

# Code Package Versions and Primary Node History

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## Code version and primary node history

This is a "How To" TSG that helps you with identifying the deployment and failover history for a database.

## Issue

When troubleshooting performance, you may have to find out if the start of the issue correlated with a SQL instance failover and/or if the software components have been changed at that time. The following steps will provide you this information.

The important details are:

- Primary node history with first appearance time and last appearance time
- Code version (to see if upgrade has occurred)
- If there was any "B" instance created ("B" instance has AppName starting b-"
- All secondary nodes, if the database was a Premium or Business Critical SLO

Note: Multiple appearances of primary nodes means there was failover. Multiple appears of code version means there was upgrade or downgrade.

## Option 1: Run the troubleshooter in ASC

Relevant information regarding maintenance, scaling and failovers can be found on the following pages:

- [Properties - Database Info - Historical App Names](#)
- [Properties - Health Properties](#)
- [Properties - Database State and SLO History](#)
- [Downtime Reasons - Login Outages due to Failover](#)
- [Downtime Reasons - Database Failovers](#)
- [Downtime Reasons \(several other options indicating HADR and health issues\)](#)
- [Provisioning - Operations and Database CRUD](#)

## Option 2: Kusto queries and the telemetry

## Notes:

- The output is ordered by the time of first appearance of the primary node, as captured in MonDmDbHadrReplicaStates.
- If you see multiple entries, it means a failover has occurred (unless someone created a "b" instance which has "b-" in the AppName)
- Columns:
  - PrimaryNodeFirstAppearTime : First time the primary node appeared in MonDmDbHadrReplicaStates.
  - PrimaryNodeLastAppearTime : Last time the primary node appeared in MonDmDbHadrReplicaStates
  - code\_package\_version : Version of the SQL code package. If you see a version change, it means that a platform deployment either upgraded or downgraded the code.
  - PrimaryNodeName : If you see a NodeName change, it indicates a maintenance or an unplanned failover. If the code\_package\_version changed as well, then it confirms the maintenance; if code\_package\_version remains the same, it could still be related to maintenance (moving the database off the node before upgrading the node). Confirm the failover reason in ASC's "Downtime Reasons" page.
  - AppName : if you see an AppName change, it means there was an SLO change.

```
let srv = "weholger1";
let db = "AdventureWorks";
let startTime = datetime(2022-10-19 04:00:00Z);
let endTime = datetime(2022-11-21 23:00:00Z);
let timeRange = ago(7d);
MonDmDbHadrReplicaStates
| where TIMESTAMP >= startTime
| where TIMESTAMP <= endTime
//| where TIMESTAMP >= timeRange
| where LogicalServerName =~ srv
| where logical_database_name =~ db
| where is_primary_replica == 1
| where AppName notcontains "b-"
| order by TIMESTAMP asc nulls first
| serialize
| extend prevNodeName=prev(NodeName)
| extend nextNodeName = next(NodeName)
| extend isFirst= (NodeName != prevNodeName)
| extend isLast=(NodeName != nextNodeName)
| where isFirst == true or isLast == true
| extend EndTime=next(TIMESTAMP)
| extend StartTime=TIMESTAMP
| where isFirst ==true
| extend PrimaryNodeName = NodeName, PrimaryNodeFirstAppearTime = StartTime, PrimaryNodeLastAppearTime = EndTi
| project LogicalServerName, logical_database_name, PrimaryNodeName, AppName, code_package_version, PrimaryNod
```



## Sample output:

LogicalServerName	logical_database_name	PrimaryNodeName	AppName	code_package_v
weholgerl	AdventureWorks	_DB_31	db8a1f6e97d3	16.0.816.214-Rel a71a19c5
weholgerl	AdventureWorks	_DB_7	e102fa8b3998	16.0.816.214-Rel 6c5ba342
weholgerl	AdventureWorks	_DB_29	e102fa8b3998	16.0.816.214-Rel 6c5ba342
weholgerl	AdventureWorks	_DB_11	e102fa8b3998	16.0.816.214-Rel 6c5ba342
weholgerl	AdventureWorks	_DB_25	e102fa8b3998	16.0.816.9217-Rel 6b717285
weholgerl	AdventureWorks	_DB_29	afa58fb561b5	16.0.816.9217-Rel 083476a0
weholgerl	AdventureWorks	DB.63	d1af8f994b6b	16.0.816.9217-Rel 6b717285
weholgerl	AdventureWorks	_DB_53	ee0dc01815f3	16.0.816.9217-Rel 083476a0
weholgerl	AdventureWorks	_DB_7	b65151965651	16.0.816.9217-Rel 6b717285
weholgerl	AdventureWorks	_DB_46	b65151965651	16.0.816.20229 RelDB-06a9ebf.

Variation based on a different Kusto table - note how the start and end times are slightly differing:

```

let srv = "weholger1";
let db = "AdventureWorks";
let startTime = datetime(2022-10-19 04:00:00Z);
let endTime = datetime(2022-11-21 23:00:00Z);
let timeRange = ago(7d);
MonDmRealTimeResourceStats
| where TIMESTAMP >= startTime
| where TIMESTAMP <= endTime
//| where TIMESTAMP >= timeRange
| where LogicalServerName =~ srv
| where database_name =~ db
| summarize min(TIMESTAMP), max(TIMESTAMP) by LogicalServerName, database_name, AppName, NodeName, code_package_version
| order by min_TIMESTAMP asc

```

**Sample output:**

LogicalServerName	database_name	NodeName	AppName	code_package_version	mirrored_timestamp
weholger1	AdventureWorks	_DB_7	e102fa8b3998	16.0.816.214-RelDB-d277dadf	2022-10-19 08:00:00Z
weholger1	AdventureWorks	_DB_29	e102fa8b3998	16.0.816.214-RelDB-d277dadf	2022-10-19 16:00:00Z
weholger1	AdventureWorks	_DB_11	e102fa8b3998	16.0.816.214-RelDB-d277dadf	2022-10-19 23:00:00Z
weholger1	AdventureWorks	_DB_25	e102fa8b3998	16.0.816.9217-DB-36d0e8d0	2022-10-22 00:00:00Z
weholger1	AdventureWorks	_DB_29	afa58fb561b5	16.0.816.9217-DB-b70f4a52	2022-10-27 00:00:00Z
weholger1	AdventureWorks	DB.63	d1af8f994b6b	16.0.816.9217-DB-36d0e8d0	2022-10-23 00:00:00Z
weholger1	AdventureWorks	_DB_53	ee0dc01815f3	16.0.816.9217-DB-b70f4a52	2022-10-29 00:00:00Z
weholger1	AdventureWorks	_DB_7	b65151965651	16.0.816.9217-DB-36d0e8d0	2022-10-14 00:00:00Z
weholger1	AdventureWorks	_DB_46	b65151965651	16.0.816.9217-DB-36d0e8d0	2022-10-08 00:00:00Z

**How good have you found this content?**

