# User-initiated manual failover on SQL Managed Instance

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## Issue

Customer has queries on manually initiating a failover on Managed Instance (this is not related with cross-region failovers on auto-failover groups).

## Investigation/Analysis

### Customer asks

Customer might have queries related to initiating a failover such as:

#### Is it possible to restart an Azure SQL Managed Instance?

Customers might consider executing a manual failover on SQL Managed Instance for some of the following reasons:

- Test application for failover resiliency before deploying to production
- Test end-to-end systems for fault resiliency on automatic failovers
- Test how failover impacts existing database sessions
- Verify if a failover changes end-to-end performance because of changes in the network latency
- In some cases of query performance degradations, manual failover can help mitigate the performance issue.

In such scenarios, customers can initiate a manual failover using PowerShell, Azure CLI or REST API.

**How often/frequently can a Managed Instance be restarted?**

There could be one (1) failover initiated on the same Managed Instance every 15 minutes.

While manual failover is an async operation, getting success message after scheduling this operation doesn't necessarily mean that 15 minutes counter is started at that point in time. 15 minutes counter starts from the moment when after failover instance becomes Ready. For general purpose instances, it is by design that sometimes this failover lasts a little bit more (up to several minutes), because PLB (Placement and Load Balancing) needs to find a new node where the instance should be placed. That causes additional delay of few minutes in certain edge case scenarios.

**Permissions needed to initiate a failover**

User initiating a failover will need to have one of the following Azure RBAC permissions required:

- Subscription Owner role, or
- Managed Instance Contributor role, or
- Custom role with the permission: Microsoft.Sql/managedInstances/failover/action

**Limitations of user-initiated manual failover**

Functional limitations of user-initiated manual failover are:

- There could be one (1) failover initiated on the same Managed Instance every 15 minutes.
- For BC instances there must exist quorum of replicas for the failover request to be accepted.
- For BC instances it is not possible to specify which readable secondary replica to initiate the failover on.
- Failover will not be allowed until the first full backup for a new database is completed by automated backup systems.
- Failover will not be allowed if there exists a database restore in progress.

Review limitations of user-initiated manual failover for the complete list of functional limitations of user-initiated manual failover.

### Investigation from customer side

Customer can get more precise information by querying when SQL Server last started.

Customer can find this out with following query -

```
SELECT sqlserver_start_time FROM sys.dm_os_sys_info
```

**Note:** *sqlserver_start_time* datetime - Specifies the local system date and time SQL Server last started.

## Public Doc Reference

User-initiated manual failover on SQL Managed Instance

## Internal Reference

ICM 223041984

ICM 225015491

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