[FMS] Troubleshoot Single2Flex Migration (Preview Tool)

Last updated by | Abhishek Reddy Kumbham | Mar 3, 2023 at 11:34 AM PST

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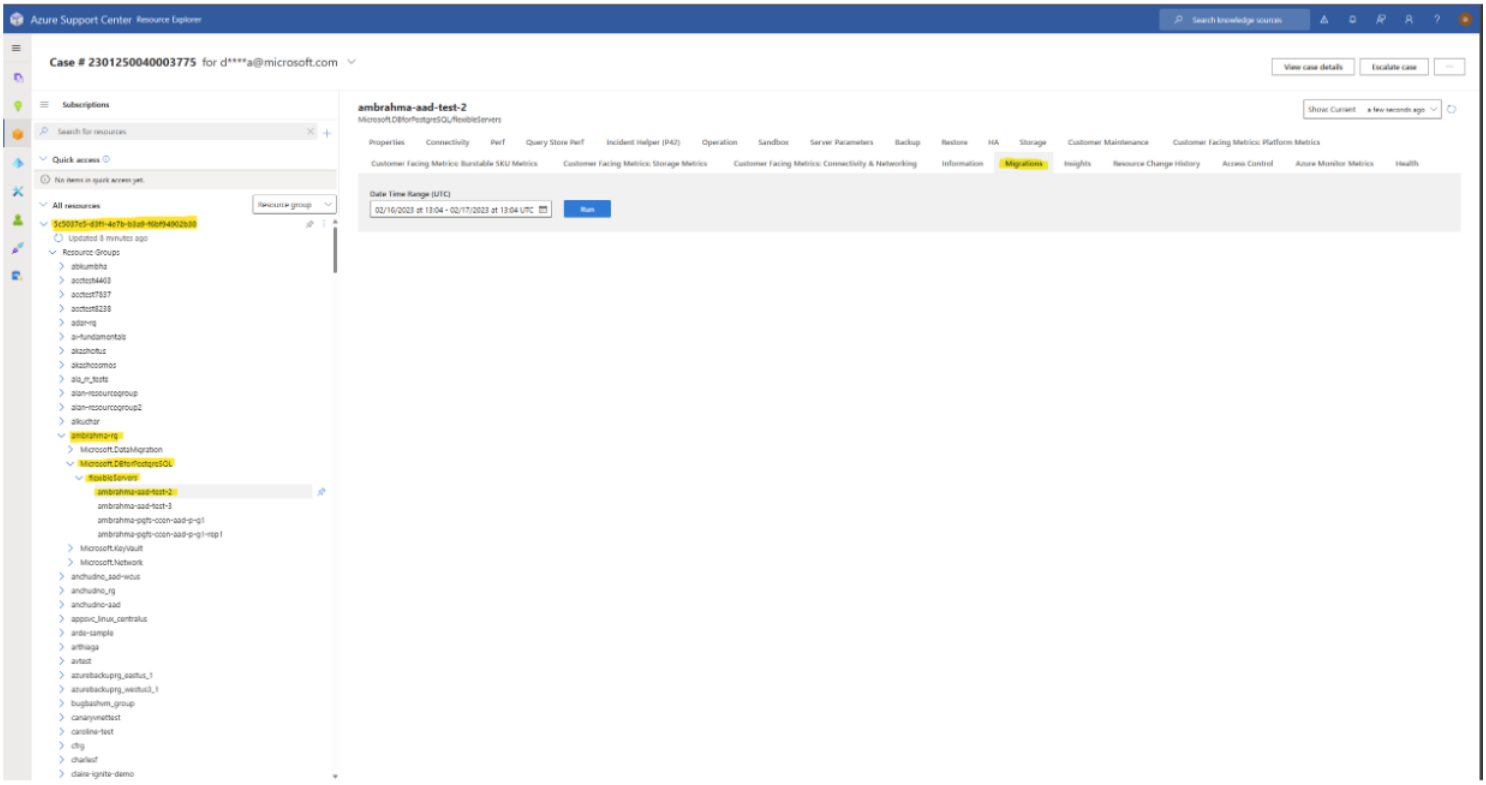
Introduction

What is FMS - https://learn.microsoft.com/azure/postgresql/migrate/concepts-single-to-flexible#single-to-flexible-migration-tool---overview

Step 1: [ASC] Open Migrations tab

1. Migrations tab is available in the flexible server view. navigate using subscription-> <Flexible server resource group> ->Microsoft.DBforPostgreSQL->Flexible server-> <your server name> -> Migrations

For Example, refer the below screenshot.



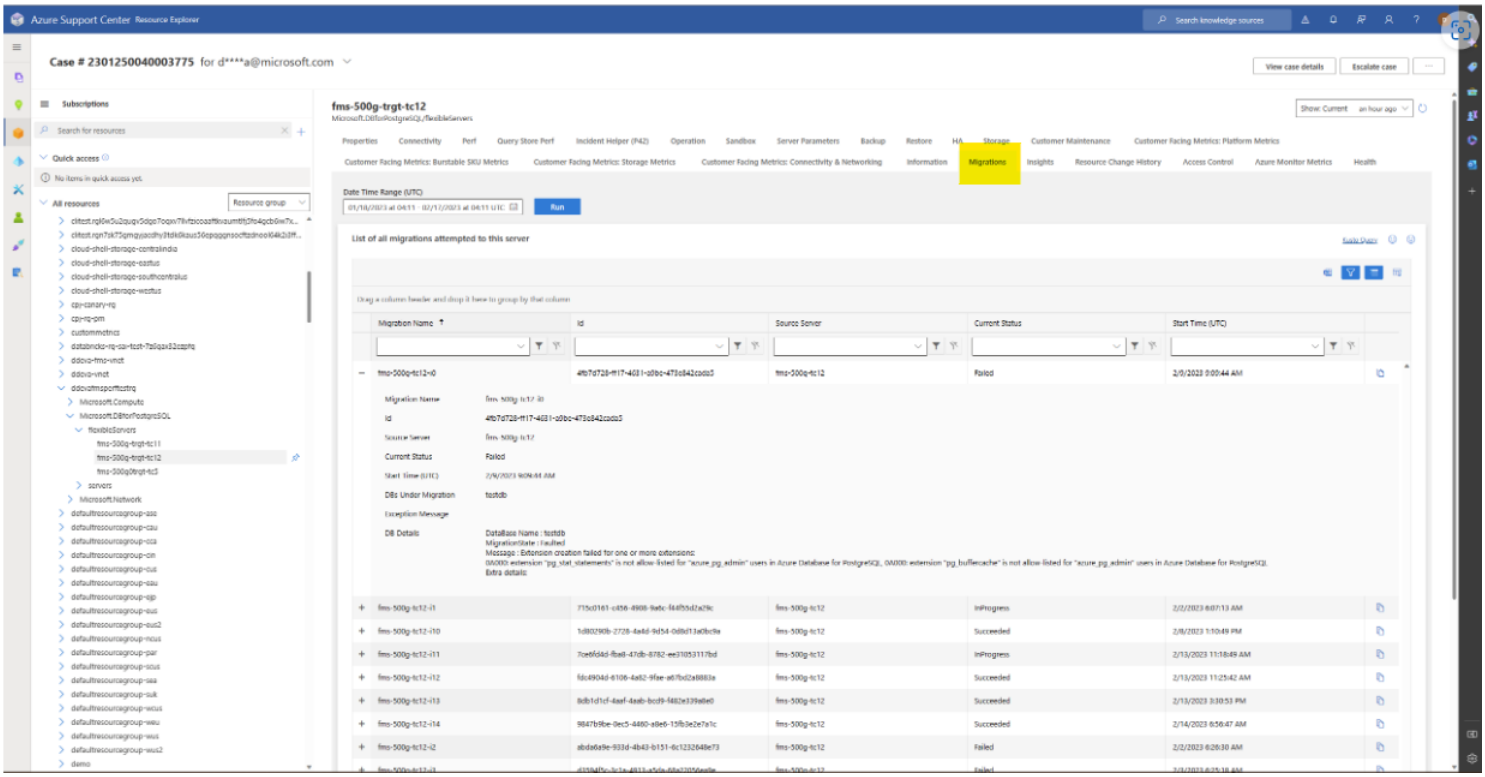
2. Enter the timestamp you are looking for and hit run to fetch the list of all the migrations attempted to that particular flexible server.

Step 2: Debugging a Failed Migration with clear Exception message

To debug a failed migration, you can expand the migration to see the exact error and the reason why it failed. In the below example, migration failed because extensions were not allowlisted on the target flexible server.

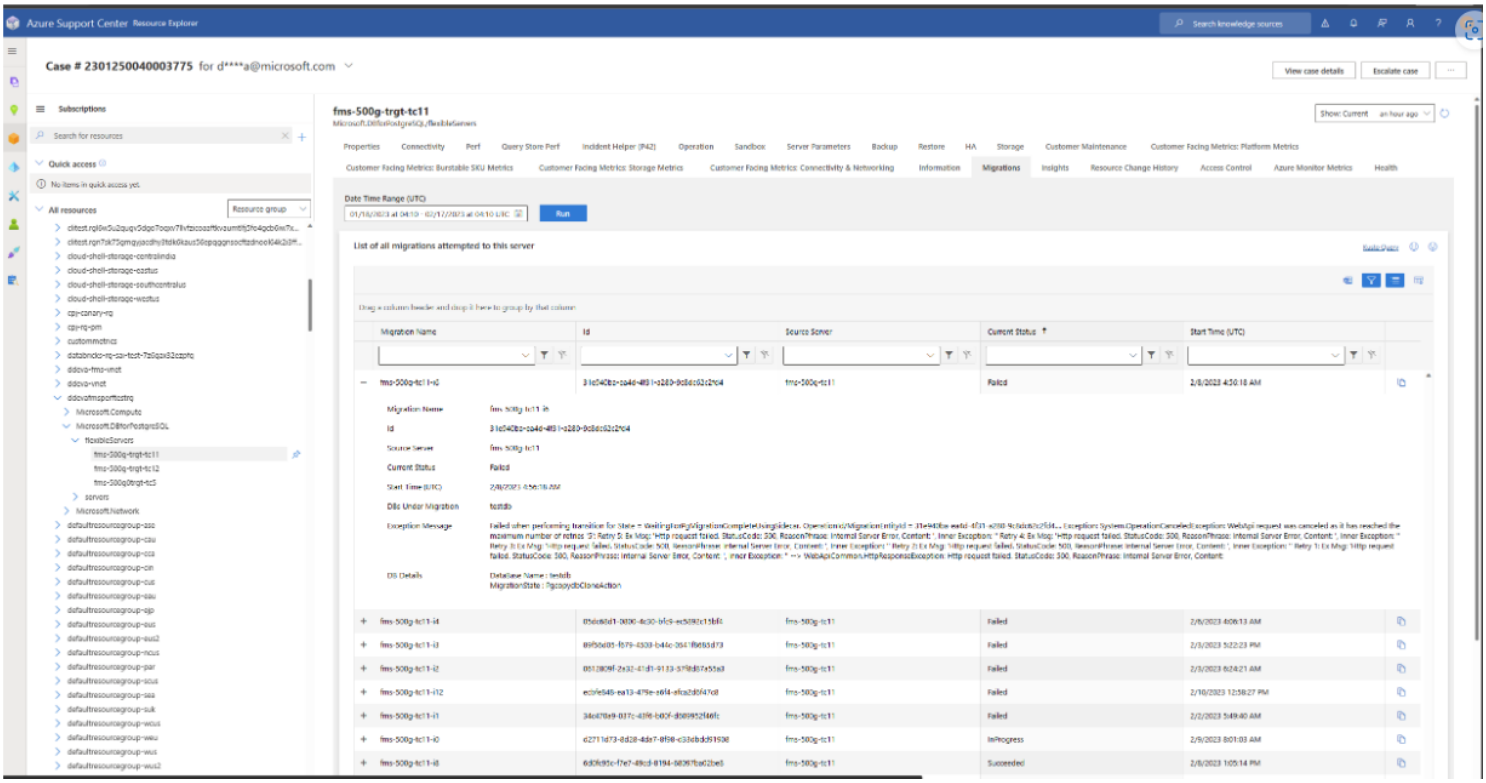
Please Note: Extensions Allowlisting is a pre req which has to be done by the customer (https://learn.microsoft.com/azure/postgresql/migrate/concepts-single-to-flexible#allow-list-required-extensions).

In this case exception message is pretty clear and straight forward and can be acted upon easily by the end-user. This is an example of a scenario where the exception message is pretty clear. This type of scenarios might be - not performing the prerequisites correctly, providing invalid passwords, not performing network related settings correctly etc. Please refer to the official documentation https://learn.microsoft.com/azure/postgresql/migrate/concepts-single-to-flexible#single-to-flexible-migration-tool---overview for tool description and prerequisites.



Step 3: Debugging a Failed Migration without a clear Exception message

1. Open the Migrations tab and get the list of migrations attempted and find the required migration.
2. Expand the migration and make a note of the Id and the start time.

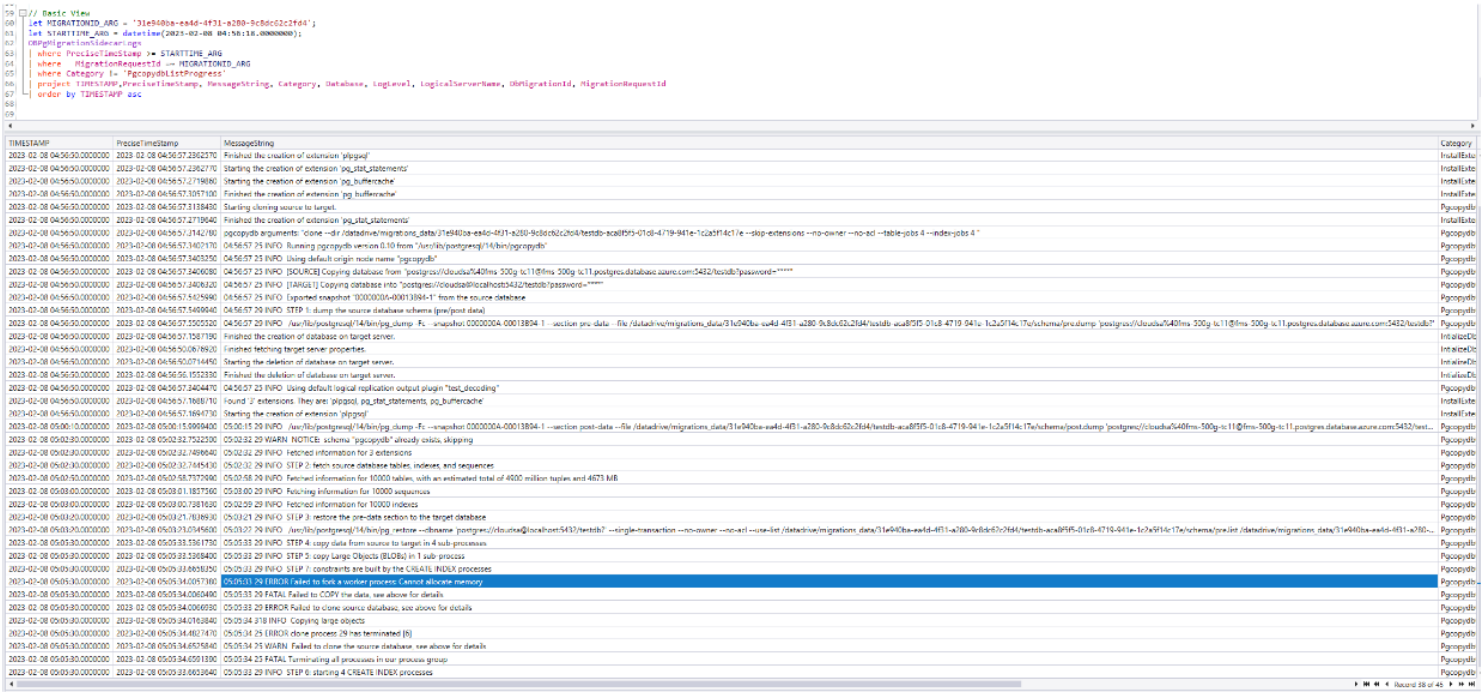


3. Run the below query in kusto to get detailed log message. (Regular kusto endpoints which we use for other flex server issue debugging will work and in case if you need the kusto endpoints they can be imported in to kusto explorer from here kustoendpoints.xml)

NOTE: run the kusto queries on the Kusto cluster of the region in which the flexible server is provisioned.

```
let MIGRATIONID_ARG = '<ID FETCHED FROM asc>';
let STARTTIME_ARG = datetime(start_time);
OBPgMigrationSidecarLogs
| where PreciseTimeStamp >= STARTTIME_ARG
| where   MigrationRequestId =~ MIGRATIONID_ARG
| where Category != 'PgcopydbListProgress'
| project TIMESTAMP,PreciseTimeStamp, MessageString, Category, Database, LogLevel, LogicalServerName, DbMigrat
| order by TIMESTAMP asc
```

In this particular case the exception message is not clear and needs more debugging. As mentioned above, get the id & start time and run the kusto query provided. Scan through the logs to check the progress and look for any failure messages. In this case scanning through the logs, we can see the error message saying **" Failed to fork a worker process: Cannot allocate memory"** and the entire migration process failed. This clearly states there was an out of memory exception. Here we can suggest customer to upgrade to a higher SKU and retry the migration.



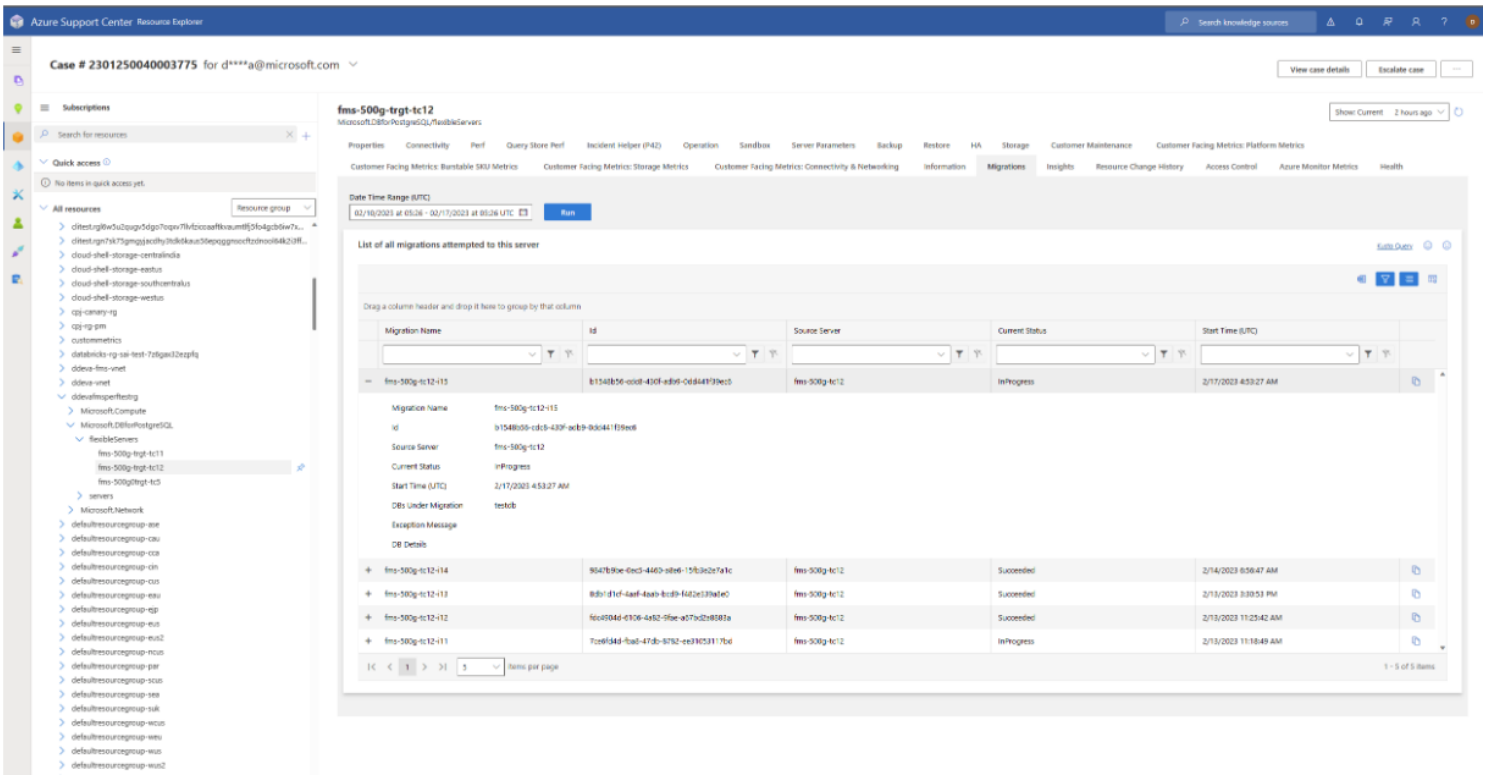
In case of too many log messages to go through one quick way to filter out is to check for "ERROR" or "FATAL" key word in the kusto query. In that case you can use this modified kusto query

```
let MIGRATIONID_ARG = '<ID FETCHED FROM asc>';
let STARTTIME_ARG = datetime(start_time);
OBPgMigrationSidecarLogs
| where PreciseTimeStamp >= STARTTIME_ARG
| where   MigrationRequestId =~ MIGRATIONID_ARG
| where Category != 'PgcopydbListProgress'
| where MessageString has "error" or MessageString has "fatal"
| project TIMESTAMP,PreciseTimeStamp, MessageString, Category, Database, LogLevel, LogicalServerName, DbMigrat
| order by TIMESTAMP asc
```

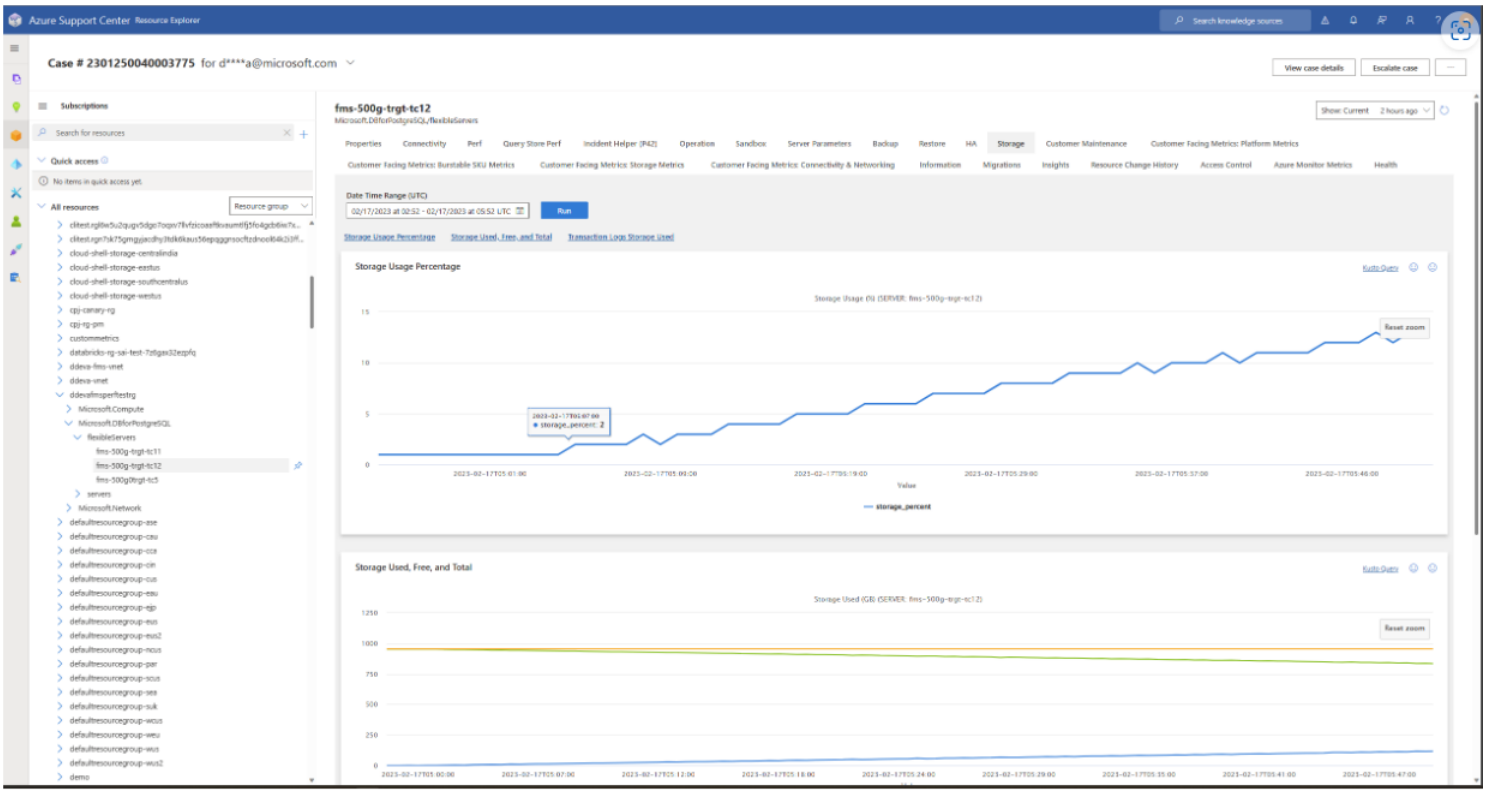
NOTE: there can be many other reasons for failures. We are working on creating specific issue related TSG's.

Step 4: Debugging and Ongoing/Long Running Migrations.

1. Follow the below steps to debug any long running or ongoing migrations similar to the below screenshot.



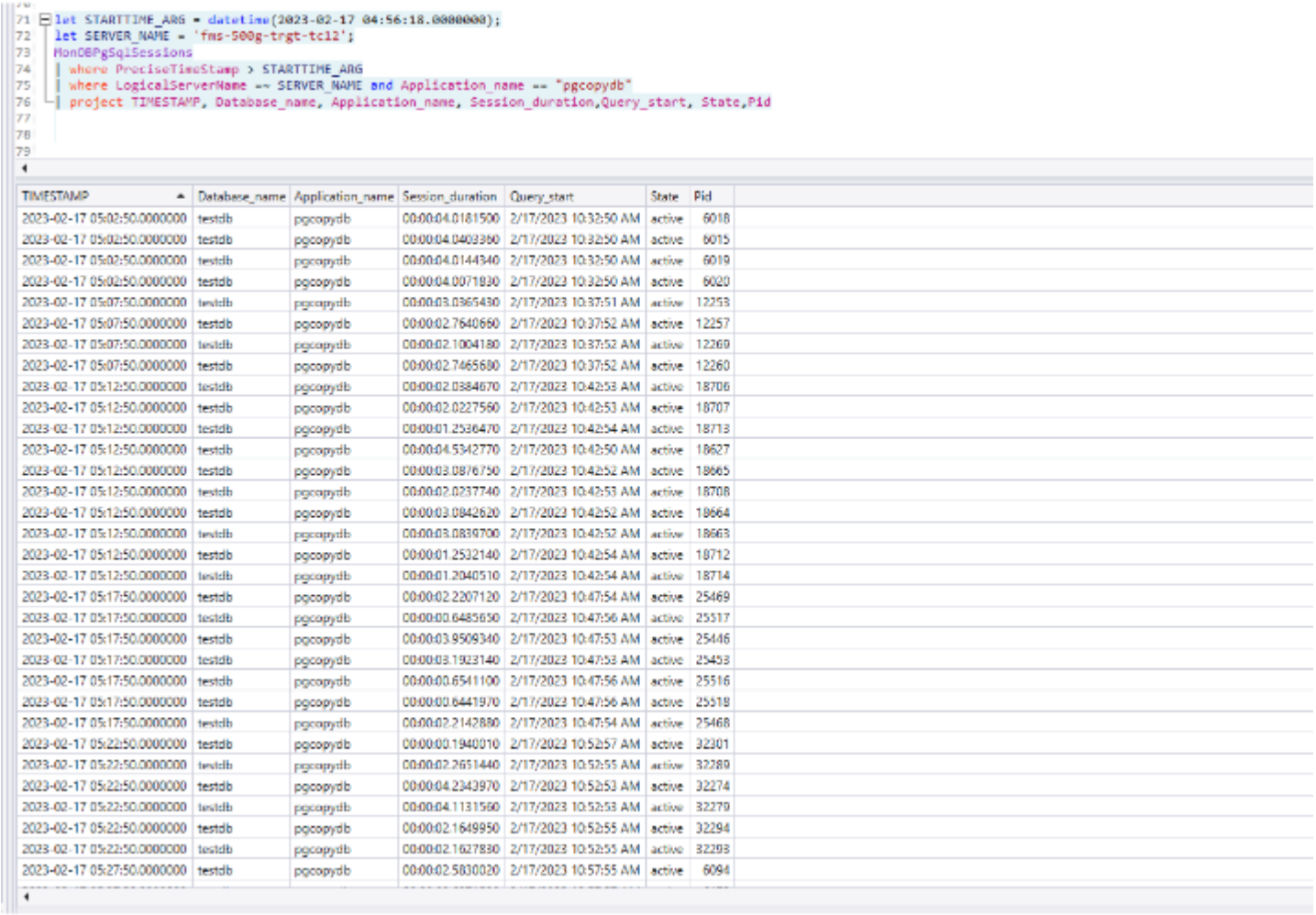
2. Follow the above given steps from the STEP 3 and look for any clear/obvious error message. If there's no error/ exception message, then probably the process is still running but might be taking long time to finish. Confirm the same using the below steps.
3. In the Flexible server look for storage tab and check the storage growth on the flexible server. In this case you can see there is a constant growth in the storage usage of the server and that's because the migration process is actively copying the data from the source single server to the flexible server.



4. Another thing you can check for confirmation is check the active connections. Run the below kusto query to look for active pgcopydb connections.

```
let STARTTIME_ARG = datetime(start_time);
let SERVER_NAME = 'flex_server_name';
MonOBPgSqlSessions
| where PreciseTimeStamp > STARTTIME_ARG
| where LogicalServerName =~ SERVER_NAME and Application_name == "pgcopydb"
| project TIMESTAMP, Database_name, Application_name, Session_duration,Query_start, State,Pid
```

In this case all the **pgcopydb** processes are still active and the process is still going on.



```
let STARTTIME_ARG = datetime(2023-02-17 04:56:18.0000000);
let SERVER_NAME = 'fms-500g-trgt-tc12';
MonOBPgSqlSessions
| where PreciseTimeStamp > STARTTIME_ARG
| where LogicalServerName =~ SERVER_NAME and Application_name == "pgcopydb"
| project TIMESTAMP, Database_name, Application_name, Session_duration,Query_start, State,Pid
```

TIMESTAMP	Database_name	Application_name	Session_duration	Query_start	State	Pid
2023-02-17 05:02:50.0000000	testdb	pgcopydb	00:00:04.0181500	2/17/2023 10:32:50 AM	active	6018
2023-02-17 05:02:50.0000000	testdb	pgcopydb	00:00:04.0403380	2/17/2023 10:32:50 AM	active	6015
2023-02-17 05:02:50.0000000	testdb	pgcopydb	00:00:04.0144340	2/17/2023 10:32:50 AM	active	6019
2023-02-17 05:02:50.0000000	testdb	pgcopydb	00:00:04.0071830	2/17/2023 10:32:50 AM	active	6020
2023-02-17 05:07:50.0000000	testdb	pgcopydb	00:00:03.0365430	2/17/2023 10:37:51 AM	active	12253
2023-02-17 05:07:50.0000000	testdb	pgcopydb	00:00:02.7640660	2/17/2023 10:37:52 AM	active	12257
2023-02-17 05:07:50.0000000	testdb	pgcopydb	00:00:02.1004180	2/17/2023 10:37:52 AM	active	12269
2023-02-17 05:07:50.0000000	testdb	pgcopydb	00:00:02.7465680	2/17/2023 10:37:52 AM	active	12260
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:02.0384670	2/17/2023 10:42:53 AM	active	18706
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:02.0227560	2/17/2023 10:42:53 AM	active	18707
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:01.2536470	2/17/2023 10:42:54 AM	active	18713
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:04.5342770	2/17/2023 10:42:50 AM	active	18627
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:03.0876750	2/17/2023 10:42:52 AM	active	18665
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:02.0237740	2/17/2023 10:42:53 AM	active	18708
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:03.0842620	2/17/2023 10:42:52 AM	active	18664
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:03.0839700	2/17/2023 10:42:52 AM	active	18663
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:01.2532140	2/17/2023 10:42:54 AM	active	18712
2023-02-17 05:12:50.0000000	testdb	pgcopydb	00:00:01.2040510	2/17/2023 10:42:54 AM	active	18714
2023-02-17 05:17:50.0000000	testdb	pgcopydb	00:00:02.2207120	2/17/2023 10:47:54 AM	active	25469
2023-02-17 05:17:50.0000000	testdb	pgcopydb	00:00:00.6485650	2/17/2023 10:47:56 AM	active	25517
2023-02-17 05:17:50.0000000	testdb	pgcopydb	00:00:03.9509340	2/17/2023 10:47:53 AM	active	25446
2023-02-17 05:17:50.0000000	testdb	pgcopydb	00:00:03.1923140	2/17/2023 10:47:53 AM	active	25453
2023-02-17 05:17:50.0000000	testdb	pgcopydb	00:00:00.6541100	2/17/2023 10:47:56 AM	active	25516
2023-02-17 05:17:50.0000000	testdb	pgcopydb	00:00:00.6441970	2/17/2023 10:47:56 AM	active	25518
2023-02-17 05:17:50.0000000	testdb	pgcopydb	00:00:02.2142880	2/17/2023 10:47:54 AM	active	25468
2023-02-17 05:22:50.0000000	testdb	pgcopydb	00:00:00.1940010	2/17/2023 10:52:57 AM	active	32301
2023-02-17 05:22:50.0000000	testdb	pgcopydb	00:00:02.2651440	2/17/2023 10:52:55 AM	active	32289
2023-02-17 05:22:50.0000000	testdb	pgcopydb	00:00:04.2343970	2/17/2023 10:52:53 AM	active	32274
2023-02-17 05:22:50.0000000	testdb	pgcopydb	00:00:04.1131560	2/17/2023 10:52:53 AM	active	32279
2023-02-17 05:22:50.0000000	testdb	pgcopydb	00:00:02.1649950	2/17/2023 10:52:55 AM	active	32294
2023-02-17 05:22:50.0000000	testdb	pgcopydb	00:00:02.1627830	2/17/2023 10:52:55 AM	active	32293
2023-02-17 05:27:50.0000000	testdb	pgcopydb	00:00:02.5030020	2/17/2023 10:57:55 AM	active	6094

From these steps we can confirm that the process is still active and migration is progressing

If you find any issues in these steps raise an Icm.