Becoming an Azure SQL DBA

Learning pathway session

PASS24
Data Community Summit

④ New Opportunities from Basics to Microsoft Copilot

November 7 | 2:00 PM–3:00 PM | 345–346

Microsoft Azure Data

Bob Ward

Principal Architect
Microsoft

Bob Ward is a Principal Architect for the Microsoft Azure Data team, which owns the development for Microsoft SQL Edge to Cloud. Bob has worked for Microsoft for 30+ years on every version of SQL Server shipped from OS/2 1.1 to SQL Server 2022 including Azure SQL.

@bobwardms

https://aka.ms/azuresql4beginners

www.linkedin.com/in/bobwardms

Erin Stellato

Principal Product Manager
Microsoft

Erin Stellato is a Principal Program Manager on the SQL Experiences team, helping advance tools that customers use daily with Azure SQL. She is passionate about data and chocolate, but not always in that order. She previously worked as a consultant and was a Data Platform MVP and has been an active member of the SQL Server community as both a volunteer and speaker.

@erinstellato

https://www.sqlskills.com/about/erin-stellato/

www.linkedin.com/in/erinstellato

Niko Neugebauer

Senior Product Manager
Microsoft

Niko is a Senior Product Manager at Microsoft working on building Azure SQL platform features.

In his previous roles for over 20 years he helped customers successfully build, migrate and optimize Microsoft Data solutions in OLTP & OLAP markets.

@nikoneugebauer

aka.ms/sqlmi-videos

www.linkedin.com/in/nikoneugebauer/

Dr. Dani Ljepava

Senior Product Manager
Microsoft

Dani is a Senior Product Manager at Microsoft working on building Azure SQL platform features.

Experience in SQL team includes hybrid environments, data mobility, high availability, backup and restore, monitoring, intelligent performance features, and development of data mobility features for SQL Server 2016-2022. Involved with building Azure SQL Managed Instance since the service launch in 2018.

@danimir

aka.ms/sqlmi-videos

https://www.linkedin.com/in/danimir

Pam Lahoud

Principal PM Manager

Microsoft

Pam Lahoud is a Principal Group Product Manager in Azure Data, based in Redmond, WA, USA. She has been with Microsoft since 2006 and currently leads the SQL Server in Azure Virtual Machines PM team. She is passionate about SQL Server performance and has focused on performance tuning and optimization, particularly from the developer perspective, throughout her career. She is a SQL 2008 MCM with over 20 years of experience working with SQL Server, and co-author of the book "Learn T-SQL Querying".

@SQLGoddess

https://aka.ms/LearnTSQLQuerying

https://www.linkedin.com/in/pam-lahoud

Learning Pathway: Becoming an Azure SQL DBA
Advancing the Role of the On-Premises SQL Server DBA

Wednesday Nov 6th

① **High Availability and BCDR**
11:15am – 12:15pm
Room 345-346

② **Security, Compliance, Threats, Connectivity**
2:00pm – 3:00pm
Room 345-346

Thursday Nov. 7th

③ **Performance Monitoring, Tuning and Alerting**
11:30am – 12:30pm
Room 345-346

④ **New Opportunities from Basics to Microsoft Copilot**
2:00pm – 3:00pm
Room 345-346

Simplifying Database Management with AI

Role	Needs
Database administrator	Efficiently troubleshoot, monitor, and tune database performance, ensuring data security and compliance. Ensure data availability, backup, and disaster recovery.

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“Accidental” DBAs/developer	Manage databases without formal training in database administration or development. Quickly understand and navigate the complexities of the SQL language and be aware of the wide range of Azure SQL service offerings and capabilities.

Our goal is to enhance productivity for all three roles.

We've started with experiences in the Azure portal... and SSMS.

Azure SQL Database Copilot portal experiences

Microsoft Copilot in Azure + Azure SQL skills

Assists with several Azure SQL capabilities including database insights, best practices, database management, and troubleshooting common issues.

Natural Language to SQL in Azure SQL Query editor (preview)

Input a natural language question and receive a T-SQL query suggestion.

Copilot in SSMS experiences

Sidecar chat with connection and database context

Assists with general SQL questions, database management, best practices, troubleshooting common issues, natural language to SQL, fix and explain.

Copilot principles

Responses are grounded in your Azure SQL Database environment.

Copilot only has access to resources that YOU have access to and can only perform analysis and actions that you have the permissions to perform.

User-provided prompts and responses are NOT used to further train, retrain, or improve Azure OpenAI Service foundation models.

Microsoft Copilot in Azure

- **AI-Powered Assistant**: Copilot for Azure is an AI companion that simplifies how you design, operate, optimize, and troubleshoot apps and infrastructure from cloud to edge.

- **Open Preview Access announced at BUILD**: Rolled out to all customers, with options to enable or disable for specific Azure tenants.

- **Enhanced Azure SQL Capabilities**: New features for Azure SQL Database to improve the management of SQL-dependent applications.

Microsoft Azure | Search resources, services, and docs (G+/) | Copilot | josephsack@microsoft.c... MICROSOFT (MICROSOFT.ONMI...

Home >

PropertySearch (josephsack-sqlcopilottesting/PropertySearch)

SQL database

Copy | Restore | Export | Set server firewall | Delete | Connect with... | Feedback

Mirror databases in Microsoft Fabric Easily replicate your existing databases in Fabric, and help your team achieve streamlined ETL and operational analytics goals. Learn more

Essentials

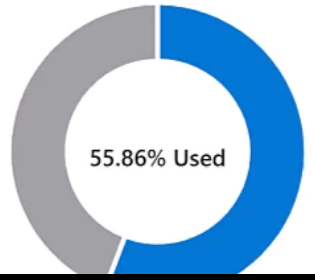
JSON View

Resource group (move)	: josephsack-rg	Server name	: josephsack-sqlcopilottesting.database.windows.net
Status	: Online	Elastic pool	: No elastic pool
Location	: South Central US	Connection strings	: Show database connection strings
Subscription (move)	: DS-SQLDB-SQLAzurePMDemos_ajayj_COGS_42477	Pricing tier	: Business Critical: Gen5, 4 vCores
Subscription ID	: fa58cf66-caaf-4ba9-875d-f310d3694845	Earliest restore point	: 2024-09-06 19:00 UTC
Tags (edit)	: Add tags		

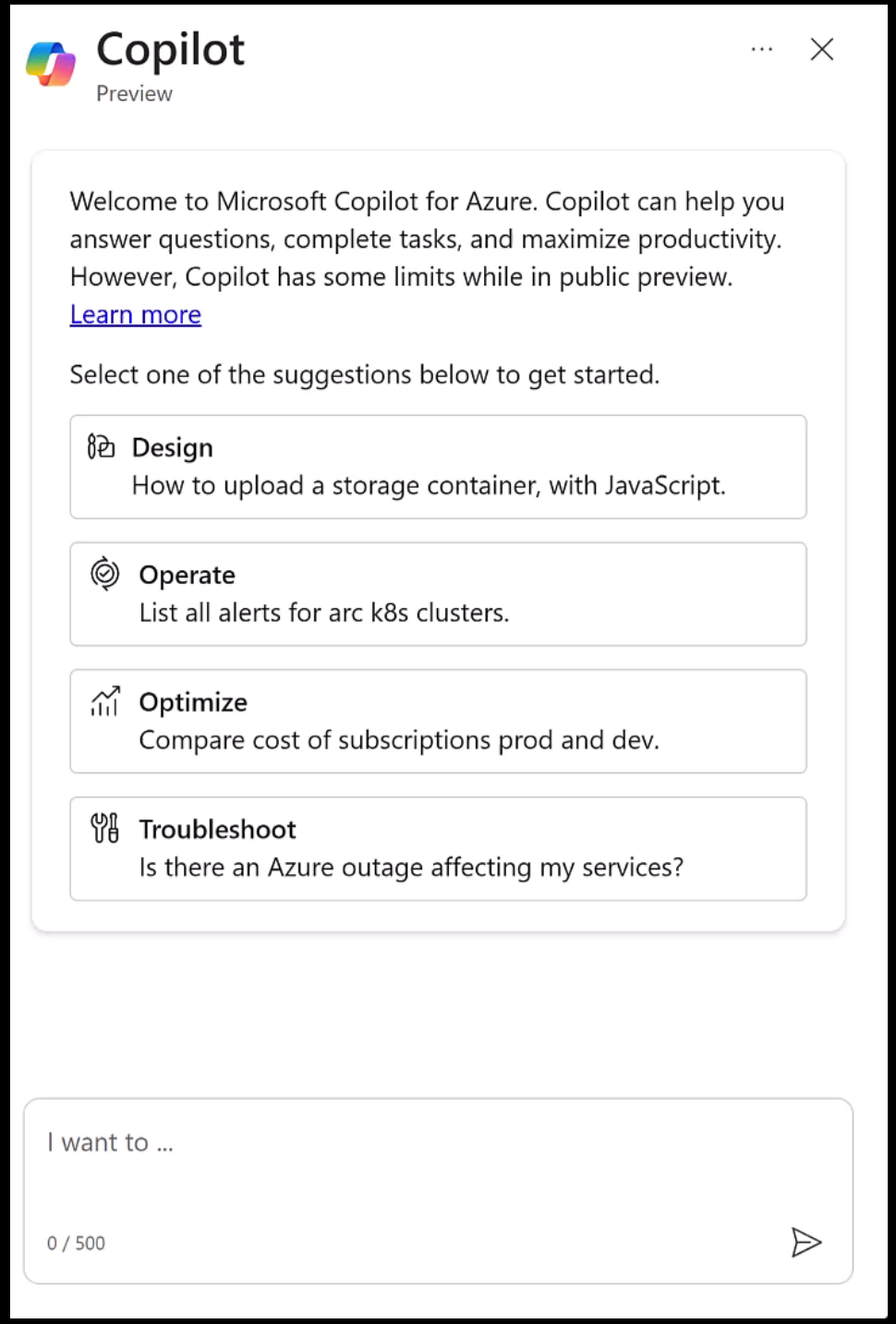
Getting started | Monitoring | Properties | Features | Notifications (0) | Integrations | Tutorials

Database data storage

Review the below metrics and monitor your applications and infrastructure.



Note: demo videos are edited for brevity



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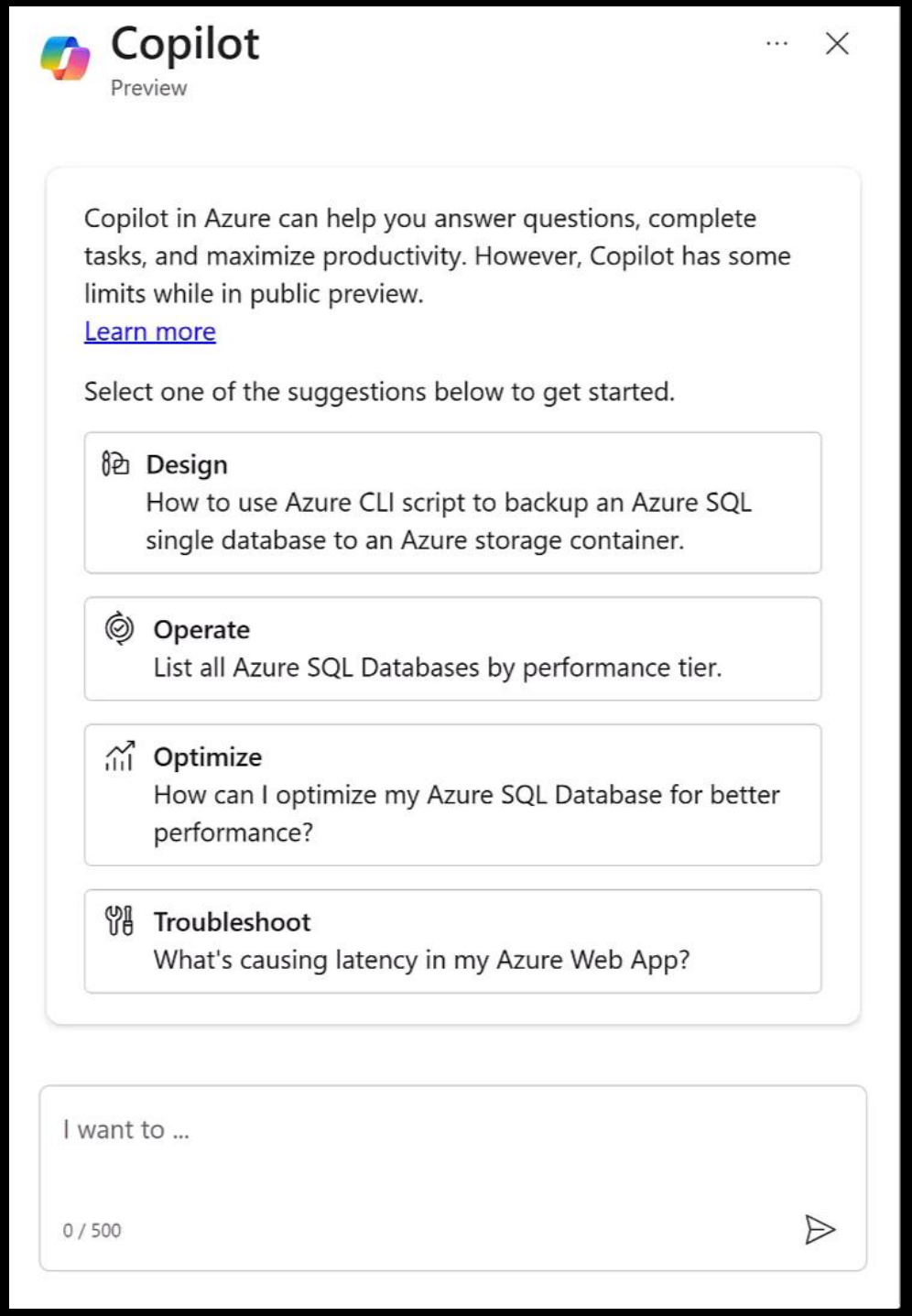

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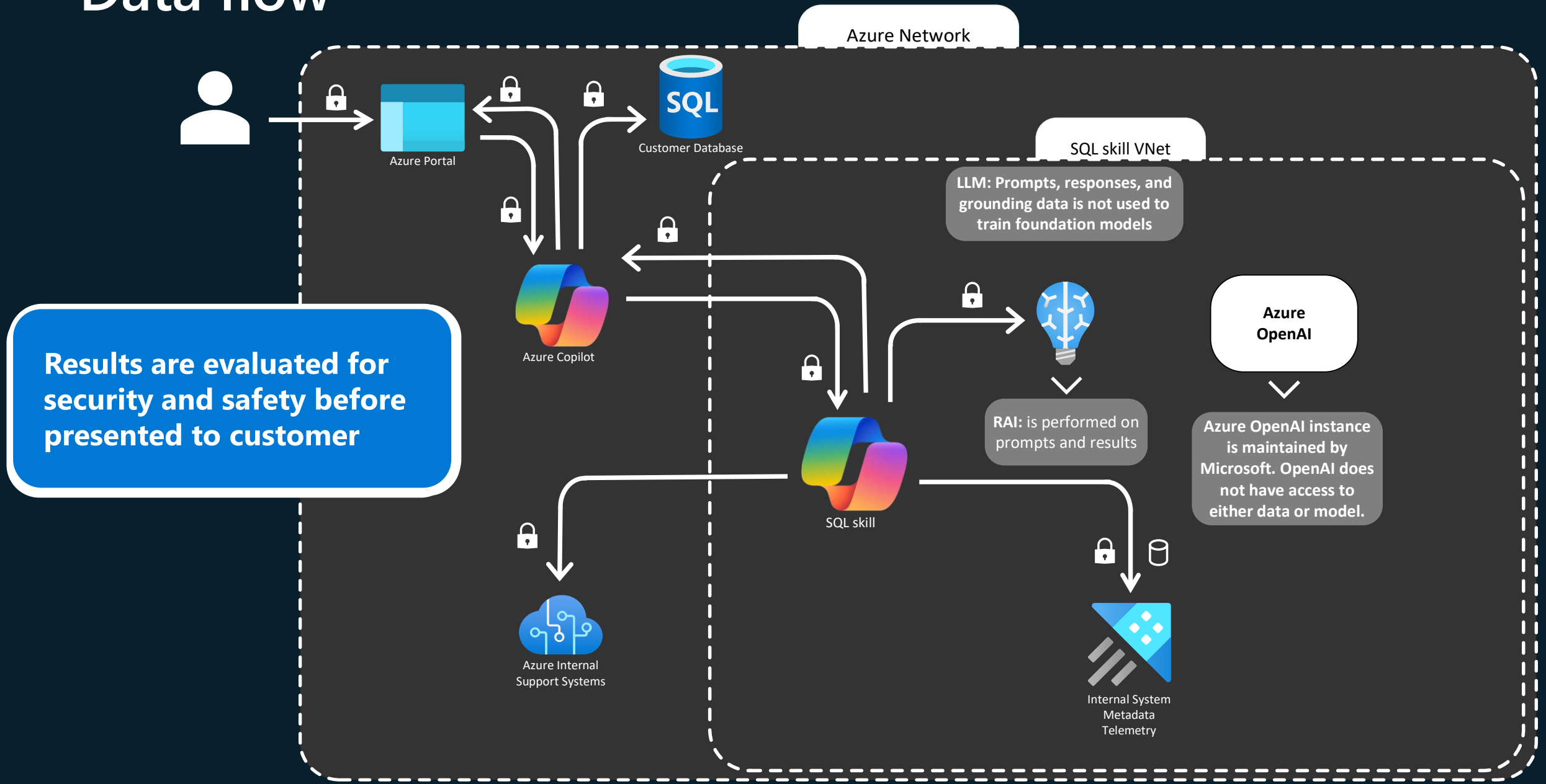
Example prompts

aka.ms/sqlcopilot has 51 skill examples

Topic	Example Prompts
Active User Connections	Who are currently actively connected to the database?
Blocking Session Analysis	Check top blocking sessions.
Database and Table Size	What's the size of this database?
Database Performance Analysis	Why is my database slow?
Deadlock Analysis	Why am I getting deadlock errors? How can I fix it?
Fragmented Index Analysis	Help me find fragmented indexes.
Index Recommendations	Should I add an index on this table?
Missing Index Suggestions	Missing index suggestion for improving query performance?
Point-in-Time Restore Retention	How far back in time can I go for a point-in-time restore?
Query Store - Longest Running Queries	What are the longest running queries in the past day?
Query Store - Queries with Multiple Plans	Show me the queries that have had more than one execution plan.
Related Documentation	What does database compatibility level mean?
Resource Usage Analysis	Is the database hitting resource limits? Which limits?
Wait Statistics Analysis	What do the wait statistics look like for my database?

Data flow


Azure Network
SQL skill VNet
Azure Portal
SQL
Customer Database
Azure Copilot
LLM: Prompts, responses, and grounding data is not used to train foundation models
Results are evaluated for security and safety before presented to customer
RAI: is performed on prompts and results
Azure OpenAI
Azure OpenAI instance is maintained by Microsoft. OpenAI does not have access to either data or model.
SQL skill
Azure Internal Support Systems
Internal System Metadata Telemetry
Data flow (= all requests are encrypted via HTTPS)
Data Storage (= Indicates the permanent storage of data. Query and Prompt are never included.)

Usage Tips

- **Context matters**. Copilot Azure SQL prompts are most effective when asked within the specific database blade context.
  - Note: Recently we changed the experience to still help with general Q&A outside of a specific database blade.

- **Speed varies based on the task**. Some prompts, like database fragmentation checks, may take longer.

- **No database configuration changes**. For Azure SQL Database questions, Copilot provides information and instructions but won't make configuration changes.

- **Use where you need help**. Copilot doesn’t replace other methods. If you have a preferred efficient way to do something, you should keep doing it…

Natural language to SQL (preview)

Azure portal Query editor is a browser-based tool for light querying + exploration

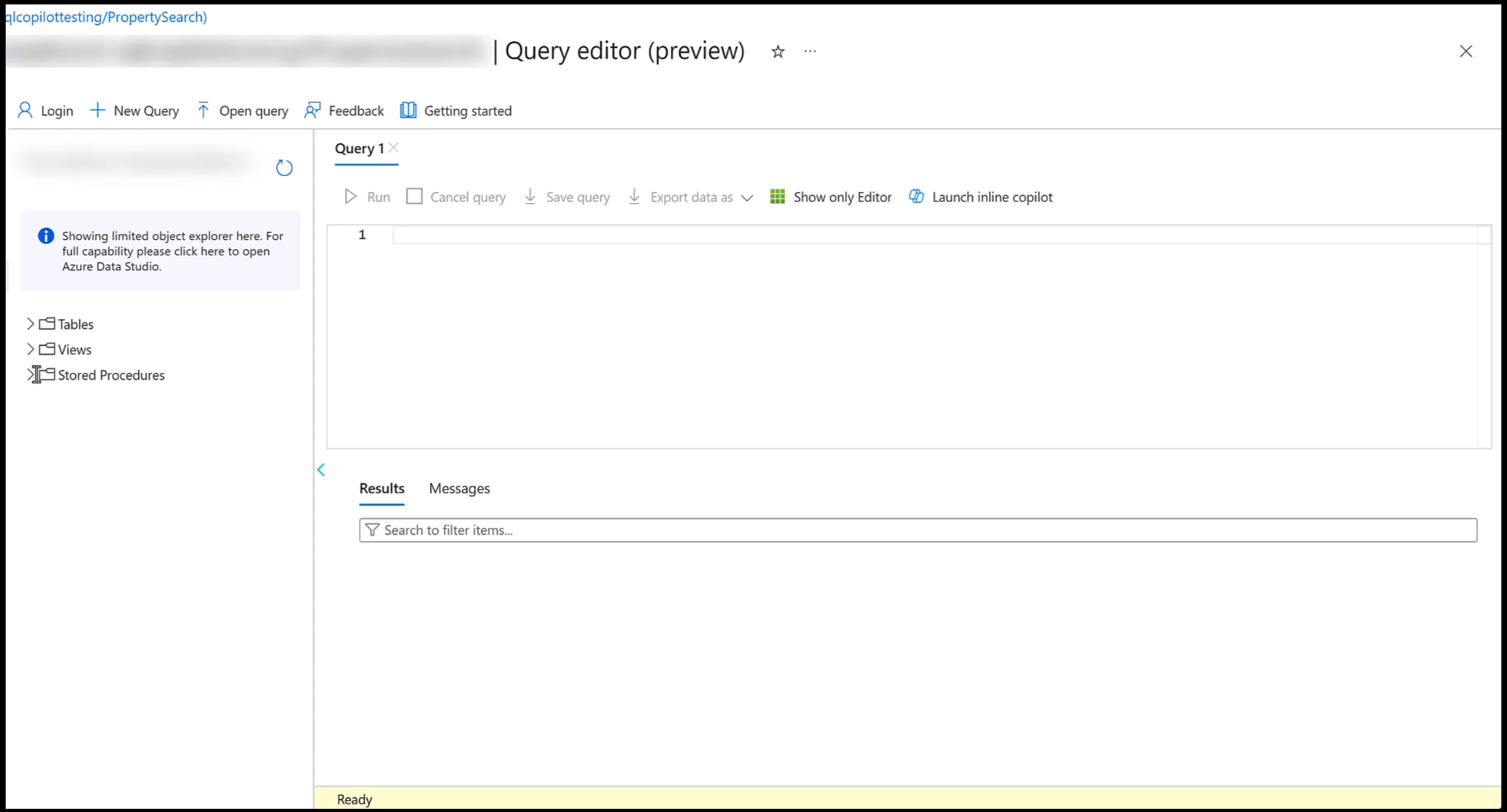
We're adding a natural language to SQL experience

Generates T-SQL queries based on natural language input

Uses Large Language Models (LLMs) from Azure OpenAI

+ Table schema

+ primary and foreign key constraints



Getting started

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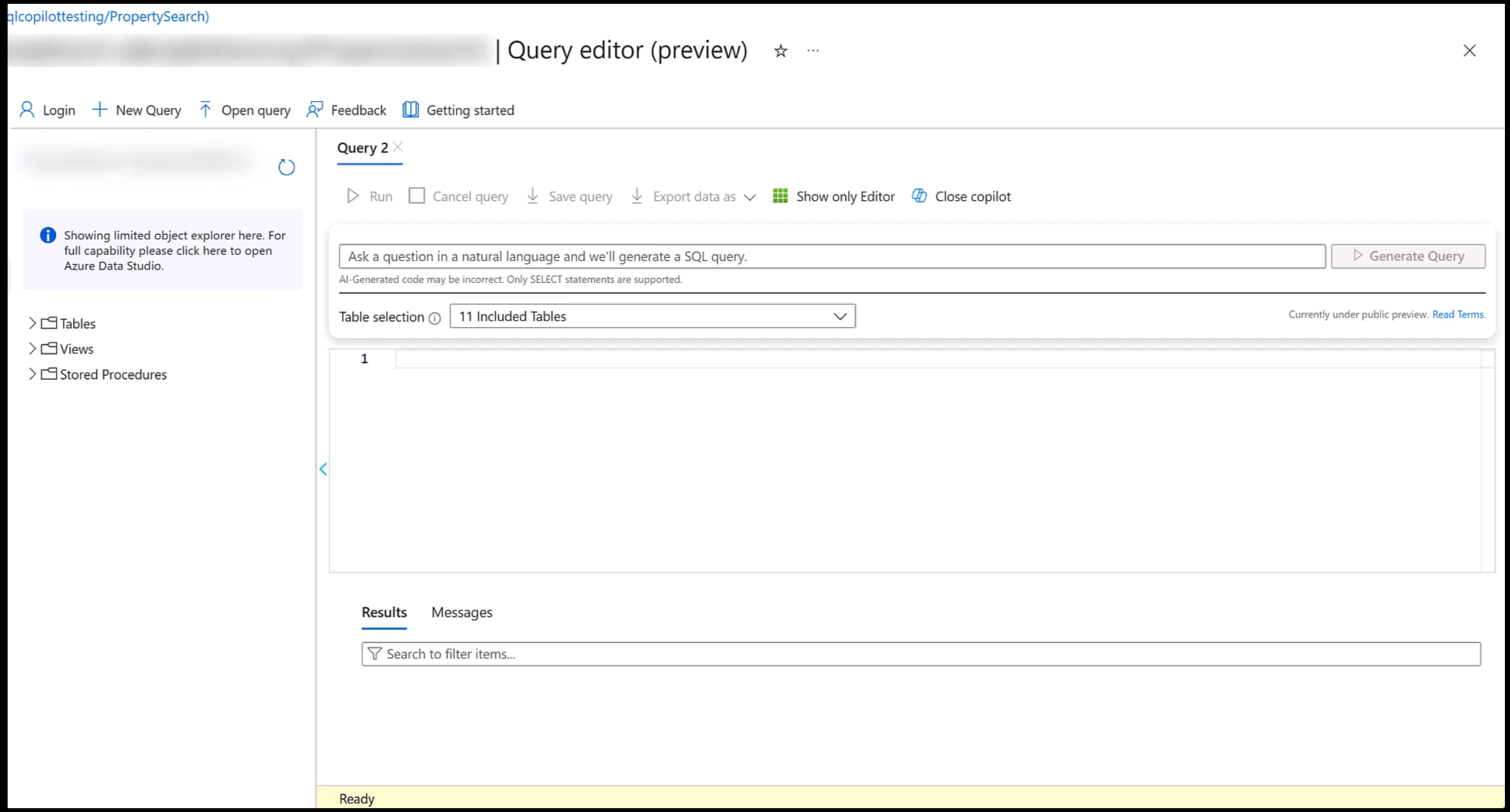
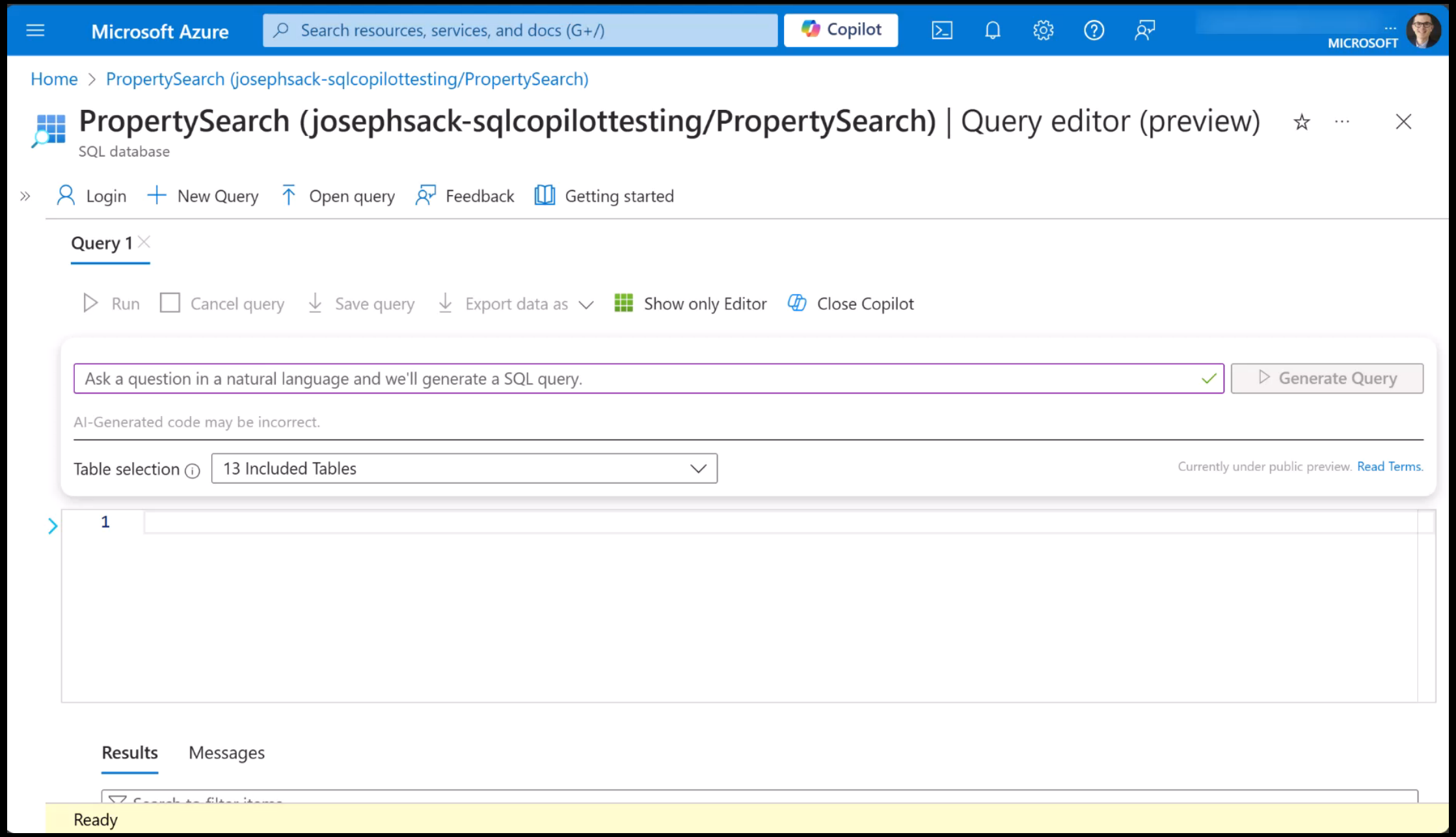


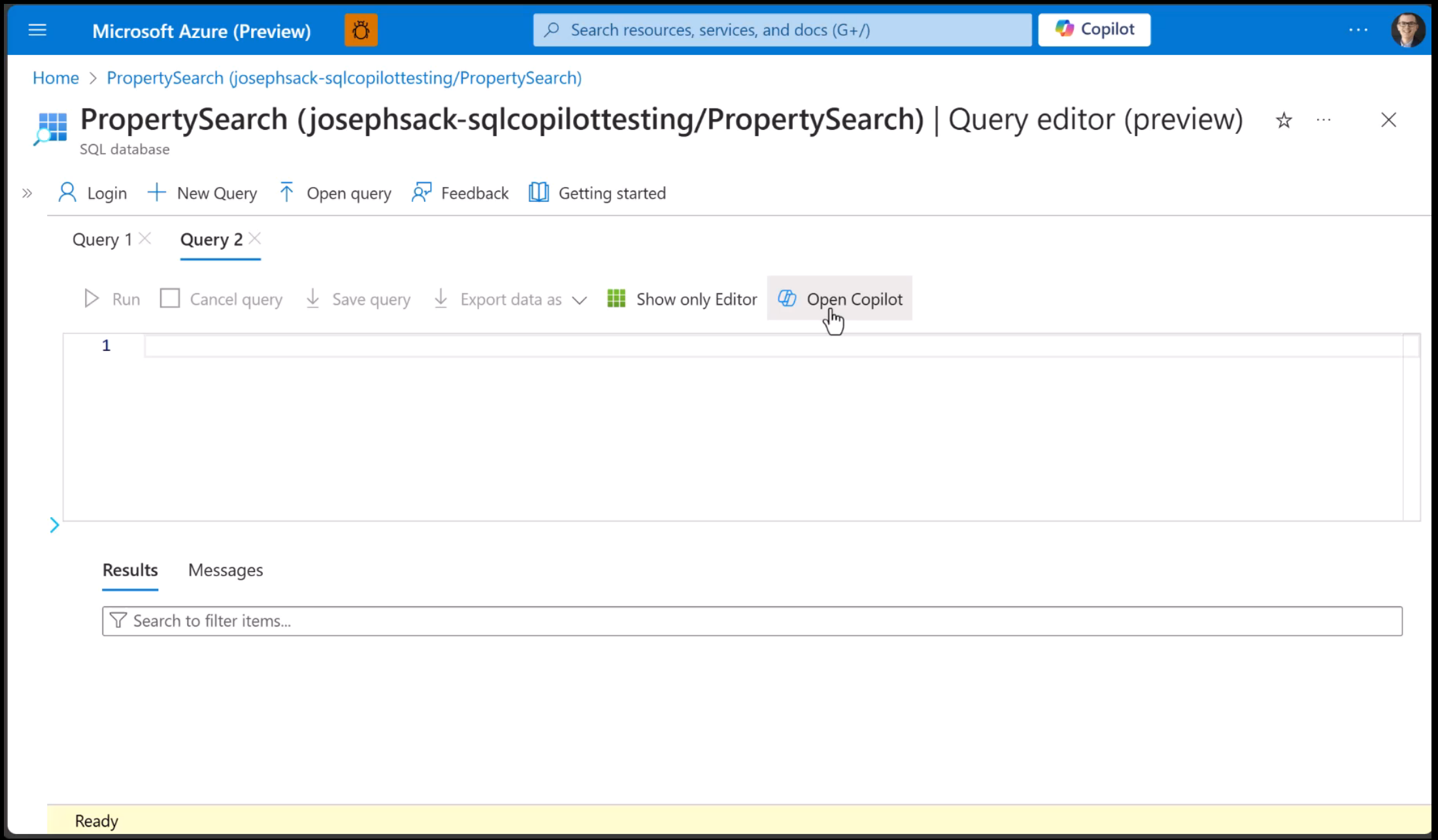
PIVOT

Note: demo videos are edited for brevity



Expanded language support

Note: demo videos are edited for brevity



System queries

Note: demo videos are edited for brevity

Natural Language to SQL – Usage Tips

- **Schema and relationships help with generation**. NL2SQL uses the following based on user permissions:
  - Table and view schema definition
    - Note: we'll be adding additional context such as NULLability and data types
  - PK\FK relationships

- **Expressive names result in the most effective generation**. NL2SQL relies on meaningful and descriptive table and column names.

- **Roadmap**: We are looking into ways to improve accuracy through additional customer-provided context. For example, ability to share "hints" on naming conventions or example prompt\query pairs.

DEMO

Tips when using Copilot

- Context matters – prompts are most effective when asked within the context of the specific database you need help with
- Speed varies based on task – if you ask to check for database fragmentation, this will take longer than if you asked what statistics haven't been updated in the last month
- Use it when you need help – When you would typically switch to a browser to do a search, try Copilot
- This is a change in your workflow – it takes time to adjust

FAQs

	Azure SQL	SSMS
How much will it cost?	• No charge right now, but there will be announcements leading up to Azure Copilot General Availability.	• For private preview, no cost. After that, dependent on the deployment, quota and model selected by the customer.
What SQL offerings are supported?	• General Purpose, Business Critical, Hyperscale, DTU-based Standard and Premium, Serverless, and Elastic pools.	• SQL Server, Azure SQL Database, Azure SQL Managed Instance.
How do I enable or disable Copilot?	• Manage by following these instructions: aka.ms\sqlcopilot-manage-access	• Install the Copilot extension.
What about Copilots for other SQL offerings?	• Copilot for Azure SQL is in public preview, and we expect opportunities for Copilots across the SQL portfolio. Stay tuned!	

What have we learned so far?

- **A balance of Quality, Depth, and Speed.** Finding the right balance between quality responses, depth, and speed is critical – with needs varying by persona and role.

- **Overriding LLM Myths is sometimes necessary.** Some LLM knowledge needs correction. Example: SPID > 50 misconception. Trained on public databases (AdventureWorks, Northwind).

- **Form Factor Matters.** Flexible interfaces are needed for complex result sets.

- **Feedback is Essential.** Thumbs-down without details makes it hard to improve.
- Without the original prompt/response, we can’t pinpoint issues.

Learn more and provide feedback

Learn more here: https://aka.ms/sqlcopilot

And https://aka.ms/sqlcopilot-nl2sql

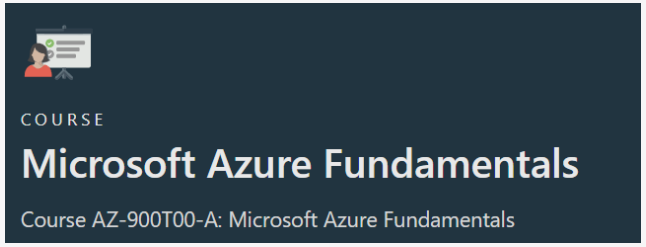
Feedback email here: sqlcopilotpreview@microsoft.com

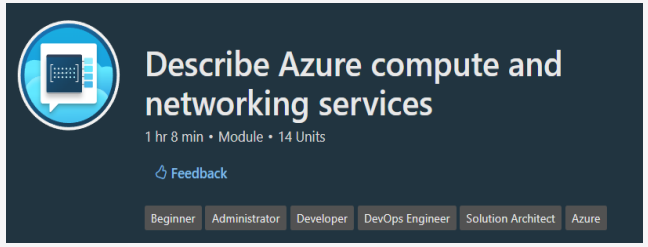
Feedback form: https://aka.ms/sqlcopilot-feedback

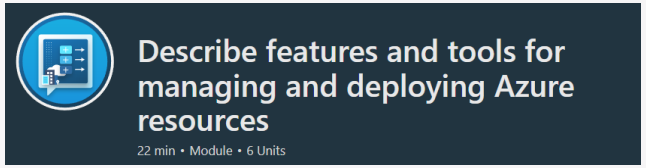
Additional Resources

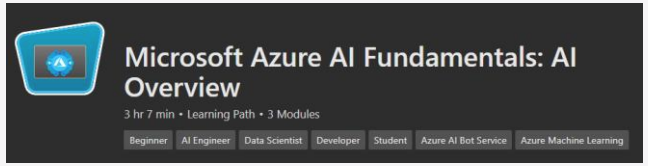
Azure free online courses

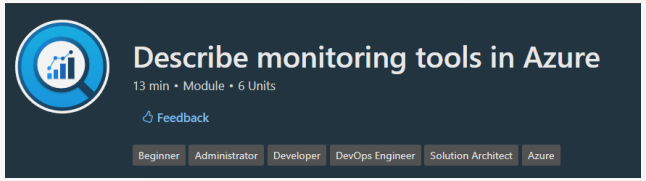
https://learn.microsoft.com/training/browse/

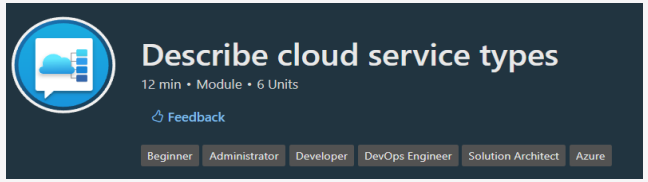


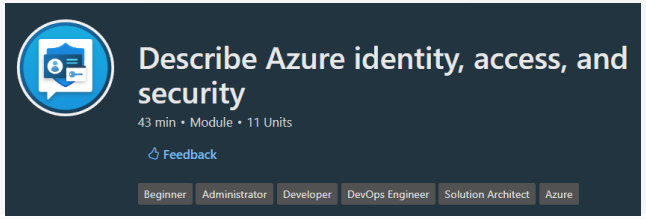


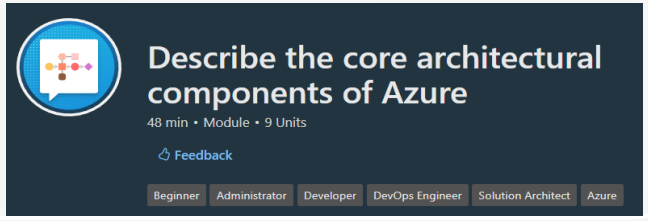












Experience Azure SQL for free

Azure SQL Managed Instance

aka.ms/freesqlMI

What's included

- **1 instance** per Azure subscription
- **4 or 8 vCores** of GP compute
- **750 vCore hours** per month
- **64 GB data** storage
- **64 GB backup** storage

Use it for 12 months

Use this free offer to support your migration proof of concepts for **12 months.**

You're in control

- Optimize your monthly available vCore hours by **stopping** and **starting** the instance when necessary.

Azure SQL Database

aka.ms/SQLfreeoffer

What's included

- **1 Azure SQL Database** per Azure subscription
- **100,000 vCore seconds** per month.
- **32 GB data** storage
- **32 GB backup** storage

No time limits

- Apply this free offer for the **life** of your **subscription**.

Need more? No problem.

- Stick with the default **auto-pause** option or continue usage for additional charges.

Your feedback is important to us

Evaluate this session at:

www.PASSDataCommunitySummit.com/evaluation

Thank you

Please Freel free to reach out to us.

- **Niko Neugebauer** nneugebauer@microsoft.com
- **Dani Ljepava** danil@microsoft.com
- **Erin Stellato** erinstellato@microsoft.com
- **Pam Lahoud** pamela@microsoft.com