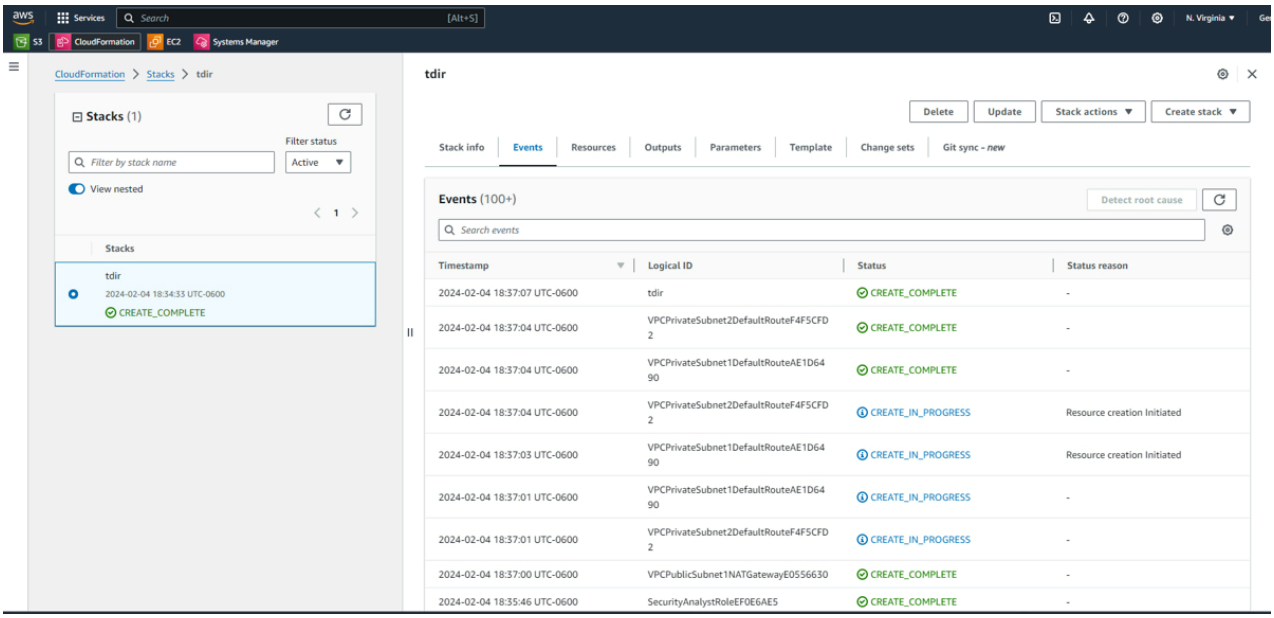
Cloud IR Walkthrough: AWS Workshop Unauthorized IAM

The following is a walkthrough through one of the posted AWS CIRT workshops that allow a CloudFormation template to build AWS resources in a personal account to go through a specific CIRT scenario. The link below provides the scenario of Simulation and Detection of Ransomware of unauthorized IAM Credential use and using AWS Athena to build queries for detection.

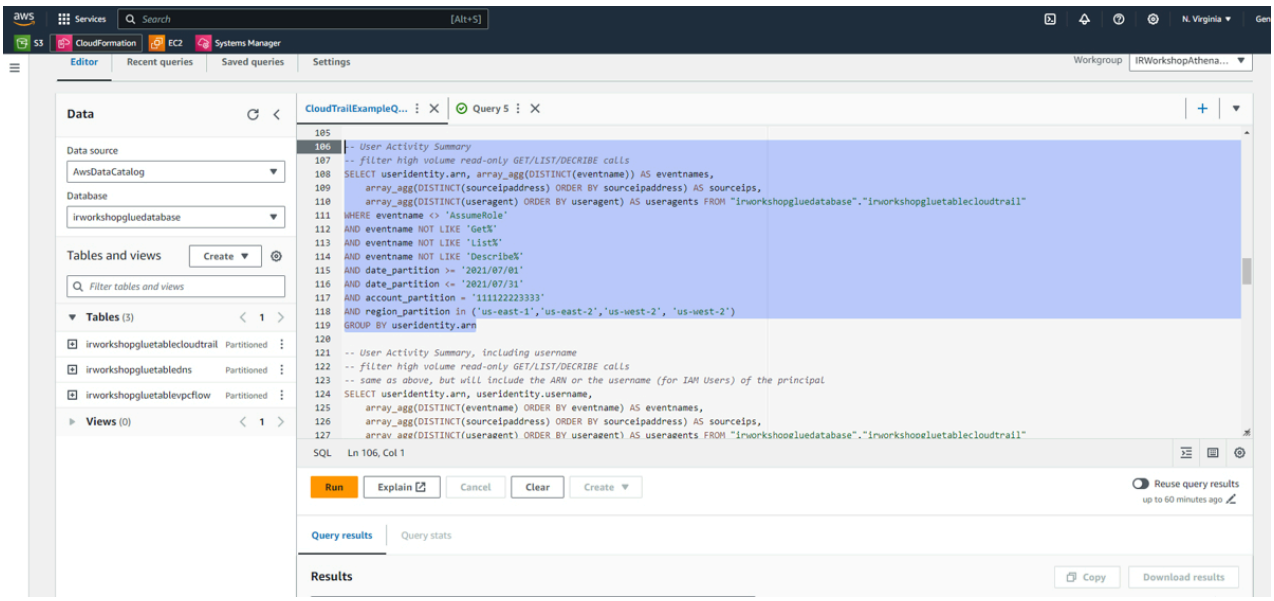
Workshop Studio

Follow the steps required in the AWS Workshop page under the Setup using your own AWS Account and completion should look like the following with resources setup using CloudFormation.

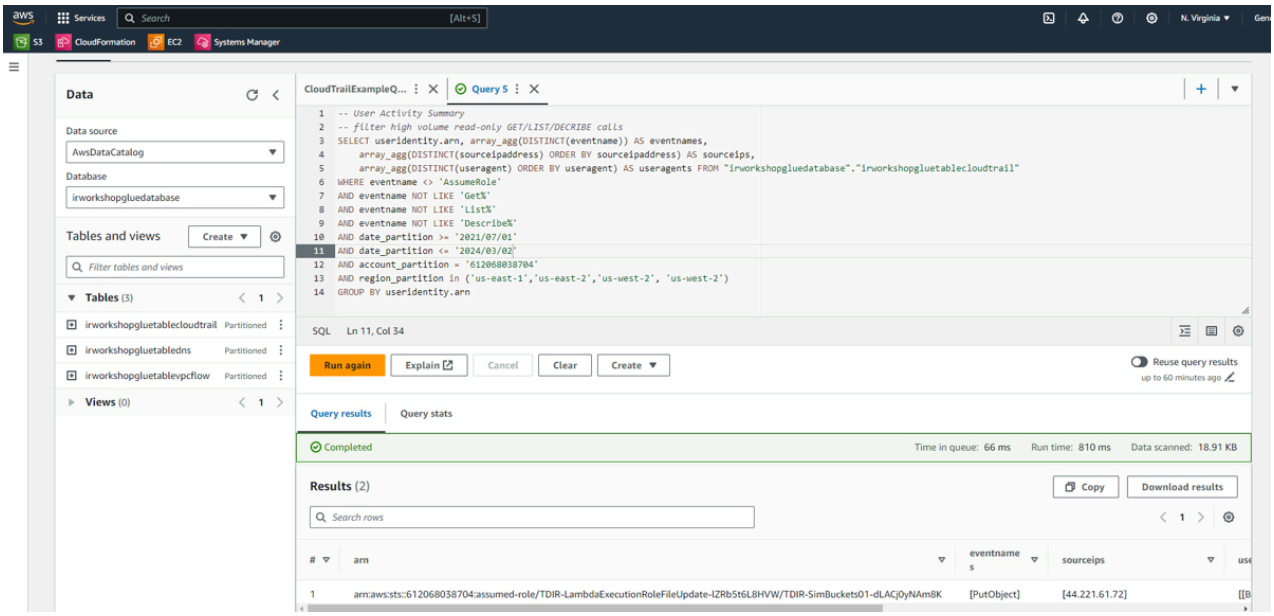


Use some of the saved queries to review the logs in the S3 buckets for the AWS account setup specifically the CloudTrail Logs using one of the queries as such with the date and AWS account ID.

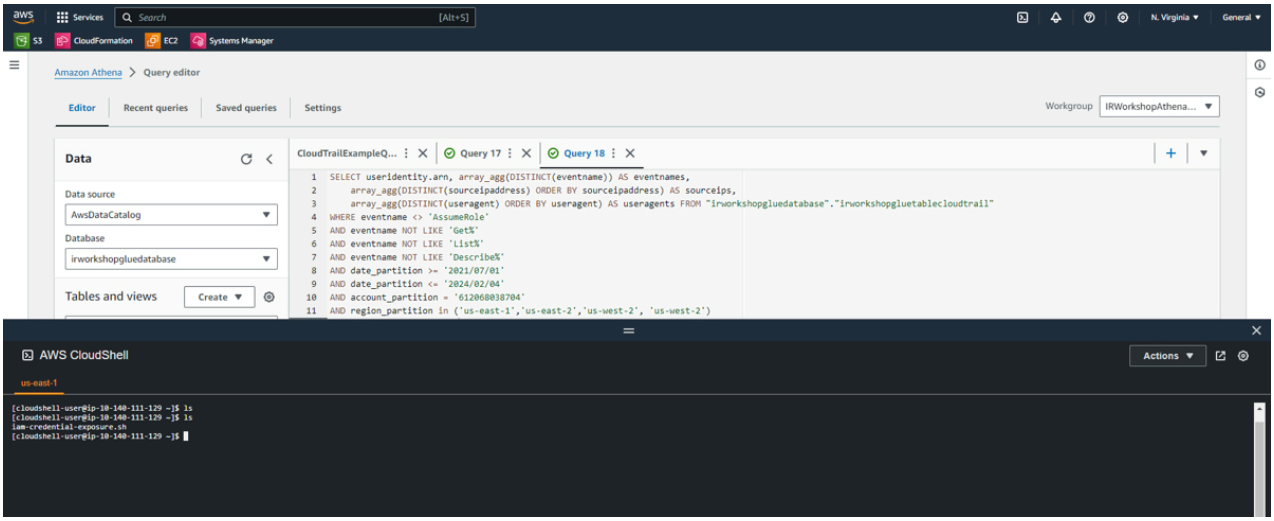
Workgroup for the AWS walkthrough should be "IRWorkshopAthenaWorkGroup".

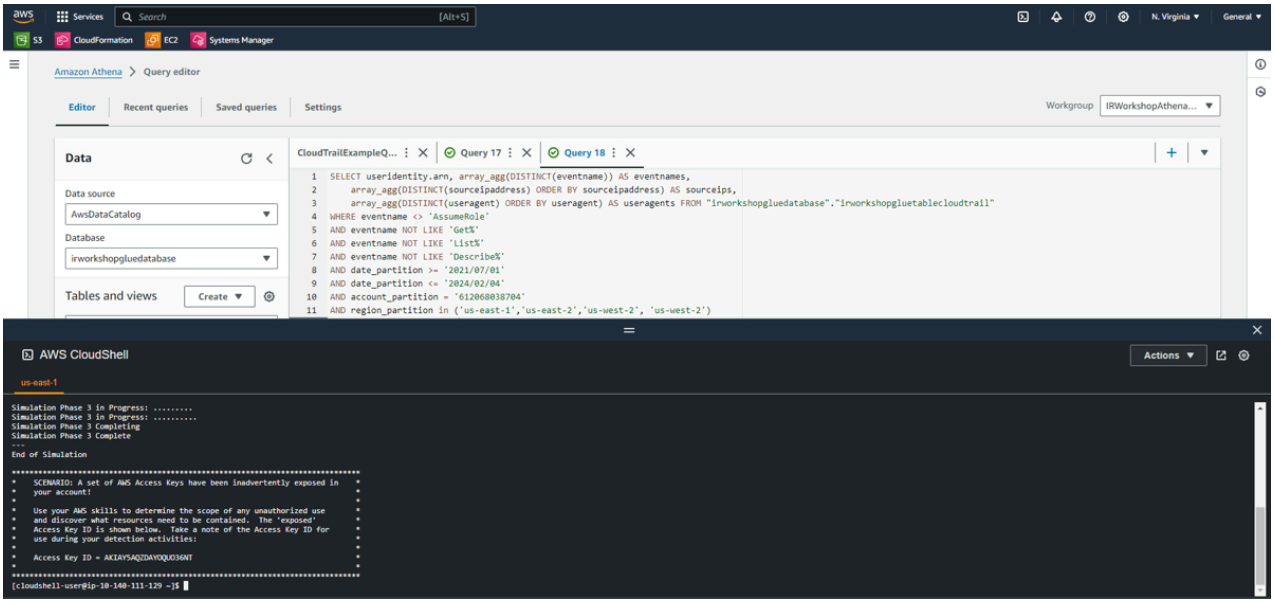


Modify the CloudTrail query to query the AWS account between the given dates for the IR workshop.



Afterwards, follow the steps in the AWS IR Workshop to simulate Ransomeware events with the upload of a bash script into AWS CloudShell.

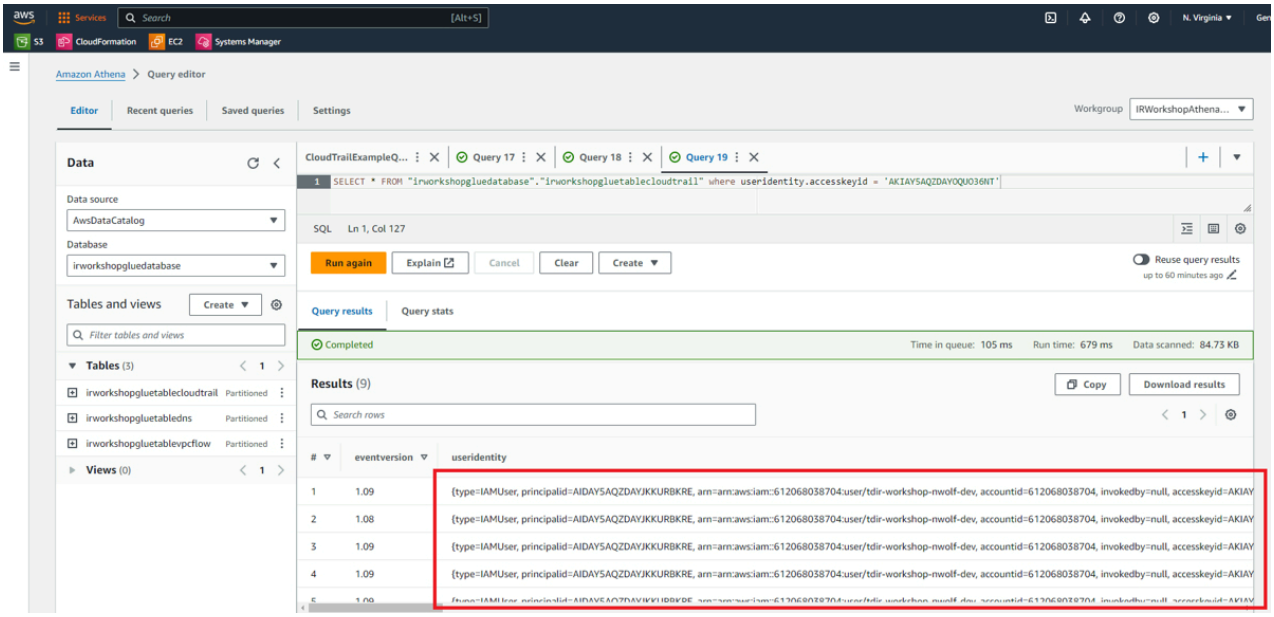




First, the AWS Workshop Unauthorized IAM will begin with an investigation of the IAM user Access Key posted above using AWS Athena queries on AWS CloudTrail API Calls.

The following AWS Athena query is meant to gather all CloudTrail events concerning the Unauthorized IAM user.

```
SELECT * FROM "irworkshopgluedatabase"."irworkshopgluetablecloudtrail" wh
```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Recent queries
Saved queries
Settings
Workgroup
IRWorkshopAthena...
Data
Data source
AwsDataCatalog
Database
irworkshopgluedatabase
Tables and views
Create
Filter tables and views
Tables (3)
irworkshopgluetablecloudtrail Partitioned
irworkshopgluetableedns Partitioned
irworkshopgluetablevpcflow Partitioned
Views (0)
CloudTrailExampleQ...
Query 17
Query 18
Query 19
SELECT * FROM "irworkshopgluedatabase"."irworkshopgluetablecloudtrail" where useridentity.accesskeyid = 'AKIAY5AQZDAYOQUO36NT'
SQL Ln 1, Col 127
Run again
Explain
Cancel
Clear
Create
Reuse query results
up to 60 minutes ago
Query results
Query stats
Completed
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Run time: 679 ms
Data scanned: 84.73 KB
Results (9)
Copy
Download results
Search rows
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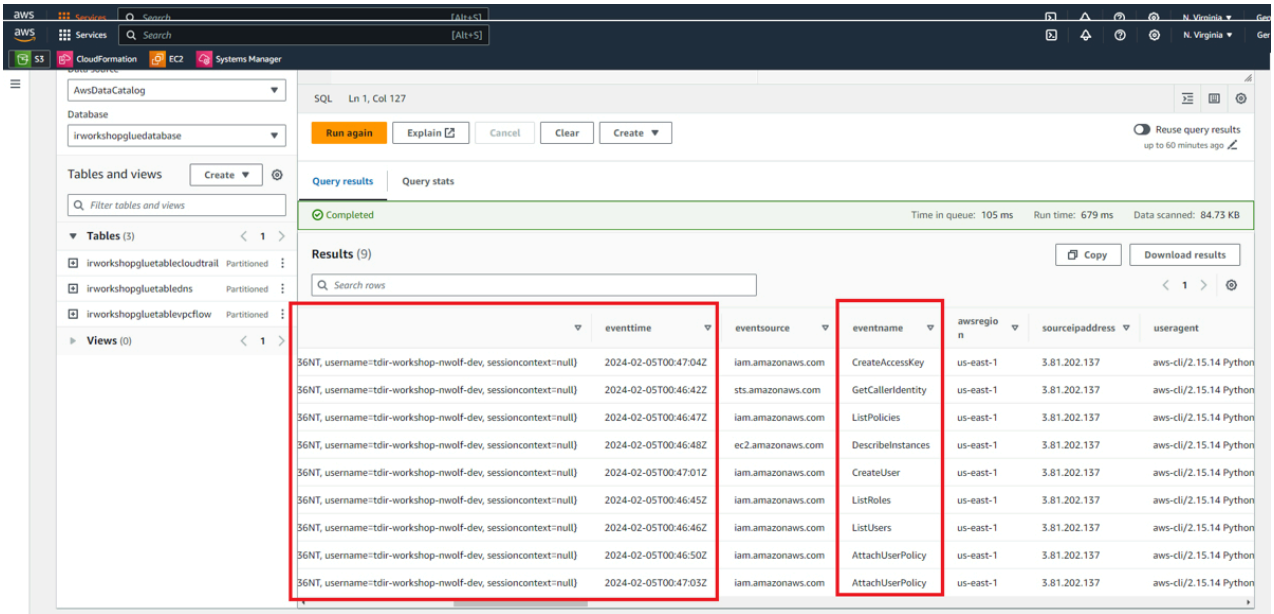
1 1.09 {type=IAMUser, principalid=AIDAY5AQZDAYJKKURBKRE, arn=arn:aws:iam::612068038704:user/tdir-workshop-nwolf-dev, accountid=612068038704, invokedby=null, accesskeyid=AKIAY
2 1.08 {type=IAMUser, principalid=AIDAY5AQZDAYJKKURBKRE, arn=arn:aws:iam::612068038704:user/tdir-workshop-nwolf-dev, accountid=612068038704, invokedby=null, accesskeyid=AKIAY
3 1.09 {type=IAMUser, principalid=AIDAY5AQZDAYJKKURBKRE, arn=arn:aws:iam::612068038704:user/tdir-workshop-nwolf-dev, accountid=612068038704, invokedby=null, accesskeyid=AKIAY
4 1.09 {type=IAMUser, principalid=AIDAY5AQZDAYJKKURBKRE, arn=arn:aws:iam::612068038704:user/tdir-workshop-nwolf-dev, accountid=612068038704, invokedby=null, accesskeyid=AKIAY


eventtime eventsource eventname awsregion sourceipaddress useragent
36NT, username=tdir-workshop-nwolf-dev, sessioncontext=null} 2024-02-05T00:47:04Z iam.amazonaws.com CreateAccessKey us-east-1 3.81.202.137 aws-cli/2.15.14 Python
36NT, username=tdir-workshop-nwolf-dev, sessioncontext=null} 2024-02-05T00:46:42Z sts.amazonaws.com GetCallerIdentity us-east-1 3.81.202.137 aws-cli/2.15.14 Python
36NT, username=tdir-workshop-nwolf-dev, sessioncontext=null} 2024-02-05T00:46:47Z iam.amazonaws.com ListPolicies us-east-1 3.81.202.137 aws-cli/2.15.14 Python
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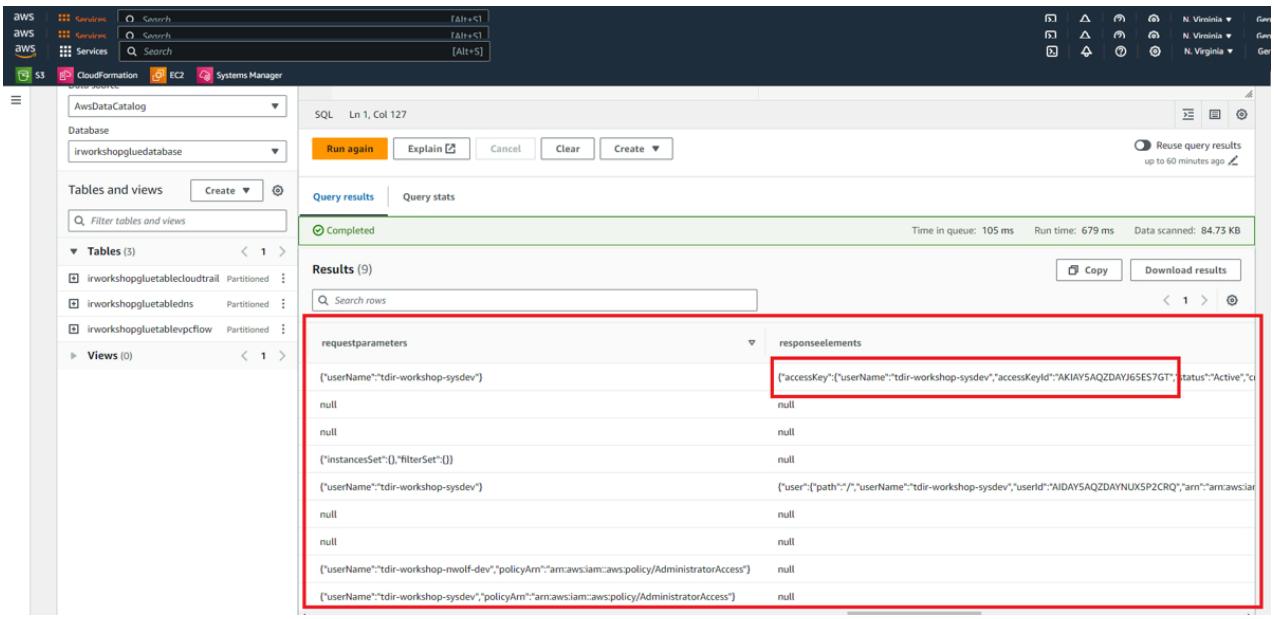
36NT, username=tdir-workshop-nwolf-dev, sessioncontext=null} 2024-02-05T00:46:45Z iam.amazonaws.com ListRoles us-east-1 3.81.202.137 aws-cli/2.15.14 Python
36NT, username=tdir-workshop-nwolf-dev, sessioncontext=null} 2024-02-05T00:46:46Z iam.amazonaws.com ListUsers us-east-1 3.81.202.137 aws-cli/2.15.14 Python
36NT, username=tdir-workshop-nwolf-dev, sessioncontext=null} 2024-02-05T00:46:50Z iam.amazonaws.com AttachUserPolicy us-east-1 3.81.202.137 aws-cli/2.15.14 Python
36NT, username=tdir-workshop-nwolf-dev, sessioncontext=null} 2024-02-05T00:47:03Z iam.amazonaws.com AttachUserPolicy us-east-1 3.81.202.137 aws-cli/2.15.14 Python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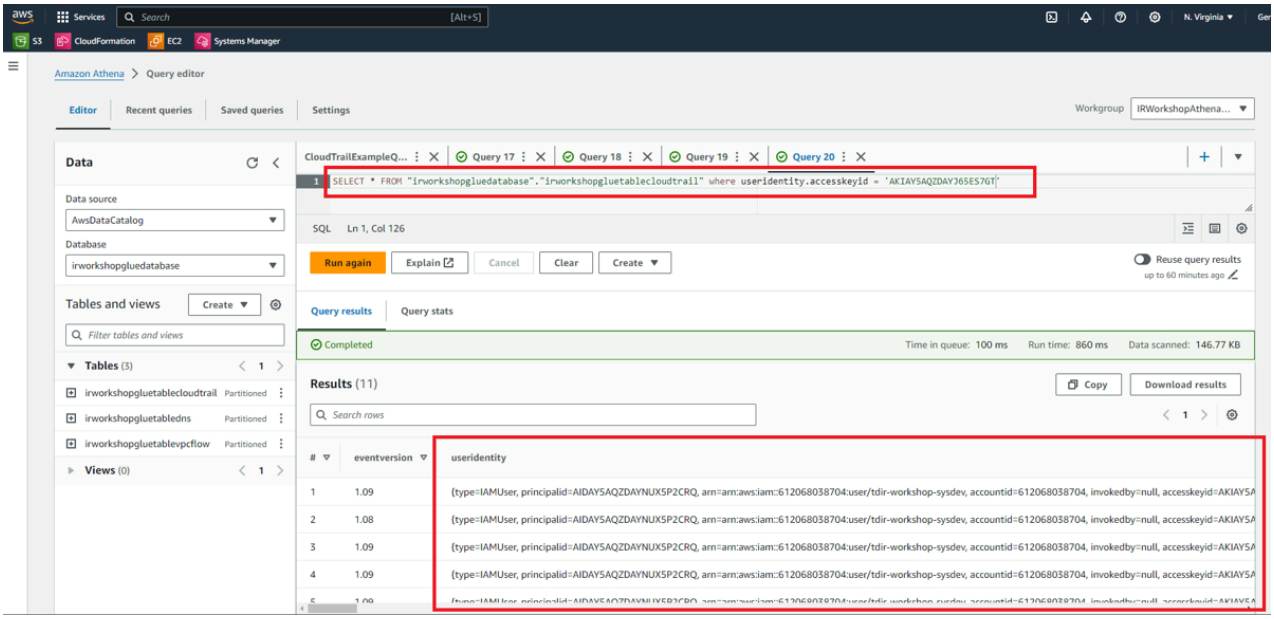
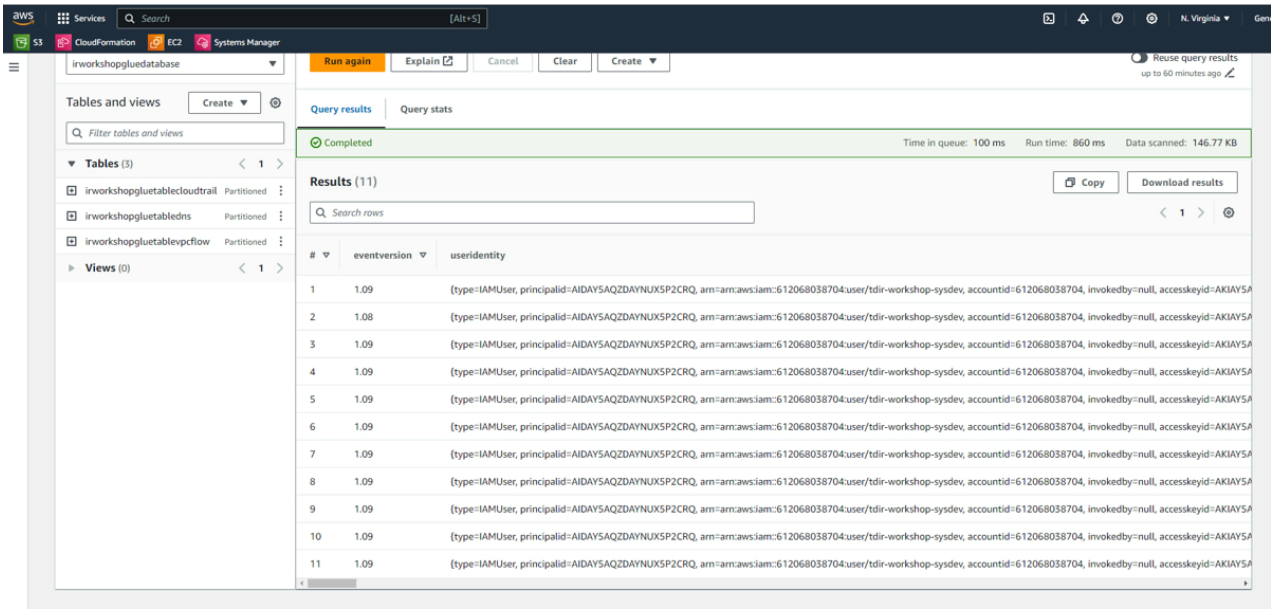
{"userName":"tdir-workshop-sysdev","policyArn":"arn:aws:iam::aws:policy/AdministratorAccess"} null

Notice in the AWS CloudTrail results that the useridentity associated with Unauthorized IAM user is "tdir-workshop-nwolf-dev" when using the AWS Athena search queries. Furthermore, looking at the additional AWS CloudTrail API calls you are able to see that a "CreateAccessKey" was used by the "tdir-workshop-nwolf-dev" IAM user to create a new AWS Access Key for AWS IAM user "tdir-workshop-sysdev" within the AWS account that needs furter investigation. Additionally, the Unauthorized IAM user "tdir-workshop-nwolf-dev" used the "CreateUser" CloudTrail API call to create the "tdir-workshop-sysdev" earlier than the "CreateAccessKey" CloudTrail API call to achieve some persistence with an additional AWS IAM user account.

Copy the newly created AWS IAM user Access Key and run the previous AWS Athena query to review the CloudTrail API calls by the unathorized AWS IAM user.

```
SELECT * FROM "irworkshopgluedatabase"."irworkshopgluetablecloudtrail" wh
```




Services
Search
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S3
CloudFormation
EC2
Systems Manager
N. Virginia
irworkshopgluedatabase
Run again
Explain
Cancel
Clear
Create
Reuse query results
up to 60 minutes ago
Tables and views
Create
Filter tables and views
Tables (3)
irworkshopgluetablecloudtrail Partitioned
irworkshopgluetableedns Partitioned
irworkshopgluetablevpcflow Partitioned
Views (0)
Query results
Query stats
Completed
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Run time: 860 ms
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Copy
Download results
Search rows
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2 1.08 {type=IAMUser, principalid=AIDAYSAQZDAYNUX5P2CRQ, arn=arn:aws:iam::612068038704:user/tdir-workshop-sysdev, accountid=612068038704, invokedby=null, accesskeyid=AKIAYSA
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5 1.09 {type=IAMUser, principalid=AIDAYSAQZDAYNUX5P2CRQ, arn=arn:aws:iam::612068038704:user/tdir-workshop-sysdev, accountid=612068038704, invokedby=null, accesskeyid=AKIAYSA
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9 1.09 {type=IAMUser, principalid=AIDAYSAQZDAYNUX5P2CRQ, arn=arn:aws:iam::612068038704:user/tdir-workshop-sysdev, accountid=612068038704, invokedby=null, accesskeyid=AKIAYSA
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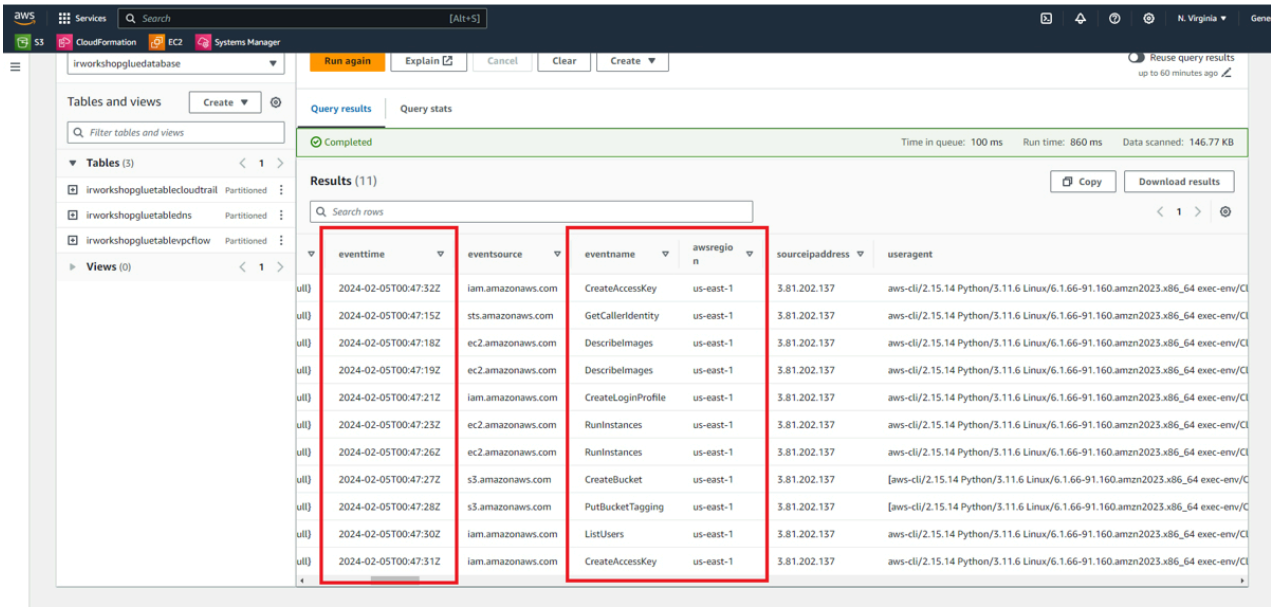
11 1.09 {type=IAMUser, principalid=AIDAYSAQZDAYNUX5P2CRQ, arn=arn:aws:iam::612068038704:user/tdir-workshop-sysdev, accountid=612068038704, invokedby=null, accesskeyid=AKIAYSA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Views (0)
Query results
Query stats
Completed
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Run time: 860 ms
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Results (11)
Copy
Download results
Search rows
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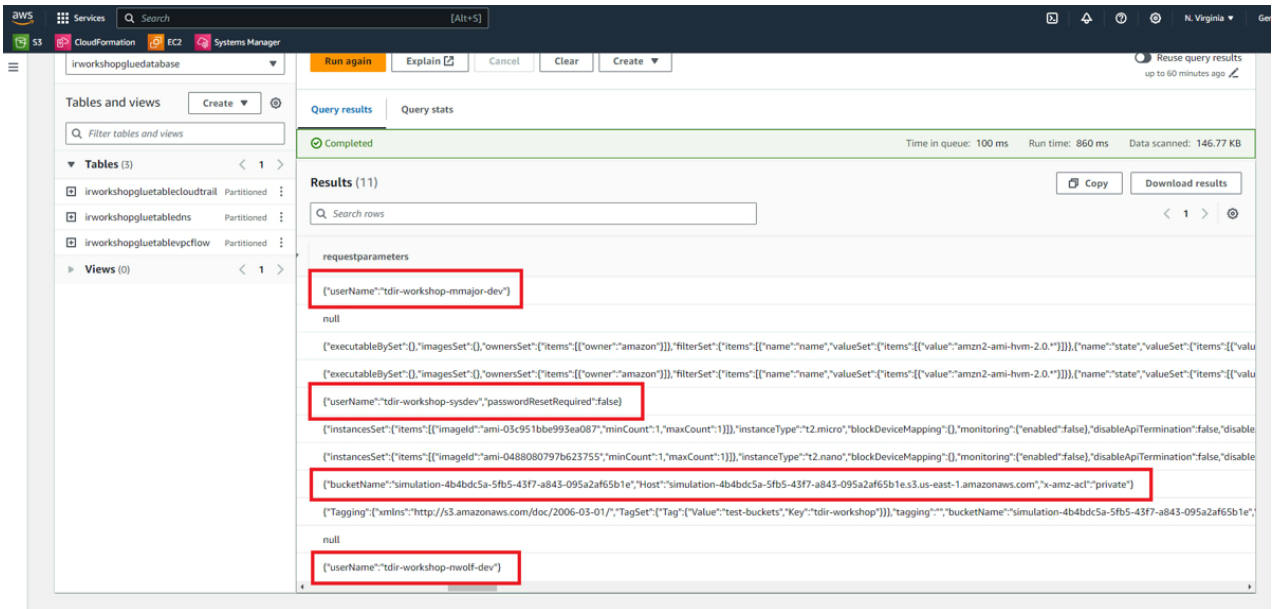
Services
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