

# SQL Modernisation Hack

## Database Migration Lab Step-by-step

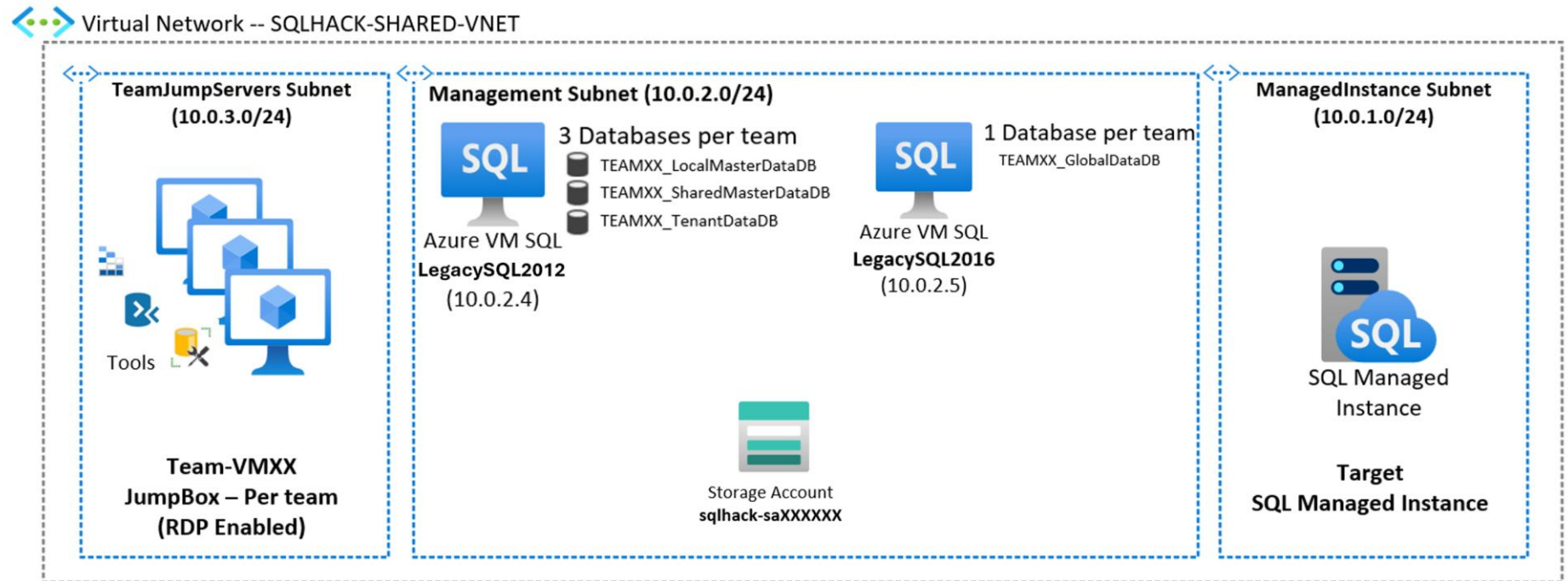
### (Using Azure Data Studio)

V3.0

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## Migration architecture and Azure components



SQLHACK-SHARED-VNET Single Virtual Network containing all workshop resources		
<b>“TeamJumpServers” Subnet</b> Each team is assigned a Win10 VM that mimics their company desktop	<b>Management Subnet</b> Several machines and services are already deployed within a dedicated subnet within the Virtual Network	<b>“ManagedInstance” Subnet</b> The Azure SQL Managed Instance has been deployed into a dedicated Subnet

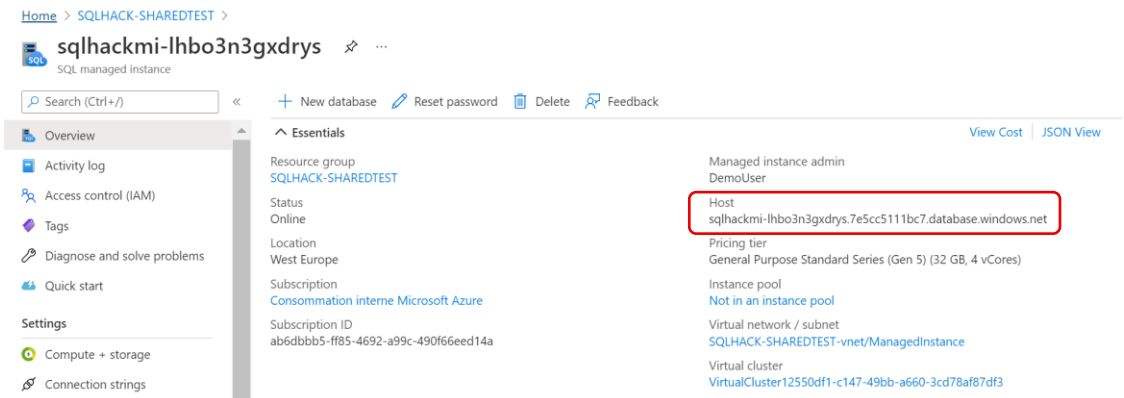
## Generic Migration Content

Narrative	Notes
<p><i>Notes for outside of the workshop:</i></p> <p><i>Familiarise yourself with Microsoft migration tools and the Azure Database Migration Guide</i></p>	<p>Azure Database Migration Guide: <a href="https://www.microsoft.com/en-us/download/default.aspx">https://www.microsoft.com/en-us/download/default.aspx</a></p> <p>DMA &amp; download link: <a href="https://docs.microsoft.com/en-us/sql/dma/dma-overview?view=sql-server-ver15">https://docs.microsoft.com/en-us/sql/dma/dma-overview?view=sql-server-ver15</a></p> <p>Azure Data Studio and Migration Extension download Links: <a href="#">Download and install Azure Data Studio - Azure Data Studio   Microsoft Learn</a> <a href="#">Azure SQL migration extension for Azure Data Studio - Azure Data Studio   Microsoft Learn</a></p> <p>Microsoft Migration Portal: <a href="https://datamigration.microsoft.com/">https://datamigration.microsoft.com/</a></p> <p>Identify the right Azure SQL Database, Azure SQL Managed Instance or SQL Server on Azure VM SKU for your on-premises database <a href="https://docs.microsoft.com/en-us/sql/dma/dma-sku-recommend-sql-db?view=sql-server-ver15">https://docs.microsoft.com/en-us/sql/dma/dma-sku-recommend-sql-db?view=sql-server-ver15</a></p>

## SQL Modernisation Open Hack

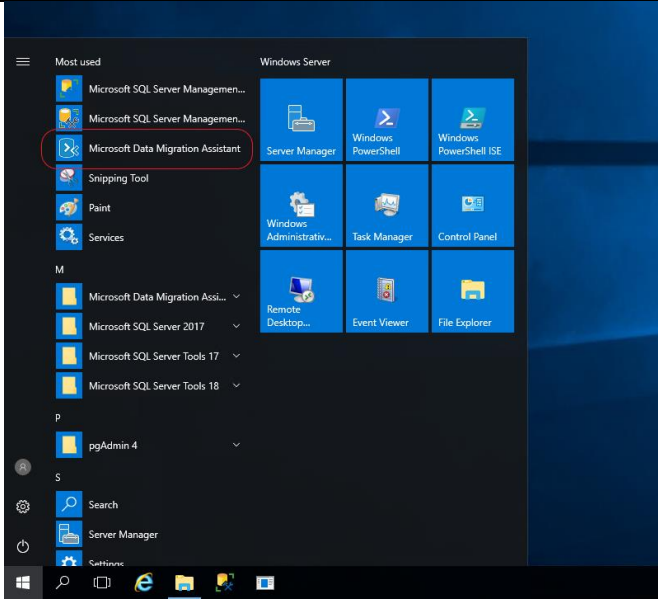
### 1. Get the SQL Managed Instance FQDN

In this section we'll connect to the Azure Portal and retrieve SQL MI information: FQDN, ...

Narrative	Screenshot	Notes
<p>On your Win10 VM open Edge browser and got to:</p> <p><a href="https://portal.azure.com">HTTPS://portal.azure.com</a></p> <p><b>Username and Password:</b> (see <i>your Teams Group</i>)</p> <p>In the Azure portal, open the <b>SQLHACK-SHARED Resource Group</b> and locate the <b>SQL managed instance</b> and open it.</p> <p><b>Note the Host Name (FQDN)</b> <code>sqlhackmi-xxxxx.xxxxxxx.database.windows.net</code></p> <p>All other <b>details from the “DB Migration Lab and Parameters.pdf”</b></p>	 <p>The screenshot shows the Azure Portal interface for a SQL Managed Instance. The breadcrumb navigation at the top indicates the path: Home &gt; SQLHACK-SHAREDTEST &gt; sqlhackmi-lhbo3n3gxdrys. The instance name 'sqlhackmi-lhbo3n3gxdrys' is displayed with a 'SQL managed instance' label. Below the name is a search bar and several action buttons: '+ New database', 'Reset password', 'Delete', and 'Feedback'. A left-hand navigation pane lists various options like 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Quick start', 'Settings', 'Compute + storage', and 'Connection strings'. The main content area is divided into 'Essentials' and 'Details' sections. The 'Essentials' section shows the resource group 'SQLHACK-SHAREDTEST', status 'Online', location 'West Europe', subscription 'Consommation interne Microsoft Azure', and subscription ID 'ab6dbbb5-f885-4692-a99c-490f66eed14a'. The 'Details' section lists various properties: 'Managed instance admin' (DemoUser), 'Host' (sqlhackmi-lhbo3n3gxdrys.7e5cc5111bc7.database.windows.net), 'Pricing tier' (General Purpose Standard Series (Gen 5) (32 GB, 4 vCores)), 'Instance pool' (Not in an instance pool), 'Virtual network / subnet' (SQLHACK-SHAREDTEST-vnet/ManagedInstance), and 'Virtual cluster' (VirtualCluster12550df1-c147-49bb-a660-3cd78af87df3). The 'Host' field is highlighted with a red rectangular box.</p>	

## 2. Assess the application databases for Azure SQL Database suitability using the Database Migration Assistant (DMA)

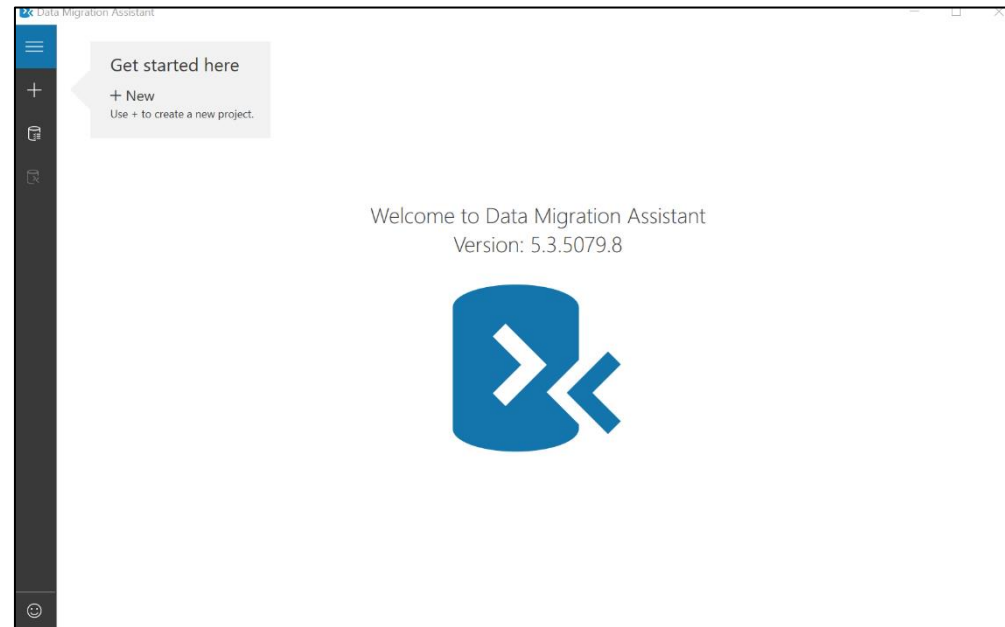
In this section we will use the Data Migration Assistant (DMA) to assess the applications database for suitability for migration to Azure Cloud.

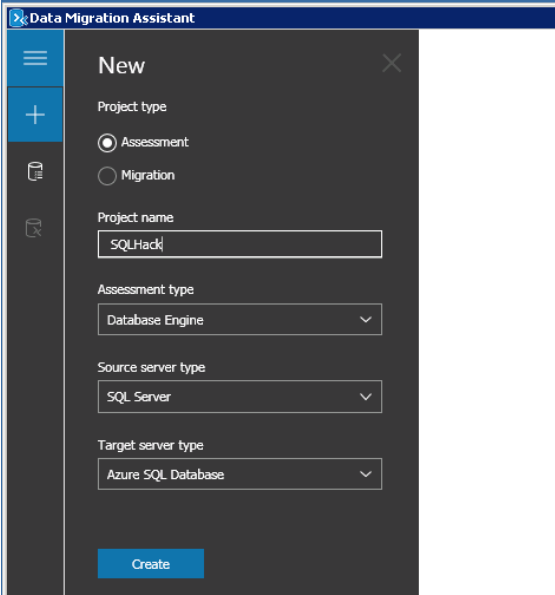
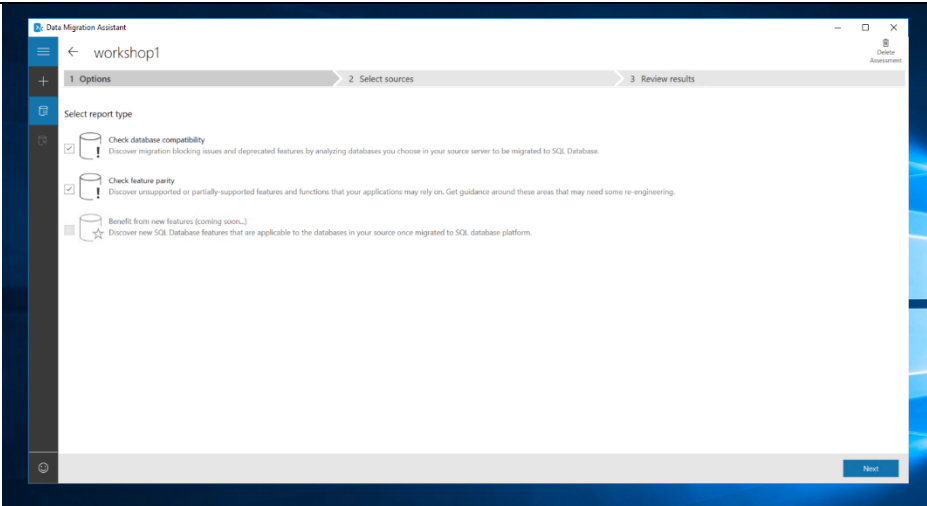
Narrative	Screenshot	Notes
<p>We need to determine the suitability of the database(s) for migration to Azure. This includes checking for compatibility and feature support with Azure Database.</p> <p>You should already have a remote (Bastion) session open to your teams Win10 Management VM, if so run DMA from the Start menus or Desktop icon.</p>	 <p>The screenshot shows the Windows Server Start menu. The 'Most used' section on the left lists several applications, with 'Microsoft Data Migration Assistant' highlighted by a red circle. The right pane shows various system tools like Server Manager, Windows PowerShell, and Task Manager.</p>	<p>Database Migration Assistant (DMA) is a free download from Microsoft. It can be used to assess a number of database migration &amp; upgrade scenarios not just SQL Server to Azure SQL Database.</p>

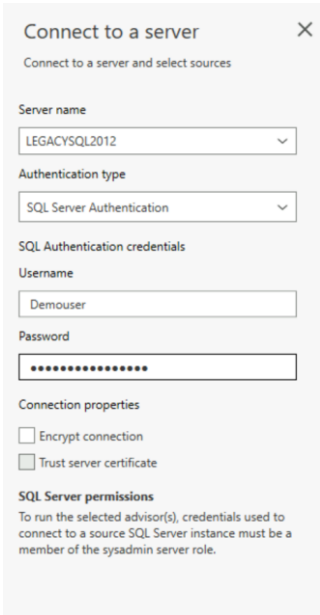
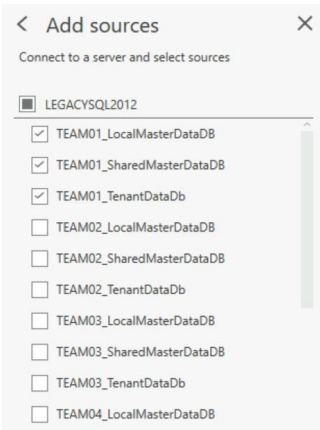
## SQL Modernisation Open Hack

You should see this screenshot to the right.

Select the “+” to create a new **assessment** project



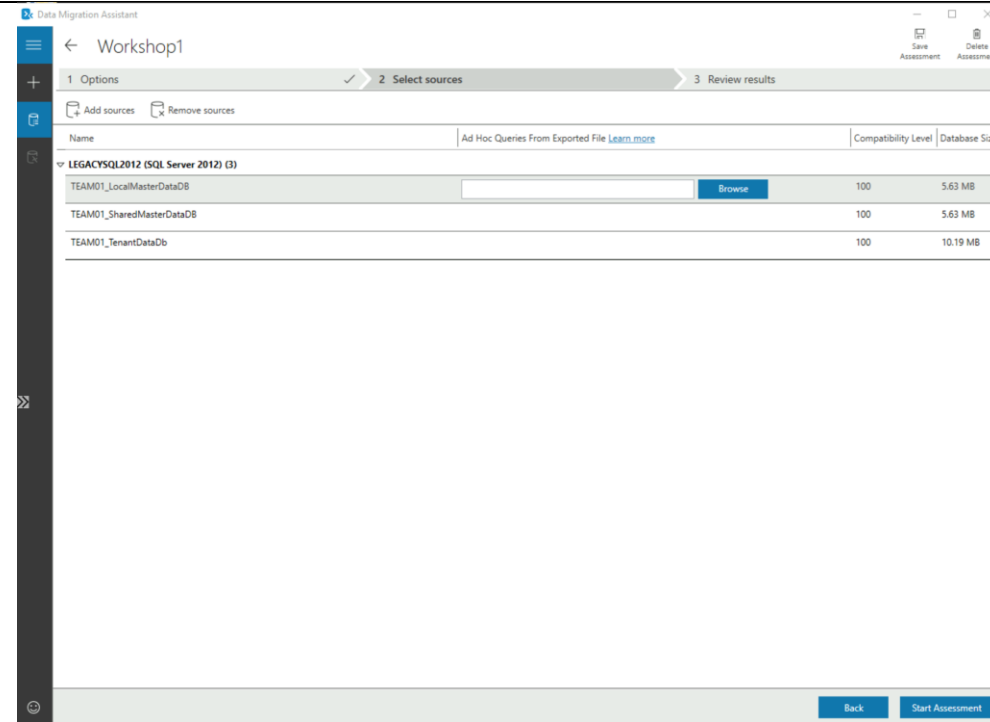
<p>Select/Enter the following details:</p> <p><b>Project name:</b> <b>Workshop1</b></p> <p><b>Assessment type:</b> <b>Database Engine</b></p> <p><b>Source server type:</b> <b>SQL Server</b></p> <p><b>Target server type:</b> <b>Azure SQL Database</b></p> <p>Click '<b>Create</b>'</p>		<p>Our first project assessment assumes we will be migrating to Azure SQL DB, so the options shown in the screenshot need to be selected.</p>
<p>Select the assessment checks (Report Type) to be made:</p> <p><b>Check database compatibility</b></p> <p><b>Check feature parity</b></p> <p>Click '<b>Next</b>'</p>		<p>DMA can test for both database compatibility and feature parity compliance against the Azure target.</p> <p>As this is the initial evaluation, we are assessing a database(s) we will perform all of these tests.</p>

<p>Enter the source/legacy SQL details:</p> <p><b>Server Name:</b> <b>LEGACYSQL2012</b></p> <p><b>Authentication Type:</b> <b>SQL Server Authentication</b></p> <p><b>Username:</b> <b>Demouser</b></p> <p><b>Password:</b> <b>Demo@pass1234567</b></p> <p><b>Untick “Encrypt connection”</b></p> <p>Click ‘<b>Connect</b>’</p> <p><b>If you get an error logging in check that the Win10 keyboard language</b></p>		<p>When performing this within your own subscription you will enter the host, authentication and connection types according to your company guidelines and practices.</p> <p><i>Bear in mind that DMA needs to connect to a source SQL Server using an account that belongs to the <b>sysadmin</b> role.</i></p> <p>As this document is produced within a workshop environment Active Directory, Certificates and encryption has not been setup.</p>
<p>Select <b>only</b> the 3 databases used by your ‘Online Transaction Monitor’ app. These will have a <b>TEAMxx</b> prefix where XX should be replaced by your team number.</p> <p><b>TEAMxx_LocalMasterDataDb</b></p> <p><b>TEAMxx_SharedMasterDb</b></p> <p><b>TEAMxx_TenantDataDb</b></p> <p>Click ‘<b>Add</b>’ to add them to the assessment.</p>		<p>DMA will show all databases located on the Source host and display them so you can decide which ones to include in this assessment project.</p> <p>Note that you can assess multiple databases at the same time.</p>



You should now see the screen on the right with the relevant TEAMxx databases listed.

Select **'Start Assessment'**



Note: DMA allows you to either 'Add' or 'Remove' additional data sources as needed at this point.

Also note that DMA provides some high-level metadata about the databases including their compatibility level the total size of each database.

[Using Data Migration Assistant to assess an application's data access layer](#)

DMA will now show the results of the assessment using 2 separate reports:

**'SQL Server feature parity'** which is a server level report highlighting any server settings or components (e.g. MSDTC) that the source DBs are using that isn't supported on the target – in this case Azure SQL Database.

**Note:** Toggle the parity and compatibility issues radio button (top left) to switch between the 2 reports.

'SQL Server feature parity' shows what features are not supported in the target data source. Under the 'Details' and 'Databases' sections on the right you will find remedial action that are required and the databases impacted.

In our assessment there are ‘Unsupported’ or ‘Partially Supported’ features reported (CLR, cross database queries, several trace flags).

‘Compatibility Issues’ which is a database level report detailing individual objects that have compatibility issues.

Select ‘TEAMxx\_TenantDataDb’  
Note the ‘Migration blockers’ and “Breaking Changes” including CLR which the database uses.

CLR is not supported on Azure SQL DB but is supported by Azure SQL Database Managed Instance (SQLMI).

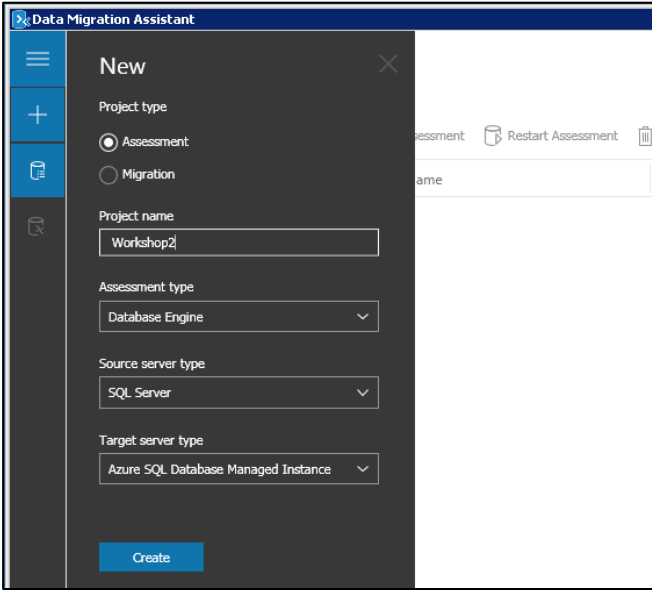
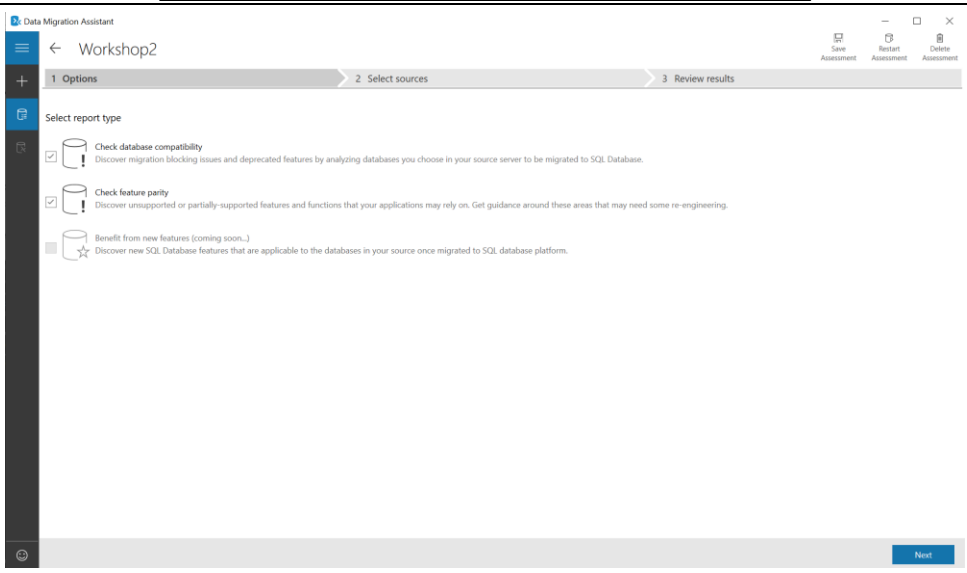
The top screenshot shows the 'Review results' tab for 'LEGACYSQL2012' on 'SQL Server 2012'. It lists 'Unsupported features (2)' and 'Partially-supported features (1)'. The 'Unsupported features' include 'Azure SQL Database does not support trace flags' and 'SQL CLR assemblies are not supported'. The 'Partially-supported features' include 'Cross-database queries are not supported'.

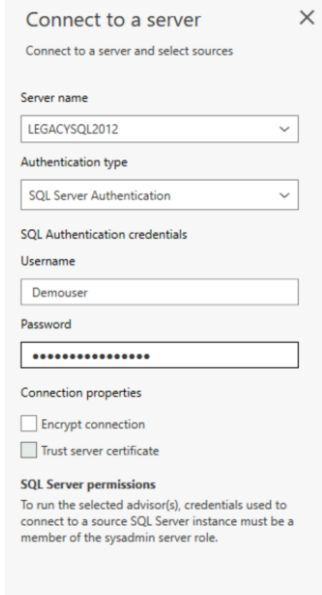
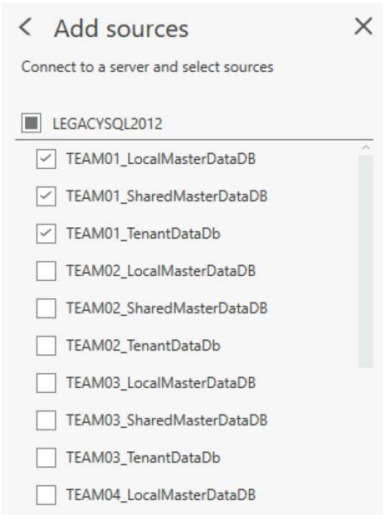
The bottom screenshot shows the 'Review results' tab for 'TEAM01\_TenantDataDb' on 'SQL Server 2012'. It displays a table of compatibility issues for various compatibility levels (100, 110, 120, 130, 140). The 'Migration blockers (1)' section highlights 'SQL CLR assemblies are not supported in Azure SQL Database'. The 'Breaking changes (1)' section highlights 'Cross-database queries are not supported'.

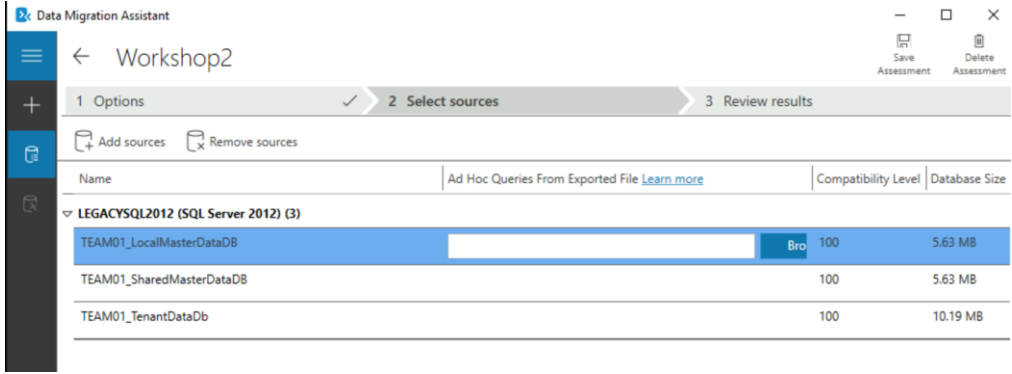
‘Compatibility Issues’ shows, over the compatibility tabs, issues that need to be addressed to permit the database(s) to run, in the chosen compatibility level (e.g. 160, 150, 140, 130, 120, 110, 100).

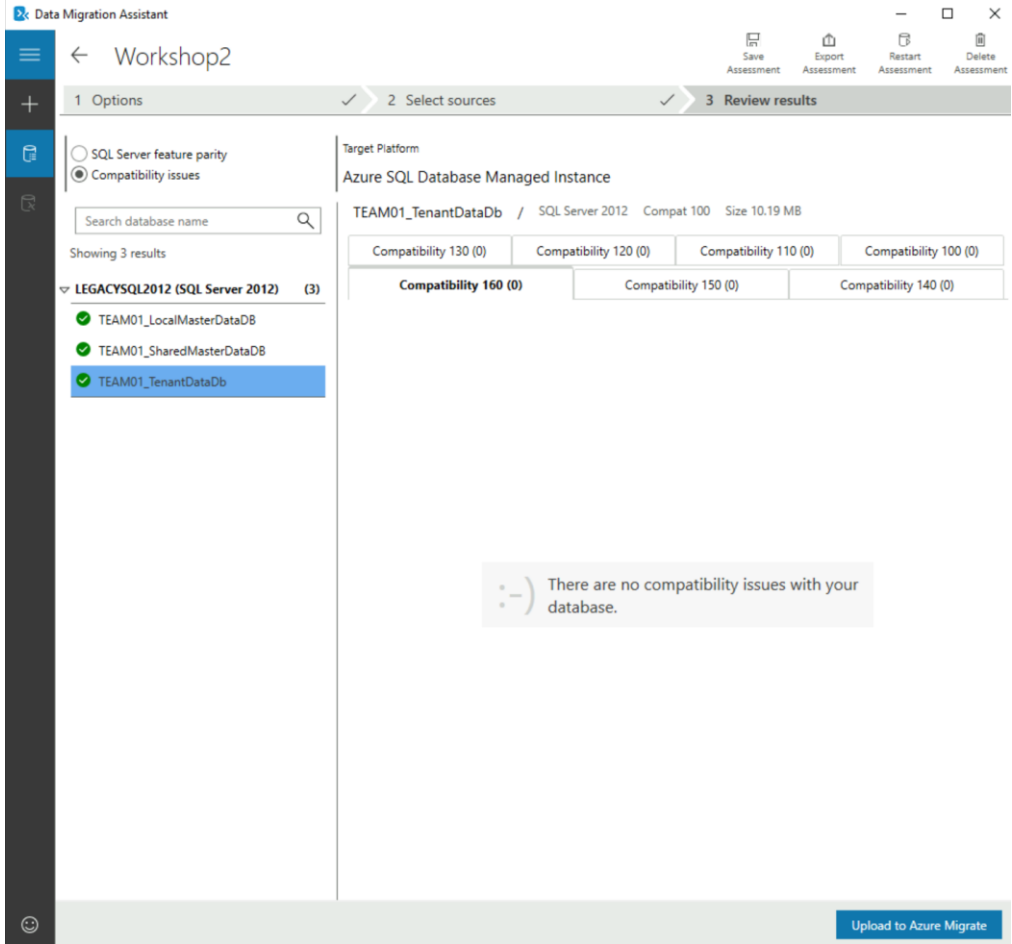
If you have multiple databases, as with the example screenshot, you need to highlight **EACH** database to see the compatibility issues.

	<p>Because we need to migrate CLR Stored Procs, we need to repeat the assessment with Azure SQL DB Managed Instance as the target to see if it's compatible</p>													
<p>Once you've reviewed the assessment click the back arrow to see a list of current DMA projects.</p> <p>You should see this screenshot to the right.</p> <p>Select the “+” to create a new <b>assessment</b> project.</p>	<div><div><div>Data Migration Assistant</div><div><div></div><div>+</div><div></div><div></div></div><div>All Assessments (1)</div><div>Filter by:</div><div>Assessment Status</div><div><input type="checkbox"/> New</div><div><input type="checkbox"/> In-progress</div><div><input type="checkbox"/> Error</div><div><input type="checkbox"/> Completed</div></div><div><div><div>Open Assessment</div><div>Load Assessment</div><div>Save Assessment</div><div>Restart Assessment</div><div>Delete</div></div><table><thead><tr><th>Status</th><th>Name</th><th>Name</th><th>Source Platform</th><th>Target Platform</th><th>Date</th></tr></thead><tbody><tr><td>✓</td><td>Workshop1</td><td></td><td>SQL Server</td><td>Azure SQL Database</td><td>5/21/2020 12</td></tr></tbody></table></div></div>	Status	Name	Name	Source Platform	Target Platform	Date	✓	Workshop1		SQL Server	Azure SQL Database	5/21/2020 12	
Status	Name	Name	Source Platform	Target Platform	Date									
✓	Workshop1		SQL Server	Azure SQL Database	5/21/2020 12									

<p>Select/Enter the following details:</p> <p><b>Project name:</b> <b>Workshop2</b></p> <p><b>Assessment type:</b> <b>Database Engine</b></p> <p><b>Source server type:</b> <b>SQL Server</b></p> <p><b>Target server type:</b> <b>Azure SQL Database Managed Instance</b></p> <p>Click <b>'Create'</b></p>		<p>Our 2<sup>nd</sup> assessment project assumes we will be migrating to Azure SQL DB Managed Instance, so the options shown in the screenshot need to be selected.</p>
<p>Select the assessment checks (Report Type) to be made:</p> <p><b>Check database compatibility</b></p> <p><b>Check feature parity</b></p> <p>Click <b>'Next'</b></p>		<p>As we saw previously DMA can test for both database compatibility and feature parity compliance against the chosen target.</p> <p>As before we will assess all the databases against all of the tests.</p>

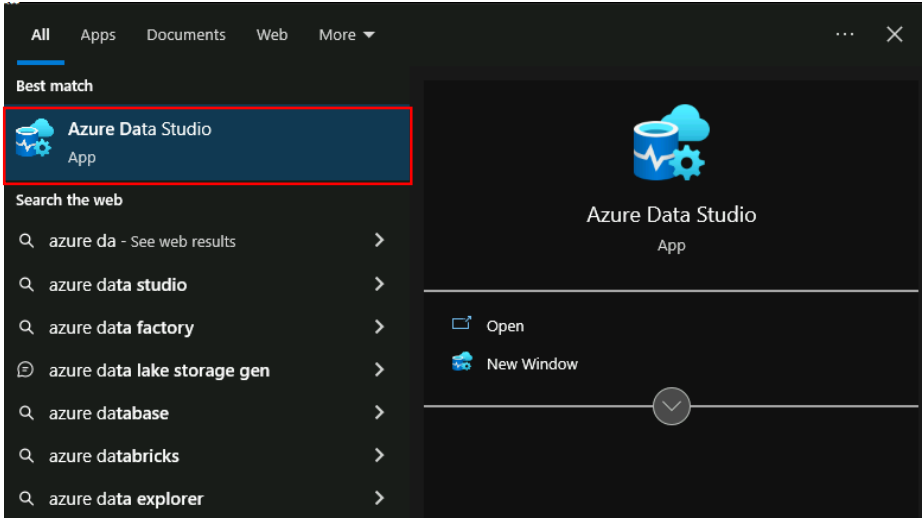
<p>Enter the source/legacy SQL details:</p> <p><b>Server Name:</b> <b>LEGACYSQL2012</b></p> <p><b>Authentication Type:</b> <b>SQL Server Authentication</b></p> <p><b>Username:</b> <b>Demouser</b></p> <p><b>Password:</b> <b>Demo@pass1234567</b></p> <p>Untick <b>“Encrypt connection”</b></p> <p>Click <b>‘Connect’</b></p>		<p>When performing this within your own subscription you will enter the host, authentication and connection types according to your company guidelines and practices.</p> <p><i>Bear in mind that DMA needs to connect to a source SQL Server using an account that belongs to the sysadmin role.</i></p> <p>As this document is produced within a workshop environment Active Directory, Certificates and encryption has not been setup.</p>
<p>Select <b>only</b> the 3 database used by your ‘Online Transaction Monitor’ app. These will have a TEAMXX prefix where XX should be replaced by your team number.</p> <p><b>TEAMxx_LocalMasterDataDb</b></p> <p><b>TEAMxx_SharedMasterDb</b></p> <p><b>TEAMxx_TenantDataDb</b></p> <p>Click <b>‘Add’</b> to add them to the assessment.</p>		<p>DMA will show all databases located on the Source host and display them so you can decide which ones to include in this assessment project.</p> <p>Note that you can assess multiple databases at the same time.</p>

<p>You should now see the screen on the right with the relevant TEAMXX databases listed.</p> <p>Select <b>'Start Assessment'</b></p>		<p>Note: DMA allows you to either 'Add' or 'Remove' additional data sources as needed at this point.</p> <p>Also note that DMA has identified what compatibility level each source database is running under.</p>
<p>As before DMA will now show the results from the assessment as the separate 2 reports.</p> <p>Note the <b>'SQL Server feature parity'</b> report will either be clean</p>		<p>Note: Toggle the parity and compatibility Issues radio button (top left) to see how DMA.</p> <p>'SQL Server feature parity' shows what features are not supported in the target data source. Under 'Details' and 'Databases' you will find remedial action that are required and the databases impacted.</p> <p>'Compatibility Issues' shows, over the compatibility tabs,</p>

<p>The '<b>Compatibility Issues</b>' report should be clear for all 3 databases showing that they can be migrated to Azure SQLDB Managed Instance without changes.</p>		<p>issues that need to be addressed to permit the database(s) to run, in the chosen compatibility level (e.g. 160, 150,140, 130, 120, 110,100).</p> <p>If you have multiple databases, as with the example screenshot, you need to highlight <b>EACH</b> database to see the compatibility issues.</p>
	<p><b>We are now ready to migrate the application databases to Azure SQL Database Managed Instance</b></p>	

### 3. Migrate the application databases to Azure SQL Database managed instance using the Azure Data Studio (ADS) with migration extension and identify target Azure SQL SKU

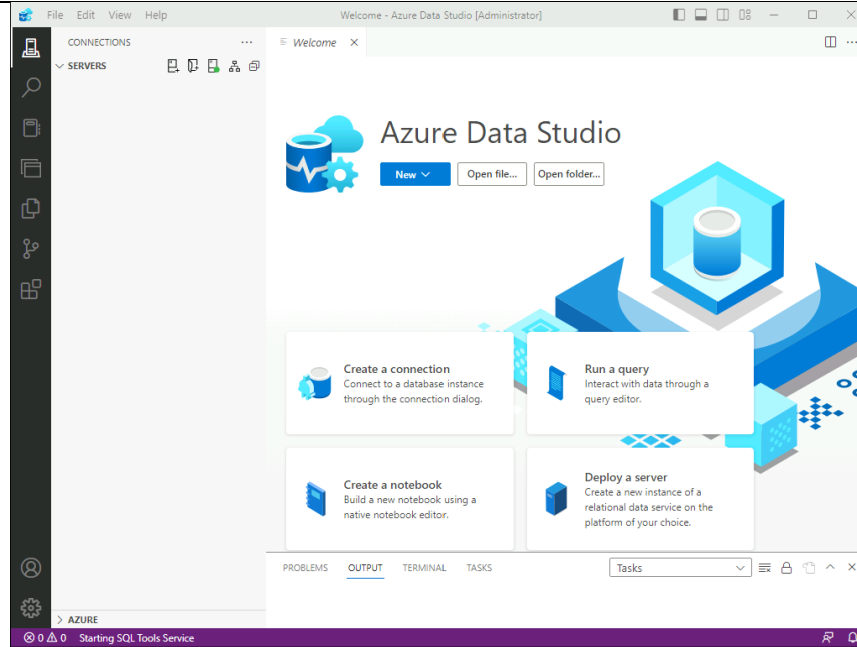
In this section we will use the Azure Data Studio (ADS) to assess the applications database for suitability for migration to Azure Cloud.

Narrative	Screenshot	Notes
<p>We need to determine the suitability of the database(s) for migration to Azure. This includes checking for compatibility and feature support with Azure Database.</p> <p>You should already have an RDP (or Bastion) session open to your teams Win10 Management VM, if so run Azure Data Studio (ADS) from the Start menus or Desktop icon.</p>		<p>Azure Data Studio (ADS) is a free download from Microsoft. It can be used to perform database administration as well as assess a number of database migration &amp; upgrade scenarios not just SQL Server to Azure SQL Database.</p> <p><a href="#">Download and install Azure Data Studio - Azure Data Studio   Microsoft Learn</a></p>



## SQL Modernisation Open Hack

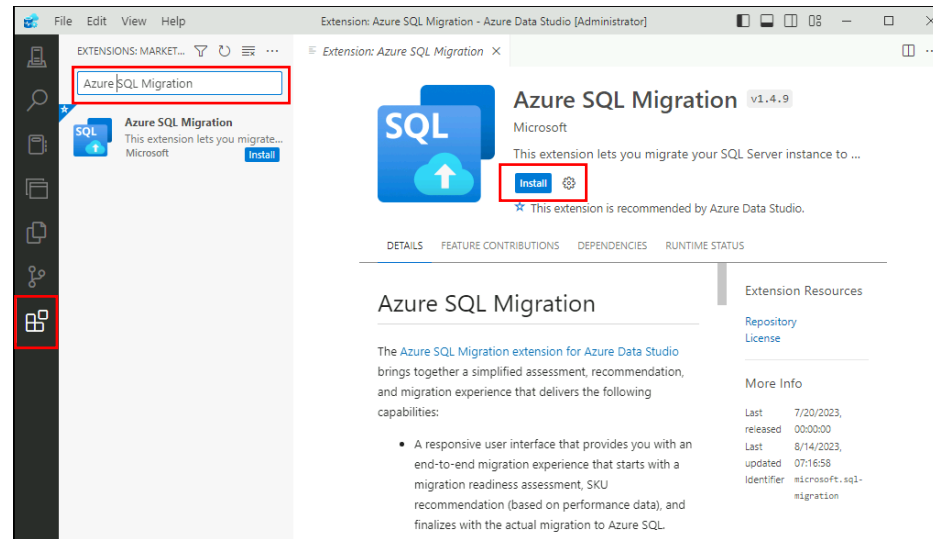
You should see this screenshot to the right.



## SQL Modernisation Open Hack

Select “extensions” icon on the bottom left ( or press : CTRL + Shift + X) and search for: “**Azure SQL migration**” in the extension market and click Install.

(If extension is not compatible with the ADS version installed, upgrade ADS under Help > Check for Updates)



See also:

[Azure SQL migration extension for Azure Data Studio - Azure Data Studio | Microsoft Learn](#)

Open your browser and navigate to <https://portal.azure.com>

Login in with the credential provided

Select the Azure Storage Account “sqlhack...” in the Resource Group: “SQLHACK-SHARED”

And click: Access Keys on the left.

sqlhacksavxrtxdsgia4gc | Access keys ☆ ...

Storage account

Search

Set rotation reminder Refresh Give feedback

Access keys authenticate your applications' requests to this storage account. Keep your keys in a secure location Key Vault, and replace them often with new keys. The two keys allow you to replace one while still using the other. Remember to update the keys with any Azure resources and apps that use this storage account. [Learn more about managing storage account access keys](#)

Storage account name  
sqlhacksavxrtxdsgia4gc

key1 Rotate key  
Last rotated: 16/08/2023 (13 days ago)

Key  
lbcGZQYK0dZfeXKuziKGxQ6N+DdZ36zAUvmd8ydhM+7t9xfzC/UHd745AbPoxr+... Hide

Connection string  
..... Show

key2 Rotate key  
Last rotated: 16/08/2023 (13 days ago)

Key  
..... Show

Connection string  
..... Show

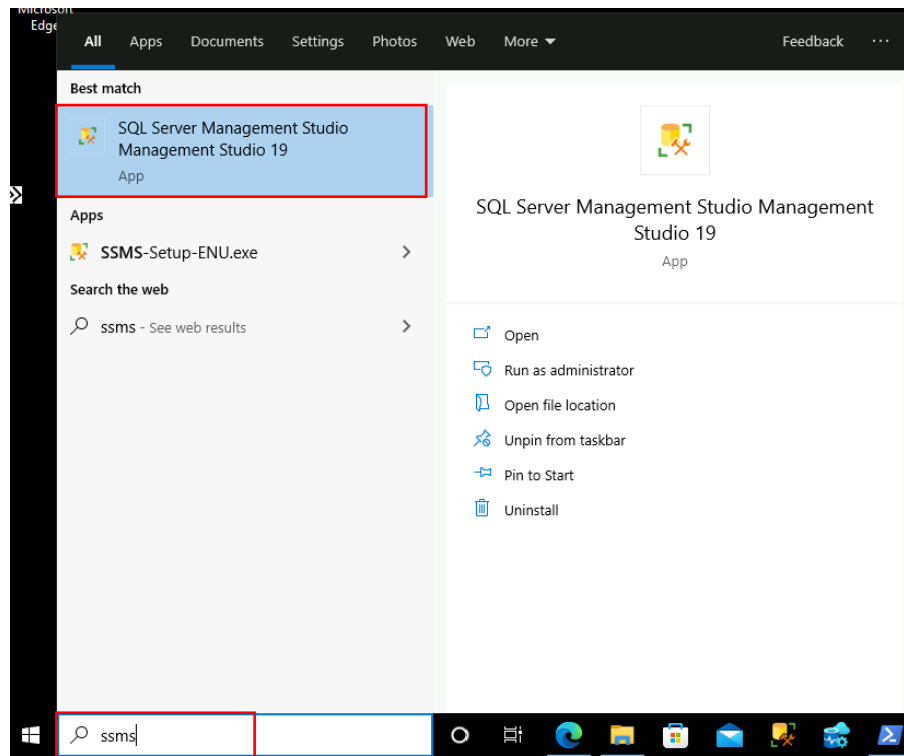
Access keys Shared access signature

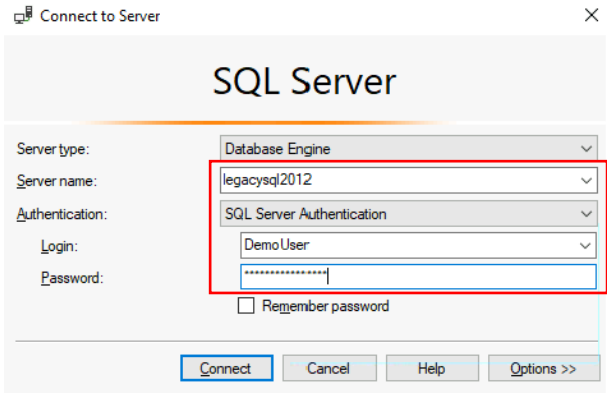
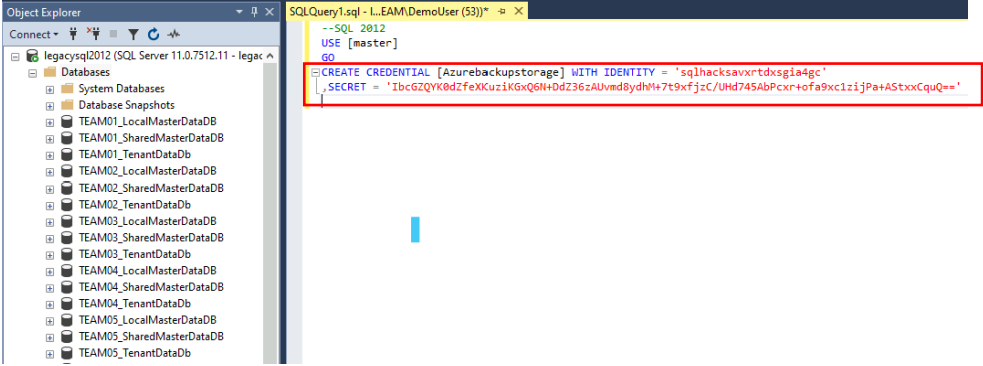
You can note the Key to the notepad and reuse it in following steps.

## SQL Modernisation Open Hack

Create database backup in SSMS:

Open SQL Server Management Studio (SSMS) on your Team VM.

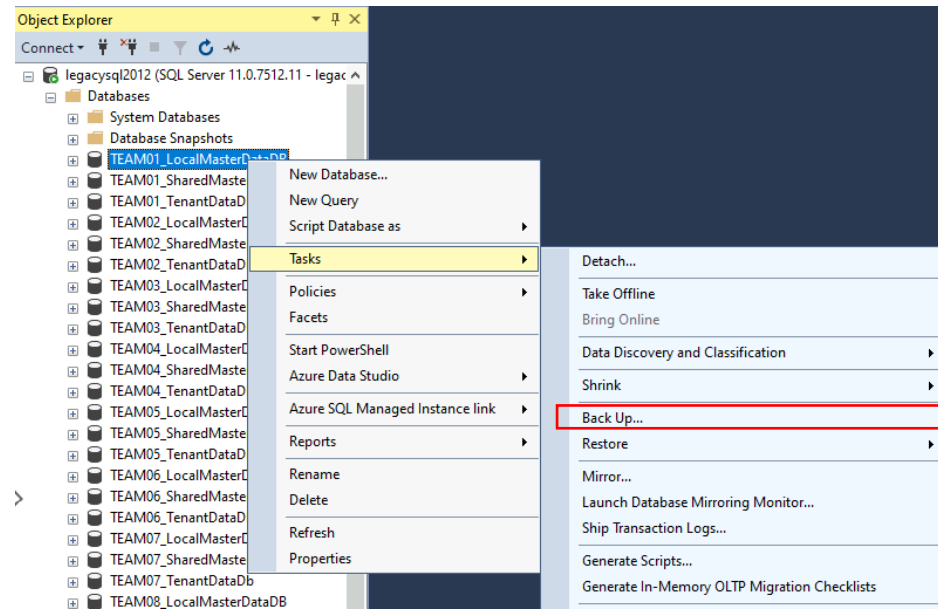


<p>In SSMS connect to: <b>legacysql2012</b></p> <p>Use the credentials:</p> <p><b>User:</b> DemoUser <b>Password:</b> Demo@pass1234567</p>		
<p><b>DO NOT EXECUTE THIS STEP</b></p> <p>This is for reference only, as only a single credential is required!</p> <p>In SSMS open new query and create the credential using the following script:</p> <pre>USE [master] GO CREATE CREDENTIAL [Azurebackupstorage] WITH IDENTITY = '&lt;your storage account name&gt;' ,SECRET = '&lt;your storage account access key&gt;'</pre>		<p>This should be only done only by the trainer.</p>

Backup your team databases:

Select your 3 team databases and create a full back to URL for each database

- 1) TEAMXX\_TenantDataDB
- 2) TEAMXX\_LocalMasterDataDB
- 3) TEAMXX\_SharedMasterDataDB



This is the wizard experience in SSMS, you can also take backups using T-SQL scripts. There are some samples below, for this.

Backup database:

- 1) Select Backup to URL
- 2) Select the credential "Azurebackupstorage"
- 3) Make sure you enter the Azure container name as follows:  
migration/team<XX>\_<databasename>

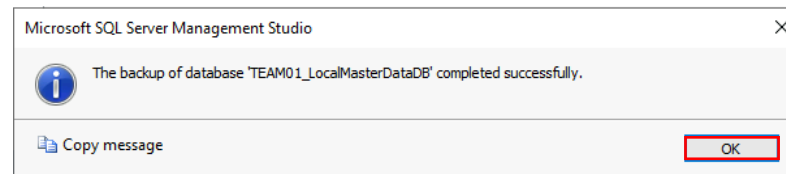
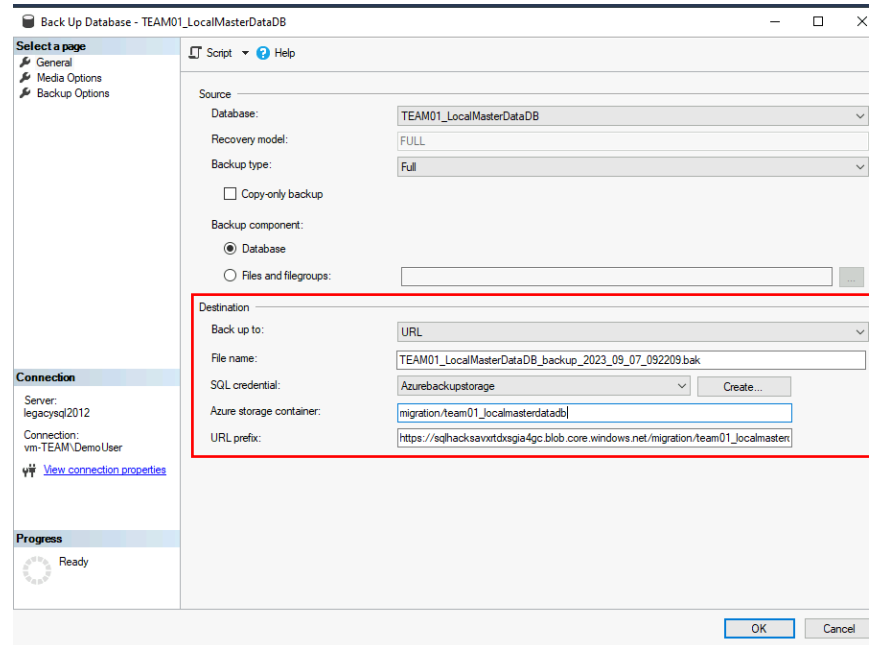
e.g. for team01  
migration\team01\_localmasterdatadb

**Repeat** this process for the remaining 2 databases:

TEAMXX\_LocalMasterDataDB  
TEAMXX\_SharedMasterDataDB

Use SSMS like above

or use TSQL commands in the right hand side.



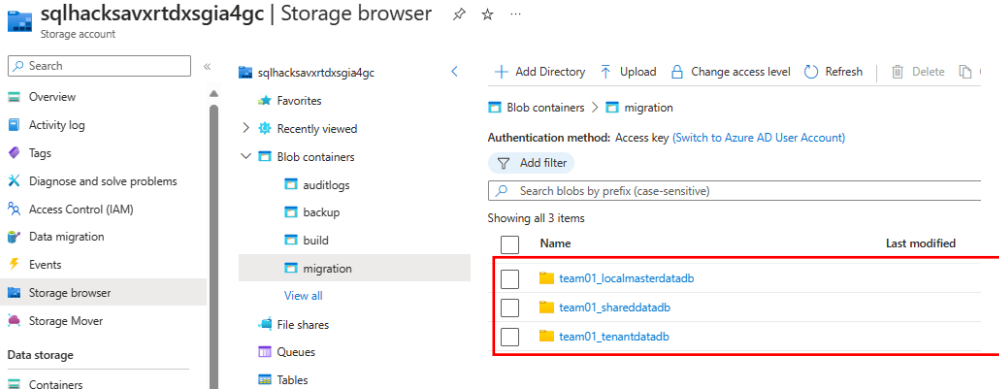
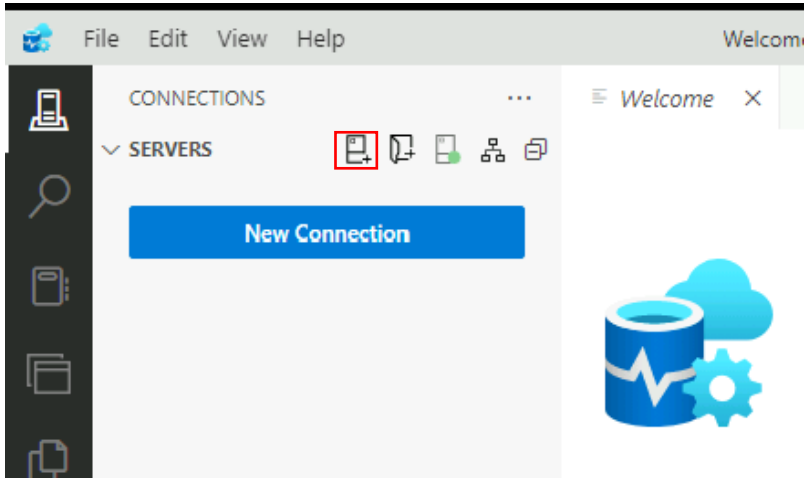
**You can also directly use TSQL to BackUp your Databases:**

```
BACKUP DATABASE [TEAM01_LocalMasterDataDB]
TO URL =
N'https://sqlhacksavxrtdxsgia4gc.blob.core.win
dows.net/migration/team01_localmasterdatad
b/TEAM01_LocalMasterDataDB_backup_2023_
09_07_092209.bak'
WITH CREDENTIAL = N'Azurebackupstorage',
NOFORMAT, NOINIT, NAME =
N'TEAM01_LocalMasterDataDB-Full Database
Backup', NOSKIP, NOREWIND, NOUNLOAD,
STATS = 10
GO
```

```
BACKUP DATABASE [TEAM01_SharedMasterDataDB] TO URL =
N'https://sqlhacksavxrtdxsgia4gc.blob.core.win
dows.net/migration/team01_shareddatadb/TEA
M01_SharedMasterDataDB_backup_2023_09_0
7_092209.bak'
WITH CREDENTIAL = N'Azurebackupstorage',
NOFORMAT, NOINIT, NAME =
N'TEAM01_SharedMasterDataDB-Full Database
Backup', NOSKIP, NOREWIND, NOUNLOAD,
STATS = 10
GO
```

```
BACKUP DATABASE [TEAM01_TenantDataDB]
TO URL =
N'https://sqlhacksavxrtdxsgia4gc.blob.core.win
dows.net/migration/team01_tenantdatadb/TEA
M01_TenantDataDB_backup_2023_09_07_092
209.bak'
WITH CREDENTIAL = N'Azurebackupstorage',
NOFORMAT, NOINIT, NAME =
N'TEAM01_TenantDataDB-Full Database
Backup', NOSKIP, NOREWIND, NOUNLOAD,
STATS = 10
GO
```

## SQL Modernisation Open Hack

<p>Switch to Azure portal on your web browser</p> <p>Review and check for existence of the <b>full backup</b> in the Azure Storage account in each folder</p>	 <p>sqlhacksavxrtdxsgia4gc   Storage browser</p> <p>Search</p> <p>Overview</p> <p>Activity log</p> <p>Tags</p> <p>Diagnose and solve problems</p> <p>Access Control (IAM)</p> <p>Data migration</p> <p>Events</p> <p>Storage browser</p> <p>Storage Mover</p> <p>Data storage</p> <p>Containers</p> <p>sqlhacksavxrtdxsgia4gc</p> <p>Favorites</p> <p>Recently viewed</p> <p>Blob containers</p> <p>auditlogs</p> <p>backup</p> <p>build</p> <p>migration</p> <p>View all</p> <p>File shares</p> <p>Queues</p> <p>Tables</p> <p>Authentication method: Access key (Switch to Azure AD User Account)</p> <p>Add filter</p> <p>Search blobs by prefix (case-sensitive)</p> <p>Showing all 3 items</p> <table><thead><tr><th><input type="checkbox"/></th><th>Name</th><th>Last modified</th></tr></thead><tbody><tr><td><input type="checkbox"/></td><td>team01_localmasterdatadb</td><td></td></tr><tr><td><input type="checkbox"/></td><td>team01_shreddatadb</td><td></td></tr><tr><td><input type="checkbox"/></td><td>team01_tenantdatadb</td><td></td></tr></tbody></table>	<input type="checkbox"/>	Name	Last modified	<input type="checkbox"/>	team01_localmasterdatadb		<input type="checkbox"/>	team01_shreddatadb		<input type="checkbox"/>	team01_tenantdatadb		
<input type="checkbox"/>	Name	Last modified												
<input type="checkbox"/>	team01_localmasterdatadb													
<input type="checkbox"/>	team01_shreddatadb													
<input type="checkbox"/>	team01_tenantdatadb													
<p>On Azure Data Studio on your Team VM</p> <p>Connect to legacy SQL Server 2012 using “<b>New Connection</b>”</p>	 <p>File Edit View Help</p> <p>CONNECTIONS</p> <p>SERVERS</p> <p>New Connection</p> <p>Welcome</p>													



## SQL Modernisation Open Hack

Enter server name and credentials.

Connection string: legacysql2012

**User:** DemoUser

**Password:** Demo@pass1234567

And click Connect

**Connection Details**

Connection type: Microsoft SQL Server

Input type: ☒ Parameters ☐ Connection String

Server\*: legacysql2012

Authentication type: SQL Login

User name\*: DemoUser

Password: \*\*\*\*\*

☐ Remember password

Database: <Default>

Encrypt: Mandatory (True)

Trust server certificate: True

Server group: <Default>

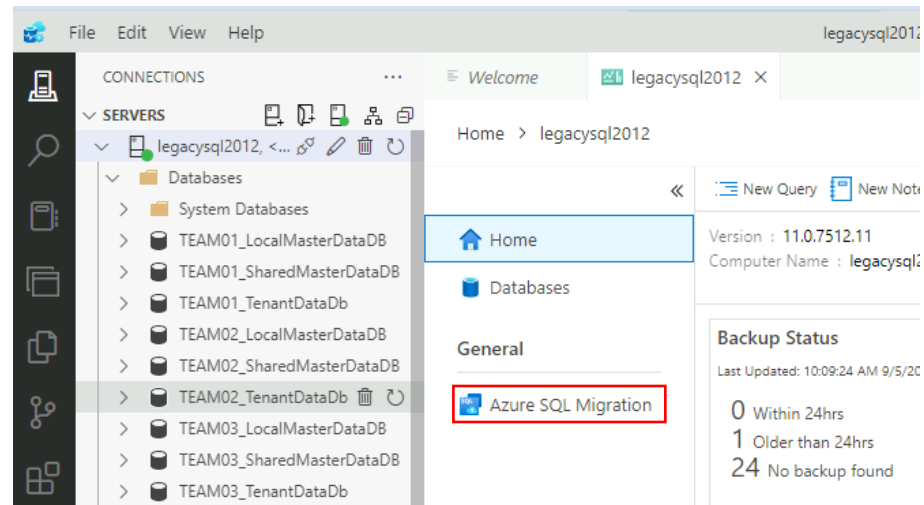
Name (optional):

Advanced...

**Connect** **Cancel**

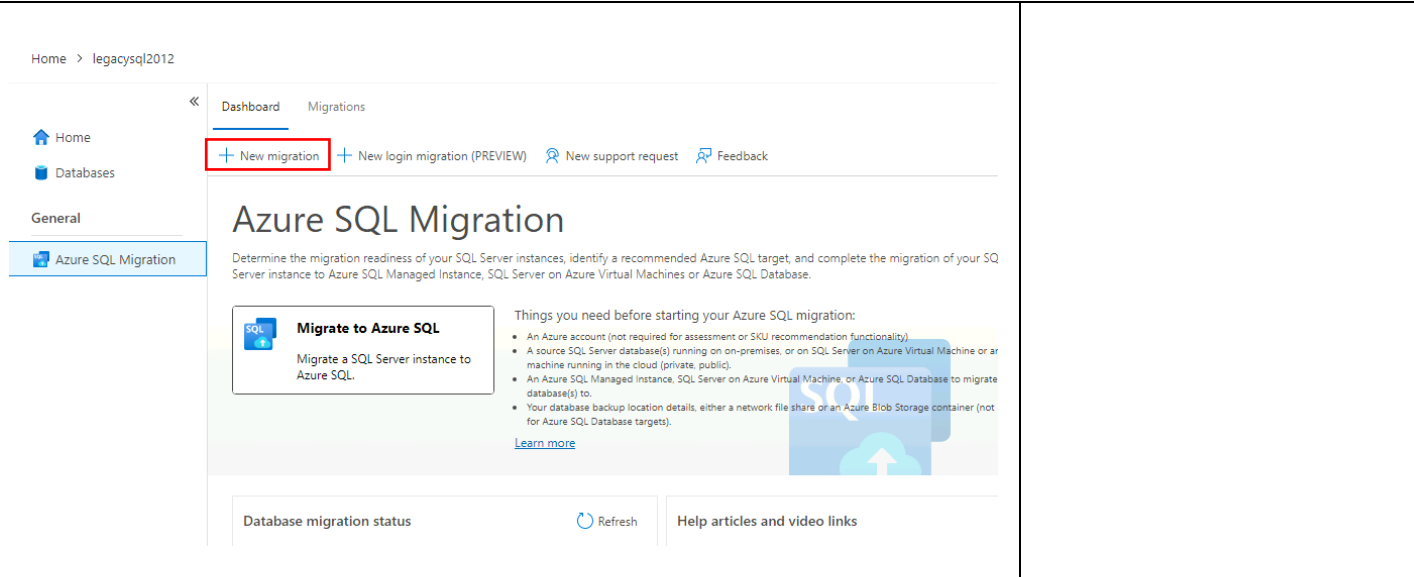
## SQL Modernisation Open Hack

Right Click on the SQL Server instance on the left hand side and select **"Manage"**.



## SQL Modernisation Open Hack

Select Azure SQL migration and choose **“New migration”**



The screenshot displays the Azure SQL Migration dashboard. The breadcrumb navigation at the top reads 'Home > legacysql2012'. The left-hand navigation pane includes 'Home', 'Databases', and 'General', with 'Azure SQL Migration' selected under the 'General' section. The main content area is titled 'Azure SQL Migration' and includes a description: 'Determine the migration readiness of your SQL Server instances, identify a recommended Azure SQL target, and complete the migration of your SQL Server instance to Azure SQL Managed Instance, SQL Server on Azure Virtual Machines or Azure SQL Database.' A prominent button labeled '+ New migration' is highlighted with a red rectangular box. Other buttons in the top navigation bar include '+ New login migration (PREVIEW)', 'New support request', and 'Feedback'. Below the main heading, there is a section titled 'Migrate to Azure SQL' with the subtext 'Migrate a SQL Server instance to Azure SQL.' To the right, a list of prerequisites is provided under the heading 'Things you need before starting your Azure SQL migration:', including requirements for an Azure account, source SQL Server database(s), an Azure SQL Managed Instance or Azure SQL Database target, and backup location details. A 'Learn more' link is also present. At the bottom of the dashboard, there are sections for 'Database migration status' with a 'Refresh' button, and 'Help articles and video links'.

Select your team databases:

- 1) TEAMXX\_TenantDataDB
- 2) TEAMXX\_LocalMasterDataDB
- 3) TEAMXX\_SharedMasterDataDB

And click Next

## Migrate 'legacysql2012' to Azure SQL

1

### Step 1: Databases for assessment

Select the databases that you want to assess for migration to Azure SQL.

Search

3/49 databases selected

<input type="checkbox"/>	Database	Status	Size (MB)
<input checked="" type="checkbox"/>	TEAM01_LocalMasterDataDB	ONLINE	3
<input checked="" type="checkbox"/>	TEAM01_SharedMasterDataDB	ONLINE	5
<input checked="" type="checkbox"/>	TEAM01_TenantDataDb	ONLINE	10
<input type="checkbox"/>	TEAM02_LocalMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM02_SharedMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM02_TenantDataDb	ONLINE	10
<input type="checkbox"/>	TEAM03_LocalMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM03_SharedMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM03_TenantDataDb	ONLINE	10
<input type="checkbox"/>	TEAM04_LocalMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM04_SharedMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM04_TenantDataDb	ONLINE	10
<input type="checkbox"/>	TEAM05_LocalMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM05_SharedMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM05_TenantDataDb	ONLINE	10
<input type="checkbox"/>	TEAM06_LocalMasterDataDB	ONLINE	3
<input type="checkbox"/>	TEAM06_SharedMasterDataDB	ONLINE	3

Assess extended event sessions

Next

Cancel

Run assessment and receive recommendation

Select Azure SQL target:  
**Azure SQL managed instance**

Select **“Get Azure Recommendation”**

2

3

4

5

6

Choose your Azure SQL target  
[Not sure which Azure SQL target is right for you? Learn more](#)

**Azure SQL Managed Instance**

ASSESSMENT RESULTS

1/1 databases can be migrated without issues

RECOMMENDED CONFIGURATION

Azure recommendation is not available. Click "Get Azure recommendation" button below

**SQL Server on Azure Virtual Machine**

ASSESSMENT RESULTS

1/1 databases can be migrated without issues

RECOMMENDED CONFIGURATION

Azure recommendation is not available. Click "Get Azure recommendation" button below

**Azure SQL Database**

ASSESSMENT RESULTS

0/1 databases can be migrated without issues

RECOMMENDED CONFIGURATION

Azure recommendation is not available. Click "Get Azure recommendation" button below

**Azure recommendation (PREVIEW)**

Azure recommendation collects and analyzes performance data and then recommends an appropriate sized target in Azure for your workload.  
[Learn more](#)

**Get Azure recommendation**

To migrate to Azure SQL Managed Instance, view assessment results and select one or more databases.

**View/Select**

0 of 1 databases selected

## SQL Modernisation Open Hack

Select the Log path: **C:\Logs** and start the Performance Collection

(If “C:\Logs” folder doesn’t exist, create this folder)

Get Azure recommendation

Azure recommendation requires performance data of SQL server instance to provide target recommendation. Enable performance data collection to receive the target recommendation for the databases you want to migrate. The longer this will be enabled the better the recommendation. You can disable performance data collection at any time.

You can also choose to select this data from an existing folder, if you have already collected it previously.

Choose how you want to provide performance data

☒ Collect performance data now ☐ I already have the performance data

Select a folder on your local drive where performance data will be saved

c:\Logs Browse

Start Cancel

## SQL Modernisation Open Hack

You will see that data collection is in progress.

Stop the performance collection **after ~10 min** by clicking on “Stop Data Collection”

and review the recommended configuration which has now automatically appeared on the upper side.

The screenshot displays the Azure recommendation interface, which is divided into two main sections. The top section, titled "Azure recommendation (PREVIEW)", shows the status of data collection. It includes buttons for "Stop data collection" and "Refresh recommendation", along with a "Last refreshed" timestamp. A message indicates that data collection is in progress and generating initial recommendations, with a note that initial recommendations will automatically refresh in approximately 10 minutes. Below this, the "Recommendation parameters" section shows the current configuration: Scale factor: 100, Percentage utilization: 95%, Enable preview features: No, and Enable elastic recommendation: No. A red box highlights the "Starting performance data collection..." button, which is located at the bottom right of the top section. The bottom section, titled "Choose your Azure SQL target", shows the results of the assessment. It includes a link to "Learn more" and a summary of the assessment results: "3/3 databases can be migrated without issues". A red box highlights the "RECOMMENDED CONFIGURATION" section, which shows the recommended configuration: "Gen5 - General purpose - 4 vCore - 32 GB". A "View details" link is also present.

Azure recommendation (PREVIEW) ⓘ

⌚ Stop data collection ⌚ Refresh recommendation Last refreshed: -

🔔 Data collection in progress. Generating initial recommendations...  
Initial recommendations will automatically refresh in approximately 10 minute(s).

Recommendation parameters

✎ Edit parameters

Scale factor: 100 Percentage utilization: 95% Enable preview features: No Enable elastic recommendation: No

Previous Next Cancel Starting performance data collection... Save and close

Azure recommendation (PREVIEW) ⓘ

⌚ Stop data collection ⌚ Refresh recommendation Last refreshed: -

🔔 Data collection still in progress. Refining existing recommendations...  
Check back periodically for updated recommendations by pressing the 'Refresh recommendation' button.

Recommendation parameters


✎ Edit parameters

Scale factor: 100 Percentage utilization: 95% Enable preview features: No Enable elastic recommendation: No

Previous Next Cancel Stopping performance data collection... Save and close

Choose your Azure SQL target

[Not sure which Azure SQL target is right for you? Learn more](#)

 Azure SQL Managed Instance

ASSESSMENT RESULTS

3/3 databases can be migrated without issues

RECOMMENDED CONFIGURATION

Gen5 - General purpose - 4 vCore - 32 GB

[View details](#)

Review the details of the recommended configuration in that you click on “View Details” under Azure SQL Managed Instance Tab.

#### Azure SQL Managed Instance Recommendations

Target deployment type  
Azure SQL Managed Instance

Azure configuration  
Gen5 - General purpose - 4 vCore

Storage  
32 GB

#### Recommendation reason

According to the performance data collected, we estimate that your instance has a compute requirement of 0.00 vCores. Based on other factors, including memory, storage, and IO, this is the smallest compute sizing that will satisfy all of your requirements.

This instance requires 0.00 GB of memory, which can be satisfied by this SKU's maximum of 20.40 GB.

This instance requires 0.00 GB of storage for data files, and 0.01 GB of storage for log files. We recommend provisioning at least 32 GB of data storage, which is the nearest valid amount that can be provisioned which would include sufficient log storage. Storage for this SKU is provisioned in increments of 32 GB, up to 2048 GB.

This instance requires 0.00 MB/second of combined read/write IO throughput. This is a relatively idle database, so IO latency is not considered.

This instance requires 0 IOPS for data and log files. Based on your current file sizes, this SKU can achieve 500 IOPS if you migrate as-is. You might improve IO performance by increasing file sizes. For more information, visit <https://docs.microsoft.com/en-us/azure/azure-sql/managed-instance/resource-limits>.

#### Source properties

Dimension	Value
CPU requirement	0.00 cores
Memory requirement	0.00 GB
Data storage requirement	0.00 GB
Log storage requirement	0.01 GB
Data IOPS requirement	0.00 IOPS
Logs IOPS requirement	0.00 IOPS
IO latency requirement	N/A

Please note that you can also save the recommendation report



Click on View/Select

And

Select the 3 team databases for migration:

4. TEAMXX\_TenantDataDB
5. TEAMXX\_LocalMasterDataDB
6. TEAMXX\_SharedMasterDataDB

Click Next

To migrate to Azure SQL Managed Instance, view assessment results and select one or more databases.

View/Select

0 of 3 databases selected

#### Assessment results for 'legacysql2012'

Instance	Warnings
----------	----------

legacysql2012	1
---------------	---

#### Databases (3/3)

<input checked="" type="checkbox"/> Database	Issues
<input checked="" type="checkbox"/> TEAM01_TenantDataDb	0
<input checked="" type="checkbox"/> TEAM01_LocalMasterDataDB	0
<input checked="" type="checkbox"/> TEAM01_SharedMasterDataDB	0

To migrate to Azure SQL Managed Instance, view assessment results and select one or more databases.

View/Select

3 of 3 databases selected

## SQL Modernisation Open Hack

### Select Azure Target (SQL MI)

For this, you need to add your account that you use to login to Azure Portal:

sqlhackuserXX@M365x5957687  
7.onmicrosoft.com

&sqlhack@demo\_XX!

CONNECTIONS

Migrate 'legacysql2012' to Azure SQL

Step 3: Azure SQL target

Select an Azure account and your target Azure SQL Managed Instance.

Azure account \*

Add a linked account and then try again.

[Link account](#)

Subscription \*

Select a subscription

Location \*

Select a location

Resource group \*

Select a resource group

Azure SQL Managed Instance \*

Select a target server.

Linked accounts

There is no linked account. Please add an account.

[Add an account](#)

Adding account...

Close

Close

Previous Next Cancel

Select the Azure subscription, the Location, Resource Group and Azure SQL MI FDQN Name which are automatically provided from your Account.

And Click Next

#### Migrate 'legacysql2012' to Azure SQL



#### Step 3: Azure SQL target

Select an Azure account and your target Azure SQL Managed Instance.

Azure account \*

System Administrator - admin@MngEnvMCAP072286.onmicrosoft.com

[Link account](#)

Subscription \* ⓘ

ME-MngEnvMCAP072286-csukalla-1 - 5d0d9ca7-87be-4108-b978-a75cf10f1b95

Location \* ⓘ

West Europe

Resource group \* ⓘ

sqlhack-shared

Azure SQL Managed Instance \* ⓘ

sqlhackmi-vxrtxsgla4gc

Step 4: Select database migration service

Select “offline migration”

Select the existing Azure Database Migration Service:

**sqlhack-dmsV2**

Migrate 'legacysql2012' to Azure SQL

**Step 4: Azure Database Migration Service**

1 ☐ Online migration  
Application downtime is limited to cutover at the end of migration.

2 ☒ Offline migration  
Application downtime will start when the migration starts.

3 Select the location of the database backups to use during migration.

☒ My database backups are in an Azure Storage Blob Container

☐ My database backups are on a network share

Azure Database Migration Service orchestrates database migration activities and tracks their progress. You can select an existing Database Migration Service if you have created one previously, or create a new one below.

Subscription  
ME-MngEnvMCAP072286-csukalla-1 - 5d0d9ca7-87be-4108-b978-a75cf10f1b95

Location  
West Europe

Resource group \*  
sqlhack-shared

Azure Database Migration Service \*  
sqlhack-dmsV2

[Create new](#)

You can also do an Online Migration for mission critical workloads using DMS. There are additional steps that you should take for this. Please use the information in the following tutorial for Online Migration:

[Tutorial: Migrate SQL Server to Azure SQL Managed Instance online by using Azure Data Studio - Azure Database Migration Service | Microsoft Learn](#)

(You can also create a new Database Migration Service within minutes of you do the exercise in your own subscription. For this you can click on “create new in Step 6”)

In the data source configuration select the last full backup file and click Next

Migrate 'legacysql2012' to Azure SQL

## Step 5: Data source configuration

### Azure Storage Blob Container details

Provide the Azure Storage Blob Container that contains the backups.

#### Subscription

ME-MngEnvMCP072286-csukalla-1

#### Location

West Europe

Enter target database name and select resource group, storage account and container for the selected source databases.

All fields are required.

**i** When uploading database backups to your blob container, ensure that backup files from different databases are stored in separate folders. Only the root of the container and folders at most one level deep are supported.

Source database name	Target database name	Resource group	Storage account	Blob container	Last backup file
TEAM01_TenantDataDb	TEAM01_TenantDataDb	sqlhack-shared	sqlhacksavxrtdxsgia4gc	migration	team01_tenantdatad...
TEAM01_LocalMasterDataDB	TEAM01_LocalMasterDa...	sqlhack-shared	sqlhacksavxrtdxsgia4gc	migration	team01_localmasterd...
TEAM01_SharedMasterDataDB	TEAM01_SharedMasterD...	sqlhack-shared	sqlhacksavxrtdxsgia4gc	migration	team01_shreddatad...

Review summary and start migration.

Migrate 'legacysql2012' to Azure SQL

**Step 6: Summary**

1

2

3

4

5

6

<b>Source databases</b>	
Databases for migration	<a href="#">3</a>
<b>Azure SQL target</b>	
Azure account	System Administrator - admin@MngEnvMCAP072286.onmicrosoft.com
Azure SQL target	Azure SQL Managed Instance
Subscription	ME-MngEnvMCAP072286-csukalla-1
Location	West Europe
Resource group	sqlhack-shared
Azure SQL Managed Instance	sqlhackmi-vxrtxsgia4gc
<b>Migration mode</b>	
Mode	Offline migration
<b>Data source configuration</b>	
Type	Blob container
Azure storage subscription	ME-MngEnvMCAP072286-csukalla-1
<b>Azure Database Migration Service</b>	
Subscription	ME-MngEnvMCAP072286-csukalla-1
Location	West Europe
Resource group	sqlhack-shared
Azure Database Migration Service	sqlhack-dmsV2

Previous Start migration Cancel

## SQL Modernisation Open Hack

### Review progress in Azure Data Studio

Click on Refresh from time to time to check the latest status of the migration until it succeeds.

Database migration status Refresh

**sqlhack-dmsV2 (change)**  
Azure Database Migration Service

Database migrations in progress 3

Database migrations completed 0

All database migrations 3

Help articles and video links

[Migrate databases using Azure Data Studio](#)

The Azure SQL Migration extension for Azure Data Studio provides capabilities to assess, get right-sized Azure recommendations and migrate SQL Server databases to Azure.

[Tutorial: Migrate to Azure SQL](#)

A step-by-step tutorial to migrate databases from a SQL Server instance (on-premises or Azure Virtual Machine) to Azure SQL Database with minimal downtime.

[Tutorial: Migrate to SQL Server](#)

A step-by-step tutorial to migrate databases from a SQL Server instance (on-premises) to SQL Server on Azure VM.

[Tutorial: Migrate to SQL Server](#)

A step-by-step tutorial to migrate databases from a SQL Server instance (on-premises) to SQL Server on Azure VM.

Starting migration for database TEAM01\_SharedMasterDataDb to sqlhackmi-...

Starting migration for database TEAM01\_LocalMasterDataDb to sqlhackmi-...

Starting migration for database TEAM01\_TenantDataDb to sqlhackmi-...

Choose SQL Language: legacysql2012; <default>

Dashboard Migrations

+ New migration + New login migration (PREVIEW) New support request Feedback Refresh

**sqlhack-dmsV2 (change)**  
Azure Database Migration Service

Filter migration results Status: Ongoing Sort: Start time Ascending

Source database	Source name	Migration status	Migration mode	Target type	Target database	Target name	Durati...	Start time	Fin...
TEAM01_SharedM-		Restoring	Offline	SQL Managed In...	TEAM01_Shared...	sqlhackmi-vxrt...	36.3 sec	9/7/2023, 12:46...	---
TEAM01_LocalMas-		Restoring	Offline	SQL Managed In...	TEAM01_LocalMa...	sqlhackmi-vxrt...	37.9 sec	9/7/2023, 12:46...	---
TEAM01_TenantD-		Restoring	Offline	SQL Managed In...	TEAM01_TenantD...	sqlhackmi-vxrt...	39.4 sec	9/7/2023, 12:46...	---

Home > legacysql2012 > database-name

Dashboard Migrations

+ New migration + New login migration (PREVIEW) New support request Feedback Refresh

**sqlhack-dmsV2 (change)**  
Azure Database Migration Service

Filter migration results Status: All Sort: Start time Ascending

Source database	Source name	Migration status	Migration mode	Target type	Target database	Target name	Durati...	Start time	Finish time
TEAM01_SharedM-		Succeeded	Offline	SQL Managed In...	TEAM01_Shared...	sqlhackmi-vxrt...	2.2 mins	9/7/2023, 12:46...	9/7/2023, 12:49...
TEAM01_LocalMas-		Succeeded	Offline	SQL Managed In...	TEAM01_LocalMa...	sqlhackmi-vxrt...	2.2 mins	9/7/2023, 12:46...	9/7/2023, 12:49...
TEAM01_TenantD-		Succeeded	Offline	SQL Managed In...	TEAM01_TenantD...	sqlhackmi-vxrt...	2 mins	9/7/2023, 12:46...	9/7/2023, 12:48...

#### 4. Confirm application databases have been migrated to Azure SQL Managed Instance

Connect to SSMS  
to source server:  
**LEGACYSQL2012**  
and target server: `sqlhackmi-  
xxxxx.xxxxxx.database.windows.net`  
and review the migrated  
database!  
Use the credentials:  
User: **DemoUser**  
Password: **Demo@pass1234567**

