

Database maintenance with Azure SQL Elastic Jobs (preview refresh)

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- Azure SQL Database maintenance tasks
 - Required activities
 - Methods
 - Azure SQL Elastic Jobs (preview refresh)
 - v2 😊

The starting point

- Azure SQL Database hasn't got a native scheduling service like SQL Agent of the on-premise instances
- When a database(s) is deployed in Azure SQL Database, possible solutions to perform maintenance activities must be studied!

Required activities for Azure SQL DB maintenance

- Is database maintenance still an important factor even for Azure SQL Database?
 - **Yes, it is!**
 - Azure SQL Database is a PaaS solution, but Microsoft is responsible for the **infrastructure** and **backup management**, nothing else
 - Logical corruption checks, Index and Statistics maintenance and so on are under the DBA responsibility

- Azure SQL Database automatically creates database backups
 - Full backups every week
 - Differential backups every 12 hours
 - Transaction log backups every 5-10 minutes
- Backups are stored in read-access geo-redundant storage replicated to a paired data center

Backups can be used for..

- Restore
 - Existing database to a point-in-time
 - Deleted database to the time it was deleted
 - Database to another geographical region
 - Database from a specific long-term backup
 - <https://bit.ly/34Y1IY2>

Backups retention

- All Azure SQL databases have a default backup retention period of **7** days
- Backup retention period can be changed up to **35** days (at 7-days chunks)
- Backups of deleted databases will be kept according to the retention period fixed
- <https://bit.ly/2SpEOq0>

Backups long-term retention (LTR)

- If you want to keep your backups for a period of time longer than the maximum allowed, you can evaluate the long-term backup retention service
- By using long-term retention, you can store specific backups up to **10** years
- <https://bit.ly/2EOPVkr>

Maintenance activities

- The maintenance activities to undertake, when database solutions are implemented in Azure SQL, are:
 - Integrity check
 - Index maintenance
 - Statistics update

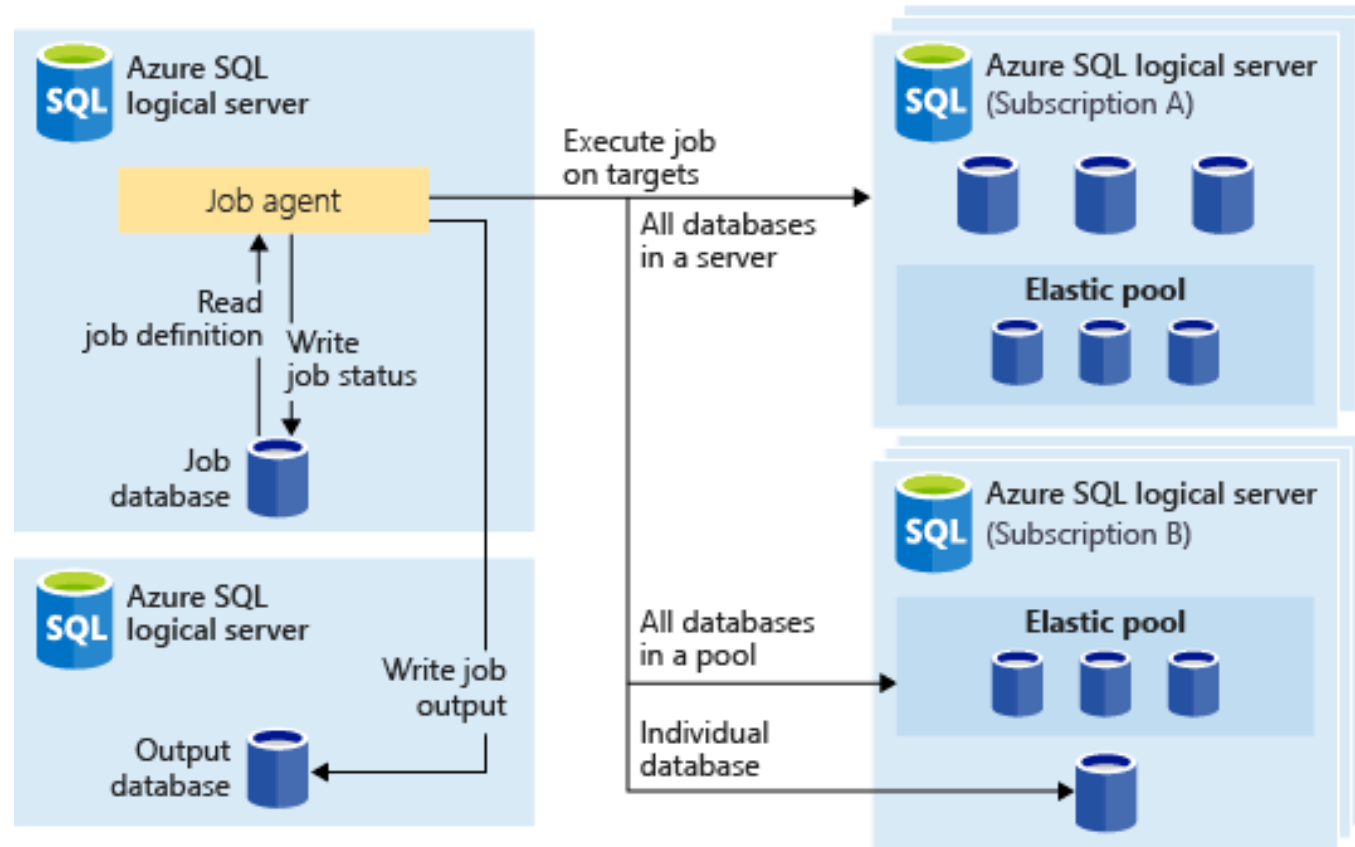
Methods for Azure SQL DB maintenance activities

- In Azure SQL Database we have several methods to do maintenance operations, this is the complete list:
 - Linked Server
 - Database Maintenance Plan
 - Azure Automation Services
 - Azure SQL Database Elastic Jobs
- It is advised to use the stored procedures of the suite **SQL Server Maintenance Solution** done by Ola Hallengren
 - <https://ola.hallengren.com>

Azure SQL Database Elastic Jobs

Now the most important part of the session is going to start

Azure SQL Database Elastic Jobs



<https://learn.microsoft.com/en-us/azure/azure-sql/database/elastic-jobs-overview?view=azuresql>

Azure SQL Database Elastic Jobs

- Azure SQL Database Elastic Jobs is the most complete solution for automation of scheduled activities to be performed on Azure SQL Database
- Nowadays it's in preview, November 2023 refresh
- It runs jobs whose definitions are stored in a "Job database"
- Jobs are T-SQL scripts scheduled to act for a group of Azure SQL databases

When to use Elastic Jobs

- Automate **management tasks** and **schedule** them
- Configure jobs to execute across a **collection** of databases on a recurring basis, such as during off-peak hours
 - This is a significant differentiation from SQL Agent, which cannot dynamically enumerate the target databases, especially in SaaS customer scenarios where databases are added/deleted dynamically
- Collect data for reporting
- Data movement

Azure SQL Database Elastic Jobs

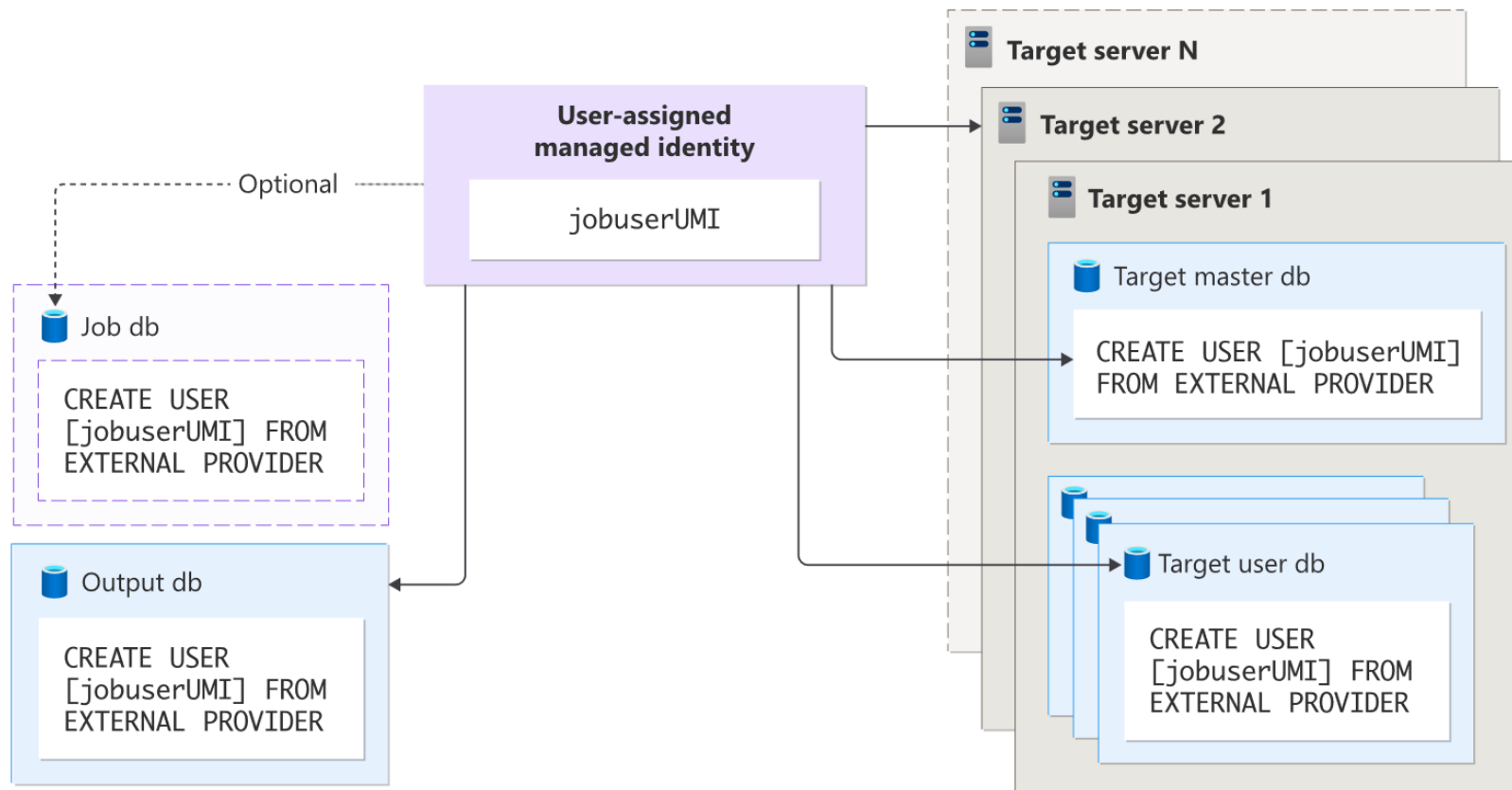
- Main new capabilities added in the November 2023 refresh:
 - Microsoft Entra ID support
 - Service-managed private link support
 - Integration with Azure alerts for job execution status
 - Easily scale job agent's tier to connect to more targets concurrently
 - Azure portal has also been significantly enhanced

- Azure SQL Database Elastic Jobs requires an empty database with service level of “**S1**” or higher hosted in an Azure SQL Database
- This DB is also known as “job database” and it’s like the MSDB for on-premises instance
- The “job database” is used for defining jobs and tracking the status and history of job executions

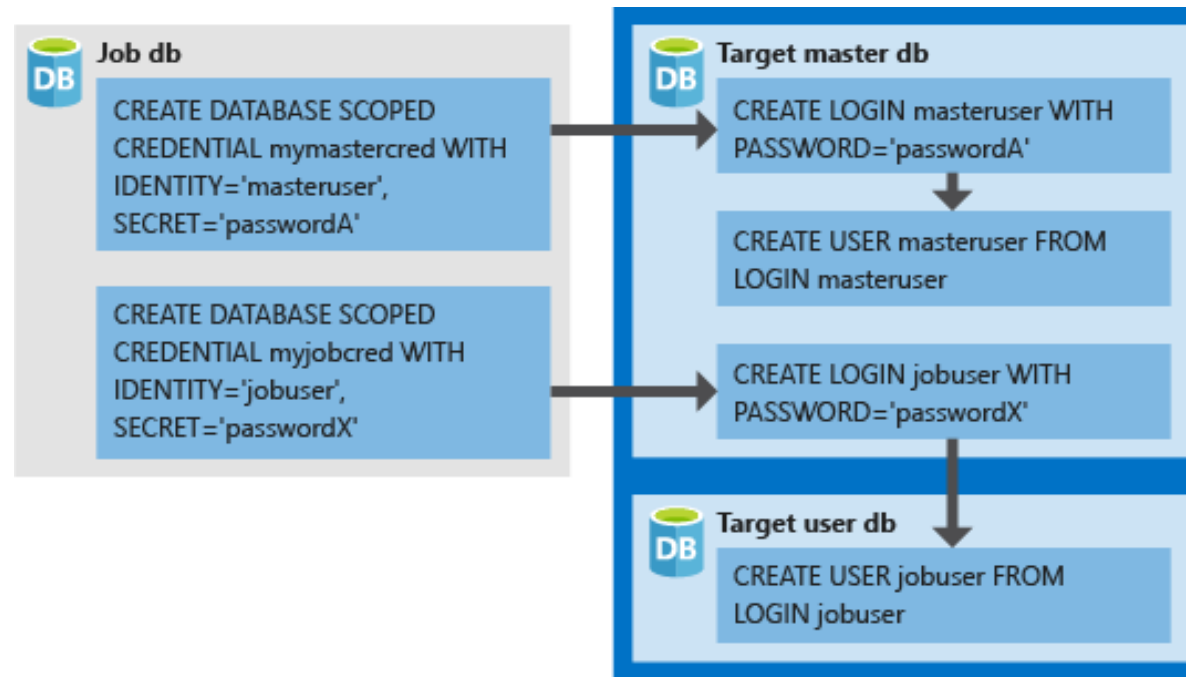
Elastic jobs authentication

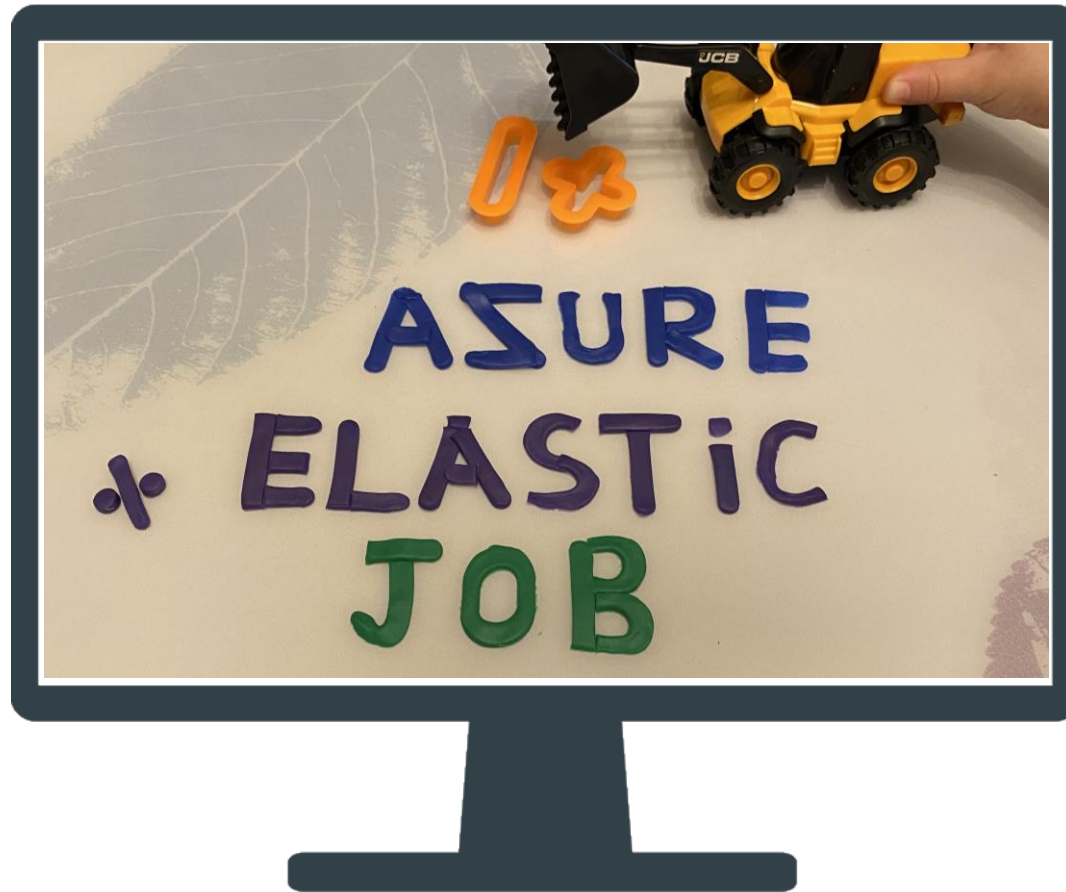
- The elastic job agent can connect to the server(s)/database(s) specified by the target group via two authentication options:
 - Microsoft Entra (formerly Azure Active Directory) authentication with a user-assigned managed identity (UMI) – Recommended option
 - Database-scoped credentials (previously, this was the only method of authentication)

Microsoft Entra authentication with UMI



Authentication via database-scoped credentials





- The elastic job agent remains free during the current preview until General Availability (GA) time⁽¹⁾
- Starting at GA time, Job Agents will be billed based on its selected capacity tier of the Job Agent
- The Azure SQL Database pricing page will also be updated at that time to show the Job Agent prices

⁽¹⁾ GA is expected in Q1 of CY2024

Limitations and availability

- Azure SQL Team is actively working to remove as many limitations as possible 😊
- Anyway, you can refer to the documentation for a list of known limitations, here: <https://aka.ms/EJ-limitations>
- The public preview for Azure SQL Database Elastic Jobs is available in all the regions that Azure SQL Database is available

Summary and Resources

- Database maintenance is an important factor also for Azure SQL
- Azure SQL Database is a PaaS solution, but Microsoft is responsible for the infrastructure and backup management, nothing else
 - Database maintenance is under the DBA responsibility
- Azure SQL Database Elastic Jobs is the most complete solution for automation of scheduled activities to be performed on Azure SQL Database

- [Automate management tasks in Azure SQL](#)
 - [Elastic jobs in Azure SQL Database \(preview\)](#)
 - [Create, configure, and manage elastic jobs \(preview\)](#)
 - [Troubleshooting common issues with Elastic Jobs in Azure SQL Database](#)
-
- Automating Azure SQL Database maintenance tasks (v1)
 - 1º Part: <https://bit.ly/3clqzJE>
 - 2º Part: <https://bit.ly/2wOpJG6>

Q&A

Thanks!