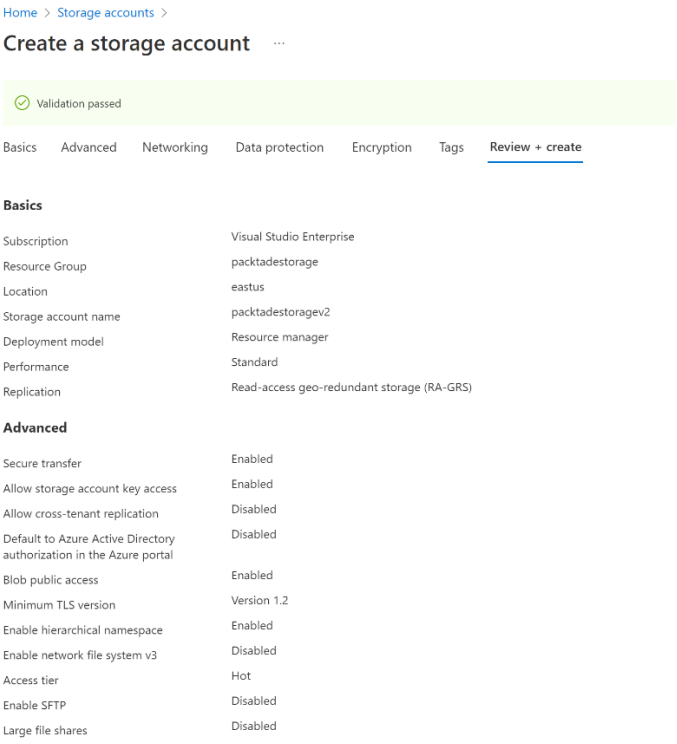
Chapter 1: Creating and Managing Data in Azure Data Lake




```
ResourceGroupName : Packtade-powershell
Location          : eastus
ProvisioningState : Succeeded
Tags              :
ResourceId        : /subscriptions/b85b0984-a391-4f22-a832-fb6e46c39f38/resourceGroups/Packtade-powershell
```

```
PS C:\Users\navenkat> New-AzStorageAccount -ResourceGroupName Packtade-powershell -Name packtstoragepowershellv2 -SkuName Standard_LRS -Loc
ation 'East US' -Kind StorageV2

StorageAccountName       ResourceGroupName   PrimaryLocation SkuName      Kind      AccessTier CreationTime        ProvisioningState Enab
                                                                                                                                leHt
                                                                                                                                tpsT
                                                                                                                                raff
                                                                                                                                icOn
                                                                                                                                ly
------------------       -----------------   --------------- -------      ----      ---------- ------------        ----------------- ----
packtstoragepowershellv2 Packtade-powershell eastus          Standard_LRS StorageV2 Hot        6/2/2022 3:08:31 am Succeeded         True
```

```
PS C:\Users\navenkat> $storageaccountname="packtadestoragev2"
PS C:\Users\navenkat> $containername="logfiles"
PS C:\Users\navenkat> $resourcegroup="packtadestorage"
PS C:\Users\navenkat> #Get the Azure Storage account context
PS C:\Users\navenkat> $storagecontext = (Get-AzStorageAccount -ResourceGroupName $resourcegroup -Name $storageaccountname).Context;
PS C:\Users\navenkat> #Create a new container
PS C:\Users\navenkat> New-AzStorageContainer -Name $containername -Context $storagecontext


   Storage Account Name: packtadestoragev2

Name                 PublicAccess         LastModified                 IsDeleted  VersionId
----                 ------------         ------------                 ---------  ---------
logfiles             Off                  6/2/2022 4:15:28 am +00:00


PS C:\Users\navenkat>
```

```
PS C:\Users\navenkat> #upload single file to container
PS C:\Users\navenkat> Set-AzStorageBlobContent -File "C:\ADECookbook\Chapter1\Logfiles\Logfile1.txt" -Context $storagecontext -Blob logfile1.txt -Container $containername


   AccountName: packtadestoragev2, ContainerName: logfiles

Name                BlobType  Length          ContentType                 LastModified         AccessTier SnapshotTime
----                --------  ------          -----------                 ------------         ---------- ------------
logfile1.txt        BlockBlob 15              application/octet-stream    2022-02-06 04:17:55Z Hot
```

Windows PowerShell

```
PS C:\Users\navenkat> #get files to be uploaded from the directory
PS C:\Users\navenkat> $files = Get-ChildItem -Path "C:\ADECookbook\Chapter1\Logfiles";
PS C:\Users\navenkat> #iterate through each file int the folder and upload it to the azure container
PS C:\Users\navenkat> foreach($file in $files){
>> Set-AzStorageBlobContent -File $file.FullName -Context $storagecontext -Blob $file.BaseName -Container $containername -Force
>> }


   AccountName: packtadestoragev2, ContainerName: logfiles

Name                BlobType  Length          ContentType                 LastModified         AccessTier SnapshotTime                IsDeleted  VersionId
----                --------  ------          -----------                 ------------         ---------- ------------                ---------  ---------
Logfile1            BlockBlob 15              application/octet-stream    2022-02-06 04:22:16Z Hot                                    False
Logfile2            BlockBlob 15              application/octet-stream    2022-02-06 04:22:17Z Hot                                    False
Logfile3            BlockBlob 15              application/octet-stream    2022-02-06 04:22:17Z Hot                                    False
Logfile4            BlockBlob 15              application/octet-stream    2022-02-06 04:22:18Z Hot                                    False
Logfile5            BlockBlob 15              application/octet-stream    2022-02-06 04:22:19Z Hot                                    False
Logfile6            BlockBlob 15              application/octet-stream    2022-02-06 04:22:20Z Hot                                    False


PS C:\Users\navenkat>
```

```
PS C:\Users\navenkat> $storageaccountname="packtadestoragev2"
PS C:\Users\navenkat> $resourcegroup="packtadestorage"
PS C:\Users\navenkat> $sourcecontainername="logfiles"
PS C:\Users\navenkat> $destcontainername="textfiles"
PS C:\Users\navenkat> #Get storage account context
PS C:\Users\navenkat> $storagecontext = (Get-AzStorageAccount -ResourceGroupName $resourcegroup -Name $storageaccountname).Context
PS C:\Users\navenkat> # create the container
PS C:\Users\navenkat> $destcontainer = New-AzStorageContainer -Name $destcontainername -Context $storagecontext
PS C:\Users\navenkat>
PS C:\Users\navenkat>
PS C:\Users\navenkat> $destcontainer


   Storage Account Name: packtadestoragev2

Name                PublicAccess          LastModified                  IsDeleted  VersionId
----                ------------          ------------                  ---------  ---------
textfiles           Off                   6/2/2022 4:24:42 am +00:00
```

Windows PowerShell

```
PS C:\Users\navenkat> Start-CopyAzureStorageBlob -SrcBlob "Logfile1" -SrcContainer $sourcecontainername -DestContainer $destcontainername -Context $storagecontext -DestContext $storagecont
ext


   AccountName: packtadestoragev2, ContainerName: textfiles

Name                BlobType  Length          ContentType                 LastModified         AccessTier SnapshotTime                IsDeleted  VersionId
----                --------  ------          -----------                 ------------         ---------- ------------                ---------  ---------
Logfile1            BlockBlob -1                                          2022-02-06 04:28:40Z                                        False


PS C:\Users\navenkat>
```

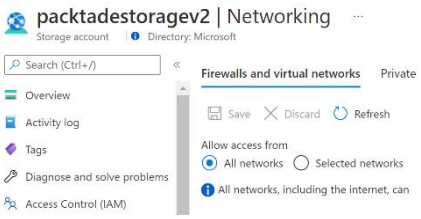
```
PS C:\Users\navenkat> Get-AzStorageBlob -Container $sourcecontainername -Context $storagecontext | Start-CopyAzureStorageBlob -DestContainer $destcontainername -DestContext $storagecontext
 -force


   AccountName: packtadestoragev2, ContainerName: textfiles

Name                BlobType  Length          ContentType                 LastModified         AccessTier SnapshotTime                IsDeleted  VersionId
----                --------  ------          -----------                 ------------         ---------- ------------                ---------  ---------
Logfile1            BlockBlob 15              application/octet-stream    2022-02-06 04:29:45Z Hot                                    False
Logfile2            BlockBlob -1                                          2022-02-06 04:29:46Z                                        False
Logfile3            BlockBlob -1                                          2022-02-06 04:29:46Z                                        False
Logfile4            BlockBlob -1                                          2022-02-06 04:29:46Z                                        False
Logfile5            BlockBlob -1                                          2022-02-06 04:29:46Z                                        False
Logfile6            BlockBlob -1                                          2022-02-06 04:29:46Z                                        False
logfile1.txt        BlockBlob -1                                          2022-02-06 04:29:46Z                                        False


PS C:\Users\navenkat>
```

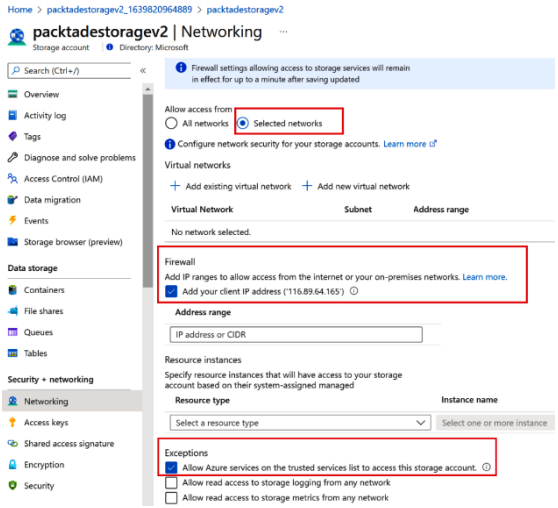
```
PS C:\Users\navenkat> (Get-AzStorageContainer -Name $destcontainername -Context $storagecontext).CloudBlobContainer.ListBlobs()


   Container Uri: https://packtadestoragev2.blob.core.windows.net/textfiles

Name                BlobType        Length          IsDeleted  RemainingD ContentType                 LastModified         AccessTier SnapshotTime
                                                               aysBeforeP
                                                               ermanentDe
                                                               lete
----                --------        ------          ---------  ---------- -----------                 ------------         ---------- ------------
Logfile1            BlockBlob       15              False                 application/octet-stream    2022-02-06 04:29:45Z
Logfile2            BlockBlob       15              False                 application/octet-stream    2022-02-06 04:29:46Z
Logfile3            BlockBlob       15              False                 application/octet-stream    2022-02-06 04:29:46Z
Logfile4            BlockBlob       15              False                 application/octet-stream    2022-02-06 04:29:46Z
Logfile5            BlockBlob       15              False                 application/octet-stream    2022-02-06 04:29:46Z
Logfile6            BlockBlob       15              False                 application/octet-stream    2022-02-06 04:29:46Z
logfile1.txt        BlockBlob       15              False                 application/octet-stream    2022-02-06 04:29:46Z
```

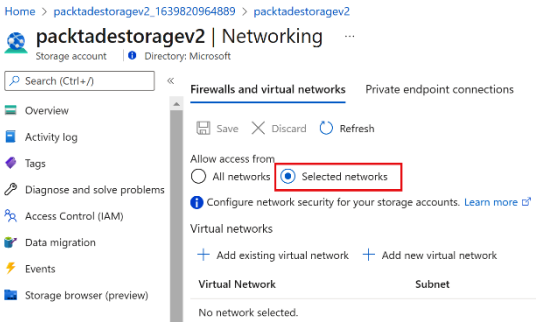
```
PS C:\Users\navenkat> # Get the blob reference
PS C:\Users\navenkat> $blob = Get-AzStorageBlob -Blob *Logfile2* -Container $sourcecontainername -Context $storagecontext
PS C:\Users\navenkat> #Get current access tier
PS C:\Users\navenkat> $blob


   AccountName: packtadestoragev2, ContainerName: logfiles

Name                BlobType  Length          ContentType                 LastModified         AccessTier SnapshotTime                IsDeleted  VersionId
----                --------  ------          -----------                 ------------         ---------- ------------                ---------  ---------
Logfile2            BlockBlob 15              application/octet-stream    2022-02-06 04:22:17Z Hot                                    False


PS C:\Users\navenkat> #change access tier to cool
PS C:\Users\navenkat> $blob.ICloudBlob.SetStandardBlobTier("cool")
PS C:\Users\navenkat> #Get the modified access tier
PS C:\Users\navenkat> Get-AzStorageBlob -Blob *Logfile2* -Container $sourcecontainername -Context $storagecontext


   AccountName: packtadestoragev2, ContainerName: logfiles

Name                BlobType  Length          ContentType                 LastModified         AccessTier SnapshotTime                IsDeleted  VersionId
----                --------  ------          -----------                 ------------         ---------- ------------                ---------  ---------
Logfile2            BlockBlob 15              application/octet-stream    2022-02-06 04:22:17Z Cool                                   False
```

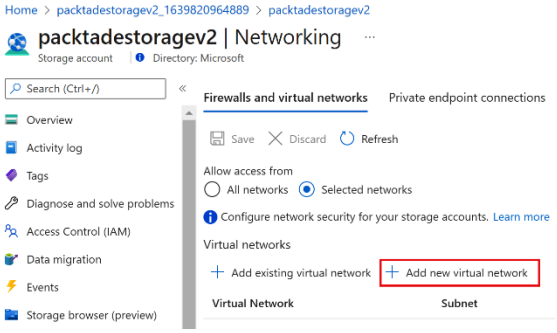
```
PS C:\Users\navenkat> #get blob reference
PS C:\Users\navenkat> $blobs = Get-AzStorageBlob -Container $destcontainername -Context $storagecontext
PS C:\Users\navenkat> #change the access tier of all the blobs in the container
PS C:\Users\navenkat> $blobs.icloudblob.setstandardblobtier("Cool")
PS C:\Users\navenkat> #verify the access tier
PS C:\Users\navenkat> Get-AzStorageBlob -Container $destcontainername -Context $storagecontext


   AccountName: packtadestoragev2, ContainerName: textfiles

Name                BlobType  Length          ContentType                 LastModified         AccessTier SnapshotTime                IsDeleted  VersionId
----                --------  ------          -----------                 ------------         ---------- ------------                ---------  ---------
Logfile1            BlockBlob 15              application/octet-stream    2022-02-06 04:29:45Z Cool                                   False
Logfile2            BlockBlob 15              application/octet-stream    2022-02-06 04:29:46Z Cool                                   False
Logfile3            BlockBlob 15              application/octet-stream    2022-02-06 04:29:46Z Cool                                   False
Logfile4            BlockBlob 15              application/octet-stream    2022-02-06 04:29:46Z Cool                                   False
Logfile5            BlockBlob 15              application/octet-stream    2022-02-06 04:29:46Z Cool                                   False
Logfile6            BlockBlob 15              application/octet-stream    2022-02-06 04:29:46Z Cool                                   False
logfile1.txt        BlockBlob 15              application/octet-stream    2022-02-06 04:29:46Z Cool                                   False


PS C:\Users\navenkat>
```

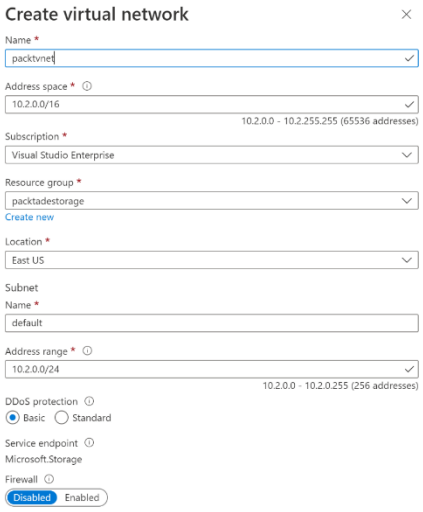
Chapter 2: Securing and Monitoring Data in Azure Data Lake

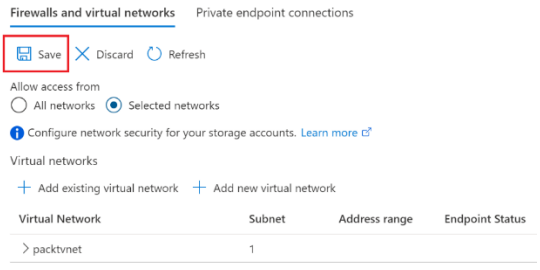


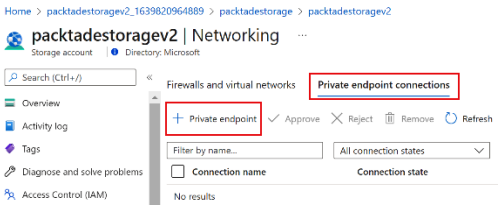


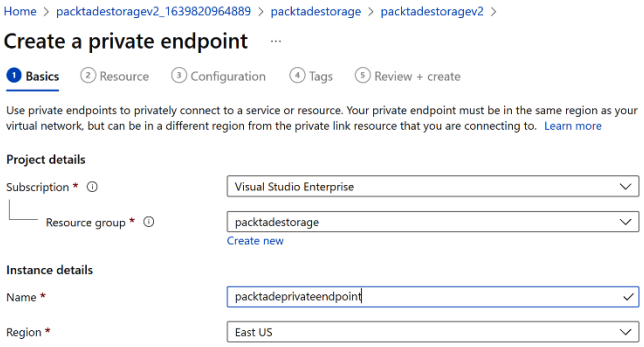


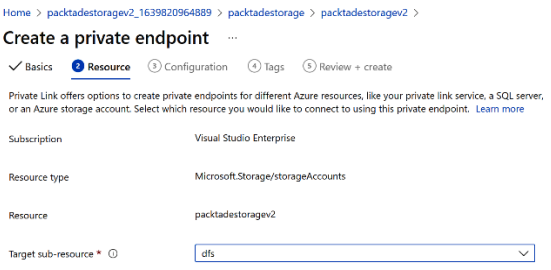


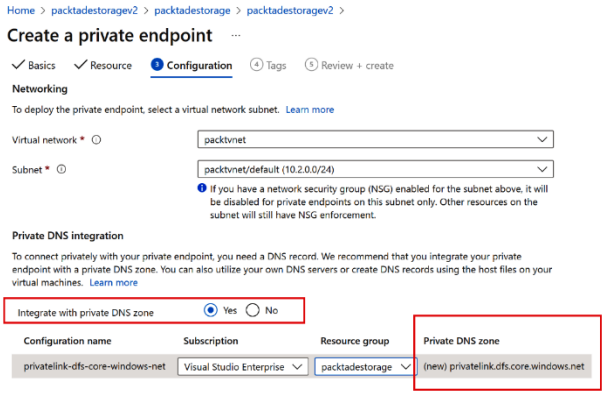


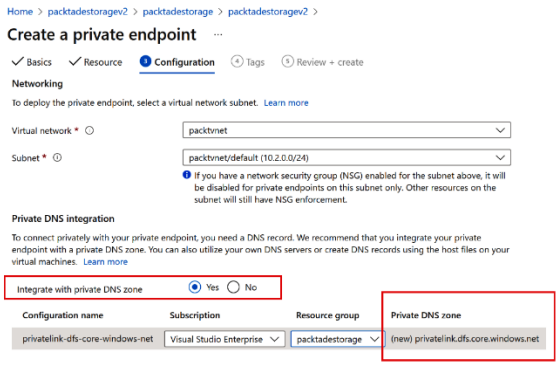


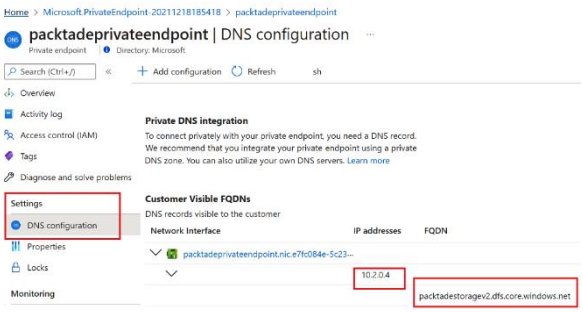




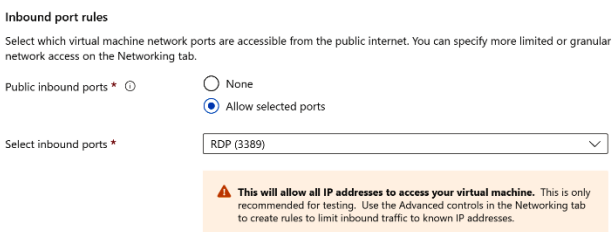









```
C:\Users\navenkat>nslookup packtadestoragev2.dfs.core.windows.net
Server:  UnKnown
Address:  2404:e801:2000:50d:3223:3ff:fec4:c8e2

Non-authoritative answer:
Name:    dfs.mnz22prdstr03a.store.core.windows.net
Address:  20.60.128.226
Aliases:  packtadestoragev2.dfs.core.windows.net
          packtadestoragev2.privatelink.dfs.core.windows.net
```



Basics Disks **Networking** Management Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.
Learn more

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network * : packtvnet
Create new

Subnet * : default (10.2.0.0/24)
Manage subnet configuration

```
C:\Users\rajacct>nslookup packtadestoragev2.dfs.core.windows.net
Server:  UnKnown
Address:  168.63.129.16

Non-authoritative answer:
Name:    packtadestoragev2.privatelink.dfs.core.windows.net
Address:  10.2.0.4
Aliases:  packtadestoragev2.dfs.core.windows.net
```

Home > Create a resource > Key Vault >

Create a key vault

Basics Access policy Networking Tags Review + create

Azure Key Vault is a cloud service used to manage keys, secrets, and certificates. Key Vault eliminates the need for developers to store security information in their code. It allows you to centralize the storage of your application secrets which greatly reduces the chances that secrets may be leaked. Key Vault also allows you to securely store secrets and keys backed by Hardware Security Modules or HSMs. The HSMs used are Federal Information Processing Standards (FIPS) 140-2 Level 2 validated. In addition, key vault provides logs of all access and usage attempts of your secrets so you have a complete audit trail for compliance.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * : Visual Studio Enterprise
Resource group * : packtadestorage
Create new

Instance details

Key vault name * : PacktAdeKeyVault
Region * : East US
Pricing tier * : Standard

Recovery options

Soft delete protection will automatically be enabled on this key vault. This feature allows you to recover or permanently delete a key vault and secrets for the duration of the retention period. This protection applies to the key vault and the secrets stored within the key vault.

Home > PacktAdeKeyVault > PacktAdeKeyVault > packtadestorage > packtadestoragev2

packtadestoragev2 | Encryption

Storage account | Directory: Microsoft

encr

Security + networking
Access keys
Encryption

Encryption Encryption scopes

Storage service encryption protects your data at rest. Azure Storage encrypts your data as it's decrypts it for you as you access it.

Please note that after enabling Storage Service Encryption, only new data will be encrypted, a will retroactively get encrypted by a background encryption process. Learn more about Azure

Encryption selection

Enable support for customer-managed keys : Blobs and files only

Infrastructure encryption : Disabled

Encryption type : Microsoft-managed keys / Customer-managed keys

When customer-managed keys are enabled, purge protection are also enabled on the key

Key selection

Encryption key : Select from key vault / Enter key URI

Key vault and key * : Select a key vault and key

Home > PacktAdeKeyVault > PacktAdeKeyVault > packtadestorage > packtadestoragev2 >

Select a key

The key 'packtadestorageV2EncryptionKey' has been successfully created.

Subscription * : Visual Studio Enterprise

Key store type : Key vault / Managed HSM

Key vault * : PacktAdeKeyVault
Create new key vault

Key * : packtadestorageV2EncryptionKey
Create new key

Home > PacktAdeKeyVault > PacktAdeKeyVault > packtadestorage > packtadestoragev2 >

Select a key

Subscription * : Visual Studio Enterprise

Key store type : Key vault / Managed HSM

Key vault * : PacktAdeKeyVault
Create new key vault

Key *
Create new key

Home > PacktAdeKeyVault > PacktAdeKeyVault > packtadestorage > packtadestoragev2 > Select a key >

Create a key

Options : Generate

Name * : packtadestorageV2EncryptionKey

Key type : RSA / EC

RSA key size : 2048 / 3072 / 4096

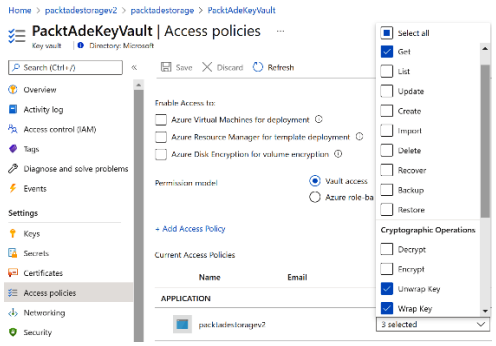
Set activation date

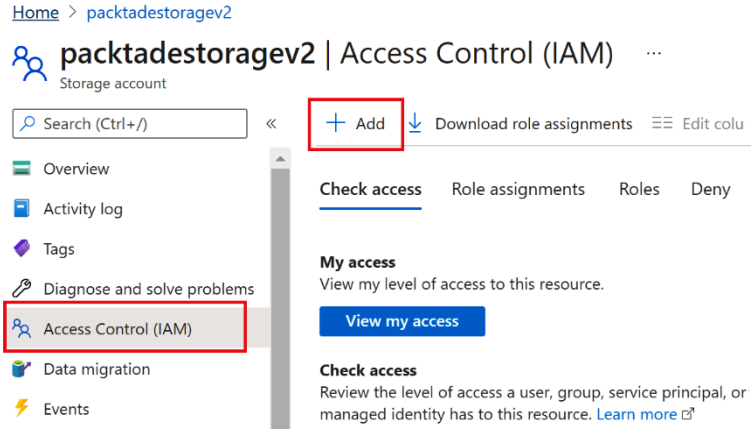
Set expiration date

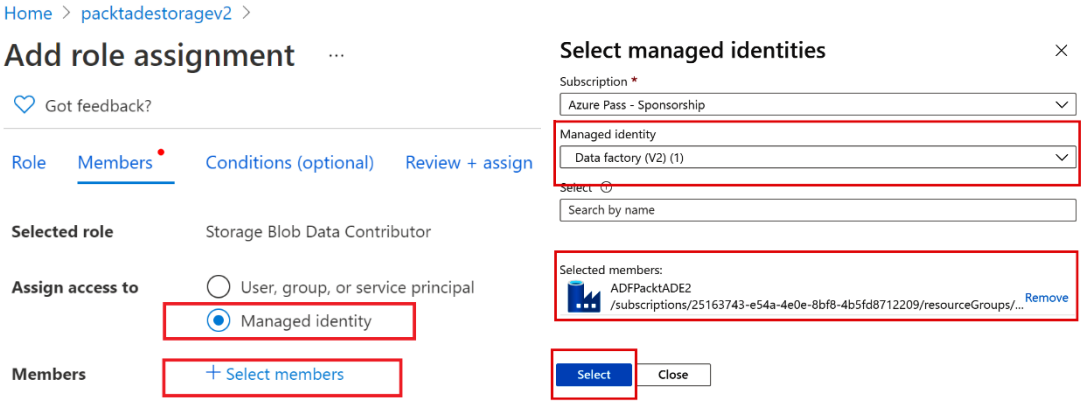
Enabled : Yes / No

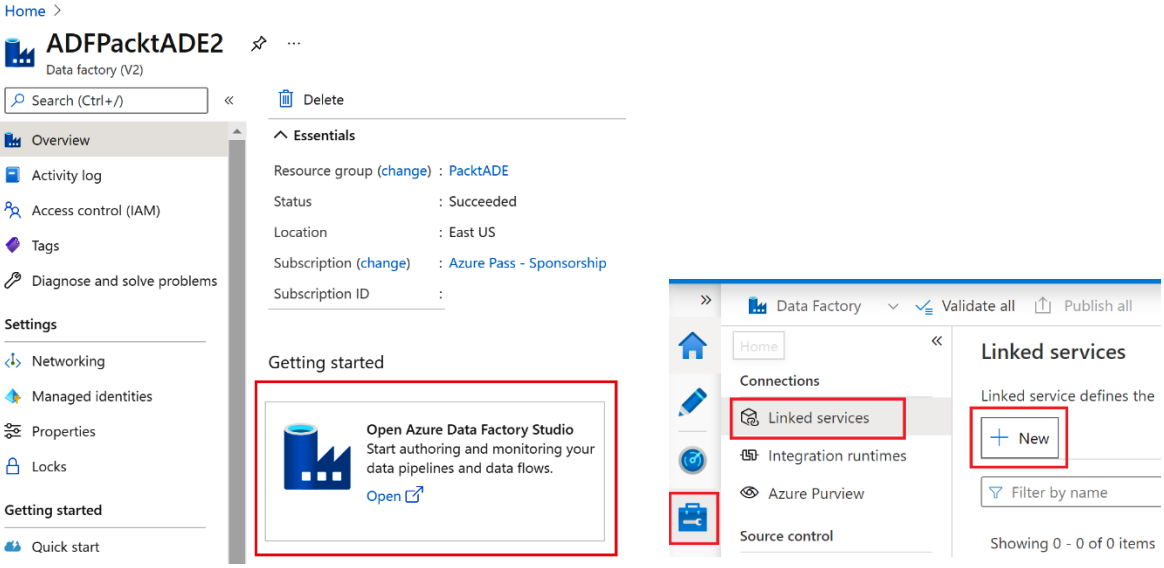
Tags : 0 tags

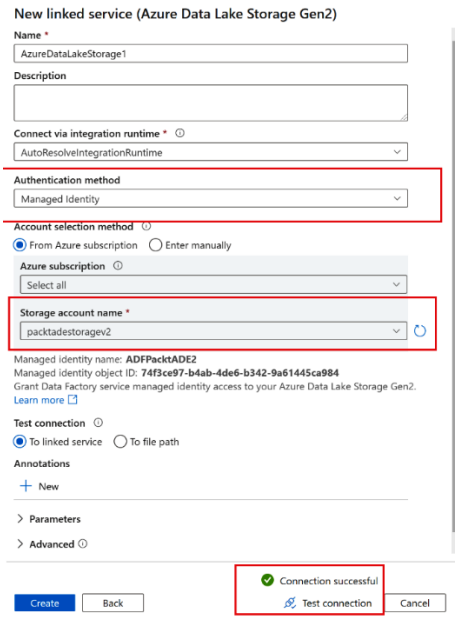
Set key rotation policy (Preview) : Not configured

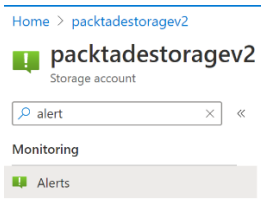

PacktAdeKeyVault | Access policies
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Events
Settings
Keys
Secrets
Certificates
Access policies
Networking
Security
Save
Discard
Refresh
Enable Access to:
Azure Virtual Machines for deployment
Azure Resource Manager for template deployment
Azure Disk Encryption for volume encryption
Permission model
Vault access
+ Add Access Policy
Current Access Policies
Name
Email
APPLICATION
Select all
Get
List
Update
Create
Import
Delete
Recover
Backup
Restore
Cryptographic Operations
Decrypt
Encrypt
Unwrap Key
Wrap Key
3 selected

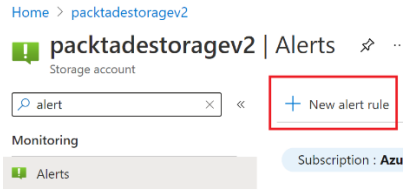

Home > packtadestoragev2
packtadestoragev2 | Access Control (IAM)
Storage account
Search (Ctrl+/)
Add
Download role assignments
Edit colu
Overview
Activity log
Tags
Diagnose and solve problems
Access Control (IAM)
Data migration
Events
Check access
Role assignments
Roles
Deny
My access
View my level of access to this resource.
View my access
Check access
Review the level of access a user, group, service principal, or managed identity has to this resource. Learn more

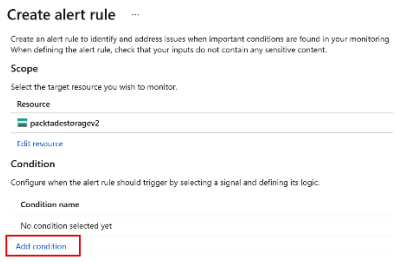

Home > packtadestoragev2 >
Add role assignment
Got feedback?
Role
Members
Conditions (optional)
Review + assign
Selected role
Storage Blob Data Contributor
Assign access to
User, group, or service principal
Managed identity
Members
+ Select members
Select managed identities
Subscription *
Azure Pass - Sponsorship
Managed identity
Data factory (V2) (1)
Select
Search by name
Selected members:
ADFPacktADE2
/subscriptions/25163743-e54a-4e0e-8bf8-4b5fd8712209/resourceGroups/...
Remove
Select
Close

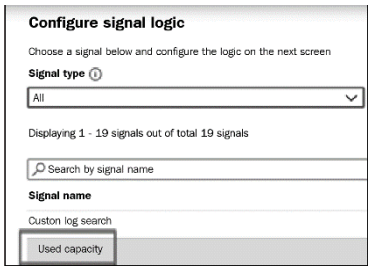

Home >
ADFPacktADE2
Data factory (V2)
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Networking
Managed identities
Properties
Locks
Getting started
Quick start
Delete
Essentials
Resource group (change) : PacktADE
Status : Succeeded
Location : East US
Subscription (change) : Azure Pass - Sponsorship
Subscription ID :
Getting started
Open Azure Data Factory Studio
Start authoring and monitoring your data pipelines and data flows.
Open
Data Factory
Validate all
Publish all
Home
Connections
Linked services
Integration runtimes
Azure Purview
Source control
Linked services
Linked service defines the
New
Filter by name
Showing 0 - 0 of 0 items

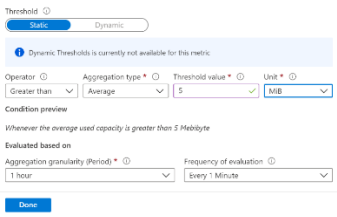

New linked service (Azure Data Lake Storage Gen2)
Name *
AzureDataLakeStorage1
Description
Connect via integration runtime *
AutoResolveIntegrationRuntime
Authentication method
Managed Identity
Account selection method
From Azure subscription
Enter manually
Azure subscription
Select all
Storage account name *
packtadestoragev2
Managed identity name: ADFPacktADE2
Managed identity object ID: 74f3ce97-b4ab-4de6-b342-9a61445ca984
Grant Data Factory service managed identity access to your Azure Data Lake Storage Gen2.
Learn more
Test connection
To linked service
To file path
Annotations
New
Parameters
Advanced
Create
Back
Connection successful
Test connection
Cancel

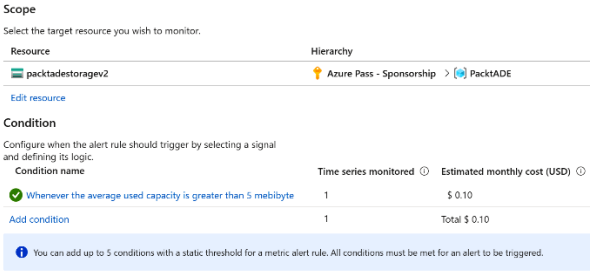

Home > packtadestoragev2
packtadestoragev2
Storage account
alert
Monitoring
Alerts

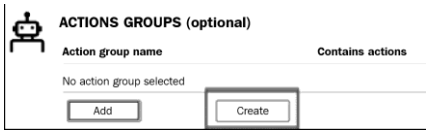

Home > packtadestoragev2
packtadestoragev2 | Alerts
Storage account
alert
New alert rule
Monitoring
Alerts
Subscription : Azu

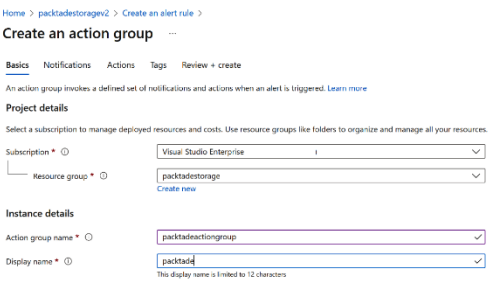

Create alert rule
Create an alert rule to identify and address issues when important conditions are found in your monitoring
When defining the alert rule, check that your inputs do not contain any sensitive content.
Scope
Select the target resource you wish to monitor.
Resource
packtadestoragev2
Edit resource
Condition
Configure when the alert rule should trigger by selecting a signal and defining its logic.
Condition name
No condition selected yet
Add condition

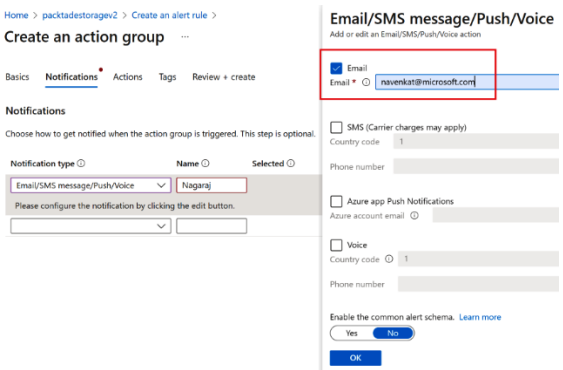

Configure signal logic
Choose a signal below and configure the logic on the next screen
Signal type
All
Displaying 1 - 19 signals out of total 19 signals
Search by signal name
Signal name
Custom log search
Used capacity


Threshold
Static
Dynamic
Dynamic Thresholds is currently not available for this metric
Operator
Aggregation type *
Threshold value *
Unit *
Greater than
Average
5
MiB
Condition preview
Whenever the average used capacity is greater than 5 Mebibyte
Evaluated based on
Aggregation granularity (Period) *
Frequency of evaluation
1 hour
Every 1 Minute
Done

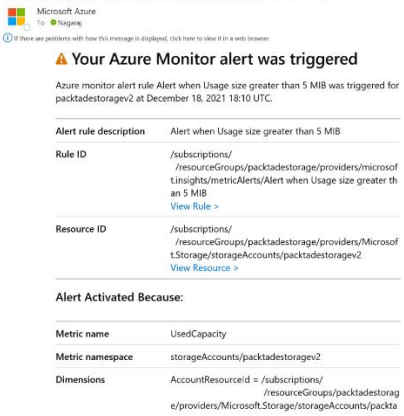

Scope
Select the target resource you wish to monitor.
Resource
Hierarchy
packtadestoragev2
Azure Pass - Sponsorship > PacktADE
Edit resource
Condition
Configure when the alert rule should trigger by selecting a signal and defining its logic.
Condition name
Time series monitored
Estimated monthly cost (USD)
Whenever the average used capacity is greater than 5 mebibyte
1
$ 0.10
Add condition
1
Total $ 0.10
You can add up to 5 conditions with a static threshold for a metric alert rule. All conditions must be met for an alert to be triggered.


ACTIONS GROUPS (optional)
Action group name
Contains actions
No action group selected
Add
Create


Home > packtadestoragev2 > Create an alert rule >
Create an action group
Basics
Notifications
Actions
Tags
Review + create
An action group invokes a defined set of notifications and actions when an alert is triggered. Learn more
Project details
Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *
Visual Studio Enterprise
Resource group *
packtadestorage
Create new
Instance details
Action group name *
packtadeactiongroup
Display name *
packtade
This display name is limited to 12 characters


Home > packtadestoragev2 > Create an alert rule >
Create an action group
Basics
Notifications
Actions
Tags
Review + create
Notifications
Choose how to get notified when the action group is triggered. This step is optional.
Notification type
Name
Selected
Email/SMS message/Push/Voice
Nagaraj
Please configure the notification by clicking the edit button.
Email/SMS message/Push/Voice
Add or edit an Email/SMS/Push/Voice action
Email
Email *
navenkat@microsoft.com
SMS (Carrier charges may apply)
Country code
Phone number
Azure app Push Notifications
Azure account email
Voice
Country code
Phone number
Enable the common alert schema. Learn more
Yes
No
OK

Azure: Activated Severity: 0 Alert when Usage size greater than 5 MIB


Microsoft Azure

To: Nagaraj

If there are problems with how this message is displayed, click here to view it in a web browser.

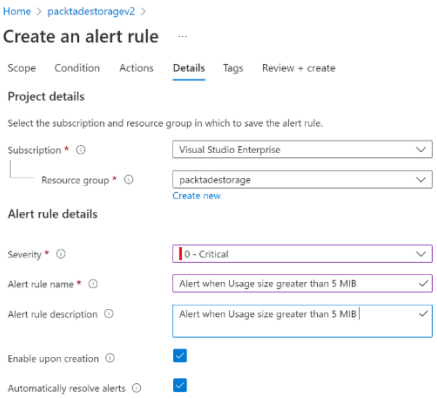
Your Azure Monitor alert was triggered

Azure monitor alert rule Alert when Usage size greater than 5 MIB was triggered for packtadestoragev2 at December 18, 2021 18:10 UTC.

Alert rule description	Alert when Usage size greater than 5 MIB
Rule ID	/subscriptions/ /resourceGroups/packtadestorage/providers/microsoft.insights/metricAlerts/Alert when Usage size greater than 5 MIB View Rule >
Resource ID	/subscriptions/ /resourceGroups/packtadestorage/providers/Microsoft.Storage/storageAccounts/packtadestoragev2 View Resource >

Alert Activated Because:

Metric name	UsedCapacity
Metric namespace	storageAccounts/packtadestoragev2
Dimensions	AccountResourceId = /subscriptions/ /resourceGroups/packtadestorage/providers/Microsoft.Storage/storageAccounts/packta


Home > packtadestoragev2 >

Create an alert rule

Scope | Condition | Actions | Details | Tags | Review + create

Project details

Select the subscription and resource group in which to save the alert rule.

Subscription * : Visual Studio Enterprise

Resource group * : packtadestorage

Create new

Alert rule details

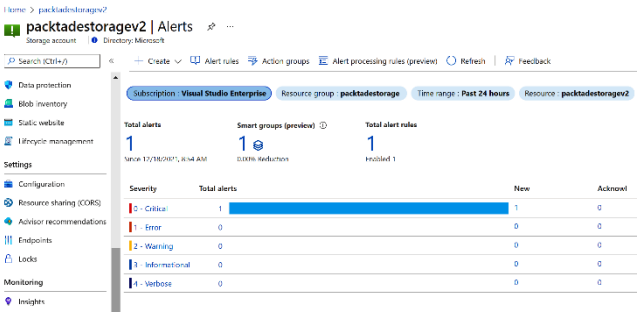
Severity * : 0 - Critical

Alert rule name * : Alert when Usage size greater than 5 MIB

Alert rule description : Alert when Usage size greater than 5 MIB

Enable upon creation

Automatically resolve alerts


Home > packtadestoragev2

packtadestoragev2 | Alerts

Storage account | Directory: Microsoft

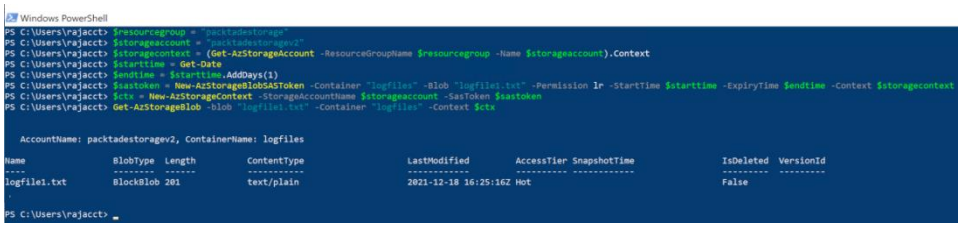
Search (Ctrl+/) | Create | Alert rules | Action groups | Alert processing rules (preview) | Refresh | Feedback

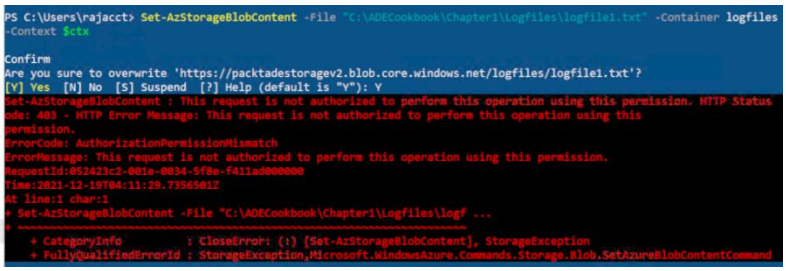
Data protection
Blob inventory
Static website
Lifecycle management
Settings
Configuration
Resource sharing (CORS)
Advisor recommendations
Endpoints
Locks
Monitoring
Insights

Subscription : Visual Studio Enterprise | Resource group : packtadestorage | Time range : Past 24 hours | Resource : packtadestoragev2

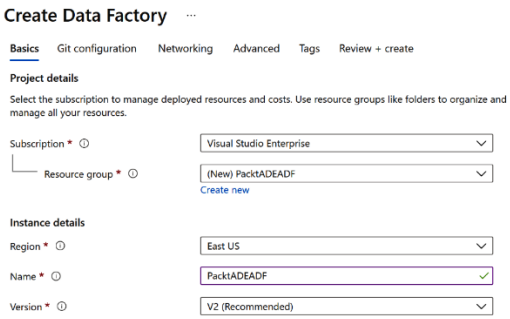
Total alerts: 1
Smart groups (preview): 1
Total alert rules: 1

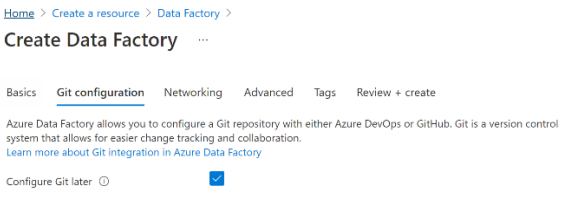
Severity	Total alerts	New	Acknowl
0 - Critical	1	1	0
1 - Error	0	0	0
2 - Warning	0	0	0
3 - Informational	0	0	0
4 - Verbose	0	0	0

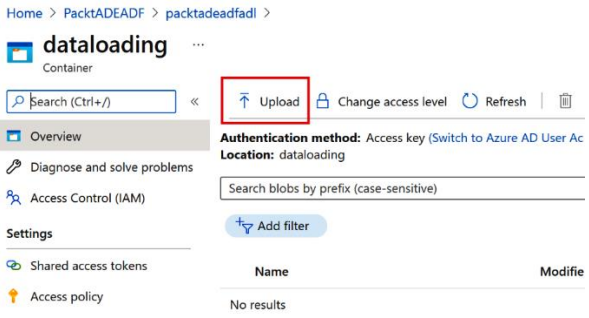

```
Windows PowerShell
PS C:\Users\rajacct> $resourcegroup = "packtadestorage"
PS C:\Users\rajacct> $storageaccount = "packtadestoragev2"
PS C:\Users\rajacct> $storagecontext = (Get-AzStorageAccount -ResourceGroupName $resourcegroup -Name $storageaccount).Context
PS C:\Users\rajacct> $starttime = Get-Date
PS C:\Users\rajacct> $endtime = $starttime.AddDays(1)
PS C:\Users\rajacct> $sastoken = New-AzStorageBlobSASToken -Container "logfiles" -Blob "logfile1.txt" -Permission lr -StartTime $starttime -ExpiryTime $endtime -Context $storagecontext
PS C:\Users\rajacct> $ctx = New-AzStorageContext -StorageAccountName $storageaccount -SasToken $sastoken
PS C:\Users\rajacct> Get-AzStorageBlob -blob "logfile1.txt" -Container "logfiles" -Context $ctx

   AccountName: packtadestoragev2, ContainerName: logfiles

Name          BlobType  Length  ContentType  LastModified          AccessTier SnapshotTime  IsDeleted  VersionId
----          --------  ------  -----------  ------------          ---------- ------------  ---------  ---------
logfile1.txt  BlockBlob 201     text/plain   2021-12-18 16:25:16Z  Hot                      False

PS C:\Users\rajacct>
```

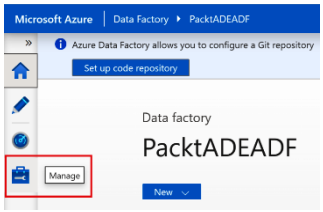

```
PS C:\Users\rajacct> Set-AzStorageBlobContent -File "C:\ADECookbook\Chapter1\Logfiles\logfile1.txt" -Container logfiles
-Context $ctx

Confirm
Are you sure to overwrite 'https://packtadestoragev2.blob.core.windows.net/logfiles/logfile1.txt'?
[Y] Yes  [N] No  [S] Suspend  [?] Help (default is "Y"): Y
Set-AzStorageBlobContent : This request is not authorized to perform this operation using this permission. HTTP Status
ode: 403 - HTTP Error Message: This request is not authorized to perform this operation using this
permission.
ErrorCode: AuthorizationPermissionMismatch
ErrorMessage: This request is not authorized to perform this operation using this permission.
RequestId:052423c2-001e-0034-5f8e-f411ad000000
Time:2021-12-19T04:11:29.7356501Z
At line:1 char:1
+ Set-AzStorageBlobContent -File "C:\ADECookbook\Chapter1\Logfiles\logf ...
+ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    + CategoryInfo          : CloseError: (:) [Set-AzStorageBlobContent], StorageException
    + FullyQualifiedErrorId : StorageException,Microsoft.WindowsAzure.Commands.Storage.Blob.SetAzureBlobContentCommand
```

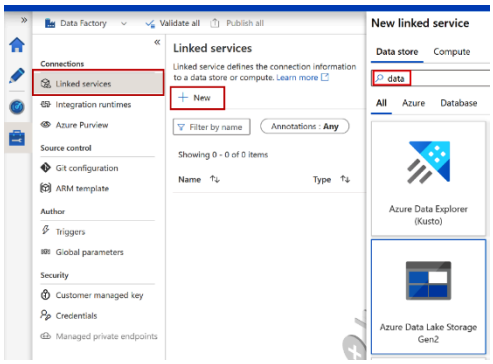
Chapter 3: Building Data Ingestion Pipelines Using Azure Data Factory

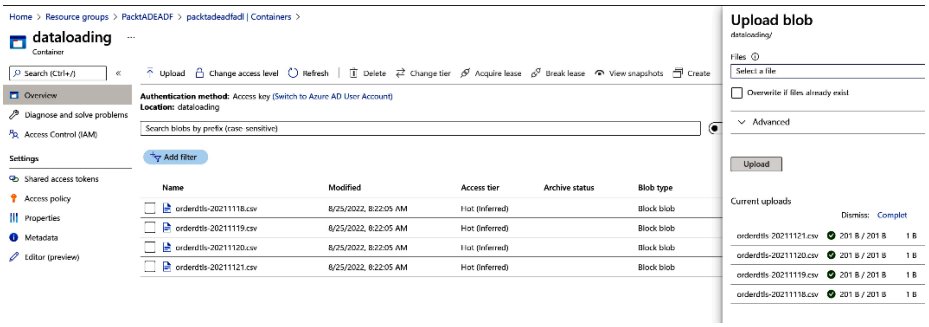


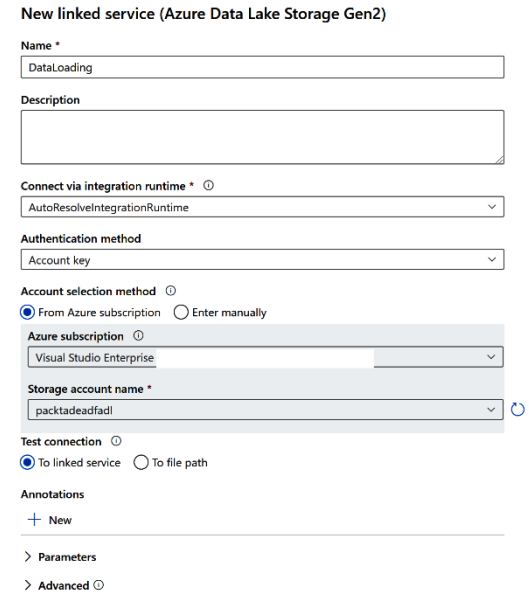


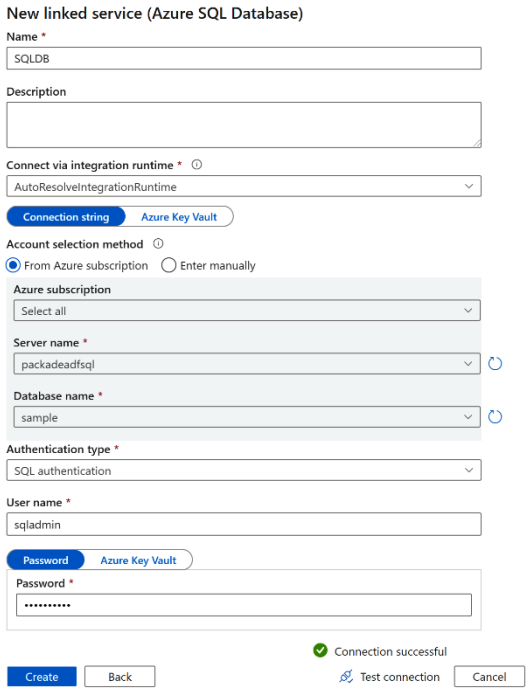


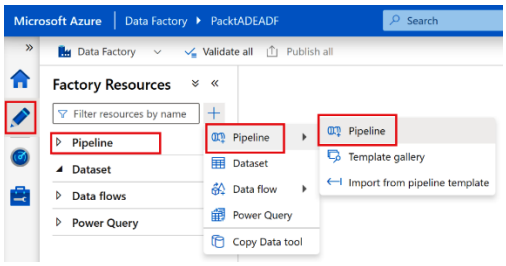


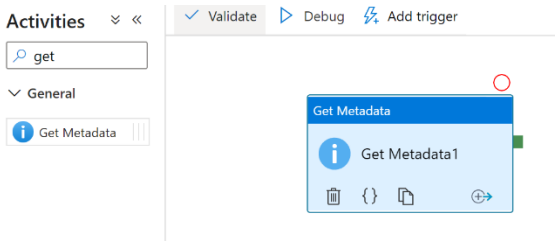


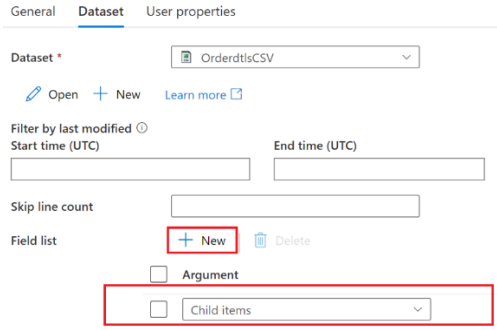


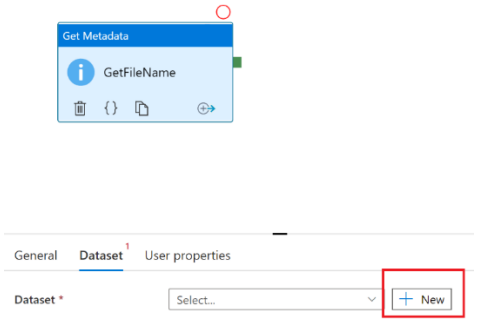

New linked service (Azure Data Lake Storage Gen2)
Name *
DataLoading
Description
Connect via integration runtime *
AutoResolveIntegrationRuntime
Authentication method
Account key
Account selection method
From Azure subscription
Enter manually
Azure subscription
Visual Studio Enterprise
Storage account name *
packtadeadfadl
Test connection
To linked service
To file path
Annotations
New
Parameters
Advanced

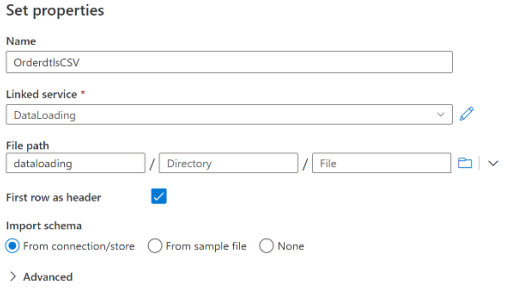

New linked service (Azure SQL Database)
Name *
SQLDB
Description
Connect via integration runtime *
AutoResolveIntegrationRuntime
Connection string
Azure Key Vault
Account selection method
From Azure subscription
Enter manually
Azure subscription
Select all
Server name *
packadeadfsql
Database name *
sample
Authentication type *
SQL authentication
User name *
sqladmin
Password
Azure Key Vault
Password *
Connection successful
Create
Back
Test connection
Cancel

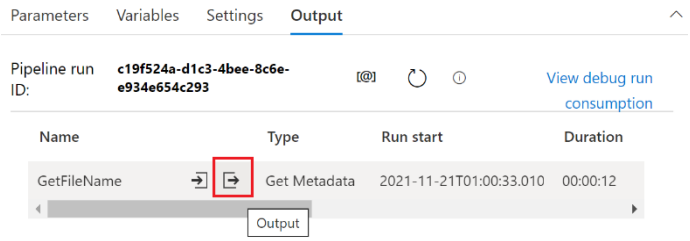

Microsoft Azure
Data Factory
PacktADEADF
Search
Data Factory
Validate all
Publish all
Factory Resources
Filter resources by name
Pipeline
Dataset
Data flows
Power Query
Pipeline
Dataset
Data flow
Power Query
Copy Data tool
Pipeline
Template gallery
Import from pipeline template

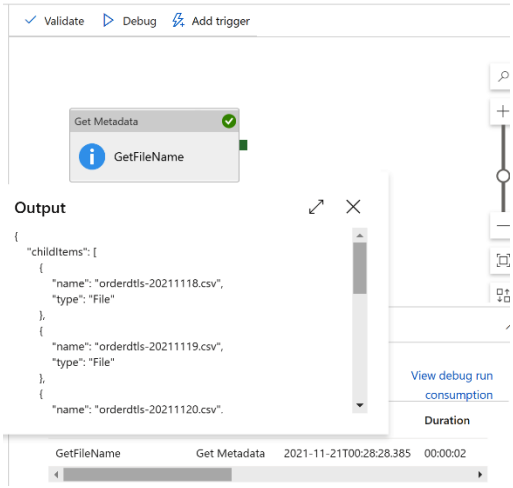

Activities
get
General
Get Metadata
Validate
Debug
Add trigger
Get Metadata
Get Metadata1

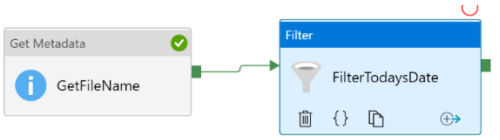

General
Dataset
User properties
Dataset *
OrderdtlsCSV
Open
New
Learn more
Filter by last modified
Start time (UTC)
End time (UTC)
Skip line count
Field list
New
Delete
Argument
Child items

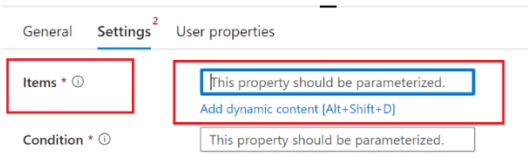

Get Metadata
GetFileName
General
Dataset
User properties
Dataset *
Select...
New


Set properties
Name
OrderdtlsCSV
Linked service *
DataLoading
File path
dataloading
Directory
File
First row as header
Import schema
From connection/store
From sample file
None
Advanced

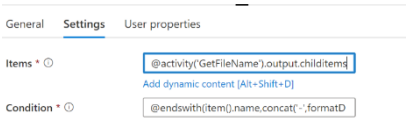

Parameters
Variables
Settings
Output
Pipeline run ID:
c19f524a-d1c3-4bee-8c6e-e934e654c293
View debug run consumption
Name
Type
Run start
Duration
GetFileName
Get Metadata
2021-11-21T01:00:33.010
00:00:12
Output


Validate
Debug
Add trigger
Get Metadata
GetFileName
Output
{
"childItems": [
{
"name": "orderdtls-20211118.csv",
"type": "File"
},
{
"name": "orderdtls-20211119.csv",
"type": "File"
},
{
"name": "orderdtls-20211120.csv".
View debug run consumption
Duration
GetFileName
Get Metadata
2021-11-21T00:28:28.385
00:00:02

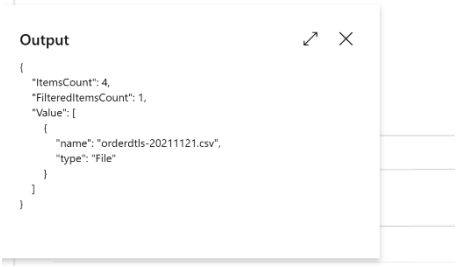

Get Metadata
GetFileName
Filter
FilterTodaysDate

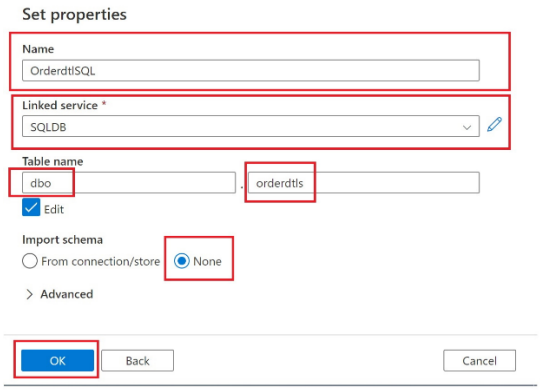

General
Settings
2
User properties
Items *
This property should be parameterized.
Add dynamic content [Alt+Shift+D]
Condition *
This property should be parameterized.

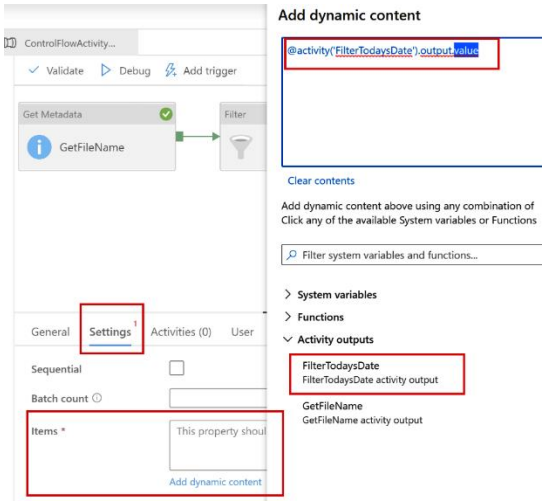

Get Metadata
GetFileName
Filter
FilterTodaysDate

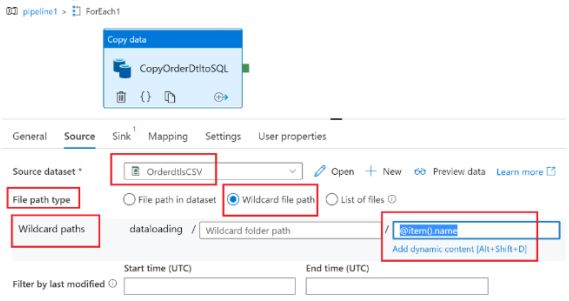

General
Settings
User properties
Items *
@activity('GetFileName').output.childItems
Add dynamic content [Alt+Shift+D]
Condition *
@endswith(item().name,concat('-',formatD

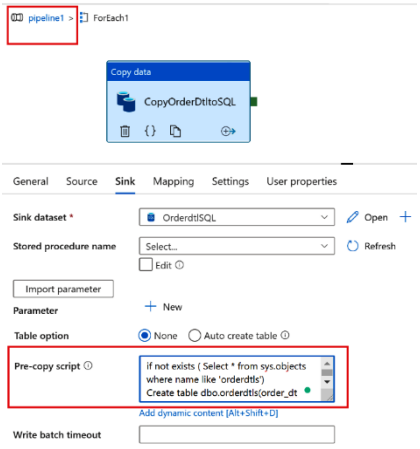

Get Metadata
GetFileName
Filter
FilterTodaysDate

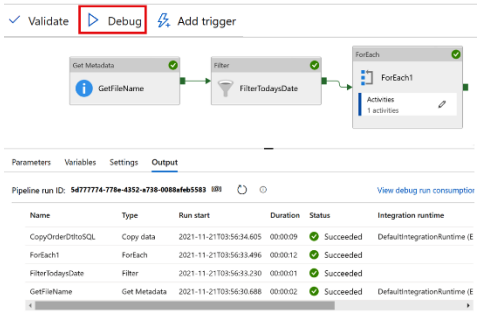

Output
{
"ItemsCount": 4,
"FilteredItemsCount": 1,
"Value": [
{
"name": "orderdtls-20211121.csv",
"type": "File"
}
]
}

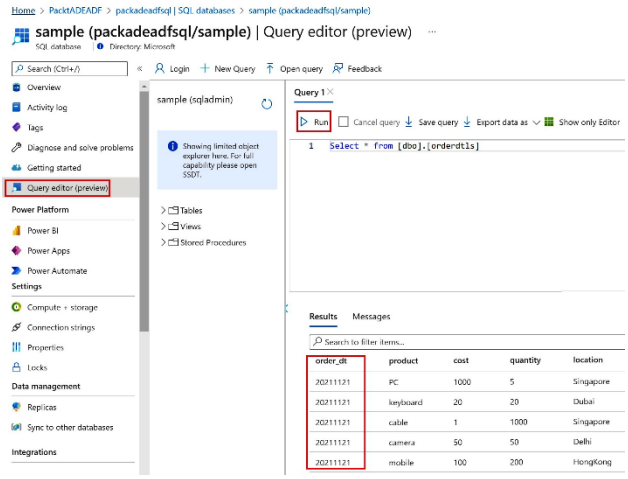

Set properties
Name
OrderdtlSQL
Linked service *
SQLDB
Table name
dbo
orderdtls
Edit
Import schema
From connection/store
None
Advanced
OK
Back
Cancel

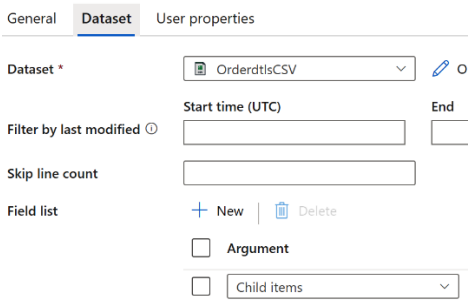

ControlFlowActivity...
Validate
Debug
Add trigger
Get Metadata
GetFileName
Filter
General
Settings
1
Activities (0)
User
Sequential
Batch count
Items *
This property shoul
Add dynamic content
Add dynamic content
@activity('FilterTodaysDate').output.value
Clear contents
Add dynamic content above using any combination of
Click any of the available System variables or Functions
Filter system variables and functions...
System variables
Functions
Activity outputs
FilterTodaysDate
FilterTodaysDate activity output
GetFileName
GetFileName activity output

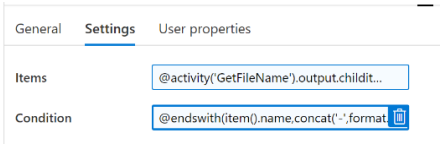

pipeline1
ForEach1
Copy data
CopyOrderDtltoSQL
General
Source
Sink
1
Mapping
Settings
User properties
Source dataset *
OrderdtlsCSV
Open
New
Preview data
Learn more
File path type
File path in dataset
Wildcard file path
List of files
Wildcard paths
dataloading
Wildcard folder path
@item().name
Add dynamic content [Alt+Shift+D]
Start time (UTC)
End time (UTC)
Filter by last modified

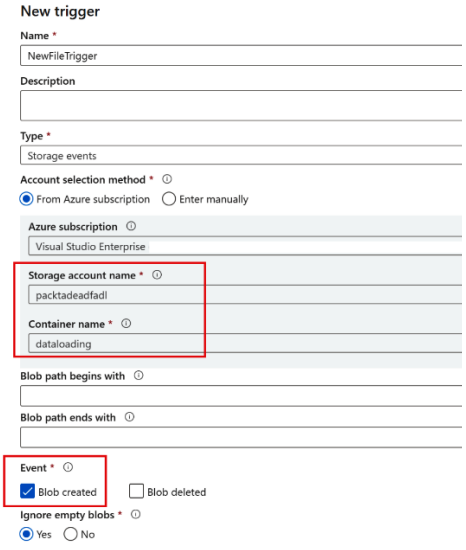

pipeline1 > ForEach1
Copy data
CopyOrderDtltoSQL
General Source Sink Mapping Settings User properties
Sink dataset * OrderdtlSQL Open
Stored procedure name Select... Refresh
Edit
Import parameter
Parameter New
Table option None Auto create table
Pre-copy script
if not exists (Select * from sys.objects
where name like 'orderdtls')
Create table dbo.orderdtls(order_dt
Add dynamic content [Alt+Shift+D]
Write batch timeout

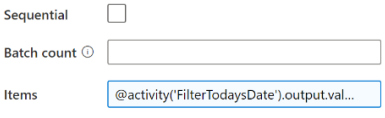

Validate Debug Add trigger
Get Metadata GetFileName
Filter FilterTodaysDate
ForEach ForEach1
Activities 1 activities
Parameters Variables Settings Output
Pipeline run ID: 5d777774-778e-4352-a738-0088afeb5583
View debug run consumption
Name Type Run start Duration Status Integration runtime
CopyOrderDtltoSQL Copy data 2021-11-21T03:56:34.605 00:00:09 Succeeded DefaultIntegrationRuntime (E
ForEach1 ForEach 2021-11-21T03:56:33.496 00:00:12 Succeeded
FilterTodaysDate Filter 2021-11-21T03:56:33.230 00:00:01 Succeeded
GetFileName Get Metadata 2021-11-21T03:56:30.688 00:00:02 Succeeded DefaultIntegrationRuntime (E

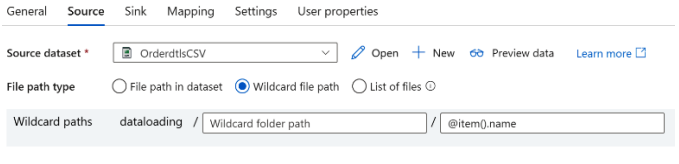

Home > PacktADEADF > packadeadfsql | SQL databases > sample (packadeadfsql/sample)
sample (packadeadfsql/sample) | Query editor (preview)
SQL database Directory: Microsoft
Search (Ctrl+/)
Login New Query Open query Feedback
Overview
Activity log
Tags
Diagnose and solve problems
Getting started
Query editor (preview)
Power Platform
Power BI
Power Apps
Power Automate
Settings
Compute + storage
Connection strings
Properties
Locks
Data management
Replicas
Sync to other databases
Integrations
sample (sqladmin)
Query 1
Run Cancel query Save query Export data as Show only Editor
1 Select * from [dbo].[orderdtls]
Tables
Views
Stored Procedures
Results Messages
order_dt product cost quantity location
20211121 PC 1000 5 Singapore
20211121 keyboard 20 20 Dubai
20211121 cable 1 1000 Singapore
20211121 camera 50 50 Delhi
20211121 mobile 100 200 HongKong

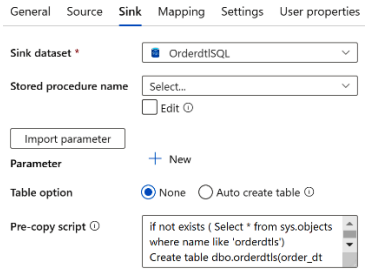

General Dataset User properties
Dataset * OrderdtlsCSV
Filter by last modified
Start time (UTC)
End
Skip line count
Field list
New Delete
Argument
Child items

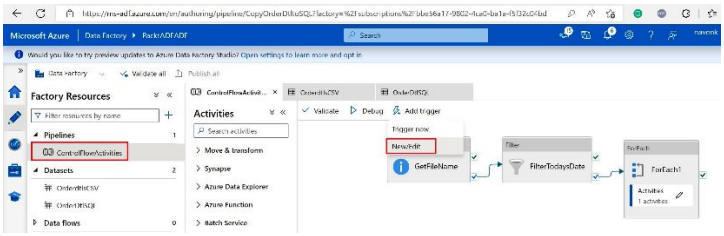

General Settings User properties
Items @activity('GetFileName').output.childit...
Condition @endswith(item().name,concat('_',format


New trigger
Name *
NewFileTrigger
Description
Type *
Storage events
Account selection method *
From Azure subscription Enter manually
Azure subscription
Visual Studio Enterprise
Storage account name *
packtadeadfadl
Container name *
dataloading
Blob path begins with
Blob path ends with
Event *
Blob created Blob deleted
Ignore empty blobs *
Yes No


Sequential
Batch count
Items
@activity('FilterTodaysDate').output.val...


General Source Sink Mapping Settings User properties
Source dataset * OrderdtlsCSV Open New Preview data Learn more
File path type File path in dataset Wildcard file path List of files
Wildcard paths dataloading / Wildcard folder path / @item().name


General Source Sink Mapping Settings User properties
Sink dataset * OrderdtlSQL
Stored procedure name Select...
Edit
Import parameter
Parameter New
Table option None Auto create table
Pre-copy script
if not exists (Select * from sys.objects
where name like 'orderdtls')
Create table dbo.orderdtls(order_dt



Event Trigger Filters

Container name: **dataloading**
Starts with:
Ends with:

11 blobs matched in "dataloading" Refresh

- SalesLTCustomer.txt
- SalesLTCustomerAddress.txt
- SalesLTProduct.txt
- SalesLTProductCategory.txt
- SalesSalesPerson.txt
- SalesSalesReason.txt
- orderdtls-20211118.csv
- orderdtls-20211119.csv
- orderdtls-20211120.csv
- orderdtls-20211121.csv

1 - 11 of 11 items Previous 1 Next Go to

Continue Back Cancel

New trigger

Trigger Run Parameters

NAME	TYPE	VALUE
This pipeline has no parameters		

Make sure to "Publish" for trigger to be activated after clicking "OK"

OK Cancel

```
PS C:\Users\navenkat> $storagecontext = (Get-AzStorageAccount -ResourceGroupName $resourcegroup -Name $storageaccountname).Context
PS C:\Users\navenkat> set-AzStorageBlobContent -File "C:\temp\orderdtls-Trigger.csv" -Context $storagecontext -Blob orderdtls-Trigger.csv
Container $containername

   AccountName: packtadeadfad1, ContainerName: dataloading

Name                BlobType  Length  ContentType                LastModified         AccessTier SnapshotTime
----                --------  ------  -----------                ------------         ---------- ------------
orderdtls-Trigger... BlockBlob 201     application/octet-stream   2022-08-25 02:50:03Z Hot

PS C:\Users\navenkat>
```

Home > Create a resource > Marketplace > SQL Server 2019 on Windows Server 2019 >

Create a virtual machine ...

Basics | Disks | Networking | Management | Advanced | SQL Server settings | Tags | Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. Learn more

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * : Visual Studio Enterprise
Resource group * : PacktADEADF
Create new

Instance details

Virtual machine name * : SQLVM
Region * : (US) East US
Availability options : No infrastructure redundancy required
Security type : Standard
Image * : Free SQL Server License: SQL 2019 Developer on Windows Server 2019 - G
See all images | Configure VM generation
VM architecture : Arm64 / x64
Arm64 is not supported with the selected image.

Administrator account

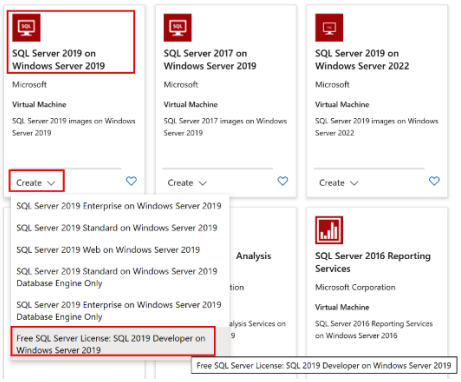
Username * : sqladmin
Password * : ••••••••••••
Confirm password * : ••••••••••••

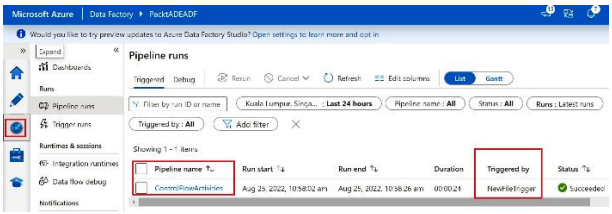
Inbound port rules

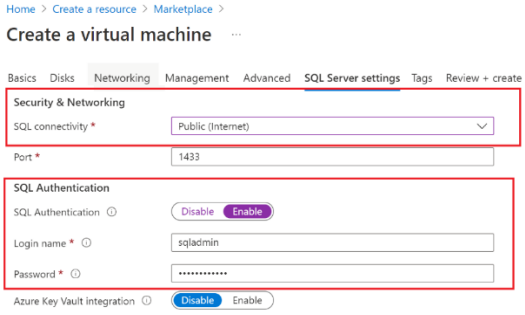
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

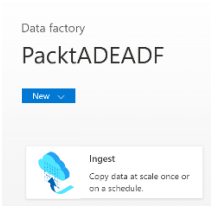
Public inbound ports * : None / Allow selected ports
Select inbound ports * : RDP (3389)

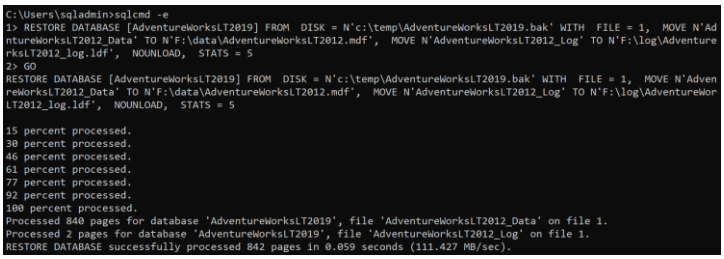
This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

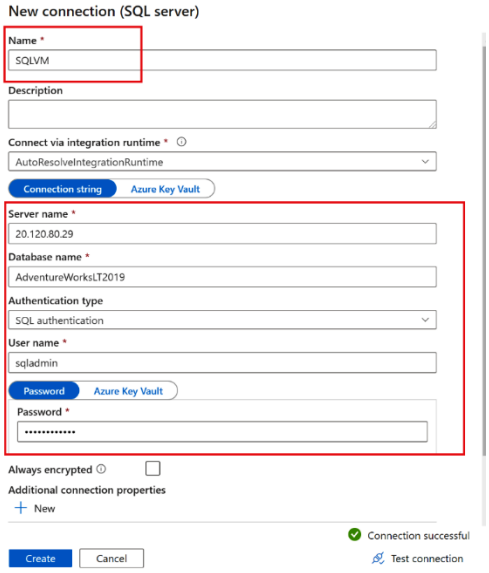

SQL Server 2019 on Windows Server 2019
Microsoft
Virtual Machine
SQL Server 2019 images on Windows Server 2019
Create
SQL Server 2017 on Windows Server 2019
Microsoft
Virtual Machine
SQL Server 2017 images on Windows Server 2019
Create
SQL Server 2019 on Windows Server 2022
Microsoft
Virtual Machine
SQL Server 2019 images on Windows Server 2022
Create
SQL Server 2019 Enterprise on Windows Server 2019
SQL Server 2019 Standard on Windows Server 2019
SQL Server 2019 Web on Windows Server 2019
SQL Server 2019 Standard on Windows Server 2019 Database Engine Only
SQL Server 2019 Enterprise on Windows Server 2019 Database Engine Only
Free SQL Server License: SQL 2019 Developer on Windows Server 2019
Analysis
SQL Server 2016 Reporting Services
Microsoft Corporation
Virtual Machine
SQL Server 2016 Reporting Services on Windows Server 2016
Free SQL Server License: SQL 2019 Developer on Windows Server 2019

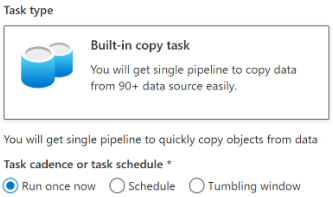

Microsoft Azure
Data Factory
PacktADEADF
Pipeline runs
Triggered
Debug
Rerun
Cancel
Refresh
Edit columns
List
Gantt
Pipeline name
Run start
Run end
Duration
Triggered by
Status
NewFileTrigger
Succeeded

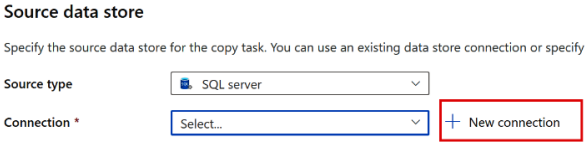

Home
Create a resource
Marketplace
Create a virtual machine
Basics
Disks
Networking
Management
Advanced
SQL Server settings
Tags
Review + create
Security & Networking
SQL connectivity *
Public (Internet)
Port *
1433
SQL Authentication
SQL Authentication
Disable
Enable
Login name *
sqladmin
Password *
Azure Key Vault integration
Disable
Enable

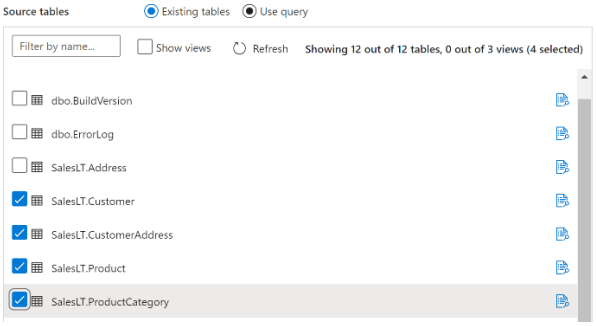

Data factory
PacktADEADF
New
Ingest
Copy data at scale once or on a schedule.

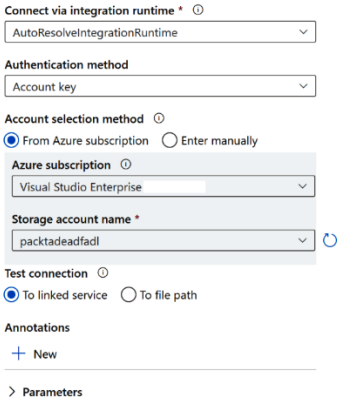

C:\Users\sqladmin>sqlcmd -e
1> RESTORE DATABASE [AdventureWorksLT2019] FROM DISK = N'c:\temp\AdventureWorksLT2019.bak' WITH FILE = 1, MOVE N'AdventureWorksLT2012_Data' TO N'F:\data\AdventureWorksLT2012.mdf', MOVE N'AdventureWorksLT2012_Log' TO N'F:\log\AdventureWorksLT2012_log.ldf', NOUNLOAD, STATS = 5
2> GO
RESTORE DATABASE [AdventureWorksLT2019] FROM DISK = N'c:\temp\AdventureWorksLT2019.bak' WITH FILE = 1, MOVE N'AdventureWorksLT2012_Data' TO N'F:\data\AdventureWorksLT2012.mdf', MOVE N'AdventureWorksLT2012_Log' TO N'F:\log\AdventureWorksLT2012_log.ldf', NOUNLOAD, STATS = 5
15 percent processed.
30 percent processed.
46 percent processed.
61 percent processed.
77 percent processed.
92 percent processed.
100 percent processed.
Processed 840 pages for database 'AdventureWorksLT2019', file 'AdventureWorksLT2012_Data' on file 1.
Processed 2 pages for database 'AdventureWorksLT2019', file 'AdventureWorksLT2012_Log' on file 1.
RESTORE DATABASE successfully processed 842 pages in 0.059 seconds (111.427 MB/sec).

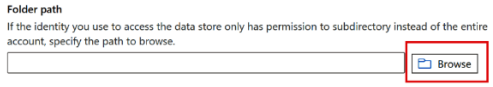

New connection (SQL server)
Name *
SQLVM
Description
Connect via integration runtime *
AutoResolveIntegrationRuntime
Connection string
Azure Key Vault
Server name *
20.120.80.29
Database name *
AdventureWorksLT2019
Authentication type
SQL authentication
User name *
sqladmin
Password
Azure Key Vault
Password *
Always encrypted
Additional connection properties
New
Connection successful
Test connection
Create
Cancel


Task type
Built-in copy task
You will get single pipeline to copy data from 90+ data source easily.
You will get single pipeline to quickly copy objects from data
Task cadence or task schedule *
Run once now
Schedule
Tumbling window

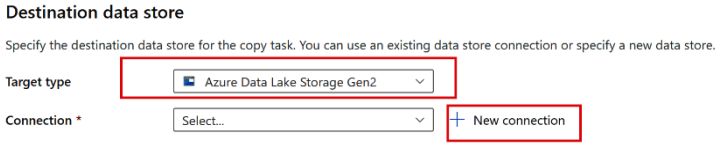

Source data store
Specify the source data store for the copy task. You can use an existing data store connection or specify a new data store.
Source type
SQL server
Connection *
Select...
New connection

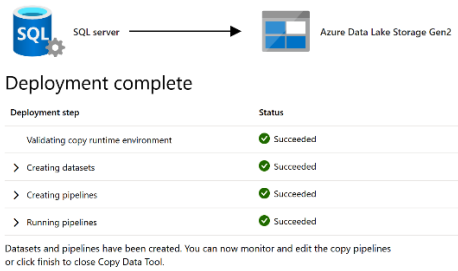

Source tables
Existing tables
Use query
Filter by name...
Show views
Refresh
Showing 12 out of 12 tables, 0 out of 3 views (4 selected)
dbo.BuildVersion
dbo.ErrorLog
SalesLT.Address
SalesLT.Customer
SalesLT.CustomerAddress
SalesLT.Product
SalesLT.ProductCategory


Connect via integration runtime *
AutoResolveIntegrationRuntime
Authentication method
Account key
Account selection method
From Azure subscription
Enter manually
Azure subscription
Visual Studio Enterprise
Storage account name *
packtadeadfadl
Test connection
To linked service
To file path
Annotations
New
Parameters


Folder path
If the identity you use to access the data store only has permission to subdirectory instead of the entire account, specify the path to browse.
Browse


Browse
Select a file or folder.
Root folder
dataloading

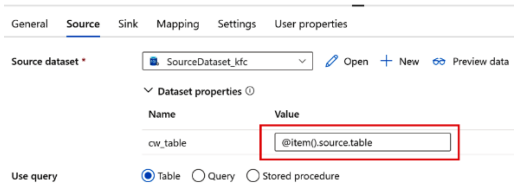

Destination data store
Specify the destination data store for the copy task. You can use an existing data store connection or specify a new data store.
Target type
Azure Data Lake Storage Gen2
Connection *
Select...
New connection

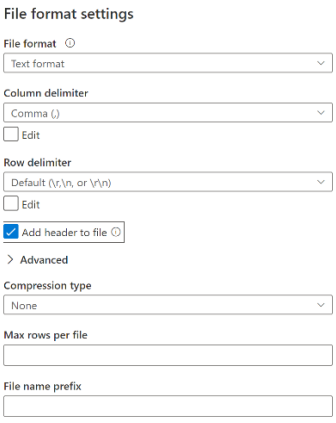

SQL server
Azure Data Lake Storage Gen2
Deployment complete
Deployment step
Status
Validating copy runtime environment
Succeeded
Creating datasets
Succeeded
Creating pipelines
Succeeded
Running pipelines
Succeeded
Datasets and pipelines have been created. You can now monitor and edit the copy pipelines or click finish to close Copy Data Tool.

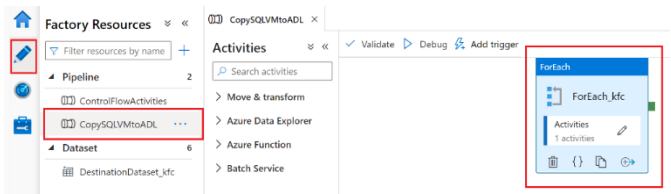

Settings
Enter name and description for the copy data task, more options for data moveme
Task name *
CopySQLVMtoADL


CopySQLVMtoADL > ForEach_kfc

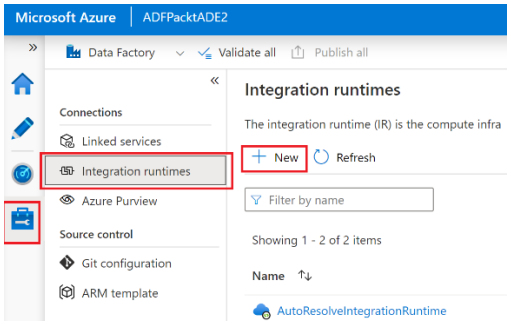

Copy data
Copy_kfc

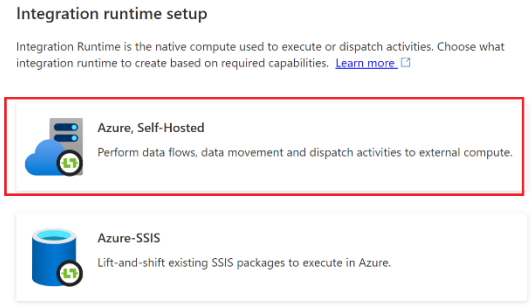

General
Source
Sink
Mapping
Settings
User properties
Source dataset *
SourceDataset_kfc
Open
New
Preview data
Dataset properties
Name
Value
cw_table
@item().source.table
Use query
Table
Query
Stored procedure

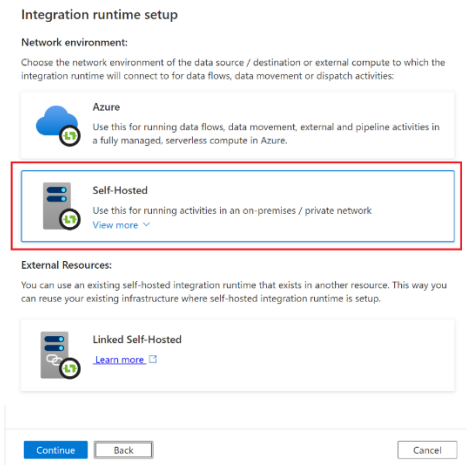

File format settings
File format
Text format
Column delimiter
Comma (,)
Edit
Row delimiter
Default (\r,\n, or \r\n)
Edit
Add header to file
Advanced
Compression type
None
Max rows per file
File name prefix

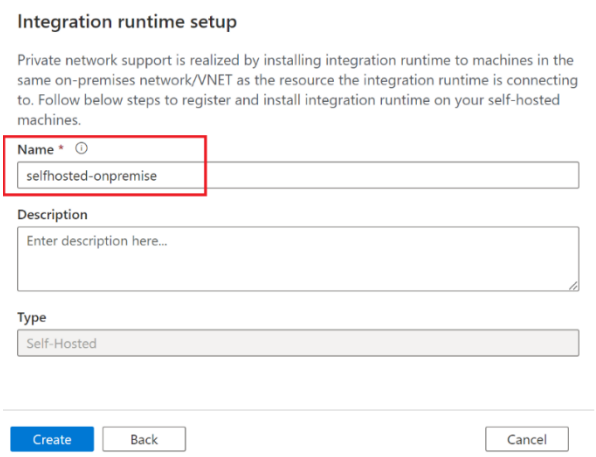

Factory Resources
Filter resources by name
Pipeline
ControlFlowActivities
CopySQLVMtoADL
Dataset
DestinationDataset_kfc
CopySQLVMtoADL
Activities
Search activities
Move & transform
Azure Data Explorer
Azure Function
Batch Service
Validate
Debug
Add trigger
ForEach
ForEach_kfc
Activities
1 activities

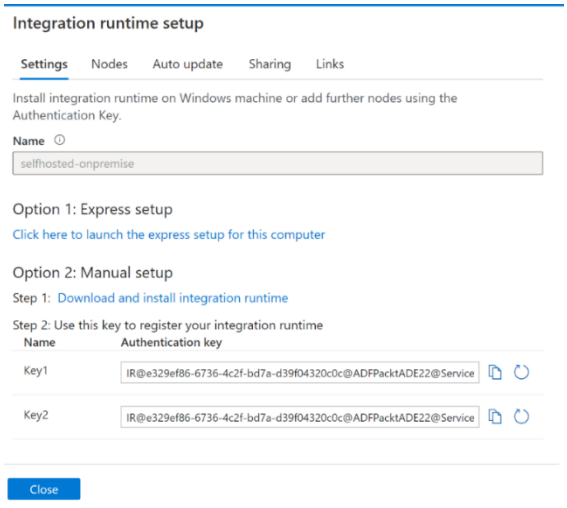
Chapter 4: Azure Data Factory Integration Runtime

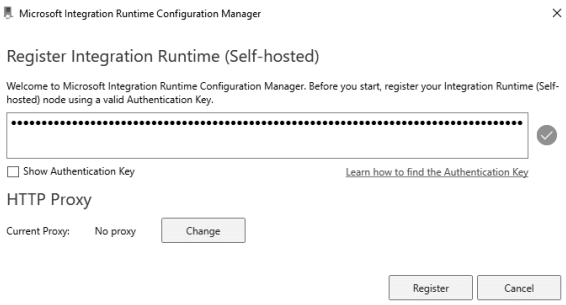


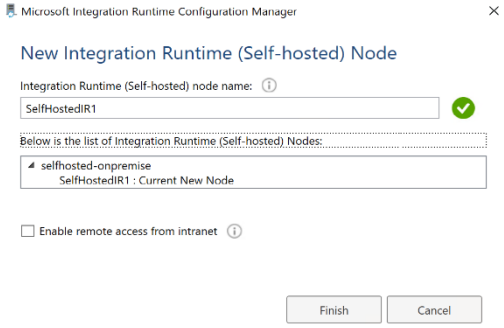


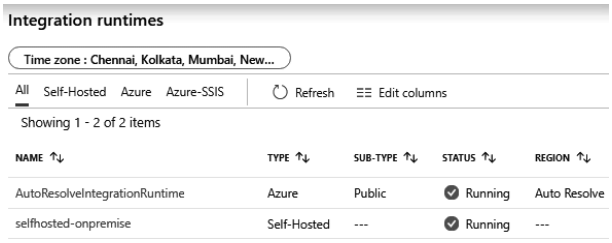




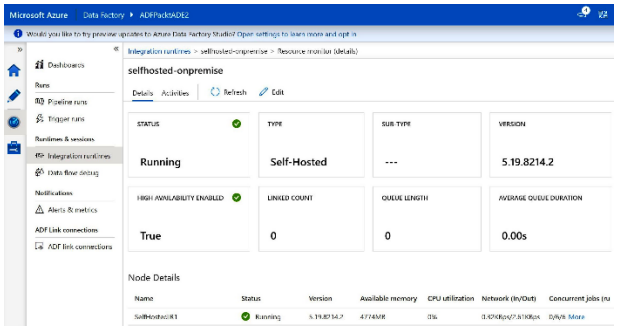




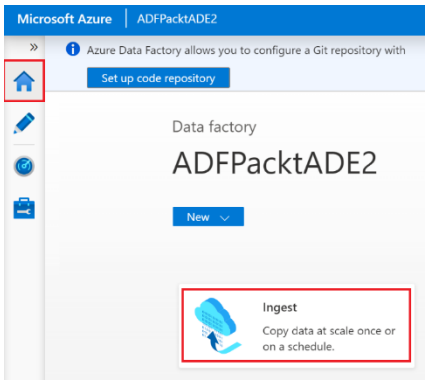

Microsoft Integration Runtime Configuration Manager
New Integration Runtime (Self-hosted) Node
Integration Runtime (Self-hosted) node name:
SelfHostedIR1
Below is the list of Integration Runtime (Self-hosted) Nodes:
selfhosted-onpremise
SelfHostedIR1 : Current New Node
Enable remote access from intranet
Finish
Cancel

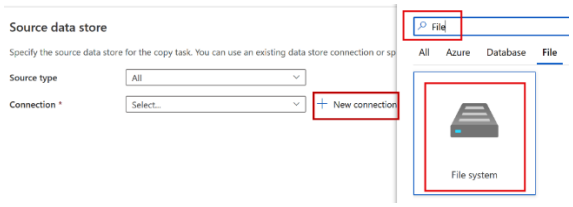

Integration runtimes
Time zone : Chennai, Kolkata, Mumbai, New...
All
Self-Hosted
Azure
Azure-SSIS
Refresh
Edit columns
Showing 1 - 2 of 2 items
NAME
TYPE
SUB-TYPE
STATUS
REGION
AutoResolveIntegrationRuntime
Azure
Public
Running
Auto Resolve
selfhosted-onpremise
Self-Hosted

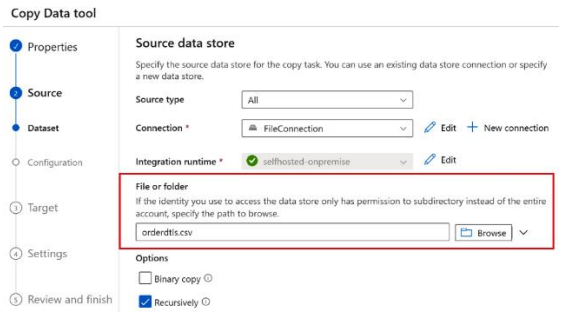
Running

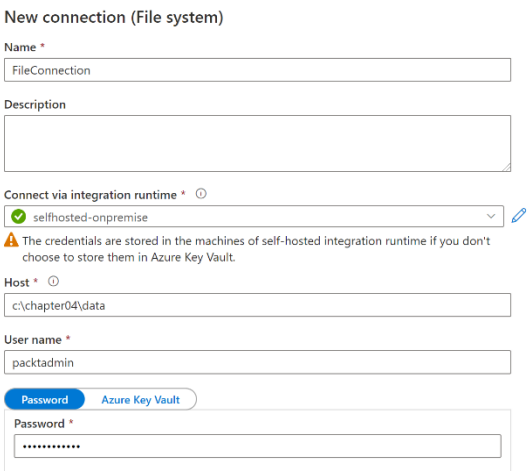

selfhosted-onpremise
Details
Activities
Refresh
Edit
STATUS
Running
TYPE
Self-Hosted
SUB-TYPE

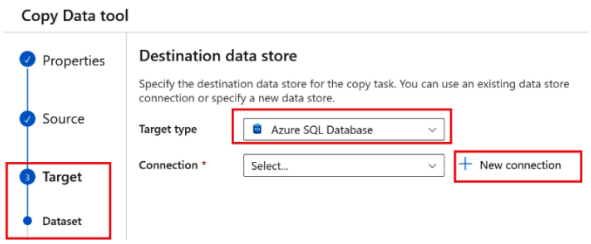
VERSION
5.19.8214.2
HIGH AVAILABILITY ENABLED
True
LINKED COUNT
0
QUEUE LENGTH
0
AVERAGE QUEUE DURATION
0.00s
Node Details

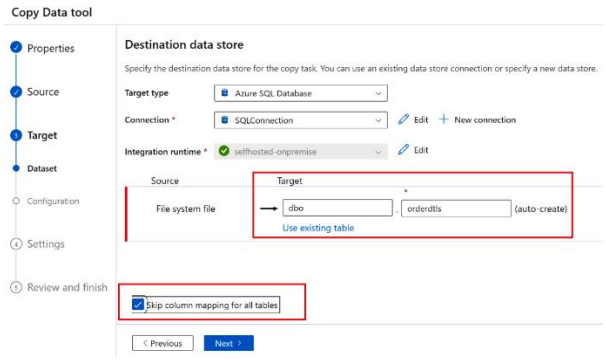

Microsoft Azure
ADFPacktADE2
Azure Data Factory allows you to configure a Git repository with
Set up code repository
Data factory
ADFPacktADE2
New
Ingest
Copy data at scale once or on a schedule.

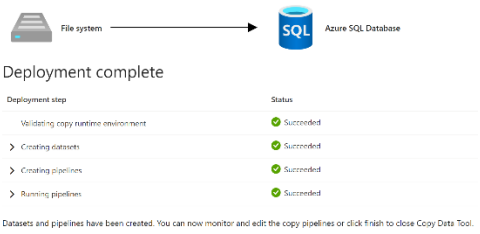

Source data store
Specify the source data store for the copy task. You can use an existing data store connection or sp
Source type
All
Connection *
Select...
New connection
File
All
Azure
Database
File
File system

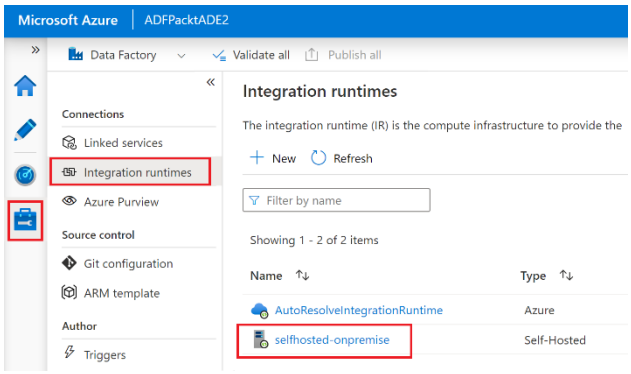

Copy Data tool
Properties
Source
Dataset
Configuration
Target
Settings
Review and finish
Source data store
Specify the source data store for the copy task. You can use an existing data store connection or specify a new data store.
Source type
All
Connection *
FileConnection
Edit
New connection
Integration runtime *
selfhosted-onpremise
Edit
File or folder
If the identity you use to access the data store only has permission to subdirectory instead of the entire account, specify the path to browse.
orderdtls.csv
Browse
Options
Binary copy
Recursively

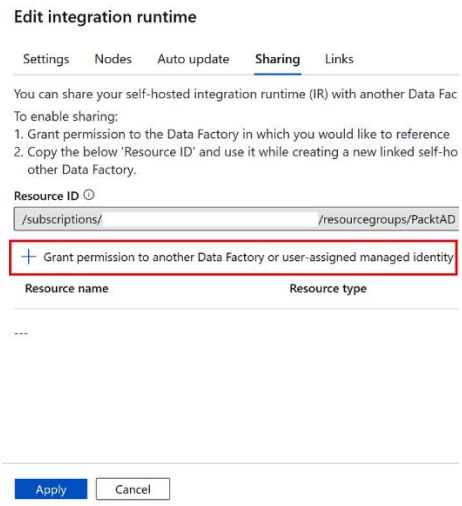

New connection (File system)
Name *
FileConnection
Description
Connect via integration runtime *
selfhosted-onpremise
The credentials are stored in the machines of self-hosted integration runtime if you don't choose to store them in Azure Key Vault.
Host *
c:\chapter04\data
User name *
packtadmin
Password
Azure Key Vault
Password *

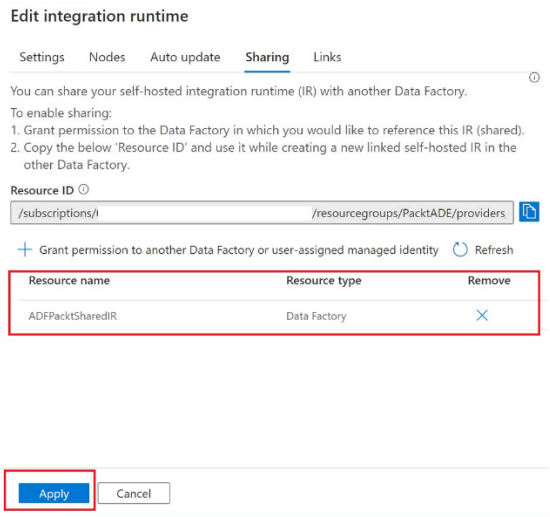

Copy Data tool
Properties
Source
Target
Dataset
Destination data store
Specify the destination data store for the copy task. You can use an existing data store connection or specify a new data store.
Target type
Azure SQL Database
Connection *
Select...
New connection

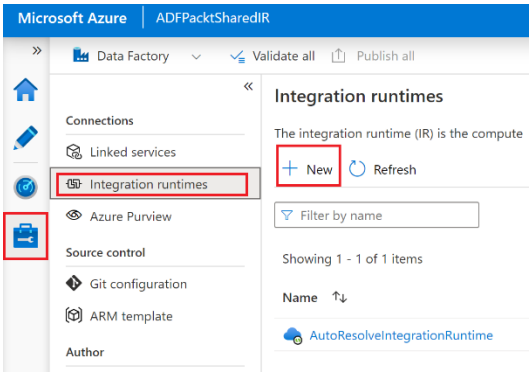

Copy Data tool
Properties
Source
Target
Dataset
Configuration
Settings
Review and finish
Destination data store
Specify the destination data store for the copy task. You can use an existing data store connection or specify a new data store.
Target type
Azure SQL Database
Connection *
SQLConnection
Edit
New connection
Integration runtime *
selfhosted-onpremise
Edit
Source
Target
File system file
dbo
orderdtls
(auto-create)
Use existing table
Skip column mapping for all tables
Previous
Next

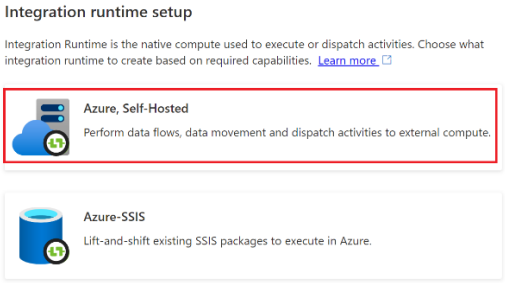

File system
Azure SQL Database
Deployment complete
Deployment step
Status
Validating copy runtime environment
Succeeded
Creating datasets
Succeeded
Creating pipelines
Succeeded
Running pipelines
Succeeded
Datasets and pipelines have been created. You can now monitor and edit the copy pipelines or click finish to close Copy Data Tool.

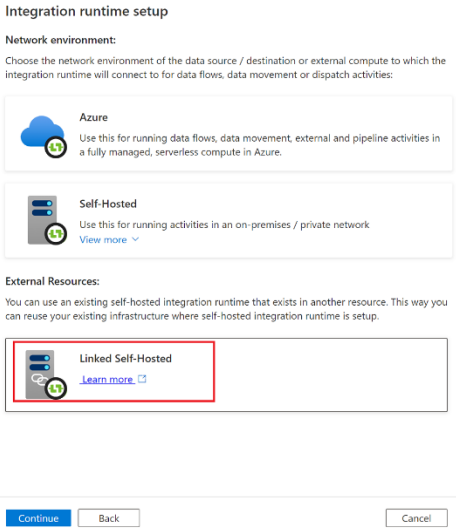

Microsoft Azure
ADFPacktADE2
Data Factory
Validate all
Publish all
Connections
Linked services
Integration runtimes
Azure Purview
Source control
Git configuration
ARM template
Author
Triggers
Integration runtimes
The integration runtime (IR) is the compute infrastructure to provide the
New
Refresh
Filter by name
Showing 1 - 2 of 2 items
Name
Type
AutoResolveIntegrationRuntime
Azure
selfhosted-onpremise
Self-Hosted

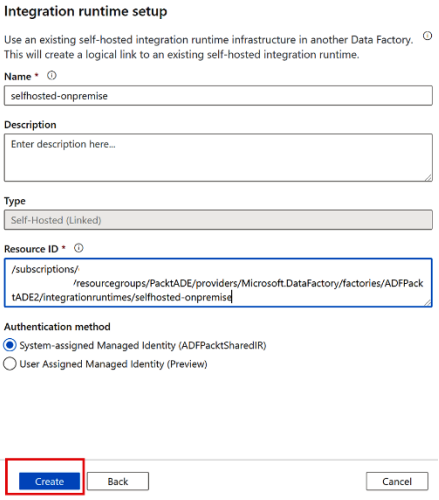

Edit integration runtime
Settings
Nodes
Auto update
Sharing
Links
You can share your self-hosted integration runtime (IR) with another Data Fac
To enable sharing:
1. Grant permission to the Data Factory in which you would like to reference
2. Copy the below 'Resource ID' and use it while creating a new linked self-ho
other Data Factory.
Resource ID
/subscriptions/
/resourcegroups/PacktAD
Grant permission to another Data Factory or user-assigned managed identity
Resource name
Resource type
Apply
Cancel

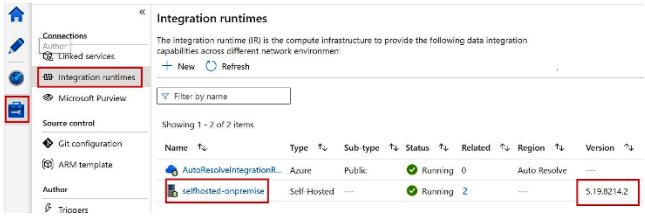

Edit integration runtime
Settings
Nodes
Auto update
Sharing
Links
You can share your self-hosted integration runtime (IR) with another Data Factory.
To enable sharing:
1. Grant permission to the Data Factory in which you would like to reference this IR (shared).
2. Copy the below 'Resource ID' and use it while creating a new linked self-hosted IR in the
other Data Factory.
Resource ID
/subscriptions/
/resourcegroups/PacktADE/providers
Grant permission to another Data Factory or user-assigned managed identity
Refresh
Resource name
Resource type
Remove
ADFPacktSharedIR
Data Factory
Apply
Cancel

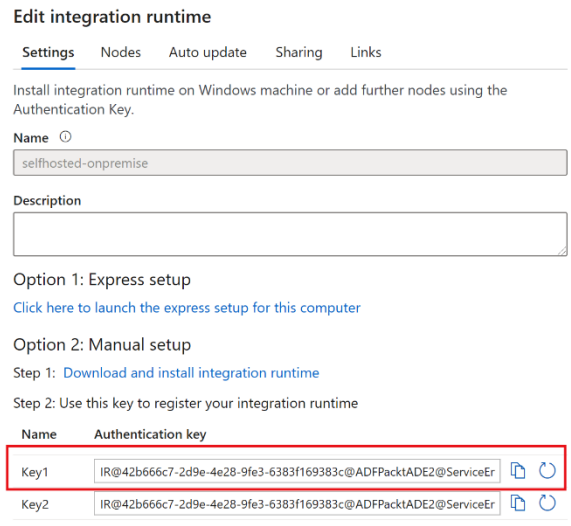

Microsoft Azure
ADFPacktSharedIR
Data Factory
Validate all
Publish all
Connections
Linked services
Integration runtimes
Azure Purview
Source control
Git configuration
ARM template
Author
Integration runtimes
The integration runtime (IR) is the compute
New
Refresh
Filter by name
Showing 1 - 1 of 1 items
Name
AutoResolveIntegrationRuntime

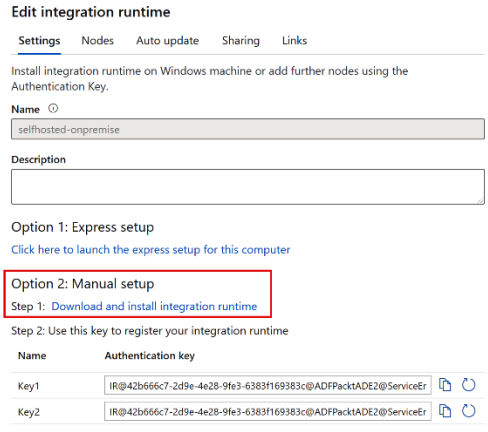

Integration runtime setup
Integration Runtime is the native compute used to execute or dispatch activities. Choose what integration runtime to create based on required capabilities. Learn more
Azure, Self-Hosted
Perform data flows, data movement and dispatch activities to external compute.
Azure-SSIS
Lift-and-shift existing SSIS packages to execute in Azure.

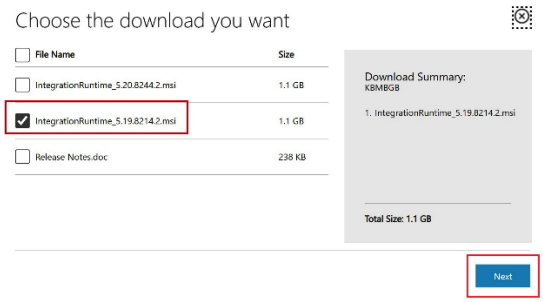

Integration runtime setup
Network environment:
Choose the network environment of the data source / destination or external compute to which the integration runtime will connect to for data flows, data movement or dispatch activities:
Azure
Use this for running data flows, data movement, external and pipeline activities in a fully managed, serverless compute in Azure.
Self-Hosted
Use this for running activities in an on-premises / private network
View more
External Resources:
You can use an existing self-hosted integration runtime that exists in another resource. This way you can reuse your existing infrastructure where self-hosted integration runtime is setup.
Linked Self-Hosted
Learn more
Continue
Back
Cancel

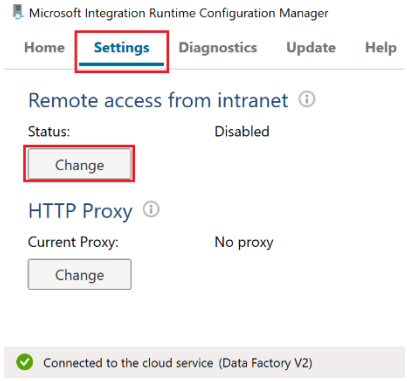

Integration runtime setup
Use an existing self-hosted integration runtime infrastructure in another Data Factory. This will create a logical link to an existing self-hosted integration runtime.
Name *
selfhosted-onpremise
Description
Enter description here...
Type
Self-Hosted (Linked)
Resource ID *
/subscriptions/
/resourcegroups/PacktADE/providers/Microsoft.DataFactory/factories/ADFPacktADE2/integrationruntimes/selfhosted-onpremise
Authentication method
System-assigned Managed Identity (ADFPacktSharedIR)
User Assigned Managed Identity (Preview)
Create
Back
Cancel

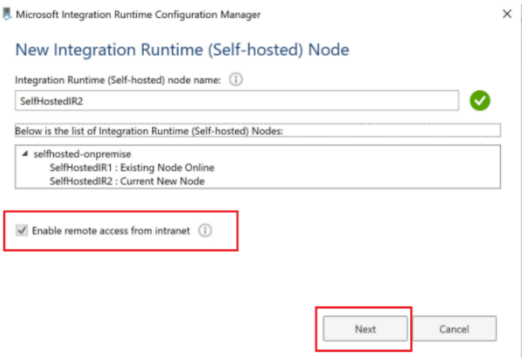

Integration runtimes
The integration runtime (IR) is the compute infrastructure to provide the following data integration capabilities across different network environmen
New
Refresh
Filter by name
Showing 1 - 2 of 2 items
Name
Type
Sub-type
Status
Related
Region
Version
AutoResolveIntegrationR...
Azure
Public
Running
0
Auto Resolve
selfhosted-onpremise
Self-Hosted
Running
2
5.19.8214.2
Connections
Linked services
Integration runtimes
Microsoft Purview
Source control
Git configuration
ARM template
Author
Triggers

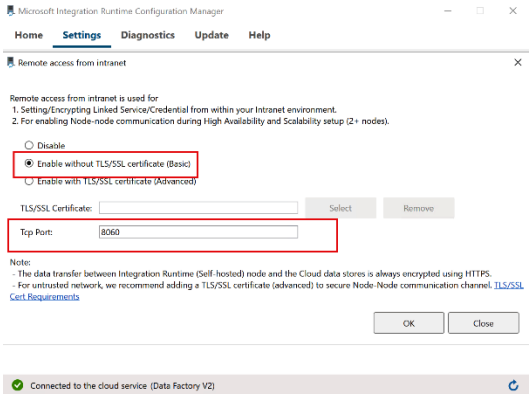

Edit integration runtime
Settings
Nodes
Auto update
Sharing
Links
Install integration runtime on Windows machine or add further nodes using the Authentication Key.
Name
selfhosted-onpremise
Description
Option 1: Express setup
Click here to launch the express setup for this computer
Option 2: Manual setup
Step 1: Download and install integration runtime
Step 2: Use this key to register your integration runtime
Name
Authentication key
Key1
IR@42b666c7-2d9e-4e28-9fe3-6383f169383c@ADFPacktADE2@ServiceEr
Key2
IR@42b666c7-2d9e-4e28-9fe3-6383f169383c@ADFPacktADE2@ServiceEr

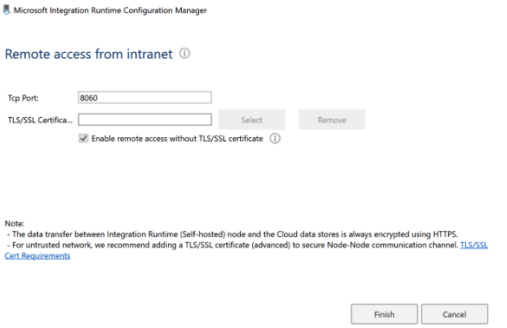

Edit integration runtime
Settings
Nodes
Auto update
Sharing
Links
Install integration runtime on Windows machine or add further nodes using the Authentication Key.
Name
selfhosted-onpremise
Description
Option 1: Express setup
Click here to launch the express setup for this computer
Option 2: Manual setup
Step 1: Download and install integration runtime
Step 2: Use this key to register your integration runtime
Name
Authentication key
Key1
IR@42b666c7-2d9e-4e28-9fe3-6383f169383c@ADFPacktADE2@ServiceEr
Key2
IR@42b666c7-2d9e-4e28-9fe3-6383f169383c@ADFPacktADE2@ServiceEr

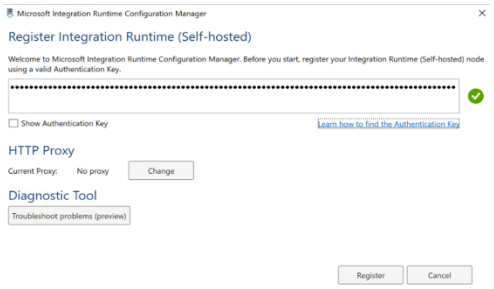

Choose the download you want
File Name
Size
IntegrationRuntime_5.20.8244.2.msi
1.1 GB
IntegrationRuntime_5.19.8214.2.msi
1.1 GB
Release Notes.doc
238 KB
Download Summary:
KBMBGB
1. IntegrationRuntime_5.19.8214.2.msi
Total Size: 1.1 GB
Next

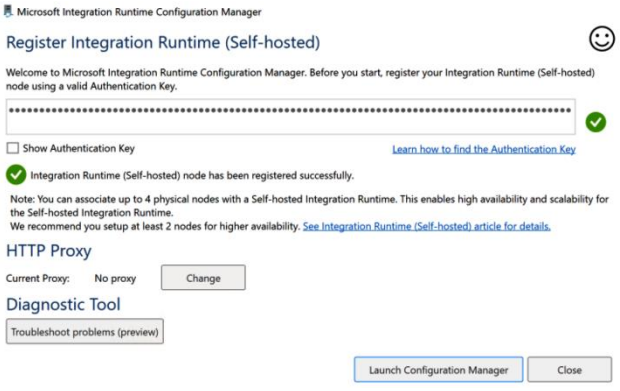

Microsoft Integration Runtime Configuration Manager
Home
Settings
Diagnostics
Update
Help
Remote access from intranet
Status:
Disabled
Change
HTTP Proxy
Current Proxy:
No proxy
Change
Connected to the cloud service (Data Factory V2)

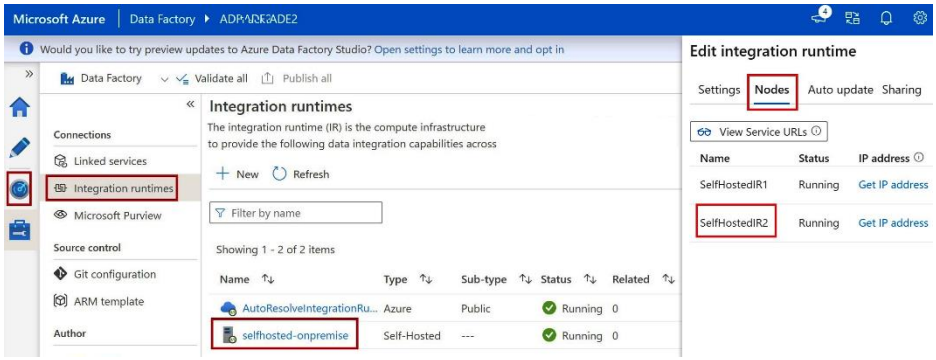

Microsoft Integration Runtime Configuration Manager
New Integration Runtime (Self-hosted) Node
Integration Runtime (Self-hosted) node name:
SelfHostedIR2
Below is the list of Integration Runtime (Self-hosted) Nodes:
selfhosted-onpremise
SelfHostedIR1 : Existing Node Online
SelfHostedIR2 : Current New Node
Enable remote access from intranet
Next
Cancel


Microsoft Integration Runtime Configuration Manager
Home
Settings
Diagnostics
Update
Help
Remote access from intranet
Remote access from intranet is used for
1. Setting/Encrypting Linked Service/Credential from within your Intranet environment.
2. For enabling Node-node communication during High Availability and Scalability setup (2+ nodes).
Disable
Enable without TLS/SSL certificate (Basic)
Enable with TLS/SSL certificate (Advanced)
TLS/SSL Certificate:
Select
Remove
Tcp Port:
8060
Note:
- The data transfer between Integration Runtime (Self-hosted) node and the Cloud data stores is always encrypted using HTTPS.
- For untrusted network, we recommend adding a TLS/SSL certificate (advanced) to secure Node-Node communication channel. TLS/SSL Cert Requirements
OK
Close
Connected to the cloud service (Data Factory V2)

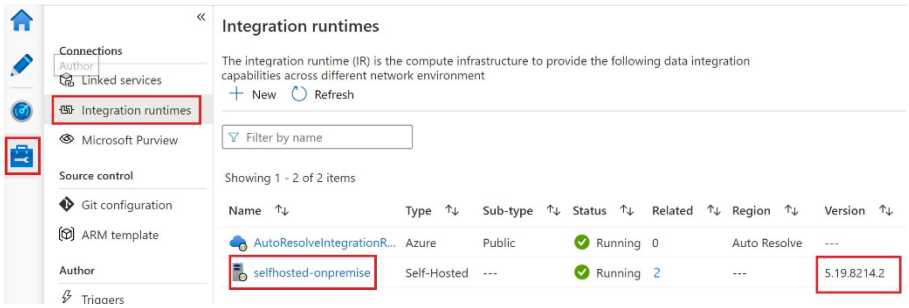

Microsoft Integration Runtime Configuration Manager
Remote access from intranet
Tcp Port:
8060
TLS/SSL Certifica...
Select
Remove
Enable remote access without TLS/SSL certificate
Note:
- The data transfer between Integration Runtime (Self-hosted) node and the Cloud data stores is always encrypted using HTTPS.
- For untrusted network, we recommend adding a TLS/SSL certificate (advanced) to secure Node-Node communication channel. TLS/SSL Cert Requirements
Finish
Cancel


Microsoft Integration Runtime Configuration Manager
Register Integration Runtime (Self-hosted)
Welcome to Microsoft Integration Runtime Configuration Manager. Before you start, register your Integration Runtime (Self-hosted) node using a valid Authentication Key.
Show Authentication Key
Learn how to find the Authentication Key
HTTP Proxy
Current Proxy:
No proxy
Change
Diagnostic Tool
Troubleshoot problems (preview)
Register
Cancel


Microsoft Integration Runtime Configuration Manager
Register Integration Runtime (Self-hosted)
Welcome to Microsoft Integration Runtime Configuration Manager. Before you start, register your Integration Runtime (Self-hosted) node using a valid Authentication Key.
Show Authentication Key
Learn how to find the Authentication Key
Integration Runtime (Self-hosted) node has been registered successfully.
Note: You can associate up to 4 physical nodes with a Self-hosted Integration Runtime. This enables high availability and scalability for the Self-hosted Integration Runtime.
We recommend you setup at least 2 nodes for higher availability. See Integration Runtime (Self-hosted) article for details.
HTTP Proxy
Current Proxy:
No proxy
Change
Diagnostic Tool
Troubleshoot problems (preview)
Launch Configuration Manager
Close

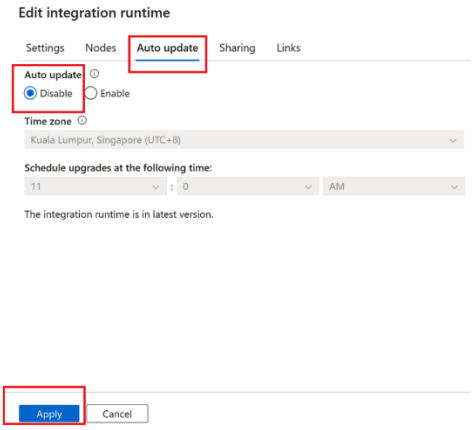

Microsoft Azure
Data Factory
Would you like to try preview updates to Azure Data Factory Studio? Open settings to learn more and opt in
Data Factory
Validate all
Publish all
Connections
Linked services
Integration runtimes
Microsoft Purview
Source control
Git configuration
ARM template
Author
Integration runtimes
The integration runtime (IR) is the compute infrastructure to provide the following data integration capabilities across
New
Refresh
Filter by name
Showing 1 - 2 of 2 items
Name
Type
Sub-type
Status
Related
AutoResolveIntegrationRu...
Azure
Public
Running
0
selfhosted-onpremise
Self-Hosted

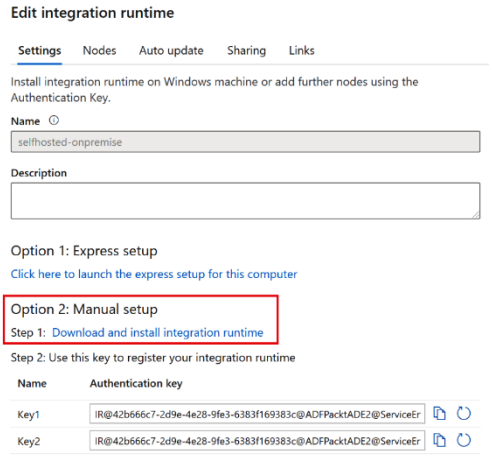
Running
0
Edit integration runtime
Settings
Nodes
Auto update
Sharing
View Service URLs
Name
Status
IP address
SelfHostedIR1
Running
Get IP address
SelfHostedIR2
Running
Get IP address

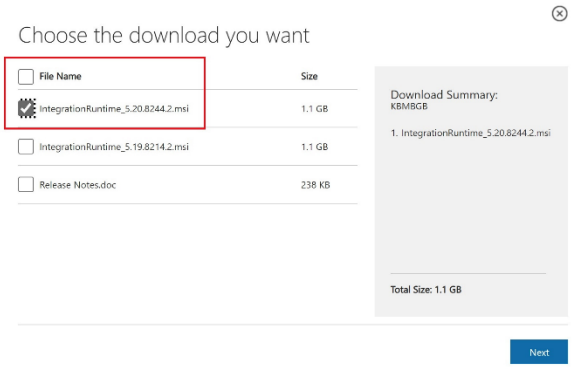

Connections
Linked services
Integration runtimes
Microsoft Purview
Source control
Git configuration
ARM template
Author
Triggers
Integration runtimes
The integration runtime (IR) is the compute infrastructure to provide the following data integration capabilities across different network environment
New
Refresh
Filter by name
Showing 1 - 2 of 2 items
Name
Type
Sub-type
Status
Related
Region
Version
AutoResolveIntegrationR...
Azure
Public
Running
0
Auto Resolve
---
selfhosted-onpremise
Self-Hosted

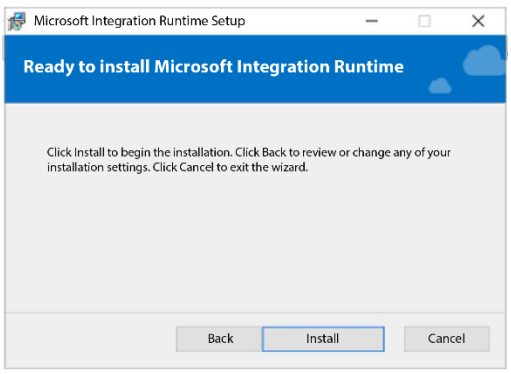
Running
2

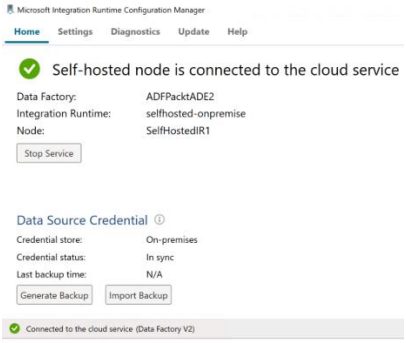
5.19.8214.2

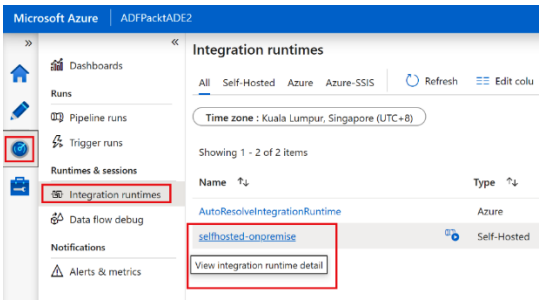

Edit integration runtime
Settings
Nodes
Auto update
Sharing
Links
Auto update
Disable
Enable
Time zone
Kuala Lumpur, Singapore (UTC+8)
Schedule upgrades at the following time:
11
0
AM
The integration runtime is in latest version.
Apply
Cancel


Edit integration runtime
Settings
Nodes
Auto update
Sharing
Links
Install integration runtime on Windows machine or add further nodes using the Authentication Key.
Name
selfhosted-onpremise
Description
Option 1: Express setup
Click here to launch the express setup for this computer
Option 2: Manual setup
Step 1: Download and install integration runtime
Step 2: Use this key to register your integration runtime
Name
Authentication key
Key1
IR@42b666c7-2d9e-4e28-9fe3-6383f169383c@ADFPacktADE2@ServiceEr
Key2
IR@42b666c7-2d9e-4e28-9fe3-6383f169383c@ADFPacktADE2@ServiceEr

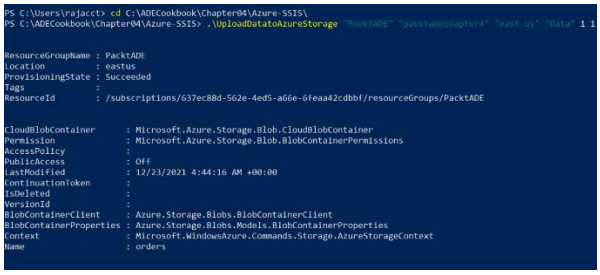

Choose the download you want
File Name
Size
IntegrationRuntime_5.20.8244.2.msi
1.1 GB
IntegrationRuntime_5.19.8214.2.msi
1.1 GB
Release Notes.doc
238 KB
Download Summary:
KBMBGB
1. IntegrationRuntime_5.20.8244.2.msi
Total Size: 1.1 GB
Next

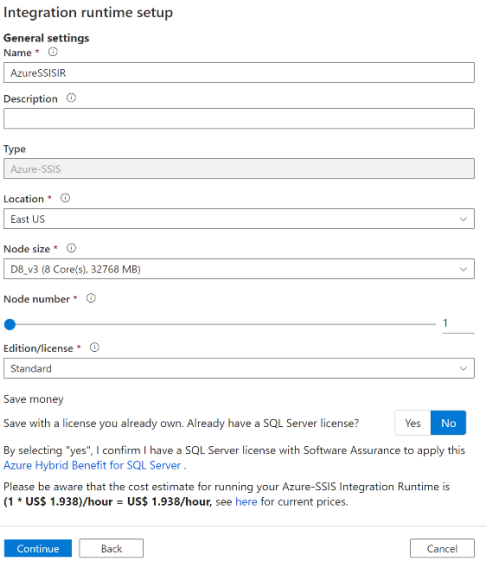

Microsoft Integration Runtime Setup
Ready to install Microsoft Integration Runtime
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

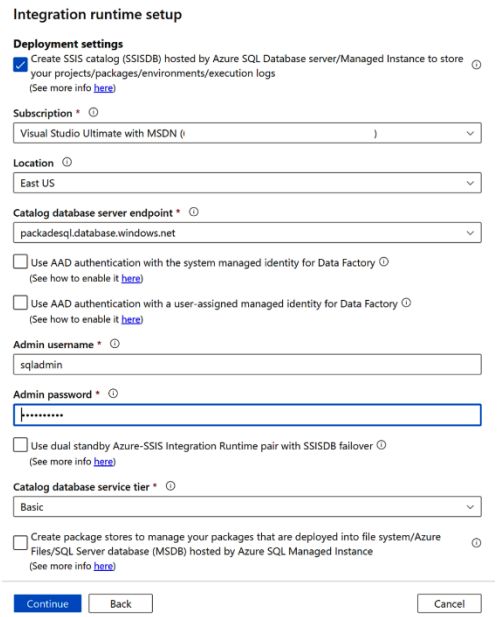

Microsoft Integration Runtime Configuration Manager
Home
Settings
Diagnostics
Update
Help
Self-hosted node is connected to the cloud service
Data Factory: ADFPacktADE2
Integration Runtime: selfhosted-onpremise
Node: SelfHostedIR1
Stop Service
Data Source Credential
Credential store: On-premises
Credential status: In sync
Last backup time: N/A
Generate Backup
Import Backup
Connected to the cloud service (Data Factory V2)

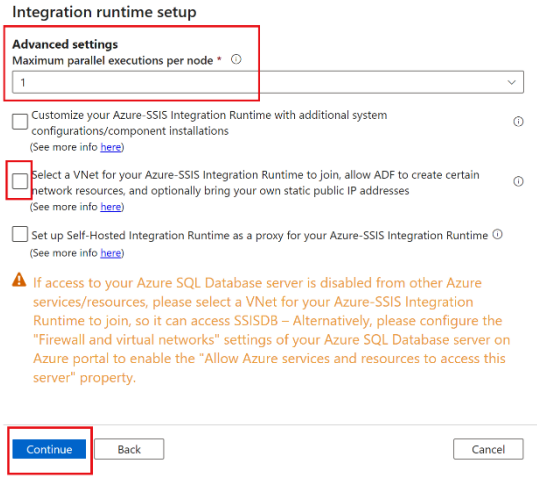

Microsoft Azure
ADFPacktADE2
Dashboards
Runs
Pipeline runs
Trigger runs
Runtimes & sessions
Integration runtimes
Data flow debug
Notifications
Alerts & metrics
Integration runtimes
All
Self-Hosted
Azure
Azure-SSIS
Refresh
Edit colu
Time zone : Kuala Lumpur, Singapore (UTC+8)
Showing 1 - 2 of 2 items
Name
Type
AutoResolveIntegrationRuntime
Azure
selfhosted-onpremise
Self-Hosted
View integration runtime detail

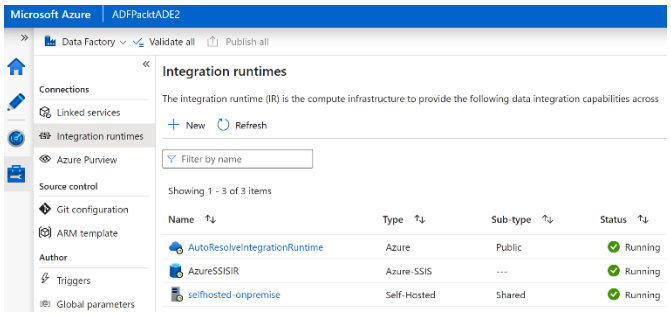

Node Details
Name
Status
Version
Available memory
CPU utilization
Network (In/Out)
SelfHostedIR1
Running
5.20.8244.2
4528MB
64%
2.05KBps/6.47KBps


PS C:\Users\rajacct> cd C:\ADECookbook\Chapter04\Azure-SSIS\
PS C:\ADECookbook\Chapter04\Azure-SSIS> .\UploadDatatoAzureStorage "PacktADE" "packtadechapter4" "east us" "Data" 1 1
ResourceGroupName : PacktADE
Location : eastus
ProvisioningState : Succeeded
Tags :
ResourceId : /subscriptions/637ec88d-562e-4ed5-a66e-6feaa42cdbbf/resourceGroups/PacktADE
CloudBlobContainer : Microsoft.Azure.Storage.Blob.CloudBlobContainer
Permission : Microsoft.Azure.Storage.Blob.BlobContainerPermissions
AccessPolicy :
PublicAccess : Off
LastModified : 12/23/2021 4:44:16 AM +00:00
ContinuationToken :
IsDeleted :
VersionId :
BlobContainerClient : Azure.Storage.Blobs.BlobContainerClient
BlobContainerProperties : Azure.Storage.Blobs.Models.BlobContainerProperties
Context : Microsoft.WindowsAzure.Commands.Storage.AzureStorageContext
Name : orders

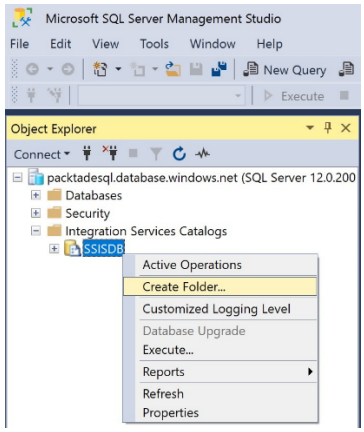

Integration runtime setup
General settings
Name *
AzureSSISIR
Description
Type
Azure-SSIS
Location *
East US
Node size *
D8_v3 (8 Core(s), 32768 MB)
Node number *
1
Edition/license *
Standard
Save money
Save with a license you already own. Already have a SQL Server license?
Yes
No
By selecting "yes", I confirm I have a SQL Server license with Software Assurance to apply this Azure Hybrid Benefit for SQL Server .
Please be aware that the cost estimate for running your Azure-SSIS Integration Runtime is (1 * US$ 1.938)/hour = US$ 1.938/hour, see here for current prices.
Continue
Back
Cancel

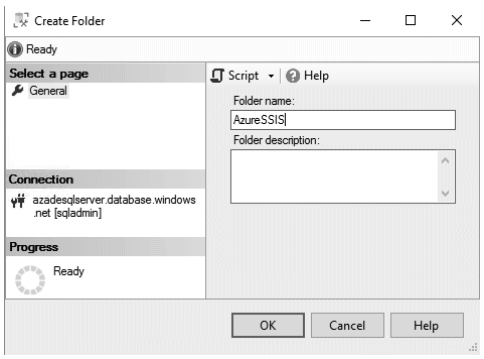

Integration runtime setup
Deployment settings
Create SSIS catalog (SSISDB) hosted by Azure SQL Database server/Managed Instance to store your projects/packages/environments/execution logs
(See more info here)
Subscription *
Visual Studio Ultimate with MSDN (
Location
East US
Catalog database server endpoint *
packadesql.database.windows.net
Use AAD authentication with the system managed identity for Data Factory
(See how to enable it here)
Use AAD authentication with a user-assigned managed identity for Data Factory
(See how to enable it here)
Admin username *
sqladmin
Admin password *
Use dual standby Azure-SSIS Integration Runtime pair with SSISDB failover
(See more info here)
Catalog database service tier *
Basic
Create package stores to manage your packages that are deployed into file system/Azure Files/SQL Server database (MSDB) hosted by Azure SQL Managed Instance
(See more info here)
Continue
Back
Cancel

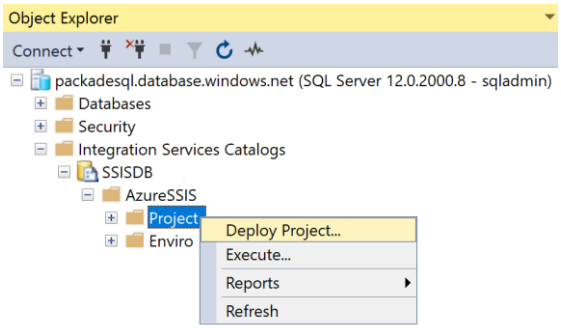

Integration runtime setup
Advanced settings
Maximum parallel executions per node *
1
Customize your Azure-SSIS Integration Runtime with additional system configurations/component installations
(See more info here)
Select a VNet for your Azure-SSIS Integration Runtime to join, allow ADF to create certain network resources, and optionally bring your own static public IP addresses
(See more info here)
Set up Self-Hosted Integration Runtime as a proxy for your Azure-SSIS Integration Runtime
(See more info here)
If access to your Azure SQL Database server is disabled from other Azure services/resources, please select a VNet for your Azure-SSIS Integration Runtime to join, so it can access SSISDB – Alternatively, please configure the "Firewall and virtual networks" settings of your Azure SQL Database server on Azure portal to enable the "Allow Azure services and resources to access this server" property.
Continue
Back
Cancel

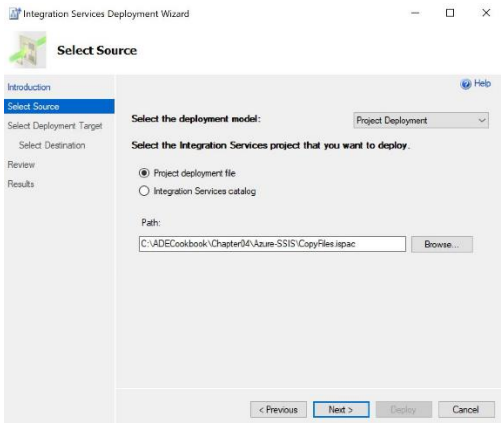

Microsoft Azure
ADFPacktADE2
Data Factory
Validate all
Publish all
Connections
Linked services
Integration runtimes
Azure Purview
Source control
Git configuration
ARM template
Author
Triggers
Global parameters
Integration runtimes
The integration runtime (IR) is the compute infrastructure to provide the following data integration capabilities across
New
Refresh
Filter by name
Showing 1 - 3 of 3 items
Name
Type
Sub-type
Status
AutoResolveIntegrationRuntime
Azure
Public
Running
AzureSSISIR
Azure-SSIS

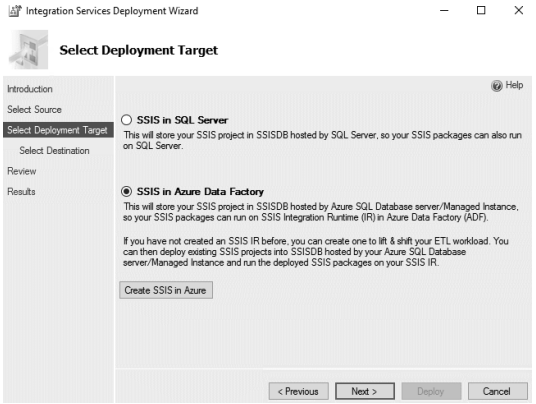
Running
selfhosted-onpremise
Self-Hosted
Shared
Running

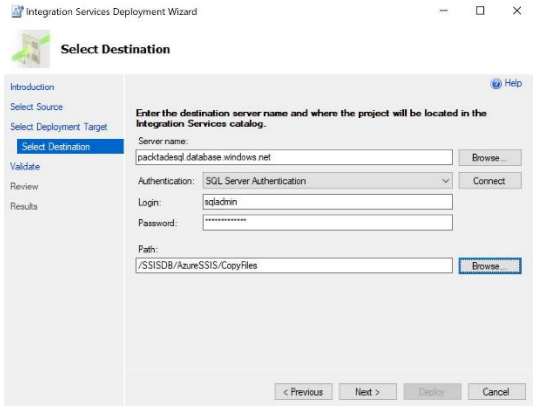

Microsoft SQL Server Management Studio
File
Edit
View
Tools
Window
Help
New Query
Execute
Object Explorer
Connect
packtadesql.database.windows.net (SQL Server 12.0.200
Databases
Security
Integration Services Catalogs
SSISDB
Active Operations
Create Folder...
Customized Logging Level
Database Upgrade
Execute...
Reports
Refresh
Properties

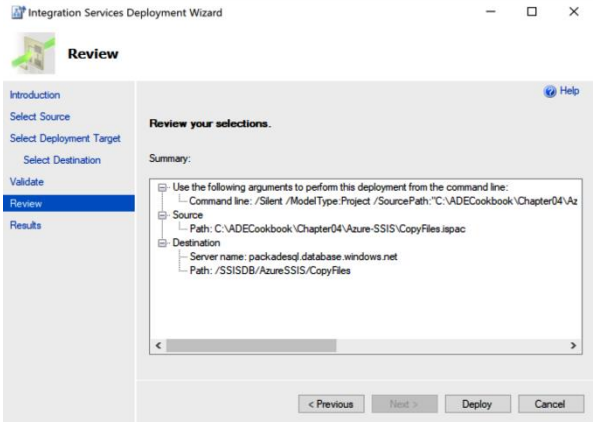

Create Folder
Ready
Select a page
General
Script
Help
Folder name:
AzureSSIS
Folder description:
Connection
azadesqlserver.database.windows
.net [sqladmin]
Progress
Ready
OK
Cancel
Help

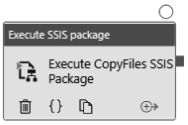

Object Explorer
Connect
packadesql.database.windows.net (SQL Server 12.0.2000.8 - sqladmin)
Databases
Security
Integration Services Catalogs
SSISDB
AzureSSIS
Project
Enviro
Deploy Project...
Execute...
Reports
Refresh

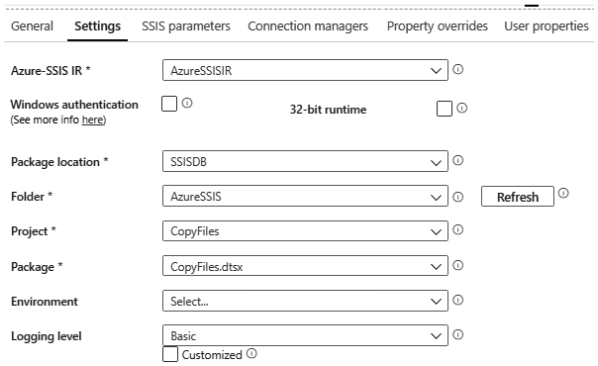

Integration Services Deployment Wizard
Select Source
Introduction
Select Source
Select Deployment Target
Select Destination
Review
Results
Help
Select the deployment model:
Project Deployment
Select the Integration Services project that you want to deploy.
Project deployment file
Integration Services catalog
Path:
C:\ADECookbook\Chapter04\Azure-SSIS\CopyFiles.ispac
Browse...
< Previous
Next >
Deploy
Cancel

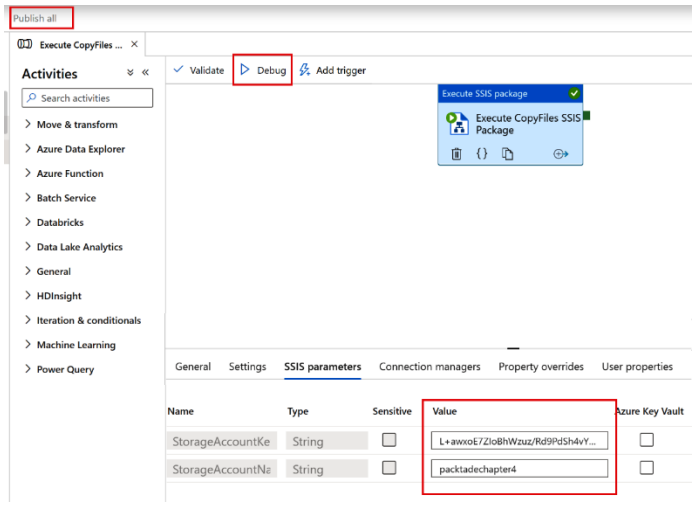

Integration Services Deployment Wizard
Select Deployment Target
Introduction
Select Source
Select Deployment Target
Select Destination
Review
Results
Help
SSIS in SQL Server
This will store your SSIS project in SSISDB hosted by SQL Server, so your SSIS packages can also run on SQL Server.
SSIS in Azure Data Factory
This will store your SSIS project in SSISDB hosted by Azure SQL Database server/Managed Instance, so your SSIS packages can run on SSIS Integration Runtime (IR) in Azure Data Factory (ADF).
If you have not created an SSIS IR before, you can create one to lift & shift your ETL workload. You can then deploy existing SSIS projects into SSISDB hosted by your Azure SQL Database server/Managed Instance and run the deployed SSIS packages on your SSIS IR.
Create SSIS in Azure
< Previous
Next >
Deploy
Cancel

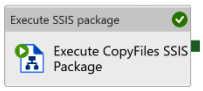

Integration Services Deployment Wizard
Select Destination
Introduction
Select Source
Select Deployment Target
Select Destination
Validate
Review
Results
Help
Enter the destination server name and where the project will be located in the Integration Services catalog.
Server name:
packtadesql.database.windows.net
Browse...
Authentication:
SQL Server Authentication
Connect
Login:
sqladmin
Password:
Path:
/SSISDB/AzureSSIS/CopyFiles
Browse...
< Previous
Next >
Deploy
Cancel

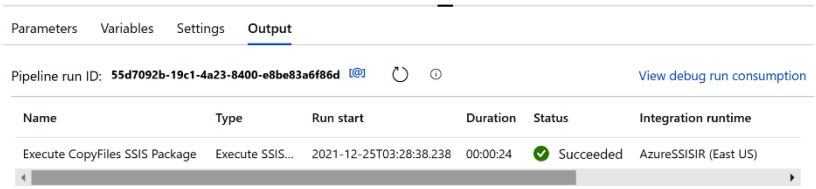

Integration Services Deployment Wizard
Review
Introduction
Select Source
Select Deployment Target
Select Destination
Validate
Review
Results
Help
Review your selections.
Summary:
Use the following arguments to perform this deployment from the command line:
Command line: /Silent /ModelType:Project /SourcePath:"C:\ADECookbook\Chapter04\Az
Source
Path: C:\ADECookbook\Chapter04\Azure-SSIS\CopyFiles.ispac
Destination
Server name: packadesql.database.windows.net
Path: /SSISDB/AzureSSIS/CopyFiles
< Previous
Next >
Deploy
Cancel


Execute SSIS package
Execute CopyFiles SSIS Package


General
Settings
SSIS parameters
Connection managers
Property overrides
User properties
Azure-SSIS IR *
AzureSSISIR
Windows authentication
(See more info here)
32-bit runtime
Package location *
SSISDB
Folder *
AzureSSIS
Refresh
Project *
CopyFiles
Package *
CopyFiles.dtsx
Environment
Select...
Logging level
Basic
Customized


Publish all
Execute CopyFiles ...
Activities
Search activities
Move & transform
Azure Data Explorer
Azure Function
Batch Service
Databricks
Data Lake Analytics
General
HDInsight
Iteration & conditionals
Machine Learning
Power Query
Validate
Debug
Add trigger
Execute SSIS package
Execute CopyFiles SSIS Package
General
Settings
SSIS parameters
Connection managers
Property overrides
User properties
Name
Type
Sensitive
Value
Azure Key Vault
StorageAccountKe
String
L+awxoE7ZloBhWzuz/Rd9PdSh4vY...
StorageAccountNa
String
packtadechapter4


Execute SSIS package
Execute CopyFiles SSIS Package


Parameters
Variables
Settings
Output
Pipeline run ID: 55d7092b-19c1-4a23-8400-e8be83a6f86d
View debug run consumption
Name
Type
Run start
Duration
Status
Integration runtime
Execute CopyFiles SSIS Package
Execute SSIS...
2021-12-25T03:28:38.238
00:00:24
Succeeded
AzureSSISIR (East US)

Chapter 5: Configuring and Securing Azure SQL Database

```
PS C:\Users\navenkat> New-AzResourceGroup -Name packtadesql -Location "eastus"


ResourceGroupName : packtadesql
Location          : eastus
ProvisioningState : Succeeded
Tags              :
ResourceId        : /subscriptions/                                /resourceGroups/packtadesql



PS C:\Users\navenkat> #create credential object for the Azure SQL Server admin credential
PS C:\Users\navenkat> $sqladminpassword = ConvertTo-SecureString 'Sql@Server@1234' -AsPlainText -Force
PS C:\Users\navenkat> $sqladmincredential = New-Object System.Management.Automation.PSCredential('sqladmin', $sqladminpassword)
PS C:\Users\navenkat> # create the azure sql server
PS C:\Users\navenkat> New-AzSqlServer -ServerName azadesqlserver -SqlAdministratorCredentials $sqladmincredential -ResourceGroupName packtadesql -Location "eastus"


ResourceGroupName             : packtadesql
ServerName                    : azadesqlserver
Location                      : eastus
SqlAdministratorLogin         : sqladmin
SqlAdministratorPassword      :
ServerVersion                 : 12.0
Tags                          :
Identity                      :
FullyQualifiedDomainName      : azadesqlserver.database.windows.net
ResourceId                    : /subscriptions/                                /resourceGroups/packtadesql/providers/Microsoft.Sql/servers/azadesqlserver
MinimalTlsVersion             :
PublicNetworkAccess           : Enabled
RestrictOutboundNetworkAccess : Disabled
Administrators                :
PrimaryUserAssignedIdentityId :
KeyId                         :
FederatedClientId             :
```

```
PS C:\Users\navenkat> New-AzSqlDatabase -DatabaseName azadesqldb -Edition basic -ServerName azadesqlserver -ResourceGroupName packtadesql
WARNING: Upcoming breaking changes in the cmdlet 'New-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking changes in Azure PowerShell.


ResourceGroupName                : packtadesql
ServerName                       : azadesqlserver
DatabaseName                     : azadesqldb
Location                         : eastus
DatabaseId                       : d9e7d136-77cb-49f6-b577-040b18a8b92e
Edition                          : Basic
CollationName                    : SQL_Latin1_General_CP1_CI_AS
CatalogCollation                 :
MaxSizeBytes                     : 2147483648
Status                           : Online
CreationDate                     : 30/12/2021 10:48:40 pm
CurrentServiceObjectiveId        : 00000000-0000-0000-0000-000000000000
CurrentServiceObjectiveName      : Basic
RequestedServiceObjectiveName    : Basic
RequestedServiceObjectiveId      :
ElasticPoolName                  :
EarliestRestoreDate              :
Tags                             :
ResourceId                       : /subscriptions/                                /resourceGroups/packtadesql/providers/Microsoft.Sql/servers/azadesqlserver/databases/azadesqldb
CreateMode                       :
ReadScale                        : Disabled
ZoneRedundant                    : False
Capacity                         : 5
Family                           :
SkuName                          : Basic
LicenseType                      :
AutoPauseDelayInMinutes          :
MinimumCapacity                  :
ReadReplicaCount                 :
HighAvailabilityReplicaCount     :
CurrentBackupStorageRedundancy   : Geo
RequestedBackupStorageRedundancy : Geo
SecondaryType                    :
MaintenanceConfigurationId       : /subscriptions/                                /providers/Microsoft.Maintenance/publicMaintenanceConfigurations/SQL_Default
EnableLedger                     : False
```

```
PS C:\Users\navenkat>
PS C:\Users\navenkat> $clientip = (Invoke-RestMethod -Uri https://ipinfo.io/json).ip
PS C:\Users\navenkat> New-AzSqlServerFirewallRule -FirewallRuleName "home" -StartIpAddress $clientip -EndIpAddress $clientip -ServerName azadesqlserver -ResourceGroupName packtadesql


ResourceGroupName : packtadesql
ServerName        : azadesqlserver
StartIpAddress    : 116.89.64.165
EndIpAddress      : 116.89.64.165
FirewallRuleName  : home
```

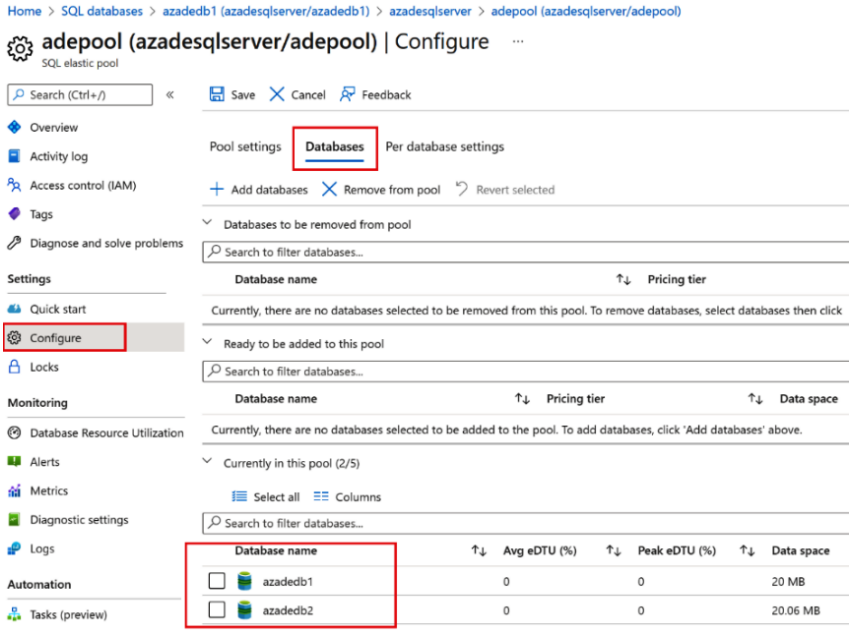
```
PS C:\Users\navenkat> sqlcmd -S "azadesqlserver.database.windows.net" -U sqladmin -P "Sql@Server@1234" -d azadesqldb -Q "Select name from sys.databases"
name
--------------------------------------------------------------------------------------------------------------------------------
master
azadesqldb

(2 rows affected)
PS C:\Users\navenkat>
```

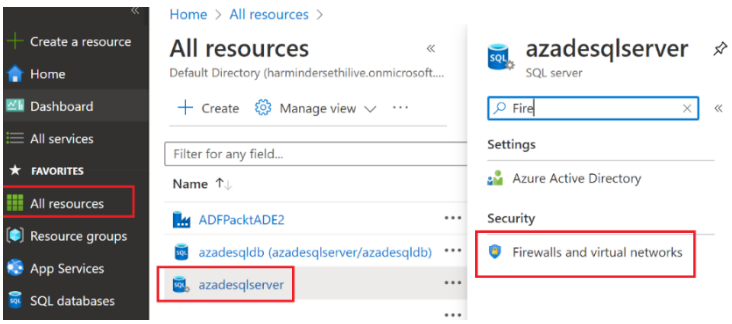
```
PS C:\Users\navenkat> #create credential object for the Azure SQL Server admin credential
PS C:\Users\navenkat> $sqladminpassword = ConvertTo-SecureString 'Sql@Server@1234' -AsPlainText -Force
PS C:\Users\navenkat> $sqladmincredential = New-Object System.Management.Automation.PSCredential('sqladmin', $sqladminpassword)
PS C:\Users\navenkat> # create the azure sql server
PS C:\Users\navenkat> New-AzSqlServer -ServerName azadesqlserver -SqlAdministratorCredentials $sqladmincredential -Location "eastus" -ResourceGroupName packtadesql


ResourceGroupName             : packtadesql
ServerName                    : azadesqlserver
Location                      : eastus
SqlAdministratorLogin         : sqladmin
SqlAdministratorPassword      :
ServerVersion                 : 12.0
Tags                          :
Identity                      :
FullyQualifiedDomainName      : azadesqlserver.database.windows.net
ResourceId                    : /subscriptions/                                /resourceGroups/packtadesql/providers/Microsoft.Sql/servers/azadesqlserver
MinimalTlsVersion             :
PublicNetworkAccess           : Enabled
RestrictOutboundNetworkAccess : Disabled
Administrators                :
PrimaryUserAssignedIdentityId :
KeyId                         :
FederatedClientId             :



PS C:\Users\navenkat> #Execute the following query to create an elastic pool.
PS C:\Users\navenkat> #Create an elastic pool
PS C:\Users\navenkat> New-AzSqlElasticPool -ElasticPoolName adepool -ServerName azadesqlserver -Edition standard -Dtu 100 -DatabaseDtuMin 20 -DatabaseDtuMax 100 -ResourceGroupName packtade
sql


ResourceId                 : /subscriptions/                                /resourceGroups/packtadesql/providers/Microsoft.Sql/servers/azadesqlserver/elasticPools/adepool
ResourceGroupName          : packtadesql
ServerName                 : azadesqlserver
ElasticPoolName            : adepool
Location                   : eastus
CreationDate               : 30/12/2021 11:33:47 pm
State                      : Ready
Edition                    : Standard
SkuName                    : StandardPool
Dtu                        : 100
DatabaseDtuMax             : 100
DatabaseDtuMin             : 20
Capacity                   : 100
DatabaseCapacityMin        : 20
DatabaseCapacityMax        : 100
Family                     :
MaxSizeBytes               : 107374182400
StorageMB                  : 102400
Tags                       :
ZoneRedundant              : False
LicenseType                :
MaintenanceConfigurationId : /subscriptions/                                /providers/Microsoft.Maintenance/publicMaintenanceConfigurations/SQL_Default
```

```
PS C:\Users\navenkat> New-AzSqlDatabase -DatabaseName azadedb1 -ElasticPoolName adepool -ServerName azadesqlserver -ResourceGroupName packtadesql
WARNING: Upcoming breaking changes in the cmdlet 'New-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking changes in Azure PowerShell.


ResourceGroupName                : packtadesql
ServerName                       : azadesqlserver
DatabaseName                     : azadedb1
Location                         : eastus
DatabaseId                       : 4a53c58d-c7d3-477e-a55e-67d5ff7fd3e2
Edition                          : Standard
CollationName                    : SQL_Latin1_General_CP1_CI_AS
CatalogCollation                 :
MaxSizeBytes                     : 268435456000
Status                           : Online
CreationDate                     : 30/12/2021 11:38:54 pm
CurrentServiceObjectiveId        : 00000000-0000-0000-0000-000000000000
CurrentServiceObjectiveName      : ElasticPool
RequestedServiceObjectiveName    : ElasticPool
RequestedServiceObjectiveId      :
ElasticPoolName                  : adepool
EarliestRestoreDate              :
Tags                             :
ResourceId                       : /subscriptions/                                /resourceGroups/packtadesql/providers/Microsoft.Sql/servers/azadesqlserver/databases/azadedb1
CreateMode                       :
ReadScale                        : Disabled
ZoneRedundant                    : False
Capacity                         : 0
Family                           :
SkuName                          : ElasticPool
LicenseType                      :
AutoPauseDelayInMinutes          :
MinimumCapacity                  :
ReadReplicaCount                 :
HighAvailabilityReplicaCount     :
CurrentBackupStorageRedundancy   : Geo
RequestedBackupStorageRedundancy : Geo
SecondaryType                    :
MaintenanceConfigurationId       : /subscriptions/                                /providers/Microsoft.Maintenance/publicMaintenanceConfigurations/SQL_Default
EnableLedger                     : False



PS C:\Users\navenkat>
```

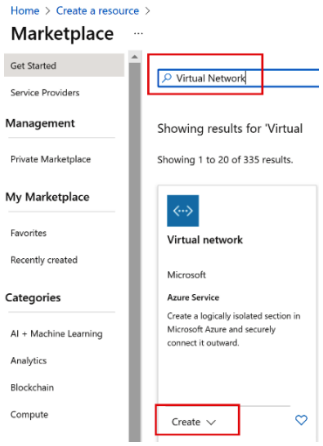
```
PS C:\Users\navenkat> New-AzSqlDatabase -DatabaseName azadedb2 -Edition Standard -RequestedServiceObjectiveName S3 -ServerName azadesqlserver -ResourceGroupName packtadesql
WARNING: Upcoming breaking changes in the cmdlet 'New-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking changes in Azure PowerShell.


ResourceGroupName               : packtadesql
ServerName                      : azadesqlserver
DatabaseName                    : azadedb2
Location                        : eastus
DatabaseId                      : df4c6b90-ccb9-45e9-bcef-64e132cd633b
Edition                         : Standard
CollationName                   : SQL_Latin1_General_CP1_CI_AS
CatalogCollation                :
MaxSizeBytes                    : 268435456000
Status                          : Online
CreationDate                    : 30/12/2021 11:42:46 pm
CurrentServiceObjectiveId       : 00000000-0000-0000-0000-000000000000
CurrentServiceObjectiveName     : S3
RequestedServiceObjectiveName   : S3
RequestedServiceObjectiveId     :
ElasticPoolName                 :
EarliestRestoreDate             :
Tags                            :
ResourceId                      : /subscriptions/[redacted]/resourceGroups/packtadesql/providers/Microsoft.Sql/servers/azadesqlserver/databases/azadedb2
CreateMode                      :
ReadScale                       : Disabled
ZoneRedundant                   : False
Capacity                        : 100
Family                          :
SkuName                         : Standard
LicenseType                     :
AutoPauseDelayInMinutes         :
MinimumCapacity                 :
ReadReplicaCount                :
HighAvailabilityReplicaCount    :
CurrentBackupStorageRedundancy  : Geo
RequestedBackupStorageRedundancy : Geo
SecondaryType                   :
MaintenanceConfigurationId      : /subscriptions/[redacted]/providers/Microsoft.Maintenance/publicMaintenanceConfigurations/SQL_Default
EnableLedger                    : False


PS C:\Users\navenkat>
```

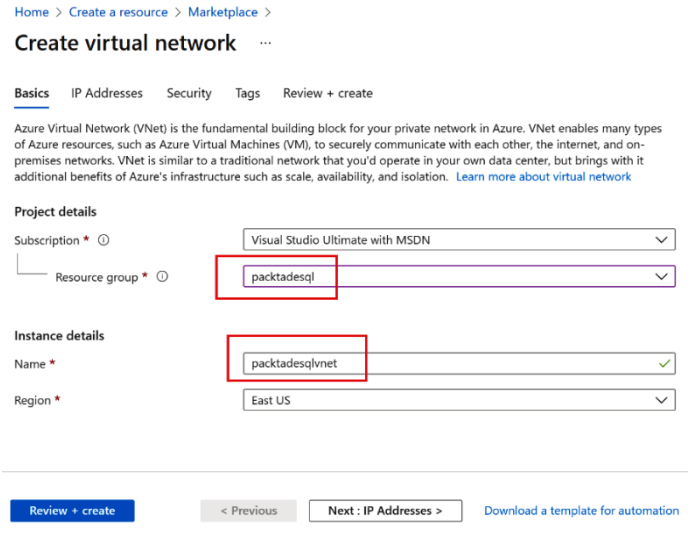
```
Windows PowerShell
PS C:\Users\navenkat> #Add an existing database to the elastic pool
PS C:\Users\navenkat> $db = Get-AzSqlDatabase -DatabaseName azadedb2 -ServerName azadesqlserver -ResourceGroupName packtadesql
WARNING: Upcoming breaking changes in the cmdlet 'Get-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking
changes in Azure PowerShell.
PS C:\Users\navenkat> $db | Set-AzSqlDatabase -ElasticPoolName adepool
WARNING: Upcoming breaking changes in the cmdlet 'Set-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking
changes in Azure PowerShell.


ResourceGroupName               : packtadesql
ServerName                      : azadesqlserver
DatabaseName                    : azadedb2
Location                        : eastus
DatabaseId                      : b78b3551-6182-4d72-a516-4f25893cf153
Edition                         : Standard
CollationName                   : SQL_Latin1_General_CP1_CI_AS
CatalogCollation                :
MaxSizeBytes                    : 268435456000
Status                          : Online
CreationDate                    : 27/8/2022 2:43:40 pm
CurrentServiceObjectiveId       : 00000000-0000-0000-0000-000000000000
CurrentServiceObjectiveName     : ElasticPool
RequestedServiceObjectiveName   : ElasticPool
RequestedServiceObjectiveId     :
ElasticPoolName                 : adepool
EarliestRestoreDate             :
Tags                            :
ResourceId                      : /subscriptions/[redacted]/resourceGroups/packtadesql/providers/Microsoft.Sql/
                                  servers/azadesqlserver/databases/azadedb2
CreateMode                      :
ReadScale                       : Disabled
ZoneRedundant                   : False
Capacity                        : 0
Family                          :
SkuName                         : ElasticPool
LicenseType                     :
AutoPauseDelayInMinutes         :
MinimumCapacity                 :
ReadReplicaCount                :
HighAvailabilityReplicaCount    :
CurrentBackupStorageRedundancy  : Geo
RequestedBackupStorageRedundancy : Geo
SecondaryType                   :
MaintenanceConfigurationId      : /subscriptions/[redacted]/providers/Microsoft.Maintenance/publicMaintenanceCo
                                  nfigurations/SQL_Default
EnableLedger                    : False
```

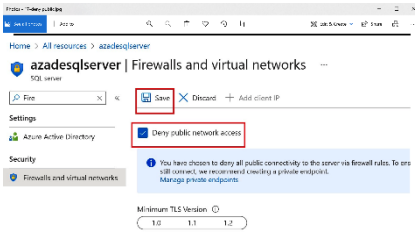

Home > SQL databases > azadedb1 (azadesqlserver/azadedb1) > azadesqlserver > adepool (azadesqlserver/adepool)
adepool (azadesqlserver/adepool) | Configure
SQL elastic pool
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Quick start
Configure
Locks
Monitoring
Database Resource Utilization
Alerts
Metrics
Diagnostic settings
Logs
Automation
Tasks (preview)
Save
Cancel
Feedback
Pool settings
Databases
Per database settings
Add databases
Remove from pool
Revert selected
Databases to be removed from pool
Search to filter databases...
Database name
Pricing tier
Currently, there are no databases selected to be removed from this pool. To remove databases, select databases then click
Ready to be added to this pool
Search to filter databases...
Database name
Pricing tier
Data space
Currently, there are no databases selected to be added to the pool. To add databases, click 'Add databases' above.
Currently in this pool (2/5)
Select all
Columns
Search to filter databases...
Database name
Avg eDTU (%)
Peak eDTU (%)
Data space
azadedb1
0
0
20 MB
azadedb2
0
0
20.06 MB

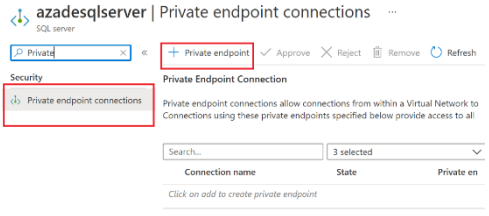

Create a resource
Home
Dashboard
All services
FAVORITES
All resources
Resource groups
App Services
SQL databases
Home > All resources >
All resources
Default Directory (harmindersethilive.onmicrosoft....
Create
Manage view
Filter for any field...
Name
ADFPacktADE2
azadesqldb (azadesqlserver/azadesqldb)
azadesqlserver
azadesqlserver
SQL server
Fire
Settings
Azure Active Directory
Security
Firewalls and virtual networks

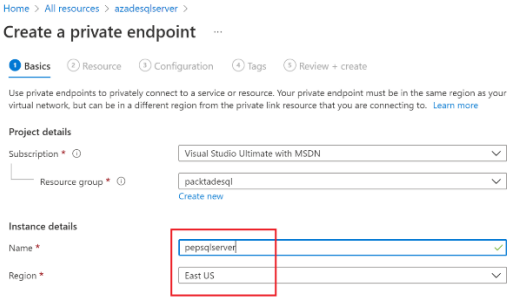
```
PS C:\Users\navenkat> $db = Get-AzSqlDatabase -DatabaseName azadedb2 -ServerName azadesqlserver -ResourceGroupName packtadesql
WARNING: Upcoming breaking changes in the cmdlet 'Get-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking changes in Azure PowerShell.
PS C:\Users\navenkat> $db | Set-AzSqlDatabase -Edition Standard -RequestedServiceObjectiveName S3
WARNING: Upcoming breaking changes in the cmdlet 'Set-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking changes in Azure PowerShell.


ResourceGroupName               : packtadesql
ServerName                      : azadesqlserver
DatabaseName                    : azadedb2
Location                        : eastus
DatabaseId                      : df4c6b90-ccb9-45e9-bcef-64e132cd633b
Edition                         : Standard
CollationName                   : SQL_Latin1_General_CP1_CI_AS
CatalogCollation                :
MaxSizeBytes                    : 268435456000
Status                          : Online
CreationDate                    : 30/12/2021 11:42:46 pm
CurrentServiceObjectiveId       : 00000000-0000-0000-0000-000000000000
CurrentServiceObjectiveName     : S3
RequestedServiceObjectiveName   : S3
RequestedServiceObjectiveId     :
ElasticPoolName                 :
EarliestRestoreDate             : 30/12/2021 11:44:21 pm
Tags                            :
ResourceId                      : /subscriptions/[redacted]/resourceGroups/packtadesql/providers/Microsoft.Sql/servers/azadesqlserver/databases/azadedb2
CreateMode                      :
ReadScale                       : Disabled
ZoneRedundant                   : False
Capacity                        : 100
Family                          :
SkuName                         : Standard
LicenseType                     :
AutoPauseDelayInMinutes         :
MinimumCapacity                 :
ReadReplicaCount                :
HighAvailabilityReplicaCount    :
CurrentBackupStorageRedundancy  : Geo
RequestedBackupStorageRedundancy : Geo
SecondaryType                   :
MaintenanceConfigurationId      : /subscriptions/[redacted]/providers/Microsoft.Maintenance/publicMaintenanceConfigurations/SQL_Default
EnableLedger                    : False
```

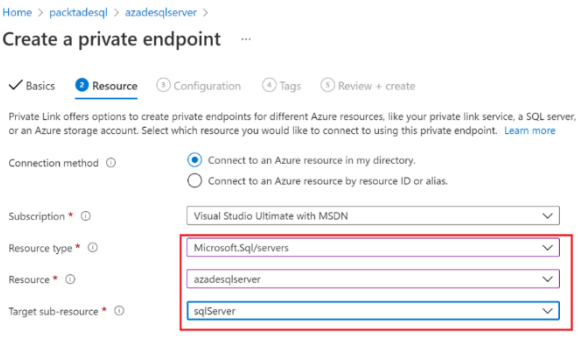


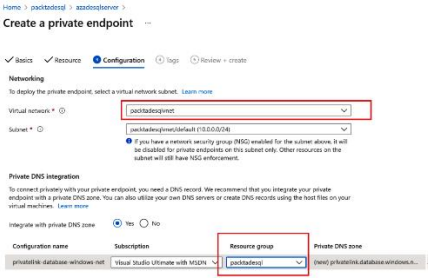




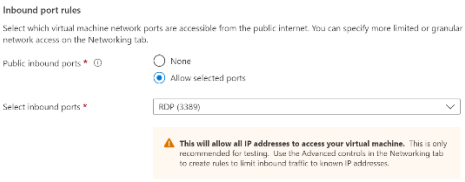


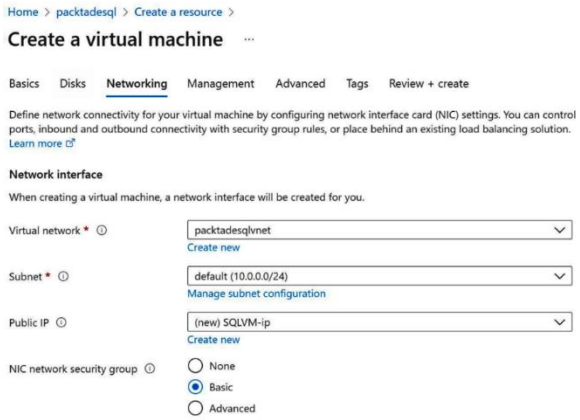


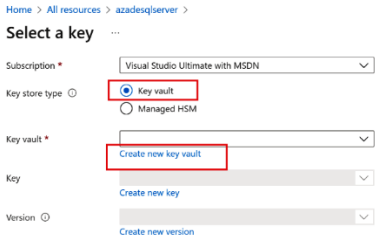


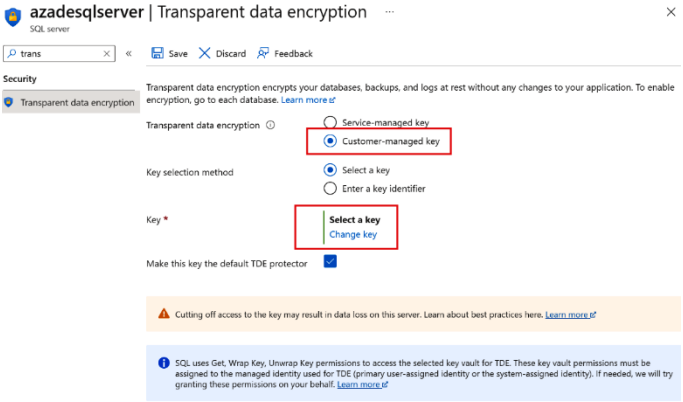

Home > packtadesql > azadesqlserver >
Create a private endpoint
Basics
Resource
Configuration
Tags
Review + create
Networking
To deploy the private endpoint, select a virtual network subnet. Learn more
Virtual network *
packtadesqlvnet
Subnet *
packtadesqlvnet/default (10.0.0.0/24)
If you have a network security group (NSG) enabled for the subnet above, it will be disabled for private endpoints on this subnet only. Other resources on the subnet will still have NSG enforcement.
Private DNS integration
To connect privately with your private endpoint, you need a DNS record. We recommend that you integrate your private endpoint with a private DNS zone. You can also utilize your own DNS servers or create DNS records using the host files on your virtual machines. Learn more
Integrate with private DNS zone
Yes
No
Configuration name
Subscription
Resource group
Private DNS zone
privatelink.database.windows.net
Visual Studio Ultimate with MSDN
packtadesql
(new) privatelink.database.windows.n...

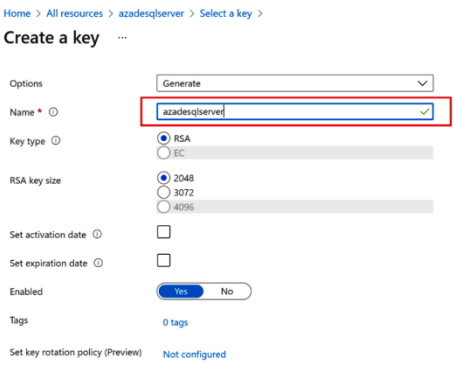

Connect to Server
Cannot connect to azadesqlserver.database.windows.net.
Additional information:
Reason: An instance-specific error occurred while establishing a connection to SQL Server. Connection was denied since Deny Public Network Access is set to Yes (https://docs.microsoft.com/azure/azure-sql/database/connectivity-settings#deny-public-network-access). To connect to this server, use the Private Endpoint from inside your virtual network (https://docs.microsoft.com/azure/sql-database/sql-database-private-endpoint-overview#how-to-set-up-private-link-for-azure-sql-database). (Microsoft SQL Server, Error: 47073)
Help
Copy message
Show details
OK

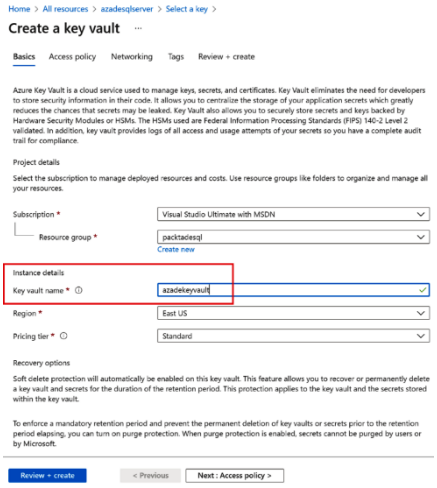

Inbound port rules
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.
Public inbound ports *
None
Allow selected ports
Select inbound ports *
RDP (3389)
This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

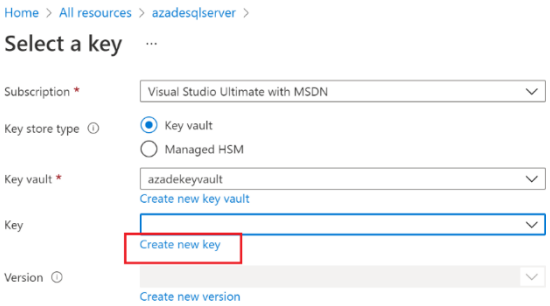

Home > packtadesql > Create a resource >
Create a virtual machine
Basics
Disks
Networking
Management
Advanced
Tags
Review + create
Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.
Learn more
Network interface
When creating a virtual machine, a network interface will be created for you.
Virtual network *
packtadesqlvnet
Create new
Subnet *
default (10.0.0.0/24)
Manage subnet configuration
Public IP
(new) SQLVM-ip
Create new
NIC network security group
None
Basic
Advanced

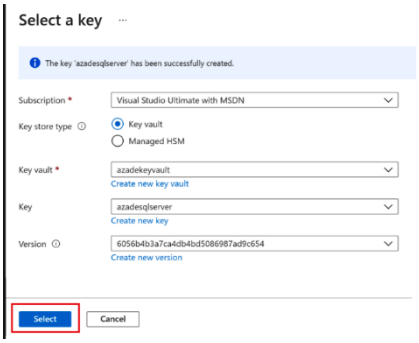

Home > All resources > azadesqlserver >
Select a key
Subscription *
Visual Studio Ultimate with MSDN
Key store type
Key vault
Managed HSM
Key vault *
Create new key vault
Key
Create new key
Version
Create new version

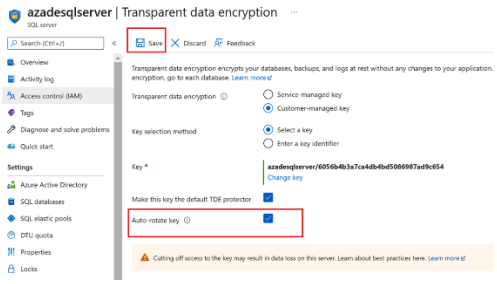

azadesqlserver | Transparent data encryption
SQL server
trans
Save
Discard
Feedback
Security
Transparent data encryption
Transparent data encryption encrypts your databases, backups, and logs at rest without any changes to your application. To enable encryption, go to each database. Learn more
Transparent data encryption
Service-managed key
Customer-managed key
Key selection method
Select a key
Enter a key identifier
Key *
Select a key
Change key
Make this key the default TDE protector
Cutting off access to the key may result in data loss on this server. Learn about best practices here. Learn more
SQL uses Get, Wrap Key, Unwrap Key permissions to access the selected key vault for TDE. These key vault permissions must be assigned to the managed identity used for TDE (primary user-assigned identity or the system-assigned identity). If needed, we will try granting these permissions on your behalf. Learn more

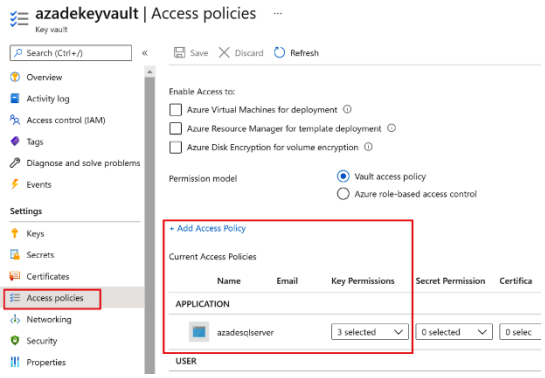

Home > All resources > azadesqlserver > Select a key >
Create a key
Options
Generate
Name *
azadesqlserver
Key type
RSA
EC
RSA key size
2048
3072
4096
Set activation date
Set expiration date
Enabled
Yes
No
Tags
0 tags
Set key rotation policy (Preview)
Not configured

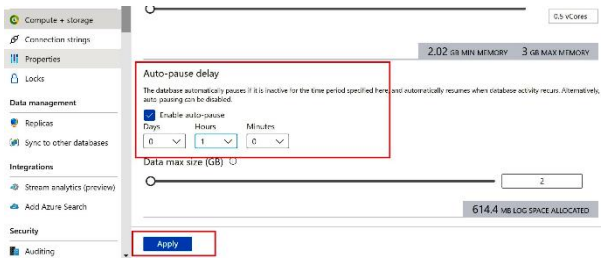

Home > All resources > azadesqlserver > Select a key >
Create a key vault
Basics
Access policy
Networking
Tags
Review + create
Azure Key Vault is a cloud service used to manage keys, secrets, and certificates. Key Vault eliminates the need for developers to store security information in their code. It allows you to centralize the storage of your application secrets which greatly reduces the chances that secrets may be leaked. Key Vault also allows you to securely store secrets and keys backed by Hardware Security Modules or HSMs. The HSMs used are Federal Information Processing Standards (FIPS) 140-2 Level 2 validated. In addition, key vault provides logs of all access and usage attempts of your secrets so you have a complete audit trail for compliance.
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *
Visual Studio Ultimate with MSDN
Resource group *
packtadesql
Create new
Instance details
Key vault name *
azadekeyvault
Region *
East US
Pricing tier *
Standard
Recovery options
Soft delete protection will automatically be enabled on this key vault. This feature allows you to recover or permanently delete a key vault and secrets for the duration of the retention period. This protection applies to the key vault and the secrets stored within the key vault.
To enforce a mandatory retention period and prevent the permanent deletion of key vaults or secrets prior to the retention period elapsing, you can turn on purge protection. When purge protection is enabled, secrets cannot be purged by users or by Microsoft.
Review + create
< Previous
Next : Access policy >

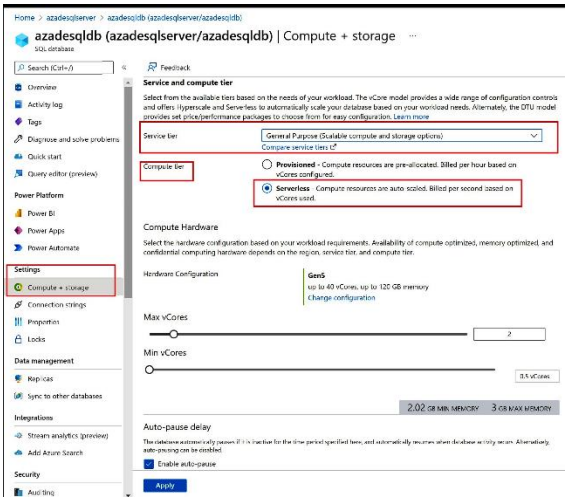

Home > All resources > azadesqlserver >
Select a key
Subscription *
Visual Studio Ultimate with MSDN
Key store type
Key vault
Managed HSM
Key vault *
azadekeyvault
Create new key vault
Key
Create new key
Version
Create new version

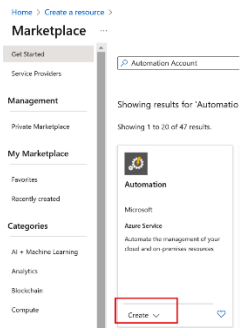

Select a key
The key 'azadesqlserver' has been successfully created.
Subscription *
Visual Studio Ultimate with MSDN
Key store type
Key vault
Managed HSM
Key vault *
azadekeyvault
Create new key vault
Key
azadesqlserver
Create new key
Version
6056b4b3a7ca4db4bd5086987ad9c654
Create new version
Select
Cancel

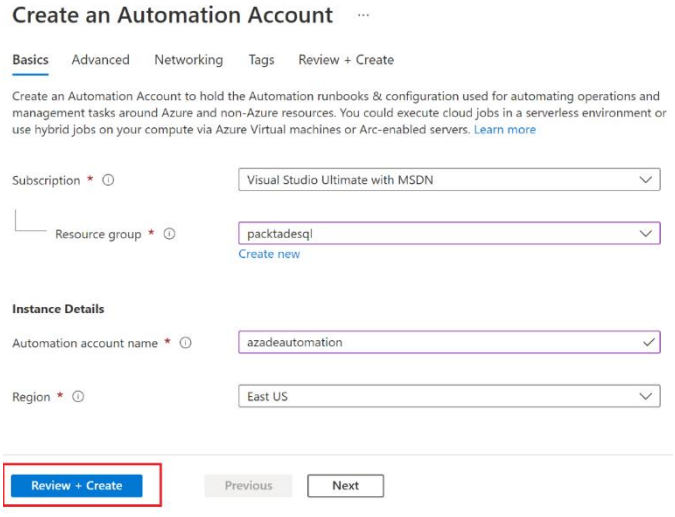

azadesqlserver | Transparent data encryption
SQL server
Save
Discard
Feedback
Transparent data encryption
Service-managed key
Customer-managed key
Key selection method
Select a key
Enter a key identifier
Key *
azadesqlserver/6056b4b3a7ca4db4bd5086987ad9c654
Change key
Make this key the default TDE protector
Auto-rotate key

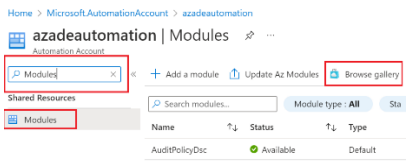

azadekeyvault | Access policies
Key vault
Search (Ctrl+/)
Save
Discard
Refresh
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Events
Settings
Keys
Secrets
Certificates
Access policies
Networking
Security
Properties
Enable Access to:
Azure Virtual Machines for deployment
Azure Resource Manager for template deployment
Azure Disk Encryption for volume encryption
Permission model
Vault access policy
Azure role-based access control
+ Add Access Policy
Current Access Policies
Name
Email
Key Permissions
Secret Permission
APPLICATION
azadesqlserver
3 selected
0 selected
USER

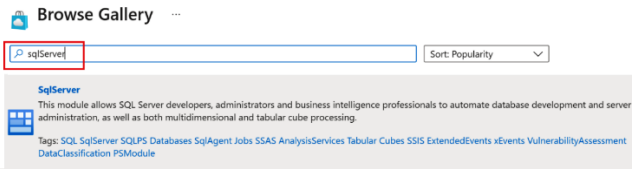

Compute + storage
Connection strings
Properties
Locks
Data management
Replicas
Sync to other databases
Integrations
Stream analytics (preview)
Add Azure Search
Security
Auditing
0.5 vCores
2.02 GB MIN MEMORY
3 GB MAX MEMORY
Auto-pause delay
Enable auto-pause
Days
Hours
Minutes
Data max size (GB)
614.4 MB LOG SPACE ALLOCATED
Apply

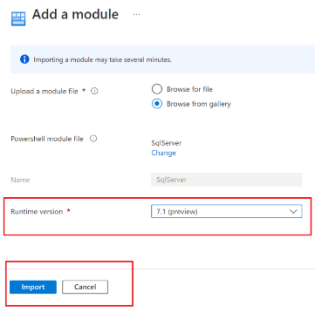

azadesqldb (azadesqlserver/azadesqldb) | Compute + storage
SQL database
Feedback
Service and compute tier
Service tier
General Purpose (Scalable compute and storage options)
Compare service tiers
Compute tier
Provisioned - Compute resources are pre-allocated. Billed per hour based on vCores configured.
Serverless - Compute resources are auto scaled. Billed per second based on vCores used.
Compute Hardware
Hardware Configuration
Gen5
Change configuration
Max vCores
Min vCores
2.02 GB MIN MEMORY
3 GB MAX MEMORY
Auto-pause delay
Enable auto-pause
Apply

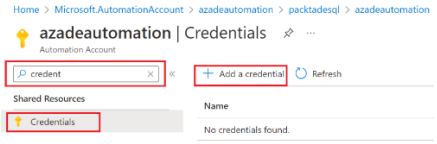

Home > Create a resource >
Marketplace
Get Started
Service Providers
Management
Private Marketplace
My Marketplace
Favorites
Recently created
Categories
AI + Machine Learning
Analytics
Blockchain
Compute
Automation Account
Showing results for 'Automatio
Showing 1 to 20 of 47 results.
Automation
Microsoft
Azure Service
Create

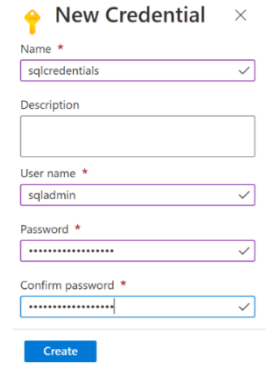

Create an Automation Account
Basics
Advanced
Networking
Tags
Review + Create
Create an Automation Account to hold the Automation runbooks & configuration used for automating operations and management tasks around Azure and non-Azure resources. You could execute cloud jobs in a serverless environment or use hybrid jobs on your compute via Azure Virtual machines or Arc-enabled servers. Learn more
Subscription *
Visual Studio Ultimate with MSDN
Resource group *
packtadesql
Create new
Instance Details
Automation account name *
azadeautomation
Region *
East US
Review + Create
Previous
Next

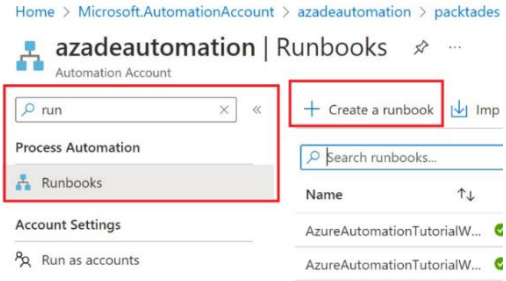

Home > Microsoft.AutomationAccount > azadeautomation
azadeautomation | Modules
Automation Account
Modules
Add a module
Update Az Modules
Browse gallery
Shared Resources
Modules
Search modules...
Module type : All
Name
Status
Type
AuditPolicyDsc
Available
Default

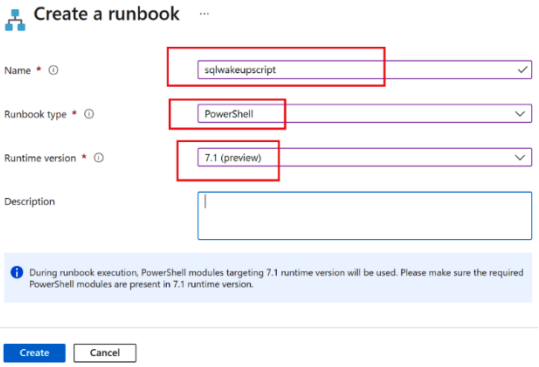

Browse Gallery
sqlServer
Sort: Popularity
SqlServer
This module allows SQL Server developers, administrators and business intelligence professionals to automate database development and server administration, as well as both multidimensional and tabular cube processing.
Tags: SQL SqlServer SQLPS Databases SqlAgent Jobs SSAS AnalysisServices Tabular Cubes SSIS ExtendedEvents xEvents VulnerabilityAssessment DataClassification PSModule

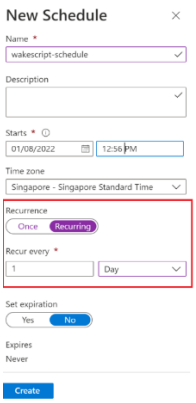

Add a module
Importing a module may take several minutes.
Upload a module file *
Browse for file
Browse from gallery
Powershell module file
SqlServer
Change
Name
SqlServer
Runtime version *
7.1 (preview)
Import
Cancel


Home > Microsoft.AutomationAccount > azadeautomation > packtadesql > azadeautomation
azadeautomation | Credentials
Automation Account
credent
Add a credential
Refresh
Shared Resources
Credentials
Name
No credentials found.

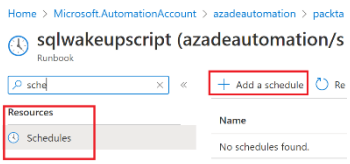

New Credential
Name *
sqlcredentials
Description
User name *
sqladmin
Password *
Confirm password *
Create

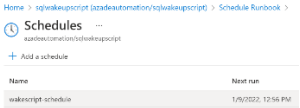

Home > Microsoft.AutomationAccount > azadeautomation > packtades
azadeautomation | Runbooks
Automation Account
run
Create a runbook
Imp
Process Automation
Runbooks
Search runbooks...
Name
Account Settings
Run as accounts
AzureAutomationTutorialW...
AzureAutomationTutorialW...

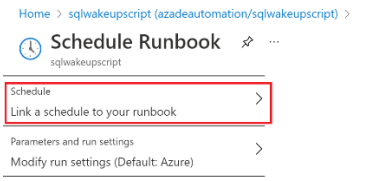

Create a runbook
Name *
sqlwakeupscript
Runbook type *
PowerShell
Runtime version *
7.1 (preview)
Description
During runbook execution, PowerShell modules targeting 7.1 runtime version will be used. Please make sure the required PowerShell modules are present in 7.1 runtime version.
Create
Cancel

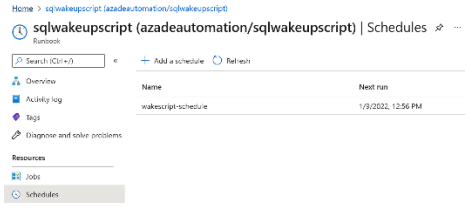

New Schedule
Name *
wakescript-schedule
Description
Starts *
01/08/2022
12:56 PM
Time zone
Singapore - Singapore Standard Time
Recurrence
Once
Recurring
Recur every *
1
Day
Set expiration
Yes
No
Expires
Never
Create

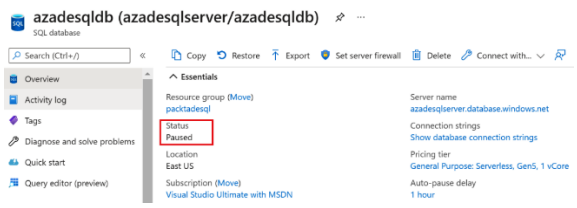

Home > Microsoft.AutomationAccount > azadeautomation > packtadesql > azadeautomation > sqlwakeupscript (azadeautomation/sqlwakeupscript)
Edit PowerShell Runbook*
sqlwakeupscript
Save
Publish
Revert to published
Test pane
Feedback
RUNBOOKS
ASSETS
$SqlCredential = Get-AutomationPSCredential -Name "sqlcredentials"
Query to execute
$Query = "select getdate()"
Execute query
"----- Running SQL Command "
invoke-sqlcmd -ServerInstance "azadesqlserver.database.windows.net" -Database "azadesqldb" -Credential $SqlCredential -Query "$Query"
"`n ----- END SQL Command"

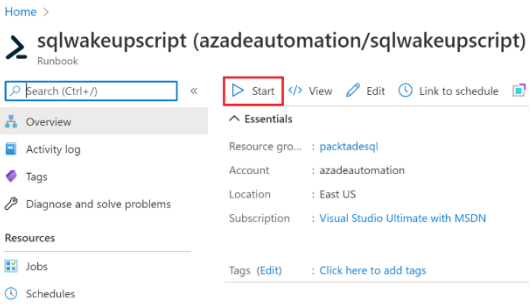

Home > Microsoft.AutomationAccount > azadeautomation > packta
sqlwakeupscript (azadeautomation/s
Runbook
sche
Add a schedule
Re
Resources
Schedules
Name
No schedules found.

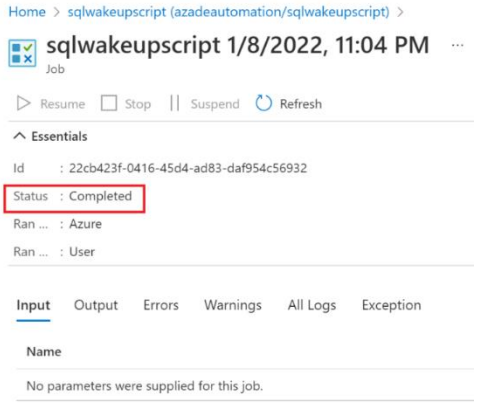

Schedules
Add a schedule
Name
Next run
wakescript-schedule
1/9/2022, 12:56 PM

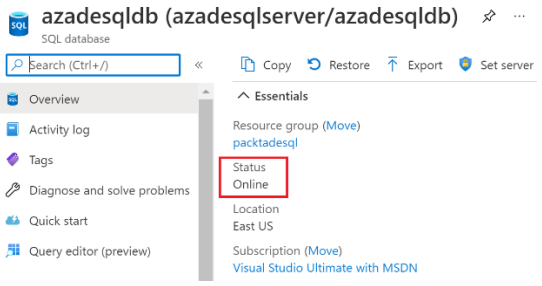

Home > sqlwakeupscript (azadeautomation/sqlwakeupscript)
Schedule Runbook
sqlwakeupscript
Schedule
Link a schedule to your runbook
Parameters and run settings
Modify run settings (Default: Azure)

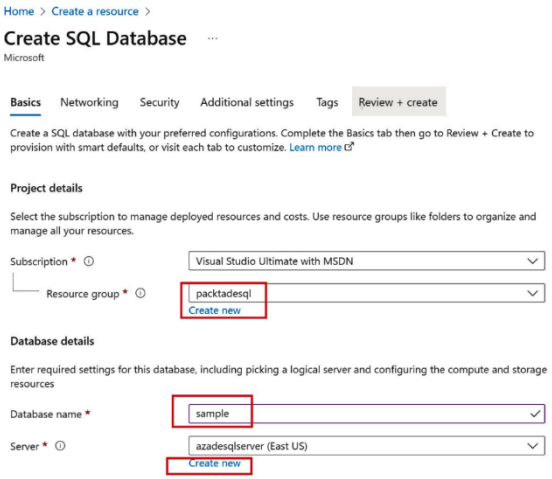

Home > sqlwakeupscript (azadeautomation/sqlwakeupscript)
sqlwakeupscript (azadeautomation/sqlwakeupscript) | Schedules
Runbook
Search (Ctrl+/)
Add a schedule
Refresh
Overview
Activity log
Tags
Diagnose and solve problems
Resources
Jobs
Schedules
Name
Next run
wakescript-schedule
1/3/2022, 12:56 PM

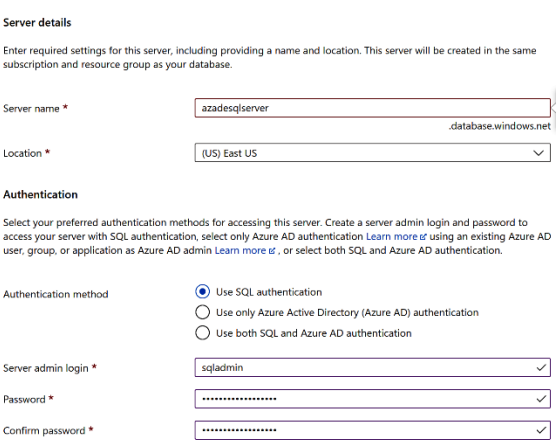

azadesqldb (azadesqlserver/azadesqldb)
SQL database
Search (Ctrl+/)
Copy
Restore
Export
Set server firewall
Delete
Connect with...
Overview
Activity log
Tags
Diagnose and solve problems
Quick start
Query editor (preview)
Essentials
Resource group (Move)
packtadesql
Status
Paused
Location
East US
Subscription (Move)
Visual Studio Ultimate with MSDN
Server name
azadesqlserver.database.windows.net
Connection strings
Show database connection strings
Pricing tier
General Purpose: Serverless, Gen5, 1 vCore
Auto-pause delay
1 hour

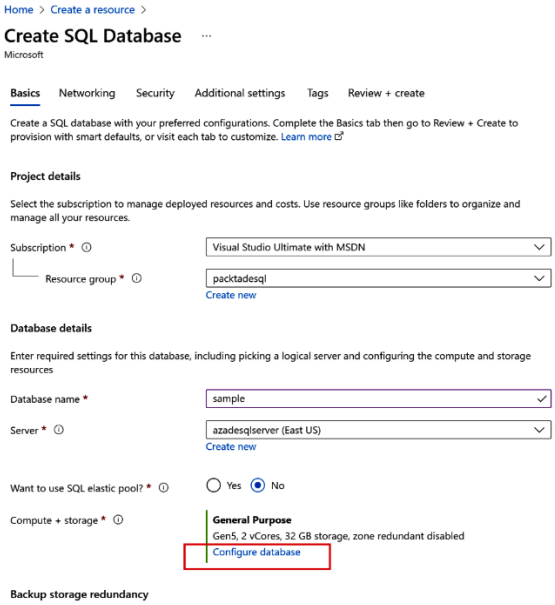

Home >
sqlwakeupscript (azadeautomation/sqlwakeupscript)
Runbook
Search (Ctrl+/)
Start
View
Edit
Link to schedule
Overview
Activity log
Tags
Diagnose and solve problems
Resources
Jobs
Schedules
Essentials
Resource gro... : packtadesql
Account : azadeautomation
Location : East US
Subscription : Visual Studio Ultimate with MSDN
Tags (Edit) : Click here to add tags

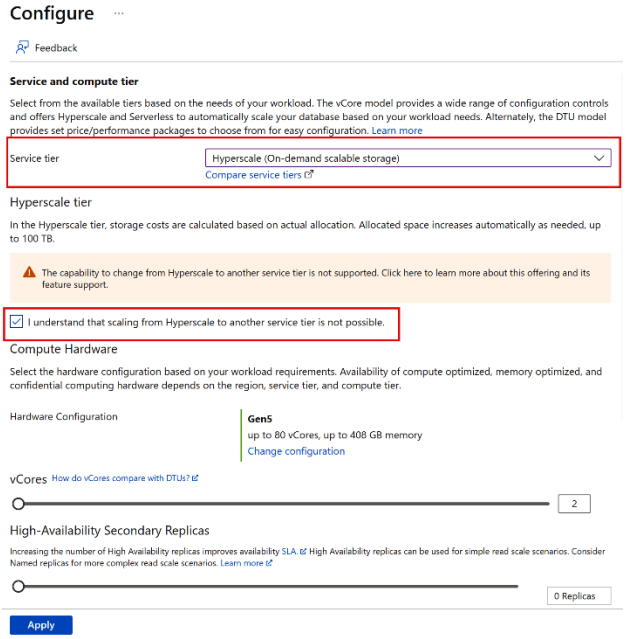

Home > sqlwakeupscript (azadeautomation/sqlwakeupscript) >
sqlwakeupscript 1/8/2022, 11:04 PM
Job
Resume
Stop
Suspend
Refresh
Essentials
Id : 22cb423f-0416-45d4-ad83-daf954c56932
Status : Completed
Ran ... : Azure
Ran ... : User
Input
Output
Errors
Warnings
All Logs
Exception
Name
No parameters were supplied for this job.

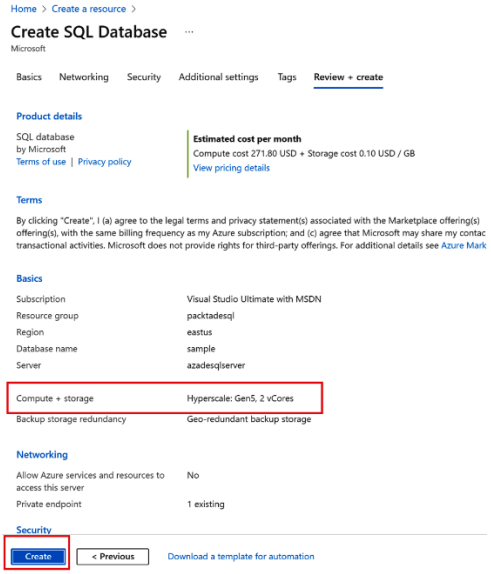

azadesqldb (azadesqlserver/azadesqldb)
SQL database
Search (Ctrl+/)
Copy
Restore
Export
Set server
Overview
Activity log
Tags
Diagnose and solve problems
Quick start
Query editor (preview)
Essentials
Resource group (Move)
packtadesql
Status
Online
Location
East US
Subscription (Move)
Visual Studio Ultimate with MSDN


Home > Create a resource >
Create SQL Database
Microsoft
Basics
Networking
Security
Additional settings
Tags
Review + create
Create a SQL database with your preferred configurations. Complete the Basics tab then go to Review + Create to provision with smart defaults, or visit each tab to customize. Learn more
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription * Visual Studio Ultimate with MSDN
Resource group * packtadesql
Create new
Database details
Enter required settings for this database, including picking a logical server and configuring the compute and storage resources
Database name * sample
Server * azadesqlserver (East US)
Create new

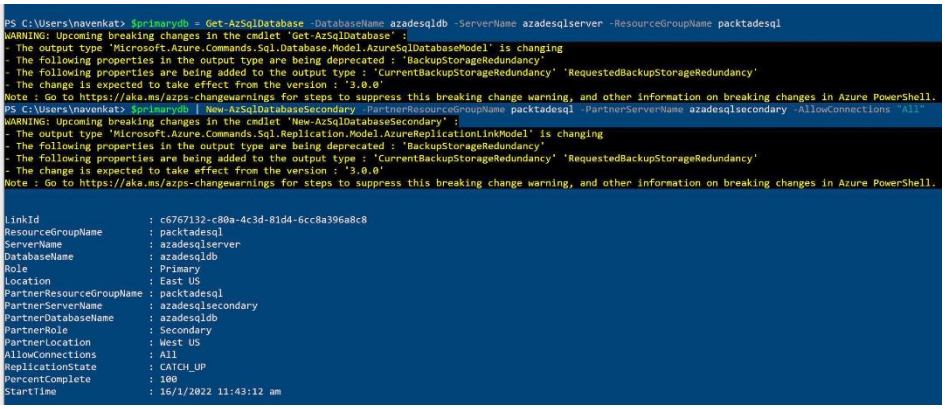

Server details
Enter required settings for this server, including providing a name and location. This server will be created in the same subscription and resource group as your database.
Server name * azadesqlserver
.database.windows.net
Location * (US) East US
Authentication
Select your preferred authentication methods for accessing this server. Create a server admin login and password to access your server with SQL authentication, select only Azure AD authentication Learn more using an existing Azure AD user, group, or application as Azure AD admin Learn more , or select both SQL and Azure AD authentication.
Authentication method
Use SQL authentication
Use only Azure Active Directory (Azure AD) authentication
Use both SQL and Azure AD authentication
Server admin login * sqladmin
Password *
Confirm password *

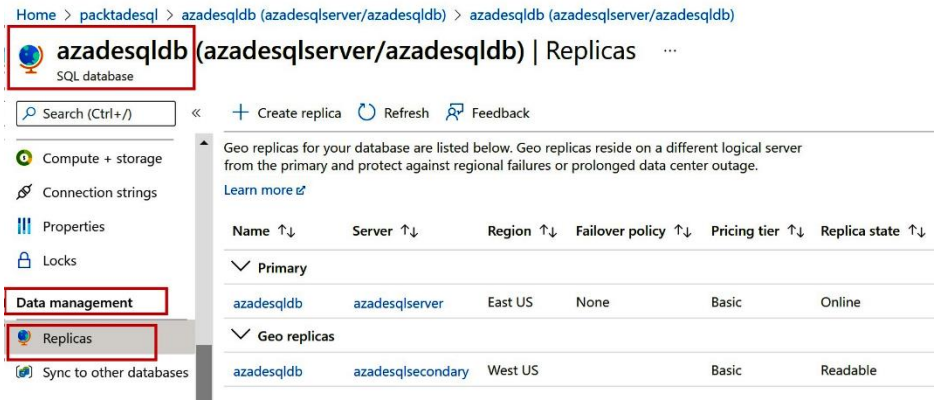

Home > Create a resource >
Create SQL Database
Microsoft
Basics
Networking
Security
Additional settings
Tags
Review + create
Create a SQL database with your preferred configurations. Complete the Basics tab then go to Review + Create to provision with smart defaults, or visit each tab to customize. Learn more
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription * Visual Studio Ultimate with MSDN
Resource group * packtadesql
Create new
Database details
Enter required settings for this database, including picking a logical server and configuring the compute and storage resources
Database name * sample
Server * azadesqlserver (East US)
Create new
Want to use SQL elastic pool? * Yes No
Compute + storage * General Purpose
Gen5, 2 vCores, 32 GB storage, zone redundant disabled
Configure database
Backup storage redundancy

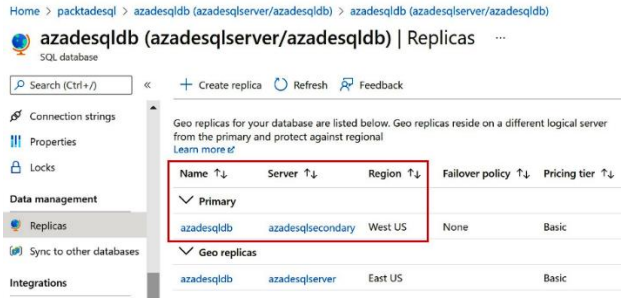

Configure
Feedback
Service and compute tier
Select from the available tiers based on the needs of your workload. The vCore model provides a wide range of configuration controls and offers Hyperscale and Serverless to automatically scale your database based on your workload needs. Alternately, the DTU model provides set price/performance packages to choose from for easy configuration. Learn more
Service tier
Hyperscale (On-demand scalable storage)
Compare service tiers
Hyperscale tier
In the Hyperscale tier, storage costs are calculated based on actual allocation. Allocated space increases automatically as needed, up to 100 TB.
The capability to change from Hyperscale to another service tier is not supported. Click here to learn more about this offering and its feature support.
I understand that scaling from Hyperscale to another service tier is not possible.
Compute Hardware
Select the hardware configuration based on your workload requirements. Availability of compute optimized, memory optimized, and confidential computing hardware depends on the region, service tier, and compute tier.
Hardware Configuration
Gen5
up to 80 vCores, up to 408 GB memory
Change configuration
vCores How do vCores compare with DTUs?
2
High-Availability Secondary Replicas
Increasing the number of High Availability replicas improves availability SLA. High Availability replicas can be used for simple read scale scenarios. Consider Named replicas for more complex read scale scenarios. Learn more
0 Replicas
Apply

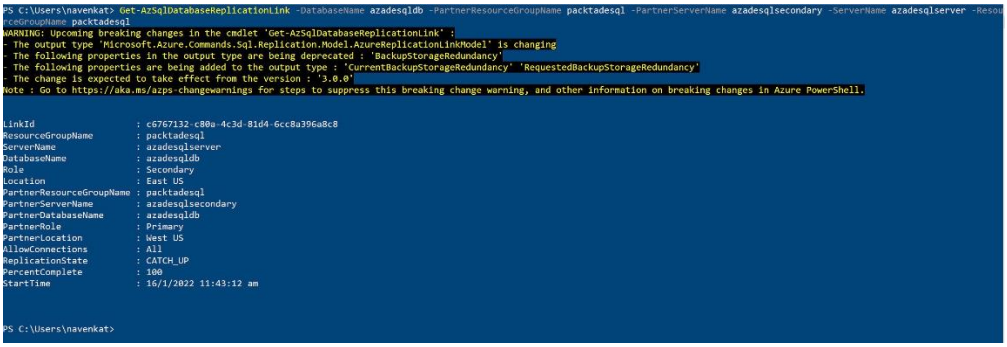

Home > Create a resource >
Create SQL Database
Microsoft
Basics
Networking
Security
Additional settings
Tags
Review + create
Product details
SQL database
by Microsoft
Terms of use | Privacy policy
Estimated cost per month
Compute cost 271.80 USD + Storage cost 0.10 USD / GB
View pricing details
Terms
By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contac transactional activities. Microsoft does not provide rights for third-party offerings. For additional details see Azure Mark
Basics
Subscription
Visual Studio Ultimate with MSDN
Resource group
packtadesql
Region
eastus
Database name
sample
Server
azadesqlserver
Compute + storage
Hyperscale: Gen5, 2 vCores
Backup storage redundancy
Geo-redundant backup storage
Networking
Allow Azure services and resources to access this server
No
Private endpoint
1 existing
Security
Create
< Previous
Download a template for automation

Chapter 6: Implementing High Availability and Monitoring in Azure SQL Database



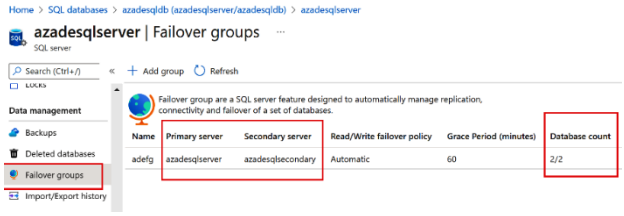




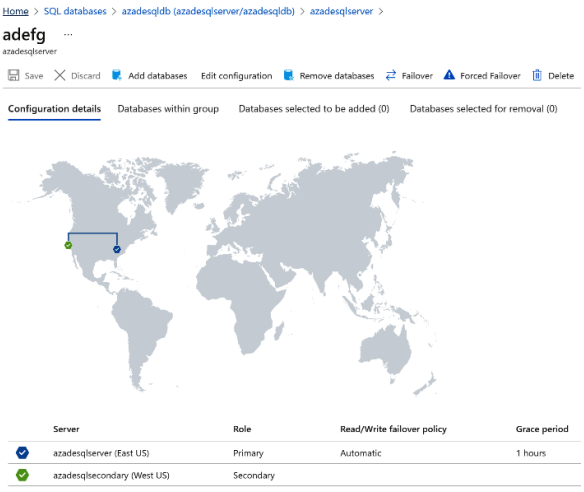


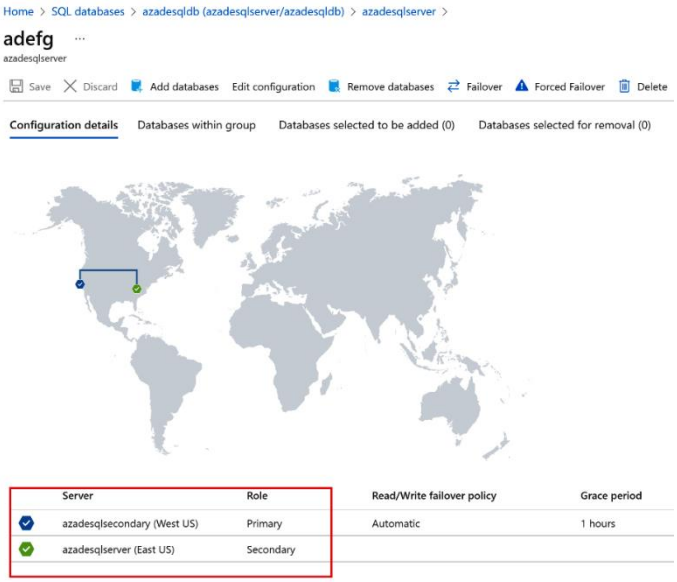
```
PS C:\Users\navenkat> $primarydb = Get-AzSqlDatabase -DatabaseName azadesqldb -ServerName azadesqlserver -ResourceGroupName packtadesql
WARNING: Upcoming breaking changes in the cmdlet 'Get-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking changes in Azure PowerShell.
PS C:\Users\navenkat> $primarydb | Remove-AzSqlDatabaseSecondary -PartnerResourceGroupName packtadesql -PartnerServerName azadesqlsecondary
WARNING: Upcoming breaking changes in the cmdlet 'Remove-AzSqlDatabaseSecondary' :
- The output type 'Microsoft.Azure.Commands.Sql.Replication.Model.AzureReplicationLinkModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking changes in Azure PowerShell.


LinkId                    : c6767132-c80a-4c3d-81d4-6cc8a396a8c8
ResourceGroupName         : packtadesql
ServerName                : azadesqlserver
DatabaseName              : azadesqldb
Role                      : Secondary
Location                  : East US
PartnerResourceGroupName  : packtadesql
PartnerServerName         : azadesqlsecondary
PartnerDatabaseName       : azadesqldb
PartnerRole               : Primary
PartnerLocation           : West US
AllowConnections          : All
ReplicationState          : CATCH_UP
PercentComplete           : 100
StartTime                 : 16/1/2022 11:43:12 am
```

```
PS C:\Users\navenkat> New-AzSqlDatabaseFailoverGroup -ServerName azadesqlserver -FailoverGroupName adefg -PartnerResourceGroupName packtade
sql -PartnerServerName azadesqlsecondary -FailoverPolicy Automatic -ResourceGroupName packtadesql


FailoverGroupName                     : adefg
Location                              : East US
ResourceGroupName                     : packtadesql
ServerName                            : azadesqlserver
PartnerLocation                       : West US
PartnerResourceGroupName              : packtadesql
PartnerServerName                     : azadesqlsecondary
ReplicationRole                       : Primary
ReplicationState                      : CATCH_UP
ReadWriteFailoverPolicy               : Automatic
FailoverWithDataLossGracePeriodHours : 1
DatabaseNames                         : {}


PS C:\Users\navenkat>
```

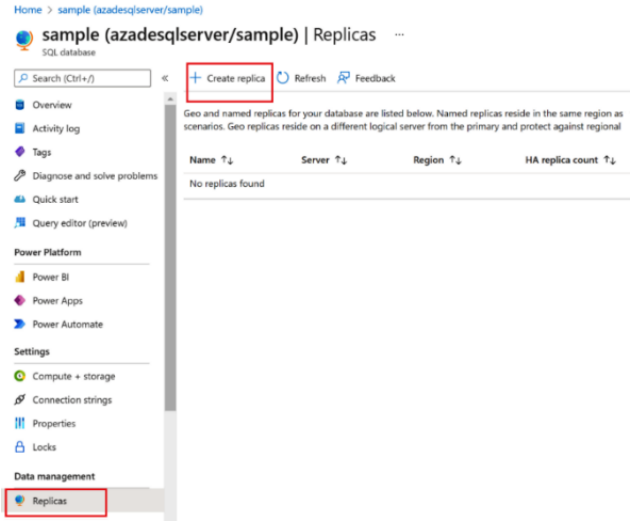


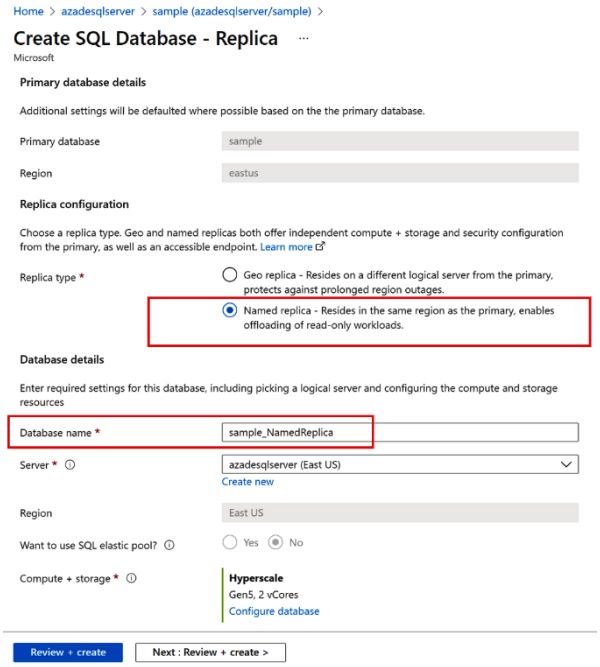

```
PS C:\Users\navenkat> Get-AzSqlDatabaseFailoverGroup -ServerName azadesqlserver -FailoverGroupName adefg -ResourceGroupName packtadesql


FailoverGroupName                     : adefg
Location                              : East US
ResourceGroupName                     : packtadesql
ServerName                            : azadesqlserver
PartnerLocation                       : West US
PartnerResourceGroupName              : packtadesql
PartnerServerName                     : azadesqlsecondary
ReplicationRole                       : Primary
ReplicationState                      : CATCH_UP
ReadWriteFailoverPolicy               : Automatic
FailoverWithDataLossGracePeriodHours : 1
DatabaseNames                         : {azadesqldb, azadesqldb2}
```

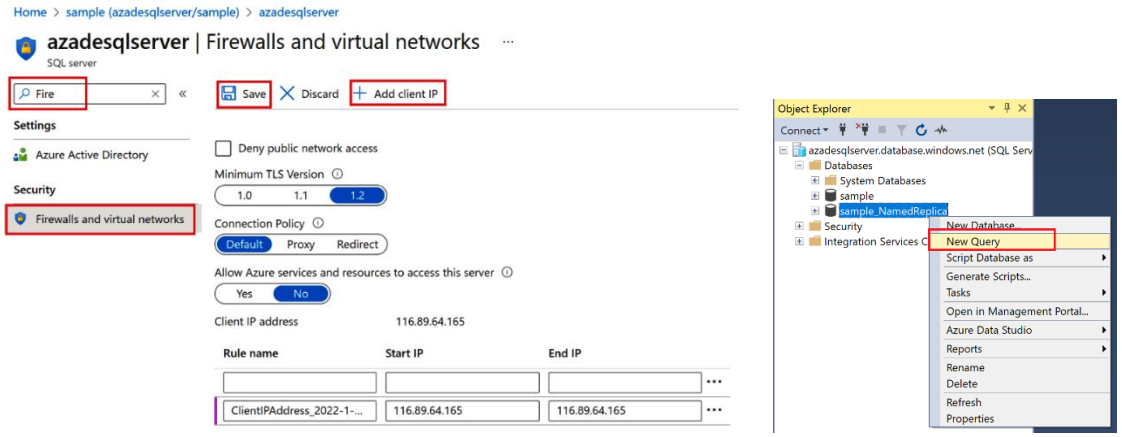


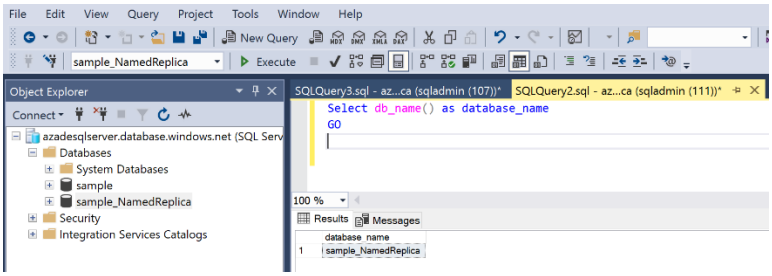


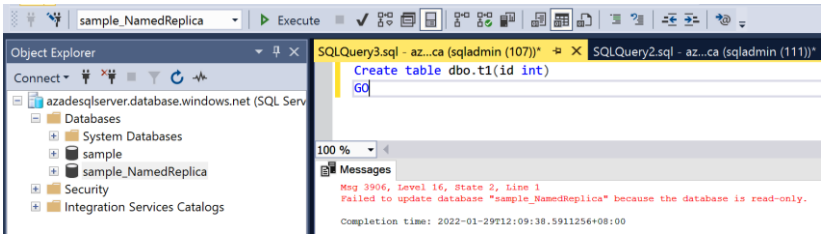

```
PS C:\Users\navenkat> Remove-AzSqlDatabaseFailoverGroup -ServerName azadesqlsecondary -FailoverGroupName adefg -ResourceGroupName packtadesql

FailoverGroupName                   : adefg
Location                            : West US
ResourceGroupName                   : packtadesql
ServerName                          : azadesqlsecondary
PartnerLocation                     : East US
PartnerResourceGroupName            : packtadesql
PartnerServerName                   : azadesqlserver
ReplicationRole                     : Primary
ReplicationState                    : CATCH_UP
ReadWriteFailoverPolicy             : Automatic
FailoverWithDataLossGracePeriodHours : 1
DatabaseNames                       : {azadesqldb, azadesqldb2}


PS C:\Users\navenkat>
```

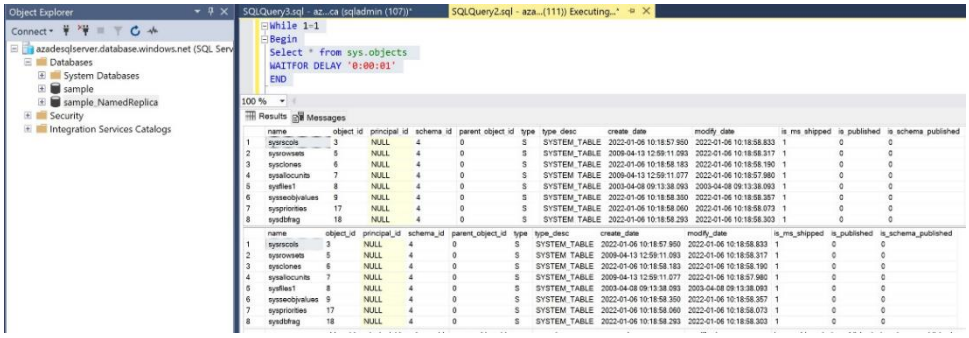


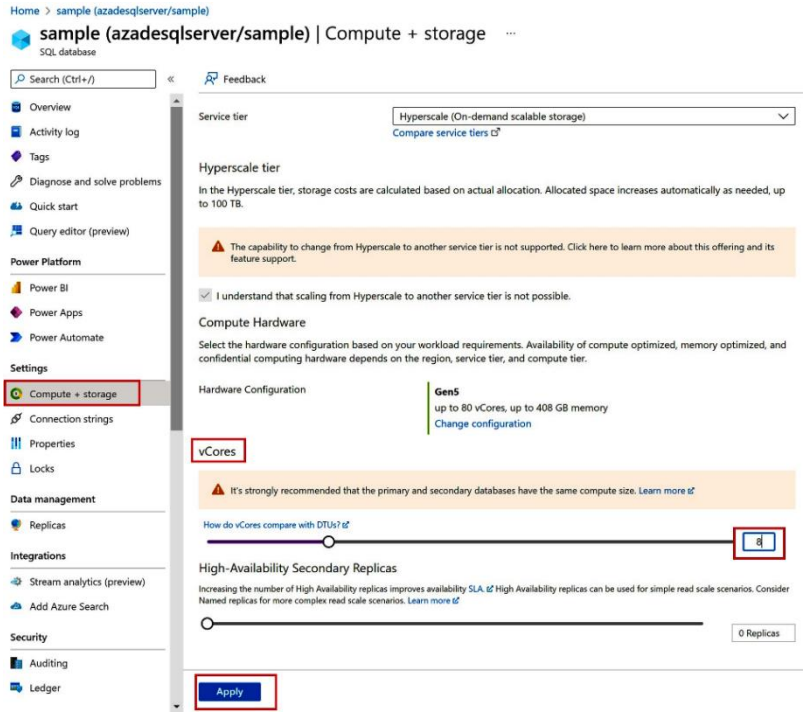

Home > azadesqlserver > sample (azadesqlserver/sample) >
Create SQL Database - Replica
Microsoft
Primary database details
Additional settings will be defaulted where possible based on the the primary database.
Primary database
sample
Region
eastus
Replica configuration
Choose a replica type. Geo and named replicas both offer independent compute + storage and security configuration from the primary, as well as an accessible endpoint. Learn more
Replica type *
Geo replica - Resides on a different logical server from the primary, protects against prolonged region outages.
Named replica - Resides in the same region as the primary, enables offloading of read-only workloads.
Database details
Enter required settings for this database, including picking a logical server and configuring the compute and storage resources
Database name *
sample_NamedReplica
Server *
azadesqlserver (East US)
Create new
Region
East US
Want to use SQL elastic pool?
Yes
No
Compute + storage *
Hyperscale
Gen5, 2 vCores
Configure database
Review + create
Next : Review + create >

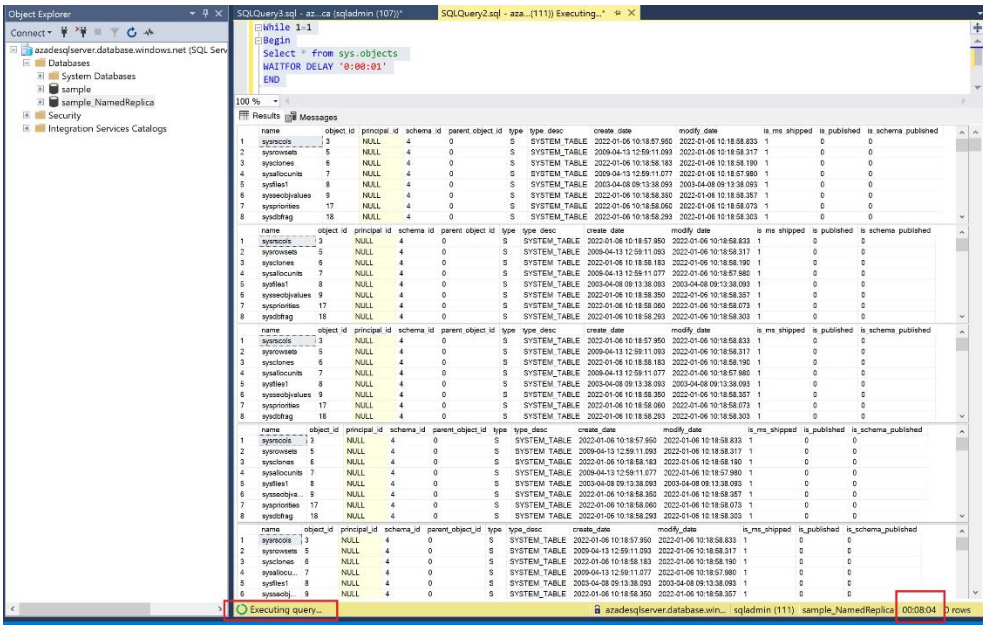

Home > sample (azadesqlserver/sample) > azadesqlserver
azadesqlserver | Firewalls and virtual networks
SQL server
Fire
Settings
Azure Active Directory
Security
Firewalls and virtual networks
Save
Discard
Add client IP
Deny public network access
Minimum TLS Version
1.0
1.1
1.2
Connection Policy
Default
Proxy
Redirect
Allow Azure services and resources to access this server
Yes
No
Client IP address
116.89.64.165
Rule name
Start IP
End IP
ClientIPAddress_2022-1-...
116.89.64.165
116.89.64.165
Object Explorer
Connect
azadesqlserver.database.windows.net (SQL Serv
Databases
System Databases
sample
sample_NamedReplica
Security
Integration Services C
New Database...
New Query
Script Database as
Generate Scripts...
Tasks
Open in Management Portal...
Azure Data Studio
Reports
Rename
Delete
Refresh
Properties

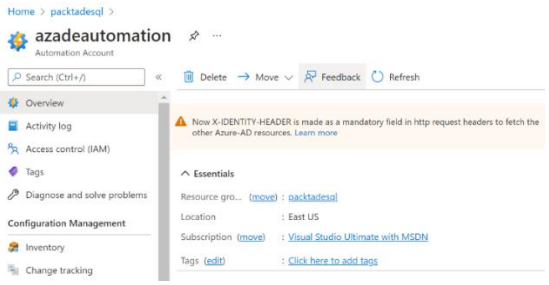

File
Edit
View
Query
Project
Tools
Window
Help
New Query
sample_NamedReplica
Execute
Object Explorer
Connect
azadesqlserver.database.windows.net (SQL Serv
Databases
System Databases
sample
sample_NamedReplica
Security
Integration Services Catalogs
SQLQuery3.sql - az...ca (sqladmin (107))*
SQLQuery2.sql - az...ca (sqladmin (111))*
Select db_name() as database_name
GO
100 %
Results
Messages
database_name
1
sample_NamedReplica

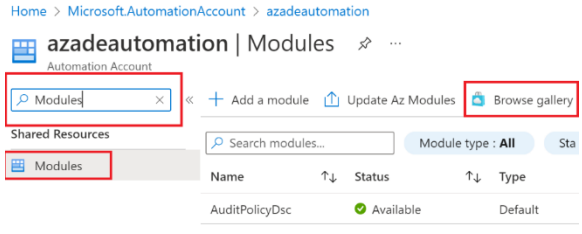

sample_NamedReplica
Execute
Object Explorer
Connect
azadesqlserver.database.windows.net (SQL Serv
Databases
System Databases
sample
sample_NamedReplica
Security
Integration Services Catalogs
SQLQuery3.sql - az...ca (sqladmin (107))*
SQLQuery2.sql - az...ca (sqladmin (111))*
Create table dbo.t1(id int)
GO
100 %
Messages
Msg 3906, Level 16, State 2, Line 1
Failed to update database "sample_NamedReplica" because the database is read-only.
Completion time: 2022-01-29T12:09:38.5911256+08:00

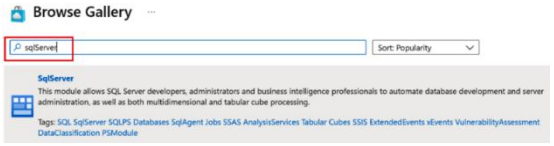

Object Explorer
Connect
azadesqlserver.database.windows.net (SQL Serv
Databases
System Databases
sample
sample_NamedReplica
Security
Integration Services Catalogs
SQLQuery3.sql - az...ca (sqladmin (107))*
SQLQuery2.sql - aza...(111)) Executing...*
While 1=1
Begin
Select * from sys.objects
WAITFOR DELAY '0:00:01'
END
100 %
Results
Messages

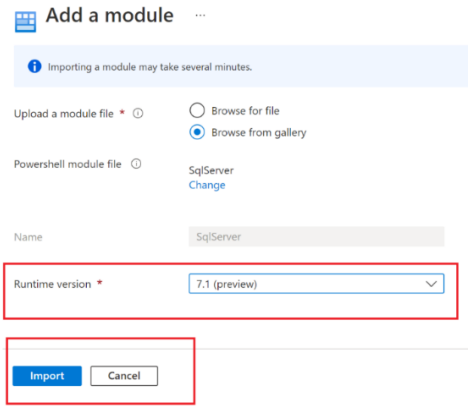

Home > sample (azadesqlserver/sample)
sample (azadesqlserver/sample) | Compute + storage
SQL database
Search (Ctrl+/)
Feedback
Overview
Activity log
Tags
Diagnose and solve problems
Quick start
Query editor (preview)
Power Platform
Power BI
Power Apps
Power Automate
Settings
Compute + storage
Connection strings
Properties
Locks
Data management
Replicas
Integrations
Stream analytics (preview)
Add Azure Search
Security
Auditing
Ledger
Service tier
Hyperscale (On-demand scalable storage)
Compare service tiers
Hyperscale tier
In the Hyperscale tier, storage costs are calculated based on actual allocation. Allocated space increases automatically as needed, up to 100 TB.
The capability to change from Hyperscale to another service tier is not supported. Click here to learn more about this offering and its feature support.
I understand that scaling from Hyperscale to another service tier is not possible.
Compute Hardware
Select the hardware configuration based on your workload requirements. Availability of compute optimized, memory optimized, and confidential computing hardware depends on the region, service tier, and compute tier.
Hardware Configuration
Gen5
up to 80 vCores, up to 408 GB memory
Change configuration
vCores
It's strongly recommended that the primary and secondary databases have the same compute size. Learn more
How do vCores compare with DTUs?
8
High-Availability Secondary Replicas
Increasing the number of High Availability replicas improves availability SLA. High Availability replicas can be used for simple read scale scenarios. Consider Named replicas for more complex read scale scenarios. Learn more
0 Replicas
Apply

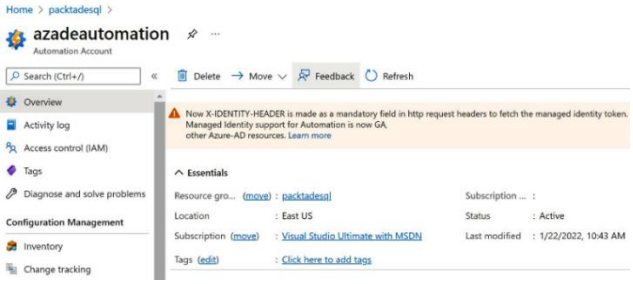

Object Explorer
Connect
azadesqlserver.database.windows.net (SQL Serv
Databases
System Databases
sample
sample_NamedReplica
Security
Integration Services Catalogs
SQLQuery3.sql - az...ca (sqladmin (107))*
SQLQuery2.sql - aza...(111)) Executing...*
While 1=1
Begin
Select * from sys.objects
WAITFOR DELAY '0:00:01'
END
100 %
Results
Messages
Executing query...
azadesqlserver.database.win...
sqladmin (111)
sample_NamedReplica
00:08:04
0 rows

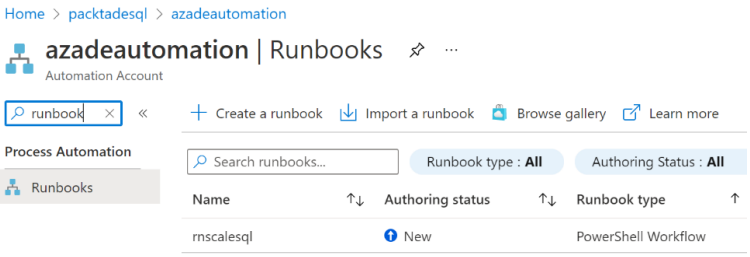

Home > packtadesql >
azadeautomation
Automation Account
Search (Ctrl+/)
Delete
Move
Feedback
Refresh
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Configuration Management
Inventory
Change tracking
Now X-IDENTITY-HEADER is made as a mandatory field in http request headers to fetch the other Azure-AD resources. Learn more
Essentials
Resource gro... (move) : packtadesql
Location : East US
Subscription (move) : Visual Studio Ultimate with MSDN
Tags (edit) : Click here to add tags

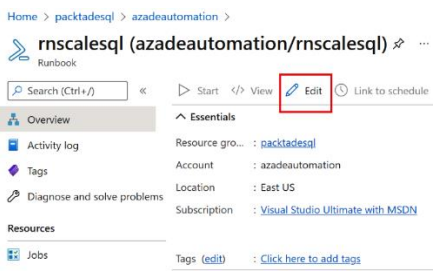

Home > Microsoft.AutomationAccount > azadeautomation
azadeautomation | Modules
Automation Account
Modules
Add a module
Update Az Modules
Browse gallery
Shared Resources
Modules
Search modules...
Module type : All
Name
Status
Type
AuditPolicyDsc
Available
Default


Browse Gallery
sqlServer
Sort: Popularity
SqlServer
This module allows SQL Server developers, administrators and business intelligence professionals to automate database development and server administration, as well as both multidimensional and tabular cube processing.
Tags: SQL SqlServer SQLPS Databases SqlAgent Jobs SSAS AnalysisServices Tabular Cubes SSIS ExtendedEvents xEvents VulnerabilityAssessment DataClassification PSModule


Add a module
Importing a module may take several minutes.
Upload a module file *
Browse for file
Browse from gallery
Powershell module file
SqlServer
Change
Name
SqlServer
Runtime version *
7.1 (preview)
Import
Cancel


Home > packtadesql >
azadeautomation
Automation Account
Search (Ctrl+/)
Delete
Move
Feedback
Refresh
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Configuration Management
Inventory
Change tracking
Now X-IDENTITY-HEADER is made as a mandatory field in http request headers to fetch the managed identity token. Managed Identity support for Automation is now GA. other Azure-AD resources. Learn more
Essentials
Resource gro... (move) : packtadesql
Location : East US
Subscription (move) : Visual Studio Ultimate with MSDN
Tags (edit) : Click here to add tags
Subscription ... :
Status : Active
Last modified : 1/22/2022, 10:43 AM


Home > packtadesql > azadeautomation
azadeautomation | Runbooks
Automation Account
runbook
Create a runbook
Import a runbook
Browse gallery
Learn more
Process Automation
Runbooks
Search runbooks...
Runbook type : All
Authoring Status : All
Name
Authoring status
Runbook type
rnscalesql
New
PowerShell Workflow

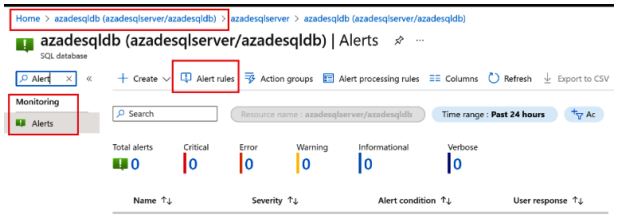

Home > packtadesql > azadeautomation >
rnscalesql (azadeautomation/rnscalesql)
Runbook
Search (Ctrl+/)
Start
View
Edit
Link to schedule
Overview
Activity log
Tags
Diagnose and solve problems
Resources
Jobs
Essentials
Resource gro... : packtadesql
Account : azadeautomation
Location : East US
Subscription : Visual Studio Ultimate with MSDN
Tags (edit) : Click here to add tags

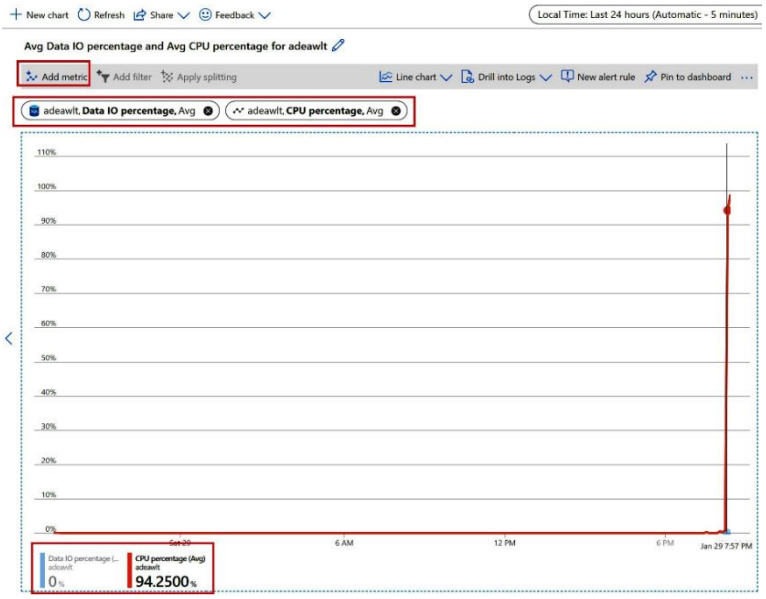

Home > packtadesql > azadeautomation > rnscalesql (azadeautomation/rnscalesql) >
Edit PowerShell Workflow Runbook*
rnscalesql
Save
Publish
Revert to published
Test pane
Feedback
CMDLETS
RUNBOOKS
ASSETS
[string] $SqlServerName,
Target Azure SQL Database name
[parameter(Mandatory=$true)]
[string] $DatabaseName,
When using in the Azure Automation UI, please enter the name of the credential asset
"Credential" parameter
[parameter(Mandatory=$true)]
[PSCredential] $Credential
)
inlinescript
{
$ServerName = $Using:SqlServerName + ".database.
windows.net"

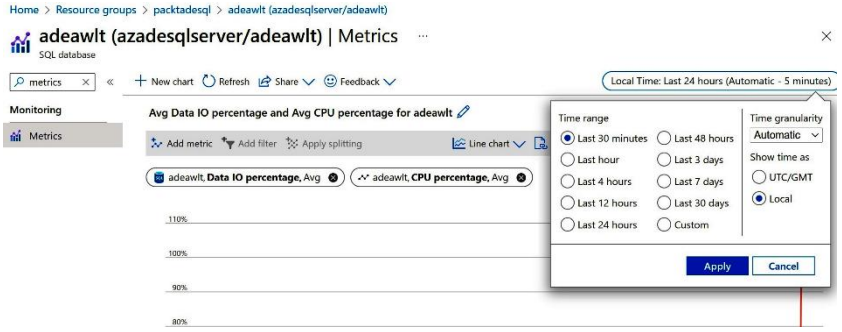
```
Windows PowerShell
PS C:\Users\navenkat> # define the runbook parameters
PS C:\Users\navenkat> $Params = @{"SQLSERVERNAME"="azadesqlserver";"DATABASENAME" ="azadesqldb";"CREDENTIAL"="sqlcred"}
PS C:\Users\navenkat> # Create a webhook
PS C:\Users\navenkat> $expiry = (Get-Date).AddDays(1)
PS C:\Users\navenkat> New-AzAutomationWebhook -Name rnscaleazure -RunbookName $runbook.Name -Parameters $Params -ResourceGroupName packtade
sql -AutomationAccountName $automation.AutomationAccountName -IsEnabled $true -ExpiryTime $expiry

Confirm
For security purposes, the URL of the created webhook will only be viewable in the output of this command. No other commands will return
the webhook URL. Make sure to copy down the webhook URL from this command's output before closing your PowerShell session, and to store it
 securely.
[Y] Yes  [N] No  [S] Suspend  [?] Help (default is "Y"): y


ResourceGroupName     : packtadesql
AutomationAccountName : azadeautomation
Name                  : rnscaleazure
CreationTime          : 22/1/2022 12:25:26 pm +08:00
Description           :
ExpiryTime            : 23/1/2022 12:25:20 pm +08:00
IsEnabled             : True
LastInvokedTime       : 1/1/0001 12:00:00 am +00:00
LastModifiedTime      : 22/1/2022 12:25:26 pm +08:00
Parameters            : {Credential, sqlServerName, databaseName}
RunbookName           : rnscalesql
WebhookURI            : https://e8c8271a-63e3-4bb7-b8d4-546f01d142f5.webhook.eus.azure-automation.net/webhooks?token=HE7yRO7xdgbSW6Zz08LnE
                        GaOwv5h%2bVuDRIGEtIQdq9A%3d
HybridWorker          :
```

```
PS C:\Users\navenkat> #Create the alert with the condition and action defined in previous steps.
PS C:\Users\navenkat> $rid = (Get-AzSqlDatabase -ServerName azadesqlserver -ResourceGroupName packtadesql -DatabaseName azadesqldb).Resourceid
WARNING: Upcoming breaking changes in the cmdlet 'Get-AzSqlDatabase' :
- The output type 'Microsoft.Azure.Commands.Sql.Database.Model.AzureSqlDatabaseModel' is changing
- The following properties in the output type are being deprecated : 'BackupStorageRedundancy'
- The following properties are being added to the output type : 'CurrentBackupStorageRedundancy' 'RequestedBackupStorageRedundancy'
- The change is expected to take effect from the version : '3.0.0'
Note : Go to https://aka.ms/azps-changewarnings for steps to suppress this breaking change warning, and other information on breaking changes in Azure PowerShell.
PS C:\Users\navenkat> Add-AzMetricAlertRuleV2 -Name monitorcpu -ResourceGroupName packtadesql -WindowSize 00:01:00 -Frequency 00:01:00 -TargetResourceId $rid -Condition $condition
-ActionGroupId $ag.id
WARNING: 7:45:23 am - The namespace for all the model classes will change from Microsoft.Azure.Management.Monitor.Management.Models to Microsoft.Azure.Management.Monitor.Models in
releases.
WARNING: 7:45:23 am - The namespace for output classes will be uniform for all classes in future releases to make it independent of modifications in the model classes.


Description          : This new Metric alert rule was created from Powershell version: 3.0.0
Severity             : 1
Enabled              : True
Scopes               : {/subscriptions/[redacted]/resourceGroups/packtadesql/providers/Microsoft.Sql/servers/azadesqlserver/databases/azadesqldb}
EvaluationFrequency  : 00:01:00
WindowSize           : 00:01:00
TargetResourceType   :
TargetResourceRegion :
Criteria             : Microsoft.Azure.Management.Monitor.Models.MetricAlertSingleResourceMultipleMetricCriteria
AutoMitigate         : True
Actions              : {}
LastUpdatedTime      :
IsMigrated           :
Id                   : /subscriptions/[redacted]/resourceGroups/packtadesql/providers/Microsoft.Insights/metricAlerts/monitorcpu
Name                 : monitorcpu
Type                 : Microsoft.insights/metricAlerts
Location             : global
Tags                 :
Kind                 :
Etag                 :


PS C:\Users\navenkat>
```

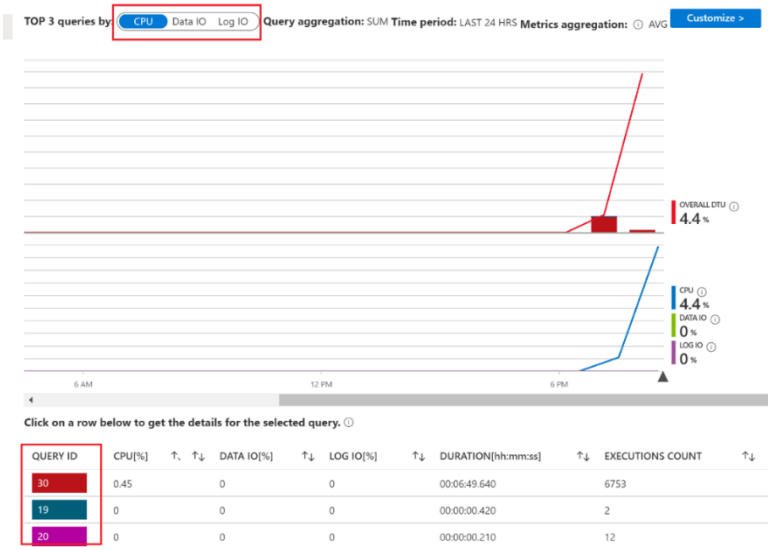

```
Windows PowerShell
PS C:\Users\navenkat> # define the runbook parameters
PS C:\Users\navenkat> $Params = @{"SQLSERVERNAME"="azadesqlserver";"DATABASENAME" ="azadesqldb";"CREDENTIAL"="sqlcred"}
PS C:\Users\navenkat> # Create a webhook
PS C:\Users\navenkat> $expiry = (Get-Date).AddDays(1)
PS C:\Users\navenkat> New-AzAutomationWebhook -Name rnscaleazure -RunbookName $runbook.Name -Parameters $Params -ResourceGroupName packtade
sql -AutomationAccountName $automation.AutomationAccountName -IsEnabled $true -ExpiryTime $expiry

Confirm
For security purposes, the URL of the created webhook will only be viewable in the output of this command. No other commands will return
the webhook URL. Make sure to copy down the webhook URL from this command's output before closing your PowerShell session, and to store it
 securely.
[Y] Yes  [N] No  [S] Suspend  [?] Help (default is "Y"): y


ResourceGroupName     : packtadesql
AutomationAccountName : azadeautomation
Name                  : rnscaleazure
CreationTime          : 22/1/2022 12:25:26 pm +08:00
Description           :
ExpiryTime            : 23/1/2022 12:25:20 pm +08:00
IsEnabled             : True
LastInvokedTime       : 1/1/0001 12:00:00 am +00:00
LastModifiedTime      : 22/1/2022 12:25:26 pm +08:00
Parameters            : {Credential, sqlServerName, databaseName}
RunbookName           : rnscalesql
WebhookURI            : https://e8c8271a-63e3-4bb7-b8d4-546f01d142f5.webhook.eus.azure-automation.net/webhooks?token=HE7yRO7xdgbSW6Zz08LnE
                        GaOwv5h%2bVuDRIGEtIQdq9A%3d
HybridWorker          :
```

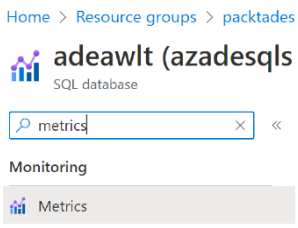



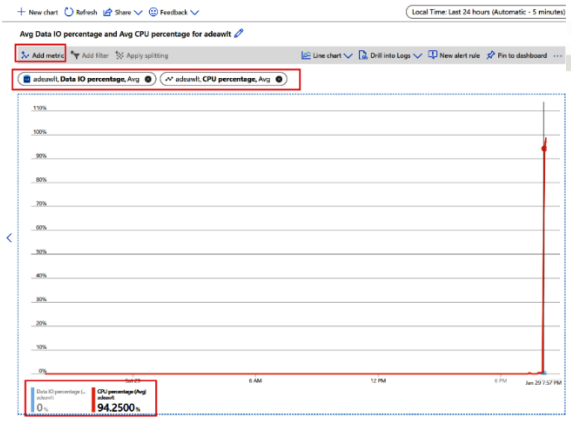

New chart
Refresh
Share
Feedback
Local Time: Last 24 hours (Automatic - 5 minutes)
Avg Data IO percentage and Avg CPU percentage for adeawlt
Add metric
Add filter
Apply splitting
Line chart
Drill into Logs
New alert rule
Pin to dashboard
adeawlt, Data IO percentage, Avg
adeawlt, CPU percentage, Avg
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
6 AM
12 PM
6 PM
Jan 29 7:57 PM
CPU percentage (Avg)
adeawlt
94.2500%

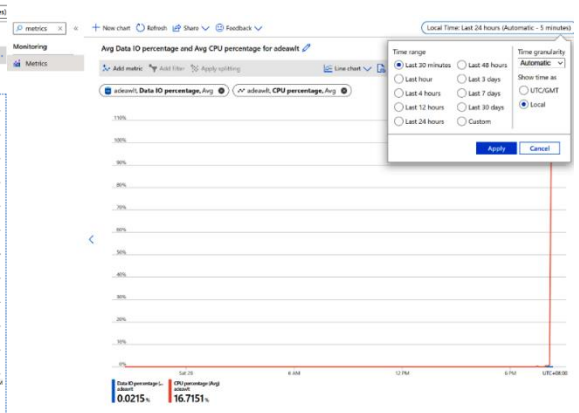

Home > Resource groups > packtadesql > adeawlt (azadesqlserver/adeawlt)
adeawlt (azadesqlserver/adeawlt) | Metrics
SQL database
metrics
New chart
Refresh
Share
Feedback
Local Time: Last 24 hours (Automatic - 5 minutes)
Monitoring
Metrics
Avg Data IO percentage and Avg CPU percentage for adeawlt
Add metric
Add filter
Apply splitting
Line chart
adeawlt, Data IO percentage, Avg
adeawlt, CPU percentage, Avg
Time range
Last 30 minutes
Last hour
Last 4 hours
Last 12 hours
Last 24 hours
Last 48 hours
Last 3 days
Last 7 days
Last 30 days
Custom
Time granularity
Automatic
Show time as
UTC/GMT
Local
Apply
Cancel
110%
100%
90%
80%

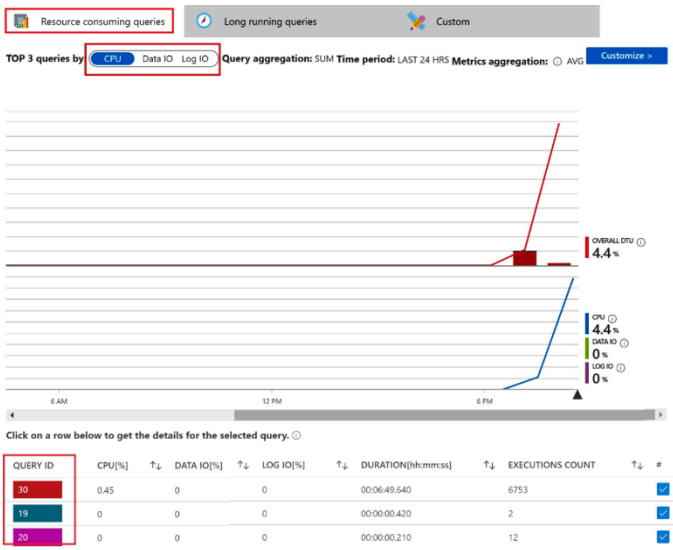

azadesqldb (azadesqlserver/azadesqldb) | Alerts
SQL database
alert
Monitoring
Alerts
Create
Alert rules
Action groups
Alert processing rules
Columns
Refresh
Search
Resource name : azadesqlserver/azadesqldb
Add filter
More (3)
Total alerts
Critical
Error
Warning
Informational
Verbose
1
0
1
0
0
0
No grouping
Name
Severity
Alert condition
User response
Fired time
monitorcpu
1 - Error
Fired
New
7/4/2022, 8:06 PM

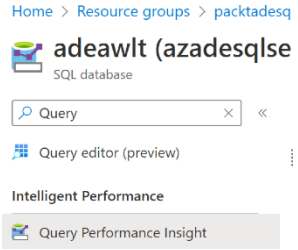

TOP 3 queries by
CPU
Data IO
Log IO
Query aggregation: SUM
Time period: LAST 24 HRS
Metrics aggregation:
AVG
Customize >
OVERALL DTU
4.4%
CPU
4.4%
DATA IO
0%
LOG IO
0%
6 AM
12 PM
6 PM
Click on a row below to get the details for the selected query.
QUERY ID
CPU[%]
DATA IO[%]
LOG IO[%]
DURATION[hh:mm:ss]
EXECUTIONS COUNT
#
30
0.45
0
0
00:06:49.640
6753
19
0
0
0
00:00:00.420
2
20
0
0
0
00:00:00.210
12

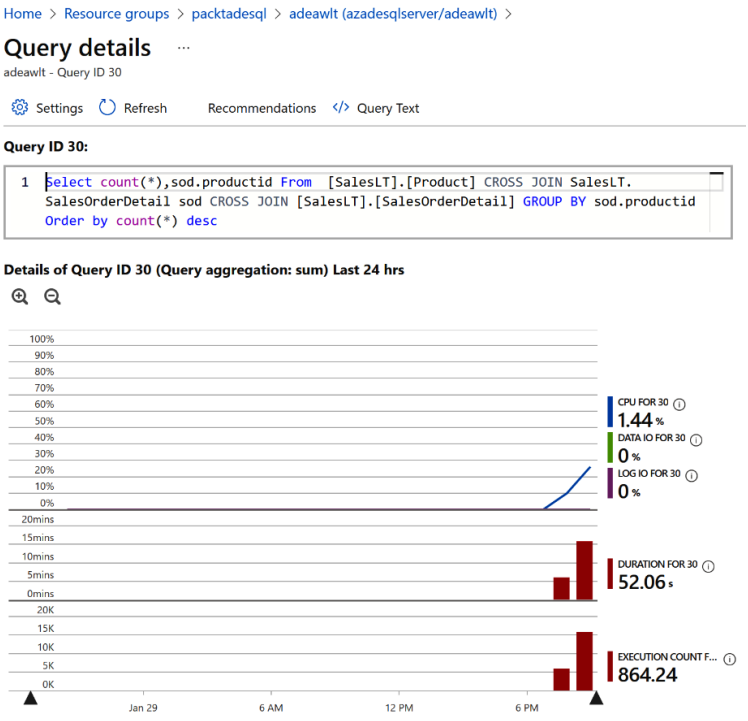

Home > Resource groups > packtades
adeawlt (azadesqls
SQL database
metrics
Monitoring
Metrics

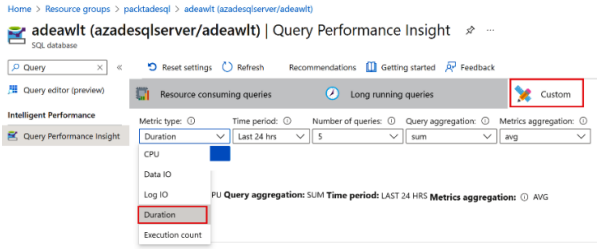

Avg Data IO percentage and Avg CPU percentage for adeawlt
Add metric
adeawlt, Data IO percentage, Avg
adeawlt, CPU percentage, Avg
94.2500%


Avg Data IO percentage and Avg CPU percentage for adeawlt
Time range
Last 30 minutes
Last hour
Last 4 hours
Last 12 hours
Last 24 hours
Last 48 hours
Last 3 days
Last 7 days
Last 30 days
Custom
Apply
Cancel
0.0215%
16.7151%

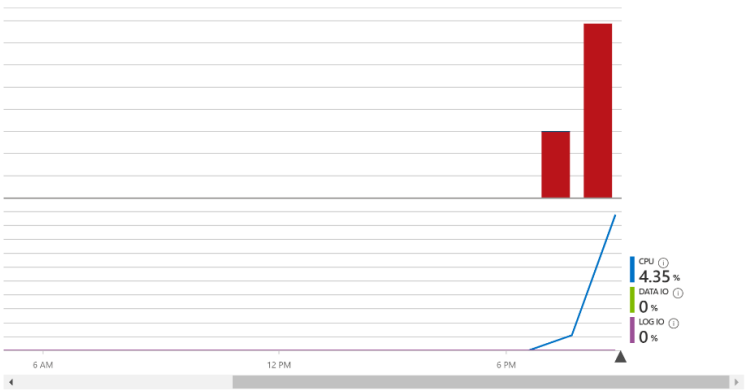

Resource consuming queries
Long running queries
Custom
TOP 3 queries by
CPU
Data IO
Log IO
Query aggregation: SUM Time period: LAST 24 HRS Metrics aggregation: AVG
Customize >
OVERALL DTU 4.4%
CPU 4.4%
DATA IO 0%
LOG IO 0%
6 AM
12 PM
6 PM
Click on a row below to get the details for the selected query.
QUERY ID
CPU[%]
DATA IO[%]
LOG IO[%]
DURATION[hh:mm:ss]
EXECUTIONS COUNT
30 0.45 0 0 00:06:49.640 6753
19 0 0 0 00:00:00.420 2
20 0 0 0 00:00:00.210 12


Home > Resource groups > packtadesq
adeawlt (azadesqlse
SQL database
Query
Query editor (preview)
Intelligent Performance
Query Performance Insight


Home > Resource groups > packtadesql > adeawlt (azadesqlserver/adeawlt) >
Query details
adeawlt - Query ID 30
Settings
Refresh
Recommendations
Query Text
Query ID 30:
Select count(*),sod.productid From [SalesLT].[Product] CROSS JOIN SalesLT.
SalesOrderDetail sod CROSS JOIN [SalesLT].[SalesOrderDetail] GROUP BY sod.productid
Order by count(*) desc
Details of Query ID 30 (Query aggregation: sum) Last 24 hrs
CPU FOR 30 1.44%
DATA IO FOR 30 0%
LOG IO FOR 30 0%
DURATION FOR 30 52.06s
EXECUTION COUNT F... 864.24
Jan 29
6 AM
12 PM
6 PM

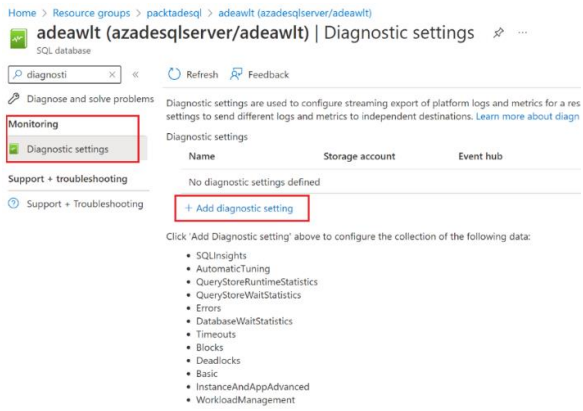


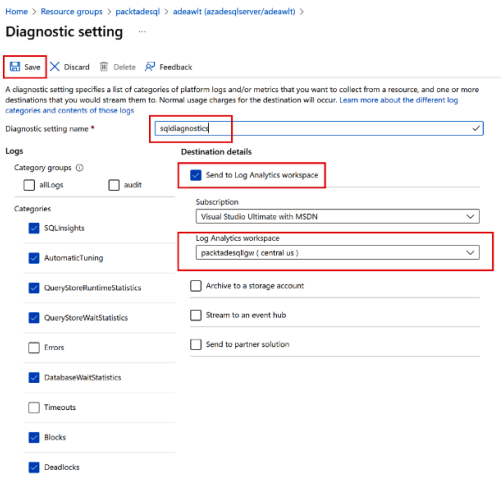
TOP 3 queries by: DURATION **Query aggregation:** SUM **Time period:** LAST 24 HRS **Metrics aggregation:** AVG

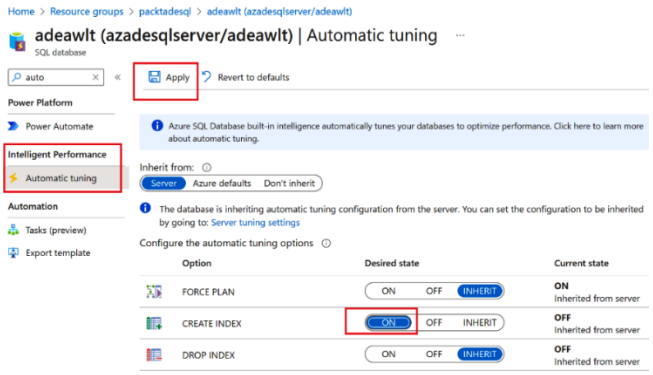


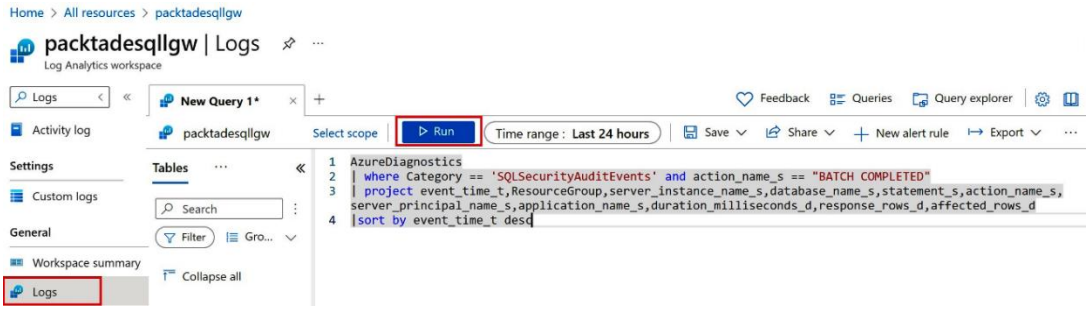
Click on a row below to get the details for the selected query.

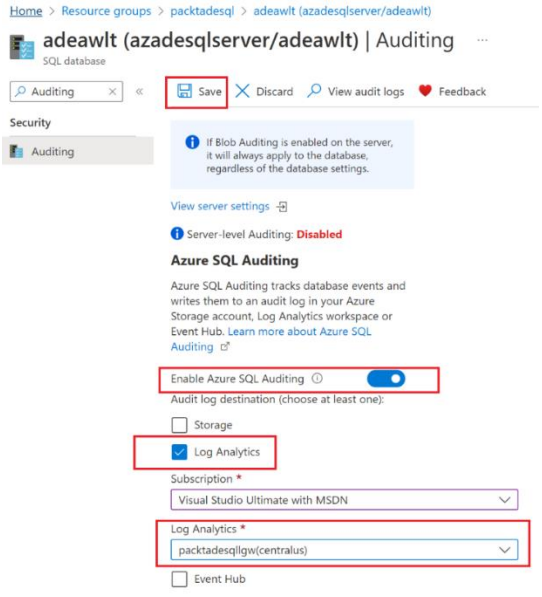
QUERY ID	CPU[%]	DATA IO[%]	LOG IO[%]	DURATION[hh:mm:ss]	EXECUTIONS COUNT	#
30	1.44	0	0	00:21:41.380	21606	
19	0	0	0	00:00:00.420	2	
20	0	0	0	00:00:00.210	12	

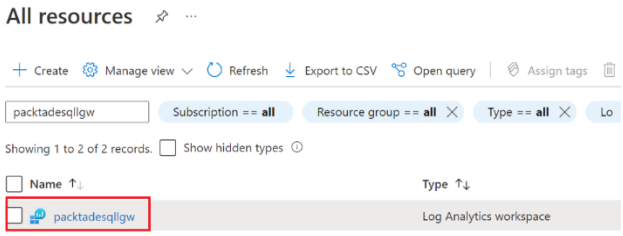


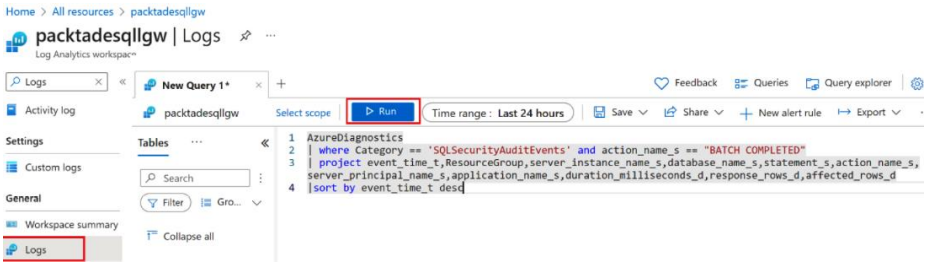












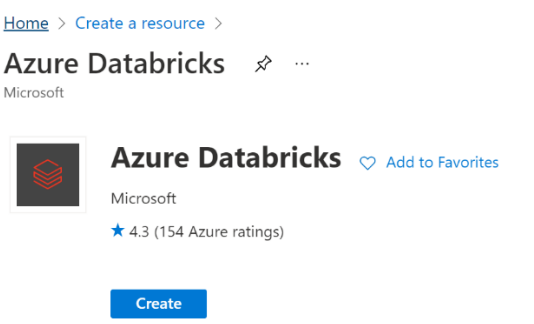

```
AzureDiagnostics
| where Category == 'SQLSecurityAuditEvents' and action_name_s == "BATCH COMPLETED"
| project event_time_t,ResourceGroup,server_instance_name_s,database_name_s,statement_s,action_name_s,
server_principal_name_s,application_name_s,duration_milliseconds_d,response_rows_d,affected_rows_d
|sort by event_time_t desc
```

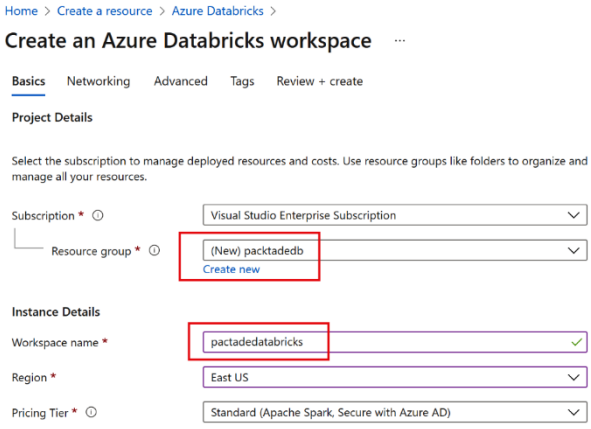
Results | Chart | Columns | Display time (UTC+00:00) | Group columns

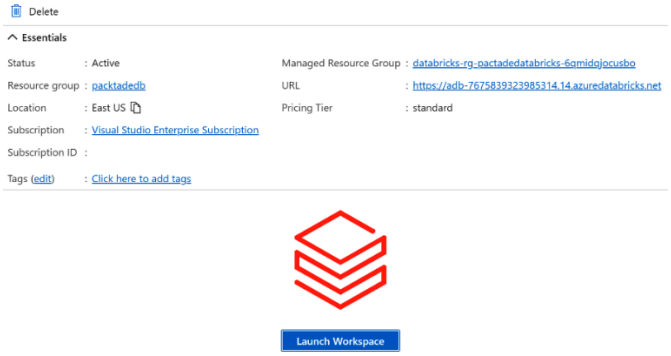
Completed. Showing results from the last 24 hours. 00:01.2 | 9 records

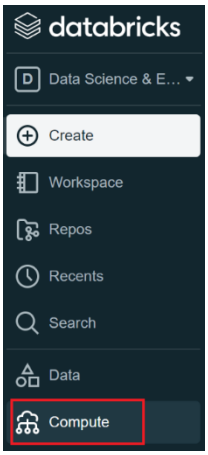
statement_s	action_name_s	server_principal_name_s	application_name_
Delete from SalesLT.SalesOrderDetail where ProductID between...	BATCH COMPLETED	sqladmin	Microsoft SQL Ser
select ProductID from SalesLT.SalesOrderDetail where OrderQty...	BATCH COMPLETED	sqladmin	Microsoft SQL Ser
SELECT @@SPID;	BATCH COMPLETED	sqladmin	Microsoft SQL Ser
select ProductID from SalesLT.SalesOrderDetail where OrderQty...	BATCH COMPLETED	sqladmin	Microsoft SQL Ser
SELECT @@SPID;	BATCH COMPLETED	sqladmin	Microsoft SQL Ser
DECLARE @edition sysname; SET @edition = cast(SERVERPROP...	BATCH COMPLETED	sqladmin	Microsoft SQL Ser
select @@spid; select SERVERPROPERTY('ProductLevel'); SELEC...	BATCH COMPLETED	sqladmin	Microsoft SQL Ser
SET ROWCOUNT 0 SET TEXTSIZE 2147483647 SET NOCOUNT O...	BATCH COMPLETED	sqladmin	Microsoft SQL Ser
DECLARE @edition sysname; SET @edition = cast(SERVERPROP...	BATCH COMPLETED	sqladmin	Microsoft SQL Ser

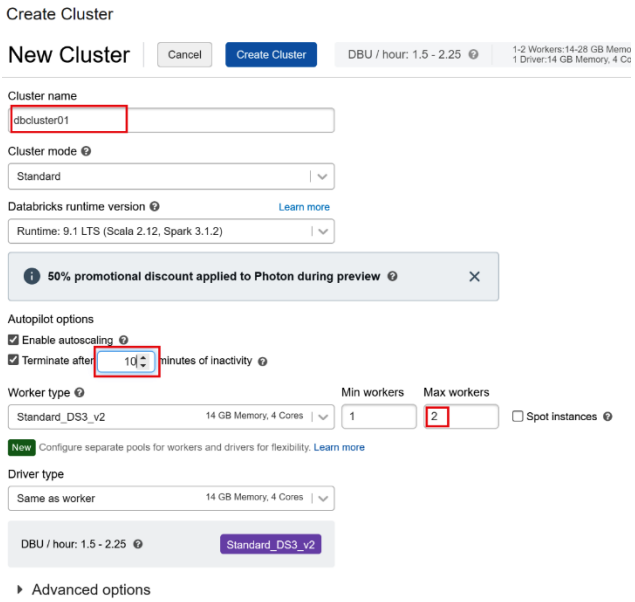
Chapter 7: Processing Data Using Azure Databricks

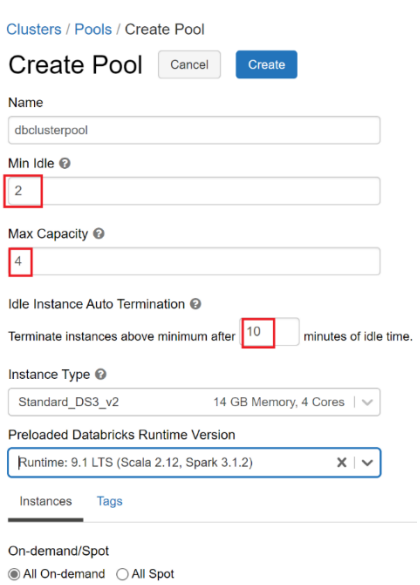


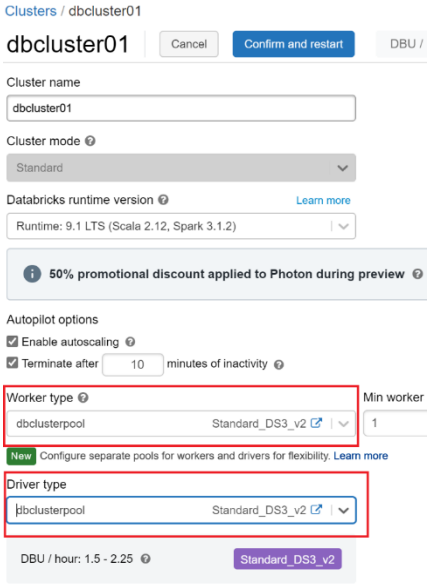


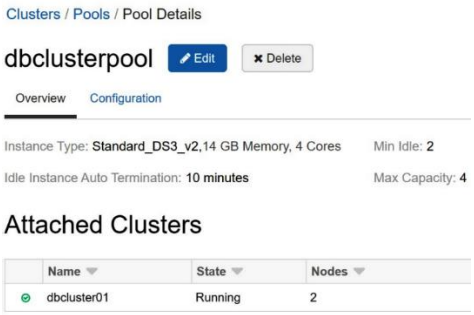


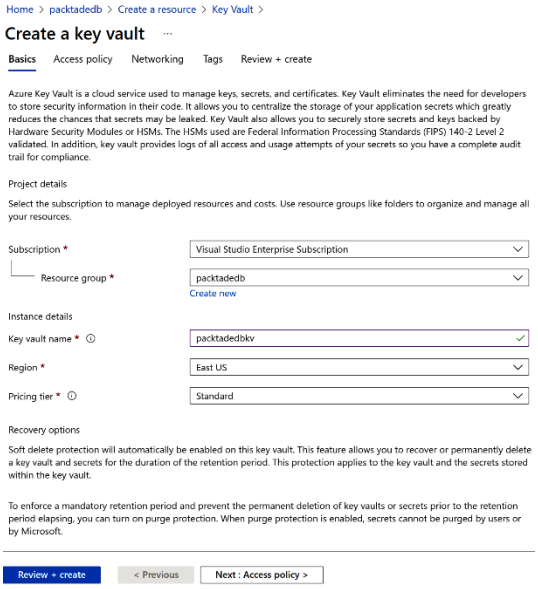


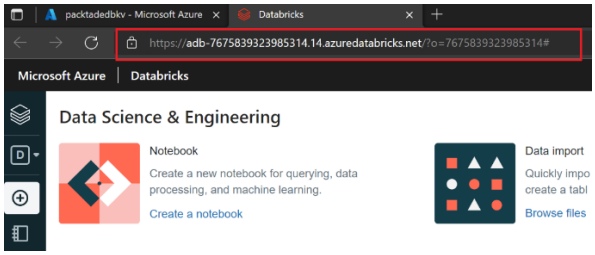


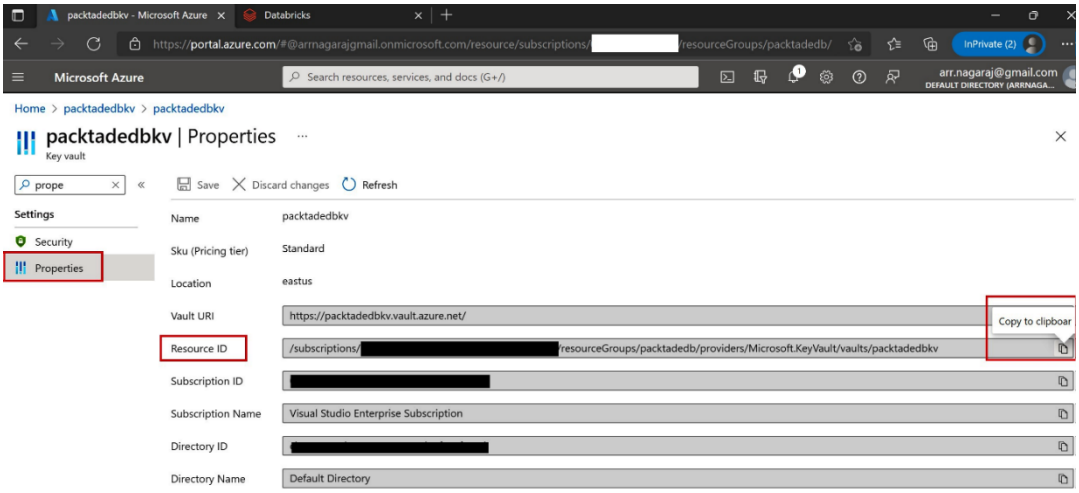

Clusters / Pools / Create Pool
Create Pool
Cancel
Create
Name
dbclusterpool
Min Idle
2
Max Capacity
4
Idle Instance Auto Termination
Terminate instances above minimum after 10 minutes of idle time.
Instance Type
Standard_DS3_v2
14 GB Memory, 4 Cores
Preloaded Databricks Runtime Version
Runtime: 9.1 LTS (Scala 2.12, Spark 3.1.2)
Instances
Tags
On-demand/Spot
All On-demand
All Spot

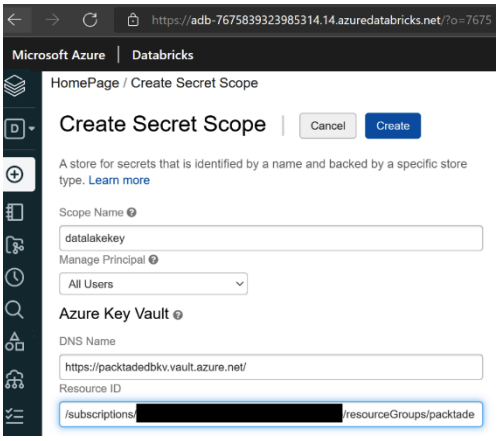

Clusters / dbcluster01
dbcluster01
Cancel
Confirm and restart
DBU /
Cluster name
dbcluster01
Cluster mode
Standard
Databricks runtime version
Learn more
Runtime: 9.1 LTS (Scala 2.12, Spark 3.1.2)
50% promotional discount applied to Photon during preview
Autopilot options
Enable autoscaling
Terminate after 10 minutes of inactivity
Worker type
dbclusterpool
Standard_DS3_v2
Min worker
1
New
Configure separate pools for workers and drivers for flexibility. Learn more
Driver type
dbclusterpool
Standard_DS3_v2
DBU / hour: 1.5 - 2.25
Standard_DS3_v2

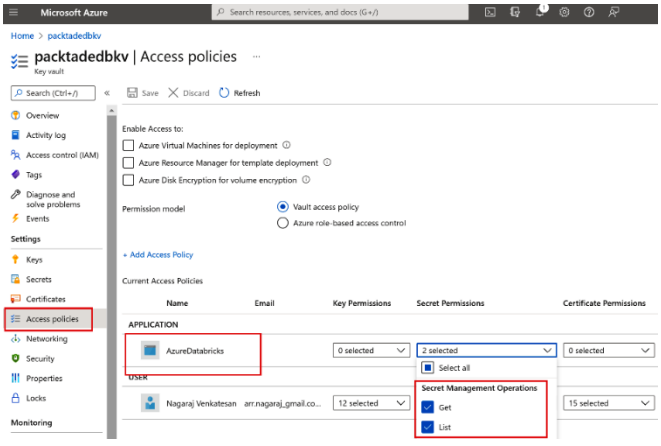

Clusters / Pools / Pool Details
dbclusterpool
Edit
Delete
Overview
Configuration
Instance Type: Standard_DS3_v2,14 GB Memory, 4 Cores
Min Idle: 2
Idle Instance Auto Termination: 10 minutes
Max Capacity: 4
Attached Clusters
Name
State
Nodes
dbcluster01
Running
2

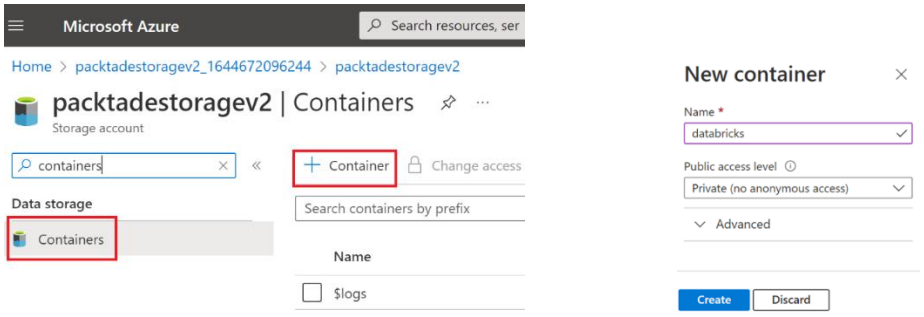

Home > packtadedb > Create a resource > Key Vault >
Create a key vault
Basics
Access policy
Networking
Tags
Review + create
Azure Key Vault is a cloud service used to manage keys, secrets, and certificates. Key Vault eliminates the need for developers to store security information in their code. It allows you to centralize the storage of your application secrets which greatly reduces the chances that secrets may be leaked. Key Vault also allows you to securely store secrets and keys backed by Hardware Security Modules or HSMs. The HSMs used are Federal Information Processing Standards (FIPS) 140-2 Level 2 validated. In addition, key vault provides logs of all access and usage attempts of your secrets so you have a complete audit trail for compliance.
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *
Visual Studio Enterprise Subscription
Resource group *
packtadedb
Create new
Instance details
Key vault name *
packtadedbkv
Region *
East US
Pricing tier *
Standard
Recovery options
Soft delete protection will automatically be enabled on this key vault. This feature allows you to recover or permanently delete a key vault and secrets for the duration of the retention period. This protection applies to the key vault and the secrets stored within the key vault.
To enforce a mandatory retention period and prevent the permanent deletion of key vaults or secrets prior to the retention period elapsing, you can turn on purge protection. When purge protection is enabled, secrets cannot be purged by users or by Microsoft.
Review + create
< Previous
Next : Access policy >

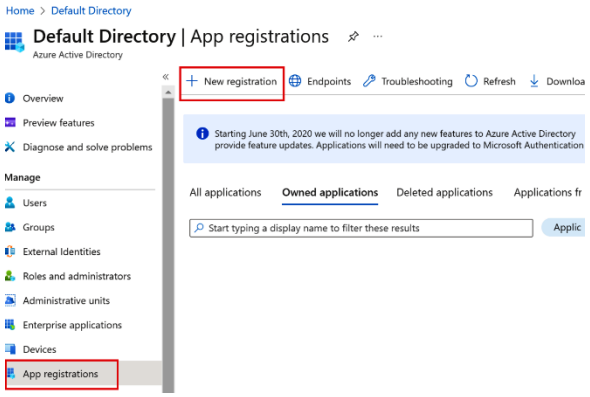

packtadedbkv - Microsoft Azure
Databricks
https://adb-7675839323985314.14.azuredatabricks.net/?o=7675839323985314#
Microsoft Azure
Databricks
Data Science & Engineering
Notebook
Create a new notebook for querying, data processing, and machine learning.
Create a notebook
Data import
Quickly impo
create a tabl
Browse files

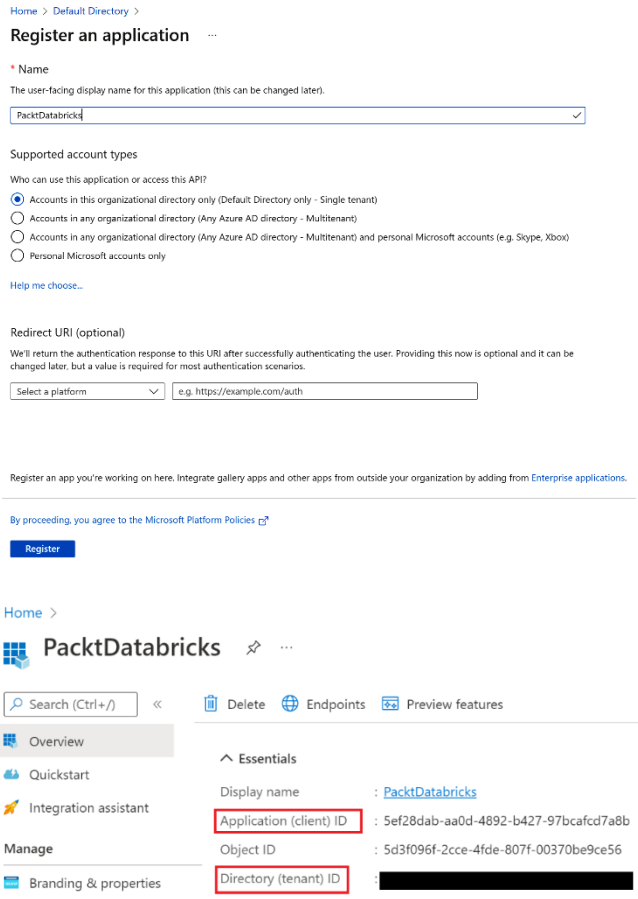

packtadedbkv - Microsoft Azure
Databricks
Microsoft Azure
Search resources, services, and docs (G+/)
Home > packtadedbkv > packtadedbkv
packtadedbkv | Properties
Key vault
Save
Discard changes
Refresh
Settings
Security
Properties
Name
packtadedbkv
Sku (Pricing tier)
Standard
Location
eastus
Vault URI
https://packtadedbkv.vault.azure.net/
Resource ID
/resourceGroups/packtadedb/providers/Microsoft.KeyVault/vaults/packtadedbkv
Subscription ID
Subscription Name
Visual Studio Enterprise Subscription
Directory ID
Directory Name
Default Directory


Microsoft Azure
Databricks
HomePage / Create Secret Scope
Create Secret Scope
Cancel
Create
A store for secrets that is identified by a name and backed by a specific store type. Learn more
Scope Name
datalakekey
Manage Principal
All Users
Azure Key Vault
DNS Name
https://packtadedbkv.vault.azure.net/
Resource ID
/resourceGroups/packtade

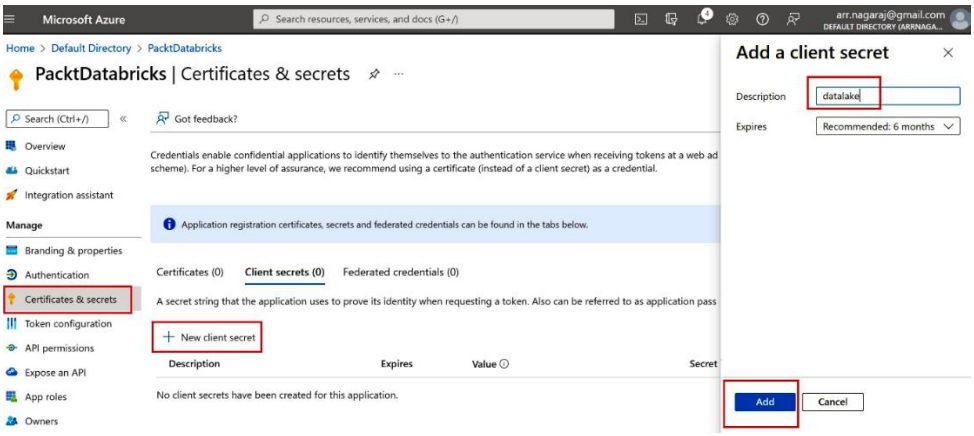

Microsoft Azure
Home > packtadedbkv
packtadedbkv | Access policies
Key vault
Save
Discard
Refresh
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Events
Settings
Keys
Secrets
Certificates
Access policies
Networking
Security
Properties
Locks
Monitoring
Enable Access to:
Azure Virtual Machines for deployment
Azure Resource Manager for template deployment
Azure Disk Encryption for volume encryption
Permission model
Vault access policy
Azure role-based access control
+ Add Access Policy
Current Access Policies
Name
Email
Key Permissions
Secret Permissions
Certificate Permissions
APPLICATION
AzureDatabricks
0 selected
2 selected
0 selected
Select all
USER
Nagaraj Venkatesan
12 selected
15 selected
Secret Management Operations
Get
List

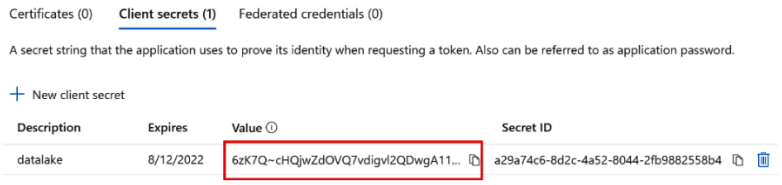

Microsoft Azure
Search resources, ser
Home > packtadestoragev2_1644672096244 > packtadestoragev2
packtadestoragev2 | Containers
Storage account
containers
Container
Change access
Data storage
Containers
Search containers by prefix
Name
$logs
New container
Name *
databricks
Public access level
Private (no anonymous access)
Advanced
Create
Discard

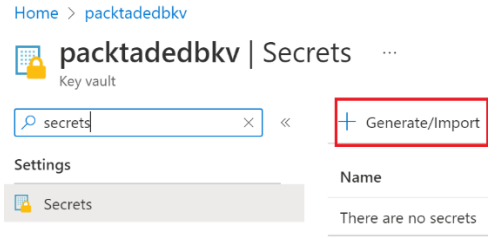

Home > Default Directory
Default Directory | App registrations
Azure Active Directory
New registration
Endpoints
Troubleshooting
Refresh
Overview
Preview features
Diagnose and solve problems
Manage
Users
Groups
External Identities
Roles and administrators
Administrative units
Enterprise applications
Devices
App registrations
Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory
All applications
Owned applications
Deleted applications
Start typing a display name to filter these results

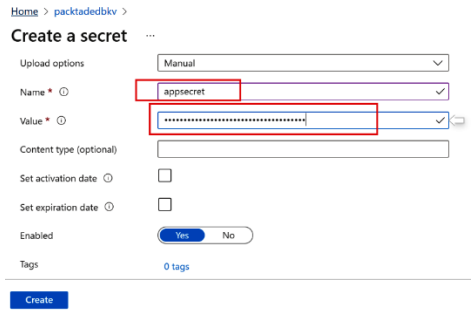

Home > Default Directory >
Register an application
* Name
The user-facing display name for this application (this can be changed later).
PacktDatabricks
Supported account types
Who can use this application or access this API?
Accounts in this organizational directory only (Default Directory only - Single tenant)
Accounts in any organizational directory (Any Azure AD directory - Multitenant)
Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)
Personal Microsoft accounts only
Help me choose...
Redirect URI (optional)
We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.
Select a platform
e.g. https://example.com/auth
Register an app you're working on here. Integrate gallery apps and other apps from outside your organization by adding from Enterprise applications.
By proceeding, you agree to the Microsoft Platform Policies
Register

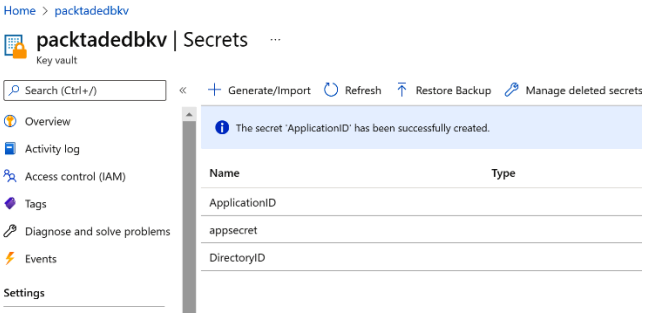
Home >
PacktDatabricks
Search (Ctrl+/)
Delete
Endpoints
Preview features
Overview
Quickstart
Integration assistant
Manage
Branding & properties
Essentials
Display name : PacktDatabricks
Application (client) ID : 5ef28dab-aa0d-4892-b427-97bcafcd7a8b
Object ID : 5d3f096f-2cce-4fde-807f-00370be9ce56
Directory (tenant) ID :

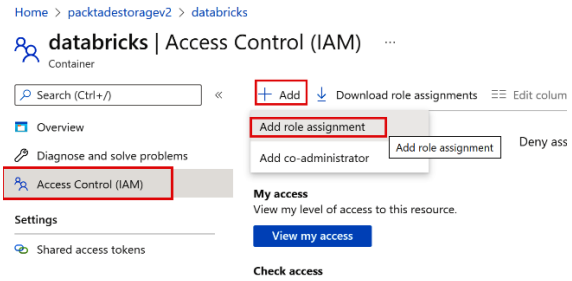

Microsoft Azure
Search resources, services, and docs (G+/)
arr.nagaraj@gmail.com
Home > Default Directory > PacktDatabricks
PacktDatabricks | Certificates & secrets
Got feedback?
Overview
Quickstart
Integration assistant
Manage
Branding & properties
Authentication
Certificates & secrets
Token configuration
API permissions
Expose an API
App roles
Owners
Credentials enable confidential applications to identify themselves to the authentication service when receiving tokens at a web ad
scheme). For a higher level of assurance, we recommend using a certificate (instead of a client secret) as a credential.
Application registration certificates, secrets and federated credentials can be found in the tabs below.
Certificates (0)
Client secrets (0)
Federated credentials (0)
A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application pass
New client secret
Description
Expires
Value
Secret
No client secrets have been created for this application.
Add a client secret
Description
datalake
Expires
Recommended: 6 months
Add
Cancel

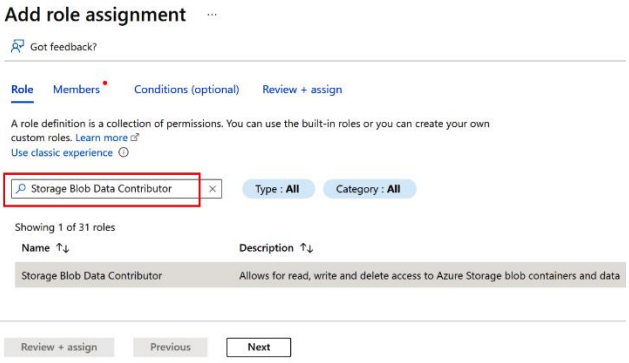

Certificates (0)
Client secrets (1)
Federated credentials (0)
A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.
New client secret
Description
Expires
Value
Secret ID
datalake
8/12/2022
6zK7Q~cHQjwZdOVQ7vdigvl2QDwgA11...
a29a74c6-8d2c-4a52-8044-2fb9882558b4

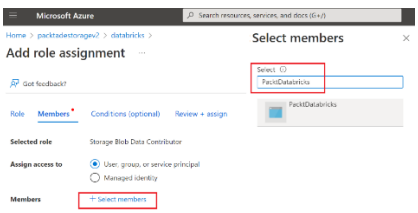

Home > packtadedbkv
packtadedbkv | Secrets
Key vault
secrets
Generate/Import
Settings
Secrets
Name
There are no secrets

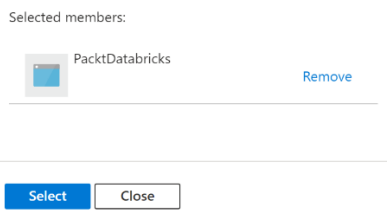

Home > packtadedbkv >
Create a secret
Upload options
Manual
Name *
appsecret
Value *
Content type (optional)
Set activation date
Set expiration date
Enabled
Yes
No
Tags
0 tags
Create

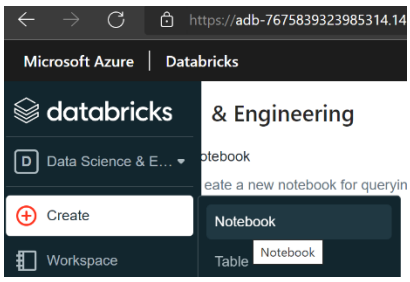

Home > packtadedbkv
packtadedbkv | Secrets
Key vault
Search (Ctrl+/)
Generate/Import
Refresh
Restore Backup
Manage deleted secrets
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Events
Settings
The secret 'ApplicationID' has been successfully created.
Name
Type
ApplicationID
appsecret
DirectoryID

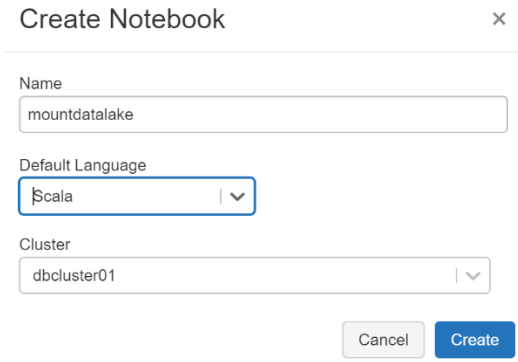

Home > packtadestoragev2 > databricks
databricks | Access Control (IAM)
Container
Search (Ctrl+/)
Add
Download role assignments
Edit colum
Overview
Diagnose and solve problems
Access Control (IAM)
Settings
Shared access tokens
Add role assignment
Add co-administrator
Add role assignment
Deny ass
My access
View my level of access to this resource.
View my access
Check access

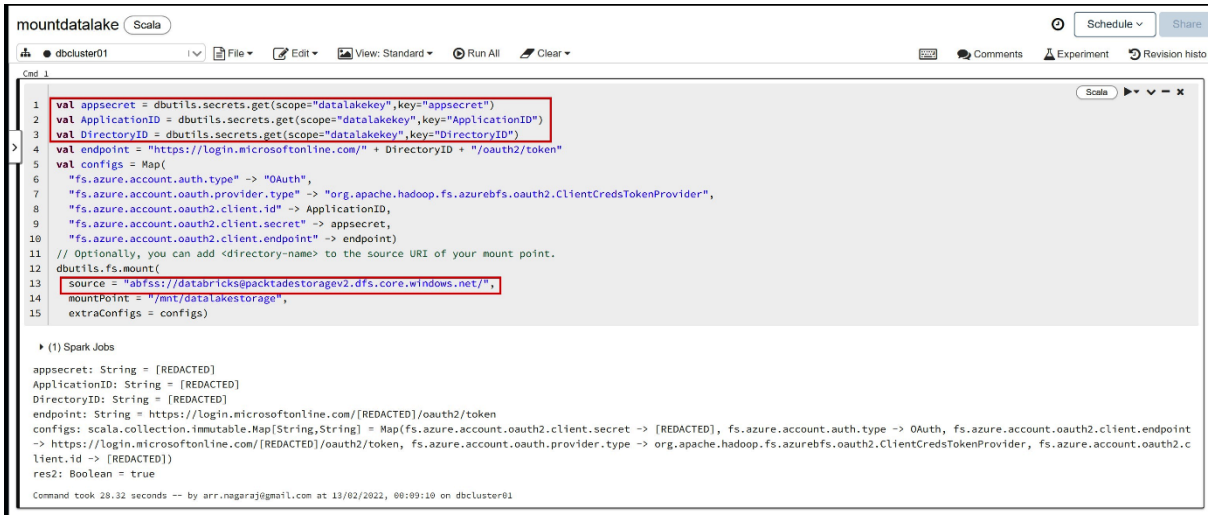

Add role assignment
Got feedback?
Role
Members
Conditions (optional)
Review + assign
A role definition is a collection of permissions. You can use the built-in roles or you can create your own custom roles. Learn more
Use classic experience
Storage Blob Data Contributor
Type : All
Category : All
Showing 1 of 31 roles
Name
Description
Storage Blob Data Contributor
Allows for read, write and delete access to Azure Storage blob containers and data
Review + assign
Previous
Next

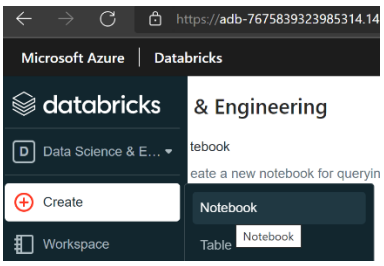

Microsoft Azure
Add role assignment
Select members
Role
Members
Conditions (optional)
Review + assign
Selected role
Storage Blob Data Contributor
Assign access to
Members
+ Select members

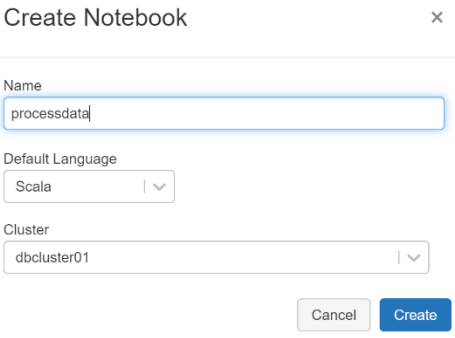

Selected members:
PacktDatabricks
Remove
Select
Close

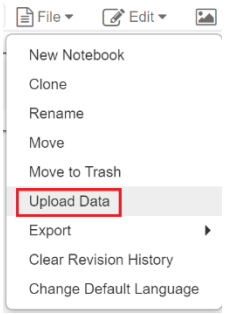

https://adb-7675839323985314.14
Microsoft Azure | Databricks
databricks
& Engineering
Data Science & E...
otebook
eate a new notebook for queryin
Create
Notebook
Workspace
Table
Notebook

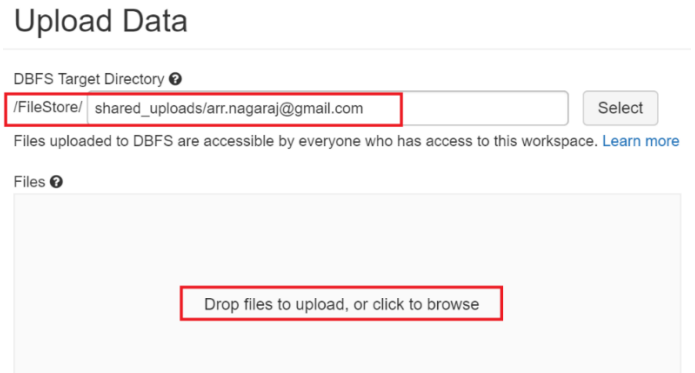

Create Notebook
Name
mountdatalake
Default Language
Scala
Cluster
dbcluster01
Cancel
Create


mountdatalake
Scala
Schedule
Share
dbcluster01
File
Edit
View: Standard
Run All
Clear
Comments
Experiment
Revision histo
Cmd 1
Scala
1 val appsecret = dbutils.secrets.get(scope="datalakekey",key="appsecret")
2 val ApplicationID = dbutils.secrets.get(scope="datalakekey",key="ApplicationID")
3 val DirectoryID = dbutils.secrets.get(scope="datalakekey",key="DirectoryID")
4 val endpoint = "https://login.microsoftonline.com/" + DirectoryID + "/oauth2/token"
5 val configs = Map(
6 "fs.azure.account.auth.type" -> "OAuth",
7 "fs.azure.account.oauth.provider.type" -> "org.apache.hadoop.fs.azurebfs.oauth2.ClientCredsTokenProvider",
8 "fs.azure.account.oauth2.client.id" -> ApplicationID,
9 "fs.azure.account.oauth2.client.secret" -> appsecret,
10 "fs.azure.account.oauth2.client.endpoint" -> endpoint)
11 // Optionally, you can add <directory-name> to the source URI of your mount point.
12 dbutils.fs.mount(
13 source = "abfss://databricks@packtadestoragev2.dfs.core.windows.net/",
14 mountPoint = "/mnt/datalakestorage",
15 extraConfigs = configs)
(1) Spark Jobs
appsecret: String = [REDACTED]
ApplicationID: String = [REDACTED]
DirectoryID: String = [REDACTED]
endpoint: String = https://login.microsoftonline.com/[REDACTED]/oauth2/token
configs: scala.collection.immutable.Map[String,String] = Map(fs.azure.account.oauth2.client.secret -> [REDACTED], fs.azure.account.auth.type -> OAuth, fs.azure.account.oauth2.client.endpoint -> https://login.microsoftonline.com/[REDACTED]/oauth2/token, fs.azure.account.oauth.provider.type -> org.apache.hadoop.fs.azurebfs.oauth2.ClientCredsTokenProvider, fs.azure.account.oauth2.client.id -> [REDACTED])
res2: Boolean = true
Command took 28.32 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 00:09:10 on dbcluster01


https://adb-7675839323985314.14
Microsoft Azure | Databricks
databricks
& Engineering
Data Science & E...
tebook
eate a new notebook for queryin
Create
Notebook
Workspace
Table
Notebook


Create Notebook
Name
processdata
Default Language
Scala
Cluster
dbcluster01
Cancel
Create


File
Edit
New Notebook
Clone
Rename
Move
Move to Trash
Upload Data
Export
Clear Revision History
Change Default Language


Upload Data
DBFS Target Directory
/FileStore/
shared_uploads/arr.nagaraj@gmail.com
Select
Files uploaded to DBFS are accessible by everyone who has access to this workspace. Learn more
Files
Drop files to upload, or click to browse

Upload Data

DBFS Target Directory

/FileStore/ shared_uploads/arr.nagaraj@gmail.com/

Files uploaded to DBFS are accessible by everyone who

Files

covid-data.csv

25.3 MB

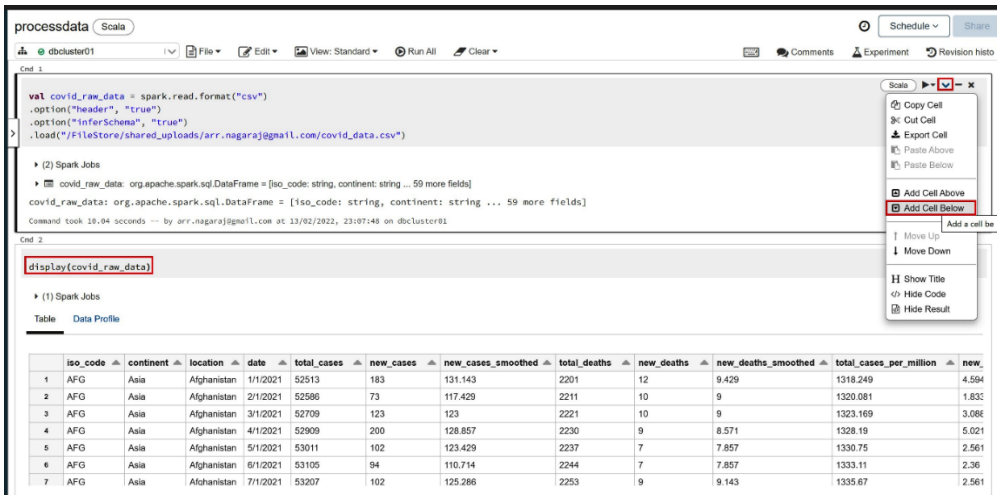
Cancel upload

```
val covid_raw_data = spark.read.format("csv")
.option("header", "true")
.option("inferSchema", "true")
.load("/FileStore/shared_uploads/arr.nagaraj@gmail.com/covid_data.csv")
```

▸ (2) Spark Jobs

▸ covid_raw_data: org.apache.spark.sql.DataFrame = [iso_code: string, continent: string ... 59 more fields]

```
covid_raw_data: org.apache.spark.sql.DataFrame = [iso_code: string, continent: string ... 59 more fields]
Command took 10.04 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 23:07:48 on dbcluster01
```



Cmd 3

```
covid_raw_data.count()
```

▸ (2) Spark Jobs

```
res6: Long = 94342
Command took 1.74 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 12:22:56 on dbcluster01
```

Cmd 4

```
val covid_remove_duplicates = covid_raw_data.dropDuplicates()
```

▸ covid_remove_duplicates: org.apache.spark.sql.Dataset[org.apache.spark.sql.Row] = [iso_code: string, continent: string ... 59 more fields]

```
covid_remove_duplicates: org.apache.spark.sql.Dataset[org.apache.spark.sql.Row] = [iso_code: string, continent
Command took 0.41 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 12:24:32 on dbcluster01
```

Cmd 5

```
covid_remove_duplicates.printSchema()
```

```
root
 |-- iso_code: string (nullable = true)
 |-- continent: string (nullable = true)
 |-- location: string (nullable = true)
 |-- date: string (nullable = true)
 |-- total_cases: integer (nullable = true)
 |-- new_cases: integer (nullable = true)
 |-- new_cases_smoothed: double (nullable = true)
 |-- total_deaths: integer (nullable = true)
 |-- new_deaths: integer (nullable = true)
 |-- new_deaths_smoothed: double (nullable = true)
 |-- total_cases_per_million: double (nullable = true)
 |-- new_cases_per_million: double (nullable = true)
 |-- new_cases_smoothed_per_million: double (nullable = true)
 |-- total_deaths_per_million: double (nullable = true)
 |-- new_deaths_per_million: double (nullable = true)
 |-- new_deaths_smoothed_per_million: double (nullable = true)
 |-- reproduction_rate: double (nullable = true)
 |-- icu_patients: integer (nullable = true)
 |-- icu_patients_per_million: double (nullable = true)
 |-- hosp_patients: integer (nullable = true)
```

Command took 0.21 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 12:24:45 on dbcluster01

Cmd 6

```
val covid_selected_columns = covid_remove_duplicates.select("iso_code","location","continent","date","new_deaths_per_million",
                                                            "people_fully_vaccinated","population")
```

▸ covid_selected_columns: org.apache.spark.sql.DataFrame = [iso_code: string, location: string ... 5 more fields]

```
covid_selected_columns: org.apache.spark.sql.DataFrame = [iso_code: string, location: string ... 5 more fields]
```

Command took 0.32 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 23:47:57 on dbcluster01

Cmd 7

```
val covid_clean_data = covid_selected_columns.na.drop()
covid_clean_data.count()
```

▸ (3) Spark Jobs

▸ covid_clean_data: org.apache.spark.sql.DataFrame = [iso_code: string, location: string ... 5 more fields]

```
covid_clean_data: org.apache.spark.sql.DataFrame = [iso_code: string, location: string ... 5 more fields]
res7: Long = 32607
```

Command took 3.45 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 23:49:28 on dbcluster01

Cmd 8

```
covid_clean_data.createOrReplaceTempView("covid_view")
```

Command took 0.17 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 23:55:46 on dbcluster01

Cmd 9

```
%sql
Select iso_code,location , continent,
sum(new_deaths_per_million) as death_sum,
max(people_fully_vaccinated * 100 / population) as percentage_vaccinated From covid_view
where population > 1000000
group by iso_code,location,continent
order by death_sum desc
```

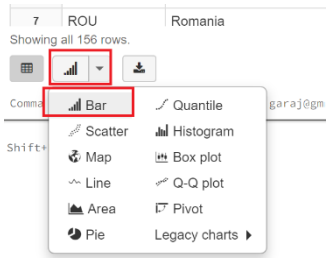
▸ (3) Spark Jobs

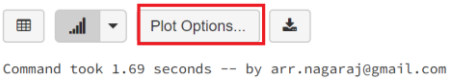
Table | Data Profile

	iso_code	location	continent	death_sum	percentage_vaccinated
1	BGR	Bulgaria	Europe	3705.9039999999986	29.377473572333255
2	PER	Peru	South America	2981.157	69.02865952535439
3	HUN	Hungary	Europe	2917.0209999999997	63.64187149852784
4	CZE	Czechia	Europe	2436.6340000000005	63.59827770910358 4
5	TTO	Trinidad and Tobago	North America	2348.6360000000004	49.6739999458448
6	LVA	Latvia	Europe	2331.103000000001	69.26527665145099
7	ROU	Romania	Europe	2301.099	41.90735857788351

Showing all 156 rows.

Command took 2.63 seconds -- by arr.nagaraj@gmail.com at 13/02/2022, 23:58:24 on dbcluster01


7 ROU Romania
Showing all 156 rows.
Bar
Scatter
Map
Line
Area
Pie
Quantile
Histogram
Box plot
Q-Q plot
Pivot
Legacy charts


Plot Options...
Command took 1.69 seconds -- by arr.nagaraj@gmail.com


Customize Plot
All fields:
iso_code
location
continent
death_sum
percentage_va...
Keys:
location
Series groupings:
continent
Values:
death_sum
continent
Europe
South America
North America
Asia
Africa
Oceania
death_sum
location
Grouped
Stacked
100% Stacked
Aggregation: SUM
Display type: Bar chart
Global color consistency
Cancel
Apply

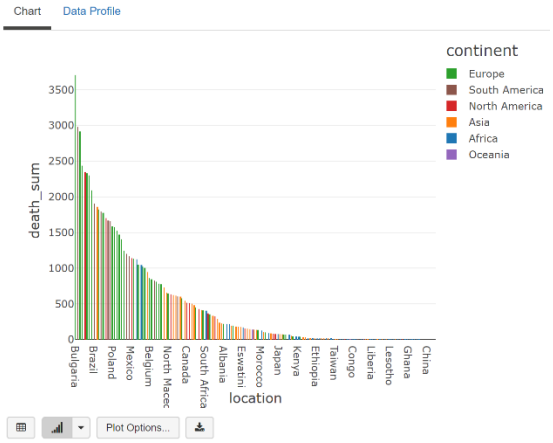
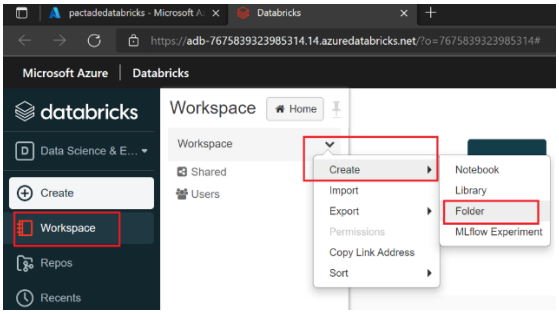
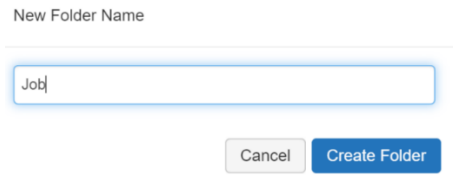
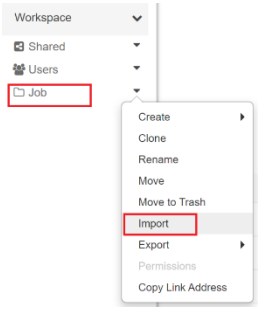
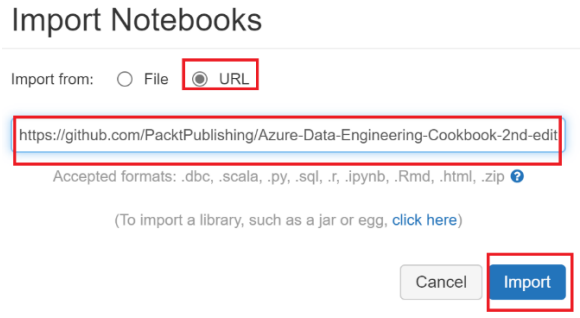


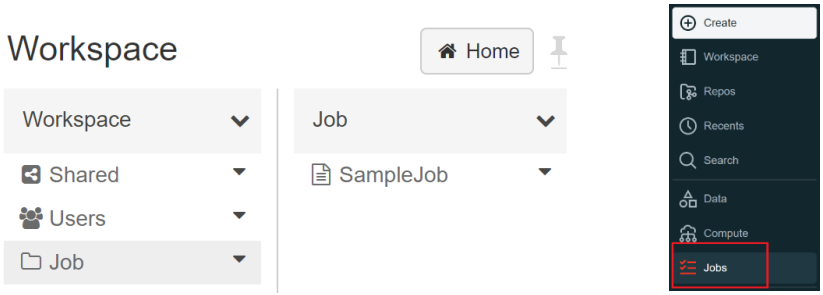
Chart
Data Profile
continent
Europe
South America
North America
Asia
Africa
Oceania
death_sum
location
Plot Options...

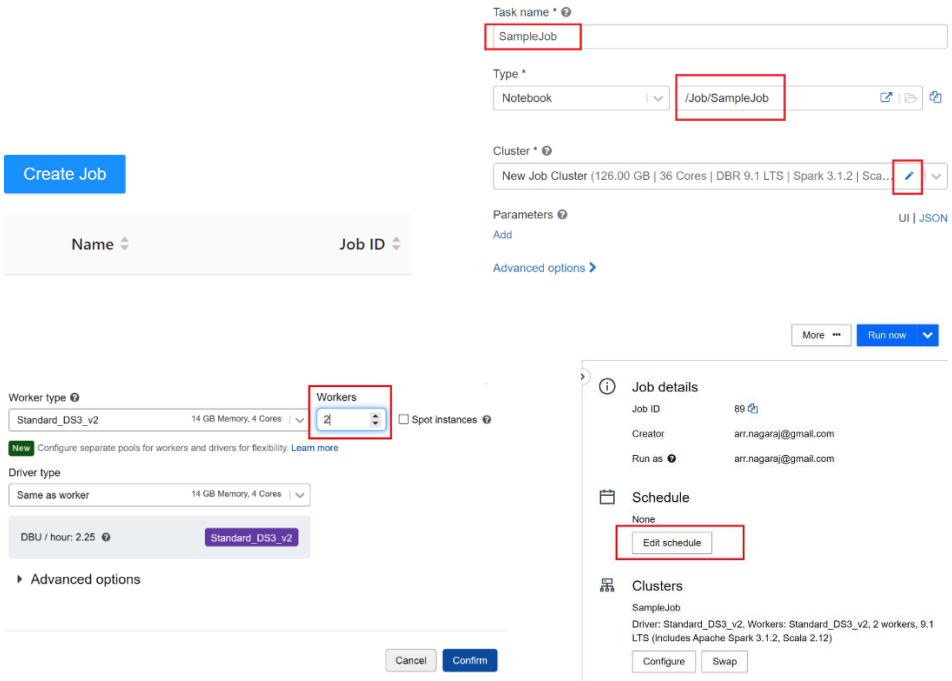

Microsoft Azure | Databricks
databricks
Workspace
Home
Data Science & E...
Create
Workspace
Repos
Recents
Shared
Users
Create
Import
Export
Permissions
Copy Link Address
Sort
Notebook
Library
Folder
MLflow Experiment

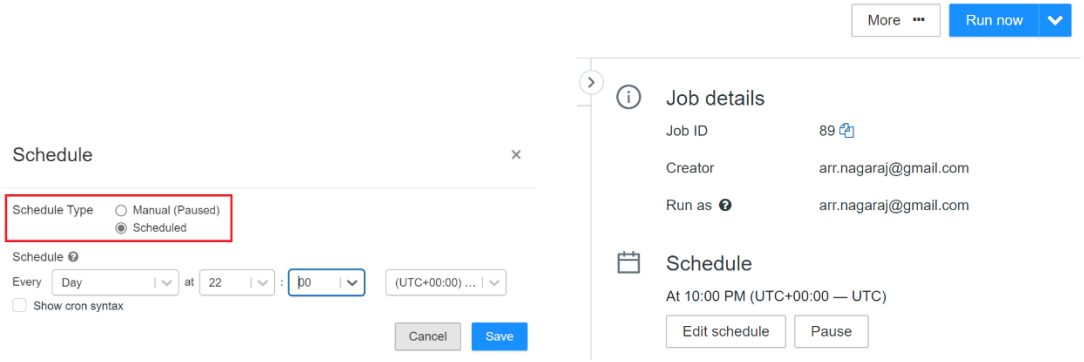

New Folder Name
Job
Cancel
Create Folder

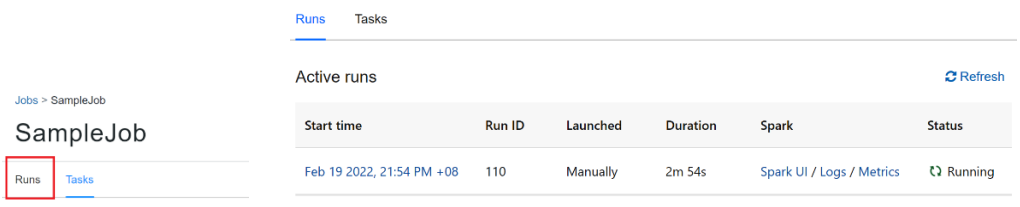

Workspace
Shared
Users
Job
Create
Clone
Rename
Move
Move to Trash
Import
Export
Permissions
Copy Link Address

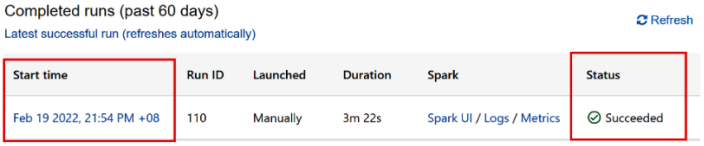

Import Notebooks
Import from: File URL
https://github.com/PacktPublishing/Azure-Data-Engineering-Cookbook-2nd-edit
Accepted formats: .dbc, .scala, .py, .sql, .r, .ipynb, .Rmd, .html, .zip
(To import a library, such as a jar or egg, click here)
Cancel
Import


Workspace
Home
Workspace
Shared
Users
Job
Job
SampleJob
Create
Workspace
Repos
Recents
Search
Data
Compute
Jobs


Create Job
Name
Job ID
Task name *
SampleJob
Type *
Notebook
/Job/SampleJob
Cluster *
New Job Cluster (126.00 GB | 36 Cores | DBR 9.1 LTS | Spark 3.1.2 | Sca...
Parameters
Add
UI | JSON
Advanced options
Worker type
Standard_DS3_v2
14 GB Memory, 4 Cores
Workers
2
Spot instances
New
Configure separate pools for workers and drivers for flexibility. Learn more
Driver type
Same as worker
14 GB Memory, 4 Cores
DBU / hour: 2.25
Standard_DS3_v2
Advanced options
Cancel
Confirm
More
Run now
Job details
Job ID
89
Creator
arr.nagaraj@gmail.com
Run as
arr.nagaraj@gmail.com
Schedule
None
Edit schedule
Clusters
SampleJob
Driver: Standard_DS3_v2, Workers: Standard_DS3_v2, 2 workers, 9.1 LTS (includes Apache Spark 3.1.2, Scala 2.12)
Configure
Swap


More
Run now
Schedule
Schedule Type
Manual (Paused)
Scheduled
Schedule
Every
Day
at
22
00
(UTC+00:00) ...
Show cron syntax
Cancel
Save
Job details
Job ID
89
Creator
arr.nagaraj@gmail.com
Run as
arr.nagaraj@gmail.com
Schedule
At 10:00 PM (UTC+00:00 — UTC)
Edit schedule
Pause


Jobs > SampleJob
SampleJob
Runs
Tasks
Runs
Tasks
Active runs
Refresh
Start time
Run ID
Launched
Duration
Spark
Status
Feb 19 2022, 21:54 PM +08
110
Manually
2m 54s
Spark UI / Logs / Metrics
Running


Completed runs (past 60 days)
Latest successful run (refreshes automatically)
Refresh
Start time
Run ID
Launched
Duration
Spark
Status
Feb 19 2022, 21:54 PM +08
110
Manually
3m 22s
Spark UI / Logs / Metrics
Succeeded

Jobs > SampleJob > Run 110

SampleJob run

Output

```
val diamonds = spark.read.format("csv")
  .option("header", "true")
  .option("inferSchema", "true")
  .load("/databricks-datasets/Rdatasets/data-001/csv/ggplot2/diamonds.csv")
```

▸ diamonds: org.apache.spark.sql.DataFrame = [_c0: integer, carat: double ... 9 more fields]

```
diamonds: org.apache.spark.sql.DataFrame = [_c0: int, carat: double ... 9 more fields]
```

Command took 21.47 seconds

```
diamonds.createOrReplaceTempView("diamonds_view")
```

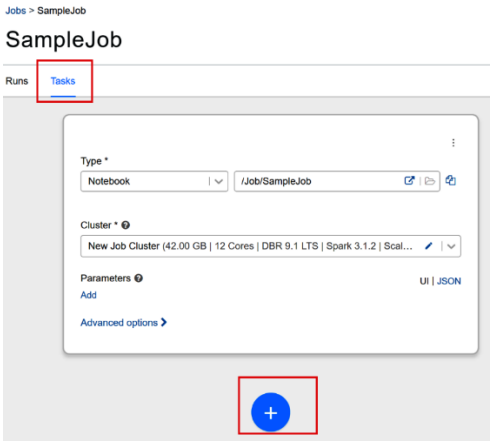
Command took 0.30 seconds

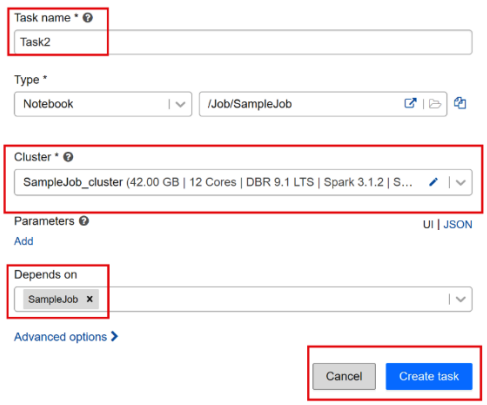
```
%sql
Select cut, color, avg(price) as avg_price, max(price) as max_price
From diamonds_view
Group by cut,color
order by avg_price desc, cut, color
```

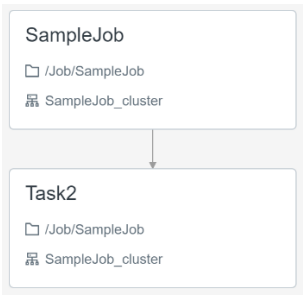
	cut	color	avg_price	max_price
1	Premium	J	6294.591584158416	18710
2	Premium	I	5946.180672268908	18823
3	Very Good	I	5255.879568106312	18500
4	Premium	H	5216.706779661017	18795
5	Fair	H	5135.683168316832	18565
6	Very Good	J	5103.513274336283	18430
7	Good	I	5078.532567049809	18707

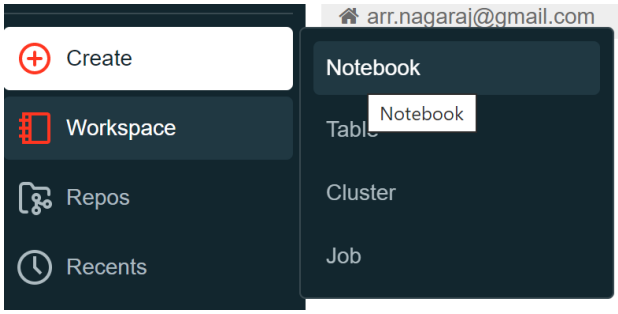
Showing all 35 rows.

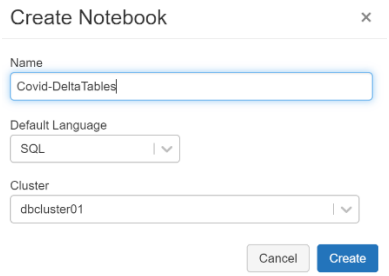
Command took 2.88 seconds

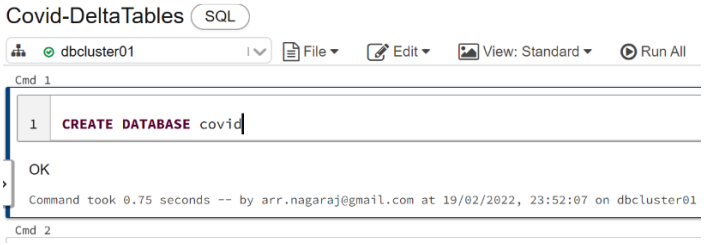




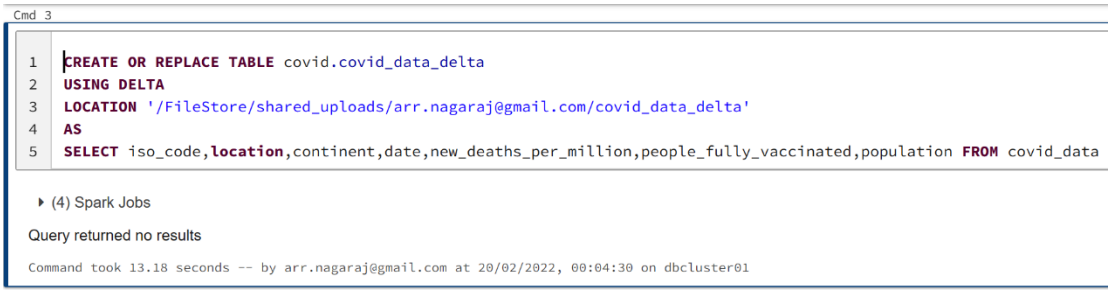


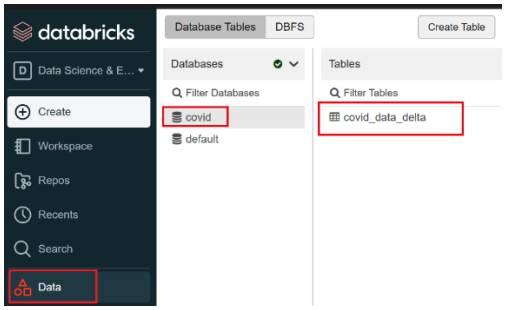


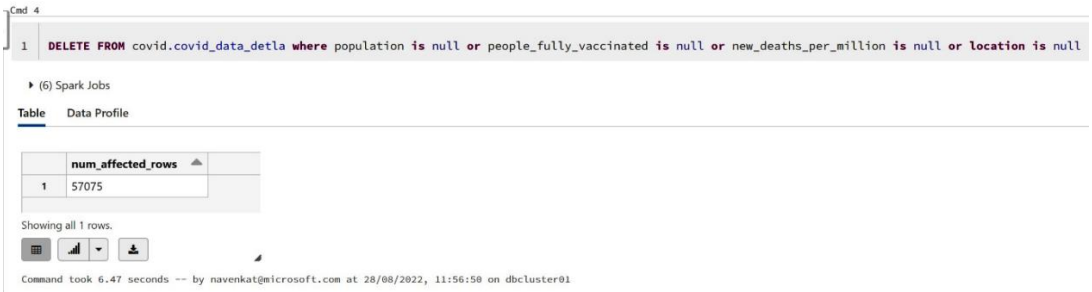

Create Notebook
Name
Covid-DeltaTables
Default Language
SQL
Cluster
dbcluster01
Cancel
Create


Covid-DeltaTables
SQL
dbcluster01
File
Edit
View: Standard
Run All
Cmd 1
CREATE DATABASE covid
OK
Command took 0.75 seconds -- by arr.nagaraj@gmail.com at 19/02/2022, 23:52:07 on dbcluster01
Cmd 2

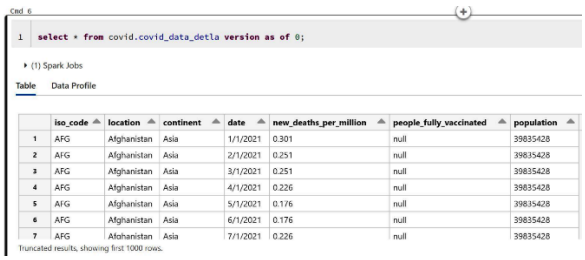

Cmd 2
CREATE TEMPORARY VIEW covid_data
USING CSV
OPTIONS (path "/FileStore/shared_uploads/arr.nagaraj@gmail.com/covid_data.csv", header "true", mode "FAILFAST")
(1) Spark Jobs
OK
Command took 5.97 seconds -- by arr.nagaraj@gmail.com at 19/02/2022, 23:56:32 on dbcluster01


Cmd 3
CREATE OR REPLACE TABLE covid.covid_data_delta
USING DELTA
LOCATION '/FileStore/shared_uploads/arr.nagaraj@gmail.com/covid_data_delta'
AS
SELECT iso_code,location,continent,date,new_deaths_per_million,people_fully_vaccinated,population FROM covid_data
(4) Spark Jobs
Query returned no results
Command took 13.18 seconds -- by arr.nagaraj@gmail.com at 20/02/2022, 00:04:30 on dbcluster01


databricks
Database Tables
DBFS
Create Table
Data Science & E...
Databases
Tables
Filter Databases
Filter Tables
Create
covid
covid_data_delta
Workspace
default
Repos
Recents
Search
Data

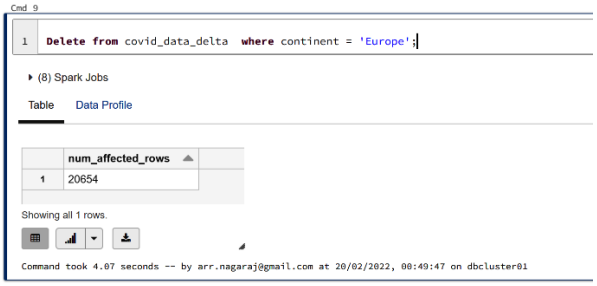

Cmd 4
DELETE FROM covid.covid_data_detla where population is null or people_fully_vaccinated is null or new_deaths_per_million is null or location is null
(6) Spark Jobs
Table
Data Profile
num_affected_rows
57075
Showing all 1 rows.
Command took 6.47 seconds -- by navenkat@microsoft.com at 28/08/2022, 11:56:50 on dbcluster01


Cmd 5
delete from covid.covid_data_delta;
Select count(*) from covid.covid_data_delta;
(3) Spark Jobs
Table
Data Profile
count(1)
0
Showing all 1 rows.
Command took 0.43 seconds -- by arr.nagaraj@gmail.com at 20/02/2022, 00:33:05 on dbcluster01

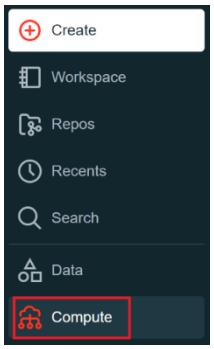

Cmd 6
select * from covid.covid_data_detla version as of 0;
(1) Spark Jobs
Table
Data Profile
iso_code
location
continent
date
new_deaths_per_million
people_fully_vaccinated
population
AFG
Afghanistan
Asia
1/1/2021
0.301
null
39835428
2/1/2021
0.251
3/1/2021
0.251
4/1/2021
0.226
5/1/2021
0.176
6/1/2021
0.176
7/1/2021
0.226
Truncated results, showing first 1000 rows.

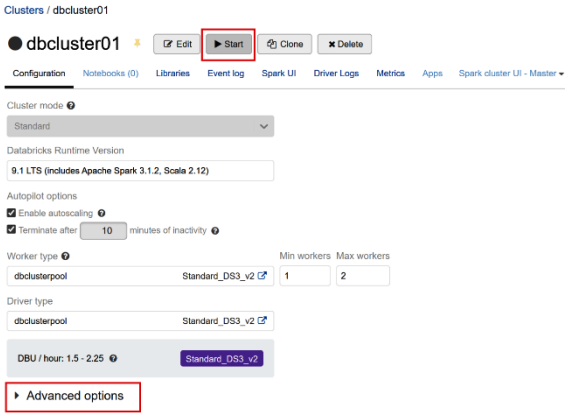

Cmd 7
RESTORE TABLE covid_data_delta TO VERSION AS OF 0;
(19) Spark Jobs
Table
Data Profile
table_size_after_restore
num_of_files_after_restore
num_removed_files
num_restored_files
removed_files_size
restored_files_size
1
8962891
4
0
0
0
0
Showing all 1 rows.
Command took 5.67 seconds -- by arr.nagaraj@gmail.com at 20/02/2022, 00:43:17 on dbcluster01

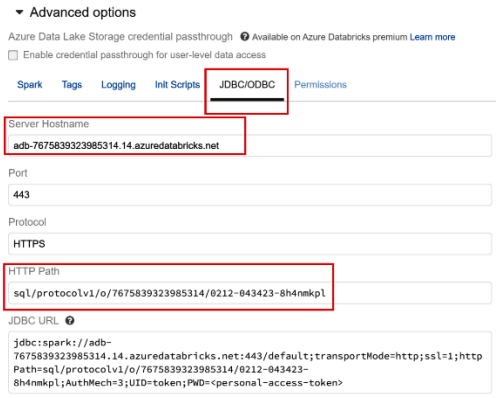

Cmd 8
update covid_data_delta set population = population * 1.2 where continent = 'Asia';
(12) Spark Jobs
Table
Data Profile
num_affected_rows
1
20036
Showing all 1 rows.
Command took 6.25 seconds -- by arr.nagaraj@gmail.com at 20/02/2022, 00:49:30 on dbcluster01

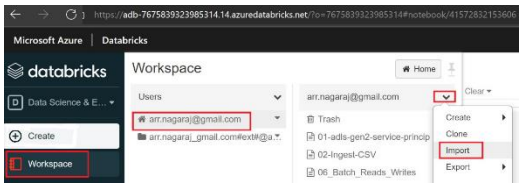

Cmd 9
Delete from covid_data_delta where continent = 'Europe';
(8) Spark Jobs
Table
Data Profile
num_affected_rows
1
20654
Showing all 1 rows.
Command took 4.07 seconds -- by arr.nagaraj@gmail.com at 20/02/2022, 00:49:47 on dbcluster01

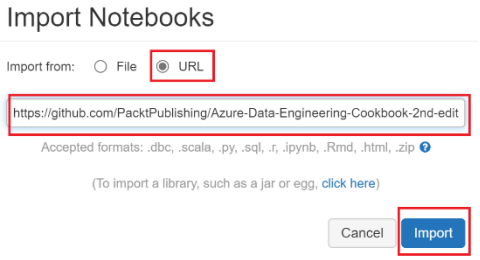

Cmd 10
MERGE INTO covid_data_delta source
USING covid_data_delta TIMESTAMP AS OF "2022-02-19 16:45:00" target
ON source.location = target.location and source.date = target.date
WHEN MATCHED THEN UPDATE SET *
WHEN NOT MATCHED
THEN INSERT *
(13) Spark Jobs
Table
Data Profile
num_affected_rows
num_updated_rows
num_deleted_rows
num_inserted_rows
1
94342
73688
0
20654
Showing all 1 rows.
Command took 12.56 seconds -- by arr.nagaraj@gmail.com at 20/02/2022, 00:56:26 on dbcluster01

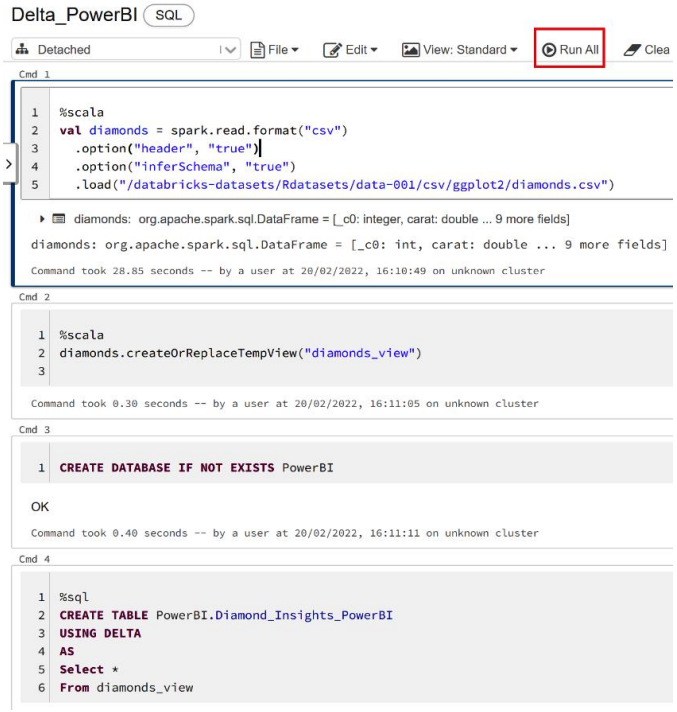

Create
Workspace
Repos
Recents
Search
Data
Compute

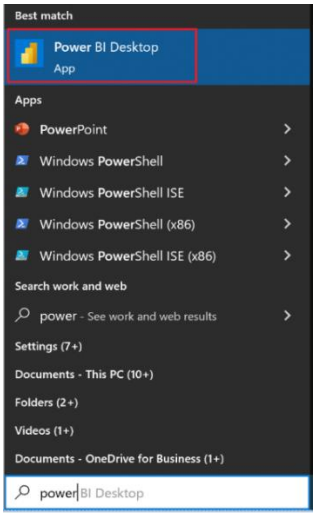

Clusters / dbcluster01
dbcluster01
Edit
Start
Clone
Delete
Configuration
Notebooks (0)
Libraries
Event log
Spark UI
Driver Logs
Metrics
Apps
Spark cluster UI - Master
Cluster mode
Standard
Databricks Runtime Version
9.1 LTS (includes Apache Spark 3.1.2, Scala 2.12)
Autopilot options
Enable autoscaling
Terminate after
10
minutes of inactivity
Worker type
dbclusterpool
Standard_DS3_v2
Min workers
Max workers
1
2
Driver type
dbclusterpool
Standard_DS3_v2
DBU / hour: 1.5 - 2.25
Standard_DS3_v2
Advanced options

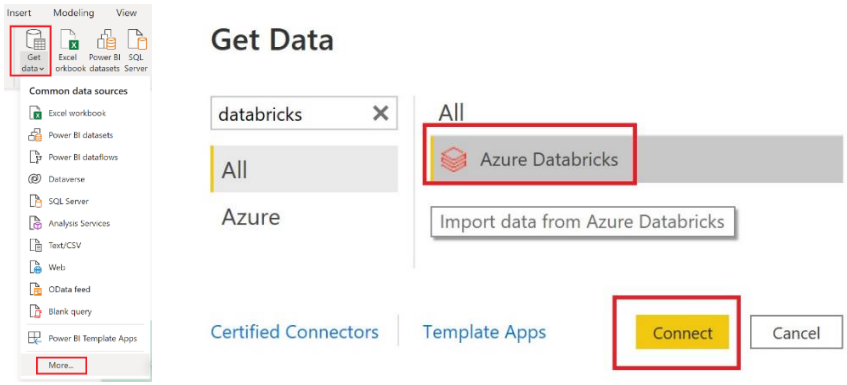

Advanced options
Azure Data Lake Storage credential passthrough
Available on Azure Databricks premium
Learn more
Enable credential passthrough for user-level data access
Spark
Tags
Logging
Init Scripts
JDBC/ODBC
Permissions
Server Hostname
adb-7675839323985314.14.azuredatabricks.net
Port
443
Protocol
HTTPS
HTTP Path
sql/protocolv1/o/7675839323985314/0212-043423-8h4nmkpl
JDBC URL
jdbc:spark://adb-7675839323985314.14.azuredatabricks.net:443/default;transportMode=http;ssl=1;httpPath=sql/protocolv1/o/7675839323985314/0212-043423-8h4nmkpl;AuthMech=3;UID=token;PWD=<personal-access-token>

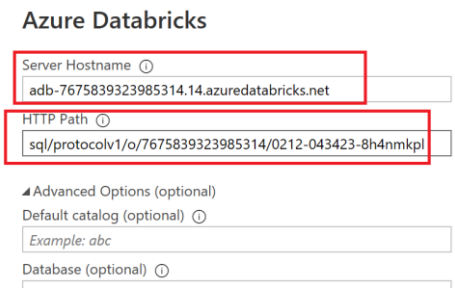

Microsoft Azure | Databricks
databricks
Workspace
Home
Users
arr.nagaraj@gmail.com
Create
Workspace
Trash
01-adls-gen2-service-princip
02-Ingest-CSV
06_Batch_Reads_Writes
Clone
Import
Export

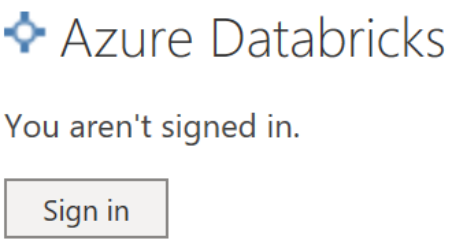

Import Notebooks
Import from:
File
URL
https://github.com/PacktPublishing/Azure-Data-Engineering-Cookbook-2nd-edit
Accepted formats: .dbc, .scala, .py, .sql, .r, .ipynb, .Rmd, .html, .zip
(To import a library, such as a jar or egg, click here)
Cancel
Import

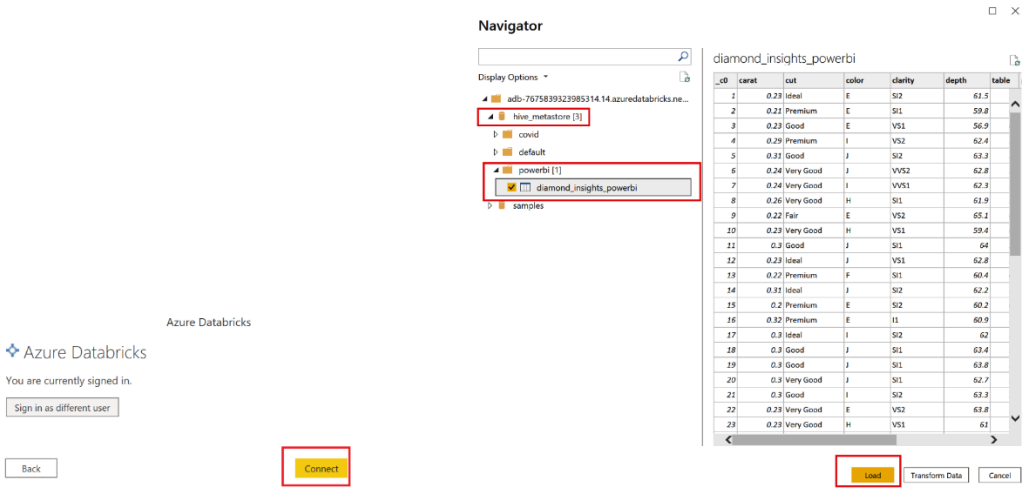

Delta_PowerBI
SQL
Detached
File
Edit
View: Standard
Run All
Clea
Cmd 1
%scala
val diamonds = spark.read.format("csv")
.option("header", "true")
.option("inferSchema", "true")
.load("/databricks-datasets/Rdatasets/data-001/csv/ggplot2/diamonds.csv")
diamonds: org.apache.spark.sql.DataFrame = [_c0: integer, carat: double ... 9 more fields]
diamonds: org.apache.spark.sql.DataFrame = [_c0: int, carat: double ... 9 more fields]
Command took 28.85 seconds -- by a user at 20/02/2022, 16:10:49 on unknown cluster
Cmd 2
%scala
diamonds.createOrReplaceTempView("diamonds_view")
Command took 0.30 seconds -- by a user at 20/02/2022, 16:11:05 on unknown cluster
Cmd 3
CREATE DATABASE IF NOT EXISTS PowerBI
OK
Command took 0.40 seconds -- by a user at 20/02/2022, 16:11:11 on unknown cluster
Cmd 4
%sql
CREATE TABLE PowerBI.Diamond_Insights_PowerBI
USING DELTA
AS
Select *
From diamonds_view

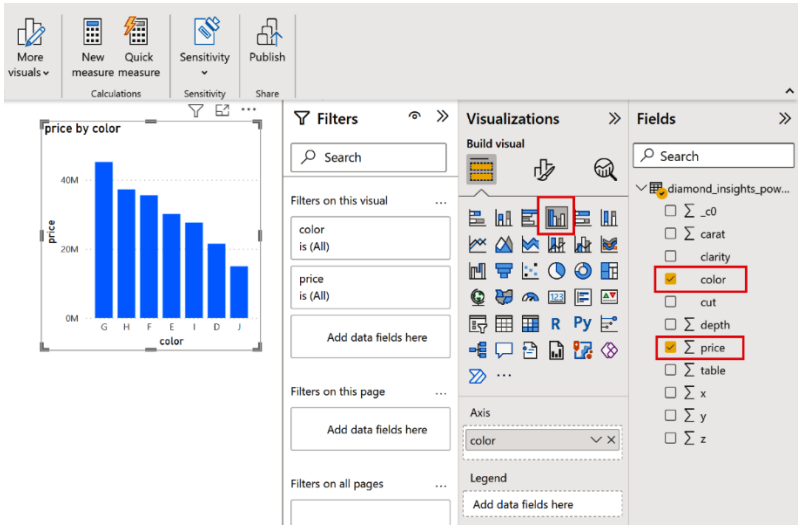

Best match
Power BI Desktop
App
Apps
PowerPoint
Windows PowerShell
Windows PowerShell ISE
Windows PowerShell (x86)
Windows PowerShell ISE (x86)
Search work and web
power - See work and web results
Settings (7+)
Documents - This PC (10+)
Folders (2+)
Videos (1+)
Documents - OneDrive for Business (1+)
power BI Desktop

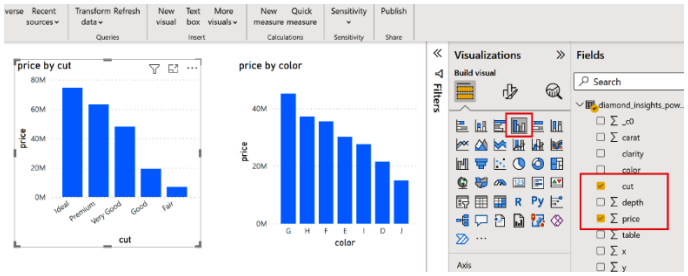

Insert
Modeling
View
Get data
Excel workbook
Power BI datasets
SQL Server
Common data sources
Excel workbook
Power BI datasets
Power BI dataflows
Dataverse
SQL Server
Analysis Services
Text/CSV
Web
OData feed
Blank query
Power BI Template Apps
More...
Get Data
databricks
All
Azure
All
Azure Databricks
Import data from Azure Databricks
Certified Connectors
Template Apps
Connect
Cancel

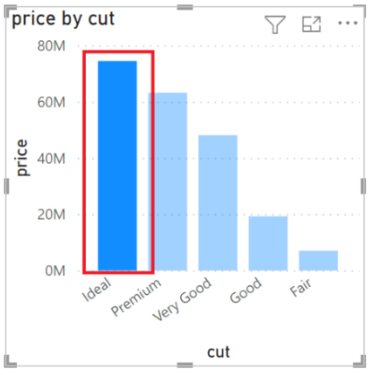

Azure Databricks
Server Hostname
adb-7675839323985314.14.azuredatabricks.net
HTTP Path
sql/protocolv1/o/7675839323985314/0212-043423-8h4nmkpl
Advanced Options (optional)
Default catalog (optional)
Example: abc
Database (optional)

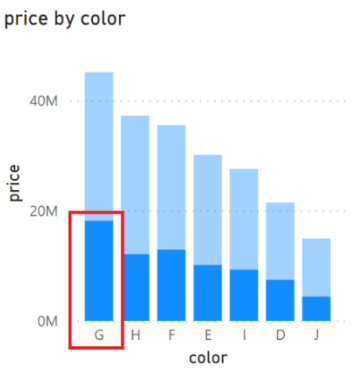

Azure Databricks
You aren't signed in.
Sign in


Navigator
Display Options
adb-7675839323985314.14.azuredatabricks.ne...
hive_metastore [3]
covid
default
powerbi [1]
diamond_insights_powerbi
samples
diamond_insights_powerbi
Azure Databricks
Azure Databricks
You are currently signed in.
Sign in as different user
Back
Connect
Load
Transform Data
Cancel

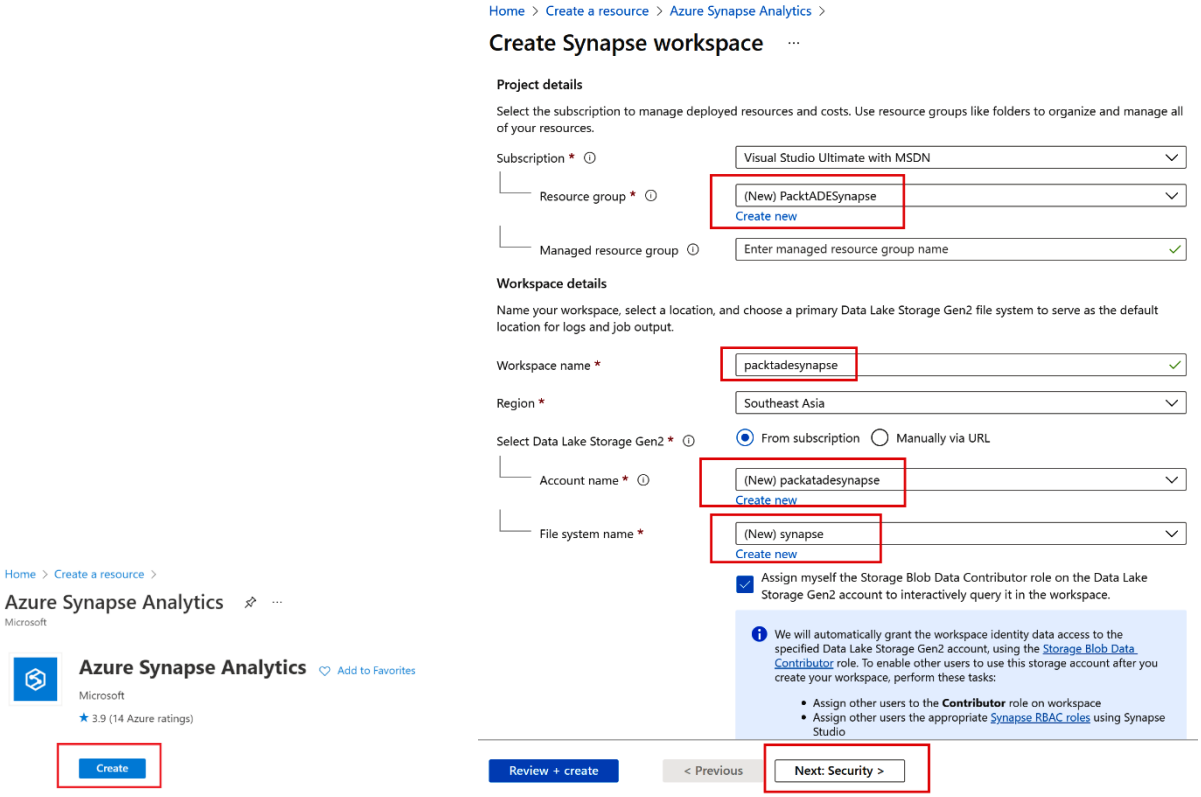

More visuals
New measure
Quick measure
Calculations
Sensitivity
Publish
Share
price by color
Filters
Search
Filters on this visual
color is (All)
price is (All)
Add data fields here
Filters on this page
Add data fields here
Filters on all pages
Visualizations
Build visual
Axis
color
Legend
Add data fields here
Fields
Search
diamond_insights_pow...
_c0
carat
clarity
color
cut
depth
price
table
x
y
z

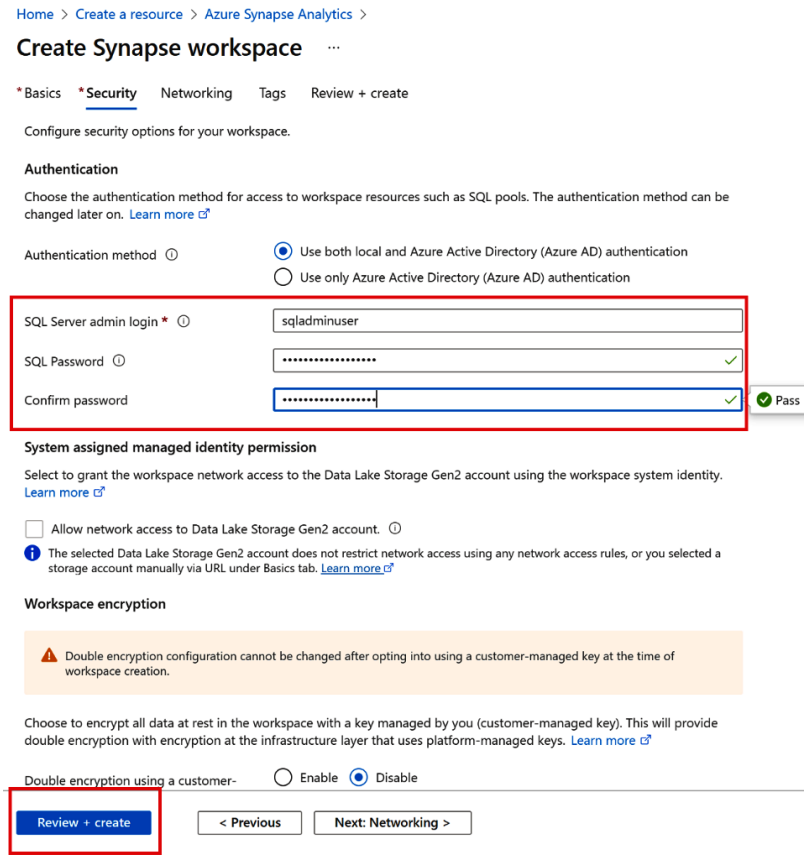

price by cut
price by color
Visualizations
Fields
cut
depth
price

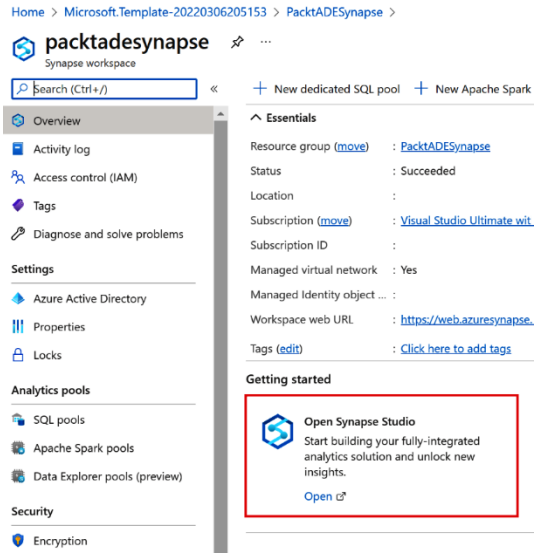

price by cut
80M
60M
40M
20M
0M
price
Ideal
Premium
Very Good
Good
Fair
cut

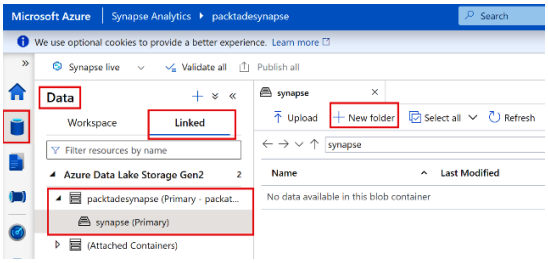

price by color
40M
20M
0M
price
G
H
F
E
I
D
J
color

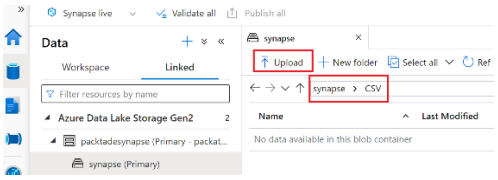
Chapter 8: Processing Data Using Azure Synapse Analytics

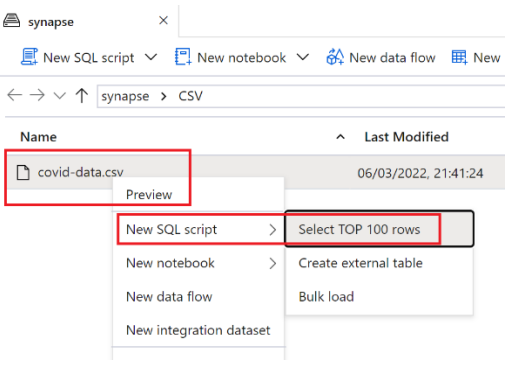


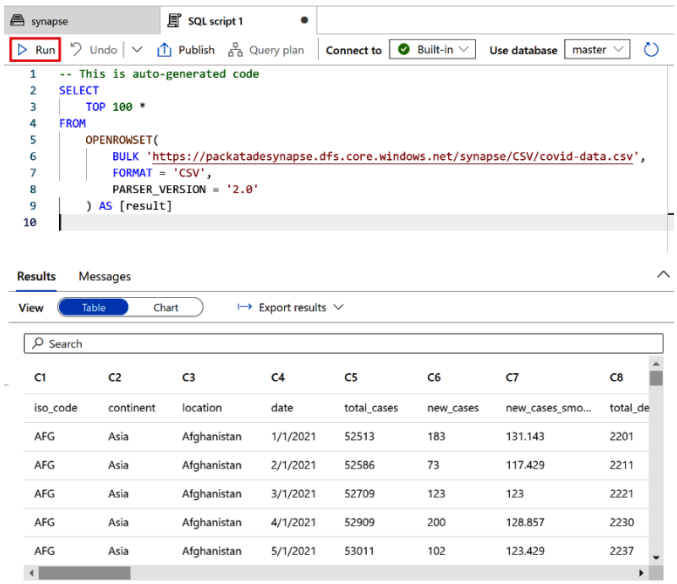


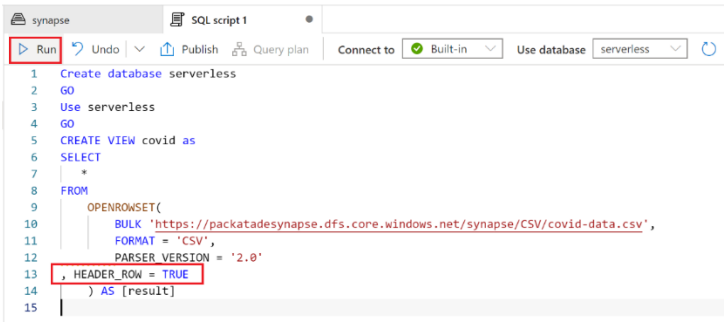

Home > Microsoft.Template-20220306205153 > PacktADESynapse >
packtadesynapse
Synapse workspace
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Azure Active Directory
Properties
Locks
Analytics pools
SQL pools
Apache Spark pools
Data Explorer pools (preview)
Security
Encryption
New dedicated SQL pool
New Apache Spark
Essentials
Resource group (move) : PacktADESynapse
Status : Succeeded
Location :
Subscription (move) : Visual Studio Ultimate wit
Subscription ID :
Managed virtual network : Yes
Managed Identity object ... :
Workspace web URL : https://web.azuresynapse.
Tags (edit) : Click here to add tags
Getting started
Open Synapse Studio
Start building your fully-integrated analytics solution and unlock new insights.
Open

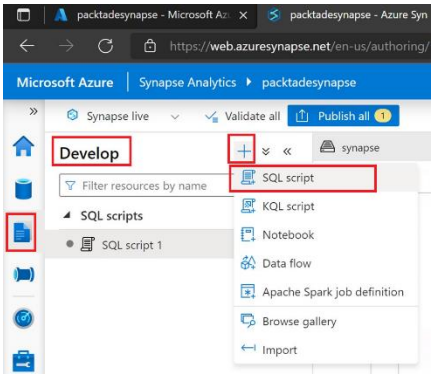

Microsoft Azure
Synapse Analytics
packtadesynapse
Search
We use optional cookies to provide a better experience. Learn more
Synapse live
Validate all
Publish all
Data
Workspace
Linked
Filter resources by name
Azure Data Lake Storage Gen2
packtadesynapse (Primary - packat...
synapse (Primary)
(Attached Containers)
synapse
Upload
New folder
Select all
Refresh
Name
Last Modified
No data available in this blob container

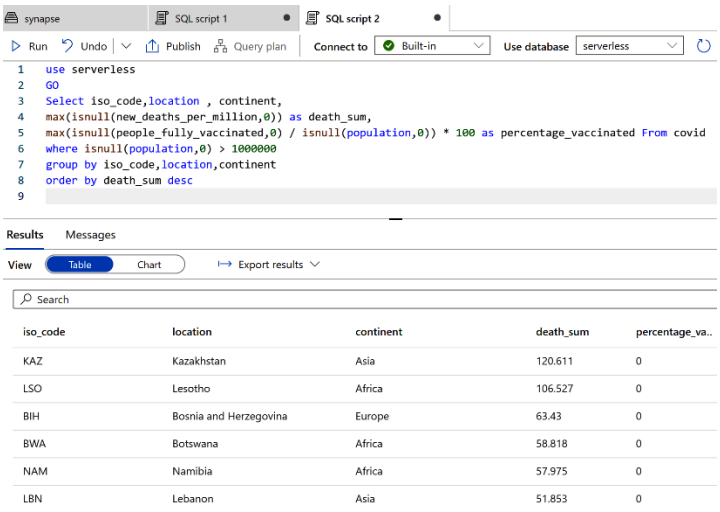

Synapse live
Validate all
Publish all
Data
Workspace
Linked
Filter resources by name
Azure Data Lake Storage Gen2
packtadesynapse (Primary - packat...
synapse (Primary)
synapse
Upload
New folder
Select all
synapse > CSV
Name
Last Modified
No data available in this blob container

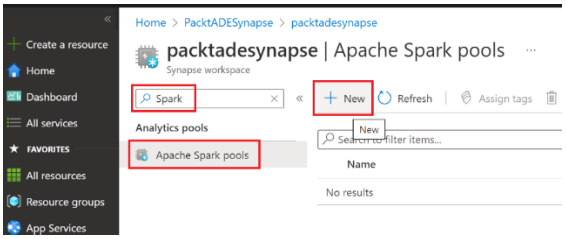

synapse
New SQL script
New notebook
New data flow
New
synapse > CSV
Name
Last Modified
covid-data.csv
06/03/2022, 21:41:24
Preview
New SQL script
New notebook
New data flow
New integration dataset
Select TOP 100 rows
Create external table
Bulk load

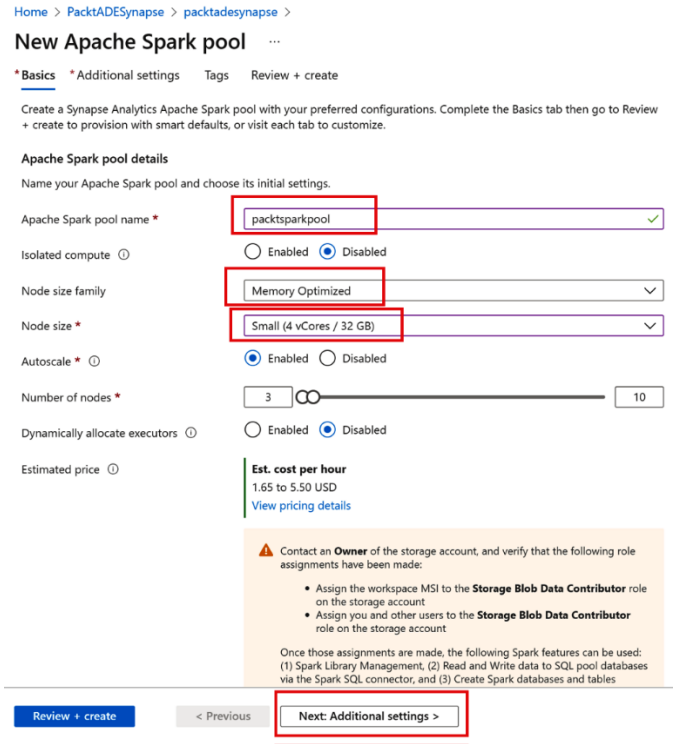

synapse
SQL script 1
Run
Undo
Publish
Query plan
Connect to
Built-in
Use database
master
1 -- This is auto-generated code
2 SELECT
3 TOP 100 *
4 FROM
5 OPENROWSET(
6 BULK 'https://packatadesynapse.dfs.core.windows.net/synapse/CSV/covid-data.csv',
7 FORMAT = 'CSV',
8 PARSER_VERSION = '2.0'
9) AS [result]
10
Results
Messages
View
Table
Chart
Export results
Search
C1 C2 C3 C4 C5 C6 C7 C8
iso_code continent location date total_cases new_cases new_cases_smo... total_de
AFG Asia Afghanistan 1/1/2021 52513 183 131.143 2201
AFG Asia Afghanistan 2/1/2021 52586 73 117.429 2211
AFG Asia Afghanistan 3/1/2021 52709 123 123 2221
AFG Asia Afghanistan 4/1/2021 52909 200 128.857 2230
AFG Asia Afghanistan 5/1/2021 53011 102 123.429 2237

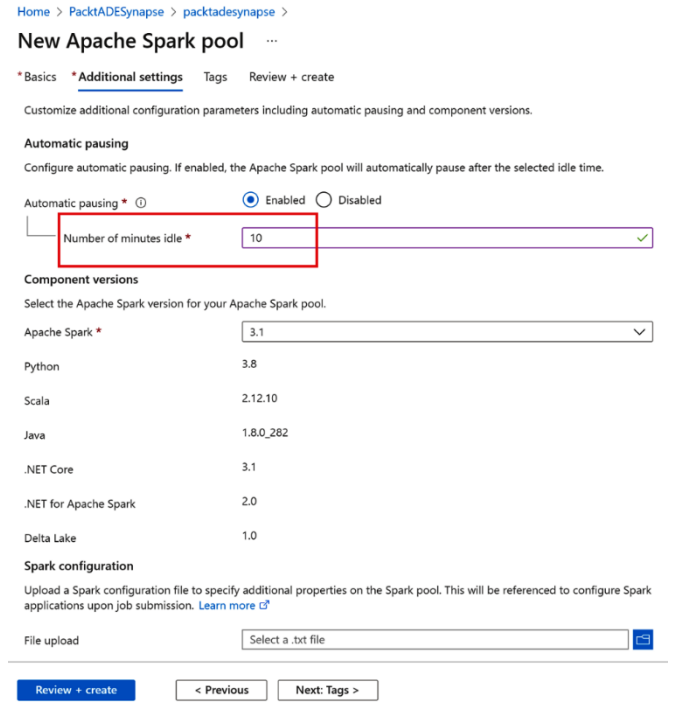

synapse
SQL script 1
Run
Undo
Publish
Query plan
Connect to
Built-in
Use database
serverless
Create database serverless
GO
Use serverless
GO
CREATE VIEW covid as
SELECT
*
FROM
OPENROWSET(
BULK 'https://packatadesynapse.dfs.core.windows.net/synapse/CSV/covid-data.csv',
FORMAT = 'CSV',
PARSER_VERSION = '2.0'
, HEADER_ROW = TRUE
) AS [result]

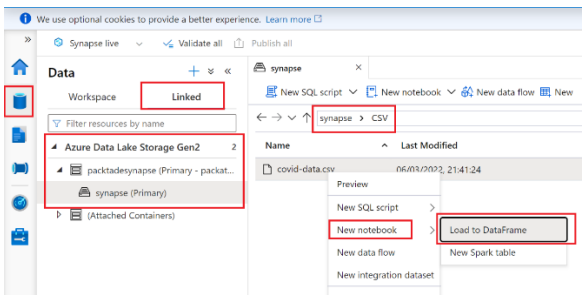

packtadesynapse - Microsoft Az
packtadesynapse - Azure Syn
https://web.azuresynapse.net/en-us/authoring/
Microsoft Azure
Synapse Analytics
packtadesynapse
Synapse live
Validate all
Publish all
Develop
synapse
Filter resources by name
SQL scripts
SQL script 1
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
Browse gallery
Import

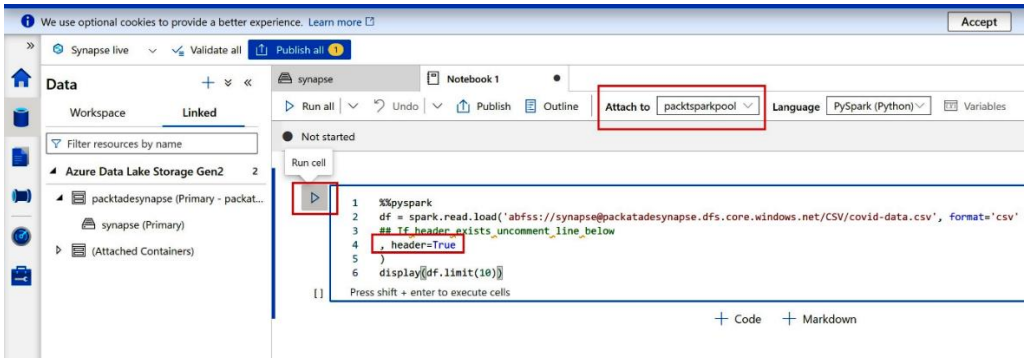

synapse
SQL script 1
SQL script 2
Run
Undo
Publish
Query plan
Connect to
Built-in
Use database
serverless
use serverless
GO
Select iso_code,location , continent,
max(isnull(new_deaths_per_million,0)) as death_sum,
max(isnull(people_fully_vaccinated,0) / isnull(population,0)) * 100 as percentage_vaccinated From covid
where isnull(population,0) > 1000000
group by iso_code,location,continent
order by death_sum desc
Results
Messages
View
Table
Chart
Export results
Search
iso_code
location
continent
death_sum
percentage_va..
KAZ
Kazakhstan
Asia
120.611
0
LSO
Lesotho
Africa
106.527
0
BIH
Bosnia and Herzegovina
Europe
63.43
0
BWA
Botswana
Africa
58.818
0
NAM
Namibia
Africa
57.975
0
LBN
Lebanon
Asia
51.853
0

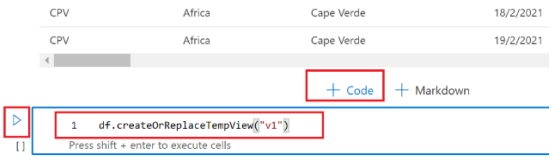

Create a resource
Home
Dashboard
All services
FAVORITES
All resources
Resource groups
App Services
Home > PacktADESynapse > packtadesynapse
packtadesynapse | Apache Spark pools
Synapse workspace
Spark
New
Refresh
Assign tags
Analytics pools
Apache Spark pools
New
Name
No results

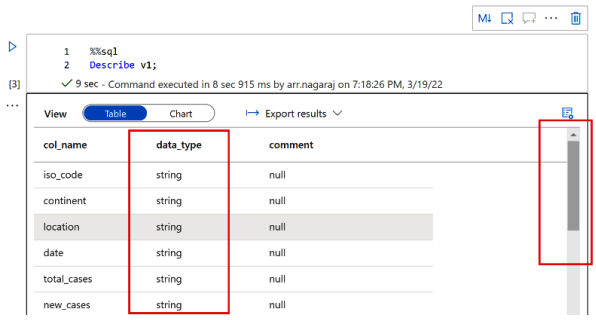

Home > PacktADESynapse > packtadesynapse >
New Apache Spark pool
*Basics *Additional settings Tags Review + create
Create a Synapse Analytics Apache Spark pool with your preferred configurations. Complete the Basics tab then go to Review + create to provision with smart defaults, or visit each tab to customize.
Apache Spark pool details
Name your Apache Spark pool and choose its initial settings.
Apache Spark pool name *
packtsparkpool
Isolated compute
Enabled Disabled
Node size family
Memory Optimized
Node size *
Small (4 vCores / 32 GB)
Autoscale *
Enabled Disabled
Number of nodes *
3
10
Dynamically allocate executors
Enabled Disabled
Estimated price
Est. cost per hour
1.65 to 5.50 USD
View pricing details
Contact an Owner of the storage account, and verify that the following role assignments have been made:
Assign the workspace MSI to the Storage Blob Data Contributor role on the storage account
Assign you and other users to the Storage Blob Data Contributor role on the storage account
Once those assignments are made, the following Spark features can be used: (1) Spark Library Management, (2) Read and Write data to SQL pool databases via the Spark SQL connector, and (3) Create Spark databases and tables
Review + create
< Previous
Next: Additional settings >


Home > PacktADESynapse > packtadesynapse >
New Apache Spark pool
*Basics *Additional settings Tags Review + create
Customize additional configuration parameters including automatic pausing and component versions.
Automatic pausing
Configure automatic pausing. If enabled, the Apache Spark pool will automatically pause after the selected idle time.
Automatic pausing *
Enabled Disabled
Number of minutes idle *
10
Component versions
Select the Apache Spark version for your Apache Spark pool.
Apache Spark *
3.1
Python
3.8
Scala
2.12.10
Java
1.8.0_282
.NET Core
3.1
.NET for Apache Spark
2.0
Delta Lake
1.0
Spark configuration
Upload a Spark configuration file to specify additional properties on the Spark pool. This will be referenced to configure Spark applications upon job submission. Learn more
File upload
Select a .txt file
Review + create
< Previous
Next: Tags >


We use optional cookies to provide a better experience. Learn more
Synapse live
Validate all
Publish all
Data
Workspace
Linked
Filter resources by name
Azure Data Lake Storage Gen2
packtadesynapse (Primary - packat...
synapse (Primary)
(Attached Containers)
synapse
New SQL script
New notebook
New data flow
synapse > CSV
Name
Last Modified
covid-data.csv
Preview
New SQL script
New notebook
New data flow
New integration dataset
Load to DataFrame
New Spark table

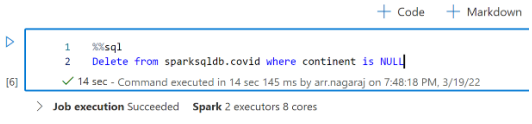

We use optional cookies to provide a better experience. Learn more
Accept
Synapse live
Validate all
Publish all
Data
Workspace
Linked
Filter resources by name
Azure Data Lake Storage Gen2
packtadesynapse (Primary - packat...
synapse (Primary)
(Attached Containers)
synapse
Notebook 1
Run all
Undo
Publish
Outline
Attach to
packtsparkpool
Language
PySpark (Python)
Variables
Not started
Run cell
1 %%pyspark
2 df = spark.read.load('abfss://synapse@packatadesynapse.dfs.core.windows.net/CSV/covid-data.csv', format='csv'
3 ## If header exists uncomment line below
4 , header=True
5)
6 display(df.limit(10))
Press shift + enter to execute cells
Code
Markdown

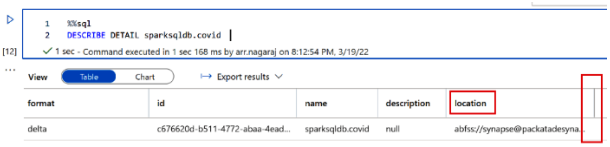

CPV Africa Cape Verde 18/2/2021
CPV Africa Cape Verde 19/2/2021
Code
Markdown
1 df.createOrReplaceTempView("v1")
Press shift + enter to execute cells

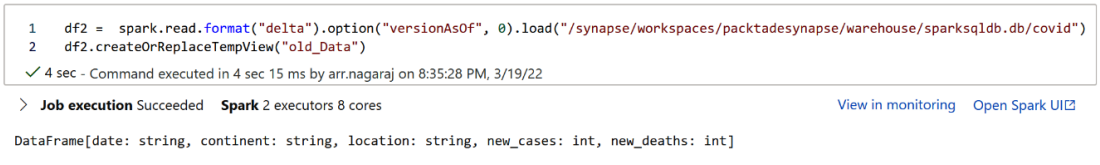

1 %%sql
2 Describe v1;
[3]
9 sec - Command executed in 8 sec 915 ms by arr.nagaraj on 7:18:26 PM, 3/19/22
View
Table
Chart
Export results
col_name
data_type
comment
iso_code string null
continent string null
location string null
date string null
total_cases string null
new_cases string null

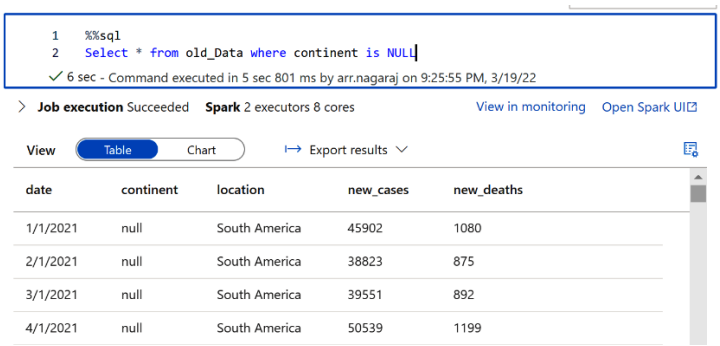

1 %%sql
2 Create database sparksqldb;
3 Create or replace table sparksqldb.covid
4 USING Delta
5 AS
6 Select date, continent,location, CAST(new_cases as int) as new_cases,
7 CAST(new_deaths as int) as new_deaths from v1
[4]
24 sec - Command executed in 1 ms by arr.nagaraj on 7:34:07 PM, 3/19/22
No data available

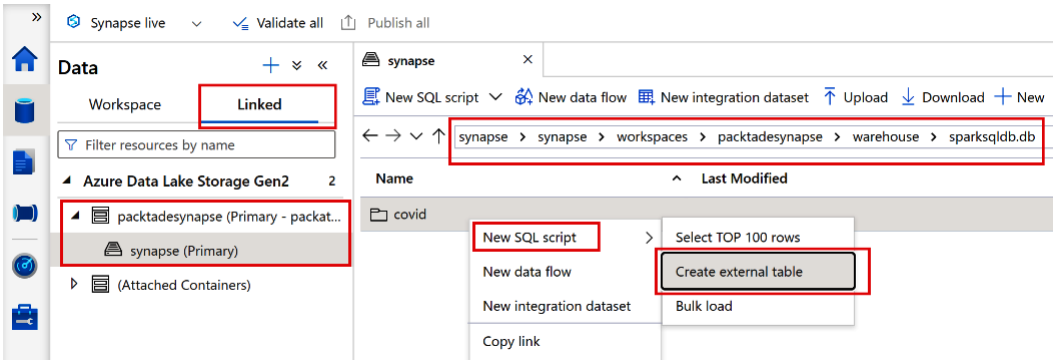

1 %%sql
2 Describe table sparksqldb.covid;
1 sec - Command executed in 1 sec 61 ms by arr.nagaraj on 7:39:41
View
Table
Chart
Export results
col_name
data_type
date string
continent string
location string
new_cases int
new_deaths int

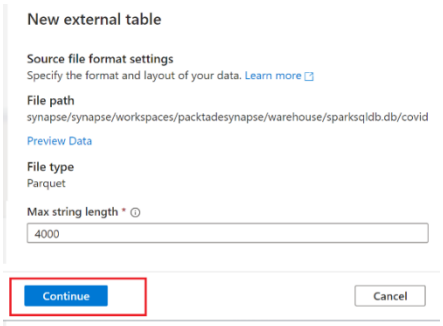

Code
Markdown
1 %%sql
2 Delete from sparksqldb.covid where continent is NULL
[6]
14 sec - Command executed in 14 sec 145 ms by arr.nagaraj on 7:48:18 PM, 3/19/22
Job execution Succeeded
Spark 2 executors 8 cores

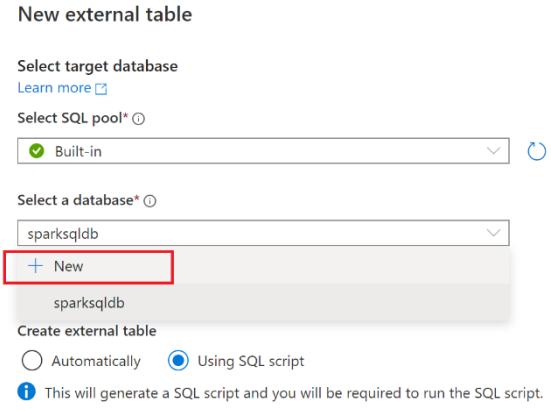

1 %%sql
2 DESCRIBE DETAIL sparksqldb.covid
[12]
1 sec - Command executed in 1 sec 168 ms by arr.nagaraj on 8:12:54 PM, 3/19/22
View
Table
Chart
Export results
format
id
name
description
location
delta
c676620d-b511-4772-abaa-4ead...
sparksqldb.covid
null
abfss://synapse@packatadesyna...

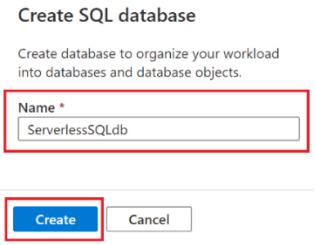

1 df2 = spark.read.format("delta").option("versionAsOf", 0).load("/synapse/workspaces/packtadesynapse/warehouse/sparksqldb.db/covid")
2 df2.createOrReplaceTempView("old_Data")
[15]
4 sec - Command executed in 4 sec 15 ms by arr.nagaraj on 8:35:28 PM, 3/19/22
Job execution Succeeded
Spark 2 executors 8 cores
View in monitoring
Open Spark UI
DataFrame[date: string, continent: string, location: string, new_cases: int, new_deaths: int]

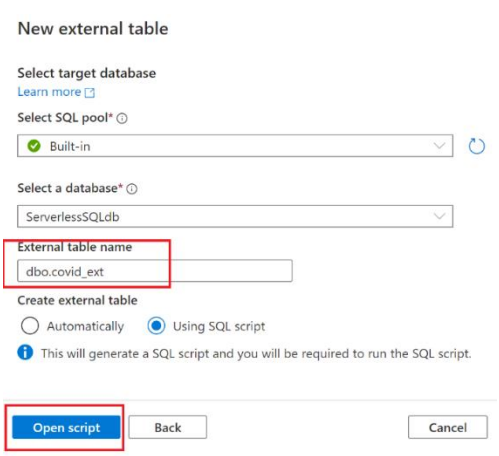

1 %%sql
2 Select * from old_Data where continent is NULL
6 sec - Command executed in 5 sec 801 ms by arr.nagaraj on 9:25:55 PM, 3/19/22
Job execution Succeeded
Spark 2 executors 8 cores
View in monitoring
Open Spark UI
View
Table
Chart
Export results
date continent location new_cases new_deaths
1/1/2021 null South America 45902 1080
2/1/2021 null South America 38823 875
3/1/2021 null South America 39551 892
4/1/2021 null South America 50539 1199

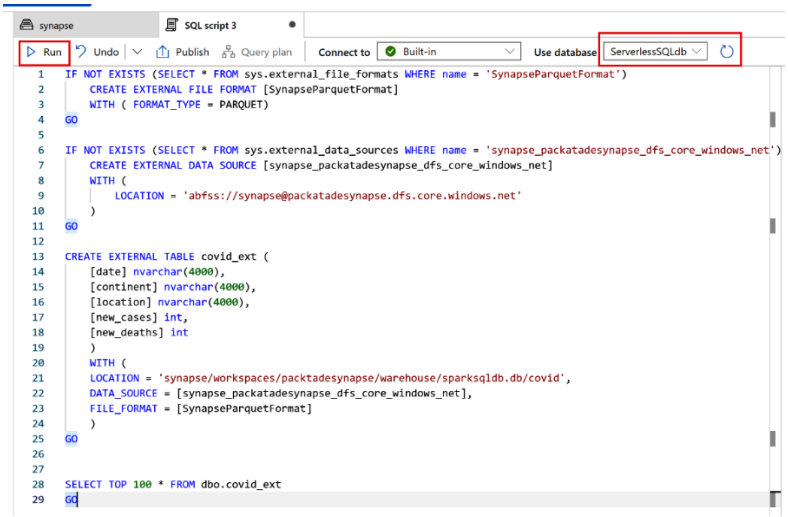

Synapse live
Validate all
Publish all
Data
Workspace
Linked
Filter resources by name
Azure Data Lake Storage Gen2
packtadesynapse (Primary - packat...
synapse (Primary)
(Attached Containers)
synapse
New SQL script
New data flow
New integration dataset
Upload
Download
New
synapse > synapse > workspaces > packtadesynapse > warehouse > sparksqldb.db
Name
Last Modified
covid
New SQL script
New data flow
New integration dataset
Copy link
Select TOP 100 rows
Create external table
Bulk load


New external table
Source file format settings
Specify the format and layout of your data. Learn more
File path
synapse/synapse/workspaces/packtadesynapse/warehouse/sparksqldb.db/covid
Preview Data
File type
Parquet
Max string length *
4000
Continue
Cancel


New external table
Select target database
Learn more
Select SQL pool*
Built-in
Select a database*
sparksqldb
New
sparksqldb
Create external table
Automatically
Using SQL script
This will generate a SQL script and you will be required to run the SQL script.


Create SQL database
Create database to organize your workload into databases and database objects.
Name *
ServerlessSQLdb
Create
Cancel


New external table
Select target database
Learn more
Select SQL pool*
Built-in
Select a database*
ServerlessSQLdb
External table name
dbo.covid_ext
Create external table
Automatically
Using SQL script
This will generate a SQL script and you will be required to run the SQL script.
Open script
Back
Cancel


synapse
SQL script 3
Run
Undo
Publish
Query plan
Connect to
Built-in
Use database
ServerlessSQLdb
IF NOT EXISTS (SELECT * FROM sys.external_file_formats WHERE name = 'SynapseParquetFormat')
CREATE EXTERNAL FILE FORMAT [SynapseParquetFormat]
WITH (FORMAT_TYPE = PARQUET)
GO
IF NOT EXISTS (SELECT * FROM sys.external_data_sources WHERE name = 'synapse_packatadesynapse_dfs_core_windows_net')
CREATE EXTERNAL DATA SOURCE [synapse_packatadesynapse_dfs_core_windows_net]
WITH (
LOCATION = 'abfss://synapse@packatadesynapse.dfs.core.windows.net'
)
GO
CREATE EXTERNAL TABLE covid_ext (
[date] nvarchar(4000),
[continent] nvarchar(4000),
[location] nvarchar(4000),
[new_cases] int,
[new_deaths] int
)
WITH (
LOCATION = 'synapse/workspaces/packtadesynapse/warehouse/sparksqldb.db/covid',
DATA_SOURCE = [synapse_packatadesynapse_dfs_core_windows_net],
FILE_FORMAT = [SynapseParquetFormat]
)
GO
SELECT TOP 100 * FROM dbo.covid_ext
GO

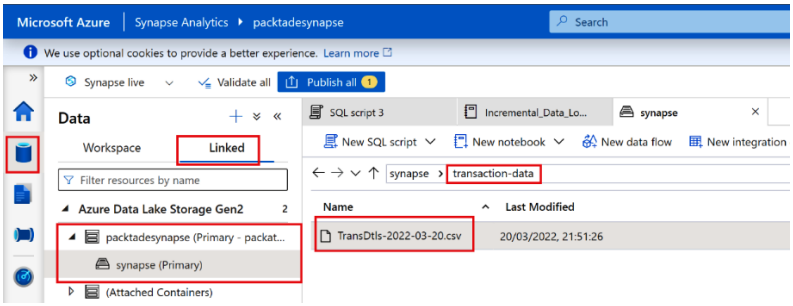
```
28  SELECT TOP 100 * FROM dbo.covid_ext
29  GO
```

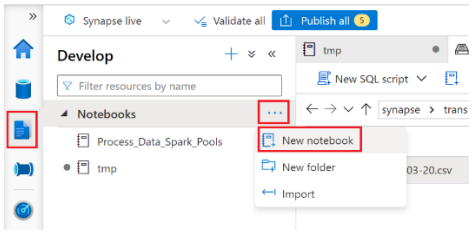
Results | Messages

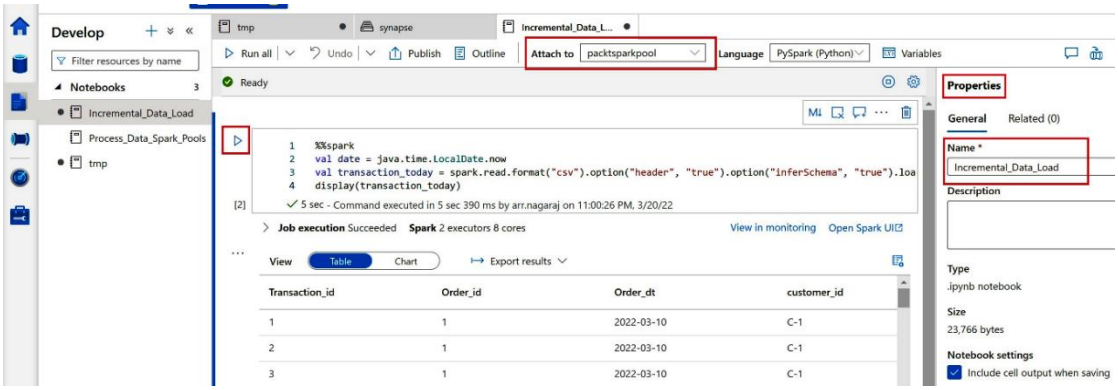
View: Table | Chart — Export results

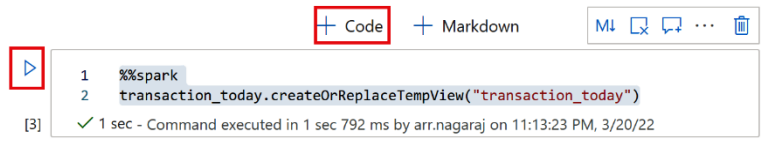
Search

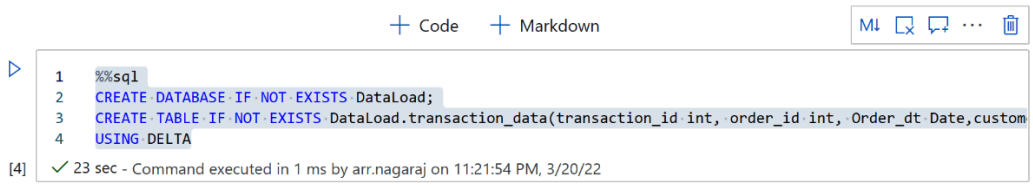
date	continent	location	new_cases	new_deaths
29/12/2021	Africa	South Africa	9020	81
30/12/2021	Africa	South Africa	12978	126
31/12/2021	Africa	South Africa	11754	84
1/1/2022	Africa	South Africa	9793	53









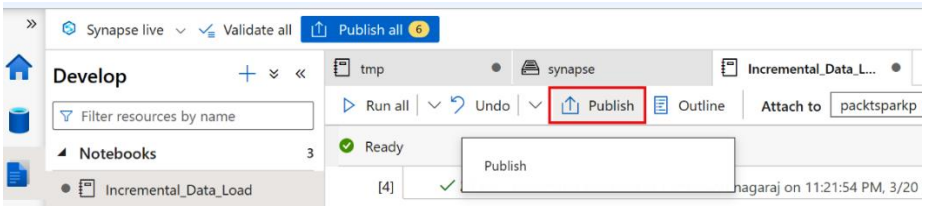


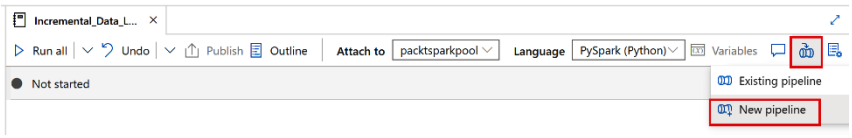
No data available

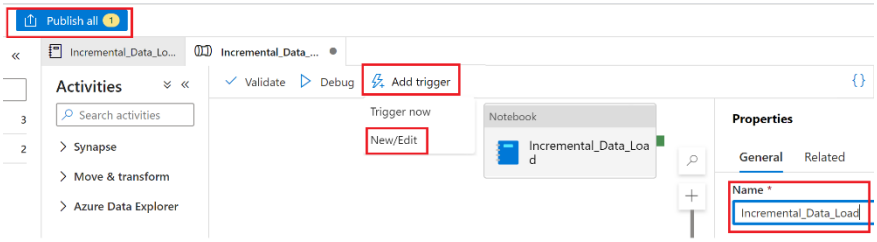
```
%%sql
Merge into DataLoad.transaction_data source
Using transaction_today target on source.transaction_id = target.transaction_id
WHEN MATCHED THEN UPDATE SET *
WHEN NOT MATCHED AND (target.transaction_id is not null or target.order_id is not null or target.customer_i
THEN INSERT *
```

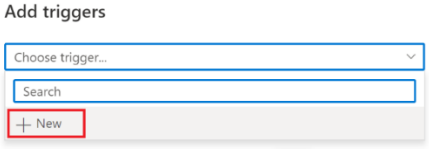
[9] ✓ 18 sec - Command executed in 18 sec 198 ms by arr.nagaraj on 11:49:47 PM, 3/20/22

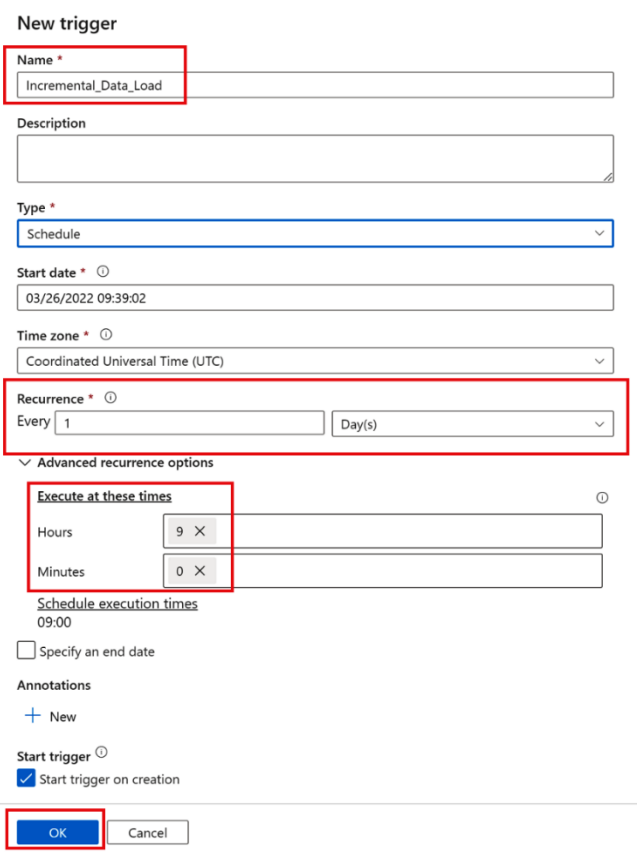
Job execution Succeeded **Spark** 2 executors 8 cores View in monitoring Open Spark UI

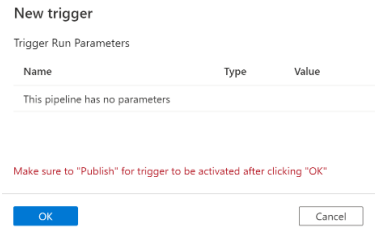


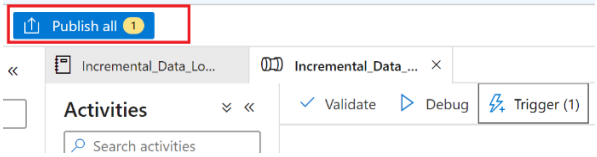


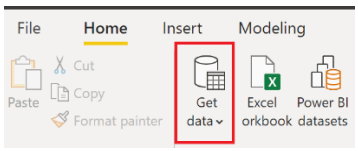


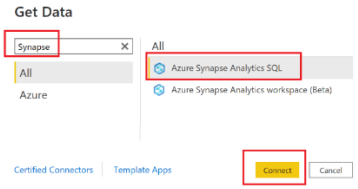


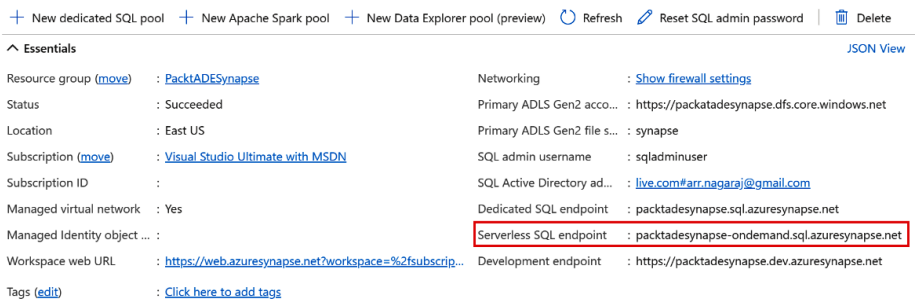


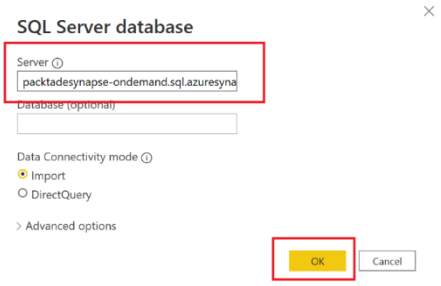

New trigger
Trigger Run Parameters
Name
Type
Value
This pipeline has no parameters
Make sure to "Publish" for trigger to be activated after clicking "OK"
OK
Cancel

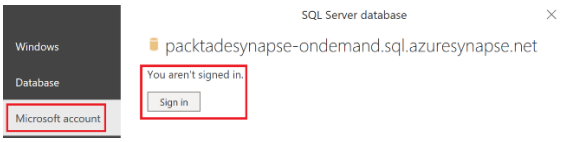

Publish all 1
Incremental_Data_Lo...
Incremental_Data_...
Activities
Search activities
Validate
Debug
Trigger (1)

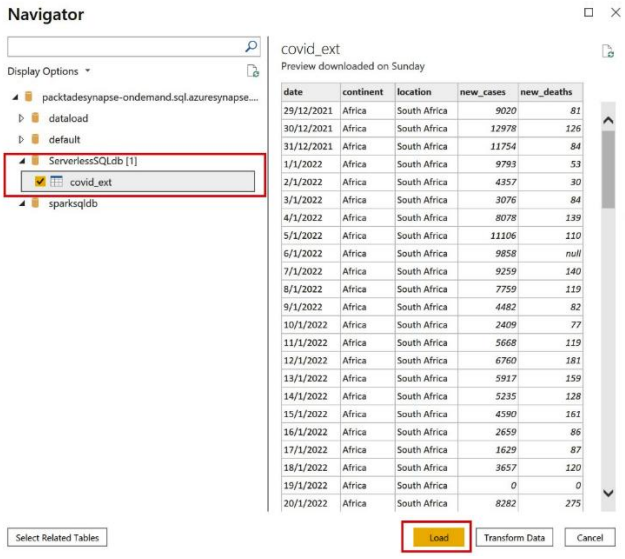

File
Home
Insert
Modeling
Cut
Copy
Format painter
Paste
Get data
Excel workbook
Power BI datasets

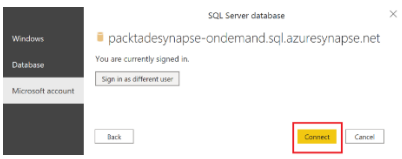

Get Data
Synapse
All
Azure
Azure Synapse Analytics SQL
Azure Synapse Analytics workspace (Beta)
Certified Connectors
Template Apps
Connect
Cancel

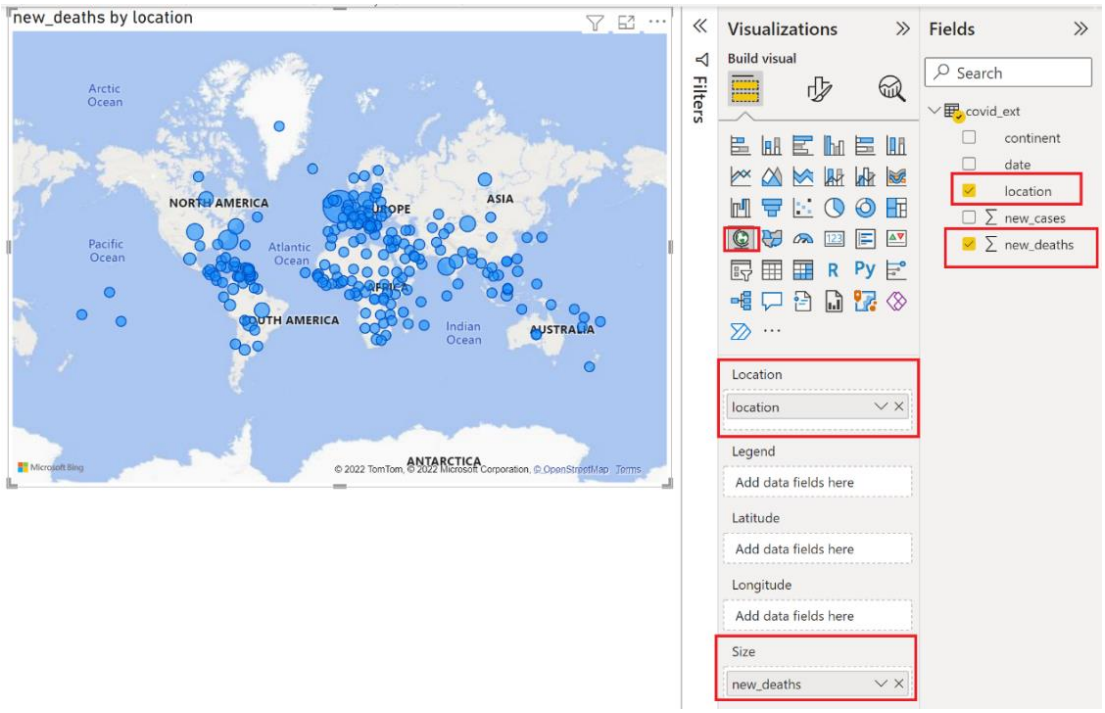

New dedicated SQL pool
New Apache Spark pool
New Data Explorer pool (preview)
Refresh
Reset SQL admin password
Delete
Essentials
JSON View
Resource group (move) : PacktADESynapse
Status : Succeeded
Location : East US
Subscription (move) : Visual Studio Ultimate with MSDN
Subscription ID :
Managed virtual network : Yes
Managed Identity object ... :
Workspace web URL : https://web.azuresynapse.net?workspace=%2fsubscrip...
Tags (edit) : Click here to add tags
Networking : Show firewall settings
Primary ADLS Gen2 acco... : https://packtadesynapse.dfs.core.windows.net
Primary ADLS Gen2 file s... : synapse
SQL admin username : sqladminuser
SQL Active Directory ad... : live.com#arr.nagaraj@gmail.com
Dedicated SQL endpoint : packtadesynapse.sql.azuresynapse.net
Serverless SQL endpoint : packtadesynapse-ondemand.sql.azuresynapse.net
Development endpoint : https://packtadesynapse.dev.azuresynapse.net


SQL Server database
Server
packtadesynapse-ondemand.sql.azuresyna
Database (optional)
Data Connectivity mode
Import
DirectQuery
Advanced options
OK
Cancel

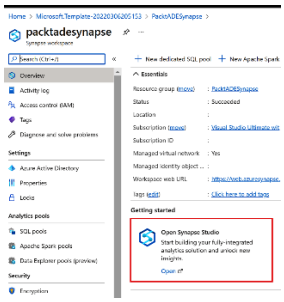

Windows
Database
Microsoft account
SQL Server database
packtadesynapse-ondemand.sql.azuresynapse.net
You aren't signed in.
Sign in

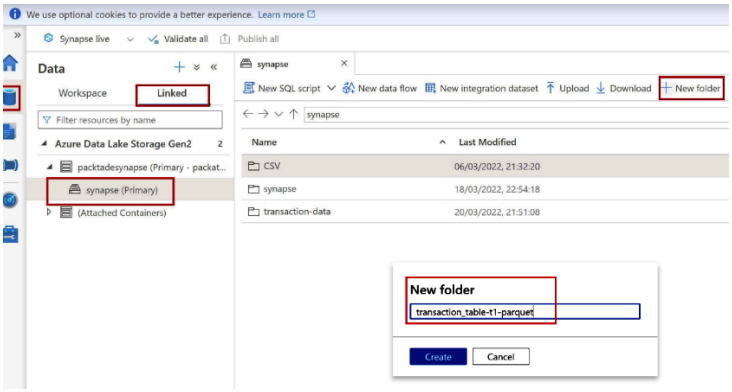

Navigator
Display Options
packtadesynapse-ondemand.sql.azuresynapse....
dataload
default
ServerlessSQLdb [1]
covid_ext
sparksqldb
covid_ext
Preview downloaded on Sunday
date
continent
location
new_cases
new_deaths
29/12/2021 Africa South Africa 9020 81
30/12/2021 Africa South Africa 12978 126
31/12/2021 Africa South Africa 11754 84
1/1/2022 Africa South Africa 9793 53
2/1/2022 Africa South Africa 4357 30
3/1/2022 Africa South Africa 3076 84
4/1/2022 Africa South Africa 8078 139
5/1/2022 Africa South Africa 11106 110
6/1/2022 Africa South Africa 9858 null
7/1/2022 Africa South Africa 9259 140
8/1/2022 Africa South Africa 7759 119
9/1/2022 Africa South Africa 4482 82
10/1/2022 Africa South Africa 2409 77
11/1/2022 Africa South Africa 5668 119
12/1/2022 Africa South Africa 6760 181
13/1/2022 Africa South Africa 5917 159
14/1/2022 Africa South Africa 5235 128
15/1/2022 Africa South Africa 4590 161
16/1/2022 Africa South Africa 2659 86
17/1/2022 Africa South Africa 1629 87
18/1/2022 Africa South Africa 3657 120
19/1/2022 Africa South Africa 0 0
20/1/2022 Africa South Africa 8282 275
Select Related Tables
Load
Transform Data
Cancel

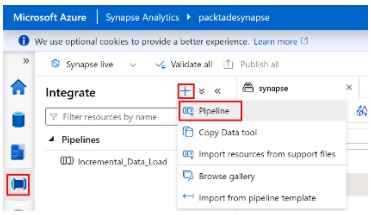

Windows
Database
Microsoft account
SQL Server database
packtadesynapse-ondemand.sql.azuresynapse.net
You are currently signed in.
Sign in as different user
Back
Connect
Cancel

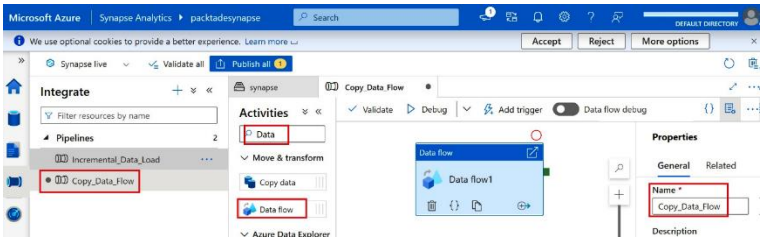

new_deaths by location
Arctic Ocean
NORTH AMERICA
EUROPE
ASIA
Pacific Ocean
Atlantic Ocean
AFRICA
SOUTH AMERICA
Indian Ocean
AUSTRALIA
ANTARCTICA
© 2022 TomTom, © 2022 Microsoft Corporation, © OpenStreetMap Terms
Filters
Visualizations
Build visual
Location
location
Legend
Add data fields here
Latitude
Add data fields here
Longitude
Add data fields here
Size
new_deaths
Fields
Search
covid_ext
continent
date
location
new_cases
new_deaths

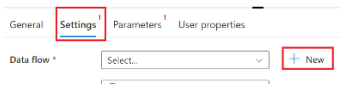
Chapter 9: Transforming Data Using Azure Synapse Dataflows

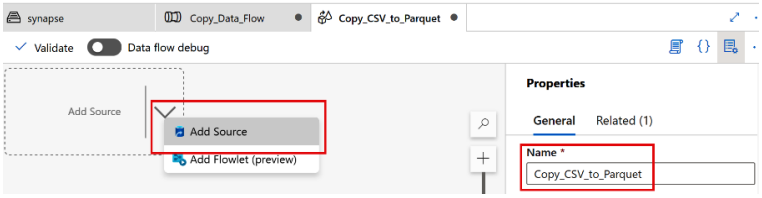


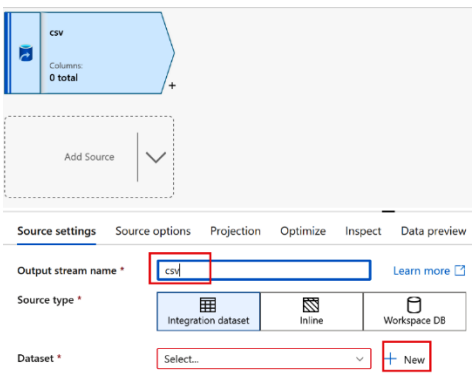


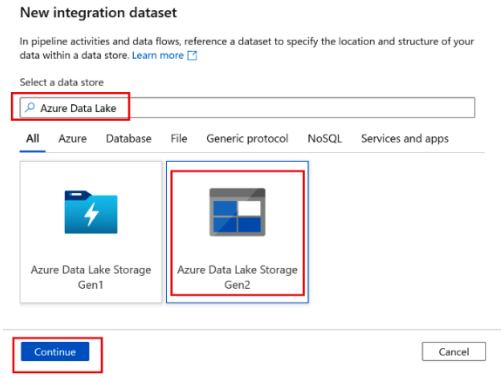


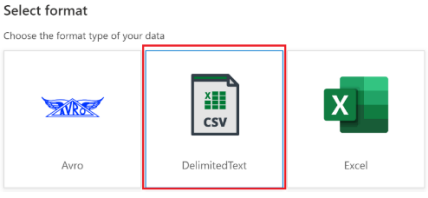


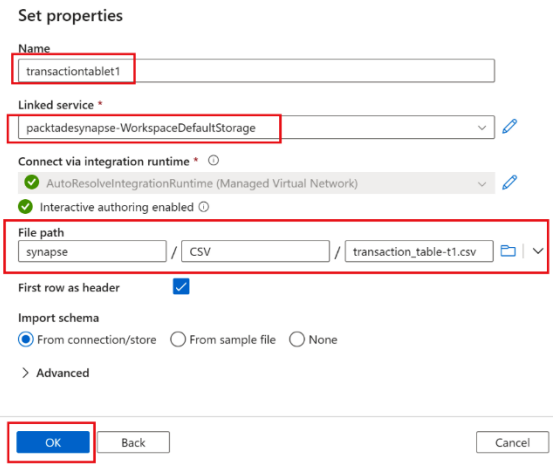


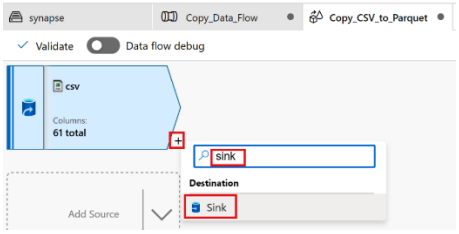


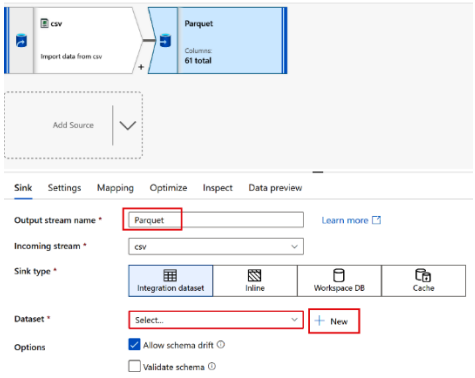


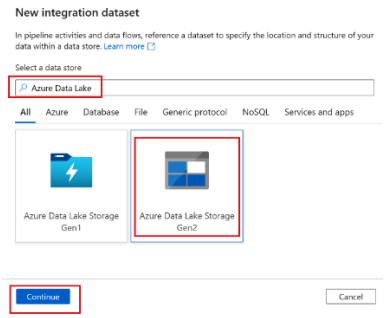


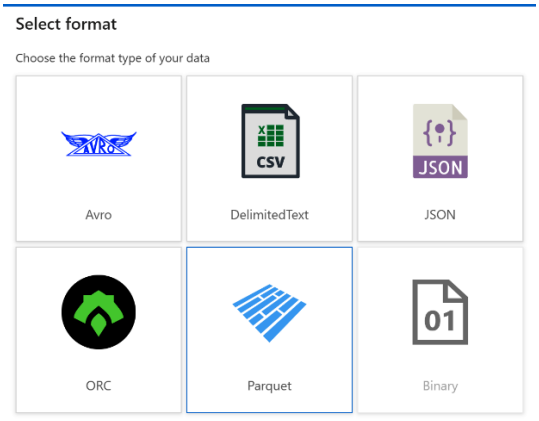


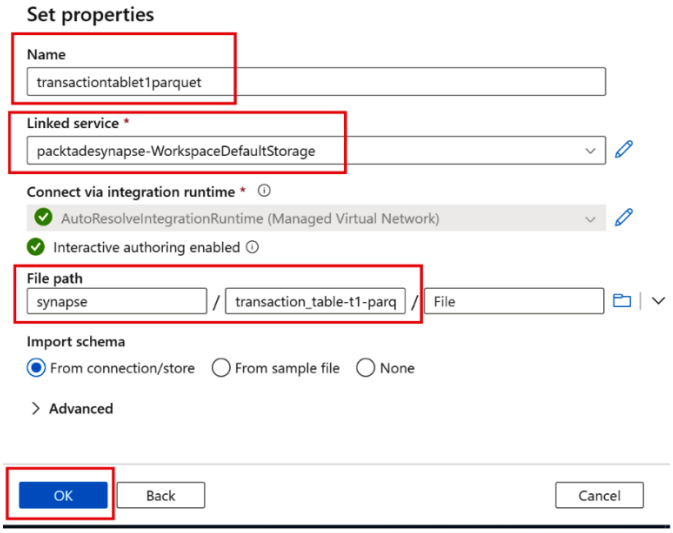

Set properties
Name
transactiontablet1
Linked service *
packtadesynapse-WorkspaceDefaultStorage
Connect via integration runtime *
AutoResolveIntegrationRuntime (Managed Virtual Network)
Interactive authoring enabled
File path
synapse
CSV
transaction_table-t1.csv
First row as header
Import schema
From connection/store
From sample file
None
Advanced
OK
Back
Cancel

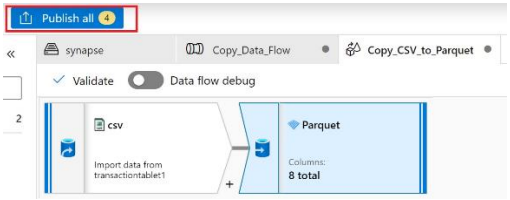

synapse
Copy_Data_Flow
Copy_CSV_to_Parquet
Validate
Data flow debug
csv
Columns:
61 total
sink
Destination
Sink
Add Source

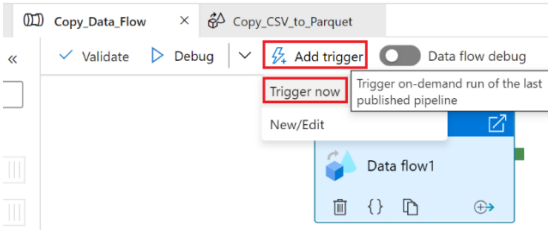

csv
Import data from csv
Parquet
Columns:
61 total
Add Source
Sink
Settings
Mapping
Optimize
Inspect
Data preview
Output stream name *
Parquet
Learn more
Incoming stream *
csv
Sink type *
Integration dataset
Inline
Workspace DB
Cache
Dataset *
Select...
New
Options
Allow schema drift
Validate schema

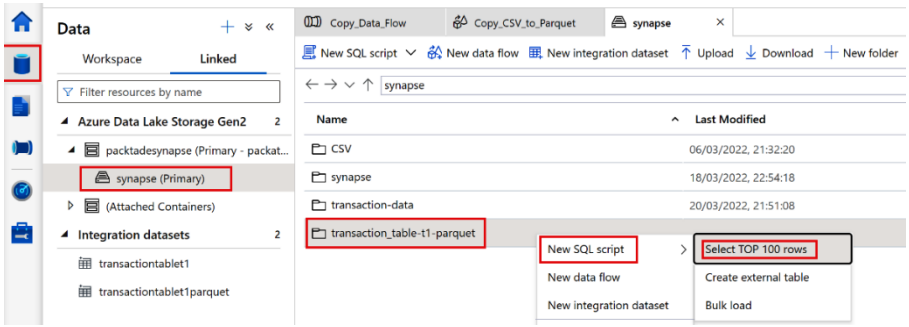

New integration dataset
In pipeline activities and data flows, reference a dataset to specify the location and structure of your data within a data store. Learn more
Select a data store
Azure Data Lake
All
Azure
Database
File
Generic protocol
NoSQL
Services and apps
Azure Data Lake Storage Gen1
Azure Data Lake Storage Gen2
Continue
Cancel

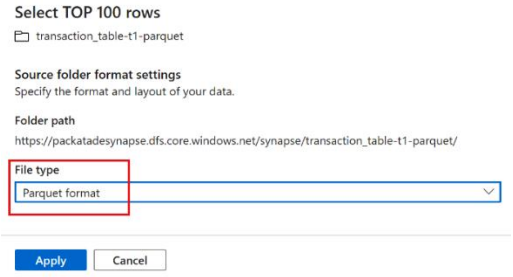

Select format
Choose the format type of your data
Avro
DelimitedText
JSON
ORC
Parquet
Binary

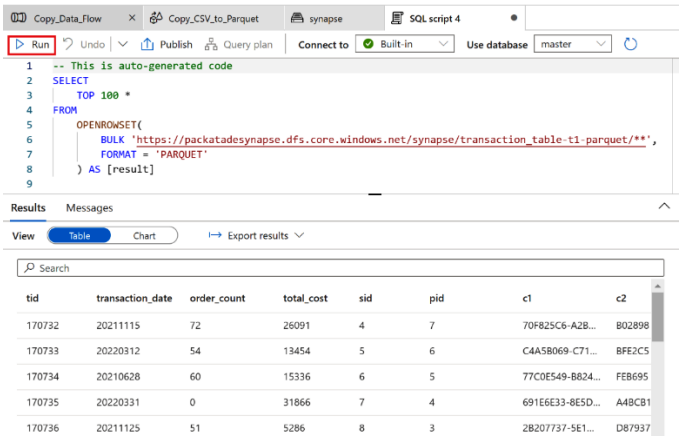

Set properties
Name
transactiontablet1parquet
Linked service *
packtadesynapse-WorkspaceDefaultStorage
Connect via integration runtime *
AutoResolveIntegrationRuntime (Managed Virtual Network)
Interactive authoring enabled
File path
synapse
transaction_table-t1-parq
File
Import schema
From connection/store
From sample file
None
Advanced
OK
Back
Cancel

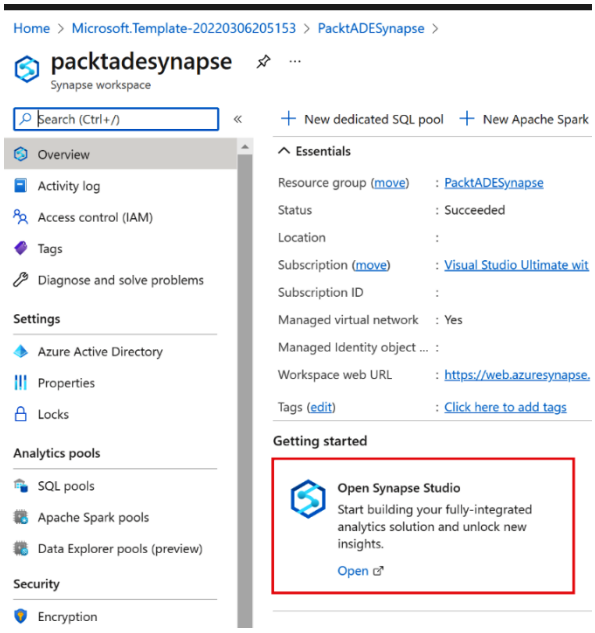

Publish all 4
synapse
Copy_Data_Flow
Copy_CSV_to_Parquet
Validate
Data flow debug
csv
Import data from transactiontablet1
Parquet
Columns:
8 total

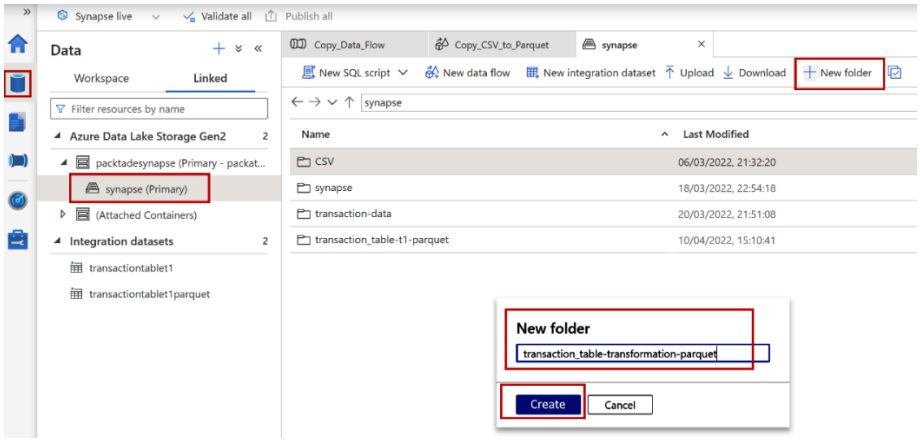

Copy_Data_Flow
Copy_CSV_to_Parquet
Validate
Debug
Add trigger
Data flow debug
Trigger now
Trigger on-demand run of the last published pipeline
New/Edit
Data flow1

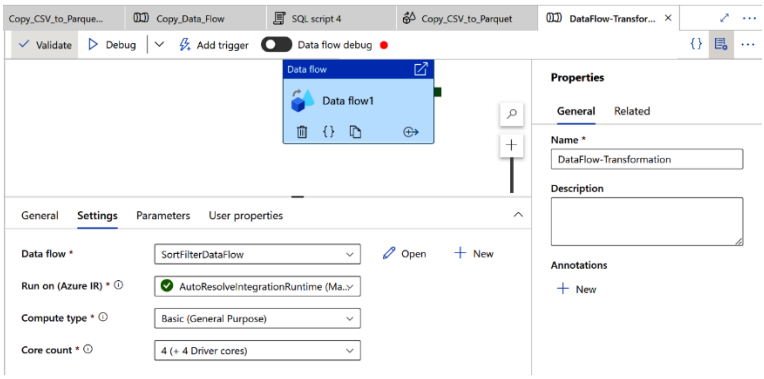

Data
Workspace
Linked
Filter resources by name
Azure Data Lake Storage Gen2
packtadesynapse (Primary - packat...
synapse (Primary)
(Attached Containers)
Integration datasets
transactiontablet1
transactiontablet1parquet
Copy_Data_Flow
Copy_CSV_to_Parquet
synapse
New SQL script
New data flow
New integration dataset
Upload
Download
New folder
synapse
Name
Last Modified
CSV
06/03/2022, 21:32:20
synapse
18/03/2022, 22:54:18
transaction-data
20/03/2022, 21:51:08
transaction_table-t1-parquet
New SQL script
New data flow
New integration dataset
Select TOP 100 rows
Create external table
Bulk load

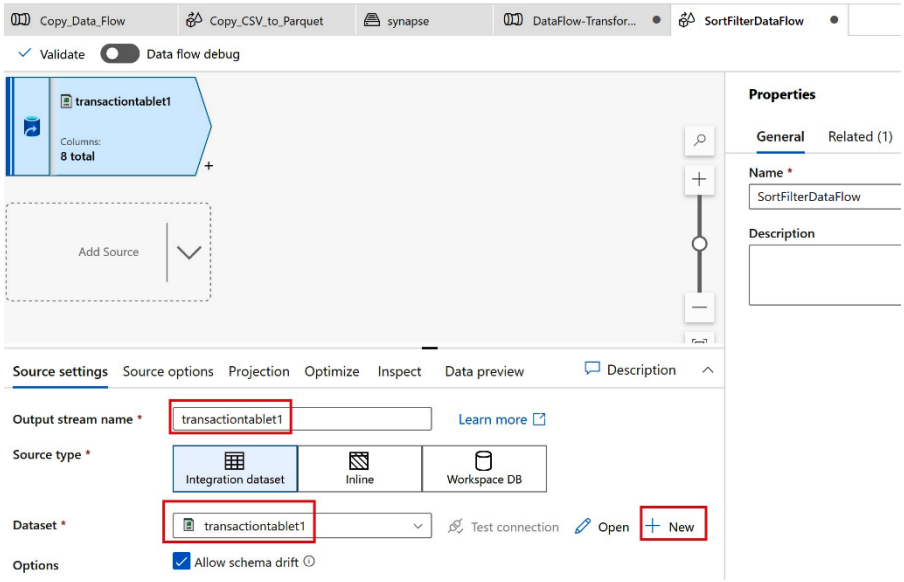

Select TOP 100 rows
transaction_table-t1-parquet
Source folder format settings
Specify the format and layout of your data.
Folder path
https://packatadesynapse.dfs.core.windows.net/synapse/transaction_table-t1-parquet/
File type
Parquet format
Apply
Cancel

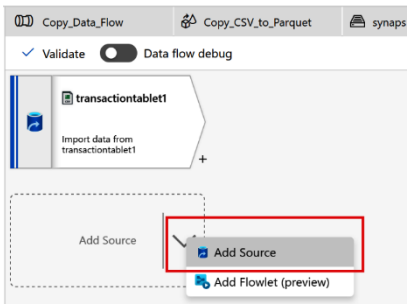

Copy_Data_Flow
Copy_CSV_to_Parquet
synapse
SQL script 4
Run
Undo
Publish
Query plan
Connect to
Built-in
Use database
master
-- This is auto-generated code
SELECT
TOP 100 *
FROM
OPENROWSET(
BULK 'https://packtadesynapse.dfs.core.windows.net/synapse/transaction_table-t1-parquet/**',
FORMAT = 'PARQUET'
) AS [result]
Results
Messages
View
Table
Chart
Export results
Search
tid transaction_date order_count total_cost sid pid c1 c2
170732 20211115 72 26091 4 7 70F825C6-A2B... B02898
170733 20220312 54 13454 5 6 C4A5B069-C71... BFE2C5
170734 20210628 60 15336 6 5 77C0E549-B824... FEB695
170735 20220331 0 31866 7 4 691E6E33-8E5D... A4BCB1
170736 20211125 51 5286 8 3 2B207737-5E1... D87937

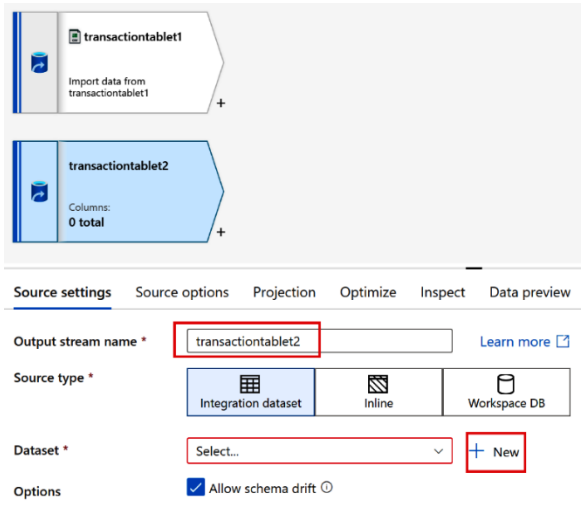

Home > Microsoft.Template-20220306205153 > PacktADESynapse >
packtadesynapse
Synapse workspace
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Azure Active Directory
Properties
Locks
Analytics pools
SQL pools
Apache Spark pools
Data Explorer pools (preview)
Security
Encryption
New dedicated SQL pool
New Apache Spark
Essentials
Resource group (move) : PacktADESynapse
Status : Succeeded
Location :
Subscription (move) : Visual Studio Ultimate wit
Subscription ID :
Managed virtual network : Yes
Managed Identity object ... :
Workspace web URL : https://web.azuresynapse.
Tags (edit) : Click here to add tags
Getting started
Open Synapse Studio
Start building your fully-integrated analytics solution and unlock new insights.
Open

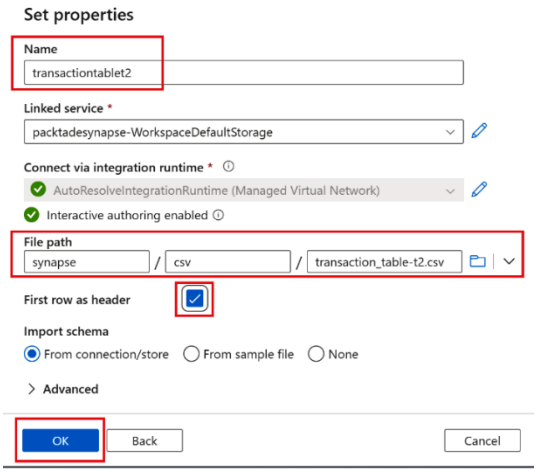

Synapse live
Validate all
Publish all
Data
Workspace
Linked
Filter resources by name
Azure Data Lake Storage Gen2 2
packtadesynapse (Primary - packat...
synapse (Primary)
(Attached Containers)
Integration datasets 2
transactiontablet1
transactiontablet1parquet
Copy_Data_Flow
Copy_CSV_to_Parquet
synapse
New SQL script
New data flow
New integration dataset
Upload
Download
New folder
synapse
Name
Last Modified
CSV 06/03/2022, 21:32:20
synapse 18/03/2022, 22:54:18
transaction-data 20/03/2022, 21:51:08
transaction_table-t1-parquet 10/04/2022, 15:10:41
New folder
transaction_table-transformation-parquet
Create
Cancel

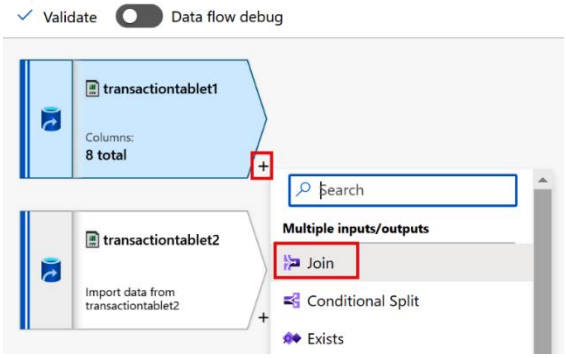

Copy_CSV_to_Parque...
Copy_Data_Flow
SQL script 4
Copy_CSV_to_Parquet
DataFlow-Transfor...
Validate
Debug
Add trigger
Data flow debug
Data flow
Data flow1
Properties
General
Related
Name *
DataFlow-Transformation
Description
Annotations
New
General
Settings
Parameters
User properties
Data flow *
SortFilterDataFlow
Open
New
Run on (Azure IR) *
AutoResolveIntegrationRuntime (Ma...
Compute type *
Basic (General Purpose)
Core count *
4 (+ 4 Driver cores)

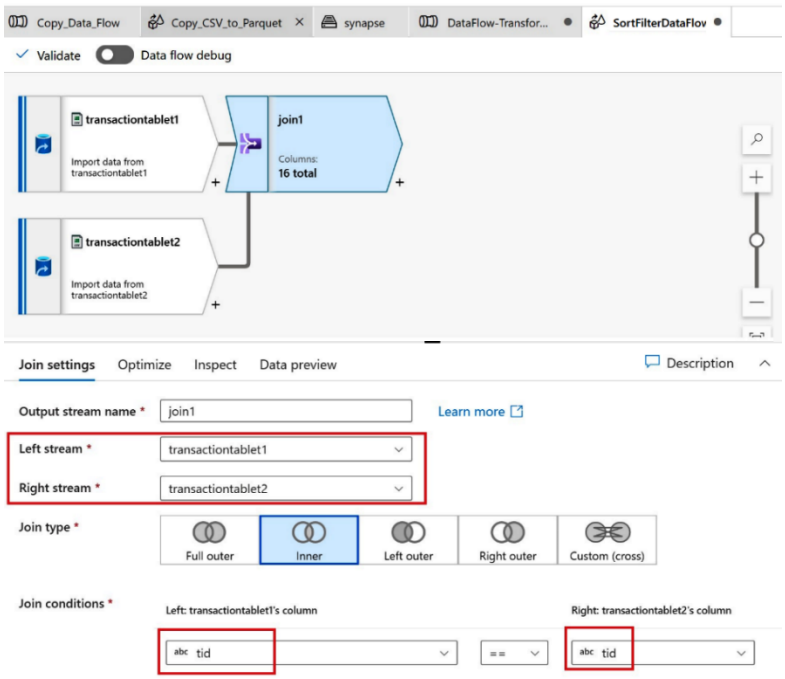

Copy_Data_Flow
Copy_CSV_to_Parquet
synapse
DataFlow-Transfor...
SortFilterDataFlow
Validate
Data flow debug
transactiontablet1
Columns:
8 total
Add Source
Properties
General
Related (1)
Name *
SortFilterDataFlow
Description
Source settings
Source options
Projection
Optimize
Inspect
Data preview
Description
Output stream name *
transactiontablet1
Learn more
Source type *
Integration dataset
Inline
Workspace DB
Dataset *
transactiontablet1
Test connection
Open
New
Options
Allow schema drift

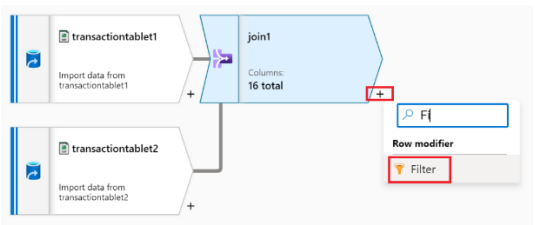

Copy_Data_Flow
Copy_CSV_to_Parquet
synaps
Validate
Data flow debug
transactiontablet1
Import data from
transactiontablet1
Add Source
Add Source
Add Flowlet (preview)

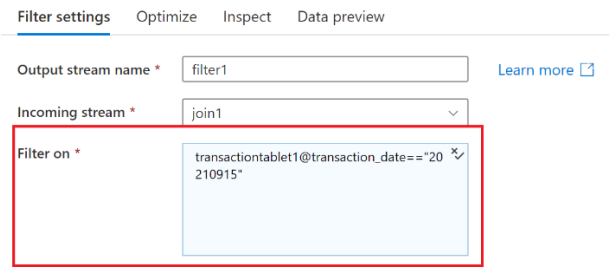

transactiontablet1
Import data from
transactiontablet1
transactiontablet2
Columns:
0 total
Source settings
Source options
Projection
Optimize
Inspect
Data preview
Output stream name *
transactiontablet2
Learn more
Source type *
Integration dataset
Inline
Workspace DB
Dataset *
Select...
New
Options
Allow schema drift

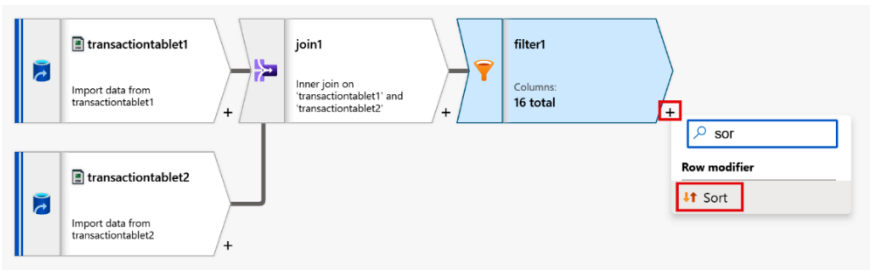

Set properties
Name
transactiontablet2
Linked service *
packtadesynapse-WorkspaceDefaultStorage
Connect via integration runtime *
AutoResolveIntegrationRuntime (Managed Virtual Network)
Interactive authoring enabled
File path
synapse
csv
transaction_table-t2.csv
First row as header
Import schema
From connection/store
From sample file
None
Advanced
OK
Back
Cancel


Validate
Data flow debug
transactiontablet1
Columns:
8 total
transactiontablet2
Import data from transactiontablet2
Search
Multiple inputs/outputs
Join
Conditional Split
Exists


Copy_Data_Flow
Copy_CSV_to_Parquet
synapse
DataFlow-Transfor...
SortFilterDataFlov
Validate
Data flow debug
transactiontablet1
Import data from transactiontablet1
join1
Columns:
16 total
transactiontablet2
Import data from transactiontablet2
Join settings
Optimize
Inspect
Data preview
Description
Output stream name *
join1
Learn more
Left stream *
transactiontablet1
Right stream *
transactiontablet2
Join type *
Full outer
Inner
Left outer
Right outer
Custom (cross)
Join conditions *
Left: transactiontablet1's column
Right: transactiontablet2's column
tid
==
tid


transactiontablet1
Import data from transactiontablet1
join1
Columns:
16 total
transactiontablet2
Import data from transactiontablet2
Fi
Row modifier
Filter


Filter settings
Optimize
Inspect
Data preview
Output stream name *
filter1
Learn more
Incoming stream *
join1
Filter on *
transactiontablet1@transaction_date=="20210915"


transactiontablet1
Import data from transactiontablet1
join1
Inner join on 'transactiontablet1' and 'transactiontablet2'
filter1
Columns:
16 total
transactiontablet2
Import data from transactiontablet2
sor
Row modifier
Sort

Sort settings | Optimize | Inspect | Data preview

Output stream name * sort1 Learn more

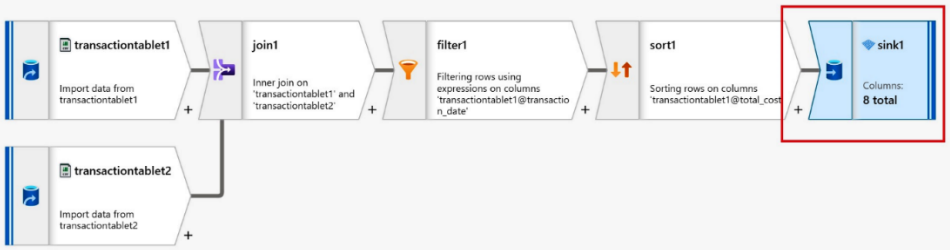
Incoming stream * filter1

Options * Case insensitive

Sort only within partition

Sort conditions *

filter1's column	Order	Nulls first
transactiontablet1@total_cost	Descendi...	✓



Sink | Settings | Mapping | Optimize | Inspect | Data preview

Output stream name * sink1 Learn more

Incoming stream * sort1

Sink type * Integration dataset | Inline | Workspace DB | Cache

Dataset * transformationparquet Test connection Open New

Options Allow schema drift

Validate schema

synapse | SQL script 4

Run | Undo | Publish | Query plan | Connect to Built-in | Use database master

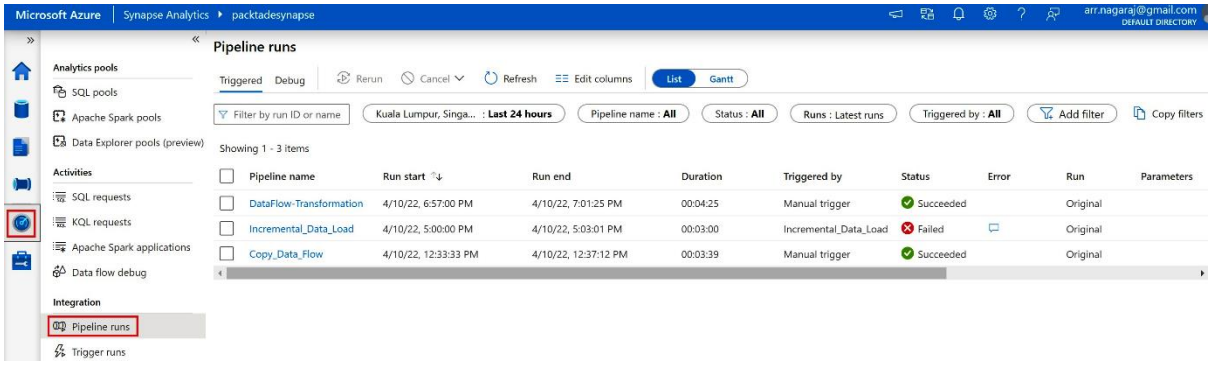
```
1  -- This is auto-generated code
2  SELECT
3      TOP 100 *
4  FROM
5      OPENROWSET(
6          BULK 'https://packatadesynapse.dfs.core.windows.net/synapse/transaction_table-transformation-parquet/**'
7          FORMAT = 'PARQUET'
8      ) AS [result]
9
```

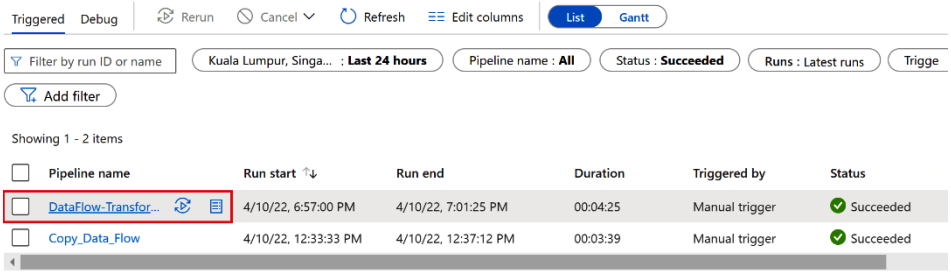
Results | Messages

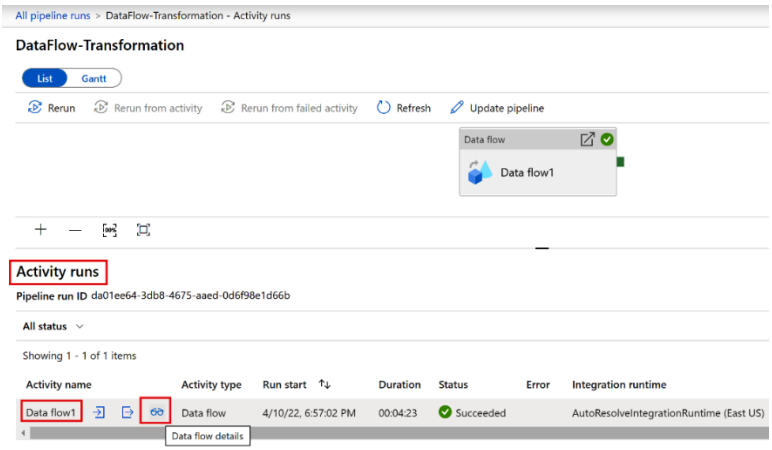
View Table Chart Export results

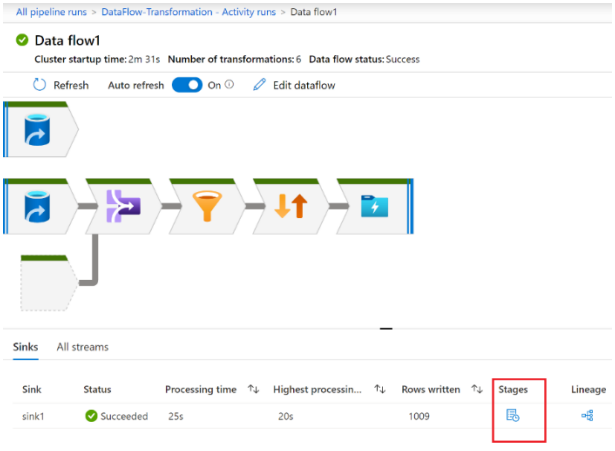
Search

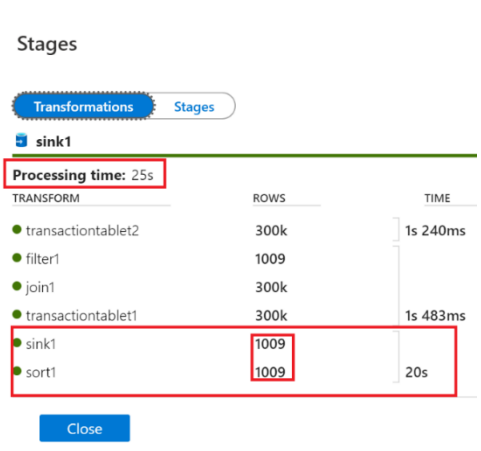
tid	transaction_date	order_count	total_cost	sid	pid	c1	c2
271109	20210915	57	9729	1	10	E7B2FD1C-2E8...	5E9B4A
191913	20210915	71	9686	1	10	CD9D4E1C-0A...	1F2214
163707	20210915	20	9684	1	9	A6F14644-B6A...	33802F
265287	20210915	70	9608	2	9	A8D75C06-477...	40544D

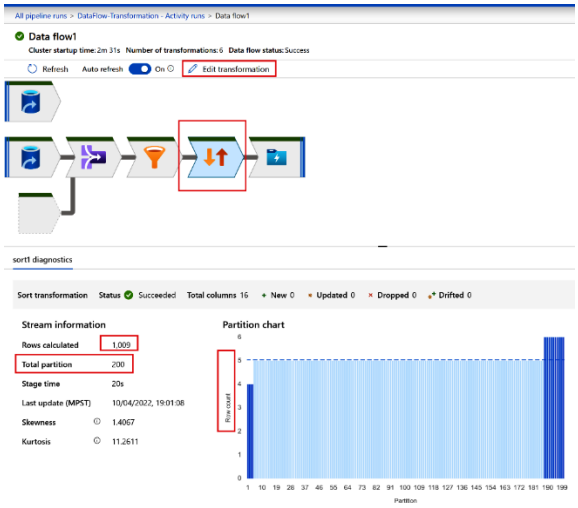

Microsoft Azure
Synapse Analytics
packtadesynapse
arr.nagaraj@gmail.com
DEFAULT DIRECTORY
Pipeline runs
Analytics pools
SQL pools
Apache Spark pools
Data Explorer pools (preview)
Activities
SQL requests
KQL requests
Apache Spark applications
Data flow debug
Integration
Pipeline runs
Trigger runs
Triggered
Debug
Rerun
Cancel
Refresh
Edit columns
List
Gantt
Filter by run ID or name
Kuala Lumpur, Singa... : Last 24 hours
Pipeline name : All
Status : All
Runs : Latest runs
Triggered by : All
Add filter
Copy filters
Showing 1 - 3 items
Pipeline name
Run start
Run end
Duration
Triggered by
Status
Error
Run
Parameters
DataFlow-Transformation
4/10/22, 6:57:00 PM
4/10/22, 7:01:25 PM
00:04:25
Manual trigger
Succeeded
Original
Incremental_Data_Load
4/10/22, 5:00:00 PM
4/10/22, 5:03:01 PM
00:03:00
Incremental_Data_Load
Failed
Original
Copy_Data_Flow
4/10/22, 12:33:33 PM
4/10/22, 12:37:12 PM
00:03:39
Manual trigger
Succeeded
Original

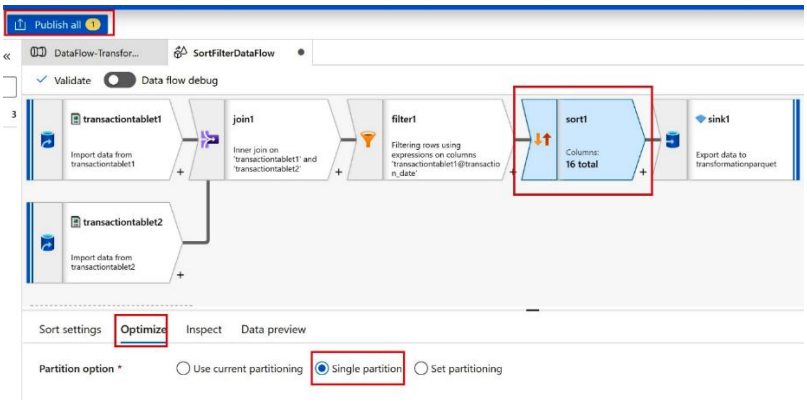

Triggered
Debug
Rerun
Cancel
Refresh
Edit columns
List
Gantt
Filter by run ID or name
Kuala Lumpur, Singa... : Last 24 hours
Pipeline name : All
Status : Succeeded
Runs : Latest runs
Add filter
Showing 1 - 2 items
Pipeline name
Run start
Run end
Duration
Triggered by
Status
DataFlow-Transfor...
4/10/22, 6:57:00 PM
4/10/22, 7:01:25 PM
00:04:25
Manual trigger
Succeeded
Copy_Data_Flow
4/10/22, 12:33:33 PM
4/10/22, 12:37:12 PM
00:03:39
Manual trigger
Succeeded

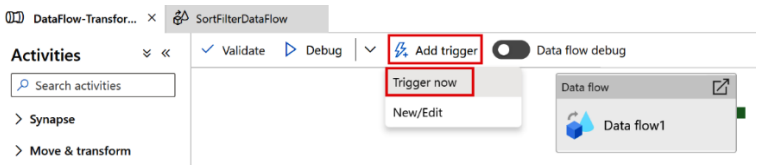

All pipeline runs > DataFlow-Transformation - Activity runs
DataFlow-Transformation
List
Gantt
Rerun
Rerun from activity
Rerun from failed activity
Refresh
Update pipeline
Data flow
Data flow1
Activity runs
Pipeline run ID da01ee64-3db8-4675-aaed-0d6f98e1d66b
All status
Showing 1 - 1 of 1 items
Activity name
Activity type
Run start
Duration
Status
Error
Integration runtime
Data flow1
Data flow
4/10/22, 6:57:02 PM
00:04:23
Succeeded
AutoResolveIntegrationRuntime (East US)
Data flow details

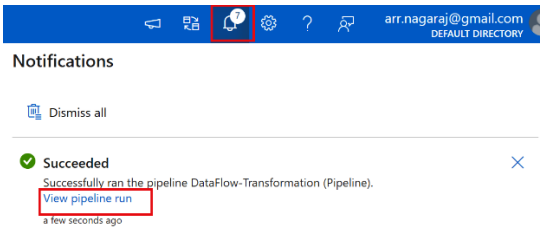

All pipeline runs > DataFlow-Transformation - Activity runs > Data flow1
Data flow1
Cluster startup time: 2m 31s
Number of transformations: 6
Data flow status: Success
Refresh
Auto refresh
On
Edit dataflow
Sinks
All streams
Sink
Status
Processing time
Highest processin...
Rows written
Stages
Lineage
sink1
Succeeded
25s
20s
1009

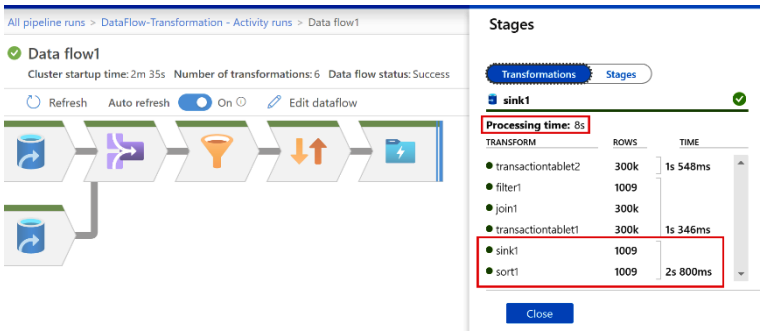

Stages
Transformations
Stages
sink1
Processing time: 25s
TRANSFORM
ROWS
TIME
transactiontablet2
300k
1s 240ms
filter1
1009
join1
300k
transactiontablet1
300k
1s 483ms
sink1
1009
sort1
1009
20s
Close

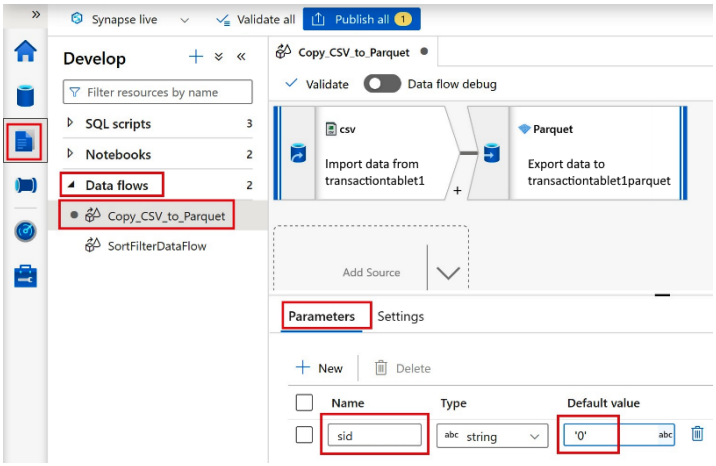

All pipeline runs > DataFlow-Transformation - Activity runs > Data flow1
Data flow1
Cluster startup time: 2m 31s Number of transformations: 6 Data flow status: Success
Refresh Auto refresh On Edit transformation
sort1 diagnostics
Sort transformation Status Succeeded Total columns 16 New 0 Updated 0 Dropped 0 Drifted 0
Stream information
Rows calculated 1,009
Total partition 200
Stage time 20s
Last update (MPST) 10/04/2022, 19:01:08
Skewness 1.4067
Kurtosis 11.2611
Partition chart
Row count
Partition

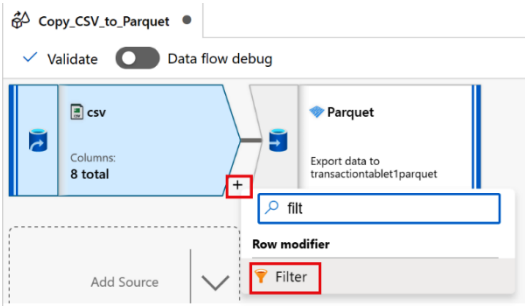

Publish all
DataFlow-Transfor...
SortFilterDataFlow
Validate
Data flow debug
transactiontablet1
Import data from transactiontablet1
join1
Inner join on 'transactiontablet1' and 'transactiontablet2'
filter1
Filtering rows using expressions on columns 'transactiontablet1@transaction_date'
sort1
Columns: 16 total
sink1
Export data to transformationparquet
transactiontablet2
Import data from transactiontablet2
Sort settings
Optimize
Inspect
Data preview
Partition option *
Use current partitioning
Single partition
Set partitioning

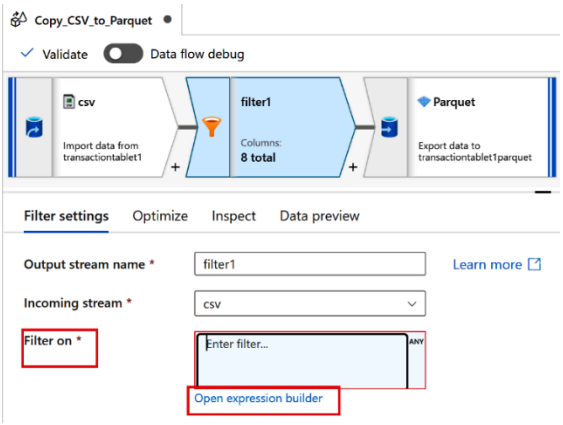

DataFlow-Transfor...
SortFilterDataFlow
Activities
Search activities
Synapse
Move & transform
Validate
Debug
Add trigger
Data flow debug
Trigger now
New/Edit
Data flow
Data flow1

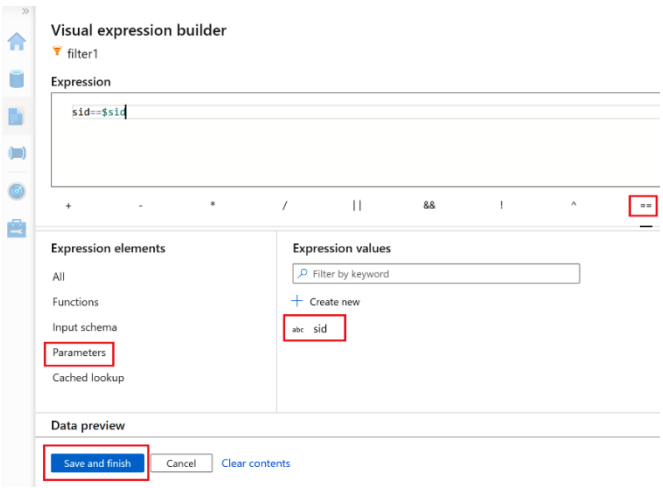

arr.nagaraj@gmail.com
DEFAULT DIRECTORY
Notifications
Dismiss all
Succeeded
Successfully ran the pipeline DataFlow-Transformation (Pipeline).
View pipeline run
a few seconds ago

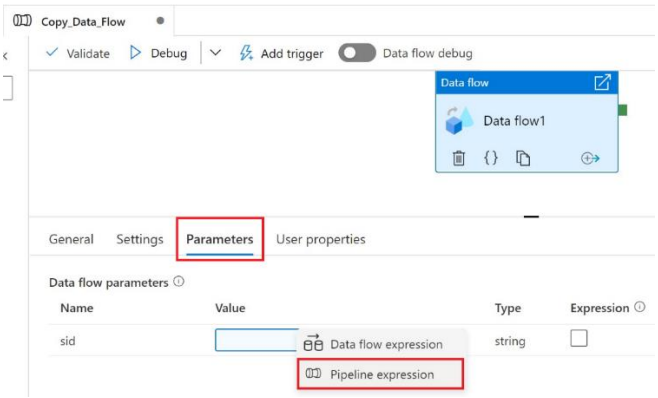

All pipeline runs > DataFlow-Transformation - Activity runs > Data flow1
Data flow1
Cluster startup time: 2m 35s Number of transformations: 6 Data flow status: Success
Refresh Auto refresh On Edit dataflow
Stages
Transformations
Stages
sink1
Processing time: 8s
TRANSFORM ROWS TIME
transactiontablet2 300k 1s 548ms
filter1 1009
join1 300k
transactiontablet1 300k 1s 346ms
sink1 1009
sort1 1009 2s 800ms
Close

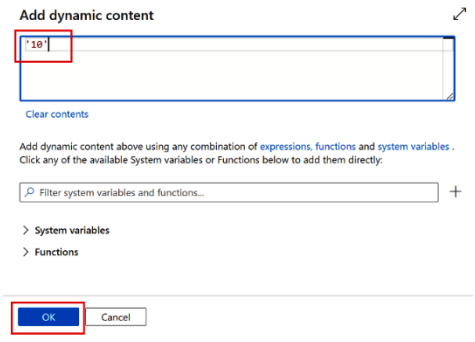

Synapse live
Validate all
Publish all 1
Develop
Filter resources by name
SQL scripts 3
Notebooks 2
Data flows 2
Copy_CSV_to_Parquet
SortFilterDataFlow
Copy_CSV_to_Parquet
Validate
Data flow debug
csv
Import data from transactiontablet1
Parquet
Export data to transactiontablet1parquet
Add Source
Parameters
Settings
New
Delete
Name
Type
Default value
sid
string
'0'

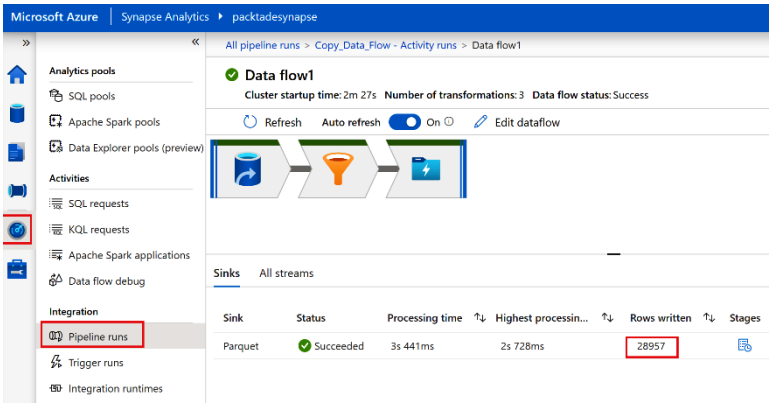

Copy_CSV_to_Parquet
Validate
Data flow debug
csv
Columns:
8 total
Parquet
Export data to transactiontablet1parquet
filt
Row modifier
Filter
Add Source

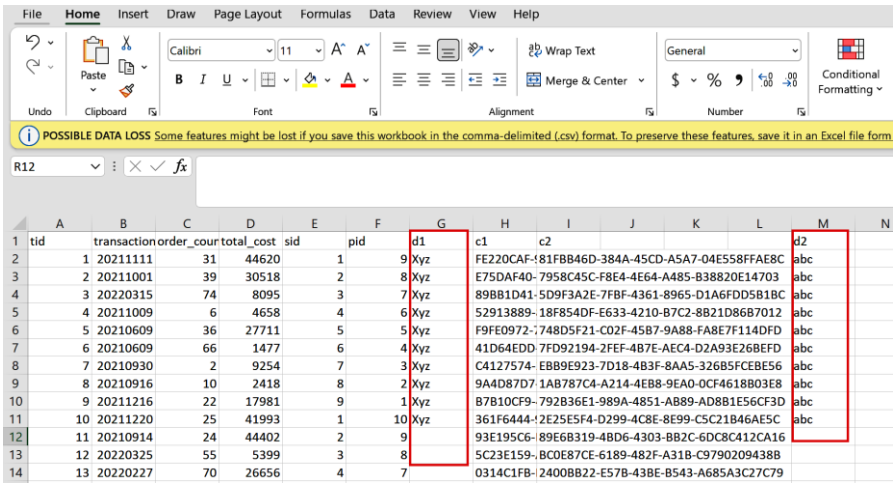

Copy_CSV_to_Parquet
Validate
Data flow debug
csv
Import data from transactiontablet1
filter1
Columns:
8 total
Parquet
Export data to transactiontablet1parquet
Filter settings
Optimize
Inspect
Data preview
Output stream name *
filter1
Learn more
Incoming stream *
csv
Filter on *
Enter filter...
Open expression builder


Visual expression builder
filter1
Expression
sid==$sid
Expression elements
All
Functions
Input schema
Parameters
Cached lookup
Expression values
Filter by keyword
Create new
sid
Data preview
Save and finish
Cancel
Clear contents

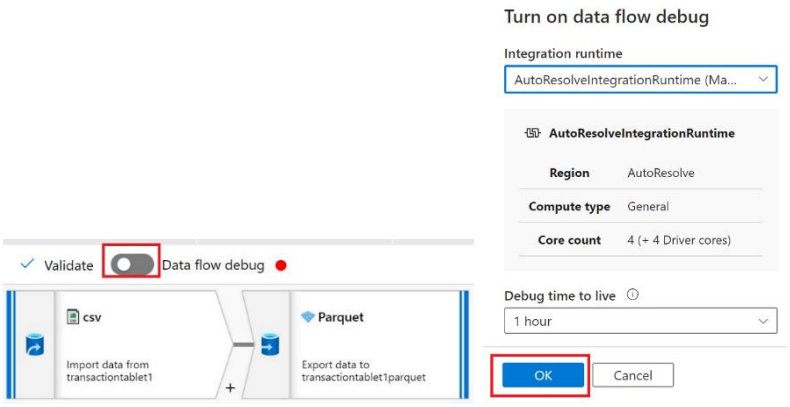

Copy_Data_Flow
Validate
Debug
Add trigger
Data flow debug
Data flow
Data flow1
General
Settings
Parameters
User properties
Data flow parameters
Name
Value
Type
Expression
sid
Data flow expression
Pipeline expression
string

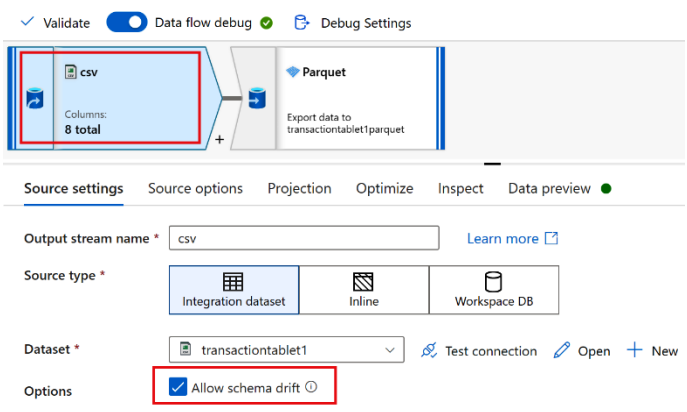

Add dynamic content
'10'
Clear contents
Add dynamic content above using any combination of expressions, functions and system variables.
Click any of the available System variables or Functions below to add them directly:
Filter system variables and functions...
System variables
Functions
OK
Cancel

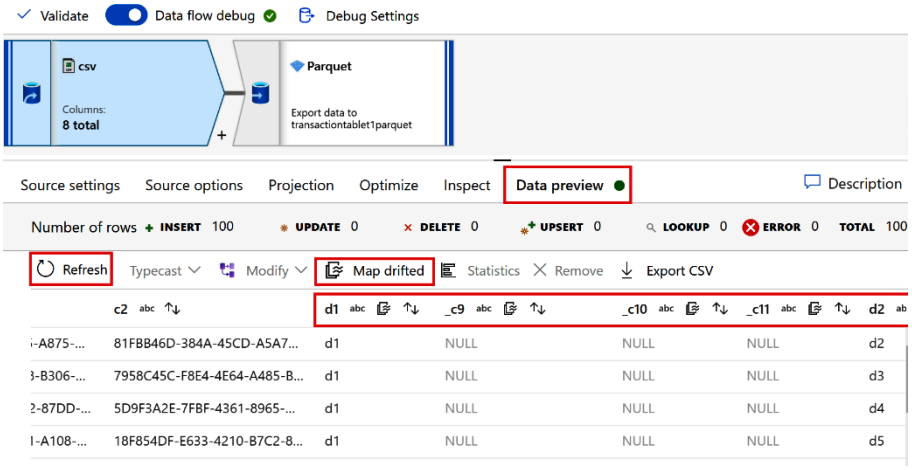


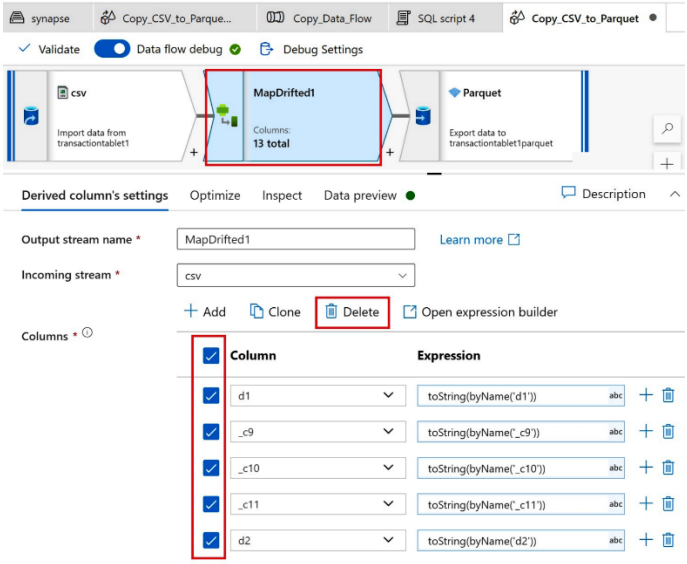


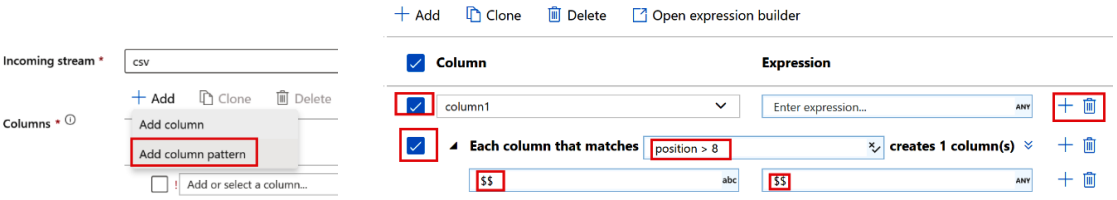
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	tid	transaction	order_cour	total_cost	sid	pid	d1	c1	c2				d2	
2	1	20211111	31	44620	1	9	Xyz	FE220CAF-8	81FBB46D-384A-45CD-A5A7-04E558FFAE8C				abc	
3	2	20211001	39	30518	2	8	Xyz	E75DAF40-	7958C45C-F8E4-4E64-A485-B38820E14703				abc	
4	3	20220315	74	8095	3	7	Xyz	89BB1D41-	5D9F3A2E-7FBF-4361-8965-D1A6FDD5B1BC				abc	
5	4	20211009	6	4658	4	6	Xyz	52913889-	18F854DF-E633-4210-B7C2-8B21D86B7012				abc	
6	5	20210609	36	27711	5	5	Xyz	F9FE0972-	748D5F21-C02F-45B7-9A88-FA8E7F114DFD				abc	
7	6	20210609	66	1477	6	4	Xyz	41D64EDD	7FD92194-2FEF-4B7E-AEC4-D2A93E26BEFD				abc	
8	7	20210930	2	9254	7	3	Xyz	C4127574-	EBB9E923-7D18-4B3F-8AA5-326B5FCEBE56				abc	
9	8	20210916	10	2418	8	2	Xyz	9A4D87D7	1AB787C4-A214-4EB8-9EA0-0CF4618B03E8				abc	
10	9	20211216	22	17981	9	1	Xyz	B7B10CF9-	792B36E1-989A-4851-AB89-AD8B1E56CF3D				abc	
11	10	20211220	25	41993	1	10	Xyz	361F6444-	2E25E5F4-D299-4C8E-8E99-C5C21B46AE5C				abc	
12	11	20210914	24	44402	2	9		93E195C6-	89E6B319-4BD6-4303-BB2C-6DC8C412CA16					
13	12	20220325	55	5399	3	8		5C23E159-	BC0E87CE-6189-482F-A31B-C9790209438B					
14	13	20220227	70	26656	4	7		0314C1FB-	2400BB22-E57B-43BE-B543-A685A3C27C79					

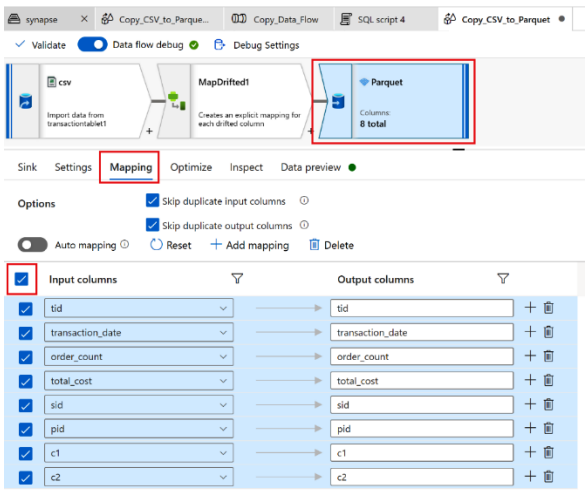


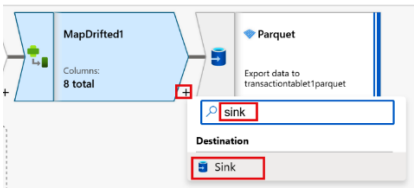


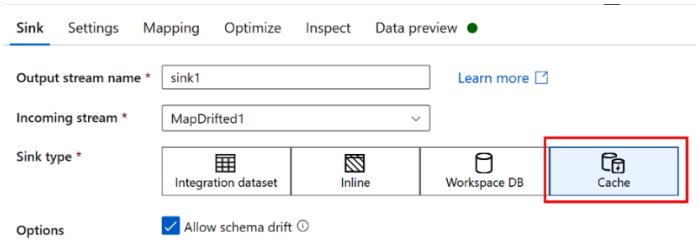

Validate
Data flow debug
Debug Settings
csv
Columns:
8 total
Parquet
Export data to transactiontablet1parquet
Source settings
Source options
Projection
Optimize
Inspect
Data preview
Description
Number of rows
INSERT 100
UPDATE 0
DELETE 0
UPSERT 0
LOOKUP 0
ERROR 0
TOTAL 100
Refresh
Typecast
Modify
Map drifted
Statistics
Remove
Export CSV
c2
d1
_c9
_c10
_c11
d2
81FBB46D-384A-45CD-A5A7...
7958C45C-F8E4-4E64-A485-B...
5D9F3A2E-7FBF-4361-8965-...
18F854DF-E633-4210-B7C2-8...
NULL
d1
d2
d3
d4
d5

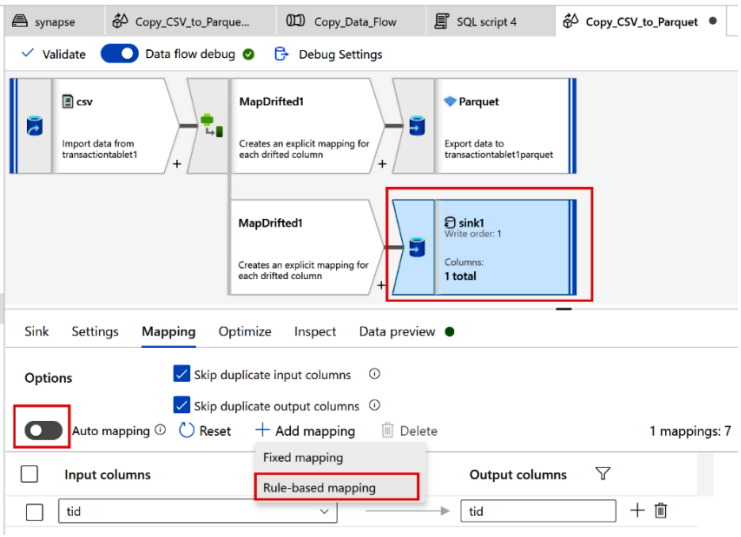

synapse
Copy_CSV_to_Parque...
Copy_Data_Flow
SQL script 4
Copy_CSV_to_Parquet
Validate
Data flow debug
Debug Settings
csv
Import data from transactiontablet1
MapDrifted1
Columns:
13 total
Parquet
Export data to transactiontablet1parquet
Derived column's settings
Optimize
Inspect
Data preview
Description
Output stream name *
MapDrifted1
Learn more
Incoming stream *
csv
Add
Clone
Delete
Open expression builder
Columns *
Column
Expression
d1
_c9
_c10
_c11
d2
toString(byName('d1'))
toString(byName('_c9'))
toString(byName('_c10'))
toString(byName('_c11'))
toString(byName('d2'))

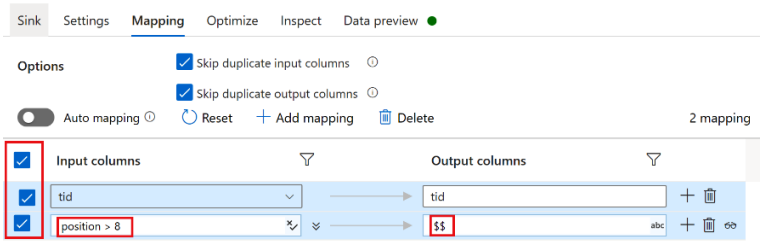

Incoming stream *
csv
Columns *
Add
Clone
Delete
Add column
Add column pattern
Add or select a column...
Add
Clone
Delete
Open expression builder
Column
Expression
column1
Enter expression...
Each column that matches
position > 8
creates 1 column(s)
$$
$$

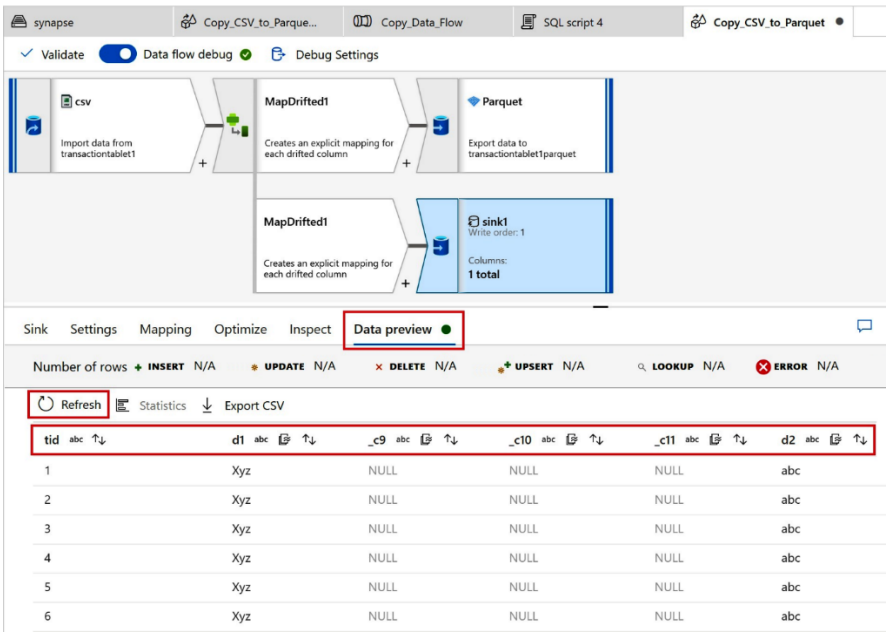

synapse
Copy_CSV_to_Parque...
Copy_Data_Flow
SQL script 4
Copy_CSV_to_Parquet
Validate
Data flow debug
Debug Settings
csv
Import data from transactiontablet1
MapDrifted1
Creates an explicit mapping for each drifted column
Parquet
Columns:
8 total
Sink
Settings
Mapping
Optimize
Inspect
Data preview
Options
Skip duplicate input columns
Skip duplicate output columns
Auto mapping
Reset
Add mapping
Delete
Input columns
Output columns
tid
transaction_date
order_count
total_cost
sid
pid
c1
c2


MapDrifted1
Columns:
8 total
Parquet
Export data to transactiontablet1parquet
sink
Destination
Sink



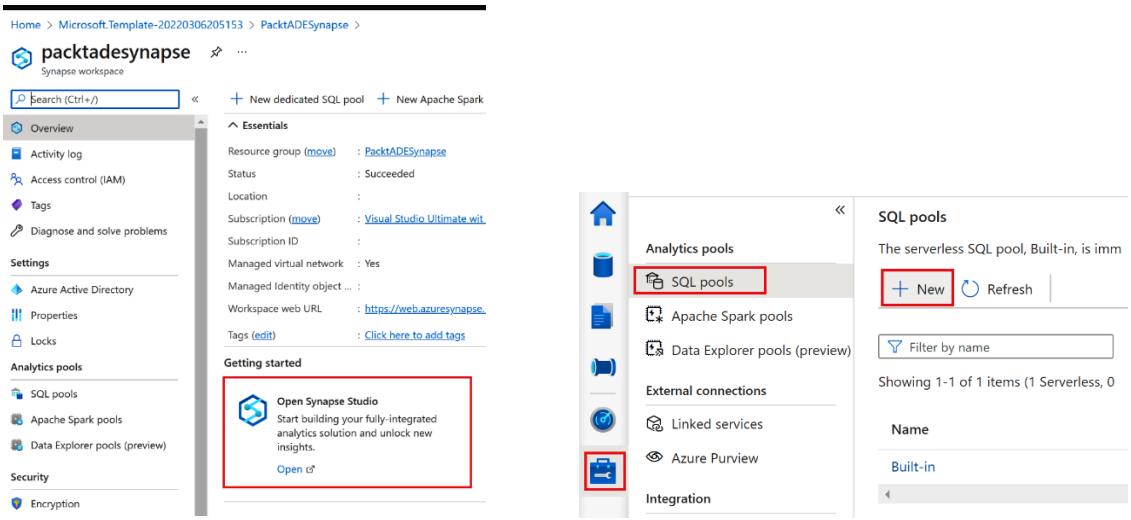


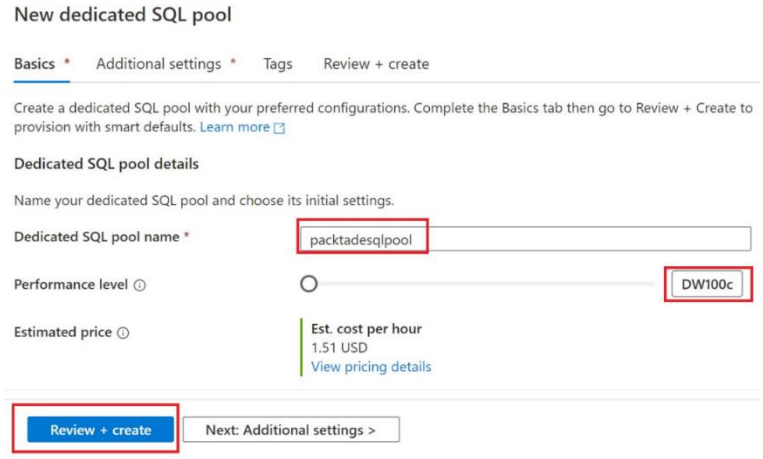


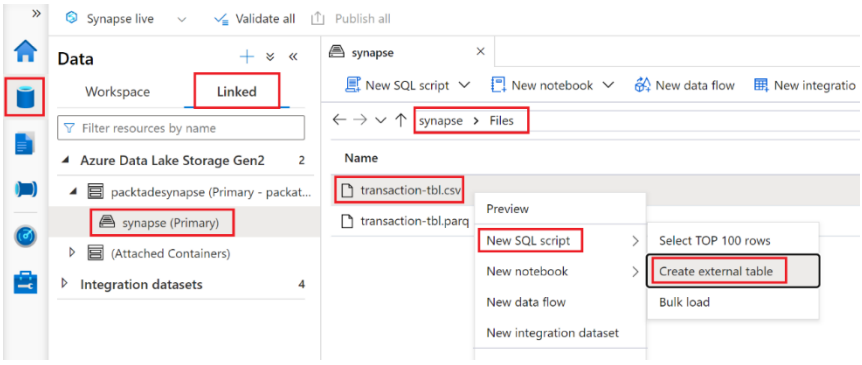


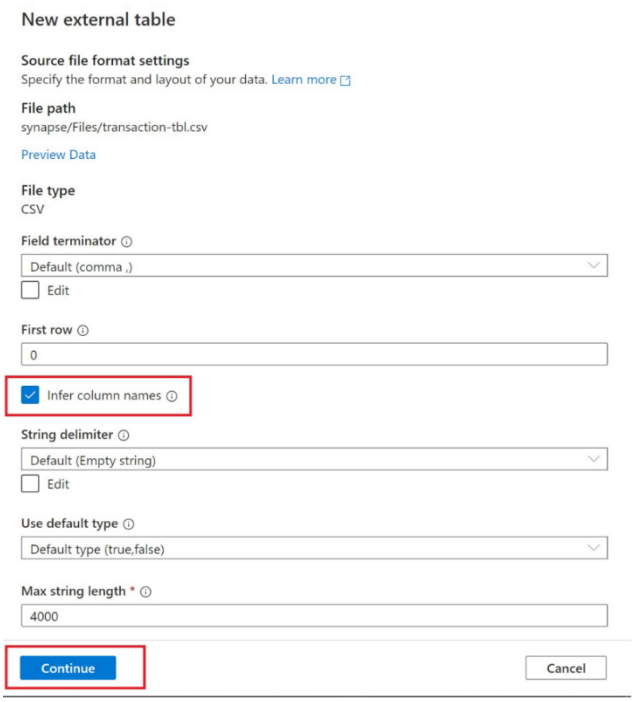
tid	d1	_c9	_c10	_c11	d2
1	Xyz	NULL	NULL	NULL	abc
2	Xyz	NULL	NULL	NULL	abc
3	Xyz	NULL	NULL	NULL	abc
4	Xyz	NULL	NULL	NULL	abc
5	Xyz	NULL	NULL	NULL	abc
6	Xyz	NULL	NULL	NULL	abc

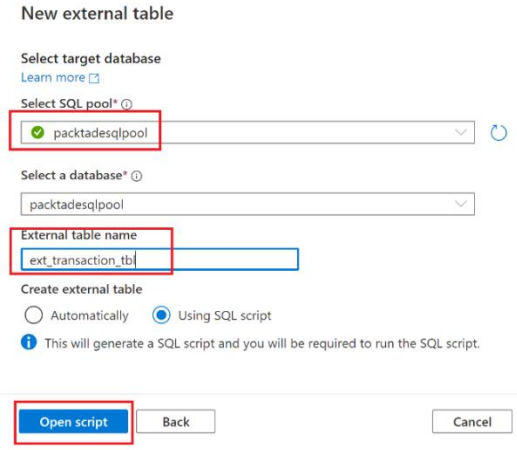
Chapter 10: Building the Serving Layer in Azure Synapse SQL Pool





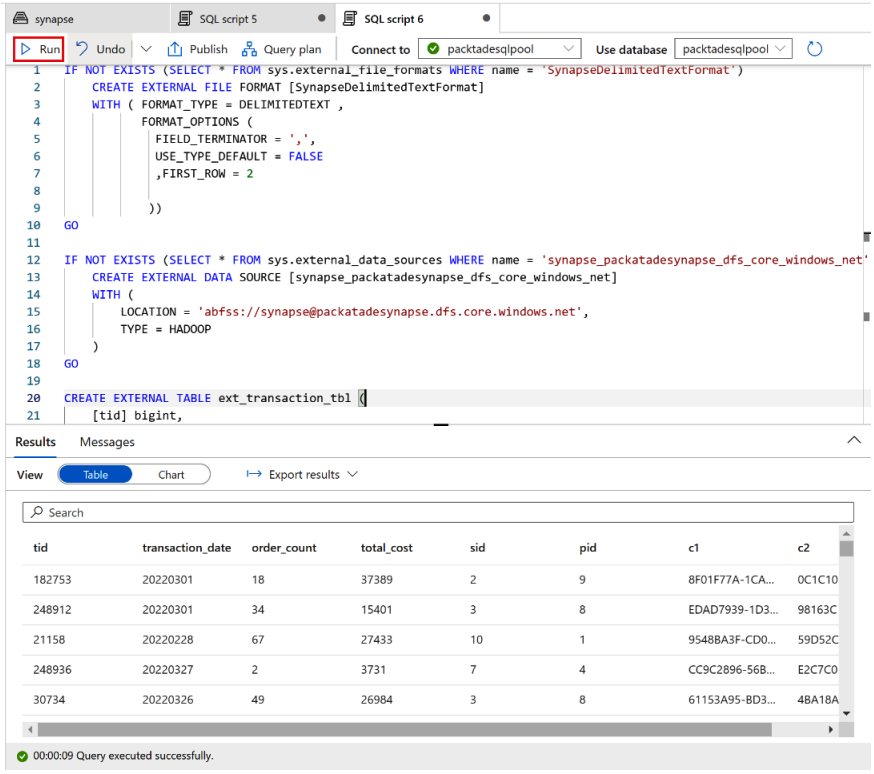


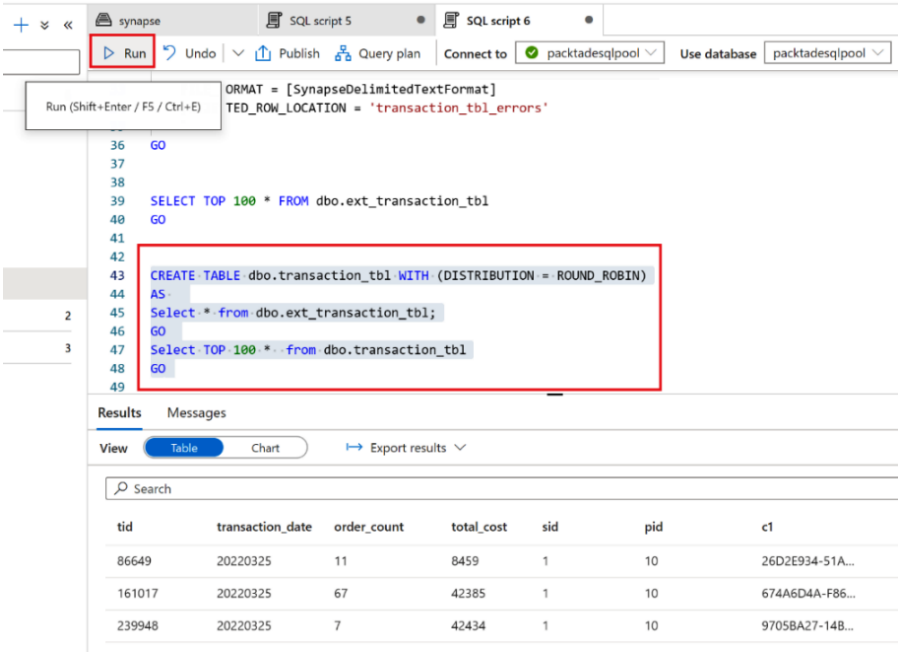


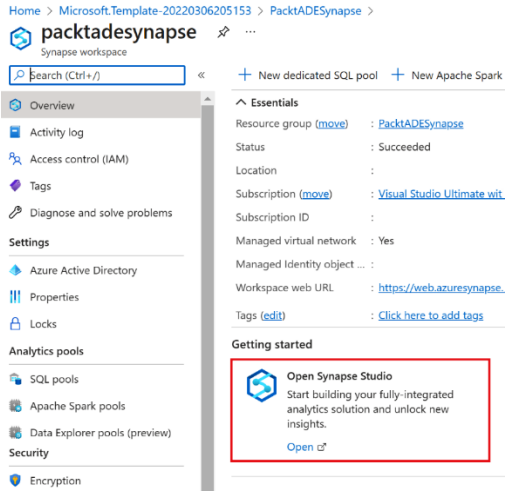


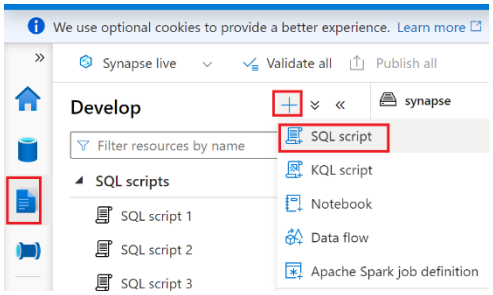

```
IF NOT EXISTS (SELECT * FROM sys.external_file_formats WHERE name = 'SynapseDelimitedTextFormat')
    CREATE EXTERNAL FILE FORMAT [SynapseDelimitedTextFormat]
    WITH ( FORMAT_TYPE = DELIMITEDTEXT ,
           FORMAT_OPTIONS (
             FIELD_TERMINATOR = ',',
             USE_TYPE_DEFAULT = FALSE
             ,FIRST_ROW = 2
           ))
GO
```

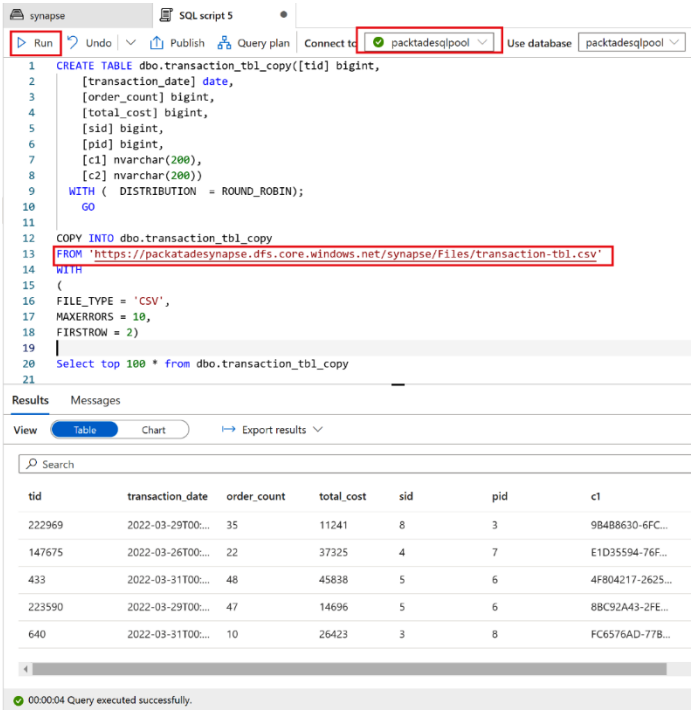
```
CREATE EXTERNAL TABLE ext_transaction_tbl (
    [tid] bigint,
    [transaction_date] bigint,
    [order_count] bigint,
    [total_cost] bigint,
    [sid] bigint,
    [pid] bigint,
    [c1] varchar(200),
    [c2] varchar(200)
    )
    WITH (
    LOCATION = 'Files/transaction-tbl.csv',
```

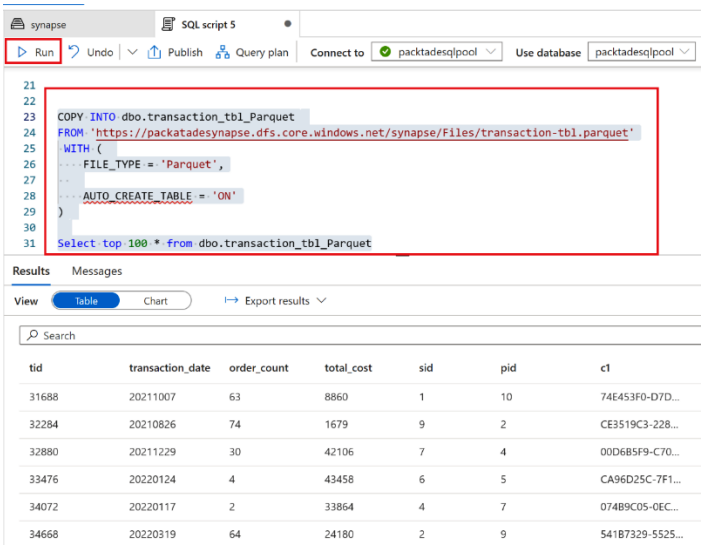

synapse
SQL script 5
SQL script 6
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
IF NOT EXISTS (SELECT * FROM sys.external_file_formats WHERE name = 'SynapseDelimitedTextFormat')
CREATE EXTERNAL FILE FORMAT [SynapseDelimitedTextFormat]
WITH (FORMAT_TYPE = DELIMITEDTEXT ,
FORMAT_OPTIONS (
FIELD_TERMINATOR = ',',
USE_TYPE_DEFAULT = FALSE
,FIRST_ROW = 2
))
GO
IF NOT EXISTS (SELECT * FROM sys.external_data_sources WHERE name = 'synapse_packatadesynapse_dfs_core_windows_net'
CREATE EXTERNAL DATA SOURCE [synapse_packatadesynapse_dfs_core_windows_net]
WITH (
LOCATION = 'abfss://synapse@packatadesynapse.dfs.core.windows.net',
TYPE = HADOOP
)
GO
CREATE EXTERNAL TABLE ext_transaction_tbl (
[tid] bigint,
Results
Messages
View
Table
Chart
Export results
Search
tid transaction_date order_count total_cost sid pid c1 c2
182753 20220301 18 37389 2 9 8F01F77A-1CA... 0C1C10
248912 20220301 34 15401 3 8 EDAD7939-1D3... 98163C
21158 20220228 67 27433 10 1 9548BA3F-CD0... 59D52C
248936 20220327 2 3731 7 4 CC9C2896-56B... E2C7C0
30734 20220326 49 26984 3 8 61153A95-BD3... 4BA18A
00:00:09 Query executed successfully.

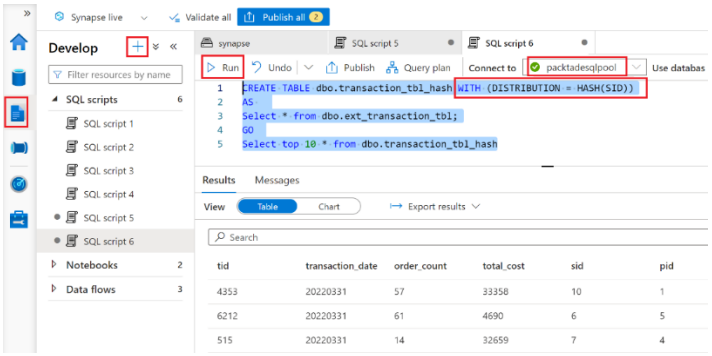

synapse
SQL script 5
SQL script 6
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Run (Shift+Enter / F5 / Ctrl+E)
ORMAT = [SynapseDelimitedTextFormat]
TED_ROW_LOCATION = 'transaction_tbl_errors'
GO
SELECT TOP 100 * FROM dbo.ext_transaction_tbl
GO
CREATE TABLE dbo.transaction_tbl WITH (DISTRIBUTION = ROUND_ROBIN)
AS
Select * from dbo.ext_transaction_tbl;
GO
Select TOP 100 * from dbo.transaction_tbl
GO
Results
Messages
View
Table
Chart
Export results
Search
tid transaction_date order_count total_cost sid pid c1
86649 20220325 11 8459 1 10 26D2E934-51A...
161017 20220325 67 42385 1 10 674A6D4A-F86...
239948 20220325 7 42434 1 10 9705BA27-14B...

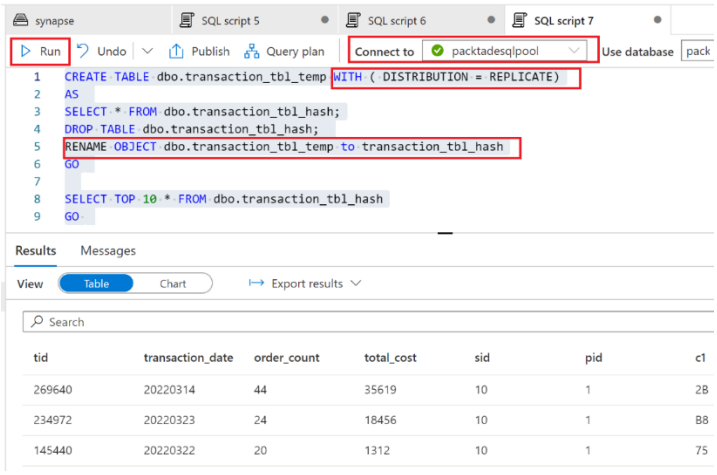

Home > Microsoft.Template-20220306205153 > PacktADESynapse >
packtadesynapse
Synapse workspace
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Azure Active Directory
Properties
Locks
Analytics pools
SQL pools
Apache Spark pools
Data Explorer pools (preview)
Security
Encryption
New dedicated SQL pool
New Apache Spark
Essentials
Resource group (move) : PacktADESynapse
Status : Succeeded
Location :
Subscription (move) : Visual Studio Ultimate wit
Subscription ID :
Managed virtual network : Yes
Managed Identity object ... :
Workspace web URL : https://web.azuresynapse.
Tags (edit) : Click here to add tags
Getting started
Open Synapse Studio
Start building your fully-integrated analytics solution and unlock new insights.
Open

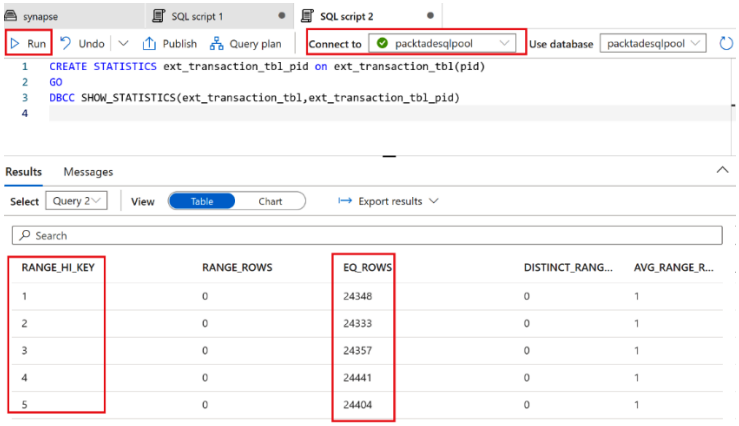

We use optional cookies to provide a better experience. Learn more
Synapse live
Validate all
Publish all
Develop
synapse
Filter resources by name
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
SQL scripts
SQL script 1
SQL script 2
SQL script 3

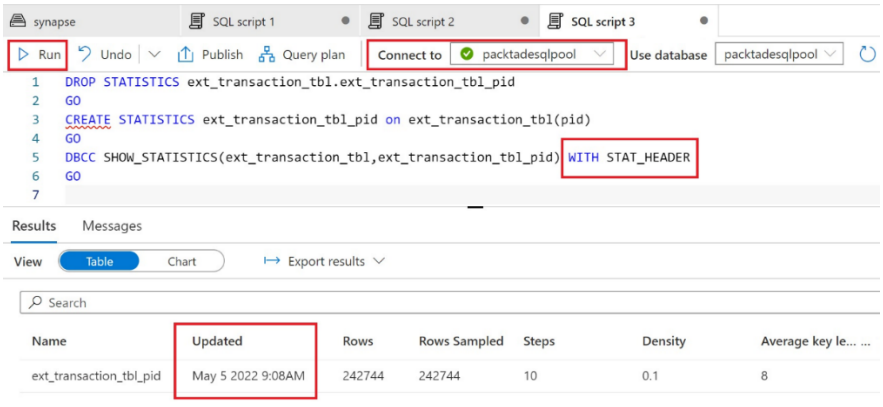

synapse
SQL script 5
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
CREATE TABLE dbo.transaction_tbl_copy([tid] bigint,
[transaction_date] date,
[order_count] bigint,
[total_cost] bigint,
[sid] bigint,
[pid] bigint,
[c1] nvarchar(200),
[c2] nvarchar(200))
WITH (DISTRIBUTION = ROUND_ROBIN);
GO
COPY INTO dbo.transaction_tbl_copy
FROM 'https://packatadesynapse.dfs.core.windows.net/synapse/Files/transaction-tbl.csv'
WITH
(
FILE_TYPE = 'CSV',
MAXERRORS = 10,
FIRSTROW = 2)
Select top 100 * from dbo.transaction_tbl_copy
Results
Messages
View
Table
Chart
Export results
Search
tid transaction_date order_count total_cost sid pid c1
222969 2022-03-29T00:... 35 11241 8 3 9B4B8630-6FC...
147675 2022-03-26T00:... 22 37325 4 7 E1D35594-76F...
433 2022-03-31T00:... 48 45838 5 6 4F804217-2625...
223590 2022-03-29T00:... 47 14696 5 6 88C92A43-2FE...
640 2022-03-31T00:... 10 26423 3 8 FC6576AD-77B...
00:00:04 Query executed successfully.

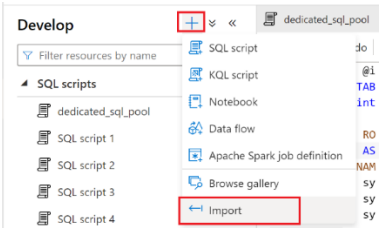

synapse
SQL script 5
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
COPY INTO dbo.transaction_tbl_Parquet
FROM 'https://packatadesynapse.dfs.core.windows.net/synapse/Files/transaction-tbl.parquet'
WITH (
FILE_TYPE = 'Parquet',
AUTO_CREATE_TABLE = 'ON'
)
Select top 100 * from dbo.transaction_tbl_Parquet
Results
Messages
View
Table
Chart
Export results
Search
tid transaction_date order_count total_cost sid pid c1
31688 20211007 63 8860 1 10 74E453F0-D7D...
32284 20210826 74 1679 9 2 CE3519C3-228...
32880 20211229 30 42106 7 4 00D6B5F9-C70...
33476 20220124 4 43458 6 5 CA96D25C-7F1...
34072 20220117 2 33864 4 7 074B9C05-0EC...
34668 20220319 64 24180 2 9 541B7329-5525...

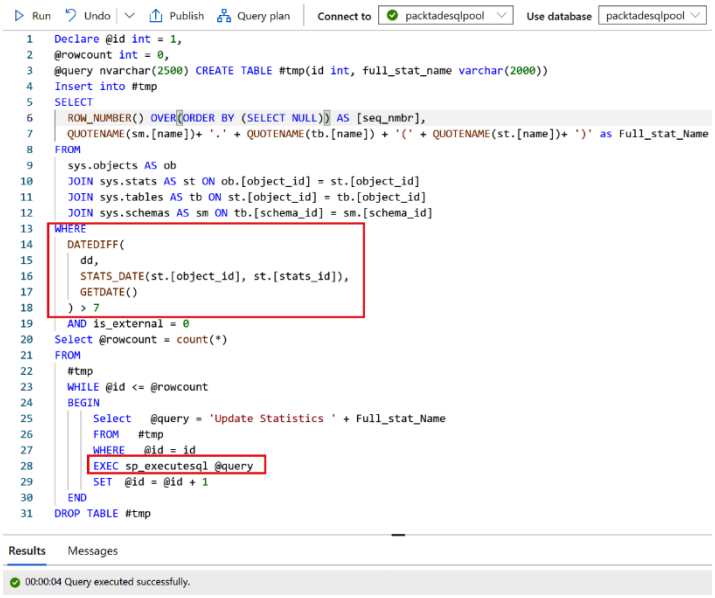

Synapse live
Validate all
Publish all
Develop
SQL scripts
SQL script 1
SQL script 2
SQL script 3
SQL script 4
SQL script 5
SQL script 6
Notebooks
Data flows
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use databas
CREATE TABLE dbo.transaction_tbl_hash WITH (DISTRIBUTION = HASH(SID))
AS
Select * from dbo.ext_transaction_tbl;
GO
Select top 10 * from dbo.transaction_tbl_hash
Results
Messages
View
Table
Chart
Export results
Search
tid
transaction_date
order_count
total_cost
sid
pid
4353
20220331
57
33358
10
1
6212
20220331
61
4690
6
5
515
20220331
14
32659
7
4

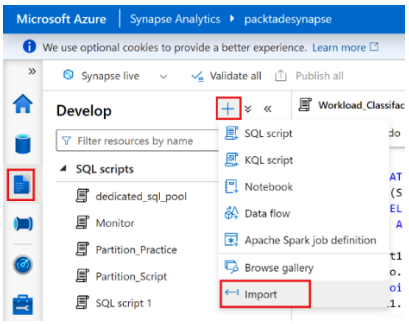

synapse
SQL script 5
SQL script 6
SQL script 7
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
CREATE TABLE dbo.transaction_tbl_temp WITH (DISTRIBUTION = REPLICATE)
AS
SELECT * FROM dbo.transaction_tbl_hash;
DROP TABLE dbo.transaction_tbl_hash;
RENAME OBJECT dbo.transaction_tbl_temp to transaction_tbl_hash
GO
SELECT TOP 10 * FROM dbo.transaction_tbl_hash
GO
Results
Messages
View
Table
Chart
Export results
Search
tid
transaction_date
order_count
total_cost
sid
pid
c1
269640
20220314
44
35619
10
1
28
234972
20220323
24
18456
10
1
88
145440
20220322
20
1312
10
1
75

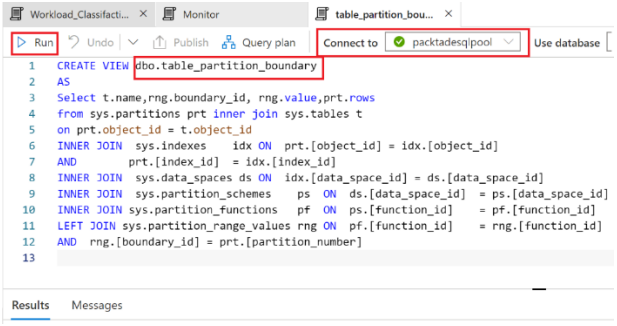

synapse
SQL script 1
SQL script 2
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
CREATE STATISTICS ext_transaction_tbl_pid on ext_transaction_tbl(pid)
GO
DBCC SHOW_STATISTICS(ext_transaction_tbl,ext_transaction_tbl_pid)
Results
Messages
Select
Query 2
View
Table
Chart
Export results
Search
RANGE_HI_KEY
RANGE_ROWS
EQ_ROWS
DISTINCT_RANG...
AVG_RANGE_R...
1
0
24348
0
1
2
0
24333
0
1
3
0
24357
0
1
4
0
24441
0
1
5
0
24404
0
1

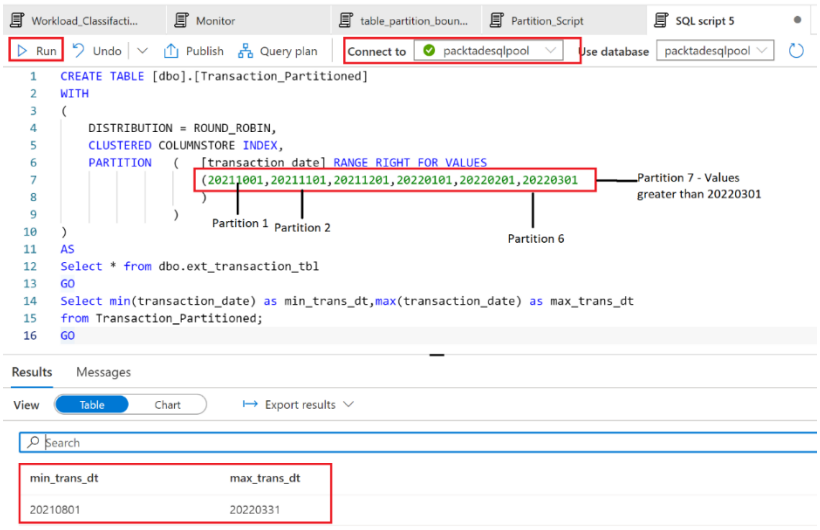

synapse
SQL script 1
SQL script 2
SQL script 3
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
DROP STATISTICS ext_transaction_tbl.ext_transaction_tbl_pid
GO
CREATE STATISTICS ext_transaction_tbl_pid on ext_transaction_tbl(pid)
GO
DBCC SHOW_STATISTICS(ext_transaction_tbl,ext_transaction_tbl_pid) WITH STAT_HEADER
GO
Results
Messages
View
Table
Chart
Export results
Search
Name
Updated
Rows
Rows Sampled
Steps
Density
Average key le... ...
ext_transaction_tbl_pid
May 5 2022 9:08AM
242744
242744
10
0.1
8


Develop
dedicated_sql_pool
Filter resources by name
SQL scripts
dedicated_sql_pool
SQL script 1
SQL script 2
SQL script 3
SQL script 4
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
Browse gallery
Import


Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Declare @id int = 1,
@rowcount int = 0,
@query nvarchar(2500) CREATE TABLE #tmp(id int, full_stat_name varchar(2000))
Insert into #tmp
SELECT
ROW_NUMBER() OVER(ORDER BY (SELECT NULL)) AS [seq_nmbr],
QUOTENAME(sm.[name])+ '.' + QUOTENAME(tb.[name]) + '(' + QUOTENAME(st.[name])+ ')' as Full_stat_Name
FROM
sys.objects AS ob
JOIN sys.stats AS st ON ob.[object_id] = st.[object_id]
JOIN sys.tables AS tb ON st.[object_id] = tb.[object_id]
JOIN sys.schemas AS sm ON tb.[schema_id] = sm.[schema_id]
WHERE
DATEDIFF(
dd,
STATS_DATE(st.[object_id], st.[stats_id]),
GETDATE()
) > 7
AND is_external = 0
Select @rowcount = count(*)
FROM
#tmp
WHILE @id <= @rowcount
BEGIN
Select @query = 'Update Statistics ' + Full_stat_Name
FROM #tmp
WHERE @id = id
EXEC sp_executesql @query
SET @id = @id + 1
END
DROP TABLE #tmp
Results
Messages
00:00:04 Query executed successfully.


Microsoft Azure
Synapse Analytics
packtadesynapse
We use optional cookies to provide a better experience. Learn more
Synapse live
Validate all
Publish all
Develop
Filter resources by name
SQL scripts
dedicated_sql_pool
Monitor
Partition_Practice
Partition_Script
SQL script 1
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
Browse gallery
Import


Workload_Classifacti...
Monitor
table_partition_bou...
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
CREATE VIEW dbo.table_partition_boundary
AS
Select t.name,rng.boundary_id, rng.value,prt.rows
from sys.partitions prt inner join sys.tables t
on prt.object_id = t.object_id
INNER JOIN sys.indexes idx ON prt.[object_id] = idx.[object_id]
AND prt.[index_id] = idx.[index_id]
INNER JOIN sys.data_spaces ds ON idx.[data_space_id] = ds.[data_space_id]
INNER JOIN sys.partition_schemes ps ON ds.[data_space_id] = ps.[data_space_id]
INNER JOIN sys.partition_functions pf ON ps.[function_id] = pf.[function_id]
LEFT JOIN sys.partition_range_values rng ON pf.[function_id] = rng.[function_id]
AND rng.[boundary_id] = prt.[partition_number]
Results
Messages


Workload_Classifacti...
Monitor
table_partition_boun...
Partition_Script
SQL script 5
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
CREATE TABLE [dbo].[Transaction_Partitioned]
WITH
(
DISTRIBUTION = ROUND_ROBIN,
CLUSTERED COLUMNSTORE INDEX,
PARTITION ([transaction_date] RANGE RIGHT FOR VALUES
(20211001,20211101,20211201,20220101,20220201,20220301
)
)
)
AS
Select * from dbo.ext_transaction_tbl
GO
Select min(transaction_date) as min_trans_dt,max(transaction_date) as max_trans_dt
from Transaction_Partitioned;
GO
Partition 7 - Values greater than 20220301
Partition 1
Partition 2
Partition 6
Results
Messages
View
Table
Chart
Export results
Search
min_trans_dt
max_trans_dt
20210801
20220331

```
Select min(transaction_date) as min_trans_dt,max(transaction_date) as max_trans_dt
from Transaction_Partitioned;
GO
Select * from dbo.table_partition_boundary
GO
```

sults Messages

iew Table Chart Export results

Search

name	boundary_id	value	rows
Transaction_Partitioned	1	20211001	34677
Transaction_Partitioned	2	20211101	34677
Transaction_Partitioned	3	20211201	34677
Transaction_Partitioned	4	20220101	34677
Transaction_Partitioned	5	20220201	34677
Transaction_Partitioned	6	20220301	34677
Transaction_Partitioned	(NULL)	(NULL)	34682

```
CREATE TABLE [dbo].[Transaction_Partitioned_before_oct]
WITH
(
    DISTRIBUTION = ROUND_ROBIN,
    CLUSTERED COLUMNSTORE INDEX,
    PARTITION    (   [transaction_date] RANGE RIGHT FOR VALUES
                    (20211001
                    )
                )
)
AS
Select * from dbo.Transaction_Partitioned where 1 = 2;
```

Results Messages

```
ALTER TABLE Transaction_Partitioned SWITCH PARTITION 1 to Transaction_Partitioned_before_oct PARTITION 1
GO
Select name,boundary_id,value,rows
from dbo.table_partition_boundary
where value = 20211001
GO
```

Results Messages

View Table Chart Export results

Search

name	boundary_id	value	rows
Transaction_Partitioned	1	20211001	0
Transaction_Partitioned_before_oct	1	20211001	34677

```
ALTER TABLE Transaction_Partitioned MERGE RANGE('20211001')
GO
Select name,boundary_id,value
from dbo.table_partition_boundary
where name = 'Transaction_Partitioned'
```

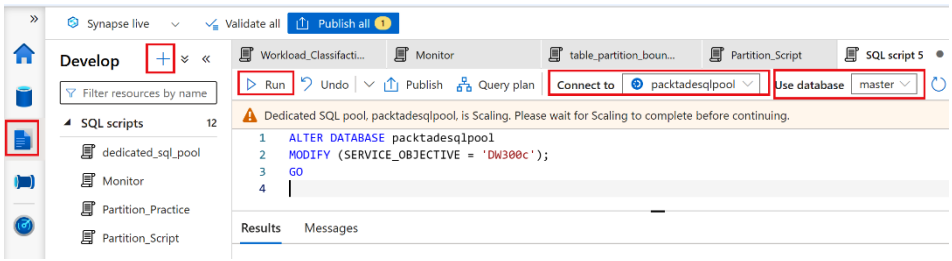
Results Messages

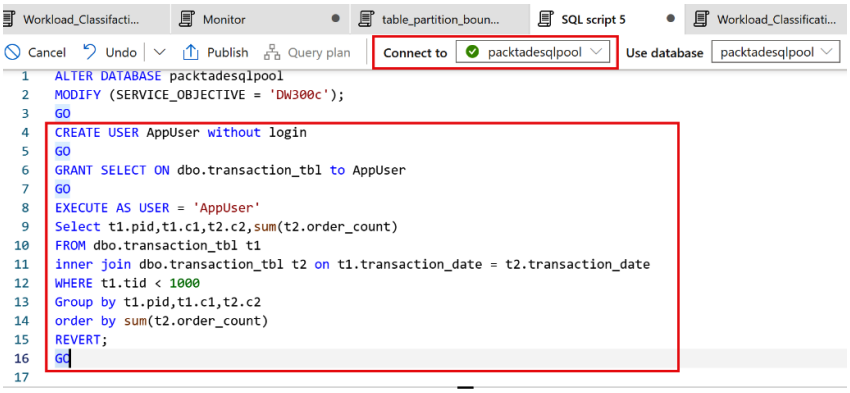
View Table Chart Export results

Search

name	boundary_id	value
Transaction_Partitioned	1	20211101
Transaction_Partitioned	2	20211201
Transaction_Partitioned	3	20220101
Transaction_Partitioned	4	20220201
Transaction_Partitioned	5	20220301
Transaction_Partitioned	(NULL)	(NULL)

00:00:04 Query executed successfully.



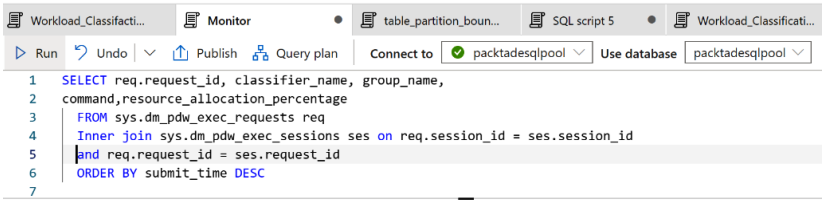


Results Messages

View Table Chart Export results

Search

pid	c1	c2	(No column name)
1	13CB8A65-E8CF-4119-A63B-CBC...	477ED8C5-7A26-47F1-9B5B-D09...	0
1	54D1CCD7-93EF-491A-915E-262...	96120990-3B00-4A1A-9F36-D42...	0
1	A96F8BA3-55BB-4CCC-9D8F-8C0...	96120990-3B00-4A1A-9F36-D42...	0
2	04DD1642-790A-4B3D-B14F-091...	3342F45A-310E-4EEA-8223-B309...	0

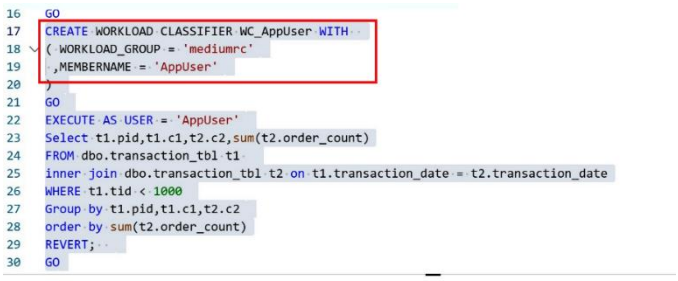


Results Messages

View Table Chart Export results

Search

request_id	classifier_name	group_name	command	resource_allocation_percentage
QID6499	(NULL)	(NULL)	SELECT req.request_id, classifier_name, grou...	(NULL)
QID6491	(NULL)	smallrc	Select t1.pid,t1.c1,t2.c2,sum(t2.order_count) ...	8.25



esults Messages

iew Table Chart Export results

Search

pid	c1	c2	(No column name)
1	13CB8A65-E8CF-4119-A63B-CBC...	477ED8C5-7A26-47F1-9B5B-D09...	0
1	54D1CCD7-93EF-491A-915E-262...	96120990-3B00-4A1A-9F36-D42...	0
1	A96F8BA3-55BB-4CCC-9D8F-8C0...	96120990-3B00-4A1A-9F36-D42...	0
2	04DD1642-790A-4B3D-B14F-091...	3342F45A-310E-4EEA-8223-B309...	0

Run | Undo | Publish | Query plan | Connect to: packtadesqlpool | Use database: packtadesqlpool

```
SELECT req.request_id, classifier_name, group_name,
command,resource_allocation_percentage
 FROM sys.dm_pdw_exec_requests req
 Inner join sys.dm_pdw_exec_sessions ses on req.session_id = ses.session_id
 and req.request_id = ses.request_id
 ORDER BY submit_time DESC
```

Results | Messages

View: Table | Chart | Export results

Search

request_id	classifier_name	group_name	command	resource_allocation_percentage
QID6541	(NULL)	(NULL)	SELECT req.request_id, classifier_name, gro...	(NULL)
QID6537	WC_AppUser	mediumrc	Select t1.pid,t1.c1,t2.c2,sum(t2.order_count)...	10.00

SQL script 6 | SQL script 9 | SQL script 11 | S

Run | Undo | Publish | Query plan | Connect to: packtadesqlpool

```
CREATE WORKLOAD GROUP WG_AppUser_offpeak WITH
( REQUEST_MIN_RESOURCE_GRANT_PERCENT = 12
,REQUEST_MAX_RESOURCE_GRANT_PERCENT = 20
 ,MIN_PERCENTAGE_RESOURCE = 24
 ,CAP_PERCENTAGE_RESOURCE = 40
)
GO
CREATE WORKLOAD CLASSIFIER WC_AppUser_offpeak WITH
( WORKLOAD_GROUP = 'WG_AppUser_offpeak'
 ,MEMBERNAME = 'AppUser'
 ,START_TIME = '13:30'
 ,END_TIME = '23:00'
)
```

Results | Messages

Monitor | SQL script 6 | SQL script 7 | SQL script 9 | SQL script 10

Cancel | Undo | Publish | Query plan | Connect to: packtadesqlpool | Use database: packtadesqlpool

```
EXECUTE AS USER = 'AppUser'
Select getdate(), t1.pid,t1.c1,t2.c2,sum(t2.order_count)
FROM dbo.transaction_tbl t1
inner join dbo.transaction_tbl t2 on t1.transaction_date = t2.transaction_date
WHERE t1.tid < 1000
Group by t1.pid,t1.c1,t2.c2
order by sum(t2.order_count)
REVERT;
GO
```

Results | Messages

View: Table | Chart | Export results

Search

(No column name)	pid	c1	c2	(No column na...
2022-05-04T13:29:09.6330000	1	13CB8A65-E8CF-4119-A63B-CBC...	477ED8C5-7A26...	0
2022-05-04T13:29:09.6330000	1	54D1CCD7-93EF-491A-915E-262...	96120990-3B00-...	0
2022-05-04T13:29:09.6330000	1	A96F8BA3-55BB-4CCC-9D8F-8C0...	96120990-3B00-...	0
2022-05-04T13:29:09.6330000	2	04DD1642-790A-4B3D-B14F-091...	3342F45A-310E-...	0

Monitor | SQL script 6 | SQL script 7 | SQL script 9 | SQL script 10

Run | Undo | Publish | Query plan | Connect to: packtadesqlpool | Use database: packtadesqlpool

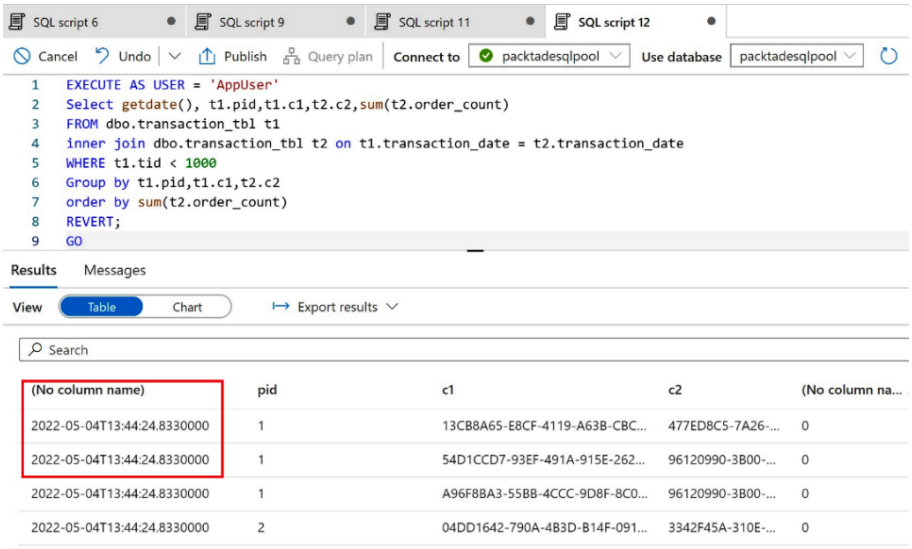
```
SELECT req.request_id, classifier_name, resource_class,
command,resource_allocation_percentage,submit_time
 FROM sys.dm_pdw_exec_requests req
 Inner join sys.dm_pdw_exec_sessions ses on req.session_id = ses.session_id
 and req.request_id = ses.request_id
 ORDER BY submit_time DESC
```

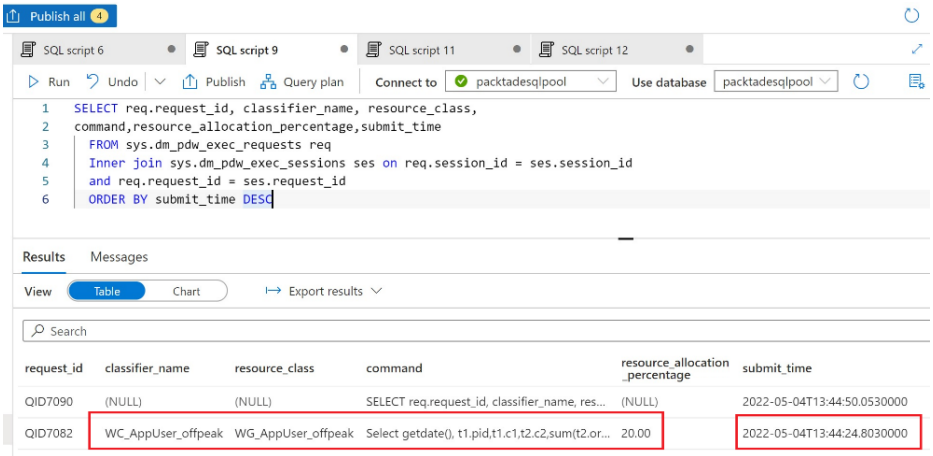
Results | Messages

View: Table | Chart | Export results

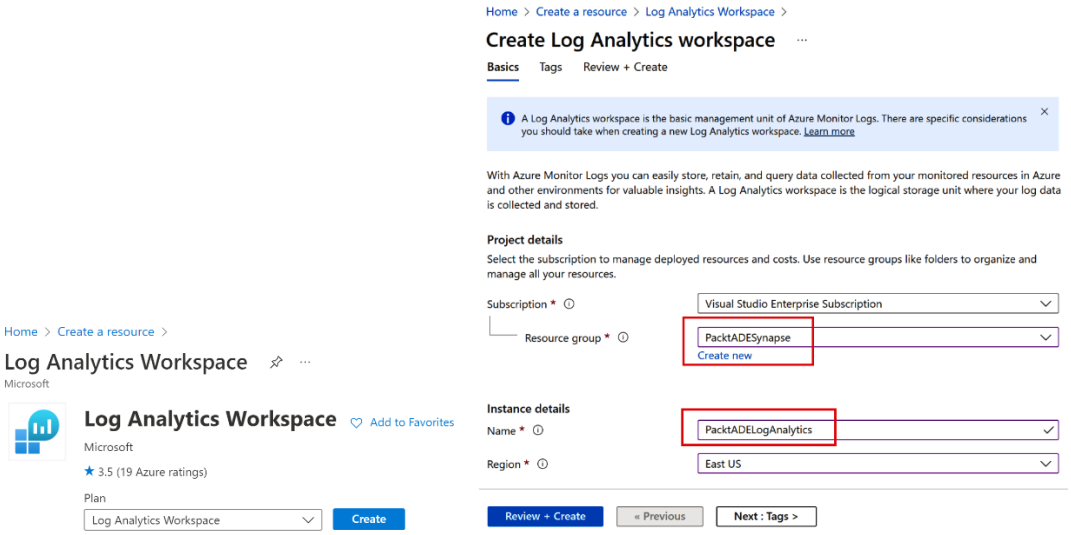
Search

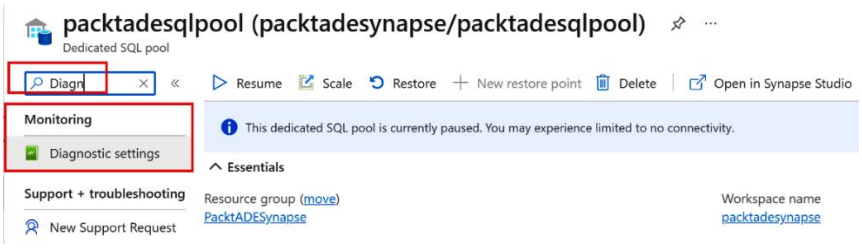
request_id	classifier_name	resource_class	command	resource_allocation_percentage	submit_time
QID6994	(NULL)	(NULL)	SELECT req.request_id, classifier_name, resourc...	(NULL)	2022-05-04T13:29:15.6400000
QID6990	WC_AppUser	mediumrc	Select getdate(), t1.pid,t1.c1,t2.c2,sum(t2.order...	10.00	2022-05-04T13:29:09.6030000

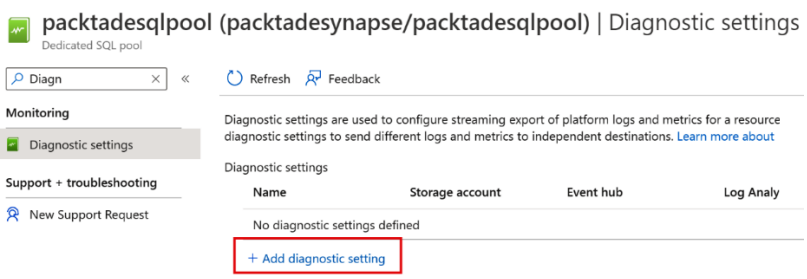

SQL script 6
SQL script 9
SQL script 11
SQL script 12
Cancel
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
1 EXECUTE AS USER = 'AppUser'
2 Select getdate(), t1.pid,t1.c1,t2.c2,sum(t2.order_count)
3 FROM dbo.transaction_tbl t1
4 inner join dbo.transaction_tbl t2 on t1.transaction_date = t2.transaction_date
5 WHERE t1.tid < 1000
6 Group by t1.pid,t1.c1,t2.c2
7 order by sum(t2.order_count)
8 REVERT;
9 GO
Results
Messages
View
Table
Chart
Export results
Search
(No column name)
pid
c1
c2
(No column na...
2022-05-04T13:44:24.8330000
1
13CB8A65-E8CF-4119-A63B-CBC...
477ED8C5-7A26-...
0
2022-05-04T13:44:24.8330000
1
54D1CCD7-93EF-491A-915E-262...
96120990-3B00-...
0
2022-05-04T13:44:24.8330000
1
A96F8BA3-55BB-4CCC-9D8F-8C0...
96120990-3B00-...
0
2022-05-04T13:44:24.8330000
2
04DD1642-790A-4B3D-B14F-091...
3342F45A-310E-...
0

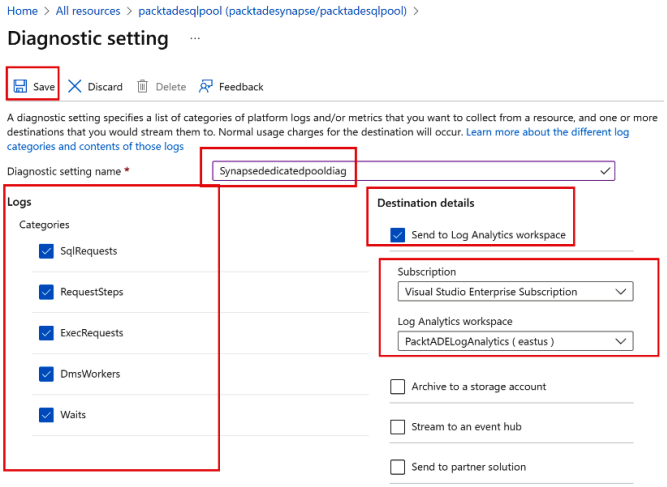

Publish all 4
SQL script 6
SQL script 9
SQL script 11
SQL script 12
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
1 SELECT req.request_id, classifier_name, resource_class,
2 command,resource_allocation_percentage,submit_time
3 FROM sys.dm_pdw_exec_requests req
4 Inner join sys.dm_pdw_exec_sessions ses on req.session_id = ses.session_id
5 and req.request_id = ses.request_id
6 ORDER BY submit_time DESC
Results
Messages
View
Table
Chart
Export results
Search
request_id
classifier_name
resource_class
command
resource_allocation_percentage
submit_time
QID7090
(NULL)
(NULL)
SELECT req.request_id, classifier_name, res...
(NULL)
2022-05-04T13:44:50.0530000
QID7082
WC_AppUser_offpeak
WG_AppUser_offpeak
Select getdate(), t1.pid,t1.c1,t2.c2,sum(t2.or...
20.00
2022-05-04T13:44:24.8030000

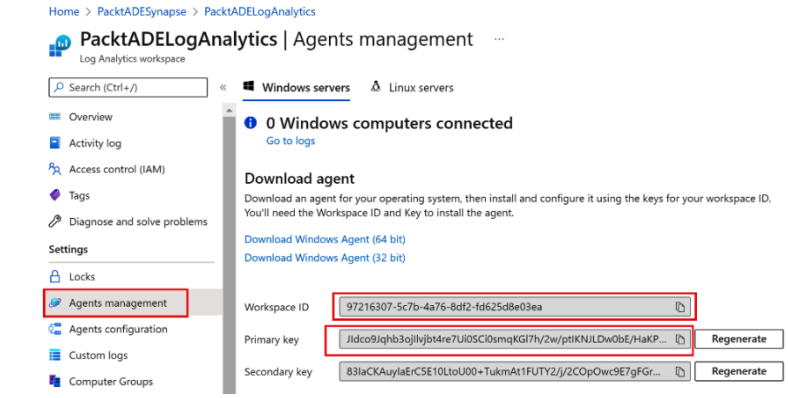
Chapter 11: Monitoring Synapse SQL and Spark Pools

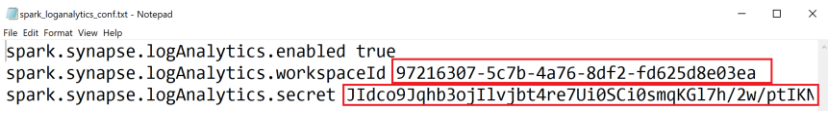


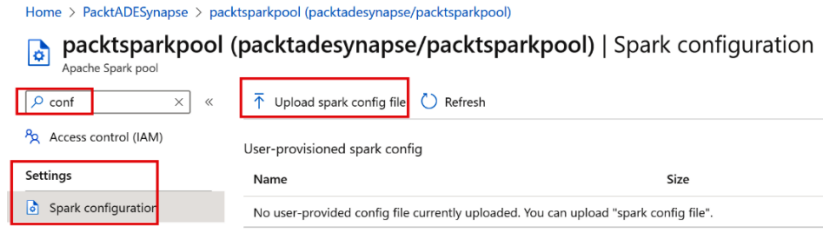


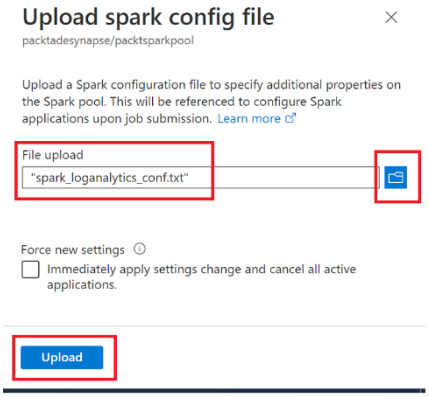


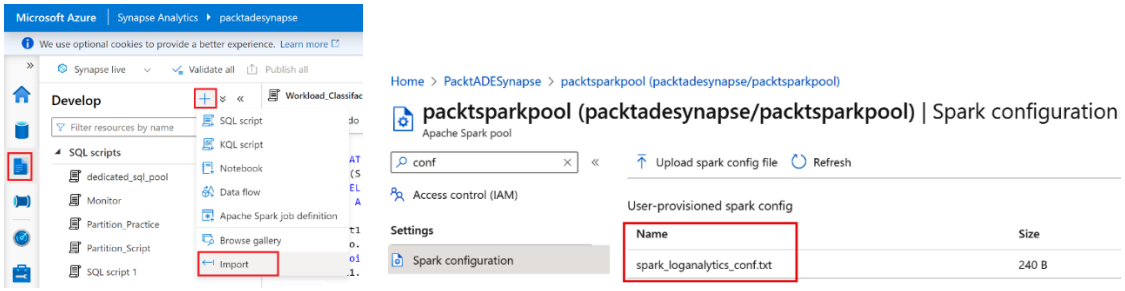


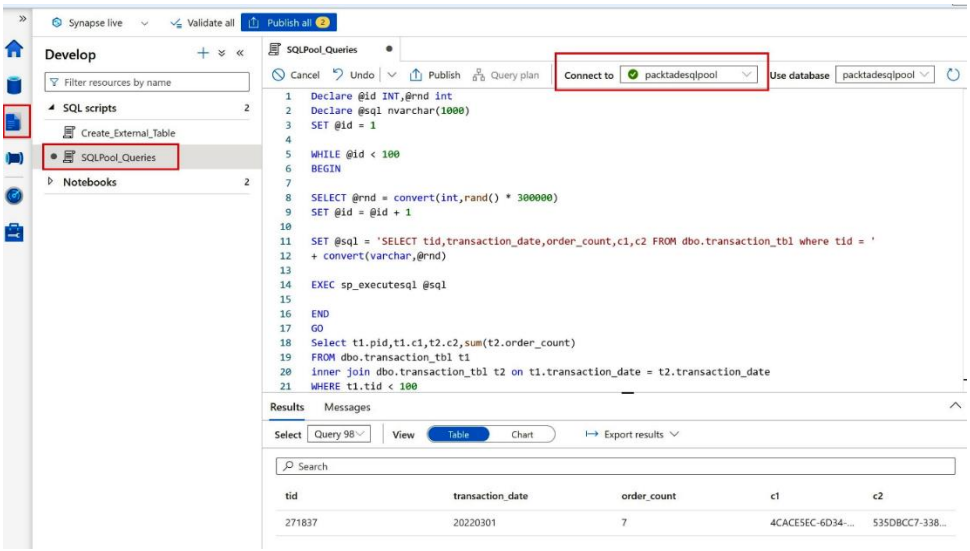

Home > PacktADESynapse > PacktADELogAnalytics
PacktADELogAnalytics | Agents management
Log Analytics workspace
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Locks
Agents management
Agents configuration
Custom logs
Computer Groups
Windows servers
Linux servers
0 Windows computers connected
Go to logs
Download agent
Download an agent for your operating system, then install and configure it using the keys for your workspace ID.
You'll need the Workspace ID and Key to install the agent.
Download Windows Agent (64 bit)
Download Windows Agent (32 bit)
Workspace ID
97216307-5c7b-4a76-8df2-fd625d8e03ea
Primary key
Secondary key
Regenerate
Regenerate

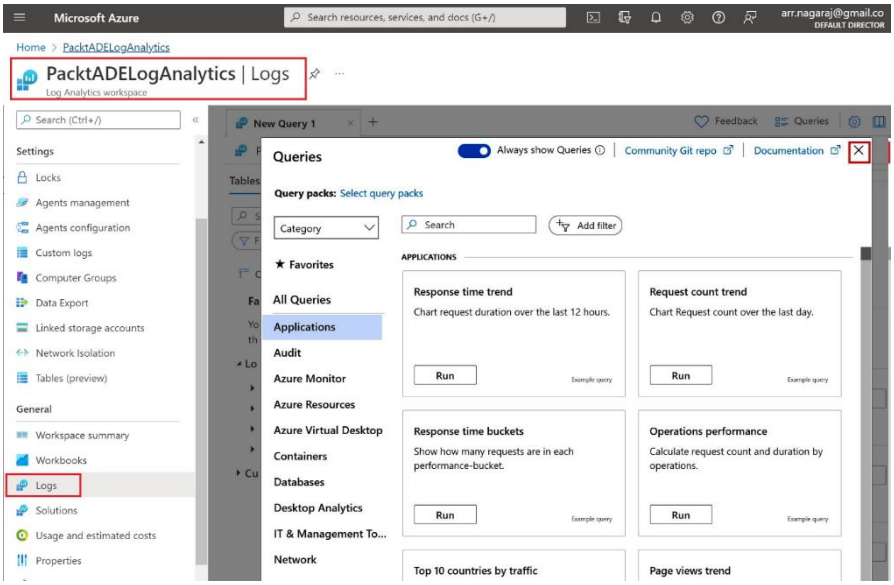

spark_loganalytics_conf.txt - Notepad
File Edit Format View Help
spark.synapse.logAnalytics.enabled true
spark.synapse.logAnalytics.workspaceId 97216307-5c7b-4a76-8df2-fd625d8e03ea
spark.synapse.logAnalytics.secret JIdco9Jqhb3ojIlvjbt4re7Ui0SCi0smqKGl7h/2w/ptIKN

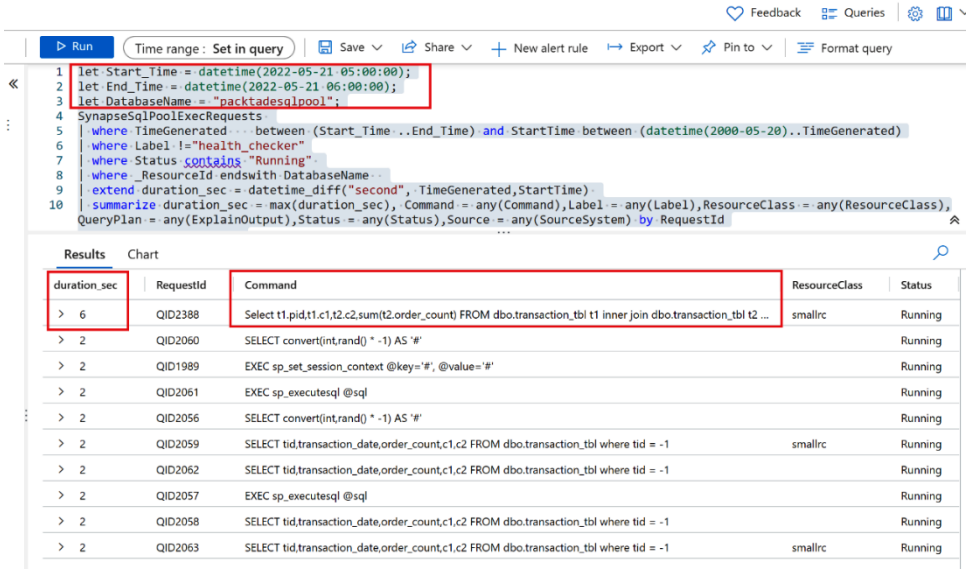

Home > PacktADESynapse > packtsparkpool (packtadesynapse/packtsparkpool)
packtsparkpool (packtadesynapse/packtsparkpool) | Spark configuration
Apache Spark pool
conf
Access control (IAM)
Settings
Spark configuration
Upload spark config file
Refresh
User-provisioned spark config
Name
Size
No user-provided config file currently uploaded. You can upload "spark config file".

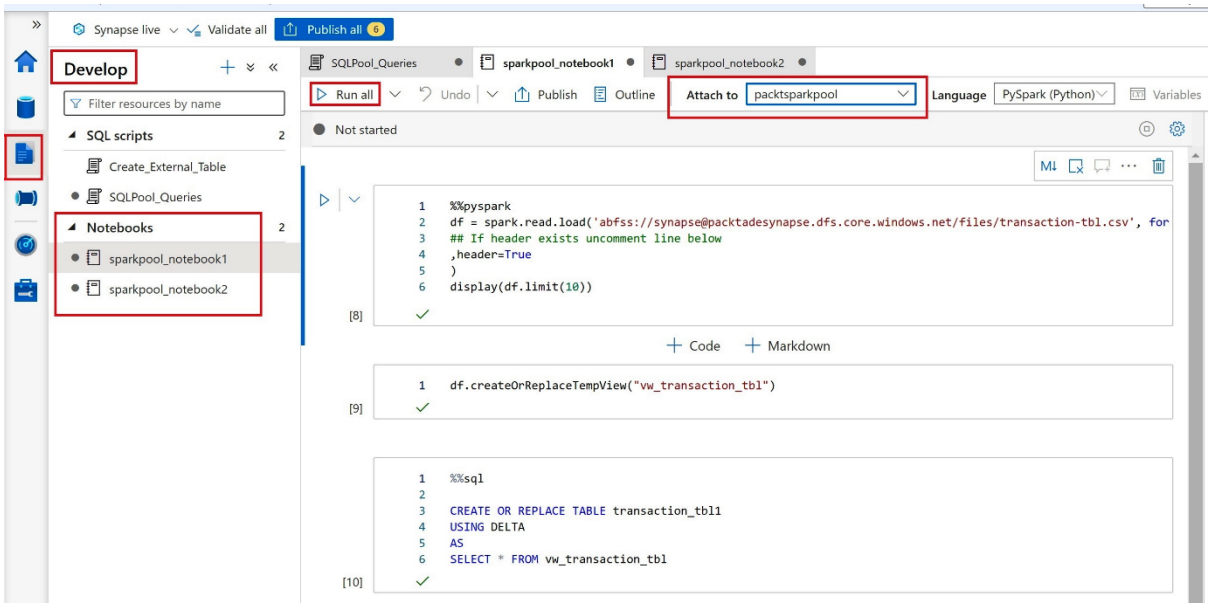

Upload spark config file
packtadesynapse/packtsparkpool
Upload a Spark configuration file to specify additional properties on the Spark pool. This will be referenced to configure Spark applications upon job submission. Learn more
File upload
"spark_loganalytics_conf.txt"
Force new settings
Immediately apply settings change and cancel all active applications.
Upload

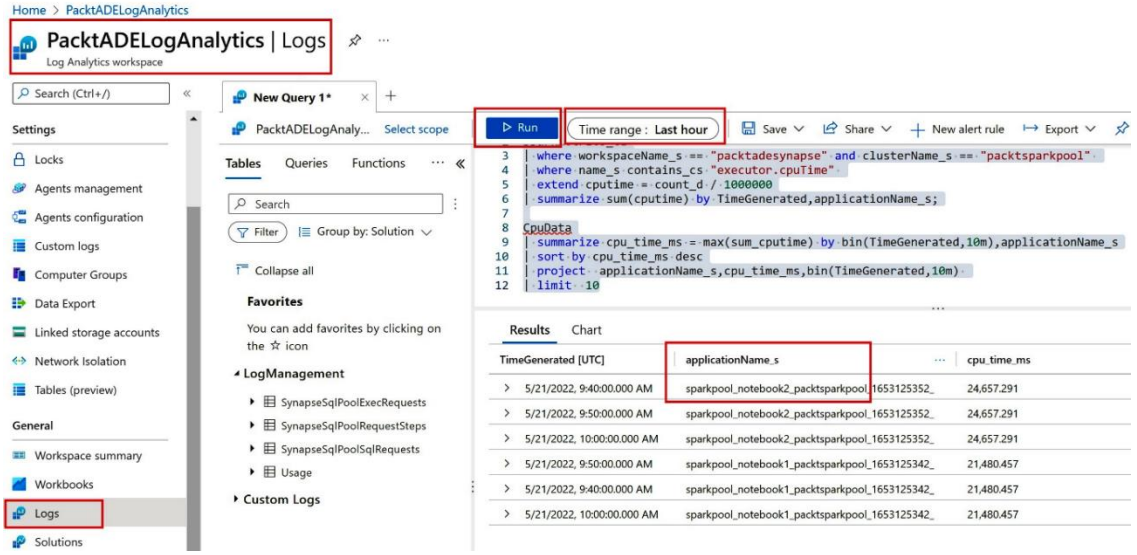

Microsoft Azure | Synapse Analytics | packtadesynapse
We use optional cookies to provide a better experience. Learn more
Synapse live
Validate all
Publish all
Develop
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
Browse gallery
Import
SQL scripts
dedicated_sql_pool
Monitor
Partition_Practice
Partition_Script
SQL script 1
Home > PacktADESynapse > packtsparkpool (packtadesynapse/packtsparkpool)
packtsparkpool (packtadesynapse/packtsparkpool) | Spark configuration
Apache Spark pool
conf
Access control (IAM)
Settings
Spark configuration
Upload spark config file
Refresh
User-provisioned spark config
Name
Size
spark_loganalytics_conf.txt
240 B

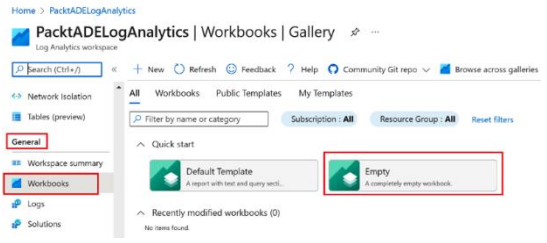

Synapse live
Validate all
Publish all
Develop
Filter resources by name
SQL scripts
Create_External_Table
SQLPool_Queries
Notebooks
SQLPool_Queries
Cancel
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Declare @id INT,@rnd int
Declare @sql nvarchar(1000)
SET @id = 1
WHILE @id < 100
BEGIN
SELECT @rnd = convert(int,rand() * 300000)
SET @id = @id + 1
SET @sql = 'SELECT tid,transaction_date,order_count,c1,c2 FROM dbo.transaction_tbl where tid = '
+ convert(varchar,@rnd)
EXEC sp_executesql @sql
END
GO
Select t1.pid,t1.c1,t2.c2,sum(t2.order_count)
FROM dbo.transaction_tbl t1
inner join dbo.transaction_tbl t2 on t1.transaction_date = t2.transaction_date
WHERE t1.tid < 100
Results
Messages
Select
Query 98
View
Table
Chart
Export results
Search
tid
transaction_date
order_count
c1
c2
271837
20220301
7
4CACE5EC-6D34-...
535DBCC7-338...

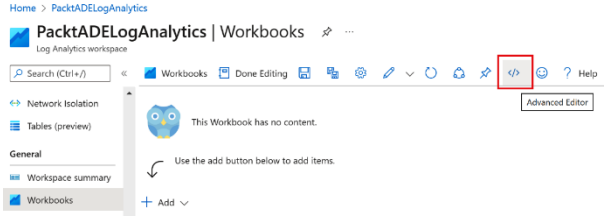

Microsoft Azure
Search resources, services, and docs (G+/)
arr.nagaraj@gmail.co
DEFAULT DIRECTOR
Home
PacktADELogAnalytics
PacktADELogAnalytics | Logs
Log Analytics workspace
Search (Ctrl+/)
Settings
Locks
Agents management
Agents configuration
Custom logs
Computer Groups
Data Export
Linked storage accounts
Network Isolation
Tables (preview)
General
Workspace summary
Workbooks
Logs
Solutions
Usage and estimated costs
Properties
New Query 1
Feedback
Queries
Queries
Always show Queries
Community Git repo
Documentation
Query packs: Select query packs
Category
Search
Add filter
Favorites
All Queries
Applications
Audit
Azure Monitor
Azure Resources
Azure Virtual Desktop
Containers
Databases
Desktop Analytics
IT & Management To...
Network
APPLICATIONS
Response time trend
Chart request duration over the last 12 hours.
Run
Request count trend
Chart Request count over the last day.
Run
Response time buckets
Show how many requests are in each performance-bucket.
Run
Operations performance
Calculate request count and duration by operations.
Run
Top 10 countries by traffic
Page views trend

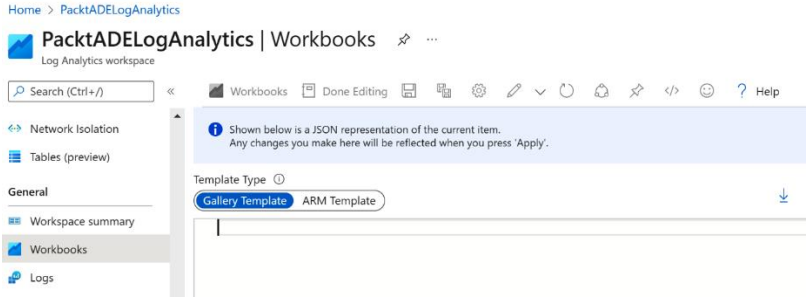

Feedback
Queries
Run
Time range : Set in query
Save
Share
New alert rule
Export
Pin to
Format query
let Start_Time = datetime(2022-05-21 05:00:00);
let End_Time = datetime(2022-05-21 06:00:00);
let DatabaseName = "packtadesqlpool";
SynapseSqlPoolExecRequests
| where TimeGenerated between (Start_Time ..End_Time) and StartTime between (datetime(2000-05-20)..TimeGenerated)
| where Label !="health_checker"
| where Status contains "Running"
| where _ResourceId endswith DatabaseName
| extend duration_sec = datetime_diff("second", TimeGenerated,StartTime)
| summarize duration_sec = max(duration_sec), Command = any(Command),Label = any(Label),ResourceClass = any(ResourceClass),
QueryPlan = any(ExplainOutput),Status = any(Status),Source = any(SourceSystem) by RequestId
Results
Chart
duration_sec
RequestId
Command
ResourceClass
Status
6
QID2388
Select t1.pid,t1.c1,t2.c2,sum(t2.order_count) FROM dbo.transaction_tbl t1 inner join dbo.transaction_tbl t2 ...
smallrc
Running
2
QID2060
SELECT convert(int,rand() * -1) AS '#'
Running
2
QID1989
EXEC sp_set_session_context @key='#', @value='#'
Running
2
QID2061
EXEC sp_executesql @sql
Running
2
QID2056
SELECT convert(int,rand() * -1) AS '#'
Running
2
QID2059
SELECT tid,transaction_date,order_count,c1,c2 FROM dbo.transaction_tbl where tid = -1
smallrc
Running
2
QID2062
SELECT tid,transaction_date,order_count,c1,c2 FROM dbo.transaction_tbl where tid = -1
Running
2
QID2057
EXEC sp_executesql @sql
Running
2
QID2058
SELECT tid,transaction_date,order_count,c1,c2 FROM dbo.transaction_tbl where tid = -1
Running
2
QID2063
SELECT tid,transaction_date,order_count,c1,c2 FROM dbo.transaction_tbl where tid = -1
smallrc
Running

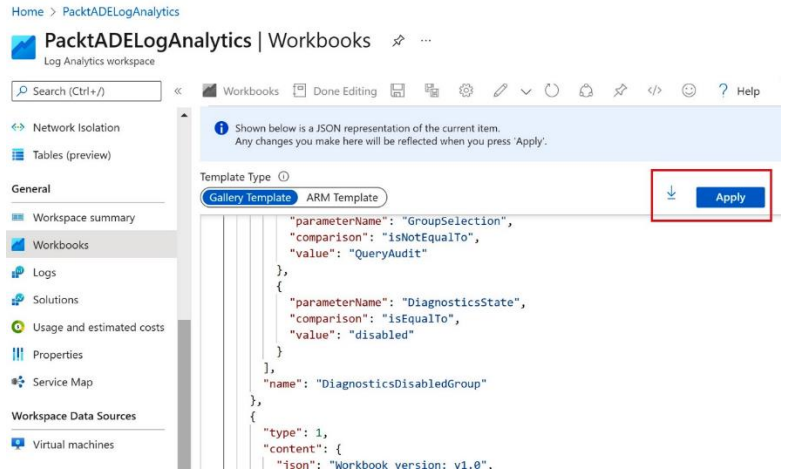

Synapse live
Validate all
Publish all 6
Develop
Filter resources by name
SQL scripts 2
Create_External_Table
SQLPool_Queries
Notebooks 2
sparkpool_notebook1
sparkpool_notebook2
SQLPool_Queries
sparkpool_notebook1
sparkpool_notebook2
Run all
Undo
Publish
Outline
Attach to packtsparkpool
Language PySpark (Python)
Variables
Not started
1 %%pyspark
2 df = spark.read.load('abfss://synapse@packtadesynapse.dfs.core.windows.net/files/transaction-tbl.csv', for
3 ## If header exists uncomment line below
4 ,header=True
5)
6 display(df.limit(10))
[8]
Code
Markdown
1 df.createOrReplaceTempView("vw_transaction_tbl")
[9]
1 %%sql
2
3 CREATE OR REPLACE TABLE transaction_tbl1
4 USING DELTA
5 AS
6 SELECT * FROM vw_transaction_tbl
[10]

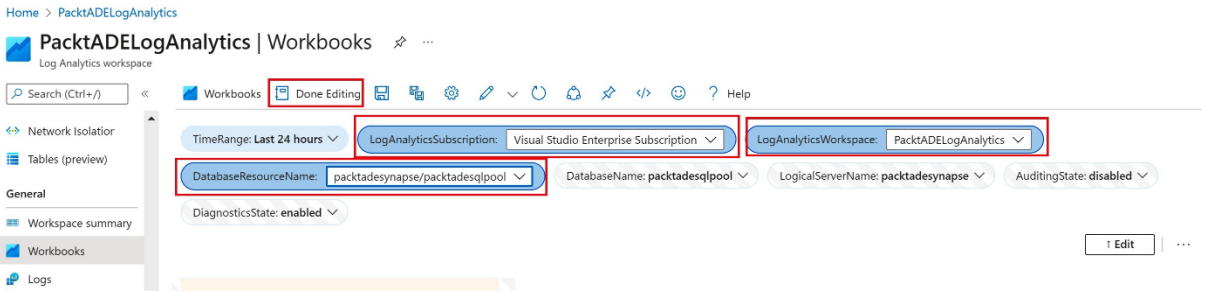

Home > PacktADELogAnalytics
PacktADELogAnalytics | Logs
Log Analytics workspace
Search (Ctrl+/)
Settings
Locks
Agents management
Agents configuration
Custom logs
Computer Groups
Data Export
Linked storage accounts
Network Isolation
Tables (preview)
General
Workspace summary
Workbooks
Logs
Solutions
New Query 1*
PacktADELogAnaly...
Select scope
Run
Time range : Last hour
Save
Share
New alert rule
Export
Tables
Queries
Functions
Search
Filter
Group by: Solution
Collapse all
Favorites
You can add favorites by clicking on the ☆ icon
LogManagement
SynapseSqlPoolExecRequests
SynapseSqlPoolRequestSteps
SynapseSqlPoolSqlRequests
Usage
Custom Logs
| where workspaceName_s == "packtadesynapse" and clusterName_s == "packtsparkpool"
| where name_s contains_cs "executor.cpuTime"
| extend cputime = count_d / 1000000
| summarize sum(cputime) by TimeGenerated,applicationName_s;
CpuData
| summarize cpu_time_ms = max(sum_cputime) by bin(TimeGenerated,10m),applicationName_s
| sort by cpu_time_ms desc
| project applicationName_s,cpu_time_ms,bin(TimeGenerated,10m)
| limit 10
Results
Chart
TimeGenerated [UTC]
applicationName_s
cpu_time_ms
5/21/2022, 9:40:00.000 AM sparkpool_notebook2_packtsparkpool_1653125352_ 24,657.291
5/21/2022, 9:50:00.000 AM sparkpool_notebook2_packtsparkpool_1653125352_ 24,657.291
5/21/2022, 10:00:00.000 AM sparkpool_notebook2_packtsparkpool_1653125352_ 24,657.291
5/21/2022, 9:50:00.000 AM sparkpool_notebook1_packtsparkpool_1653125342_ 21,480.457
5/21/2022, 9:40:00.000 AM sparkpool_notebook1_packtsparkpool_1653125342_ 21,480.457
5/21/2022, 10:00:00.000 AM sparkpool_notebook1_packtsparkpool_1653125342_ 21,480.457

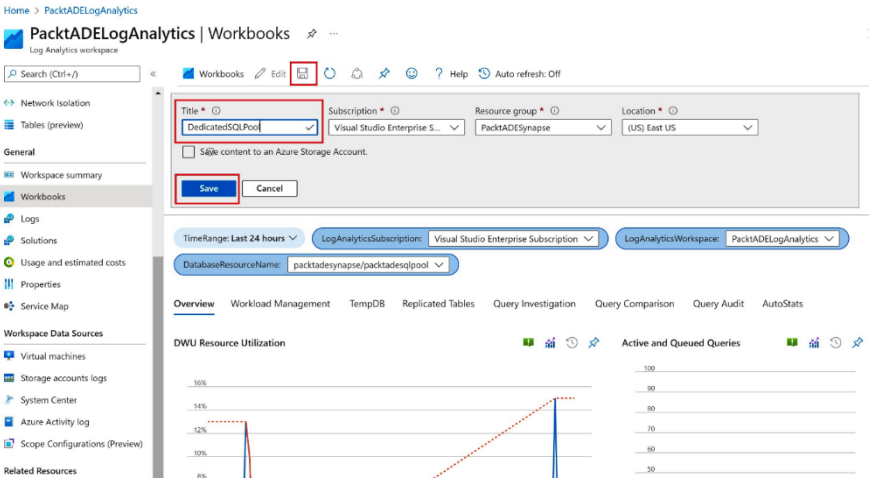

Home > PacktADELogAnalytics
PacktADELogAnalytics | Workbooks | Gallery
Log Analytics workspace
New
Refresh
Feedback
Help
Community Git repo
Browse across galleries
All
Workbooks
Public Templates
My Templates
Filter by name or category
Subscription : All
Resource Group : All
Reset filters
Quick start
Default Template
Empty
Recently modified workbooks (0)
No items found.


Home > PacktADELogAnalytics
PacktADELogAnalytics | Workbooks
Log Analytics workspace
Workbooks
Done Editing
Help
Advanced Editor
This Workbook has no content.
Use the add button below to add items.
Add


Home > PacktADELogAnalytics
PacktADELogAnalytics | Workbooks
Log Analytics workspace
Search (Ctrl+/)
Workbooks
Done Editing
Help
Network Isolation
Tables (preview)
General
Workspace summary
Workbooks
Logs
Shown below is a JSON representation of the current item.
Any changes you make here will be reflected when you press 'Apply'.
Template Type
Gallery Template
ARM Template


Home > PacktADELogAnalytics
PacktADELogAnalytics | Workbooks
Log Analytics workspace
Search (Ctrl+/)
Workbooks
Done Editing
Help
Network Isolation
Tables (preview)
General
Workspace summary
Workbooks
Logs
Solutions
Usage and estimated costs
Properties
Service Map
Workspace Data Sources
Virtual machines
Shown below is a JSON representation of the current item.
Any changes you make here will be reflected when you press 'Apply'.
Template Type
Gallery Template
ARM Template
Apply
"parameterName": "GroupSelection",
"comparison": "isNotEqualTo",
"value": "QueryAudit"
"parameterName": "DiagnosticsState",
"comparison": "isEqualTo",
"value": "disabled"
"name": "DiagnosticsDisabledGroup"
"type": 1,
"content": {
"json": "Workbook version: v1.0".


Home > PacktADELogAnalytics
PacktADELogAnalytics | Workbooks
Log Analytics workspace
Search (Ctrl+/)
Workbooks
Done Editing
Help
Network Isolatior
Tables (preview)
General
Workspace summary
Workbooks
Logs
TimeRange: Last 24 hours
LogAnalyticsSubscription: Visual Studio Enterprise Subscription
LogAnalyticsWorkspace: PacktADELogAnalytics
DatabaseResourceName: packtadesynapse/packtadesqlpool
DatabaseName: packtadesqlpool
LogicalServerName: packtadesynapse
AuditingState: disabled
DiagnosticsState: enabled
Edit


Home > PacktADELogAnalytics
PacktADELogAnalytics | Workbooks
Log Analytics workspace
Search (Ctrl+/)
Workbooks
Edit
Help
Auto refresh: Off
Network Isolation
Tables (preview)
General
Workspace summary
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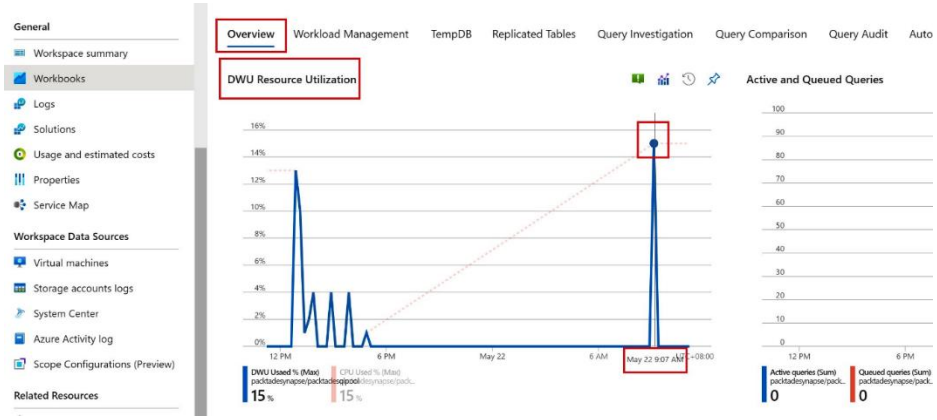
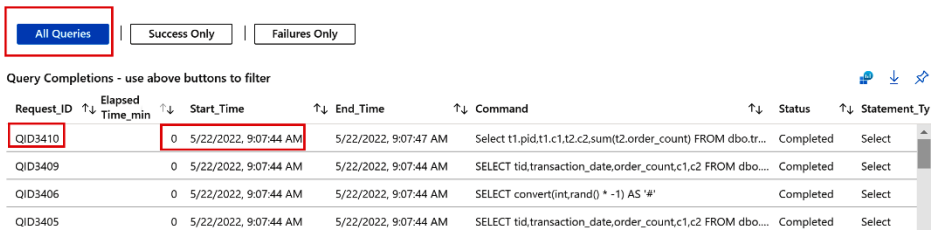
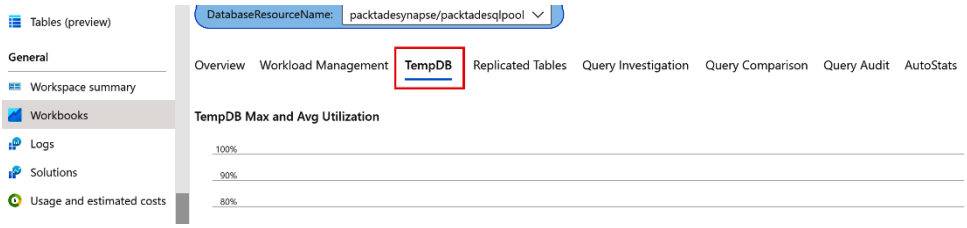
Workspace Data Sources
Virtual machines
Storage accounts logs
System Center
Azure Activity log
Scope Configurations (Preview)
Related Resources
Title *
DedicatedSQLPool
Subscription *
Visual Studio Enterprise S...
Resource group *
PacktADESynapse
Location *
(US) East US
Save content to an Azure Storage Account.
Save
Cancel
TimeRange: Last 24 hours
LogAnalyticsSubscription: Visual Studio Enterprise Subscription
LogAnalyticsWorkspace: PacktADELogAnalytics
DatabaseResourceName: packtadesynapse/packtadesqlpool
Overview
Workload Management
TempDB
Replicated Tables
Query Investigation
Query Comparison
Query Audit
AutoStats
DWU Resource Utilization
Active and Queued Queries


General
Workspace summary
Workbooks
Logs
Solutions
Usage and estimated costs
Properties
Service Map
Workspace Data Sources
Virtual machines
Storage accounts logs
System Center
Azure Activity log
Scope Configurations (Preview)
Related Resources
Overview
Workload Management
TempDB
Replicated Tables
Query Investigation
Query Comparison
Query Audit
Auto
DWU Resource Utilization
Active and Queued Queries
16%
14%
12%
10%
8%
6%
4%
2%
0%
12 PM
6 PM
May 22
6 AM
May 22 9:07 AM
100
90
80
70
60
50
40
30
20
10
0
DWU Used % (Max)
15 %
CPU Used % (Max)
15 %
Active queries (Sum)
0
Queued queries (Sum)
0



Request_ID	Elapsed Time_min	Start_Time	End_Time	Command	Status	Statement_Ty
QID3410	0	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:47 AM	Select t1.pid,t1.c1,t2.c2,sum(t2.order_count) FROM dbo.tr...	Completed	Select
QID3409	0	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:44 AM	SELECT tid,transaction_date,order_count,c1,c2 FROM dbo....	Completed	Select
QID3406	0	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:44 AM	SELECT convert(int,rand() * -1) AS '#'	Completed	Select
QID3405	0	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:44 AM	SELECT tid,transaction_date,order_count,c1,c2 FROM dbo....	Completed	Select



20 Largest Query Steps by Most Rows Moved

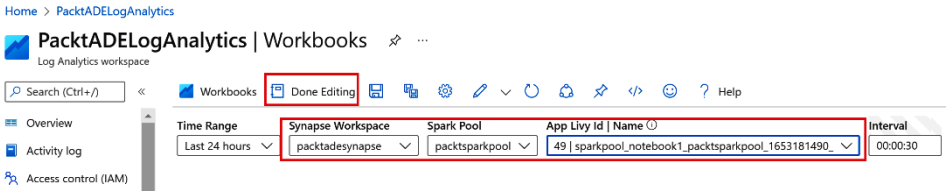
Request_ID	Request_Elapsed_Min	ReqStart	ReqEnd	ReqStatus	StepIndex	OperationType	RowCount
QID3410	0.05	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:47 AM	Completed	5	ShuffleMoveOperation	79933
QID2388	0.08	5/21/2022, 1:12:43 PM	5/21/2022, 1:12:47 PM	Completed	5	ShuffleMoveOperation	79933
QID3009	0.33	5/22/2022, 9:06:35 AM	5/22/2022, 9:06:55 AM	Completed	5	ShuffleMoveOperation	79933
QID2196	0	5/21/2022, 1:12:34 PM	5/21/2022, 1:12:34 PM	Completed	0	ReturnOperation	1

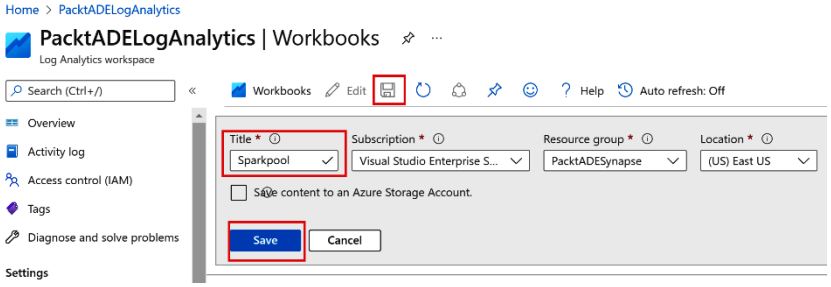
Selected Query

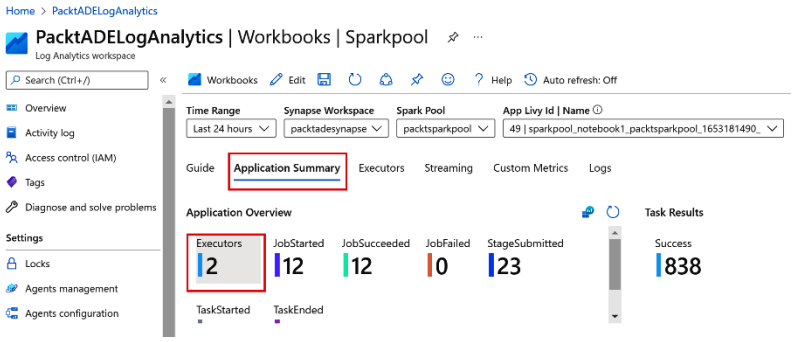
Request_ID	ElapsedTime_min	Start_Time	End_Time	Command	Status
QID3410	0	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:47 AM	Select t1.pid,t1.c1,t2.c2,sum(t2.order_count) FROM dbo.transaction_tbl t1 i...	Completed

Query Plan

StepIndex	max_StartTime	max_EndTime	max_RequestId	max_OperationType	max_RowCou...	max_Comma...	max_Status
0	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:44 AM	QID3410	RandomIDOperation	-1		Complete
1	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:44 AM	QID3410	OnOperation	-1		Complete
2	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:44 AM	QID3410	BroadcastMoveOperation	79		Complete
3	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:44 AM	QID3410	RandomIDOperation	-1		Complete
4	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:44 AM	QID3410	OnOperation	-1		Complete
5	5/22/2022, 9:07:44 AM	5/22/2022, 9:07:45 AM	QID3410	ShuffleMoveOperation	79933		Complete
6	5/22/2022, 9:07:45 AM	5/22/2022, 9:07:47 AM	QID3410	ReturnOperation	79933		Complete
7	5/22/2022, 9:07:47 AM	5/22/2022, 9:07:47 AM	QID3410	OnOperation	-1		Complete
8	5/22/2022, 9:07:47 AM	5/22/2022, 9:07:47 AM	QID3410	OnOperation	-1		Complete






Home > PacktADELogAnalytics
PacktADELogAnalytics | Workbooks | Sparkpool
Log Analytics workspace
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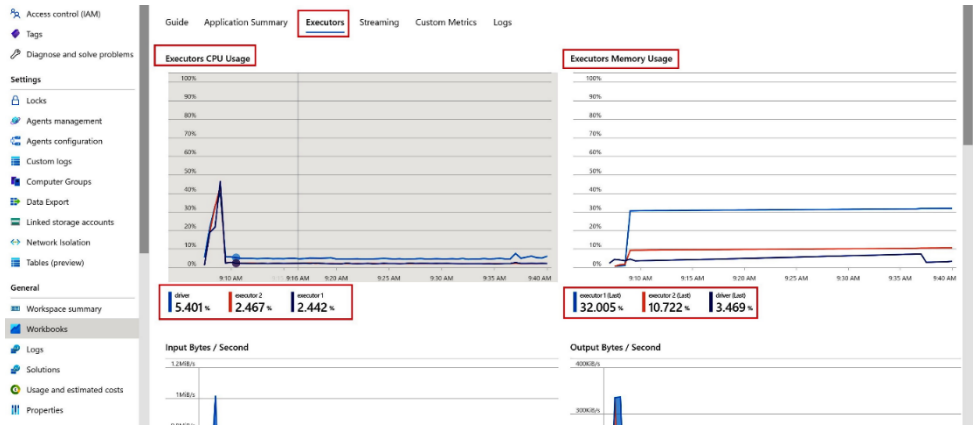
Auto refresh: Off
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Locks
Agents management
Agents configuration
Time Range
Last 24 hours
Synapse Workspace
packtadesynapse
Spark Pool
packtsparkpool
App Livy Id | Name
49 | sparkpool_notebook1_packtsparkpool_1653181490_
Guide
Application Summary
Executors
Streaming
Custom Metrics
Logs
Application Overview
Executors
2
JobStarted
12
JobSucceeded
12
JobFailed
0
StageSubmitted
23
TaskStarted
TaskEnded
Task Results
Success
838


Access control (IAM)
Tags
Diagnose and solve problems
Settings
Locks
Agents management
Agents configuration
Custom logs
Computer Groups
Data Export
Linked storage accounts
Network Isolation
Tables (preview)
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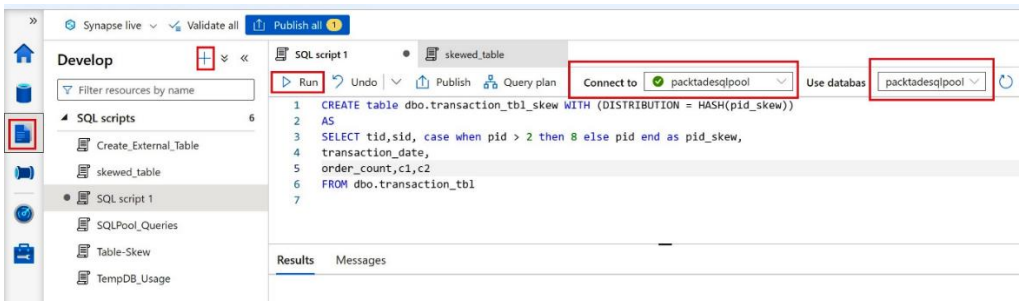
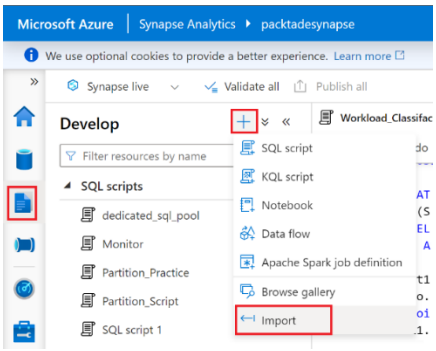
Executors
Streaming
Custom Metrics
Logs
Executors CPU Usage
Executors Memory Usage
driver
5.401 %
executor 2
2.467 %
executor 1
2.442 %
executor 1 (Last)
32.005 %
executor 2 (Last)
10.722 %
driver (Last)
3.469 %
Input Bytes / Second
Output Bytes / Second


Synapse live
Validate all
Publish all
Develop
Filter resources by name
SQL scripts
6
Create_External_Table
skewed_table
SQL script 1
SQLPool_Queries
Table-Skew
TempDB_Usage
SQL script 1
skewed_table
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use databas
packtadesqlpool
1 CREATE table dbo.transaction_tbl_skew WITH (DISTRIBUTION = HASH(pid_skew))
2 AS
3 SELECT tid,sid, case when pid > 2 then 8 else pid end as pid_skew,
4 transaction_date,
5 order_count,c1,c2
6 FROM dbo.transaction_tbl
7
Results
Messages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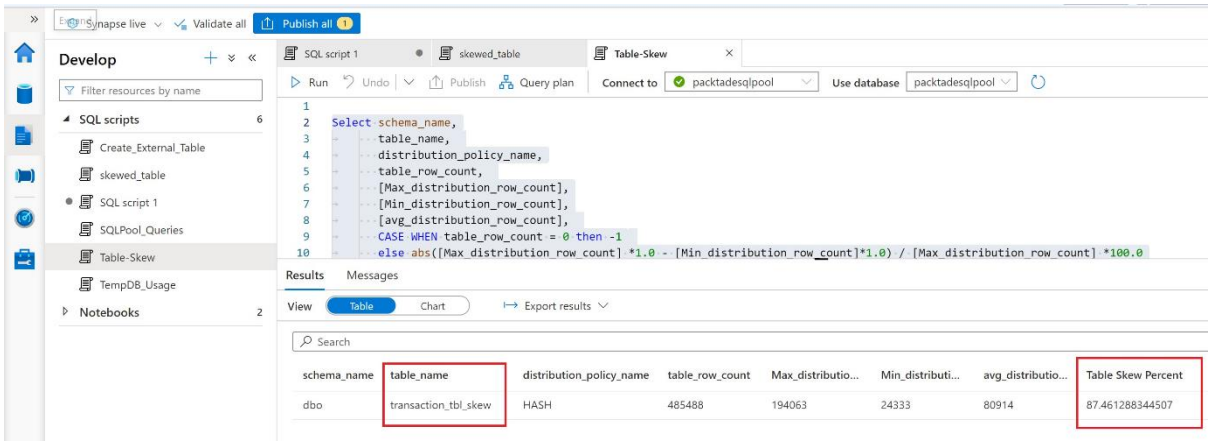
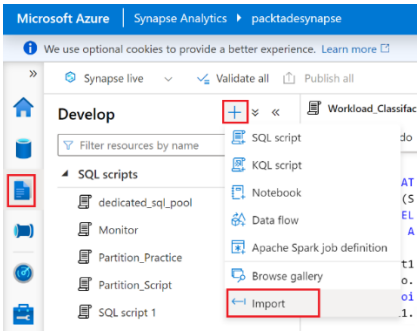
SQL scripts
dedicated_sql_pool
Monitor
Partition_Practice
Partition_Script
SQL script 1
Workload_Classifac
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
Browse gallery
Import


Synapse live
Validate all
Publish all
Develop
SQL script 1
skewed_table
Table-Skew
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
SQL scripts
Create_External_Table
skewed_table
SQL script 1
SQLPool_Queries
Table-Skew
TempDB_Usage
Notebooks
Select schema_name,
table_name,
distribution_policy_name,
table_row_count,
[Max_distribution_row_count],
[Min_distribution_row_count],
[avg_distribution_row_count],
CASE WHEN table_row_count = 0 then -1
else abs([Max_distribution_row_count] *1.0 - [Min_distribution_row_count]*1.0) / [Max_distribution_row_count] *100.0
Results
Messages
View
Table
Chart
Export results
Search
schema_name
table_name
distribution_policy_name
table_row_count
Max_distributio...
Min_distributi...
avg_distributio...
Table Skew Percent
dbo
transaction_tbl_skew
HASH
485488
194063
24333
80914
87.461288344507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Synapse Analytics
packtadesynapse
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Validate all
Publish all
Develop
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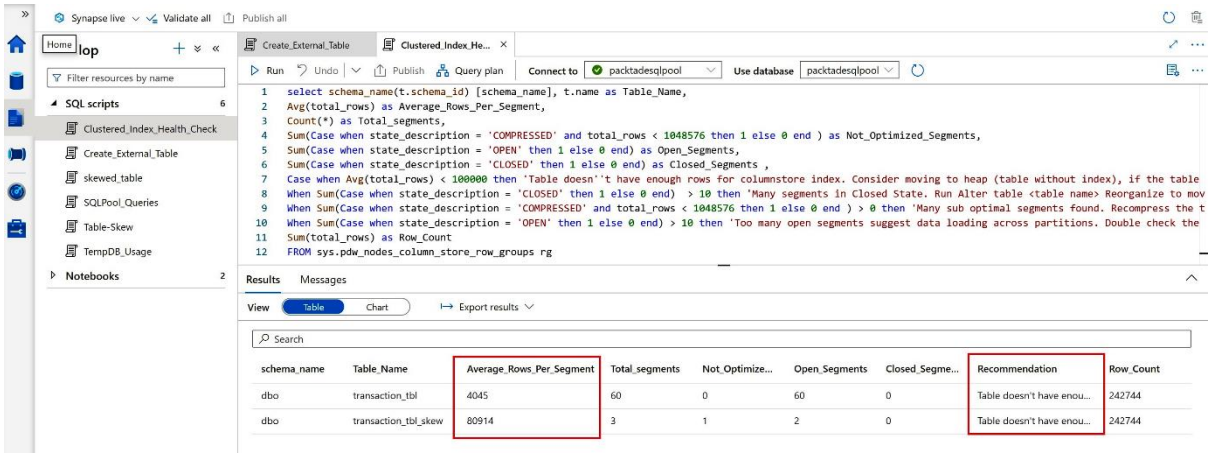
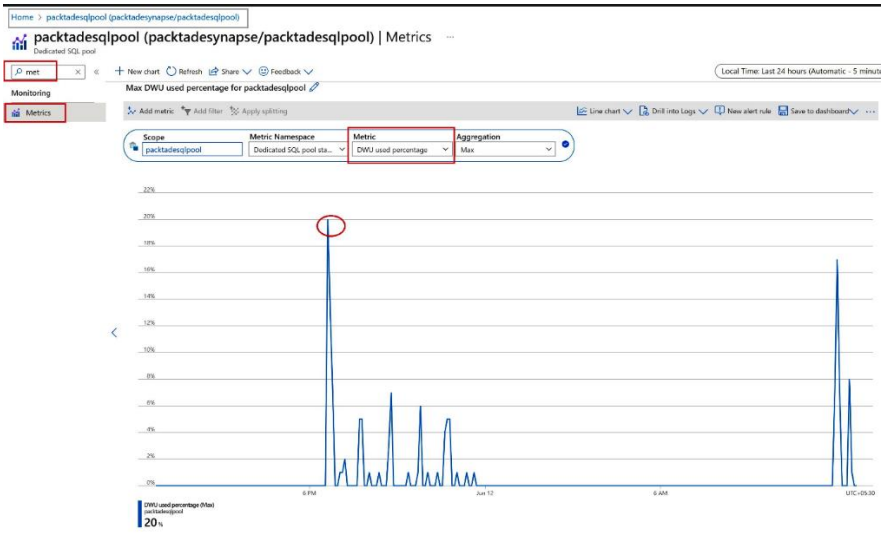
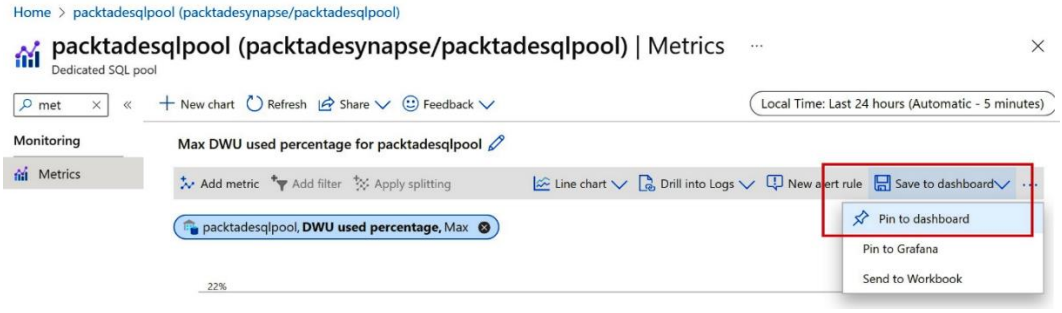
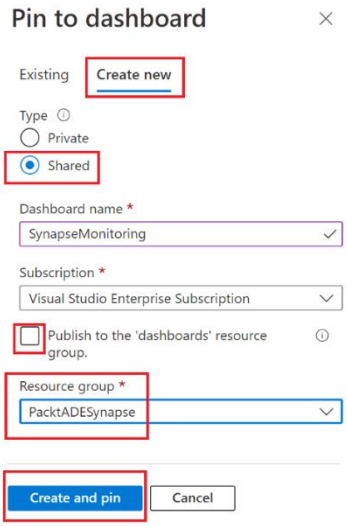
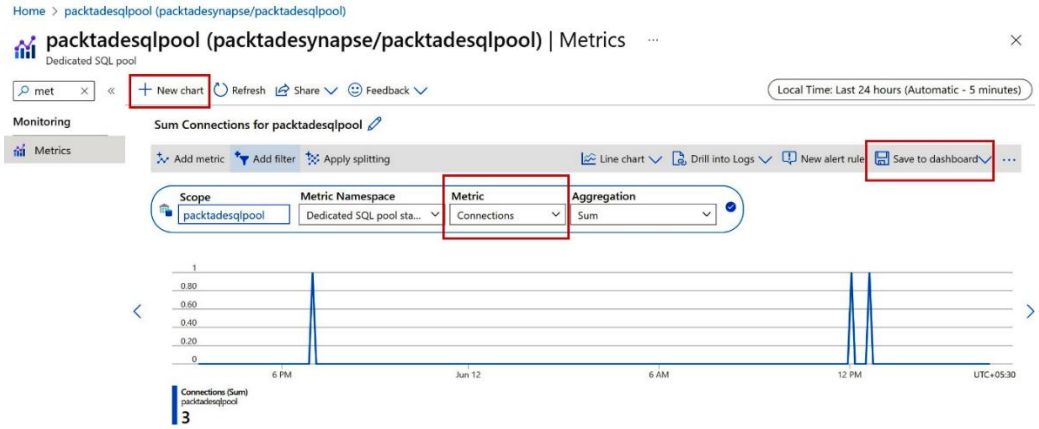
SQL scripts
dedicated_sql_pool
Monitor
Partition_Practice
Partition_Script
SQL script 1
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
Browse gallery
Import

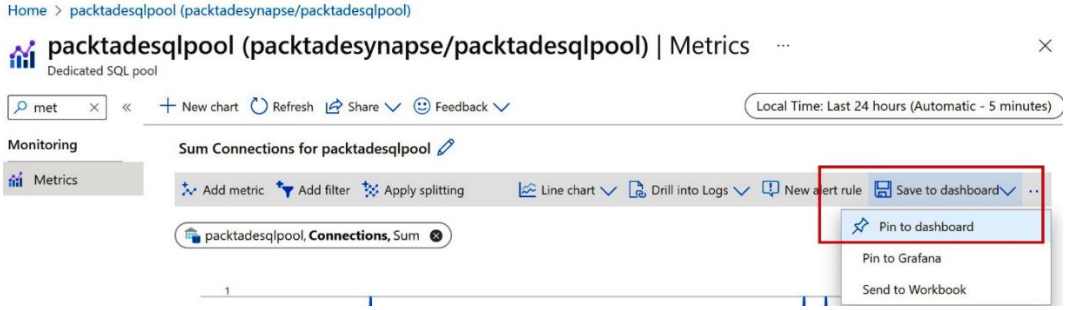

Synapse live
Validate all
Publish all
Create_External_Table
Clustered_Index_He...
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
SQL scripts
Clustered_Index_Health_Check
Create_External_Table
skewed_table
SQLPool_Queries
Table-Skew
TempDB_Usage
Notebooks
select schema_name(t.schema_id) [schema_name], t.name as Table_Name,
Avg(total_rows) as Average_Rows_Per_Segment,
Count(*) as Total_segments,
Sum(Case when state_description = 'COMPRESSED' and total_rows < 1048576 then 1 else 0 end) as Not_Optimized_Segments,
Sum(Case when state_description = 'OPEN' then 1 else 0 end) as Open_Segments,
Sum(Case when state_description = 'CLOSED' then 1 else 0 end) as Closed_Segments ,
Case when Avg(total_rows) < 100000 then 'Table doesn''t have enough rows for columnstore index. Consider moving to heap (table without index), if the table
When Sum(Case when state_description = 'CLOSED' then 1 else 0 end) > 10 then 'Many segments in Closed State. Run Alter table <table name> Reorganize to mov
When Sum(Case when state_description = 'COMPRESSED' and total_rows < 1048576 then 1 else 0 end) > 0 then 'Many sub optimal segments found. Recompress the t
When Sum(Case when state_description = 'OPEN' then 1 else 0 end) > 10 then 'Too many open segments suggest data loading across partitions. Double check the
Sum(total_rows) as Row_Count
FROM sys.pdw_nodes_column_store_row_groups rg
Results
Messages
View
Table
Chart
Export results
Search
schema_name
Table_Name
Average_Rows_Per_Segment
Total_segments
Not_Optimize...
Open_Segments
Closed_Segme...
Recommendation
Row_Count
dbo
transaction_tbl
4045
60
0
60
0
Table doesn't have enou...
242744
dbo
transaction_tbl_skew
80914
3
1
2
0
Table doesn't have enou...
242744


Home > packtadesqlpool (packtadesynapse/packtadesqlpool)
packtadesqlpool (packtadesynapse/packtadesqlpool) | Metrics
Dedicated SQL pool
Monitoring
Metrics
New chart
Refresh
Share
Feedback
Max DWU used percentage for packtadesqlpool
Local Time: Last 24 hours (Automatic - 5 minute
Add metric
Add filter
Apply splitting
Line chart
Drill into Logs
New alert rule
Save to dashboard
Scope
packtadesqlpool
Metric Namespace
Dedicated SQL pool sta...
Metric
DWU used percentage
Aggregation
Max
22%
20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
6 PM
Jun 12
6 AM
UTC-05:30
20%


Home > packtadesqlpool (packtadesynapse/packtadesqlpool)
packtadesqlpool (packtadesynapse/packtadesqlpool) | Metrics
Dedicated SQL pool
met
New chart
Refresh
Share
Feedback
Local Time: Last 24 hours (Automatic - 5 minutes)
Monitoring
Metrics
Max DWU used percentage for packtadesqlpool
Add metric
Add filter
Apply splitting
Line chart
Drill into Logs
New alert rule
Save to dashboard
packtadesqlpool, DWU used percentage, Max
Pin to dashboard
Pin to Grafana
Send to Workbook
22%


Pin to dashboard
Existing
Create new
Type
Private
Shared
Dashboard name *
SynapseMonitoring
Subscription *
Visual Studio Enterprise Subscription
Publish to the 'dashboards' resource group.
Resource group *
PacktADESynapse
Create and pin
Cancel


Home > packtadesqlpool (packtadesynapse/packtadesqlpool)
packtadesqlpool (packtadesynapse/packtadesqlpool) | Metrics
Dedicated SQL pool
met
New chart
Refresh
Share
Feedback
Local Time: Last 24 hours (Automatic - 5 minutes)
Monitoring
Metrics
Sum Connections for packtadesqlpool
Add metric
Add filter
Apply splitting
Line chart
Drill into Logs
New alert rule
Save to dashboard
Scope
packtadesqlpool
Metric Namespace
Dedicated SQL pool sta...
Metric
Connections
Aggregation
Sum
1
0.80
0.60
0.40
0.20
0
6 PM
Jun 12
6 AM
12 PM
UTC+05:30
Connections (Sum)
packtadesqlpool
3


Home > packtadesqlpool (packtadesynapse/packtadesqlpool)
packtadesqlpool (packtadesynapse/packtadesqlpool) | Metrics
Dedicated SQL pool
met
New chart
Refresh
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Local Time: Last 24 hours (Automatic - 5 minutes)
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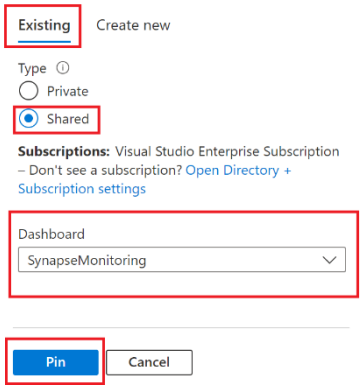
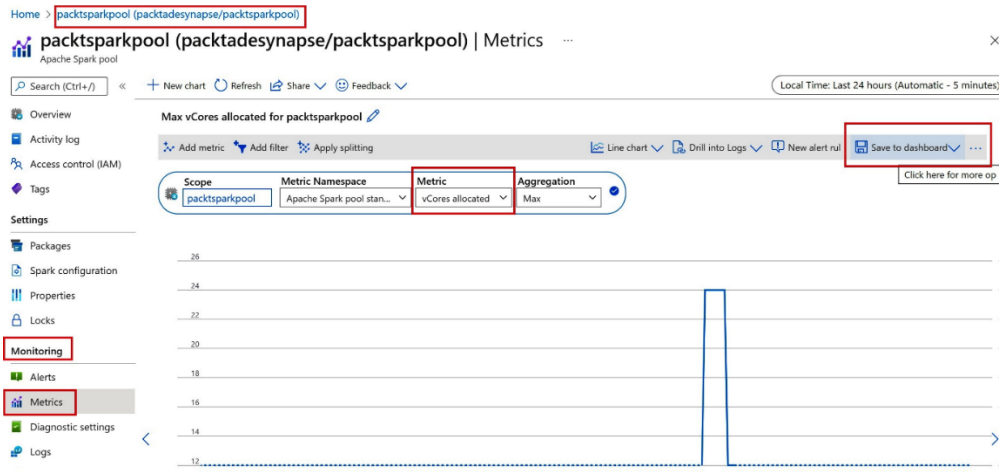
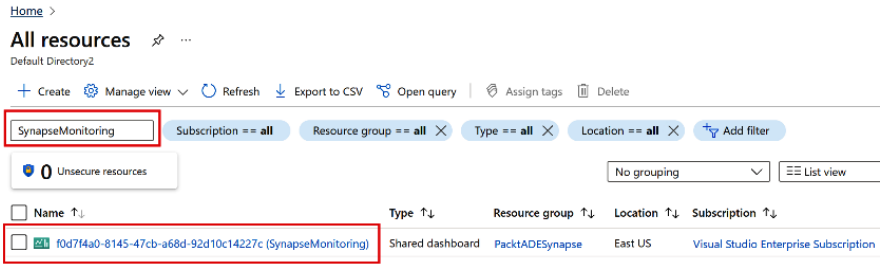
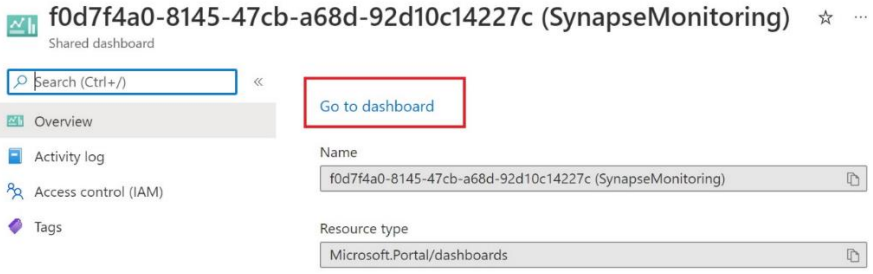
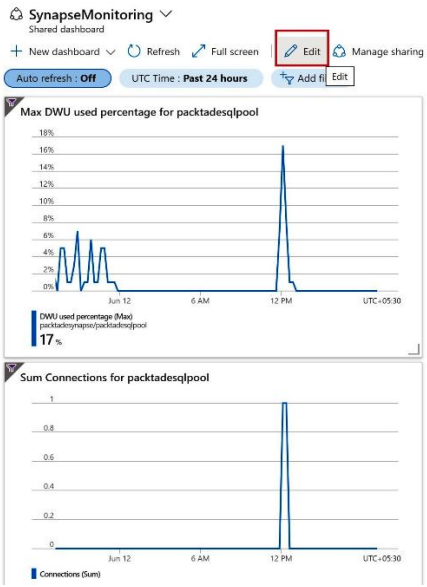
Sum Connections for packtadesqlpool
Add metric
Add filter
Apply splitting
Line chart
Drill into Logs
New alert rule
Save to dashboard
packtadesqlpool, Connections, Sum
Pin to dashboard
Pin to Grafana
Send to Workbook
1

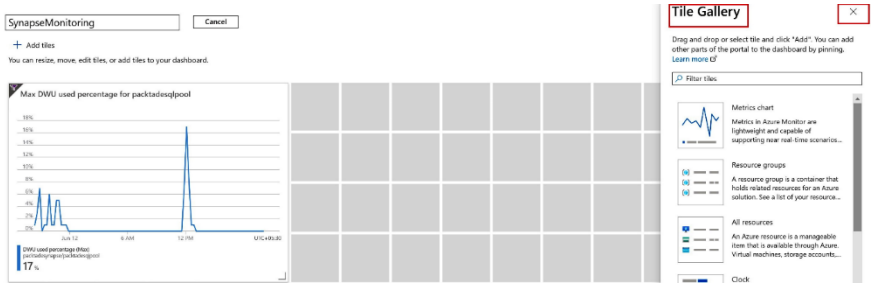

Existing
Create new
Type
Private
Shared
Subscriptions: Visual Studio Enterprise Subscription
– Don't see a subscription? Open Directory + Subscription settings
Dashboard
SynapseMonitoring
Pin
Cancel


Home
packtsparkpool (packtadesynapse/packtsparkpool)
packtsparkpool (packtadesynapse/packtsparkpool) | Metrics
Apache Spark pool
Search (Ctrl+/)
New chart
Refresh
Share
Feedback
Local Time: Last 24 hours (Automatic - 5 minutes)
Overview
Activity log
Access control (IAM)
Tags
Settings
Packages
Spark configuration
Properties
Locks
Monitoring
Alerts
Metrics
Diagnostic settings
Logs
Max vCores allocated for packtsparkpool
Add metric
Add filter
Apply splitting
Line chart
Drill into Logs
New alert rul
Save to dashboard
Click here for more op
Scope
packtsparkpool
Metric Namespace
Apache Spark pool stan...
Metric
vCores allocated
Aggregation
Max
26
24
22
20
18
16
14
12


Home
All resources
Default Directory2
Create
Manage view
Refresh
Export to CSV
Open query
Assign tags
Delete
SynapseMonitoring
Subscription == all
Resource group == all
Type == all
Location == all
Add filter
0 Unsecure resources
No grouping
List view
Name
Type
Resource group
Location
Subscription
f0d7f4a0-8145-47cb-a68d-92d10c14227c (SynapseMonitoring)
Shared dashboard
PacktADESynapse
East US
Visual Studio Enterprise Subscription


f0d7f4a0-8145-47cb-a68d-92d10c14227c (SynapseMonitoring)
Shared dashboard
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Go to dashboard
Name
f0d7f4a0-8145-47cb-a68d-92d10c14227c (SynapseMonitoring)
Resource type
Microsoft.Portal/dashboards


SynapseMonitoring
Shared dashboard
New dashboard
Refresh
Full screen
Edit
Manage sharing
Auto refresh : Off
UTC Time : Past 24 hours
Edit
Max DWU used percentage for packtadesqlpool
DWU used percentage (Max)
17 %
Sum Connections for packtadesqlpool
Connections (Sum)


SynapseMonitoring
Cancel
Add tiles
You can resize, move, edit tiles, or add tiles to your dashboard.
Max DWU used percentage for packtadesqlpool
Tile Gallery
Drag and drop or select tile and click "Add". You can add other parts of the portal to the dashboard by pinning.
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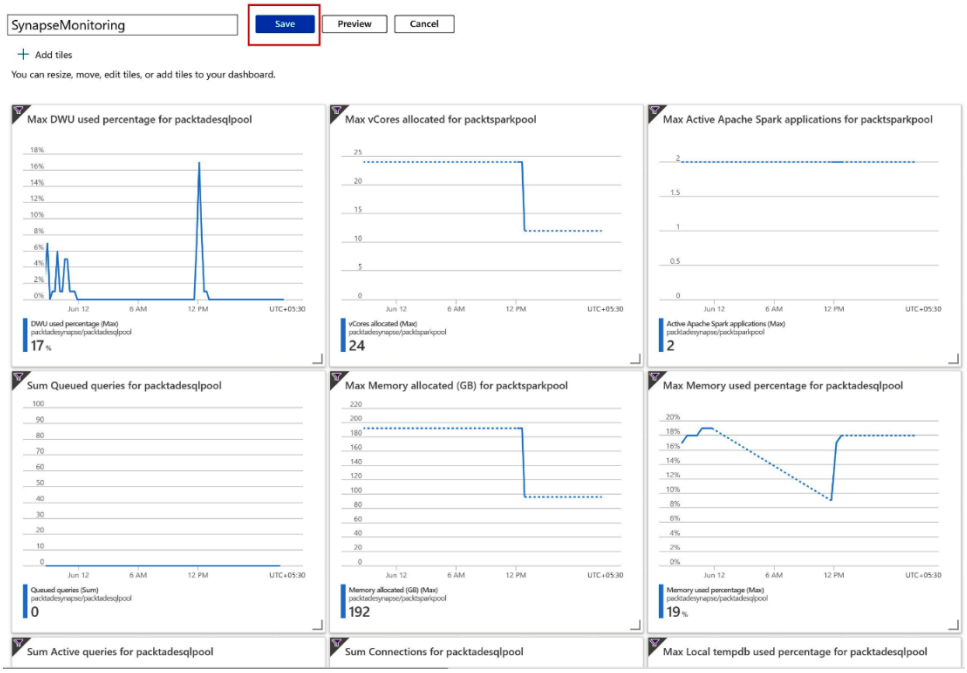
Metrics chart
Resource groups
All resources
Clock


SynapseMonitoring
Save
Preview
Cancel
Add tiles
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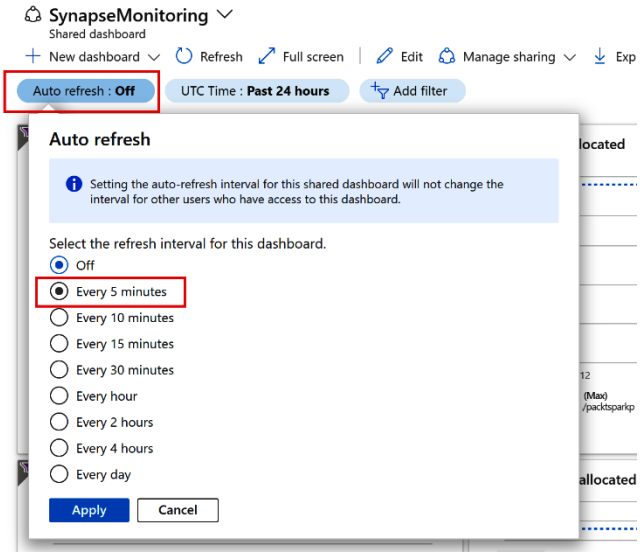
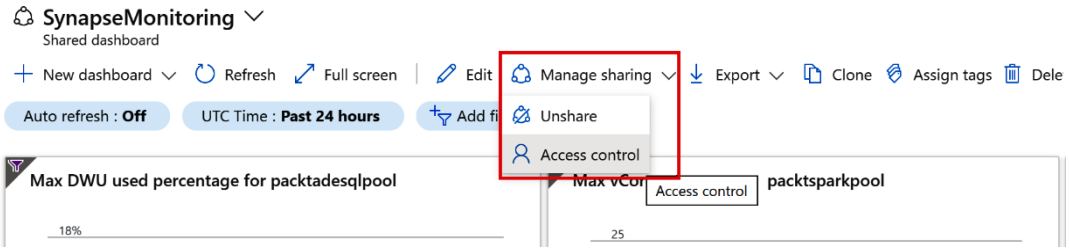
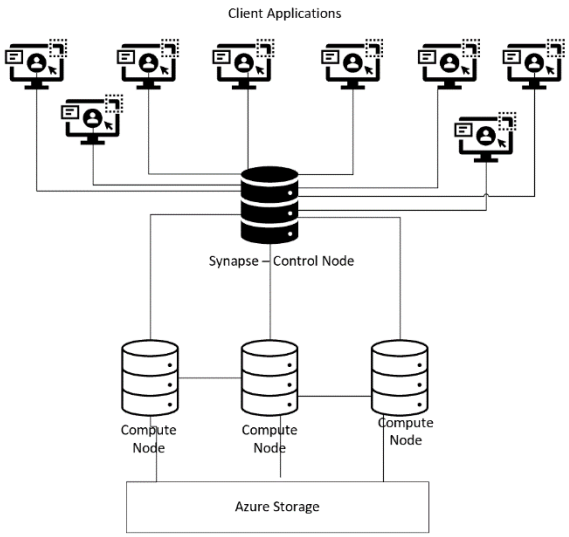
Max DWU used percentage for packtadesqlpool
DWU used percentage (Max)
17 %
Max vCores allocated for packtsparkpool
vCores allocated (Max)
24
Max Active Apache Spark applications for packtsparkpool
Active Apache Spark applications (Max)
2
Sum Queued queries for packtadesqlpool
Queued queries (Sum)
0
Max Memory allocated (GB) for packtsparkpool
Memory allocated (GB) (Max)
192
Max Memory used percentage for packtadesqlpool
Memory used percentage (Max)
19 %
Sum Active queries for packtadesqlpool
Sum Connections for packtadesqlpool
Max Local tempdb used percentage for packtadesqlpool

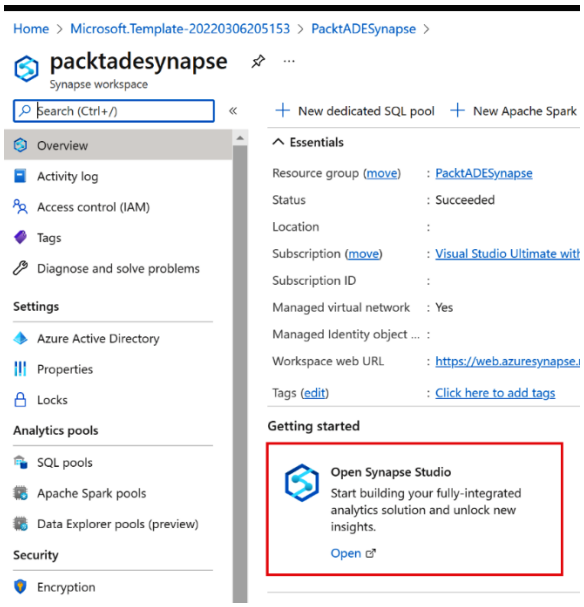


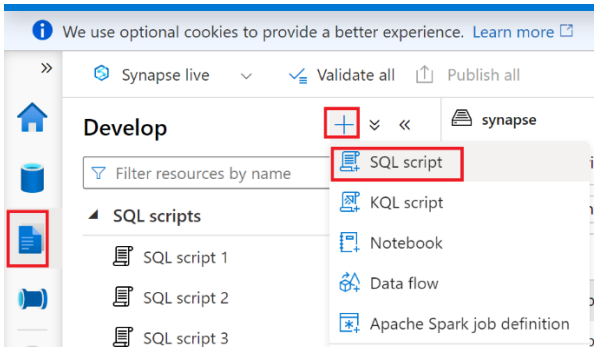


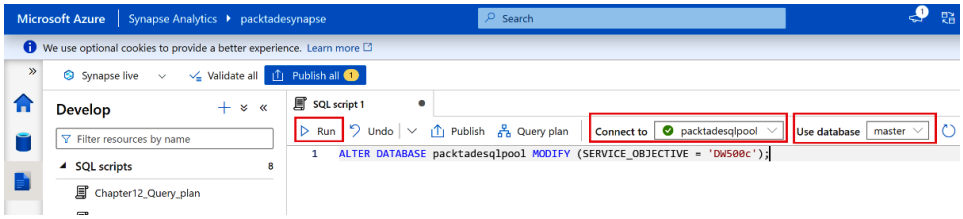
Condition Verified	Recommendation	Reason
Checks if the average rows per segment are less than 100,000 rows	Make the table into a heap table, which will store the table without the column store index.	Column store indexes are ideal for large tables with at least a few million rows in total. For small tables, column store indexes would be inefficient.
Checks if there are more than 10 segments that are in an open state	Verify if the table is partitioned, causing too many small segments, and fix the partition.	When the state of the column store segment is open, it remains in an uncompressed format, offering sub-optimal performance for analytic queries. If there are more than 1 million rows per segment, the engine would automatically compress the segment. It is recommended that you verify the reason for small segments – for example, due to the table partitioning strategy or data skewness.
Checks if there are more than 10 segments in a closed state	Run `ALTER TABLE <Table name> Reorg` to fix it.	If a segment is in a closed state, it implies it is ready to be compressed and is waiting for the system's background process to move it to a compressed state. You could force the background process to compress by performing a table reorg operation.
Checks if any compressed segments have less than 1 million rows (non-optimized segments)	Recreate the table using the `Create TABLE AS` command or rebuild the index with a higher resources class/more resources. You could scale up the DWU units of synapse the instance during the rebuild operation and scale them down once you've finished.	A compressed segment with less than 1 million rows offers sub-optimal performance. This is possible if there were not enough resources when the table was created or when the index was rebuilt.

Chapter 12: Optimizing and Maintaining Synapse SQL and Spark Pools





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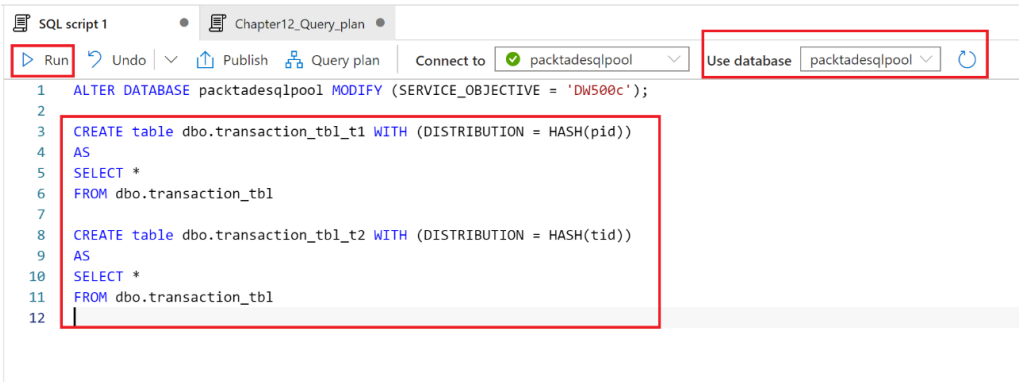
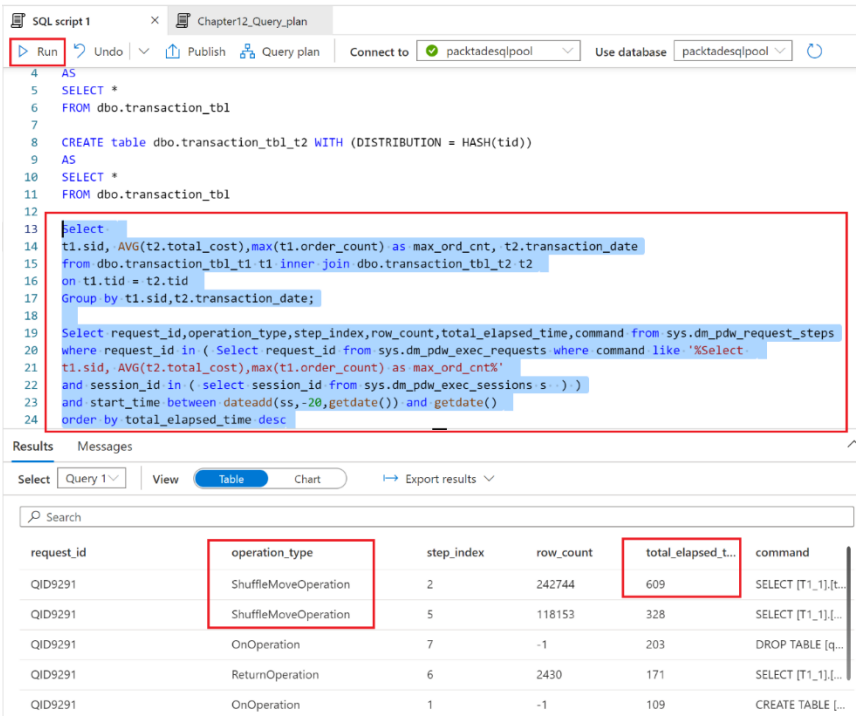
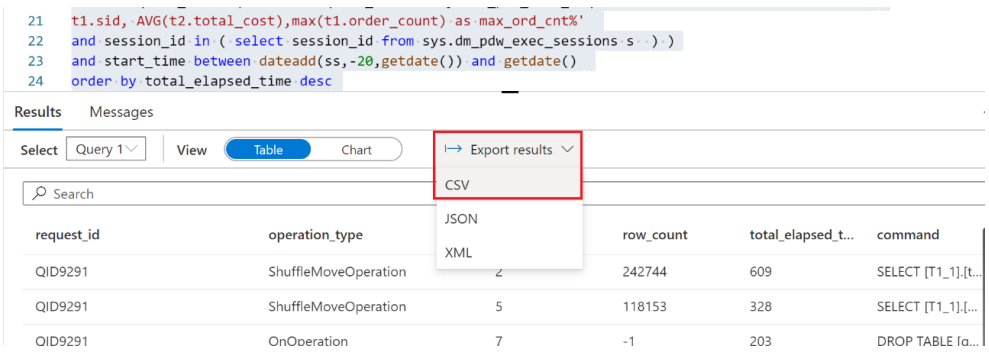
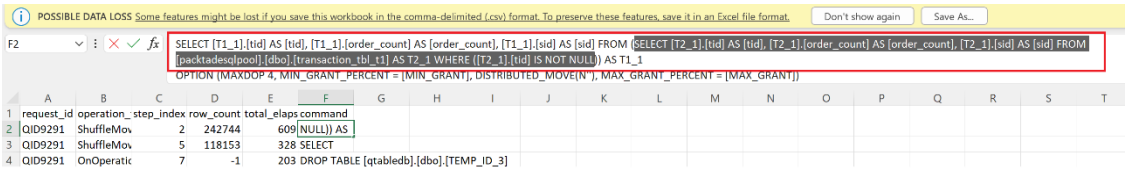
Publish all 1
Develop
Filter resources by name
SQL scripts 8
Chapter12_Query_plan
SQL script 1
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
master
1 ALTER DATABASE packtadesqlpool MODIFY (SERVICE_OBJECTIVE = 'DW500c');

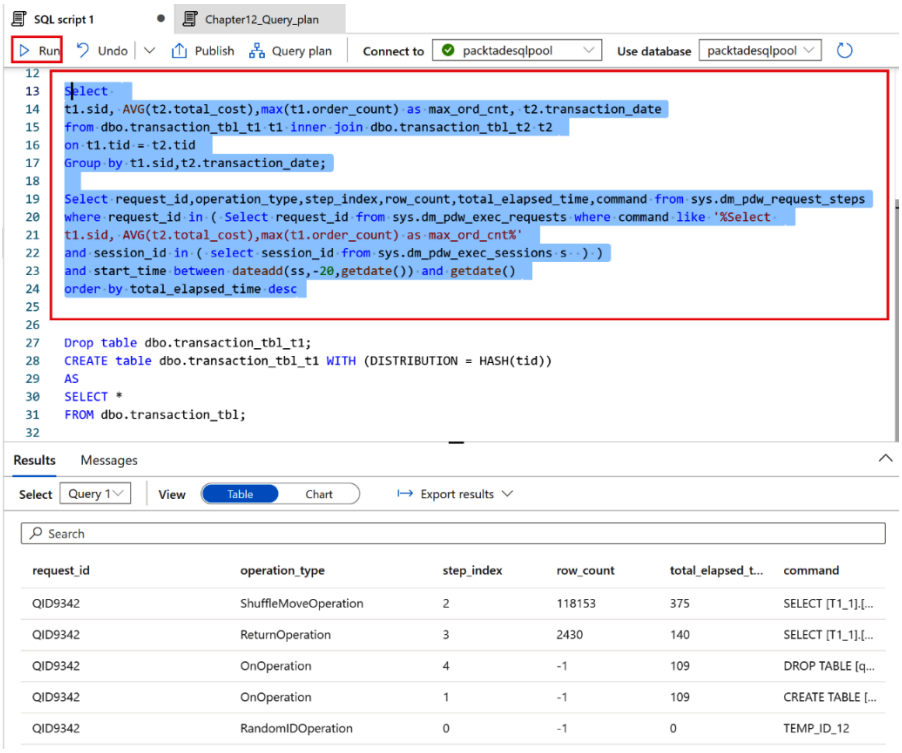

SQL script 1
Chapter12_Query_plan
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
1 ALTER DATABASE packtadesqlpool MODIFY (SERVICE_OBJECTIVE = 'DW500c');
2
3 CREATE table dbo.transaction_tbl_t1 WITH (DISTRIBUTION = HASH(pid))
4 AS
5 SELECT *
6 FROM dbo.transaction_tbl
7
8 CREATE table dbo.transaction_tbl_t2 WITH (DISTRIBUTION = HASH(tid))
9 AS
10 SELECT *
11 FROM dbo.transaction_tbl
12

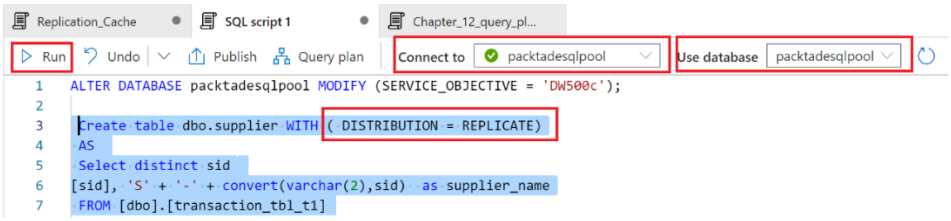

SQL script 1
Chapter12_Query_plan
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
4 AS
5 SELECT *
6 FROM dbo.transaction_tbl
7
8 CREATE table dbo.transaction_tbl_t2 WITH (DISTRIBUTION = HASH(tid))
9 AS
10 SELECT *
11 FROM dbo.transaction_tbl
12
13 select
14 t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt, t2.transaction_date
15 from dbo.transaction_tbl_t1 t1 inner join dbo.transaction_tbl_t2 t2
16 on t1.tid = t2.tid
17 Group by t1.sid,t2.transaction_date;
18
19 Select request_id,operation_type,step_index,row_count,total_elapsed_time,command from sys.dm_pdw_request_steps
20 where request_id in (Select request_id from sys.dm_pdw_exec_requests where command like '%Select
21 t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt%'
22 and session_id in (select session_id from sys.dm_pdw_exec_sessions s))
23 and start_time between dateadd(ss,-20,getdate()) and getdate()
24 order by total_elapsed_time desc
Results
Messages
Select
Query 1
View
Table
Chart
Export results
Search
request_id
operation_type
step_index
row_count
total_elapsed_t...
command
QID9291
ShuffleMoveOperation
2
242744
609
SELECT [T1_1].[t...
QID9291
ShuffleMoveOperation
5
118153
328
SELECT [T1_1].[...
QID9291
OnOperation
7
-1
203
DROP TABLE [q...
QID9291
ReturnOperation
6
2430
171
SELECT [T1_1].[...
QID9291
OnOperation
1
-1
109
CREATE TABLE [...

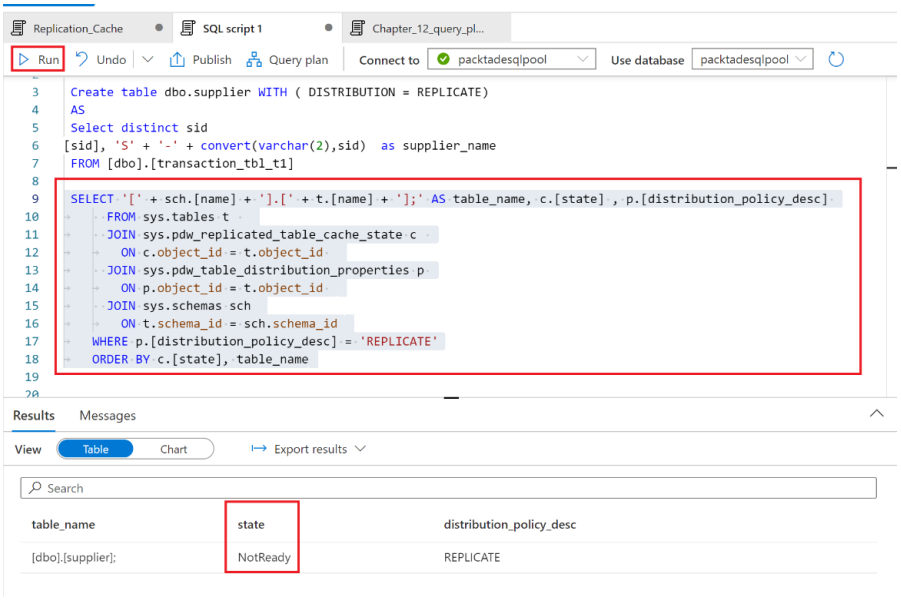

21 t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt%'
22 and session_id in (select session_id from sys.dm_pdw_exec_sessions s))
23 and start_time between dateadd(ss,-20,getdate()) and getdate()
24 order by total_elapsed_time desc
Results
Messages
Select
Query 1
View
Table
Chart
Export results
CSV
JSON
XML
Search
request_id
operation_type
row_count
total_elapsed_t...
command
QID9291
ShuffleMoveOperation
242744
609
SELECT [T1_1].[t...
QID9291
ShuffleMoveOperation
5
118153
328
SELECT [T1_1].[...
QID9291
OnOperation
7
-1
203
DROP TABLE [q...

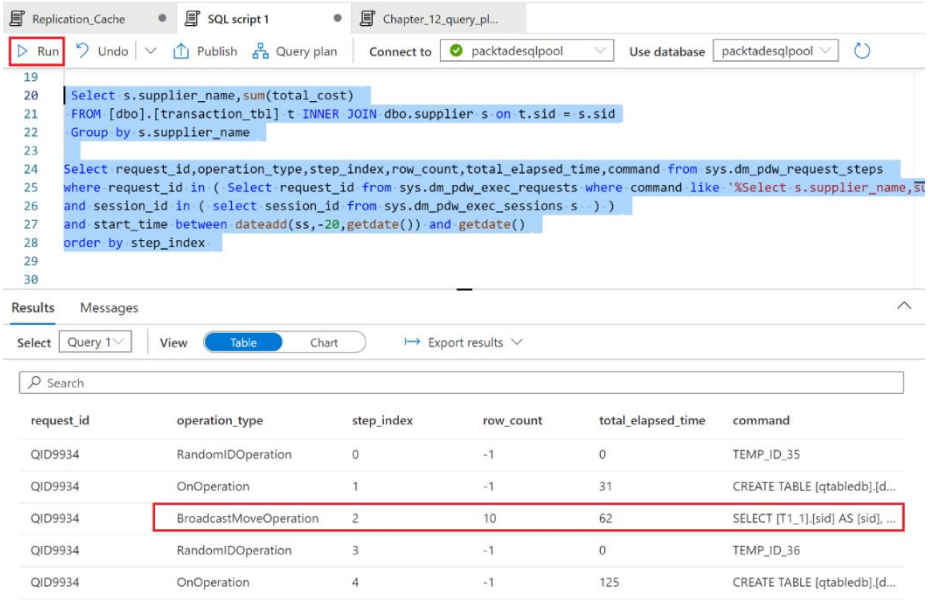

POSSIBLE DATA LOSS Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format.
Don't show again
Save As...
F2
SELECT [T1_1].[tid] AS [tid], [T1_1].[order_count] AS [order_count], [T1_1].[sid] AS [sid] FROM (SELECT [T2_1].[tid] AS [tid], [T2_1].[order_count] AS [order_count], [T2_1].[sid] AS [sid] FROM [packtadesqlpool].[dbo].[transaction_tbl_t1] AS T2_1 WHERE ([T2_1].[tid] IS NOT NULL)) AS T1_1
OPTION (MAXDOP 4, MIN_GRANT_PERCENT = [MIN_GRANT], DISTRIBUTED_MOVE(N''), MAX_GRANT_PERCENT = [MAX_GRANT])
request_id operation_ step_index row_count total_elaps command
QID9291 ShuffleMov 2 242744 609 NULL)) AS
QID9291 ShuffleMov 5 118153 328 SELECT
QID9291 OnOperatic 7 -1 203 DROP TABLE [qtabledb].[dbo].[TEMP_ID_3]

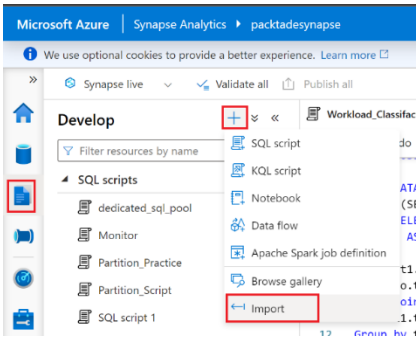

SQL script 1
Chapter12_Query_plan
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Select
t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt, t2.transaction_date
from dbo.transaction_tbl_t1 t1 inner join dbo.transaction_tbl_t2 t2
on t1.tid = t2.tid
Group by t1.sid,t2.transaction_date;
Select request_id,operation_type,step_index,row_count,total_elapsed_time,command from sys.dm_pdw_request_steps
where request_id in (Select request_id from sys.dm_pdw_exec_requests where command like '%Select
t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt%'
and session_id in (select session_id from sys.dm_pdw_exec_sessions s))
and start_time between dateadd(ss,-20,getdate()) and getdate()
order by total_elapsed_time desc
Drop table dbo.transaction_tbl_t1;
CREATE table dbo.transaction_tbl_t1 WITH (DISTRIBUTION = HASH(tid))
AS
SELECT *
FROM dbo.transaction_tbl;


SQL script 1
Chapter12_Query_plan
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Results
Messages
Select
Query 1
View
Table
Chart
Export results
Search
request_id
operation_type
step_index
row_count
total_elapsed_t...
command
QID9342
ShuffleMoveOperation
2
118153
375
SELECT [T1_1].[...
QID9342
ReturnOperation
3
2430
140
SELECT [T1_1].[...
QID9342
OnOperation
4
-1
109
DROP TABLE [q...
QID9342
OnOperation
1
-1
109
CREATE TABLE [...
QID9342
RandomIDOperation
0
-1
0
TEMP_ID_12


Replication_Cache
SQL script 1
Chapter_12_query_pl...
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
ALTER DATABASE packtadesqlpool MODIFY (SERVICE_OBJECTIVE = 'DW500c');
Create table dbo.supplier WITH (DISTRIBUTION = REPLICATE)
AS
Select distinct sid
[sid], 'S' + '-' + convert(varchar(2),sid) as supplier_name
FROM [dbo].[transaction_tbl_t1]


Replication_Cache
SQL script 1
Chapter_12_query_pl...
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Create table dbo.supplier WITH (DISTRIBUTION = REPLICATE)
AS
Select distinct sid
[sid], 'S' + '-' + convert(varchar(2),sid) as supplier_name
FROM [dbo].[transaction_tbl_t1]
SELECT '[' + sch.[name] + '].[' + t.[name] + '];' AS table_name, c.[state] , p.[distribution_policy_desc]
FROM sys.tables t
JOIN sys.pdw_replicated_table_cache_state c
ON c.object_id = t.object_id
JOIN sys.pdw_table_distribution_properties p
ON p.object_id = t.object_id
JOIN sys.schemas sch
ON t.schema_id = sch.schema_id
WHERE p.[distribution_policy_desc] = 'REPLICATE'
ORDER BY c.[state], table_name
Results
Messages
View
Table
Chart
Export results
Search
table_name
state
distribution_policy_desc
[dbo].[supplier];
NotReady
REPLICATE


Replication_Cache
SQL script 1
Chapter_12_query_pl...
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Select s.supplier_name,sum(total_cost)
FROM [dbo].[transaction_tbl] t INNER JOIN dbo.supplier s on t.sid = s.sid
Group by s.supplier_name
Select request_id,operation_type,step_index,row_count,total_elapsed_time,command from sys.dm_pdw_request_steps
where request_id in (Select request_id from sys.dm_pdw_exec_requests where command like '%Select s.supplier_name,
and session_id in (select session_id from sys.dm_pdw_exec_sessions s))
and start_time between dateadd(ss,-20,getdate()) and getdate()
order by step_index
Results
Messages
Select
Query 1
View
Table
Chart
Export results
Search
request_id
operation_type
step_index
row_count
total_elapsed_time
command
QID9934
RandomIDOperation
0
-1
0
TEMP_ID_35
QID9934
OnOperation
1
-1
31
CREATE TABLE [qtabledb].[d...
QID9934
BroadcastMoveOperation
2
10
62
SELECT [T1_1].[sid] AS [sid], ...
QID9934
RandomIDOperation
3
-1
0
TEMP_ID_36
QID9934
OnOperation
4
-1
125
CREATE TABLE [qtabledb].[d...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SQL script
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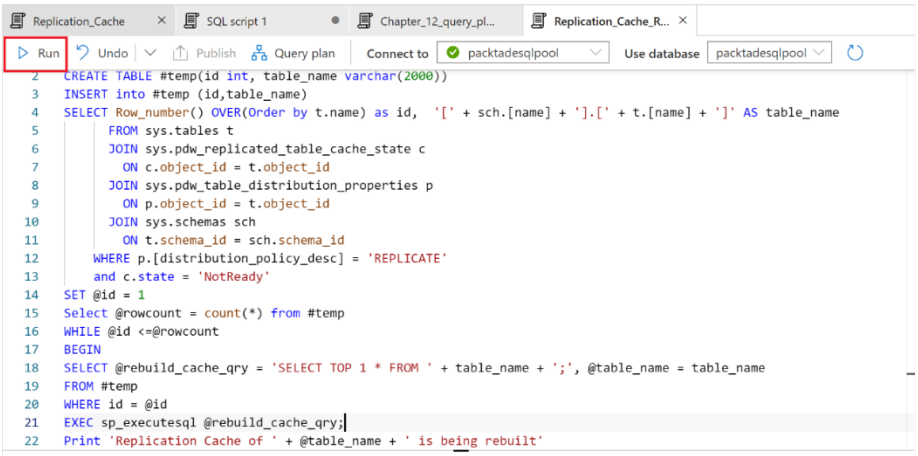
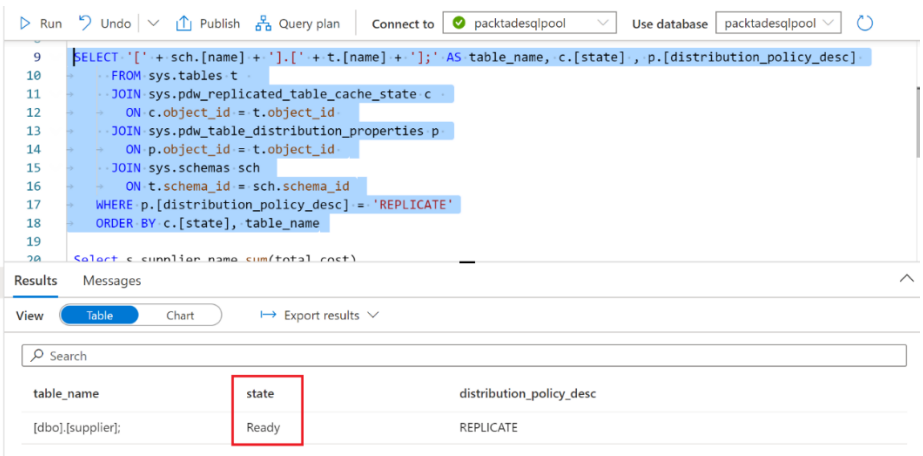
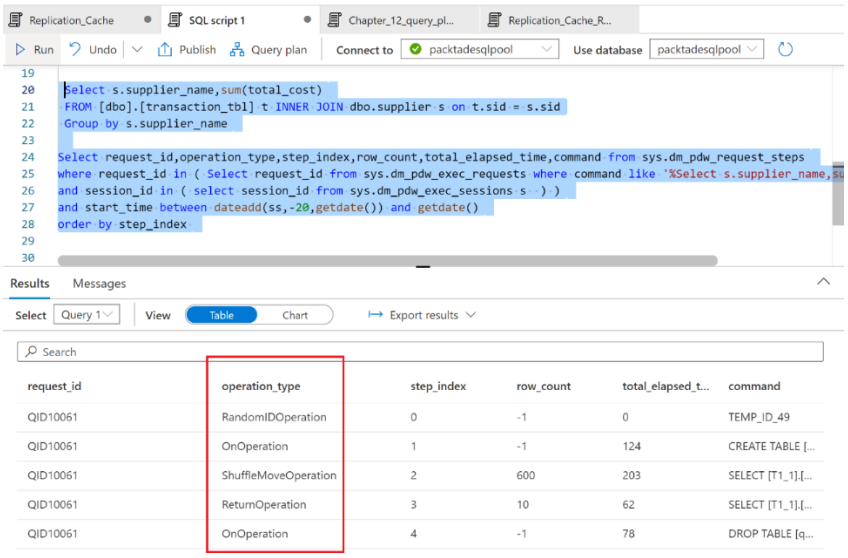
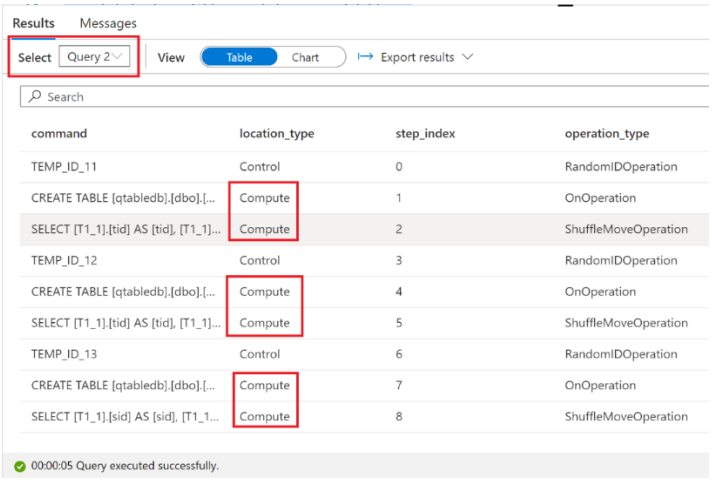
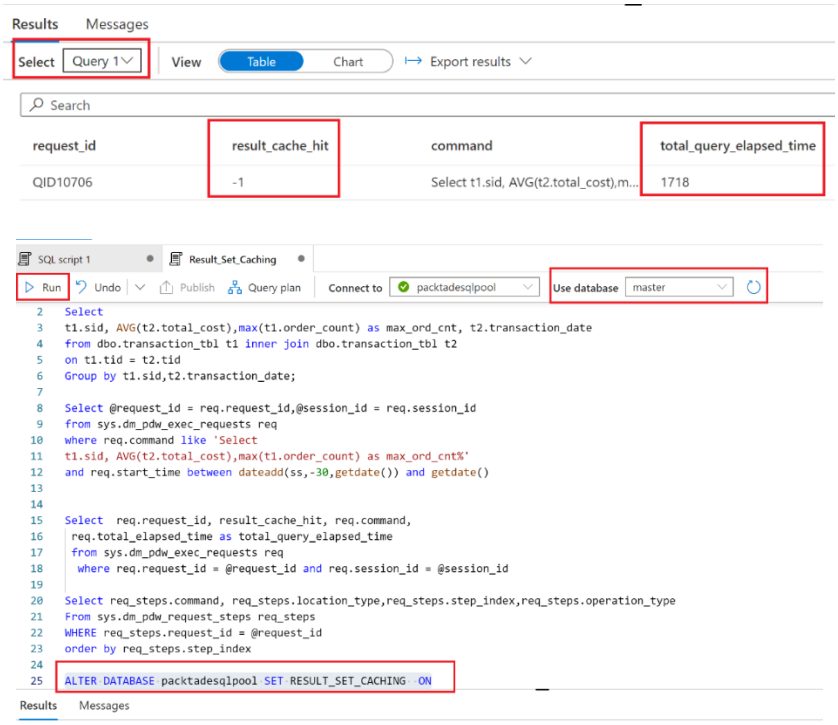
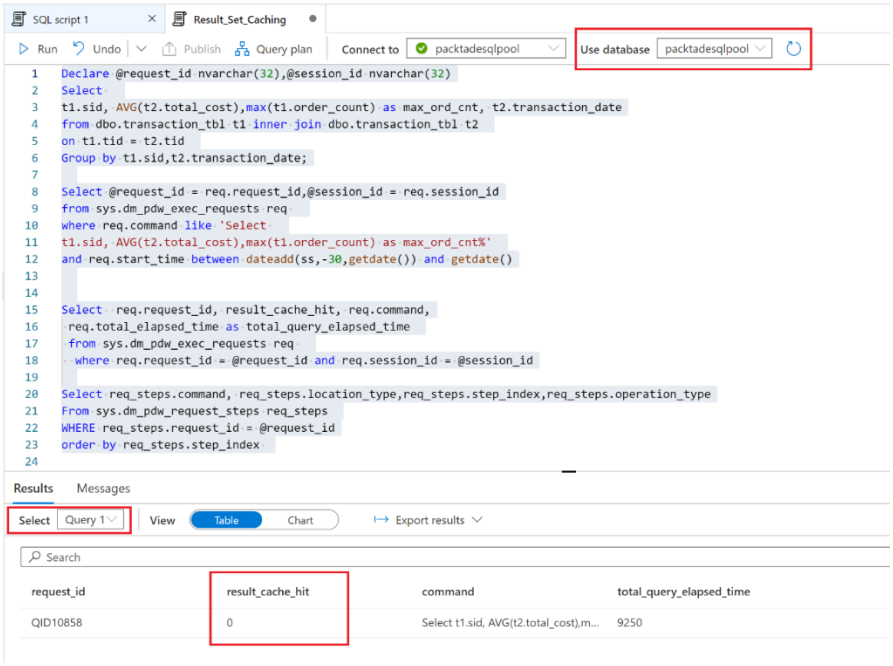

Replication_Cache
SQL script 1
Chapter_12_query_pl...
Replication_Cache_R...
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
CREATE TABLE #temp(id int, table_name varchar(2000))
INSERT into #temp (id,table_name)
SELECT Row_number() OVER(Order by t.name) as id, '[' + sch.[name] + '].[' + t.[name] + ']' AS table_name
FROM sys.tables t
JOIN sys.pdw_replicated_table_cache_state c
ON c.object_id = t.object_id
JOIN sys.pdw_table_distribution_properties p
ON p.object_id = t.object_id
JOIN sys.schemas sch
ON t.schema_id = sch.schema_id
WHERE p.[distribution_policy_desc] = 'REPLICATE'
and c.state = 'NotReady'
SET @id = 1
Select @rowcount = count(*) from #temp
WHILE @id <=@rowcount
BEGIN
SELECT @rebuild_cache_qry = 'SELECT TOP 1 * FROM ' + table_name + ';', @table_name = table_name
FROM #temp
WHERE id = @id
EXEC sp_executesql @rebuild_cache_qry;
Print 'Replication Cache of ' + @table_name + ' is being rebuilt'

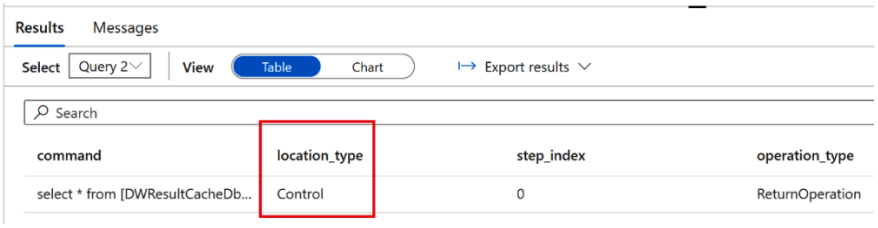

Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
SELECT '[' + sch.[name] + '].[' + t.[name] + ']' AS table_name, c.[state] , p.[distribution_policy_desc]
FROM sys.tables t
JOIN sys.pdw_replicated_table_cache_state c
ON c.object_id = t.object_id
JOIN sys.pdw_table_distribution_properties p
ON p.object_id = t.object_id
JOIN sys.schemas sch
ON t.schema_id = sch.schema_id
WHERE p.[distribution_policy_desc] = 'REPLICATE'
ORDER BY c.[state], table_name
Results
Messages
View
Table
Chart
Export results
Search
table_name
state
distribution_policy_desc
[dbo].[supplier];
Ready
REPLICATE

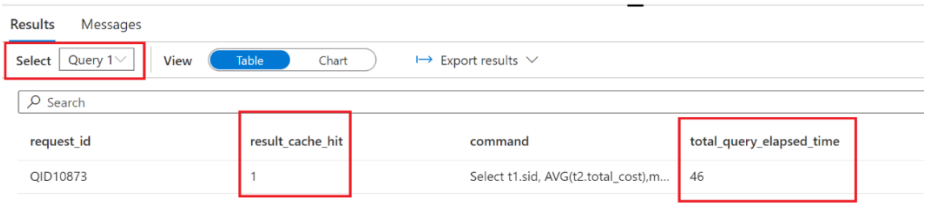

Replication_Cache
SQL script 1
Chapter_12_query_pl...
Replication_Cache_R...
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Select s.supplier_name,sum(total_cost)
FROM [dbo].[transaction_tbl] t INNER JOIN dbo.supplier s on t.sid = s.sid
Group by s.supplier_name
Select request_id,operation_type,step_index,row_count,total_elapsed_time,command from sys.dm_pdw_request_steps
where request_id in (Select request_id from sys.dm_pdw_exec_requests where command like '%Select s.supplier_name,su
and session_id in (select session_id from sys.dm_pdw_exec_sessions s))
and start_time between dateadd(ss,-20,getdate()) and getdate()
order by step_index
Results
Messages
Select
Query 1
View
Table
Chart
Export results
Search
request_id
operation_type
step_index
row_count
total_elapsed_t...
command
QID10061
RandomIDOperation
0
-1
0
TEMP_ID_49
QID10061
OnOperation
1
-1
124
CREATE TABLE [...
QID10061
ShuffleMoveOperation
2
600
203
SELECT [T1_1].[...
QID10061
ReturnOperation
3
10
62
SELECT [T1_1].[...
QID10061
OnOperation
4
-1
78
DROP TABLE [q...

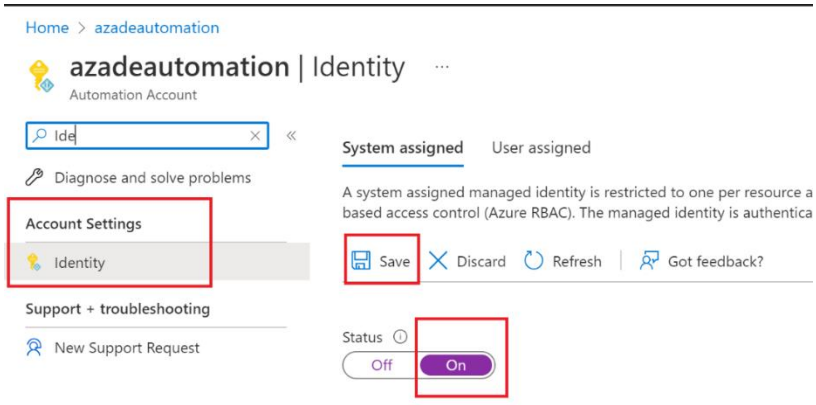

Results
Messages
Select
Query 2
View
Table
Chart
Export results
Search
command
location_type
step_index
operation_type
TEMP_ID_11
Control
0
RandomIDOperation
CREATE TABLE [qtabledb].[dbo].[...
Compute
1
OnOperation
SELECT [T1_1].[tid] AS [tid], [T1_1]...
Compute
2
ShuffleMoveOperation
TEMP_ID_12
Control
3
RandomIDOperation
CREATE TABLE [qtabledb].[dbo].[...
Compute
4
OnOperation
SELECT [T1_1].[tid] AS [tid], [T1_1]...
Compute
5
ShuffleMoveOperation
TEMP_ID_13
Control
6
RandomIDOperation
CREATE TABLE [qtabledb].[dbo].[...
Compute
7
OnOperation
SELECT [T1_1].[sid] AS [sid], [T1_1...
Compute
8
ShuffleMoveOperation
00:00:05 Query executed successfully.

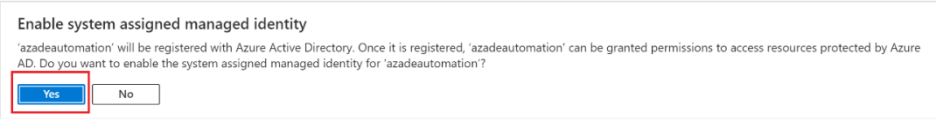

Results
Messages
Select
Query 1
View
Table
Chart
Export results
Search
request_id
result_cache_hit
command
total_query_elapsed_time
QID10706
-1
Select t1.sid, AVG(t2.total_cost),m...
1718
SQL script 1
Result_Set_Caching
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
master
2 Select
3 t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt, t2.transaction_date
4 from dbo.transaction_tbl t1 inner join dbo.transaction_tbl t2
5 on t1.tid = t2.tid
6 Group by t1.sid,t2.transaction_date;
7
8 Select @request_id = req.request_id,@session_id = req.session_id
9 from sys.dm_pdw_exec_requests req
10 where req.command like 'Select
11 t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt%'
12 and req.start_time between dateadd(ss,-30,getdate()) and getdate()
13
14
15 Select req.request_id, result_cache_hit, req.command,
16 req.total_elapsed_time as total_query_elapsed_time
17 from sys.dm_pdw_exec_requests req
18 where req.request_id = @request_id and req.session_id = @session_id
19
20 Select req_steps.command, req_steps.location_type,req_steps.step_index,req_steps.operation_type
21 From sys.dm_pdw_request_steps req_steps
22 WHERE req_steps.request_id = @request_id
23 order by req_steps.step_index
24
25 ALTER DATABASE packtadesqlpool SET RESULT_SET_CACHING ON
Results
Messages

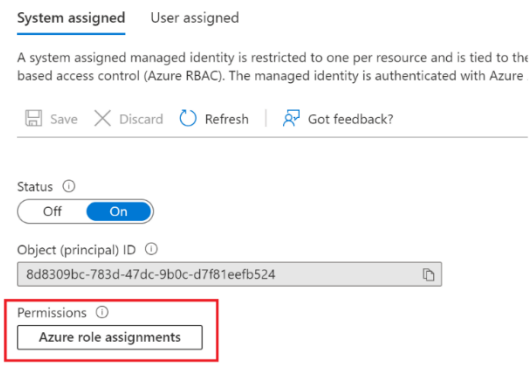

SQL script 1
Result_Set_Caching
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
Declare @request_id nvarchar(32),@session_id nvarchar(32)
Select
t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt, t2.transaction_date
from dbo.transaction_tbl t1 inner join dbo.transaction_tbl t2
on t1.tid = t2.tid
Group by t1.sid,t2.transaction_date;
Select @request_id = req.request_id,@session_id = req.session_id
from sys.dm_pdw_exec_requests req
where req.command like 'Select
t1.sid, AVG(t2.total_cost),max(t1.order_count) as max_ord_cnt%'
and req.start_time between dateadd(ss,-30,getdate()) and getdate()
Select req.request_id, result_cache_hit, req.command,
req.total_elapsed_time as total_query_elapsed_time
from sys.dm_pdw_exec_requests req
where req.request_id = @request_id and req.session_id = @session_id
Select req_steps.command, req_steps.location_type,req_steps.step_index,req_steps.operation_type
From sys.dm_pdw_request_steps req_steps
WHERE req_steps.request_id = @request_id
order by req_steps.step_index
Results
Messages
Select
Query 1
View
Table
Chart
Export results
Search
request_id
result_cache_hit
command
total_query_elapsed_time
QID10858
0
Select t1.sid, AVG(t2.total_cost),m...
9250

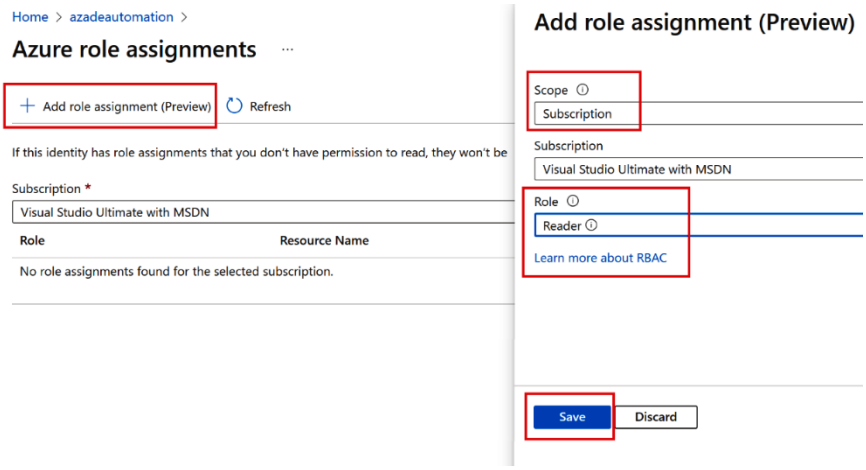

Results
Messages
Select
Query 2
View
Table
Chart
Export results
Search
command
location_type
step_index
operation_type
select * from [DWResultCacheDb...
Control
0
ReturnOperation

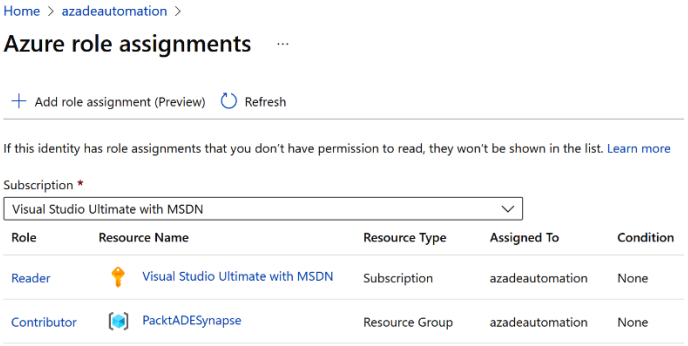

Results
Messages
Select
Query 1
View
Table
Chart
Export results
Search
request_id
result_cache_hit
command
total_query_elapsed_time
QID10873
1
Select t1.sid, AVG(t2.total_cost),m...
46

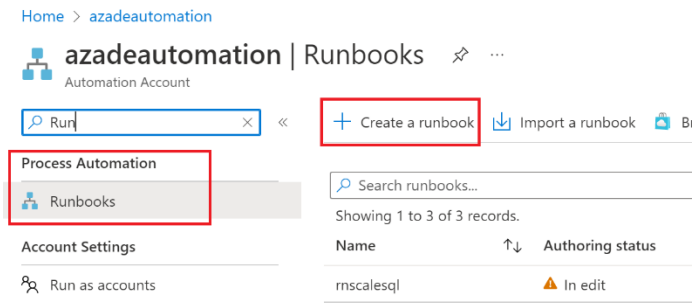

Home > azadeautomation
azadeautomation | Identity
Automation Account
Ide
Diagnose and solve problems
Account Settings
Identity
Support + troubleshooting
New Support Request
System assigned
User assigned
A system assigned managed identity is restricted to one per resource a
based access control (Azure RBAC). The managed identity is authentica
Save
Discard
Refresh
Got feedback?
Status
Off
On

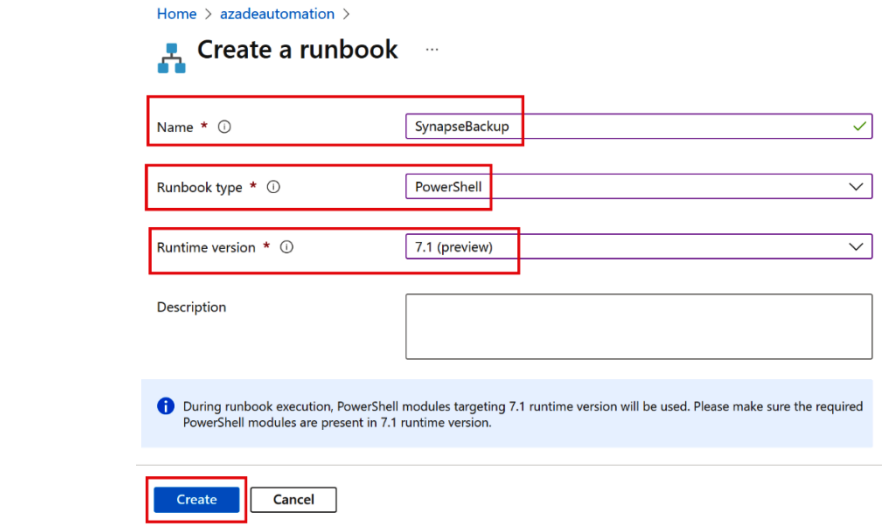

Enable system assigned managed identity
'azadeautomation' will be registered with Azure Active Directory. Once it is registered, 'azadeautomation' can be granted permissions to access resources protected by Azure AD. Do you want to enable the system assigned managed identity for 'azadeautomation'?
Yes
No

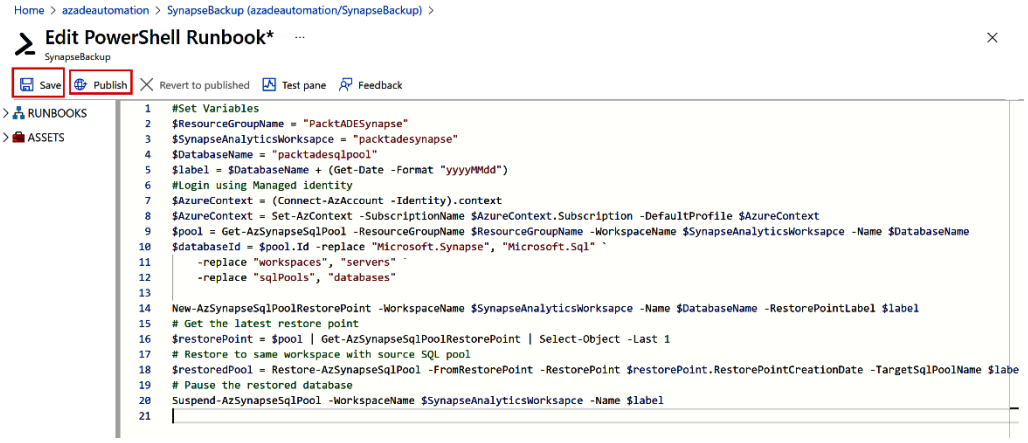

System assigned
User assigned
A system assigned managed identity is restricted to one per resource and is tied to the
based access control (Azure RBAC). The managed identity is authenticated with Azure
Save
Discard
Refresh
Got feedback?
Status
Off
On
Object (principal) ID
8d8309bc-783d-47dc-9b0c-d7f81eefb524
Permissions
Azure role assignments

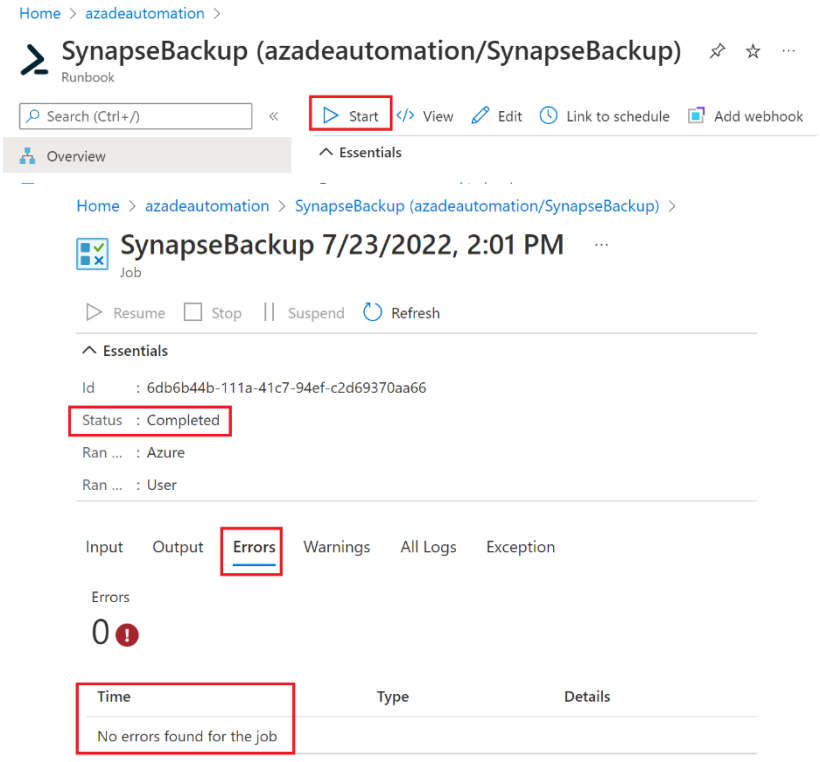

Home > azadeautomation >
Azure role assignments
Add role assignment (Preview)
Refresh
If this identity has role assignments that you don't have permission to read, they won't be
Subscription *
Visual Studio Ultimate with MSDN
Role
Resource Name
No role assignments found for the selected subscription.
Add role assignment (Preview)
Scope
Subscription
Subscription
Visual Studio Ultimate with MSDN
Role
Reader
Learn more about RBAC
Save
Discard

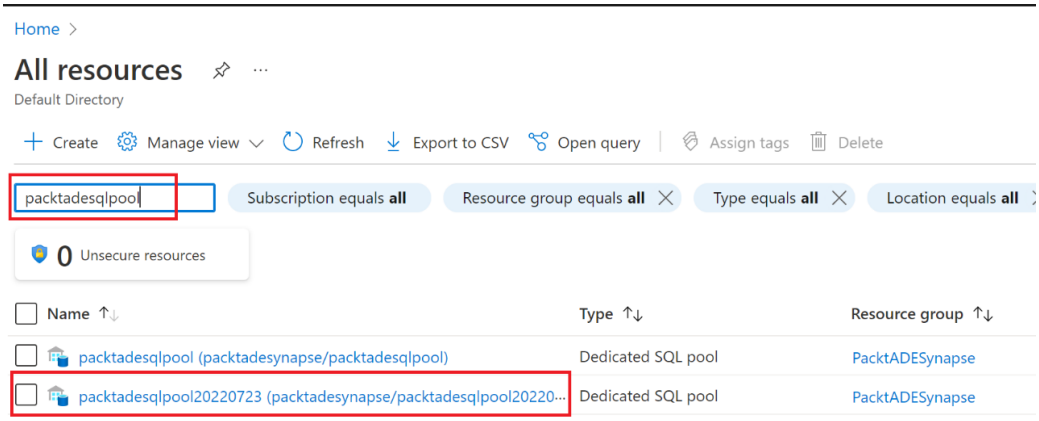

Home > azadeautomation >
Azure role assignments
Add role assignment (Preview)
Refresh
If this identity has role assignments that you don't have permission to read, they won't be shown in the list. Learn more
Subscription *
Visual Studio Ultimate with MSDN
Role
Resource Name
Resource Type
Assigned To
Condition
Reader
Visual Studio Ultimate with MSDN
Subscription
azadeautomation
None
Contributor
PacktADESynapse
Resource Group
azadeautomation
None

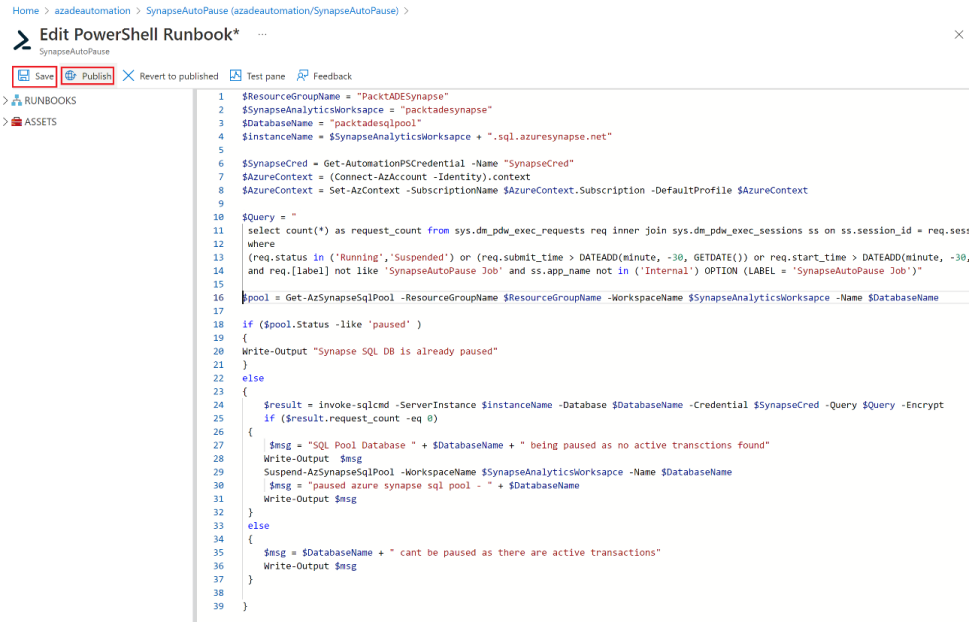

Home > azadeautomation
azadeautomation | Runbooks
Automation Account
Run
Create a runbook
Import a runbook
Process Automation
Runbooks
Account Settings
Run as accounts
Search runbooks...
Showing 1 to 3 of 3 records.
Name
Authoring status
rnscalesql
In edit

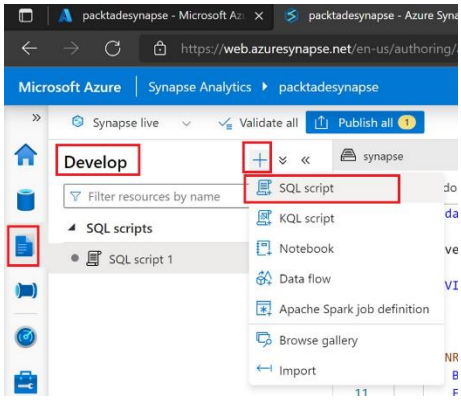

Home > azadeautomation >
Create a runbook
Name * SynapseBackup
Runbook type * PowerShell
Runtime version * 7.1 (preview)
Description
During runbook execution, PowerShell modules targeting 7.1 runtime version will be used. Please make sure the required PowerShell modules are present in 7.1 runtime version.
Create
Cancel

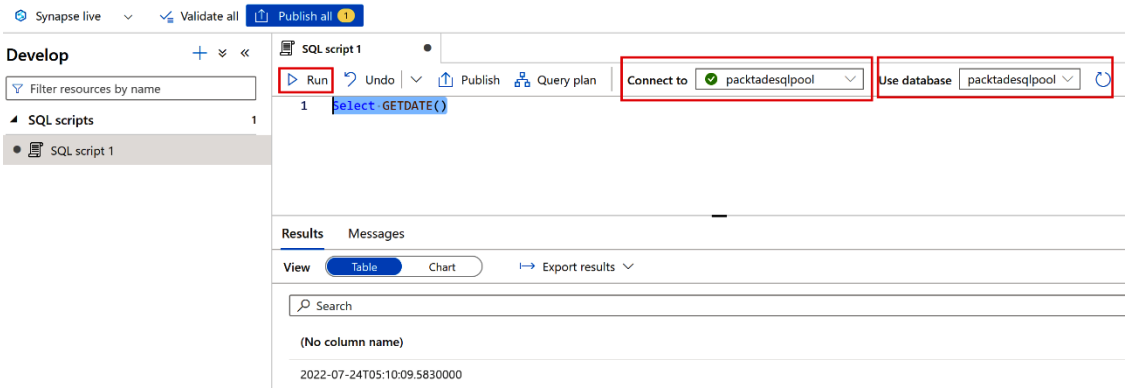

Home > azadeautomation > SynapseBackup (azadeautomation/SynapseBackup) >
Edit PowerShell Runbook*
SynapseBackup
Save
Publish
Revert to published
Test pane
Feedback
RUNBOOKS
ASSETS
#Set Variables
$ResourceGroupName = "PacktADESynapse"
$SynapseAnalyticsWorksapce = "packtadesynapse"
$DatabaseName = "packtadesqlpool"
$label = $DatabaseName + (Get-Date -Format "yyyyMMdd")
#Login using Managed identity
$AzureContext = (Connect-AzAccount -Identity).context
$AzureContext = Set-AzContext -SubscriptionName $AzureContext.Subscription -DefaultProfile $AzureContext
$pool = Get-AzSynapseSqlPool -ResourceGroupName $ResourceGroupName -WorkspaceName $SynapseAnalyticsWorksapce -Name $DatabaseName
$databaseId = $pool.Id -replace "Microsoft.Synapse", "Microsoft.Sql" `
-replace "workspaces", "servers" `
-replace "sqlPools", "databases"
New-AzSynapseSqlPoolRestorePoint -WorkspaceName $SynapseAnalyticsWorksapce -Name $DatabaseName -RestorePointLabel $label
Get the latest restore point
$restorePoint = $pool | Get-AzSynapseSqlPoolRestorePoint | Select-Object -Last 1
Restore to same workspace with source SQL pool
$restoredPool = Restore-AzSynapseSqlPool -FromRestorePoint -RestorePoint $restorePoint.RestorePointCreationDate -TargetSqlPoolName $labe
Pause the restored database
Suspend-AzSynapseSqlPool -WorkspaceName $SynapseAnalyticsWorksapce -Name $label

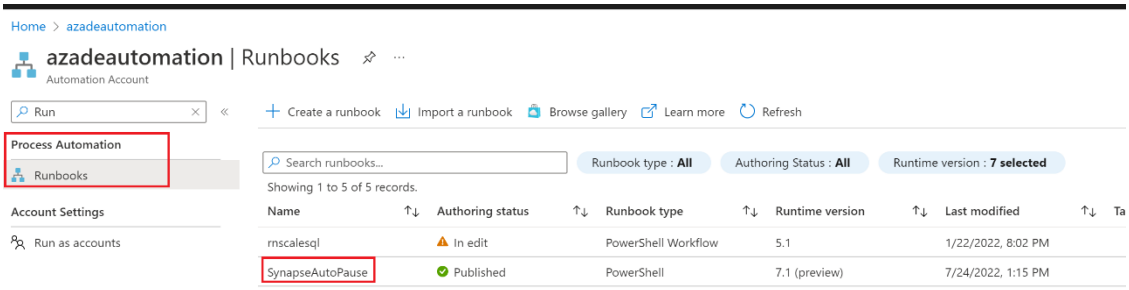

Home > azadeautomation >
SynapseBackup (azadeautomation/SynapseBackup)
Runbook
Search (Ctrl+/)
Start
View
Edit
Link to schedule
Add webhook
Overview
Essentials
Home > azadeautomation > SynapseBackup (azadeautomation/SynapseBackup) >
SynapseBackup 7/23/2022, 2:01 PM
Job
Resume
Stop
Suspend
Refresh
Essentials
Id : 6db6b44b-111a-41c7-94ef-c2d69370aa66
Status : Completed
Ran ... : Azure
Ran ... : User
Input
Output
Errors
Warnings
All Logs
Exception
Errors
0
Time
Type
Details
No errors found for the job

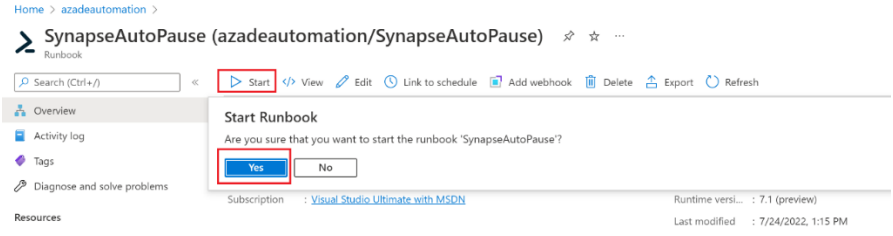

Home >
All resources
Default Directory
Create
Manage view
Refresh
Export to CSV
Open query
Assign tags
Delete
packtadesqlpool
Subscription equals all
Resource group equals all
Type equals all
Location equals all
0 Unsecure resources
Name
Type
Resource group
packtadesqlpool (packtadesynapse/packtadesqlpool)
Dedicated SQL pool
PacktADESynapse
packtadesqlpool20220723 (packtadesynapse/packtadesqlpool20220...
Dedicated SQL pool
PacktADESynapse

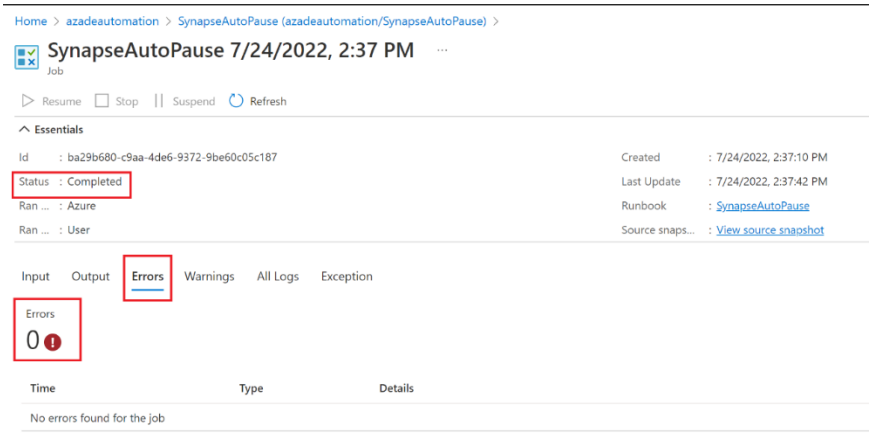

Home > azadeautomation > SynapseAutoPause (azadeautomation/SynapseAutoPause) >
Edit PowerShell Runbook*
SynapseAutoPause
Save
Publish
Revert to published
Test pane
Feedback
RUNBOOKS
ASSETS
$ResourceGroupName = "PacktADESynapse"
$SynapseAnalyticsWorksapce = "packtadesynapse"
$DatabaseName = "packtadesqlpool"
$instanceName = $SynapseAnalyticsWorksapce + ".sql.azuresynapse.net"
$SynapseCred = Get-AutomationPSCredential -Name "SynapseCred"
$AzureContext = (Connect-AzAccount -Identity).context
$AzureContext = Set-AzContext -SubscriptionName $AzureContext.Subscription -DefaultProfile $AzureContext
$Query = "
select count(*) as request_count from sys.dm_pdw_exec_requests req inner join sys.dm_pdw_exec_sessions ss on ss.session_id = req.sess
where
(req.status in ('Running','Suspended') or (req.submit_time > DATEADD(minute, -30, GETDATE()) or req.start_time > DATEADD(minute, -30,
and req.[label] not like 'SynapseAutoPause Job' and ss.app_name not in ('Internal') OPTION (LABEL = 'SynapseAutoPause Job')"
$pool = Get-AzSynapseSqlPool -ResourceGroupName $ResourceGroupName -WorkspaceName $SynapseAnalyticsWorksapce -Name $DatabaseName
if ($pool.Status -like 'paused')
{
Write-Output "Synapse SQL DB is already paused"
}
else
{
$result = invoke-sqlcmd -ServerInstance $instanceName -Database $DatabaseName -Credential $SynapseCred -Query $Query -Encrypt
if ($result.request_count -eq 0)
{
$msg = "SQL Pool Database " + $DatabaseName + " being paused as no active transctions found"
Write-Output $msg
Suspend-AzSynapseSqlPool -WorkspaceName $SynapseAnalyticsWorksapce -Name $DatabaseName
$msg = "paused azure synapse sql pool - " + $DatabaseName
Write-Output $msg
}
else
{
$msg = $DatabaseName + " cant be paused as there are active transactions"
Write-Output $msg
}
}

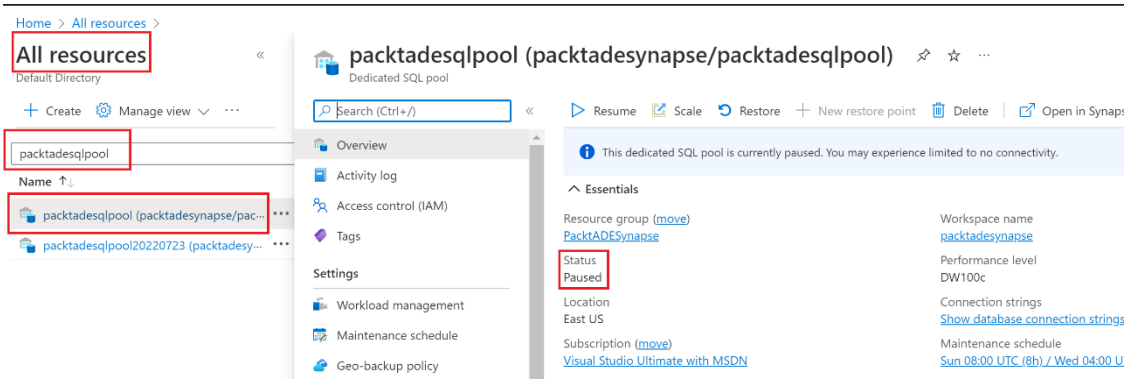

packtadesynapse - Microsoft Az
packtadesynapse - Azure Syna
https://web.azuresynapse.net/en-us/authoring/
Microsoft Azure
Synapse Analytics
packtadesynapse
Synapse live
Validate all
Publish all 1
Develop
synapse
Filter resources by name
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
Browse gallery
Import
SQL scripts
SQL script 1

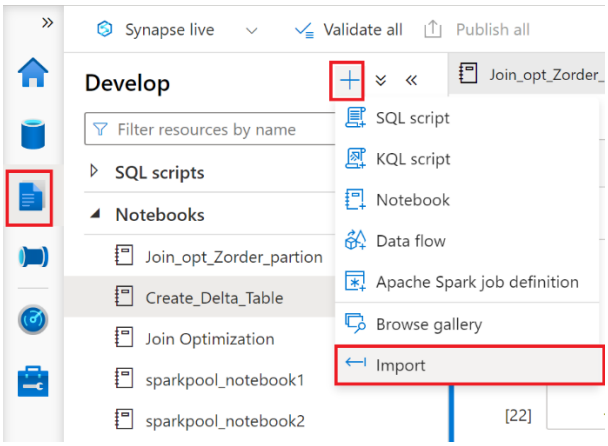

Synapse live
Validate all
Publish all 1
Develop
Filter resources by name
SQL scripts 1
SQL script 1
SQL script 1
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
1
Select GETDATE()
Results
Messages
View
Table
Chart
Export results
Search
(No column name)
2022-07-24T05:10:09.5830000

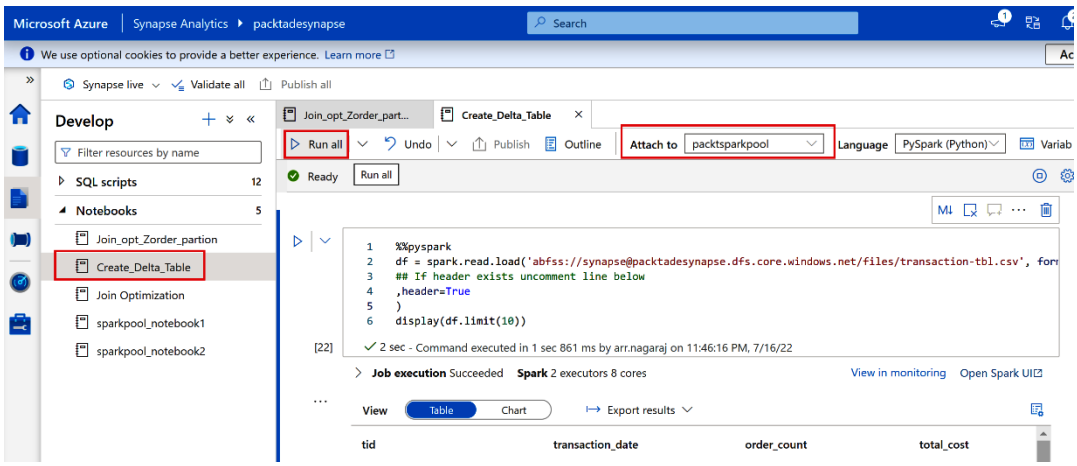

Home > azadeautomation
azadeautomation | Runbooks
Automation Account
Run
Process Automation
Runbooks
Account Settings
Run as accounts
Create a runbook
Import a runbook
Browse gallery
Learn more
Refresh
Search runbooks...
Runbook type : All
Authoring Status : All
Runtime version : 7 selected
Showing 1 to 5 of 5 records.
Name
Authoring status
Runbook type
Runtime version
Last modified
rnscalesql
In edit
PowerShell Workflow
5.1
1/22/2022, 8:02 PM
SynapseAutoPause
Published
PowerShell
7.1 (preview)
7/24/2022, 1:15 PM

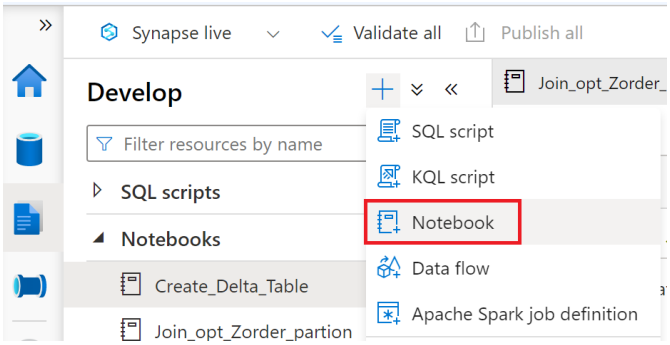

Home > azadeautomation >
SynapseAutoPause (azadeautomation/SynapseAutoPause)
Runbook
Search (Ctrl+/)
Start
View
Edit
Link to schedule
Add webhook
Delete
Export
Refresh
Overview
Activity log
Tags
Diagnose and solve problems
Resources
Start Runbook
Are you sure that you want to start the runbook 'SynapseAutoPause'?
Yes
No
Subscription : Visual Studio Ultimate with MSDN
Runtime versi... : 7.1 (preview)
Last modified : 7/24/2022, 1:15 PM

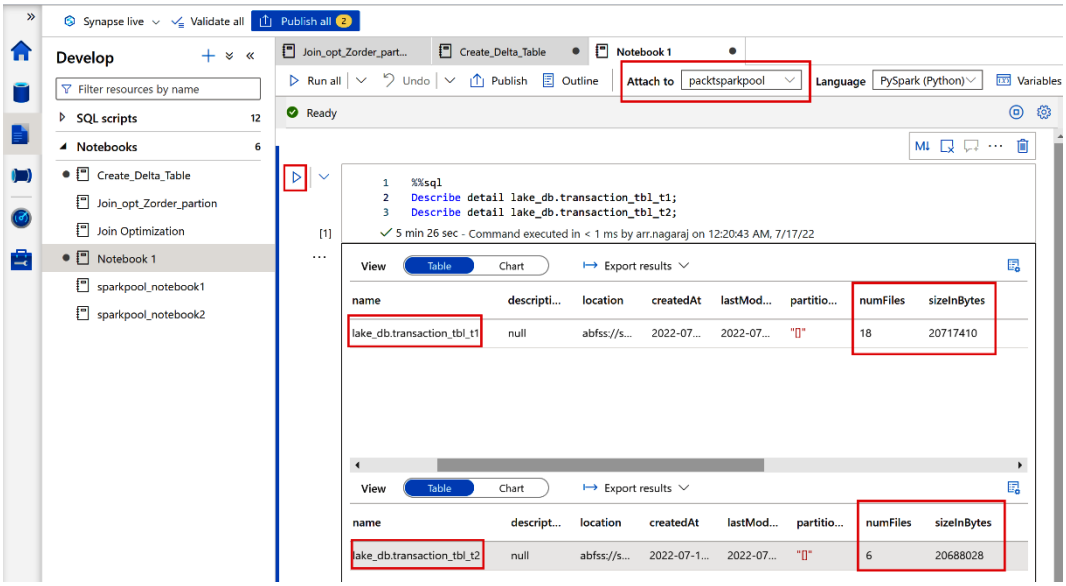

Home > azadeautomation > SynapseAutoPause (azadeautomation/SynapseAutoPause) >
SynapseAutoPause 7/24/2022, 2:37 PM
Job
Resume
Stop
Suspend
Refresh
Essentials
Id : ba29b680-c9aa-4de6-9372-9be60c05c187
Status : Completed
Ran ... : Azure
Ran ... : User
Created : 7/24/2022, 2:37:10 PM
Last Update : 7/24/2022, 2:37:42 PM
Runbook : SynapseAutoPause
Source snaps... : View source snapshot
Input
Output
Errors
Warnings
All Logs
Exception
Errors
0
Time
Type
Details
No errors found for the job


Home > All resources >
All resources
Default Directory
Create
Manage view
packtadesqlpool
Name
packtadesqlpool (packtadesynapse/pac...
packtadesqlpool20220723 (packtadesy...
packtadesqlpool (packtadesynapse/packtadesqlpool)
Dedicated SQL pool
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Settings
Workload management
Maintenance schedule
Geo-backup policy
Resume
Scale
Restore
New restore point
Delete
Open in Synaps
This dedicated SQL pool is currently paused. You may experience limited to no connectivity.
Essentials
Resource group (move)
PacktADESynapse
Status
Paused
Location
East US
Subscription (move)
Visual Studio Ultimate with MSDN
Workspace name
packtadesynapse
Performance level
DW100c
Connection strings
Show database connection strings
Maintenance schedule
Sun 08:00 UTC (8h) / Wed 04:00 U

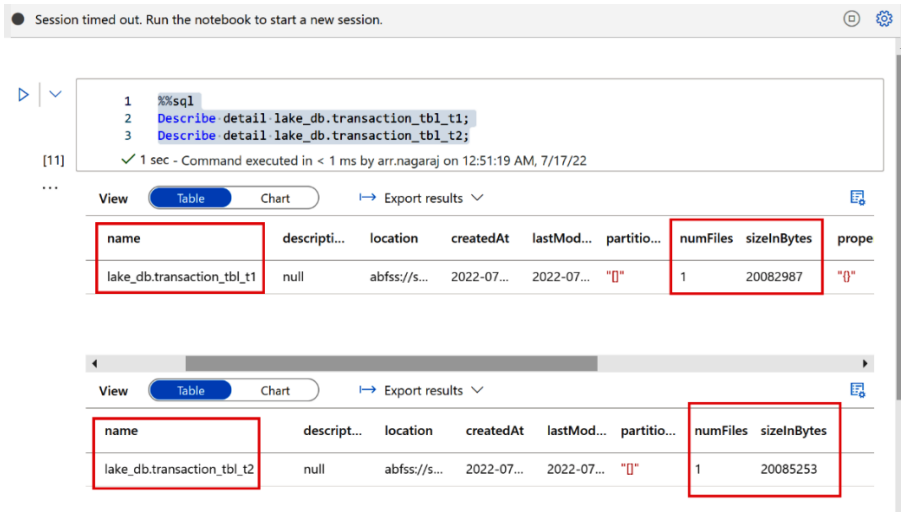

Synapse live
Validate all
Publish all
Develop
Filter resources by name
SQL scripts
Notebooks
Join_opt_Zorder_partion
Create_Delta_Table
Join Optimization
sparkpool_notebook1
sparkpool_notebook2
Join_opt_Zorder_
SQL script
KQL script
Notebook
Data flow
Apache Spark job definition
Browse gallery
Import
[22]

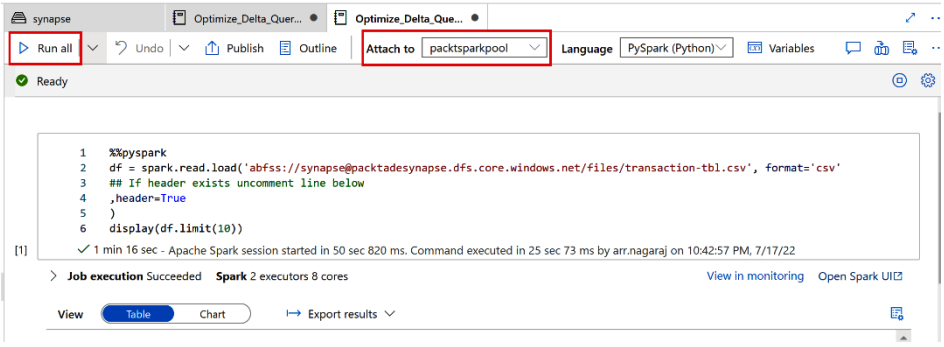

Microsoft Azure
Synapse Analytics
packtadesynapse
Search
We use optional cookies to provide a better experience. Learn more
Synapse live
Validate all
Publish all
Develop
Filter resources by name
SQL scripts 12
Notebooks 5
Join_opt_Zorder_partion
Create_Delta_Table
Join Optimization
sparkpool_notebook1
sparkpool_notebook2
Join_opt_Zorder_part...
Create_Delta_Table
Run all
Undo
Publish
Outline
Attach to packtsparkpool
Language PySpark (Python)
Ready
Run all
1 %%pyspark
2 df = spark.read.load('abfss://synapse@packtadesynapse.dfs.core.windows.net/files/transaction-tbl.csv', for
3 ## If header exists uncomment line below
4 ,header=True
5)
6 display(df.limit(10))
[22]
2 sec - Command executed in 1 sec 861 ms by arr.nagaraj on 11:46:16 PM, 7/16/22
Job execution Succeeded
Spark 2 executors 8 cores
View in monitoring
Open Spark UI
View
Table
Chart
Export results
tid
transaction_date
order_count
total_cost

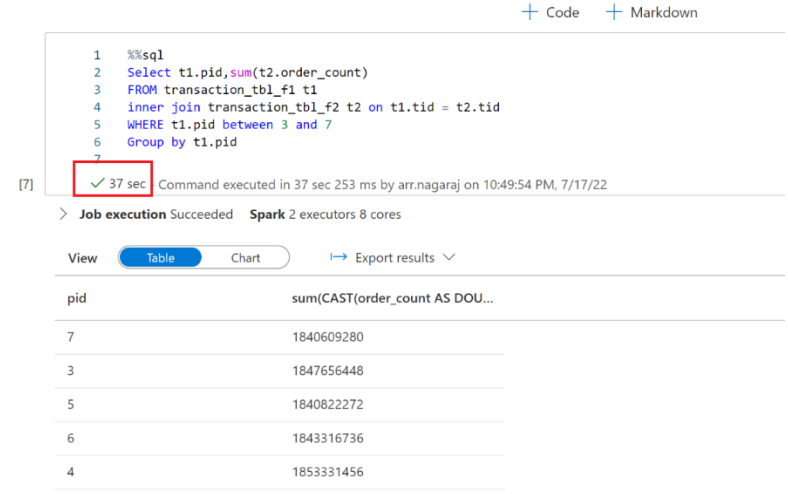

Synapse live
Validate all
Publish all
Develop
Join_opt_Zorder_
Filter resources by name
SQL script
KQL script
SQL scripts
Notebook
Notebooks
Data flow
Create_Delta_Table
Apache Spark job definition
Join_opt_Zorder_partion

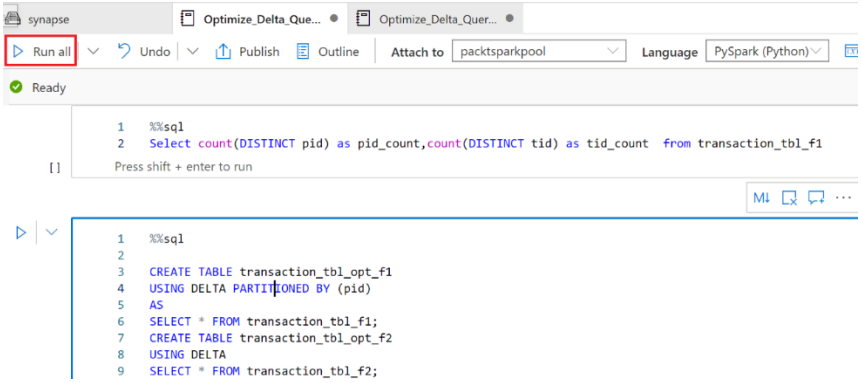

Synapse live
Validate all
Publish all
Develop
Filter resources by name
SQL scripts 12
Notebooks 6
Create_Delta_Table
Join_opt_Zorder_partion
Join Optimization
Notebook 1
sparkpool_notebook1
sparkpool_notebook2
Join_opt_Zorder_part...
Create_Delta_Table
Notebook 1
Run all
Undo
Publish
Outline
Attach to packtsparkpool
Language PySpark (Python)
Variables
Ready
%%sql
Describe detail lake_db.transaction_tbl_t1;
Describe detail lake_db.transaction_tbl_t2;
[1]
5 min 26 sec - Command executed in < 1 ms by arr.nagaraj on 12:20:43 AM, 7/17/22
View
Table
Chart
Export results
name
descripti...
location
createdAt
lastMod...
partitio...
numFiles
sizeInBytes
lake_db.transaction_tbl_t1
null
abfss://s...
2022-07...
2022-07...
"[]"
18
20717410
lake_db.transaction_tbl_t2
descript...
2022-07-1...
6
20688028


Code
Markdown
try:
database_name = "lake_db"
tables = spark.sql(f"SHOW TABLES FROM `{database_name}`").select("tableName").collect()
tables = [(row.tableName) for row in tables]
for table_name in tables:
spark.sql(f"OPTIMIZE `{database_name}`.`{table_name}`")
spark.sql(f"VACUUM `{database_name}`.`{table_name}` RETAIN 720 HOURS")
except Exception as ex:
raise Exception(f"error:`{str(ex)}`")
[9]
24 sec - Command executed in 22 sec 985 ms by arr.nagaraj on 12:49:30 AM, 7/17/22
Job execution Succeeded
Spark 2 executors 8 cores
View in monitoring
Open Spark history


Session timed out. Run the notebook to start a new session.
%%sql
Describe detail lake_db.transaction_tbl_t1;
Describe detail lake_db.transaction_tbl_t2;
[11]
1 sec - Command executed in < 1 ms by arr.nagaraj on 12:51:19 AM, 7/17/22
View
Table
Chart
Export results
name
descripti...
location
createdAt
lastMod...
partitio...
numFiles
sizeInBytes
prope
lake_db.transaction_tbl_t1
null
abfss://s...
2022-07...
2022-07...
"[]"
1
20082987
"{}"
View
Table
Chart
Export results
name
descript...
location
createdAt
lastMod...
partitio...
numFiles
sizeInBytes
lake_db.transaction_tbl_t2
null
abfss://s...
2022-07...
2022-07...
"[]"
1
20085253


synapse
Optimize_Delta_Quer...
Optimize_Delta_Que...
Run all
Undo
Publish
Outline
Attach to
packtsparkpool
Language
PySpark (Python)
Variables
Ready
%%pyspark
df = spark.read.load('abfss://synapse@packtadesynapse.dfs.core.windows.net/files/transaction-tbl.csv', format='csv'
If header exists uncomment line below
,header=True
)
display(df.limit(10))
[1]
1 min 16 sec - Apache Spark session started in 50 sec 820 ms. Command executed in 25 sec 73 ms by arr.nagaraj on 10:42:57 PM, 7/17/22
Job execution Succeeded
Spark 2 executors 8 cores
View in monitoring
Open Spark UI
View
Table
Chart
Export results


Code
Markdown
%%sql
Select t1.pid,sum(t2.order_count)
FROM transaction_tbl_f1 t1
inner join transaction_tbl_f2 t2 on t1.tid = t2.tid
WHERE t1.pid between 3 and 7
Group by t1.pid
[7]
37 sec
Command executed in 37 sec 253 ms by arr.nagaraj on 10:49:54 PM, 7/17/22
Job execution Succeeded
Spark 2 executors 8 cores
View
Table
Chart
Export results
pid
sum(CAST(order_count AS DOU...
7
1840609280
3
1847656448
5
1840822272
6
1843316736
4
1853331456


synapse
Optimize_Delta_Que...
Optimize_Delta_Quer...
Run all
Undo
Publish
Outline
Attach to
packtsparkpool
Language
PySpark (Python)
Ready
%%sql
Select count(DISTINCT pid) as pid_count,count(DISTINCT tid) as tid_count from transaction_tbl_f1
[ ]
Press shift + enter to run
%%sql
CREATE TABLE transaction_tbl_opt_f1
USING DELTA PARTITIONED BY (pid)
AS
SELECT * FROM transaction_tbl_f1;
CREATE TABLE transaction_tbl_opt_f2
USING DELTA
SELECT * FROM transaction_tbl_f2;

```
%%sql
Select count(DISTINCT pid) as pid_count,count(DISTINCT tid) as tid_count  from transaction_tbl_f1
```

[26] ✓ 44 sec - Command executed in 45 sec 820 ms by arr.nagaraj on 12:04:49 AM, 7/18/22

Job execution Succeeded Spark 2 executors 8 cores View in monitoring Open Spark UI

View: Table | Chart — Export results

pid_count	tid_count
10	242744

```
%%sql

CREATE TABLE transaction_tbl_opt_f1
USING DELTA PARTITIONED BY (pid)
AS
SELECT * FROM transaction_tbl_f1;
CREATE TABLE transaction_tbl_opt_f2
USING DELTA
SELECT * FROM transaction_tbl_f2;
```

✓ 5 min 6 sec - Command executed in 1 ms by arr.nagaraj on 12:18:10 AM, 7/18/22

+ Code + Markdown

```
%%sql
Optimize transaction_tbl_opt_f1 zorder by (tid);
Optimize transaction_tbl_opt_f2 zorder by (tid);
```

✓ 7 min 45 sec - Command executed in < 1 ms by arr.nagaraj on 12:25:56 AM, 7/18/22

View: Table | Chart — Export results

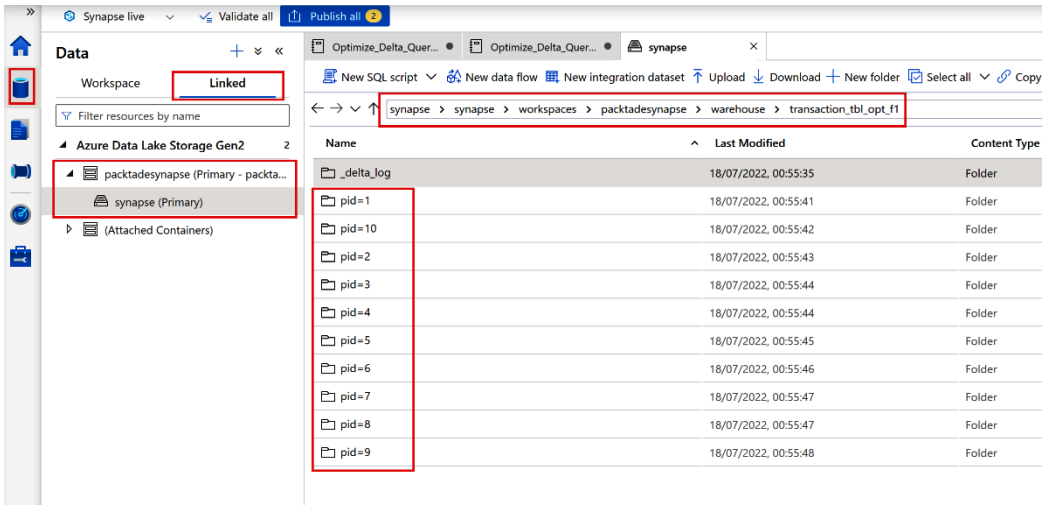
name	value
numFilesBefore	2170
numBytesBefore	6418144533
numFilesAfter	10

+ Code + Markdown

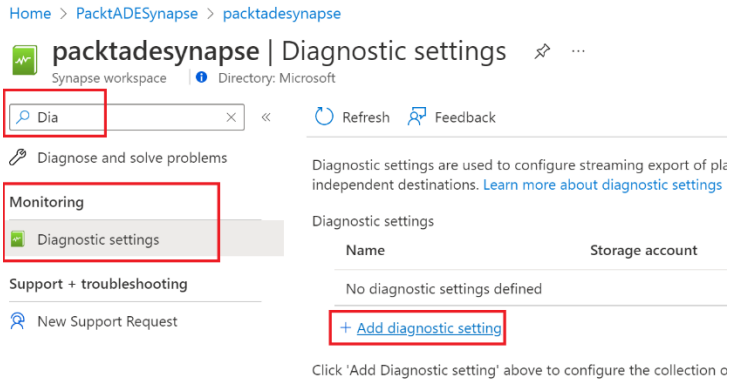
```
%%sql

Select t1.pid,sum(t2.order_count)
FROM transaction_tbl_opt_f1 t1
inner join transaction_tbl_opt_f2 t2 on t1.tid = t2.tid
WHERE t1.pid between 3 and 7
Group by t1.pid
```

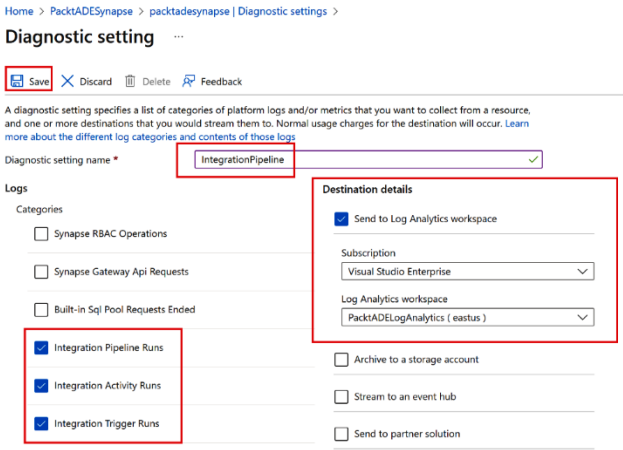
✓ 26 sec - Command executed in 27 sec 61 ms by arr.nagaraj on 12:26:23 AM, 7/18/22

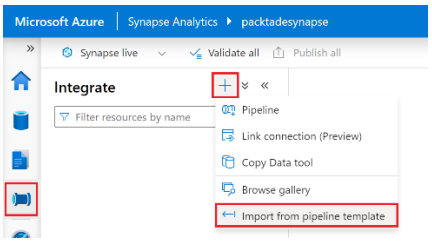
Job execution Succeeded Spark 2 executors 8 cores

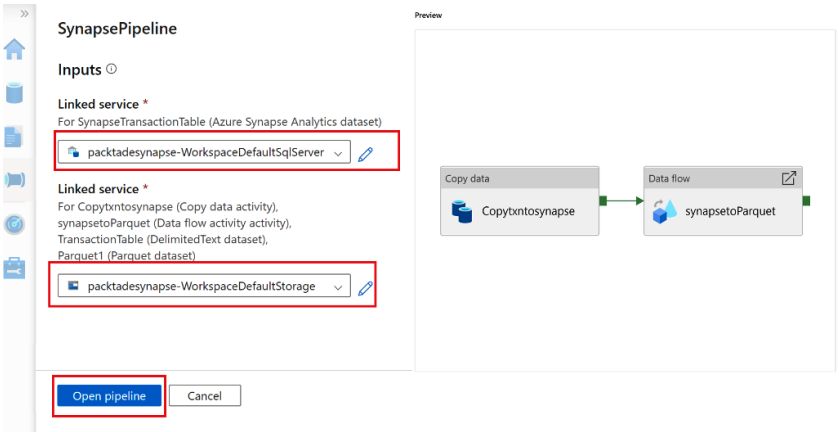


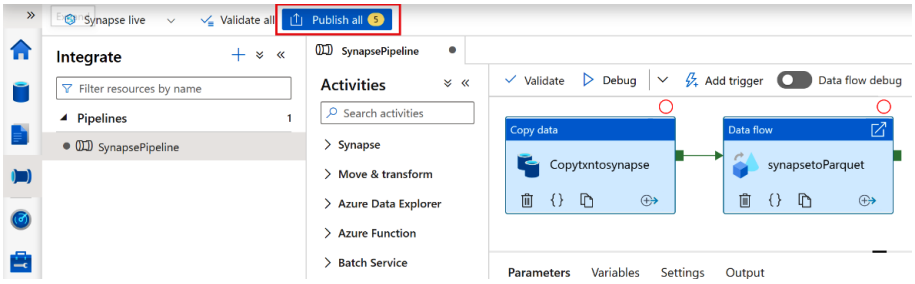
Chapter 13: Monitoring and Maintaining Azure Data Engineering Pipelines

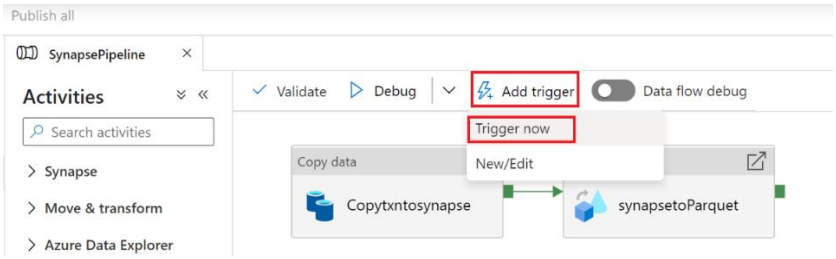


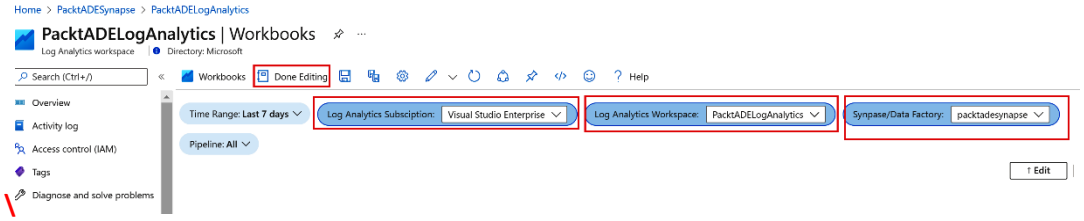


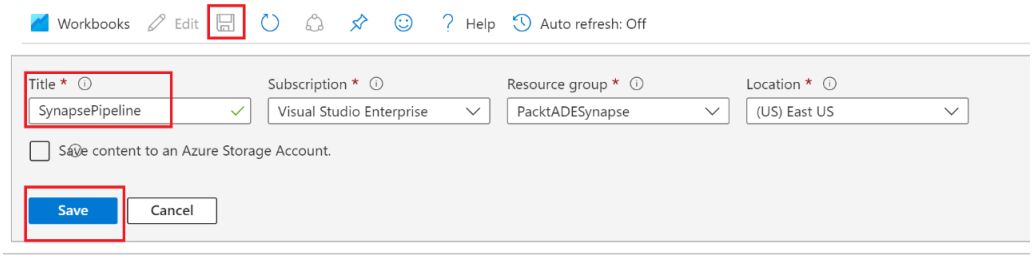




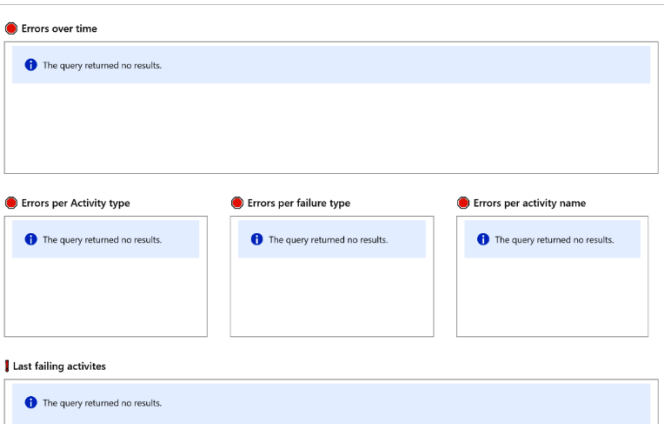

Synapse live
Validate all
Publish all 5
Integrate
Filter resources by name
Pipelines 1
SynapsePipeline
Activities
Search activities
Synapse
Move & transform
Azure Data Explorer
Azure Function
Batch Service
Validate
Debug
Add trigger
Data flow debug
Copy data
Copytxntosynapse
Data flow
synapsetoParquet
Parameters
Variables
Settings
Output

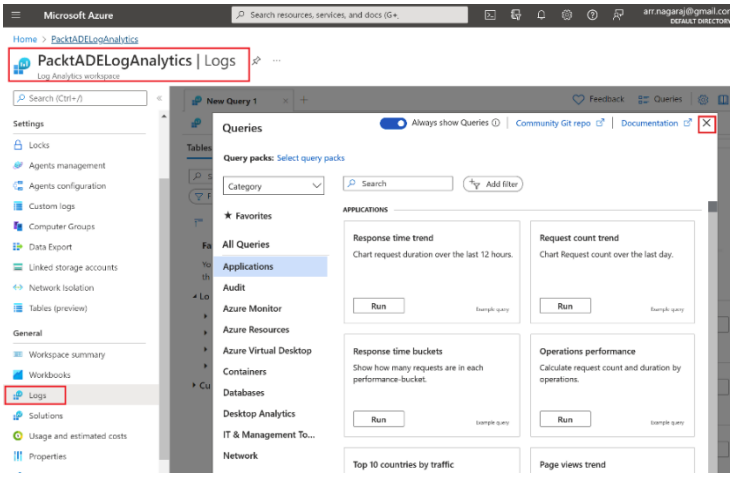

Publish all
SynapsePipeline
Activities
Search activities
Synapse
Move & transform
Azure Data Explorer
Validate
Debug
Add trigger
Data flow debug
Trigger now
New/Edit
Copy data
Copytxntosynapse
synapsetoParquet

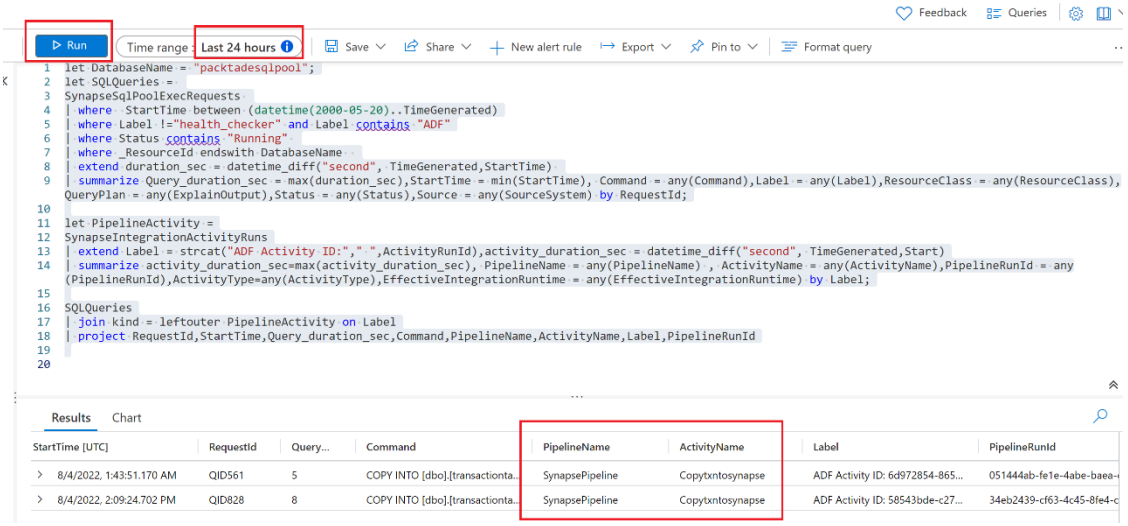

Home > PacktADESynapse > PacktADELogAnalytics
PacktADELogAnalytics | Workbooks
Log Analytics workspace
Directory: Microsoft
Search (Ctrl+/)
Workbooks
Done Editing
Help
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Time Range: Last 7 days
Log Analytics Subsciption: Visual Studio Enterprise
Log Analytics Workspace: PacktADELogAnalytics
Synpase/Data Factory: packtadesynapse
Pipeline: All
Edit

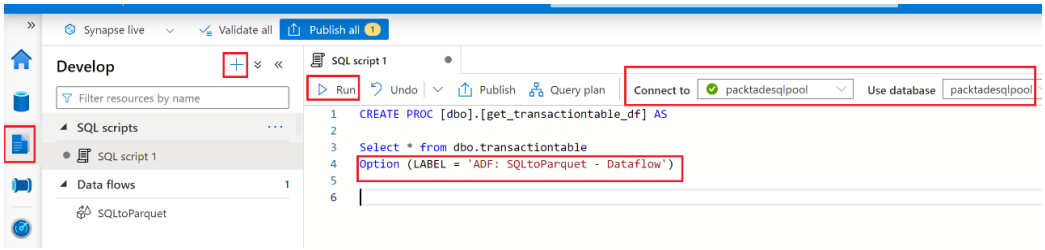

Workbooks
Edit
Help
Auto refresh: Off
Title *
SynapsePipeline
Subscription *
Visual Studio Enterprise
Resource group *
PacktADESynapse
Location *
(US) East US
Save content to an Azure Storage Account.
Save
Cancel

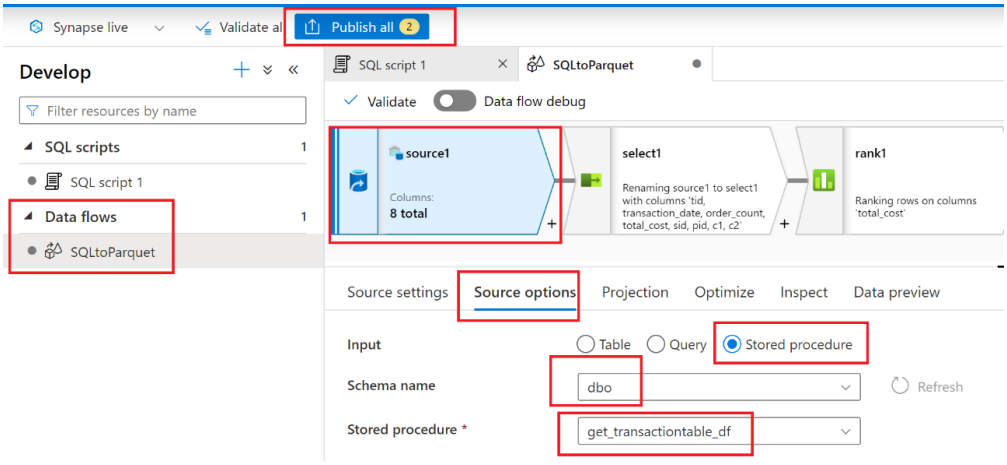

Overview Dashboard
Pipeline Details
Runs per Synapse/Datafactory
Runs per pipeline grouped by status
Average duration per pipeline
Last runs
Pipeline
Resource
Status
Start
Duration
Last runs
Link
SynapsePipeline
packtadesynapse
Succeeded
8/3/2022, 10:08:09 PM
00:05:48

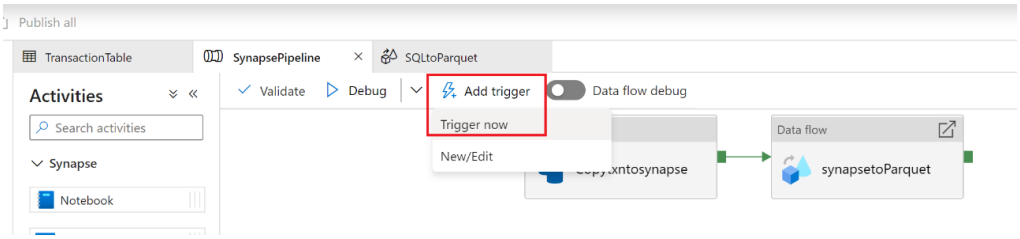

Errors over time
The query returned no results.
Errors per Activity type
The query returned no results.
Errors per failure type
The query returned no results.
Errors per activity name
The query returned no results.
Last failing activites
The query returned no results.

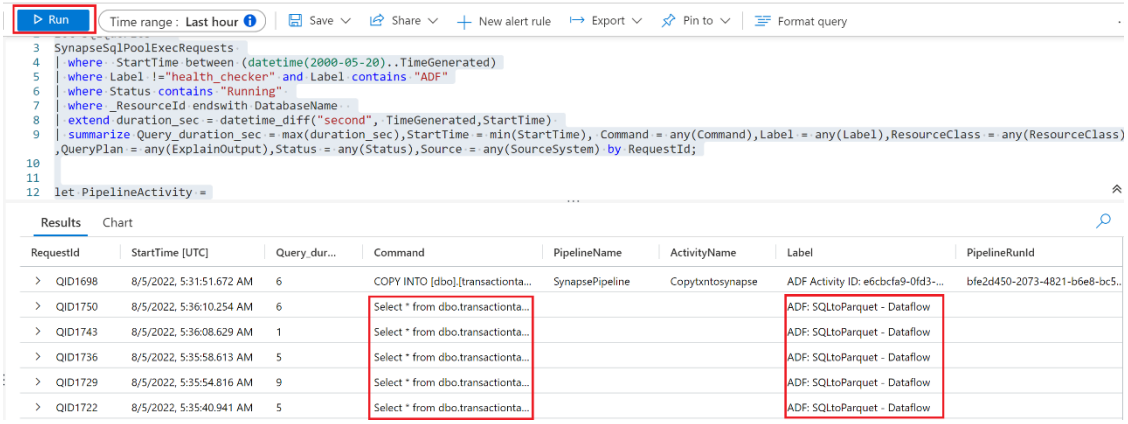

Microsoft Azure
Home > PacktADELogAnalytics
PacktADELogAnalytics | Logs
Log Analytics workspace
Queries
Always show Queries
Community Git repo
Documentation
Query packs: Select query packs
Category
Search
Add filter
APPLICATIONS
Response time trend
Chart request duration over the last 12 hours.
Request count trend
Chart Request count over the last day.
Response time buckets
Show how many requests are in each performance-bucket.
Operations performance
Calculate request count and duration by operations.
Run
Favorites
All Queries
Applications
Audit
Azure Monitor
Azure Resources
Azure Virtual Desktop
Containers
Databases
Desktop Analytics
Network
Top 10 countries by traffic
Page views trend
Settings
Locks
Agents management
Agents configuration
Custom logs
Computer Groups
Data Export
Linked storage accounts
Network Isolation
Tables (preview)
General
Workspace summary
Workbooks
Logs
Solutions
Usage and estimated costs
Properties

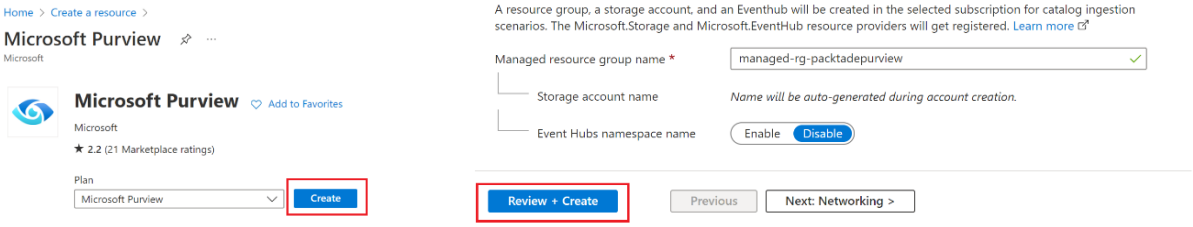

Feedback
Queries
Run
Time range : Last 24 hours
Save
Share
New alert rule
Export
Pin to
Format query
let DatabaseName = "packtadesqlpool";
let SQLQueries =
SynapseSqlPoolExecRequests
| where StartTime between (datetime(2000-05-20)..TimeGenerated)
| where Label !="health_checker" and Label contains "ADF"
| where Status contains "Running"
| where _ResourceId endswith DatabaseName
| extend duration_sec = datediff("second", TimeGenerated,StartTime)
| summarize Query_duration_sec = max(duration_sec),StartTime = min(StartTime), Command = any(Command),Label = any(Label),ResourceClass = any(ResourceClass), QueryPlan = any(ExplainOutput),Status = any(Status),Source = any(SourceSystem) by RequestId;
let PipelineActivity =
SynapseIntegrationActivityRuns
| extend Label = strcat("ADF Activity ID:"," ",ActivityRunId),activity_duration_sec = datediff("second", TimeGenerated,Start)
| summarize activity_duration_sec=max(activity_duration_sec), PipelineName = any(PipelineName) , ActivityName = any(ActivityName),PipelineRunId = any (PipelineRunId),ActivityType=any(ActivityType),EffectiveIntegrationRuntime = any(EffectiveIntegrationRuntime) by Label;
SQLQueries
| join kind = leftouter PipelineActivity on Label
| project RequestId,StartTime,Query_duration_sec,Command,PipelineName,ActivityName,Label,PipelineRunId
Results
Chart
StartTime [UTC]
RequestId
Query...
Command
PipelineName
ActivityName
Label
PipelineRunId
8/4/2022, 1:43:51.170 AM
QID561
5
COPY INTO [dbo].[transactionta...
SynapsePipeline
Copytxntosynapse
ADF Activity ID: 6d972854-865...
051444ab-fe1e-4abe-baea-
8/4/2022, 2:09:24.702 PM
QID828
8
COPY INTO [dbo].[transactionta...
SynapsePipeline
Copytxntosynapse
ADF Activity ID: 58543bde-c27...
34eb2439-cf63-4c45-8fe4-c


Synapse live
Validate all
Publish all 1
Develop
Filter resources by name
SQL scripts
SQL script 1
Data flows 1
SQLtoParquet
SQL script 1
Run
Undo
Publish
Query plan
Connect to
packtadesqlpool
Use database
packtadesqlpool
CREATE PROC [dbo].[get_transactiontable_df] AS
Select * from dbo.transactiontable
Option (LABEL = 'ADF: SQLtoParquet - Dataflow')

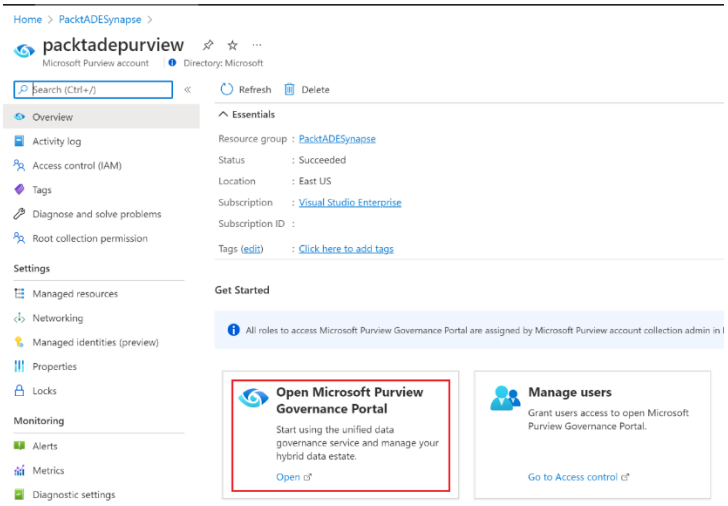

Synapse live
Validate all
Publish all 2
Develop
Filter resources by name
SQL scripts 1
SQL script 1
Data flows 1
SQLtoParquet
SQL script 1
SQLtoParquet
Validate
Data flow debug
source1
Columns:
8 total
select1
Renaming source1 to select1 with columns 'tid, transaction_date, order_count, total_cost, sid, pid, c1, c2'
rank1
Ranking rows on columns 'total_cost'
Source settings
Source options
Projection
Optimize
Inspect
Data preview
Input
Table
Query
Stored procedure
Schema name
dbo
Refresh
Stored procedure *
get_transactiontable_df

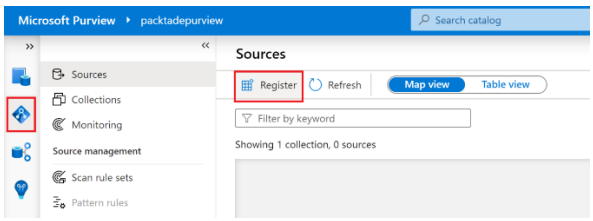

Publish all
TransactionTable
SynapsePipeline
SQLtoParquet
Activities
Search activities
Synapse
Notebook
Validate
Debug
Add trigger
Data flow debug
Trigger now
New/Edit
Data flow
synapsetoParquet

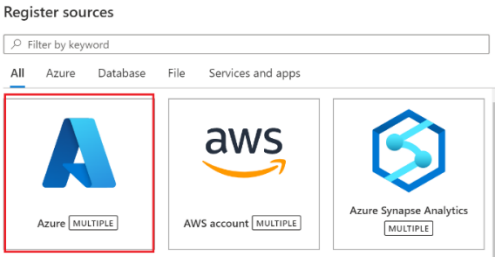

Run
Time range : Last hour
Save
Share
New alert rule
Export
Pin to
Format query
SynapseSqlPoolExecRequests
| where StartTime between (datetime(2000-05-20)..TimeGenerated)
| where Label !="health_checker" and Label contains "ADF"
| where Status contains "Running"
| where _ResourceId endswith DatabaseName
| extend duration_sec = datetime_diff("second", TimeGenerated,StartTime)
| summarize Query_duration_sec = max(duration_sec),StartTime = min(StartTime), Command = any(Command),Label = any(Label),ResourceClass = any(ResourceClass)
,QueryPlan = any(ExplainOutput),Status = any(Status),Source = any(SourceSystem) by RequestId;
let PipelineActivity =
Results
Chart
RequestId
StartTime [UTC]
Query_dur...
Command
PipelineName
ActivityName
Label
PipelineRunId
QID1698
8/5/2022, 5:31:51.672 AM
6
COPY INTO [dbo].[transactionta...
SynapsePipeline
Copytxntosynapse
ADF Activity ID: e6cbcfa9-0fd3-...
bfe2d450-2073-4821-b6e8-bc5...
QID1750
8/5/2022, 5:36:10.254 AM
6
Select * from dbo.transactionta...
ADF: SQLtoParquet - Dataflow
QID1743
8/5/2022, 5:36:08.629 AM
1
Select * from dbo.transactionta...
ADF: SQLtoParquet - Dataflow
QID1736
8/5/2022, 5:35:58.613 AM
5
Select * from dbo.transactionta...
ADF: SQLtoParquet - Dataflow
QID1729
8/5/2022, 5:35:54.816 AM
9
Select * from dbo.transactionta...
ADF: SQLtoParquet - Dataflow
QID1722
8/5/2022, 5:35:40.941 AM
5
Select * from dbo.transactionta...
ADF: SQLtoParquet - Dataflow

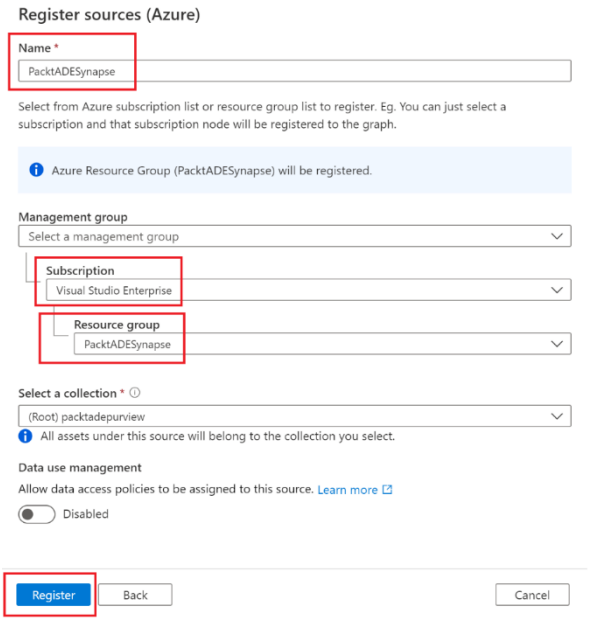

Home > Create a resource > Microsoft Purview >
Create Microsoft Purview account
Provide Microsoft Purview account info
*Basics
*Networking
Tags
Review + Create
Create a Microsoft Purview account to develop a data governance solution in just a few clicks. A storage account and eventhub will be created in a managed resource group in your subscription for catalog ingestion scenarios. Learn more
Project details
Subscription *
Visual Studio Enterprise
Resource group *
PacktADESynapse
Create new
Instance details
Microsoft Purview account name *
packtadepurview
Location *
East US
1 Capacity unit (CU) = 25 ops/sec and 10 GB of metadata storage. Any new Microsoft Purview account will be provisioned with 1 CU with auto scale capabilities. Learn more
Managed resources
A resource group, a storage account, and an Eventhub will be created in the selected subscription for catalog ingestion scenarios. The Microsoft.Storage and Microsoft.EventHub resource providers will get registered. Learn more
Managed resource group name *
managed-rg-packtadepurview
Storage account name
Name will be auto-generated during account creation.
Event Hubs namespace name
Enable
Disable
Review + Create
Previous
Next: Networking >

Home > Create a resource >
Microsoft Purview
Microsoft
Microsoft Purview
Add to Favorites
Microsoft
★ 2.2 (21 Marketplace ratings)
Plan
Microsoft Purview
Create

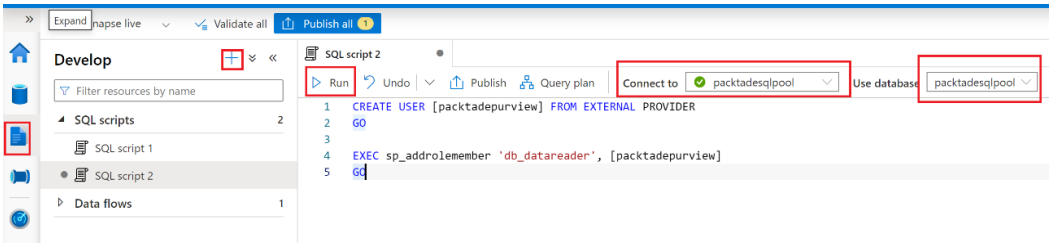

Home > PacktADESynapse >
packtadepurview
Microsoft Purview account
Directory: Microsoft
Search (Ctrl+/)
Refresh
Delete
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Root collection permission
Settings
Managed resources
Networking
Managed identities (preview)
Properties
Locks
Monitoring
Alerts
Metrics
Diagnostic settings
Essentials
Resource group : PacktADESynapse
Status : Succeeded
Location : East US
Subscription : Visual Studio Enterprise
Subscription ID :
Tags (edit) : Click here to add tags
Get Started
All roles to access Microsoft Purview Governance Portal are assigned by Microsoft Purview account collection admin in
Open Microsoft Purview Governance Portal
Start using the unified data governance service and manage your hybrid data estate.
Open
Manage users
Grant users access to open Microsoft Purview Governance Portal.
Go to Access control

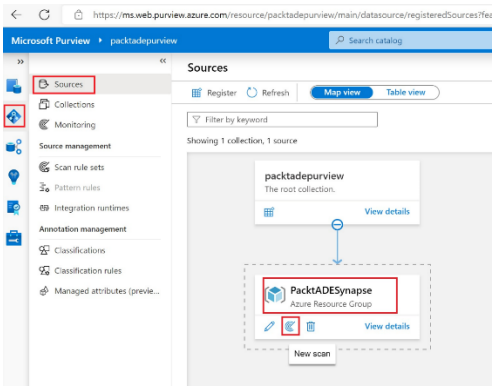

Microsoft Purview
packtadepurview
Search catalog
Sources
Collections
Monitoring
Source management
Scan rule sets
Pattern rules
Sources
Register
Refresh
Map view
Table view
Filter by keyword
Showing 1 collection, 0 sources

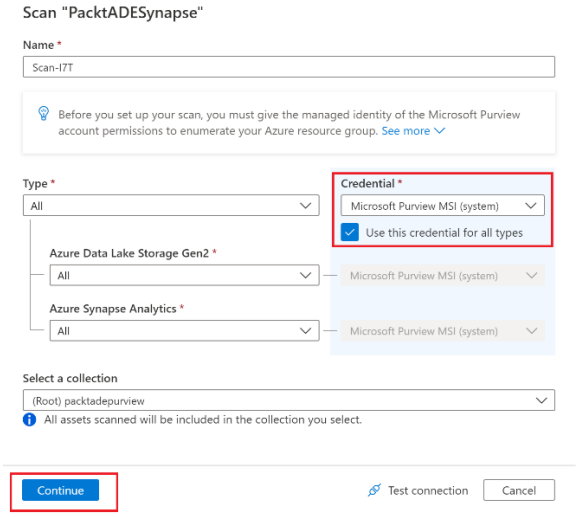

Register sources
Filter by keyword
All
Azure
Database
File
Services and apps
Azure MULTIPLE
aws
AWS account MULTIPLE
Azure Synapse Analytics
MULTIPLE

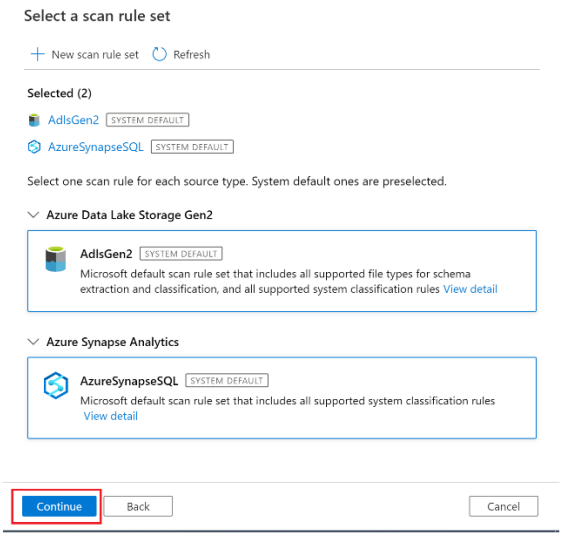

Register sources (Azure)
Name *
PacktADESynapse
Select from Azure subscription list or resource group list to register. Eg. You can just select a subscription and that subscription node will be registered to the graph.
Azure Resource Group (PacktADESynapse) will be registered.
Management group
Select a management group
Subscription
Visual Studio Enterprise
Resource group
PacktADESynapse
Select a collection *
(Root) packtadepurview
All assets under this source will belong to the collection you select.
Data use management
Allow data access policies to be assigned to this source. Learn more
Disabled
Register
Back
Cancel

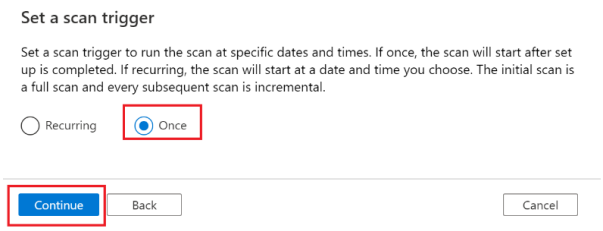
```
ObjectId            : bde34fcb-8261-43bf-83ed-e494979843fa
ObjectType          : ServicePrincipal
CanDelegate         : False
Description         :
ConditionVersion    :
Condition           :



PS C:\Users\navenkat> $synapse = Get-AzSynapseWorkspace -ResourceGroupName $Resourcegroup -Name $Synapse_ws_name
PS C:\Users\navenkat> New-AzRoleAssignment -ObjectId $role.id -RoleDefinitionName "Reader" -Scope $synapse.id
WARNING: We have migrated the API calls for this cmdlet from Azure Active Directory Graph to Microsoft Graph.
Visit https://go.microsoft.com/fwlink/?linkid=2181475 for any permission issues.


RoleAssignmentName : f8725c78-8cfa-4637-8b9e-26b969b4edf1
RoleAssignmentId   : /subscriptions/                                /resourceGroups/PacktADESynapse/providers/Microsoft.Synapse/worksp
                     aces/packtadesynapse/providers/Microsoft.Authorization/roleAssignments/f8725c78-8cfa-4637-8b9e-26b969b4edf1
Scope              : /subscriptions/                                /resourceGroups/PacktADESynapse/providers/Microsoft.Synapse/worksp
                     aces/packtadesynapse
DisplayName        : packtadepurview
SignInName         :
RoleDefinitionName : Reader
RoleDefinitionId   : /subscriptions/                                /providers/Microsoft.Authorization/roleDefinitions/acdd72a7-3385-4
                     8ef-bd42-f606fba81ae7
ObjectId           : bde34fcb-8261-43bf-83ed-e494979843fa
ObjectType         : ServicePrincipal
CanDelegate        : False
Description        :
```

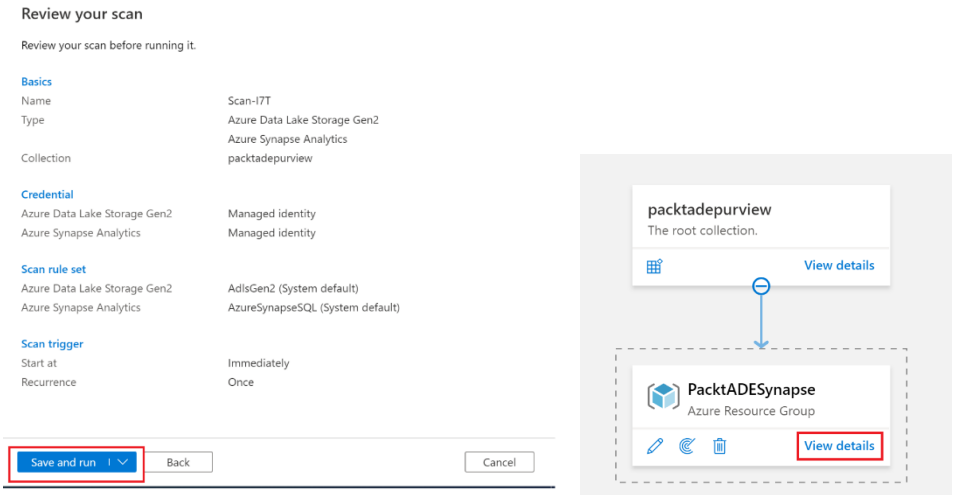


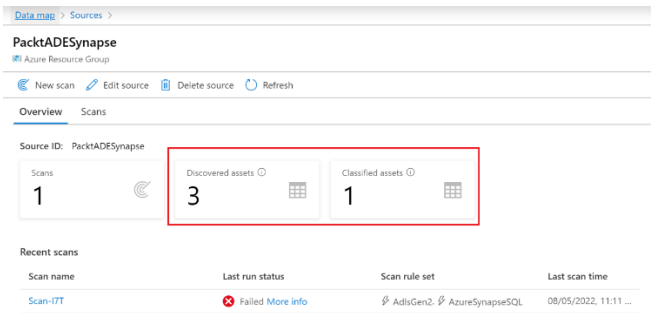


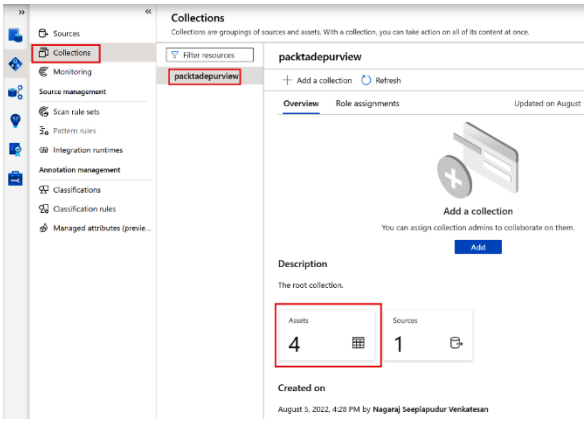



Select a scan rule set
New scan rule set
Refresh
Selected (2)
AdlsGen2
SYSTEM DEFAULT
AzureSynapseSQL
SYSTEM DEFAULT
Select one scan rule for each source type. System default ones are preselected.
Azure Data Lake Storage Gen2
AdlsGen2
SYSTEM DEFAULT
Microsoft default scan rule set that includes all supported file types for schema extraction and classification, and all supported system classification rules View detail
Azure Synapse Analytics
AzureSynapseSQL
SYSTEM DEFAULT
Microsoft default scan rule set that includes all supported system classification rules
View detail
Continue
Back
Cancel


Set a scan trigger
Set a scan trigger to run the scan at specific dates and times. If once, the scan will start after set up is completed. If recurring, the scan will start at a date and time you choose. The initial scan is a full scan and every subsequent scan is incremental.
Recurring
Once
Continue
Back
Cancel


Review your scan
Review your scan before running it.
Basics
Name
Scan-I7T
Type
Azure Data Lake Storage Gen2
Azure Synapse Analytics
Collection
packtadepurview
Credential
Azure Data Lake Storage Gen2
Managed identity
Azure Synapse Analytics
Managed identity
Scan rule set
Azure Data Lake Storage Gen2
AdlsGen2 (System default)
Azure Synapse Analytics
AzureSynapseSQL (System default)
Scan trigger
Start at
Immediately
Recurrence
Once
Save and run
Back
Cancel
packtadepurview
The root collection.
View details
PacktADESynapse
Azure Resource Group
View details


Data map > Sources >
PacktADESynapse
Azure Resource Group
New scan
Edit source
Delete source
Refresh
Overview
Scans
Source ID: PacktADESynapse
Scans
1
Discovered assets
3
Classified assets
1
Recent scans
Scan name
Last run status
Scan rule set
Last scan time
Scan-I7T
Failed More info
AdlsGen2, AzureSynapseSQL
08/05/2022, 11:11 ...



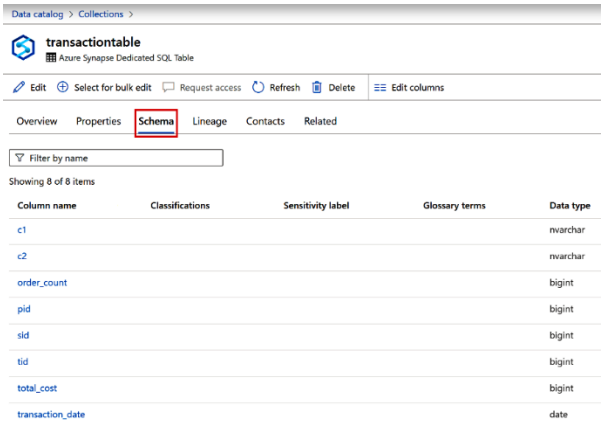
Assets in collection

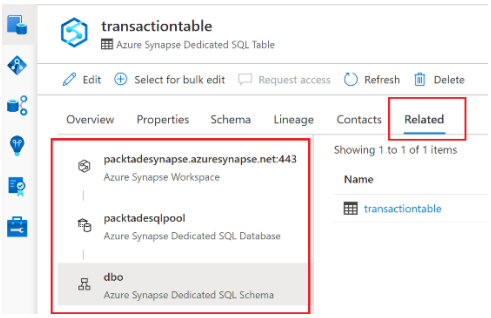
Move

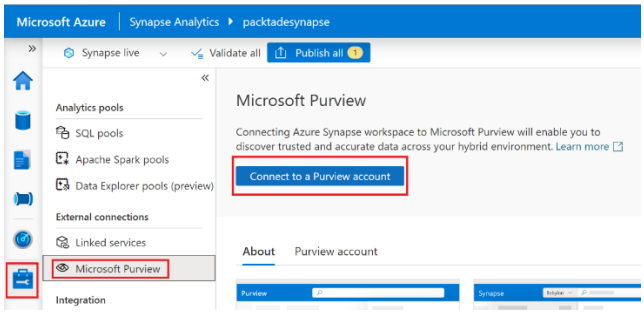
Filter by keyword | Source type : all | Instance : all | Clear all filters

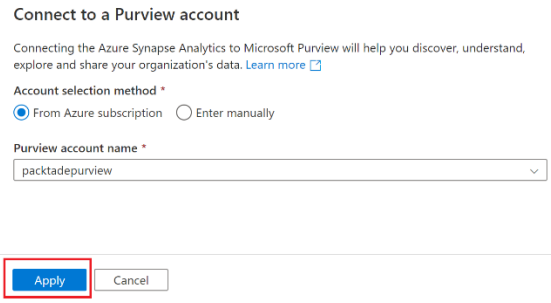
Showing 1 - 4 of 4 items

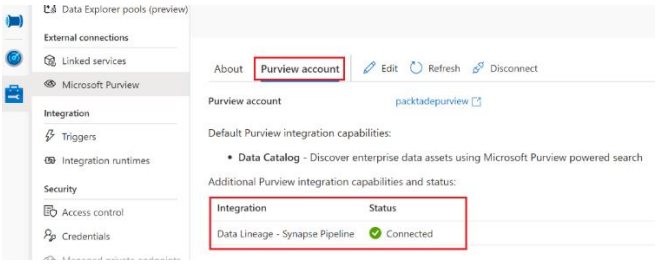
Name ↑	Source type
dbo	Azure Synapse Analytics
packtadesqlpool	Azure Synapse Analytics
packtadesynapse.azuresynapse.net:443	Azure Synapse Analytics
transactiontable	Azure Synapse Analytics

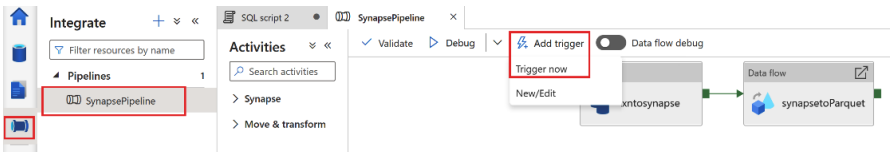


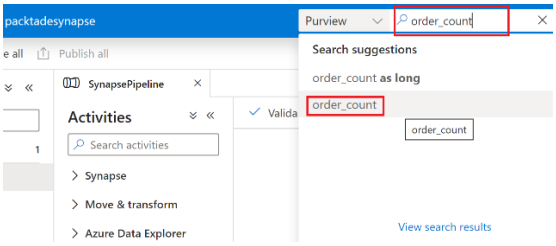


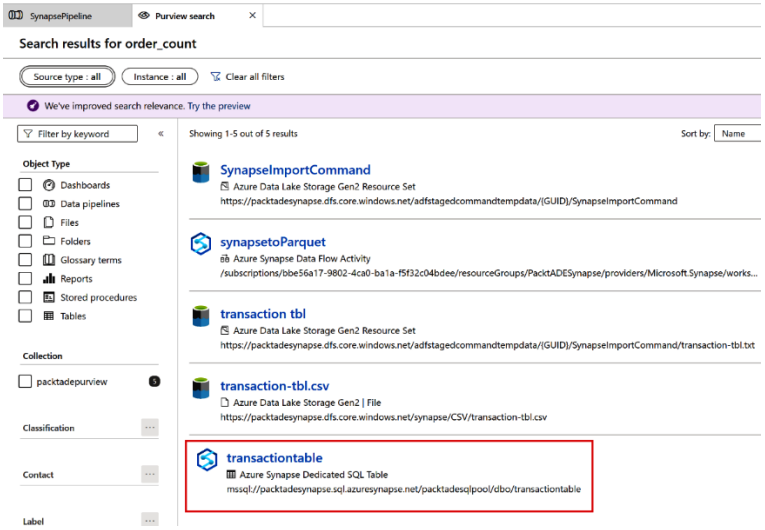

Microsoft Azure
Synapse Analytics
packtadesynapse
Synapse live
Validate all
Publish all
Analytics pools
SQL pools
Apache Spark pools
Data Explorer pools (preview)
External connections
Linked services
Microsoft Purview
Integration
Microsoft Purview
Connecting Azure Synapse workspace to Microsoft Purview will enable you to discover trusted and accurate data across your hybrid environment. Learn more
Connect to a Purview account
About
Purview account

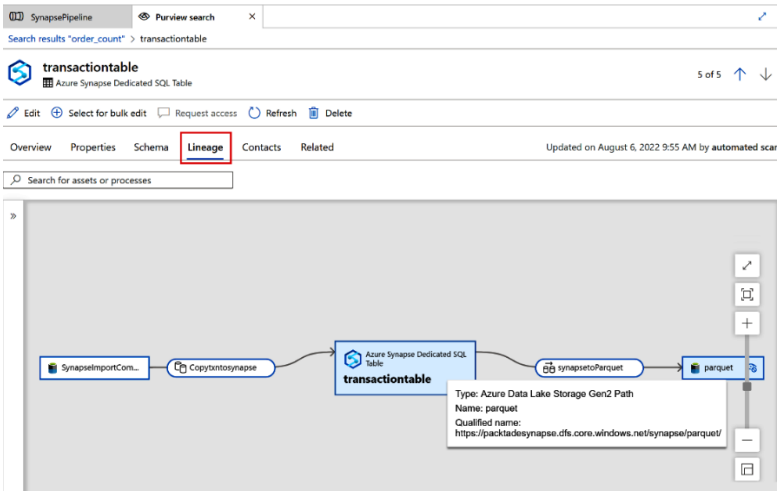

Connect to a Purview account
Connecting the Azure Synapse Analytics to Microsoft Purview will help you discover, understand, explore and share your organization's data. Learn more
Account selection method *
From Azure subscription
Enter manually
Purview account name *
packtadepurview
Apply
Cancel

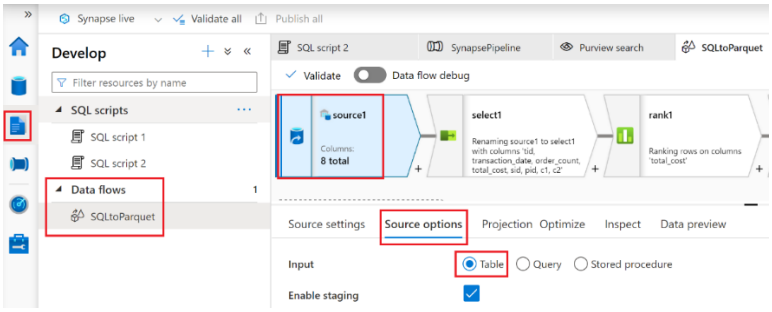

Data Explorer pools (preview)
External connections
Linked services
Microsoft Purview
Integration
Triggers
Integration runtimes
Security
Access control
Credentials
About
Purview account
Edit
Refresh
Disconnect
Purview account
packtadepurview
Default Purview integration capabilities:
Data Catalog - Discover enterprise data assets using Microsoft Purview powered search
Additional Purview integration capabilities and status:
Integration
Status
Data Lineage - Synapse Pipeline
Connected


Integrate
Filter resources by name
Pipelines
SynapsePipeline
SQL script 2
SynapsePipeline
Activities
Search activities
Synapse
Move & transform
Validate
Debug
Add trigger
Trigger now
New/Edit
Data flow debug
Data flow
synapsetoParquet

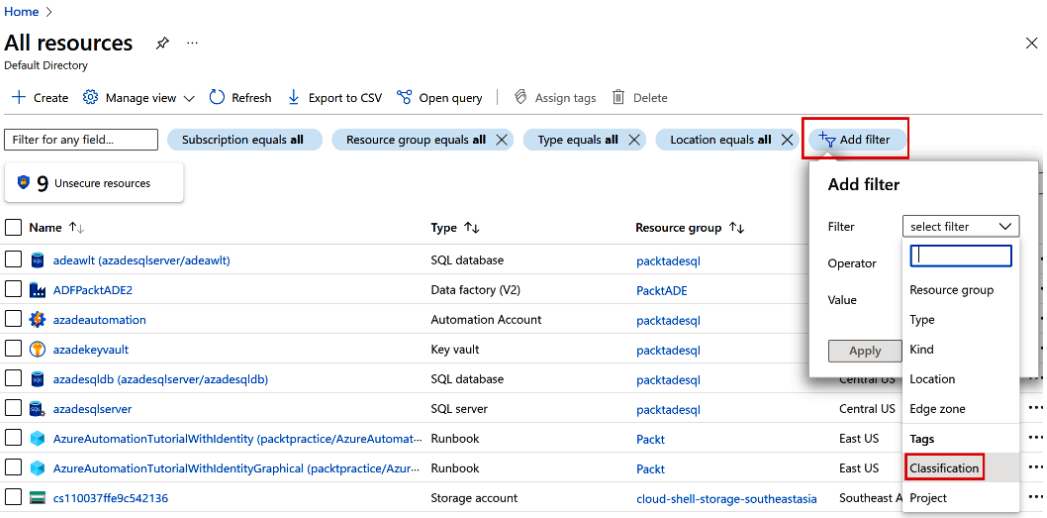

packtadesynapse
Purview
order_count
Search suggestions
order_count as long
order_count
order_count
SynapsePipeline
Activities
Search activities
Synapse
Move & transform
Azure Data Explorer
View search results

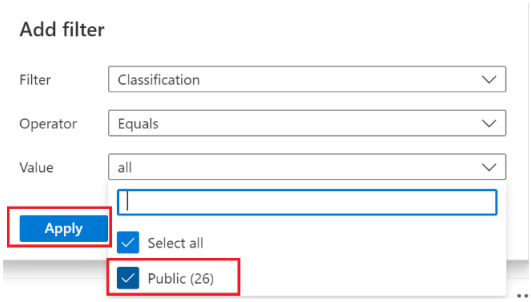


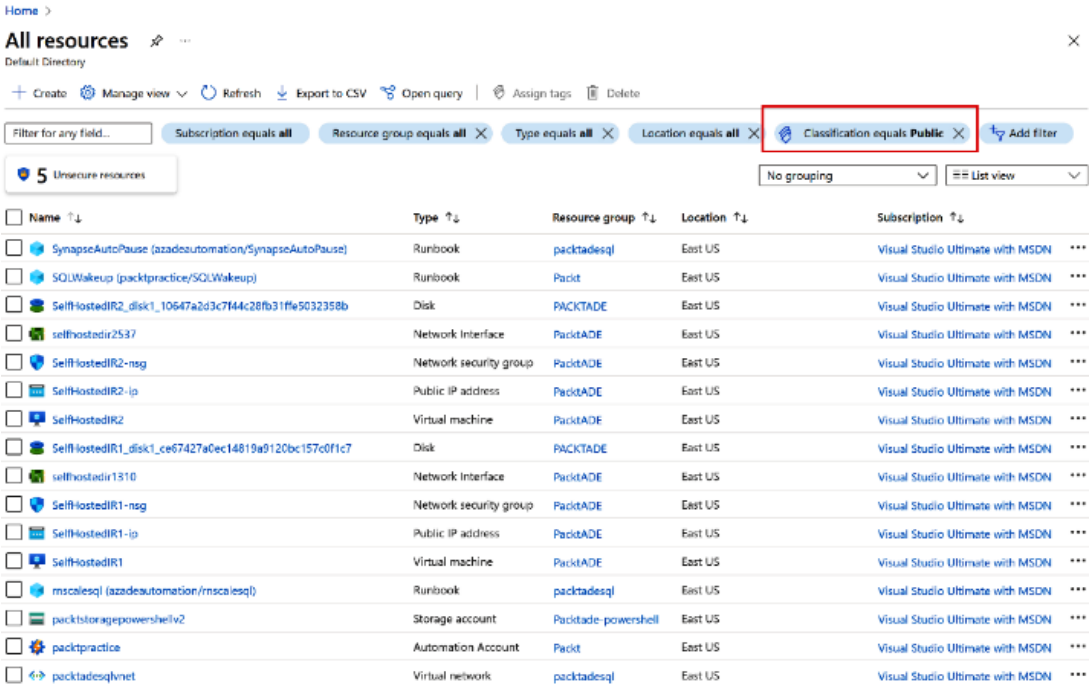





```
PS C:\Users\navenkat> $Tags = @{"Project"="Packt"; "Classification"="Public"}
PS C:\Users\navenkat> $Tr = get-Azresource | Where-Object {$_.Name -like "packt*" -or $_.ResourceGroupName -like "packt*"}
PS C:\Users\navenkat> foreach ($Res in $Tr) {
>>         Set-AzResource -ResourceGroupName $Res.ResourceGroupName -Name $Res.Name -ResourceType $Res.ResourceType -Tag $Tags -Force
>>       }


Name              : PacktADFADF-vnet
ResourceId        : /subscriptions/[redacted]/resourceGroups/PacktADEADF/providers/Microsoft.Network/virtualNetworks/PacktADEADF-vnet
ResourceName      : PacktADEADF-vnet
ResourceType      : Microsoft.Network/virtualNetworks
ResourceGroupName : PacktADEADF
Location          : eastus
SubscriptionId    : [redacted]
Tags              : {Classification, Project}
Properties        : @{provisioningState=Succeeded; resourceGuid=ff1d8f3f-8292-4b3a-90cb-5ee74e3a8ad8; addressSpace=; subnets=System.Object[]; virtualNetworkPeerings=System.Object[];
                    enableDdosProtection=False}
ETag              : W/"102d9016-36f3-42f0-8af9-da95c291fad4"

Name              : packtadesynapse
ResourceId        : /subscriptions/[redacted]/resourceGroups/PacktADESynapse/providers/Microsoft.Storage/storageAccounts/packtadesynapse
ResourceName      : packtadesynapse
ResourceType      : Microsoft.Storage/storageAccounts
Kind              : StorageV2
ResourceGroupName : PacktADESynapse
Location          : eastus
SubscriptionId    : [redacted]
Tags              : {Classification, Project}
Properties        : @{keyCreationTime=; privateEndpointConnections=System.Object[]; minimumTlsVersion=TLS1_2; allowBlobPublicAccess=True; isHnsEnabled=True; networkAcls=;
                    supportsHttpsTrafficOnly=True; encryption=; accessTier=Hot; provisioningState=Succeeded; creationTime=2022-08-03T10:09:05.6267850Z; primaryEndpoints=;
                    primaryLocation=eastus; statusOfPrimary=available; secondaryLocation=westus; statusOfSecondary=available; secondaryEndpoints=}
Sku               : @{name=Standard_RAGRS; tier=Standard}
```


Home
All resources
Default Directory
Create
Manage view
Refresh
Export to CSV
Open query
Assign tags
Delete
Filter for any field...
Subscription equals all
Resource group equals all
Type equals all
Location equals all
Add filter
9 Unsecure resources
Name
Type
Resource group
adeawlt (azadesqlserver/adeawlt)
SQL database
packtadesql
ADFPacktADE2
Data factory (V2)
PacktADE
azadeautomation
Automation Account
packtadesql
azadekeyvault
Key vault
packtadesql
azadesqldb (azadesqlserver/azadesqldb)
SQL database
packtadesql
azadesqlserver
SQL server
packtadesql
Central US
AzureAutomationTutorialWithIdentity (packtpractice/AzureAutomat...
Runbook
Packt
East US
AzureAutomationTutorialWithIdentityGraphical (packtpractice/Azur...
Runbook
Packt
East US
cs110037ffe9c542136
Storage account
cloud-shell-storage-southeastasia
Southeast A
Add filter
Filter
select filter
Operator
Value
Apply
Resource group
Type
Kind
Location
Edge zone
Tags
Classification
Project


Add filter
Filter
Classification
Operator
Equals
Value
all
Apply
Select all
Public (26)


Home
All resources
Default Directory
Create
Manage view
Refresh
Export to CSV
Open query
Assign tags
Delete
Filter for any field...
Subscription equals all
Resource group equals all
Type equals all
Location equals all
Classification equals Public
Add filter
5 Unsecure resources
No grouping
List view
Name
Type
Resource group
Location
Subscription
SynapseAutoPause (azadeautomation/SynapseAutoPause)
Runbook
packtadesql
East US
Visual Studio Ultimate with MSDN
SQLWakeup (packtpractice/SQLWakeup)
Runbook
Packt
East US
Visual Studio Ultimate with MSDN
SelfHostedIR2_disk1_10647a2d3c7f44c28fb31ffe5032358b
Disk
PACKTADE
East US
Visual Studio Ultimate with MSDN
selfhostedir2537
Network Interface
PacktADE
East US
Visual Studio Ultimate with MSDN
SelfHostedIR2-nsg
Network security group
PacktADE
East US
Visual Studio Ultimate with MSDN
SelfHostedIR2-ip
Public IP address
PacktADE
East US
Visual Studio Ultimate with MSDN
SelfHostedIR2
Virtual machine
PacktADE
East US
Visual Studio Ultimate with MSDN
SelfHostedIR1_disk1_ce67427a0ec14819a9120bc157c0f1c7
Disk
PACKTADE
East US
Visual Studio Ultimate with MSDN
selfhostedir1310
Network Interface
PacktADE
East US
Visual Studio Ultimate with MSDN
SelfHostedIR1-nsg
Network security group
PacktADE
East US
Visual Studio Ultimate with MSDN
SelfHostedIR1-ip
Public IP address
PacktADE
East US
Visual Studio Ultimate with MSDN
SelfHostedIR1
Virtual machine
PacktADE
East US
Visual Studio Ultimate with MSDN
rnscalesql (azadeautomation/rnscalesql)
Runbook
packtadesql
East US
Visual Studio Ultimate with MSDN
packtstoragepowershellv2
Storage account
Packtade-powershell
East US
Visual Studio Ultimate with MSDN
packtpractice
Automation Account
Packt
East US
Visual Studio Ultimate with MSDN
packtadesqlvnet
Virtual network
packtadesql
East US
Visual Studio Ultimate with MSDN