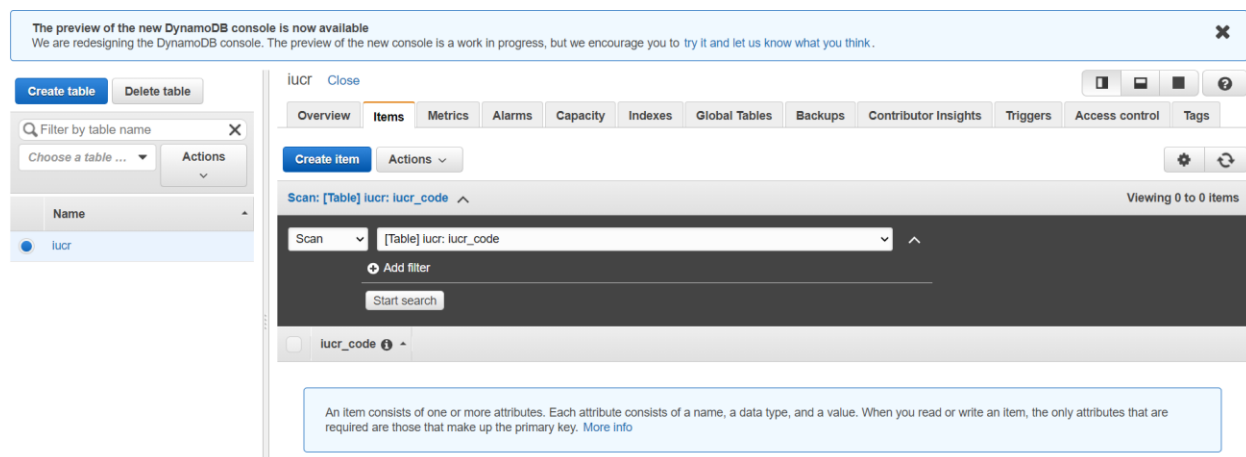
Click on “create” and the table is created as shown below.



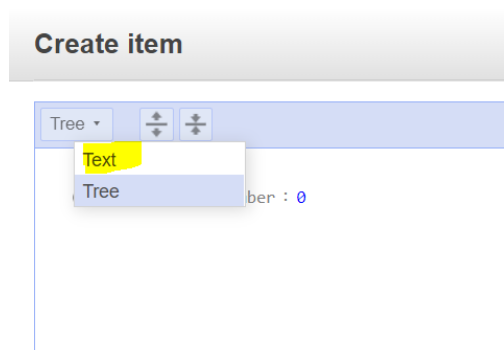
Adding Items

Click on “Items” Tab

Then click on “create item”



Click on the Drop down next to Tree and make it Text



Create item

Text ☐ DynamoDB JSON

```
1 {  
2   "iucr_code": 0  
3 }
```

Change the iucr_code to 110 for example and click on “Save” as highlighted.

Create item ×

Text ☐ DynamoDB JSON

```
1 {  
2   "iucr_code": 110  
3 }
```

Cancel **Save**

The first item we just inserted is visible.

Create table Delete table

Filter by table name ×

Choose a table ... Actions

Name

- lucr

iucr Close

Overview **Items** Metrics Alarms Capacity Indexes Global Tables Backups Contributor Insights Triggers Access control Tags

Create item Actions

Scan: [Table] iucr: iucr_code ^ Viewing 1 to 1 items

Scan [Table] iucr: iucr_code ^

Add filter

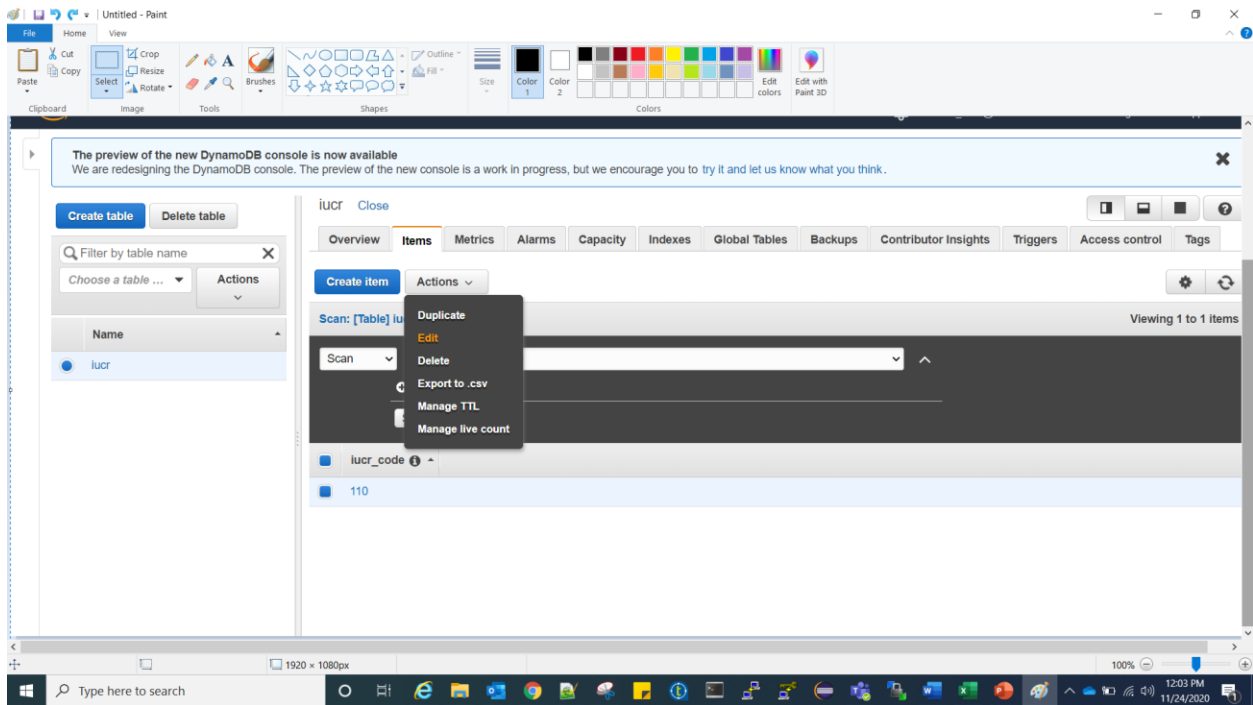
Start search

iucr_code ⓘ

110

Editing Items

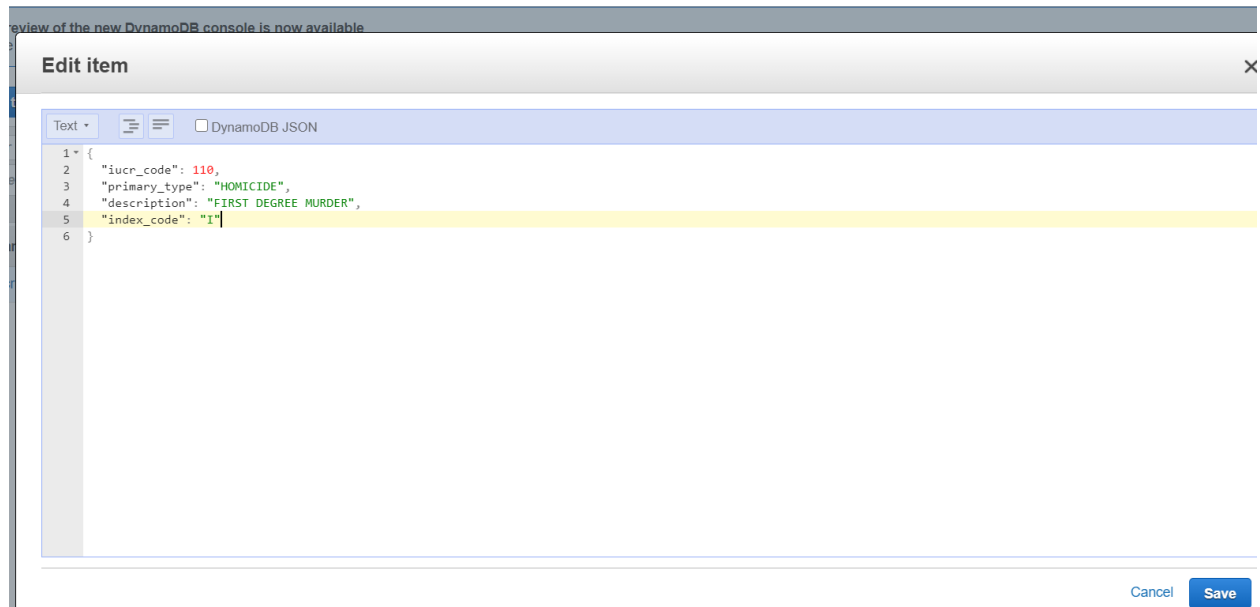
Select the record and click on Actions->Edit to add more attributes to the Item



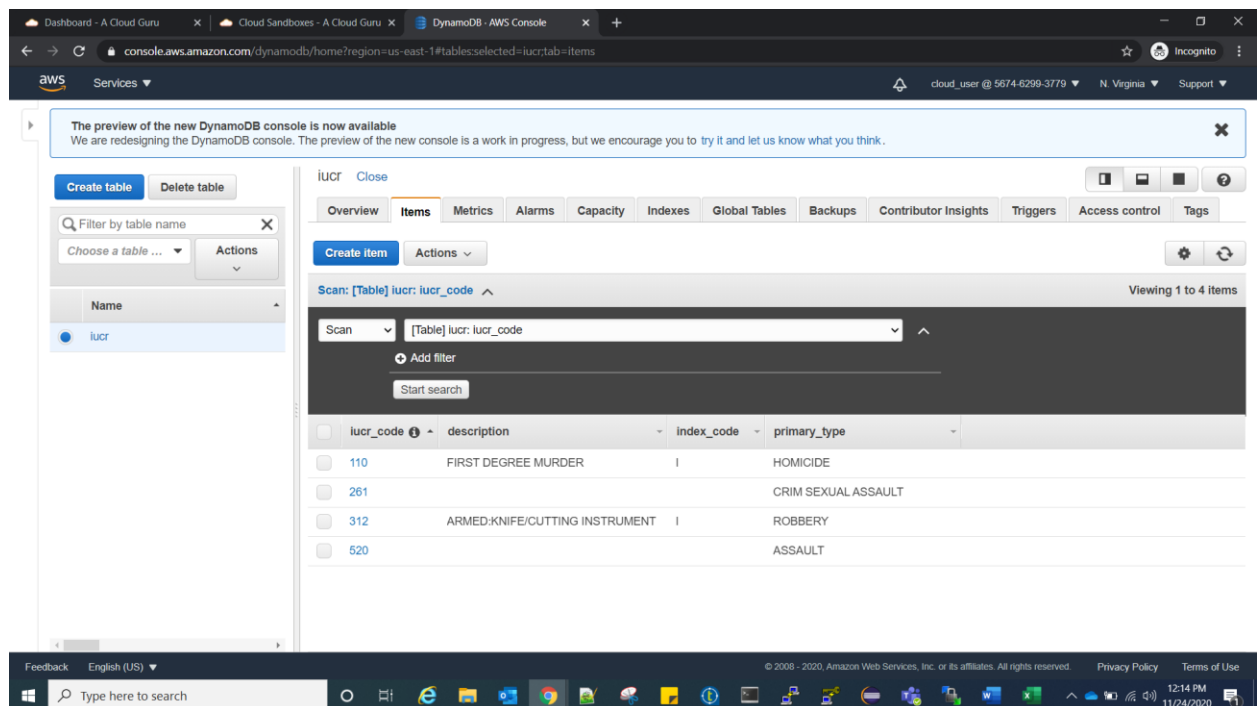
Change the Tree to Text



Specify additional attributes and click on “Save”

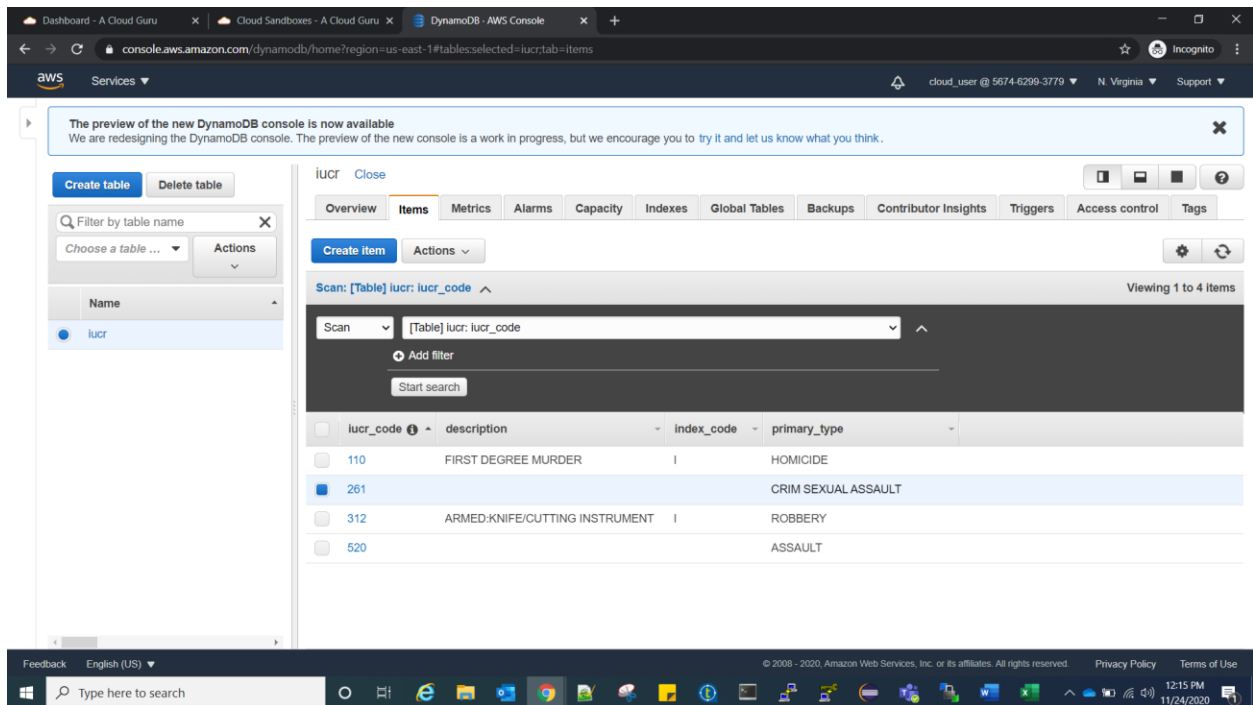


Similarly adding more items, data now looks like this

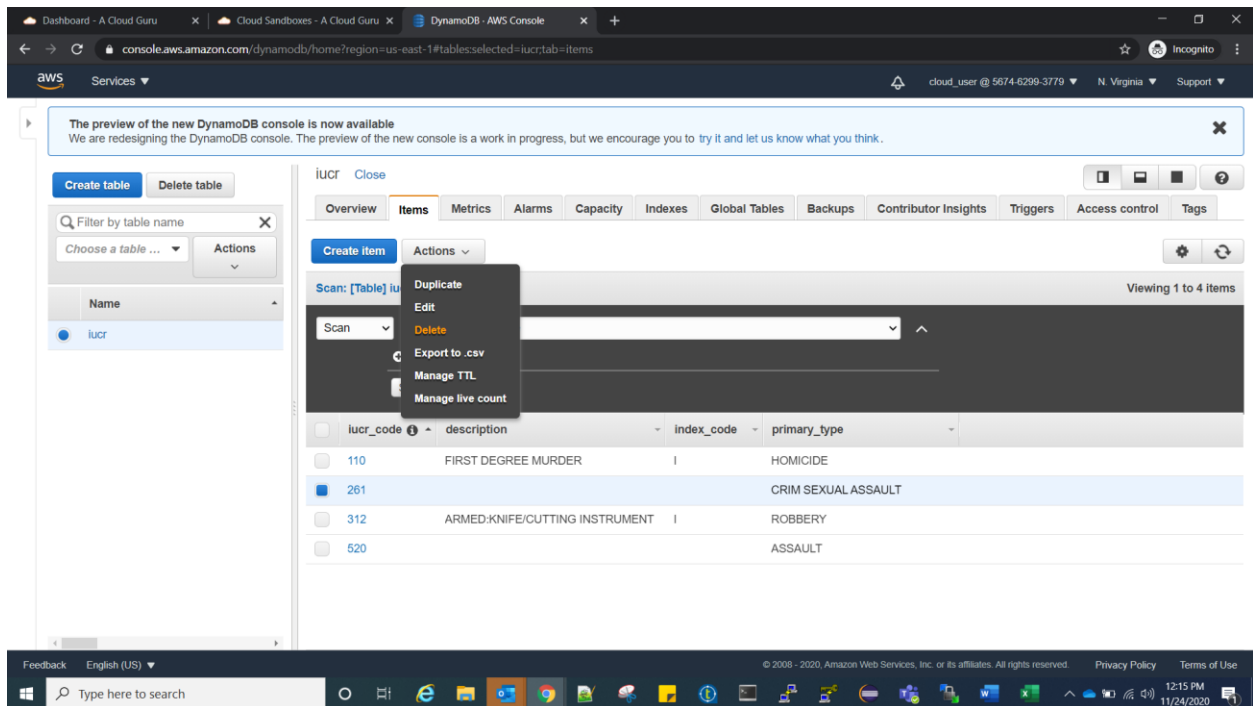


Deleting Items

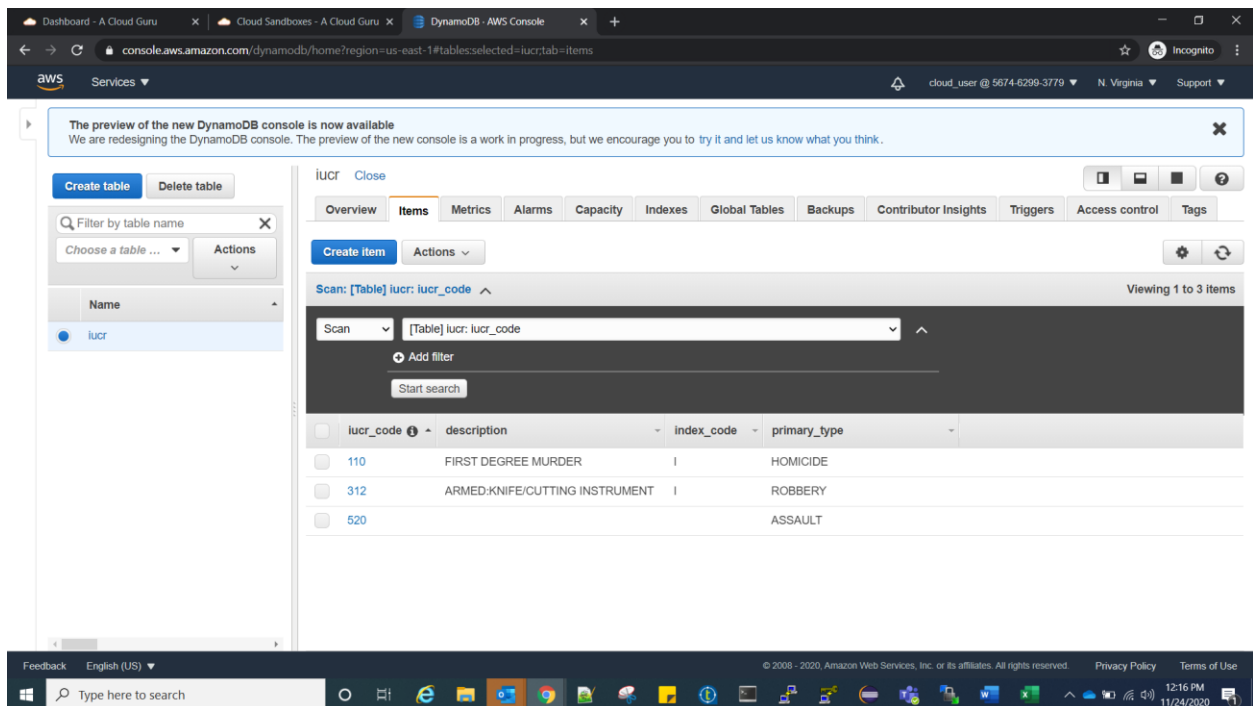
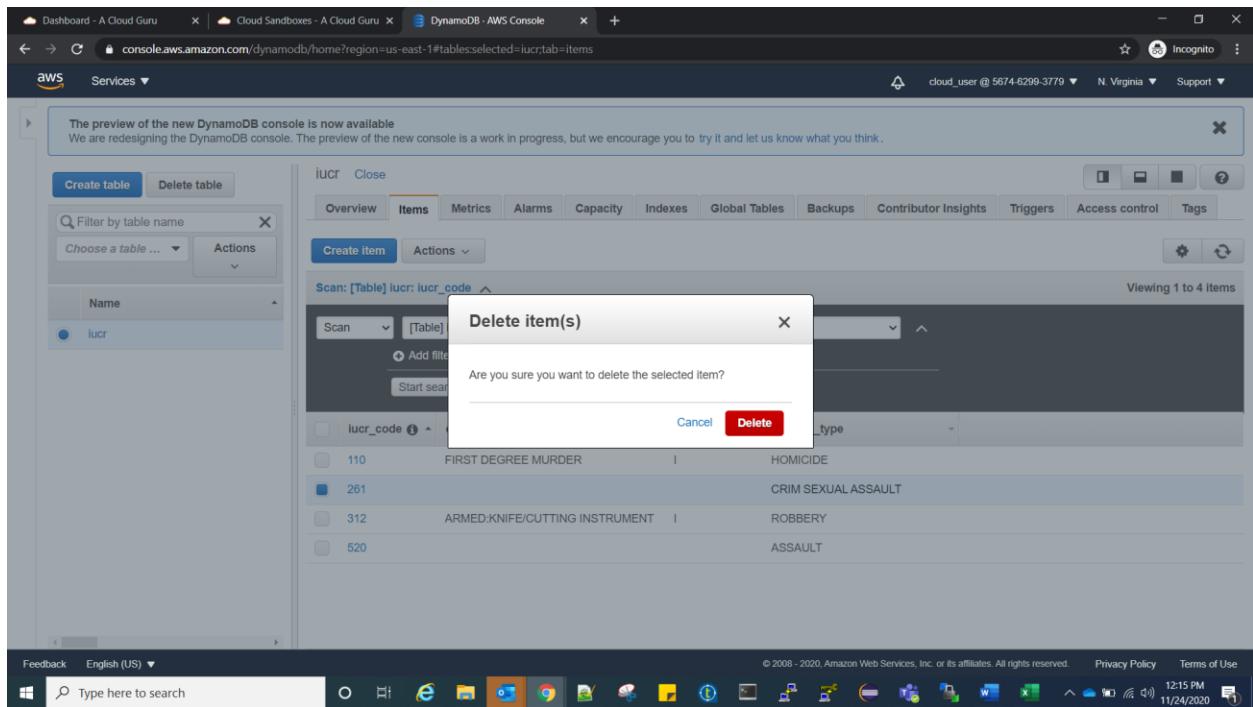
Select the item you want to delete



Click on Actions->Delete



Click on "Delete" on the prompt



Dynamodb Operations

- Query

To query data, using primary key attributes, select dropdown next to Scan and select "query"

Dashboard - A Cloud Guru x Cloud Sandboxes - A Cloud Guru x DynamoDB - AWS Console x +

console.aws.amazon.com/dynamodb/home?region=us-east-1#tables:selected=iucr;tab=items

aws Services

The preview of the new DynamoDB console is now available
We are redesigning the DynamoDB console. The preview of the new console is a work in progress, but we encourage you to try it and let us know what you think.

Create table Delete table

Filter by table name
Choose a table ... Actions

Name
iucr

iucr Close

Overview Items Metrics Alarms Capacity Indexes Global Tables Backups Contributor Insights Triggers Access control Tags

Create item Actions

Scan: [Table] iucr: iucr_code

Viewing 1 to 3 items

Scan [Table] iucr: iucr_code

Scan Add filter

Query Start search

iucr_code	description	index_code	primary_type
110	FIRST DEGREE MURDER	I	HOMICIDE
312	ARMED KNIFE/CUTTING INSTRUMENT	I	ROBBERY
520			ASSAULT

Feedback English (US)

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Specify any existing value for Partition key iucr_code (for e.g. 110) and click on “Start search”

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console.aws.amazon.com/dynamodb/home?region=us-east-1#tables:selected=iucr;tab=items

aws Services

The preview of the new DynamoDB console is now available
We are redesigning the DynamoDB console. The preview of the new console is a work in progress, but we encourage you to try it and let us know what you think.

Create table Delete table

Filter by table name
Choose a table ... Actions

Name
iucr

iucr Close

Overview Items Metrics Alarms Capacity Indexes Global Tables Backups Contributor Insights Triggers Access control Tags

Create item Actions

Query: [Table] iucr: iucr_code

Viewing 1 to 1 items

Query [Table] iucr: iucr_code

Partition key iucr_code Number = 110

Add filter

Sort Ascending Descending

Attributes All Projected

Start search

iucr_code	description	index_code	primary_type
110	FIRST DEGREE MURDER	I	HOMICIDE

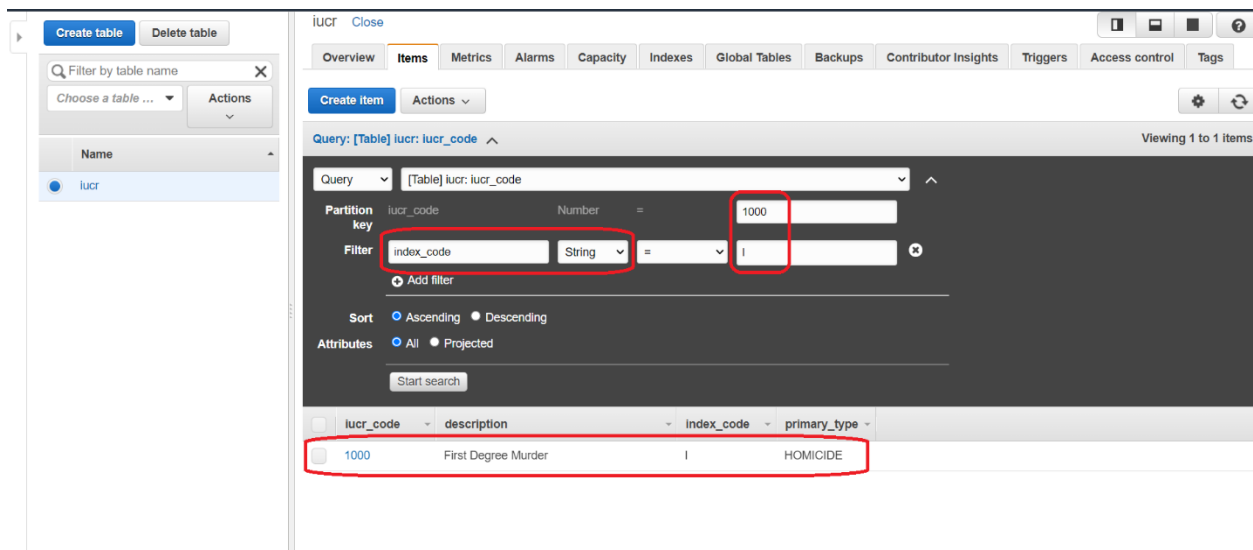
Feedback English (US)

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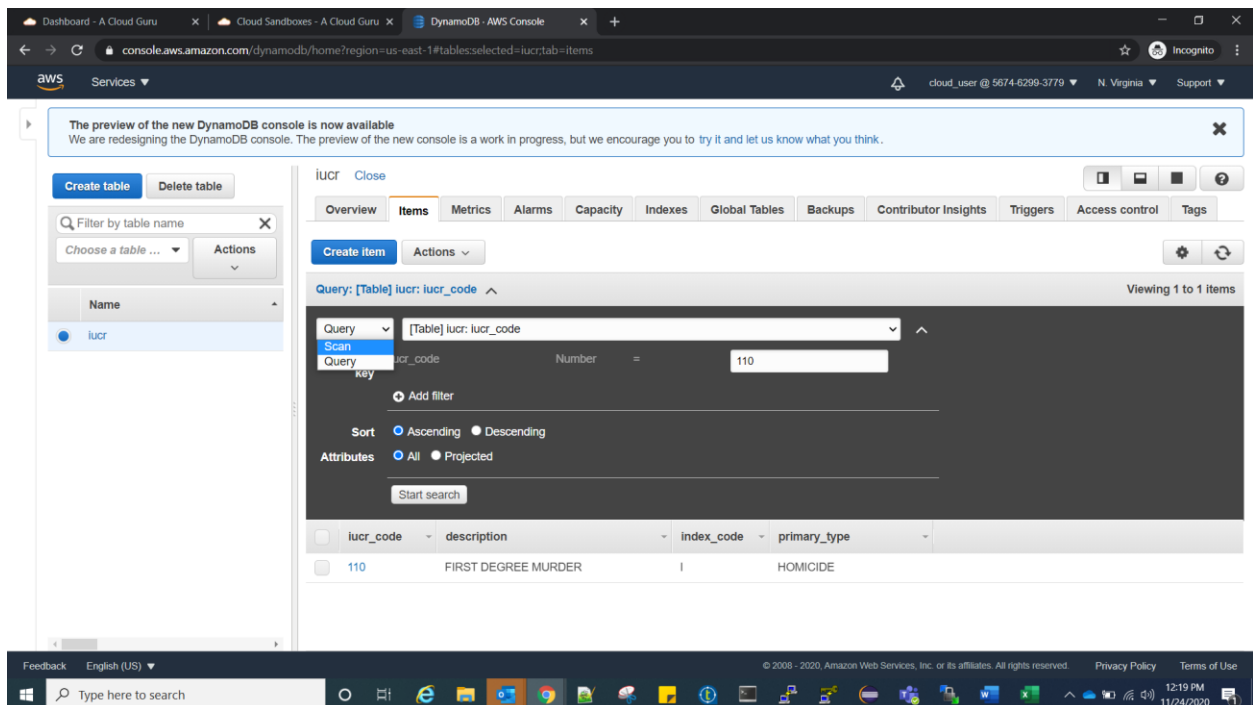
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- To perform query with a filter condition

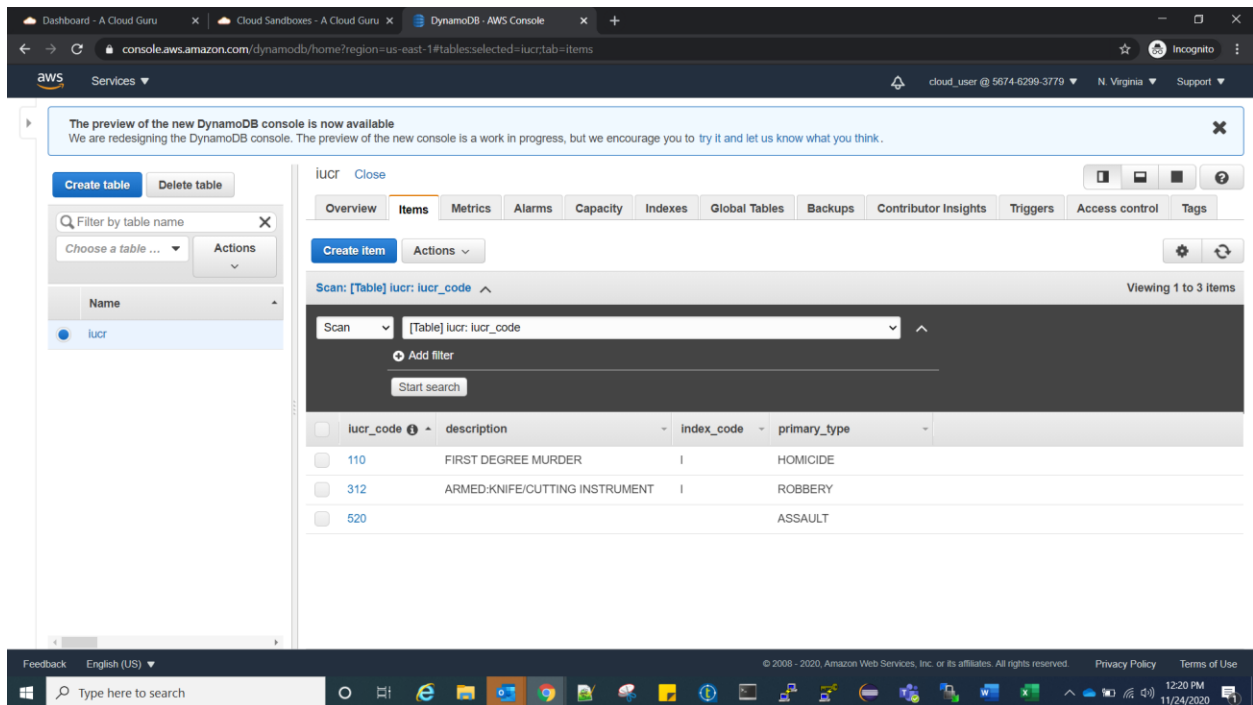


- Scan

To perform scan operation, select “Scan” in the dropdown



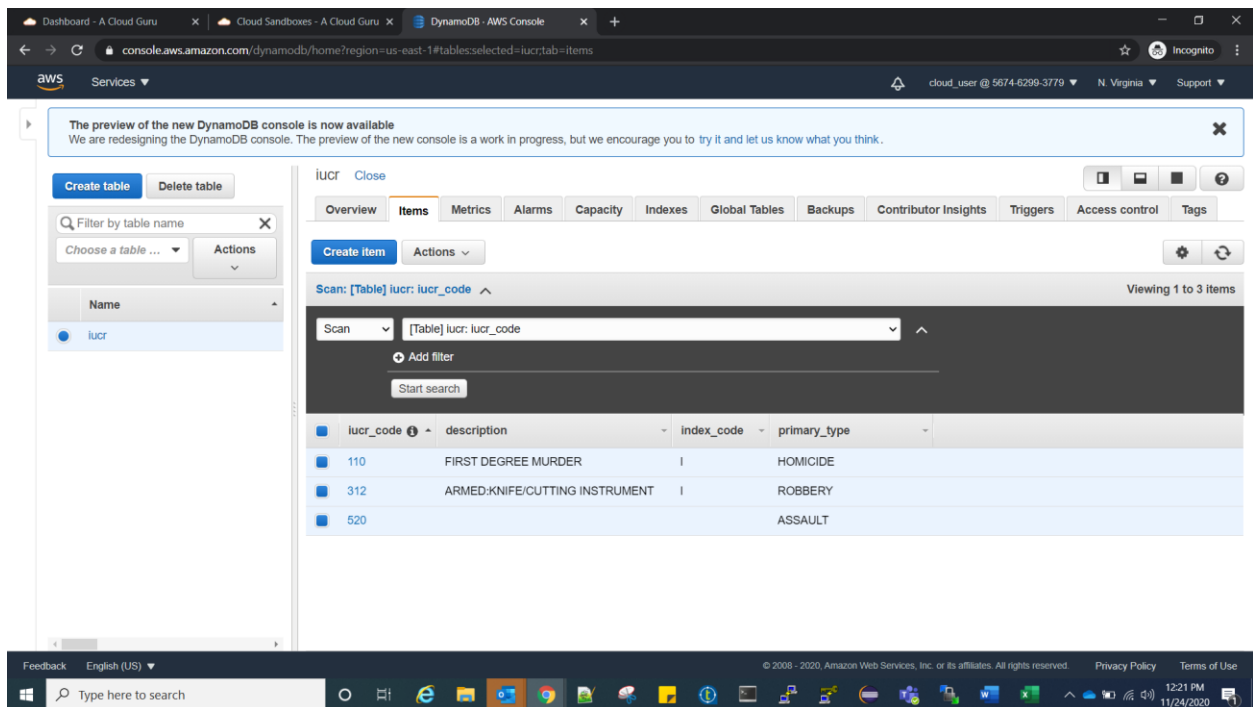
and click on “Start search”



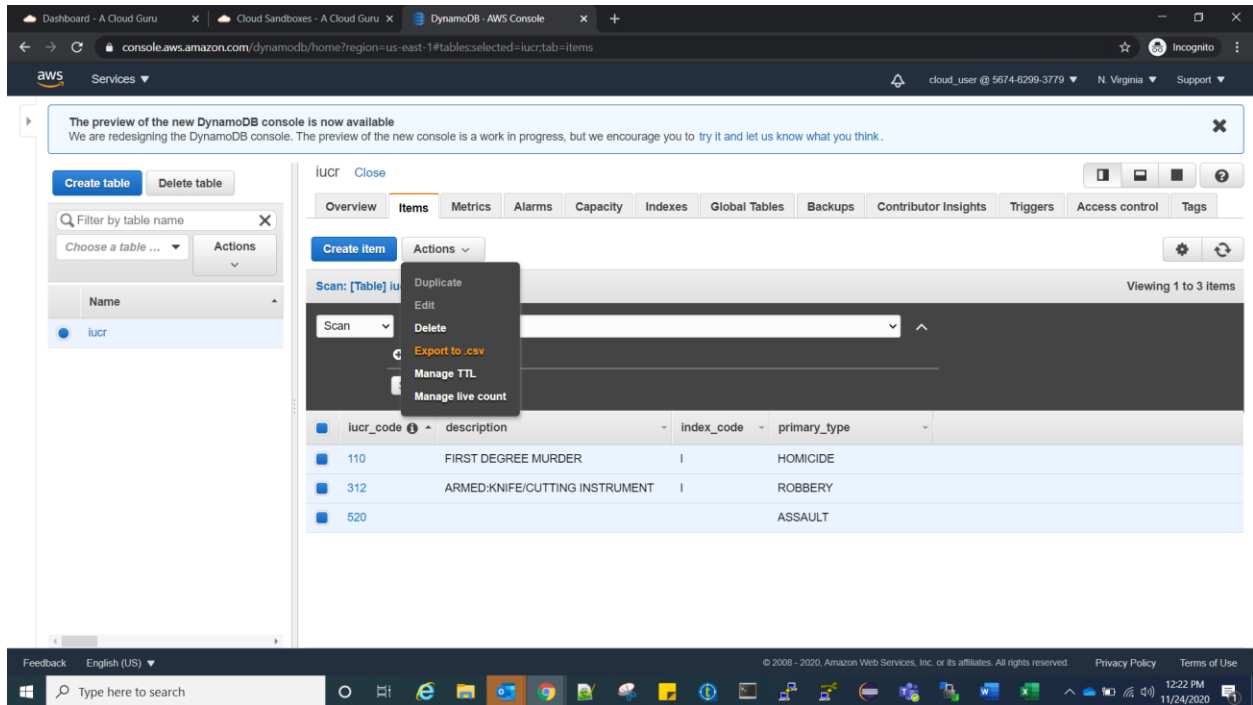
Data Export

To export data from Dynamodb table,

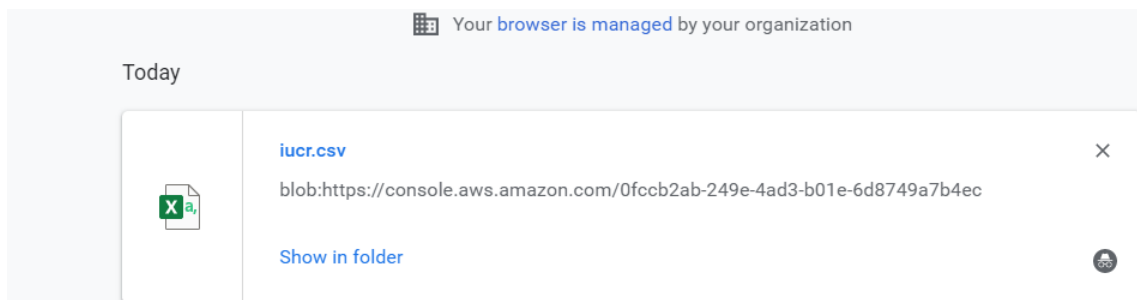
Select all records, by clicking on button before iucr_code column



select Actions->Export to .csv



Check the Downloads directory for "iucr.csv"

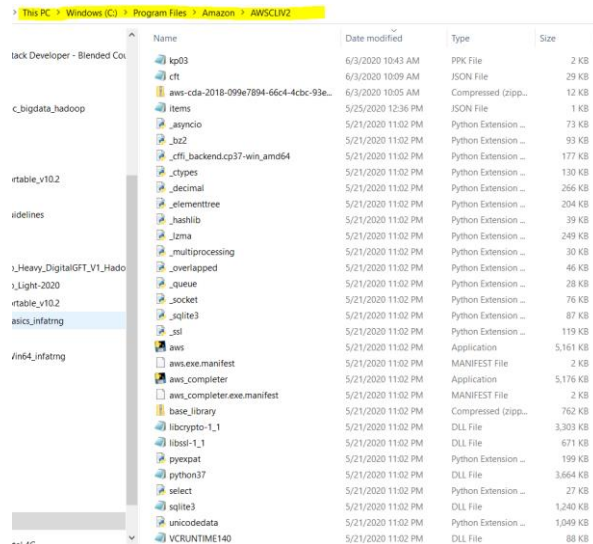


Not set					Unrestrict
	A	B	C	D	E
1	iucr_code (N)	primary_type (S)	description (S)	index_code (S)	
2	110	HOMICIDE	FIRST DEGREE MURDER	I	
3	312	ROBBERY	ARMED:KNIFE/CUTTING INSTRUMENT	I	
4	520	ASSAULT			
5					
6					
7					
8					
9					
10					

AWS Management CLI

Installation Link : <https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2-windows.html>

To invoke CLI, go to the below folder



Type "cmd" in the Address bar

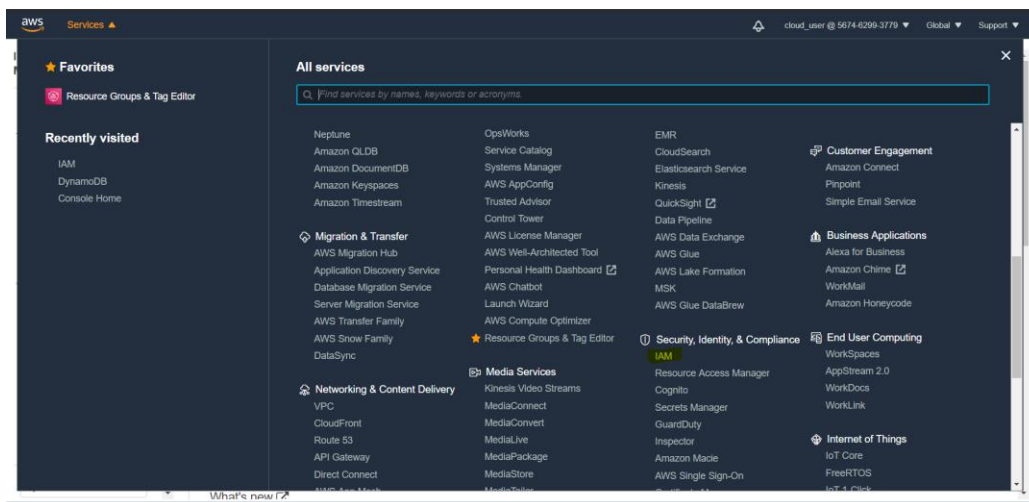
cmd C:\Windows\System32\cmd.exe

Microsoft Windows [Version 10.0.18363.959]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Program Files\Amazon\AWSCLIV2>

Group and User Creation

On the AWS Management console, go to Services->IAM under Security, Identity, & Compliance



Create group “Developers” and create a user “pooja” and assign “Pooja” to the newly created group.

The screenshot shows the AWS IAM console in the 'Set Group Name' step of the 'Create New Group Wizard'. The browser address bar shows 'console.aws.amazon.com/iam/home?region=us-east-1#/groups'. The left sidebar lists the steps: 'Step 1: Group Name' (active), 'Step 2: Attach Policy', and 'Step 3: Review'. The main content area has the title 'Set Group Name' and a subtitle 'Specify a group name. Group names can be edited any time.' Below this, the 'Group Name' field contains the text 'Developers'. A note below the field says 'Example: Developers or ProjectAlpha' and 'Maximum 128 characters'. At the bottom right of the main area are 'Cancel' and 'Next Step' buttons. The footer shows 'Feedback', 'English (US)', and copyright information.

Dashboard - A Cloud Guru x Cloud Sandboxes - A Cloud Guru x DynamoDB - AWS Console x IAM Management Console x +

console.aws.amazon.com/iam/home?region=us-east-1#/groups

aws Services

cloud_user @ 5674-6299-3779 Global Support

Create New Group Wizard

Step 1: Group Name

Step 2: Attach Policy

Step 3: Review

Set Group Name

Specify a group name. Group names can be edited any time.

Group Name: Developers

Example: Developers or ProjectAlpha

Maximum 128 characters

Cancel Next Step

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The screenshot shows the AWS IAM console in the 'Attach Policy' step of the 'Create New Group Wizard'. The browser address bar shows 'console.aws.amazon.com/iam/home?region=us-east-1#/groups'. The left sidebar lists the steps: 'Step 1: Group Name', 'Step 2: Attach Policy' (active), and 'Step 3: Review'. The main content area has the title 'Attach Policy' and a subtitle 'Select one or more policies to attach. Each group can have up to 10 policies attached.' Below this, there is a filter section with 'Filter: Policy Type' and a dropdown menu set to 'dynamo'. To the right of the filter is 'Showing 5 results'. Below the filter is a table with 4 columns: 'Policy Name', 'Attached Entities', and 'Creation Time'. The table lists 5 policies, all with 0 attached entities. At the bottom right of the main area are 'Cancel', 'Previous', and 'Next Step' buttons. The footer shows 'Feedback', 'English (US)', and copyright information.

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console.aws.amazon.com/iam/home?region=us-east-1#/groups

aws Services

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Create New Group Wizard

Step 1: Group Name

Step 2: Attach Policy

Step 3: Review

Attach Policy

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

Filter: Policy Type dropdown menu set to dynamo

Showing 5 results

	Policy Name	Attached Entities	Creation Time
<input checked="" type="checkbox"/>	AmazonDynamoDBFullAccess	0	2015-02-07 00:10 UTC+0530
<input type="checkbox"/>	AmazonDynamoDBFullAccesswithDataPipeline	0	2015-02-07 00:10 UTC+0530
<input type="checkbox"/>	AmazonDynamoDBReadOnlyAccess	0	2015-02-07 00:10 UTC+0530
<input type="checkbox"/>	AWSLambdaDynamoDBExecutionRole	0	2015-04-09 20:39 UTC+0530
<input type="checkbox"/>	AWSLambdaInvocation-DynamoDB	0	2015-02-07 00:10 UTC+0530

Cancel Previous Next Step

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console.aws.amazon.com/iam/home?region=us-east-1#/groups

cloud_user @ 5674-6299-3779 Global Support

Create New Group Wizard

Step 1 : Group Name
Step 2 : Attach Policy
Step 3 : Review

Review

Review the following information, then click **Create Group** to proceed.

Group Name	Developers	Edit Group Name
Policies	arn:aws:iam::aws:policy/AmazonDynamoDBFullAccess	Edit Policies

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

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console.aws.amazon.com/iam/home?region=us-east-1#/users\$new?step=details

cloud_user @ 5674-6299-3779 Global Support

Add user

1 2 3 4 5

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.aws.amazon.com/iam/home?region=us-east-1#/users\$new?step=permissions&accessKey&userNames=Pooja

cloud_user @ 5674-6299-3779 Global Support

Add user

1 2 3 4 5

Set permissions

Add user to group

Copy permissions from existing user

Attach existing policies directly

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. [Learn more](#)

Add user to group

Create group Refresh

Search

Showing 1 result

Group	Attached policies
<input checked="" type="checkbox"/> Developers	AmazonDynamoDBFullAccess

Cancel Previous Next: Tags

Feedback English (US)

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console.aws.amazon.com/iam/home?region=us-east-1#/users\$new?step=review&accessKey&userNames=Pooja&groups=Developers

cloud_user @ 5674-6299-3779 Global Support

Add user

1 2 3 4 5

Review

Review your choices. After you create the user, you can view and download the autogenerated password and access key.

User details

User name	Pooja
AWS access type	Programmatic access - with an access key
Permissions boundary	Permissions boundary is not set

Permissions summary

The user shown above will be added to the following groups.

Type	Name
Group	Developers

Tags

No tags were added.

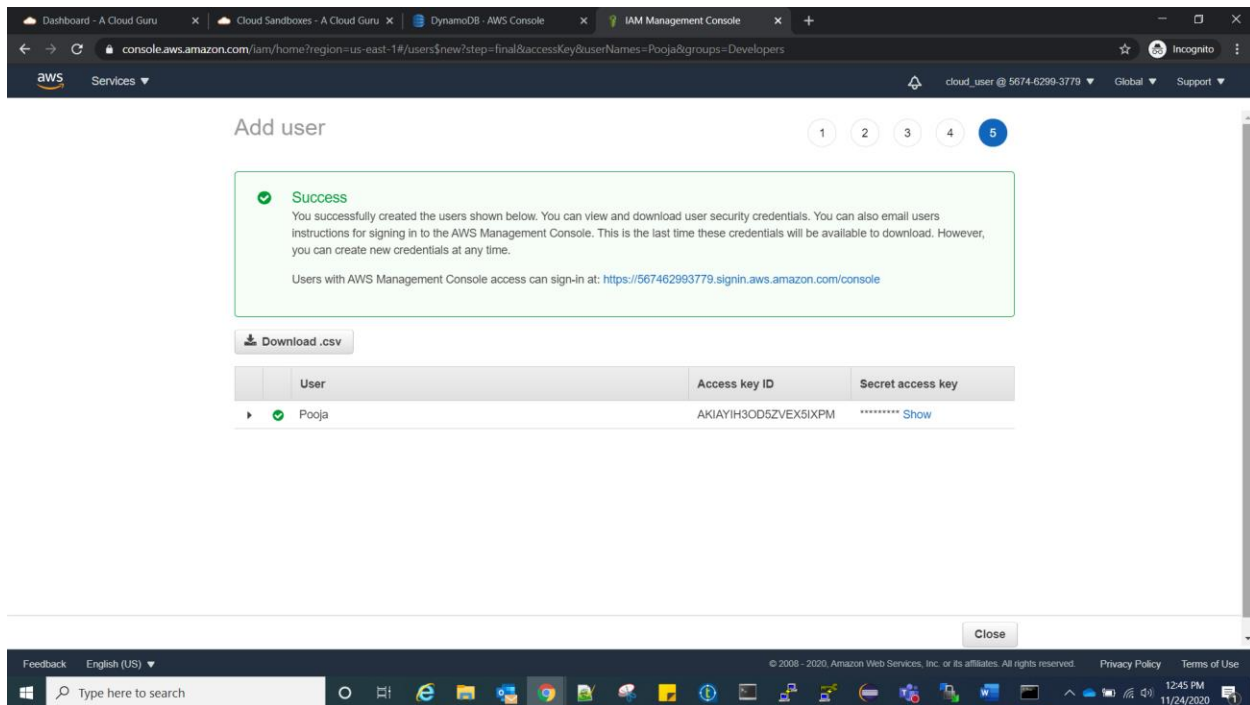
Cancel Previous Create user

Feedback English (US)

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Make a note of Access Key Id and Secret Access Key

On the CLI, type “aws configure”

```
C:\Windows\System32\cmd.exe - aws configure
Microsoft Windows [Version 10.0.18363.1139]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Program Files\Amazon\AWSCLIV2>aws configure
AWS Access Key ID [*****WNGI]: AKIAIYIH3OD5ZVEX5IXPM
AWS Secret Access Key [*****Kq76]: k7ETEEhojr02LL8EMiYyEJLr62+6uopifscp1yx
Default region name [us-east-1]:
```

Press “enter” and then again press enter

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18363.1139]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Program Files\Amazon\AWSCLIV2>aws configure
AWS Access Key ID [*****WNGI]: AKIAYIH30D5ZVEX5IXPM
AWS Secret Access Key [*****Kq76]: k7ETEEhojr02LL8EMiYyYEJLr62+6uopifscp1yx
Default region name [us-east-1]:
Default output format [None]:

C:\Program Files\Amazon\AWSCLIV2>
```

The CLI is now configured for use

AWS CLI APIs

To check all dynamodb tables,

C:\Program Files\Amazon\AWSCLIV2>aws dynamodb list-tables

```
C:\Program Files\Amazon\AWSCLIV2>aws dynamodb list-tables
{
  "TableNames": [
    "iucr"
  ]
}
```

To create a new dynamodb table,

C:\Program Files\Amazon\AWSCLIV2> aws dynamodb create-table --table-name Cats --attribute-definitions AttributeName=Age,AttributeType=N --key-schema AttributeName=Age,KeyType=HASH --provisioned-throughput ReadCapacityUnits=5,WriteCapacityUnits=5

```
// aws dynamodb create-table --table-name Cats1 --attribute-definitions
AttributeName=Age,AttributeType=N AttributeName=CatName,AttributeType=S --key-schema
AttributeName=Age,KeyType=HASH AttributeName=CatName,KeyType=RANGE --provisioned-
throughput ReadCapacityUnits=5,WriteCapacityUnits=5
```

//

C:\Program Files\Amazon\AWSCLIV2>aws dynamodb create-table --table-name chicago_crime --attribute-definitions AttributeName=id,AttributeType=N --key-schema AttributeName=id,KeyType=HASH --provisioned-throughput ReadCapacityUnits=100,WriteCapacityUnits=100

```
C:\Program Files\Amazon\AWSCLIV2>aws dynamodb create-table --table-name chicago_crime --attribute-definitions AttributeName=id,AttributeType=N --key-schema AttributeName=id,KeyType=HASH --provisioned-throughput ReadCapacityUnits=100,WriteCapacityUnits=100
{
  "TableDescription": {
    "AttributeDefinitions": [
      {
        "AttributeName": "id",
        "AttributeType": "N"
      }
    ],
    "TableName": "chicago_crime",
    "KeySchema": [
      {
        "AttributeName": "id",
        "KeyType": "HASH"
      }
    ],
    "TableStatus": "CREATING",
    "CreationDateTime": "2020-11-25T15:05:59.101000+05:30",
    "ProvisionedThroughput": {
      "NumberOfDecreasesToday": 0,
      "ReadCapacityUnits": 10,
      "WriteCapacityUnits": 10
    },
    "TableSizeBytes": 0,
    "ItemCount": 0,
    "TableArn": "arn:aws:dynamodb:us-east-1:371560908191:table/chicago_crime",
    "TableId": "a32d8d1c-c10b-4d15-8d35-aebeaf0b2bcd"
  }
}
```

To check table metadata,

C:\Program Files\Amazon\AWSCLIV2>aws dynamodb describe-table --table-name Cats

C:\Program Files\Amazon\AWSCLIV2>aws dynamodb describe-table --table-name chicago_crime

```

C:\Program Files\Amazon\AWSCLI2>aws dynamodb describe-table --table-name chicago_crime
{
  "Table": {
    "AttributeDefinitions": [
      {
        "AttributeName": "id",
        "AttributeType": "N"
      }
    ],
    "TableName": "chicago_crime",
    "KeySchema": [
      {
        "AttributeName": "id",
        "KeyType": "HASH"
      }
    ],
    "TableStatus": "ACTIVE",
    "CreationDateTime": "2020-11-25T15:05:59.101000+05:30",
    "ProvisionedThroughput": {
      "NumberOfDecreasesToday": 0,
      "ReadCapacityUnits": 10,
      "WriteCapacityUnits": 10
    },
    "TableSizeBytes": 0,
    "ItemCount": 0,
    "TableArn": "arn:aws:dynamodb:us-east-1:371560908191:table/chicago_crime",
    "TableId": "a32d8d1c-c10b-4d15-8d35-aebeaf0b2bcd"
  }
}

C:\Program Files\Amazon\AWSCLI2>

```

Next, we'll add an entry to our Cats table

C:\Program Files\Amazon\AWSCLI2>aws dynamodb put-item --table-name Cats --item <file:///catdetails.json>

To retrieve a single record from table,

C:\Program Files\Amazon\AWSCLI2>aws dynamodb get-item --table-name Cats --region us-east-1 --key "{\"Age\":{\"N\":\"5\"}}"

➤ aws dynamodb list-tables

To delete the table and all of its entries run,

C:\Program Files\Amazon\AWSCLI2>aws dynamodb delete-table --table-name Cats

➤ aws dynamodb list-tables

To clear the screen,

```
C:\Program Files\Amazon\AWSCLIV2>cls
```

To load a json file with multiple records into dynamodb,

```
C:\Program Files\Amazon\AWSCLIV2>aws dynamodb batch-write-item --request-items  
file:///chicago\_crime.json
```

The **scan** command enables us to view all the data stored in a table.

```
C:\Program Files\Amazon\AWSCLIV2>aws dynamodb scan --table-name chicago_crime
```

To retrieve a single record from table,

```
C:\Program Files\Amazon\AWSCLIV2>aws dynamodb get-item --table-name chicago_crime --region us-  
east-1 --key '{"id":{"N":"'10508693'"}}
```

To delete a record from table,

```
C:\Program Files\Amazon\AWSCLIV2>aws dynamodb delete-item --table-name chicago_crime --region  
us-east-1 --key '{"id":{"N":"'10508693'"}}
```