

# Troubleshoot HA cases

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## How to start Troubleshooting HA issues:

As a first step we highly recommend to review our [Availability TSG](#) to see if any environment issues triggered and caused a problem.

1. **orcasmbrdrth\orcasmbrdrth servers.xts** enter server name and see what operation going the server.
2. **fspg\meru19 fspg - ha.xts** enter server name and select date range for director replication set related data like state (Quorum), Isn moving or not, actor logs, pg logs and replication slots....
3. Current issue happening on the server may be due to previous operations on the server.  
**orcasmbrdrth\orcasmbrdrth crud.xts** - select date range. once results displayed, filter by server name to find the all operations happened on the server.
4. If you noticed any operation failed or in-progress operation stuck. Take request id and see logs

```
MonOrcasBreadthRp
| where request_id =~ "00A89B69-95EE-4750-98E0-D5BD3573E3F7"
//| where message !contains "CertificateValidator"
| project originalEventTimestamp, state_machine_type, ['state'], old_state, new_state, message, stack_trace, e
| order by originalEventTimestamp asc

// Summary of FSMs; Just use this for request id
MonOrcasBreadthRp
| where request_id =~ "D160A362-C393-4BDA-B74F-3F4E4C49DB22"
| project originalEventTimestamp, event, fsm_instance_id, state_machine_type, ['state'], old_state, new_state,
| where isnoteempty(fsm_instance_id)
| summarize min_ts = min(originalEventTimestamp), max_ts = max(originalEventTimestamp), terminal_state = anyif
| project max_ts, min_ts, max_ts - min_ts, fsm_instance_id, state_machine_type, terminal_state
| order by min_ts asc
```

5. Check vmagent or side car logs for standby and primary server to see what api operation failing. example, get latest Isn and check health form director failing or failover stuck due to vmagent call failure. (Use issue timelines in PreciseTimeStamp to get precise logs)

```
OBvmagentsidecarpgsql
```

```
| where PreciseTimeStamp > datetime(2022-01-25 05:07:17.0871477)
| where PreciseTimeStamp < datetime(2022-01-25 05:09:17.0871477)
| where VirtualMachineName == "d1c933235f1d"
| project PreciseTimeStamp, MessageString, VirtualMachineName
| order by PreciseTimeStamp asc
```

```
OBvmagentlog
```

```
| where PreciseTimeStamp > datetime(2022-01-16 04:57:10.5041855)
| where PreciseTimeStamp < datetime(2022-01-21 05:05:10.5041855)
| where VirtualMachineName == "b25111048618"
| project PreciseTimeStamp, container_id, container_name, MessageString, MsftRequestId
| order by PreciseTimeStamp asc
```

6. If issue is wal replica, check wal replica logs and vmagent logs on wal server node. In below query 'VirtualMachineName' is wal server node virtual machine name. You can find the fspg\meru19 fspg - ha.xts

The screenshot displays the 'Replication Slots Status' window in SQL Server Enterprise Manager. The 'WalReplica' section shows a list of replicas with the following data:

wal_replica_name	virtual_machine_name	state	id	orcas_instance_id
flexpgbouncer1-wtwv	b25111048618	Registered	282976	bd419963-4ddc
flexpgbouncer1-qqqm	d8a890f86af8	Dropped	75771	d07d924a-60ca
flexpgbouncer1-jezv	a9febb2699b	Dropped	133255	b9782ca7-aa39
flexpgbouncer1-rwlr	b39970ec4fd2	Dropped	163393	7993ab7b-6e73
flexpgbouncer1-lapx	b39970ec4fd2	Dropped	163393	7993ab7b-6e73

The 'Entity Actors' section shows a list of actors with the following data:

id	director_app_id	actor_type_id	interval_in_seconds	is_enabled	status
10817	52	11	10	true	Registr
10818	52	12	1200	true	Registr

The 'HaHealthActor Graph' section shows a line graph of health checks over time, with a legend indicating: WalReplica : flexpgbouncer1-wtwv (checked), Standby : flexpgbouncer1 (checked), and Primary : flexpgbouncer1 (checked).

```
MonOBPGWalReplica
```

```
| where PreciseTimeStamp < datetime(2022-01-21 03:50:10.5088094)
| where PreciseTimeStamp < datetime(2022-01-17 06:10:10.5088094)
| where VirtualMachineName == "b25111048618" // Wal server node VM
| where container_name contains "pzbdcih02-bzsr" // Wal replica name
| project PreciseTimeStamp, MessageString, container_name, container_id
| order by PreciseTimeStamp asc
```

```
OBvmagentlog
```

```
| where PreciseTimeStamp > datetime(2022-01-16 04:57:10.5041855)
| where PreciseTimeStamp < datetime(2022-01-21 05:05:10.5041855)
| where VirtualMachineName == "b25111048618" // Wal server node VM
| project PreciseTimeStamp, container_id, container_name, MessageString, MsftRequestId
| order by PreciseTimeStamp asc
```

7. Check PG instance on standby or wal replica on wal server node healthy or not

```
Invoke-OrcasBreadthExecuteScriptWithRunCommand -OrcasInstanceId "standby orcas instance id" -AzureVmRunComman
```

```
Invoke-OrcasBreadthExecuteScriptWithRunCommand -OrcasInstanceId "wal server node orcas instance id" -AzureVmR
```

Or you can use our [Geneva Actions TSG](#) 

8. Check MonPgLogs to find PG instance issue. For wal replica see MonOBPgWalReplica logs to find wal replica issue.

MonPgLogs

```
| where PreciseTimeStamp > ago(1h)
| where VirtualMachineName == "e49dd4ec8d38" // Standby VM
| order by PreciseTimeStamp asc
| project PreciseTimeStamp, message_id
```

MonOBPgWalReplica

```
| where PreciseTimeStamp < datetime(2022-01-21 03:50:10.5088094)
| where PreciseTimeStamp < datetime(2022-01-17 06:10:10.5088094)
| where VirtualMachineName == "b25111048618" // Wal server node VM
| where container_name contains "pzbdciih02-bzsr" // Wal replica name
| project PreciseTimeStamp, MessageString, container_name, container_id
| order by PreciseTimeStamp asc
```

9. To find the why failover happened. Check **HaHealthActor** logs. or fspg\meru19 fspg - ha.xts - 'Ha health actor logs'

MonOBDirectorV2ActorEvents

```
| where originalEventTimestamp > ago(1h)
//| where originalEventTimestamp > datetime(2022-01-25 17:10:18.2095386)
//| where originalEventTimestamp < datetime(2022-01-25 17:15:18.2095386)
| where ServerName == "ReplicationSet-1fc7423d-e14b-47ba-b51f-c3b0df9e2d74" or ServerName contains "carrierwav
| where ActorName == "HaHealthActor"
| project originalEventTimestamp, ReplicationRole, Message, StackTrace, ActorName, ServerName, VirtualMachineNa
| order by originalEventTimestamp asc
```

```

where originalEventTimestamp > ago(1h)
// where originalEventTimestamp > datetime(2022-01-25 17:10:18.2095386)
// where originalEventTimestamp < datetime(2022-01-25 17:15:18.2095386)
where ServerName == "ReplicationSet-1fc7423d-e14b-47ba-b51f-c3b0df9e2d74" or ServerName contains "carrierwave"
where ActorName == "HaHealthActor"
project originalEventTimestamp, ReplicationRole, Message, StackTrace, ActorName, ServerName, VirtualMachineName
order by originalEventTimestamp asc

```

originalEventTimestamp	ReplicationRole	Message
2022-02-08 17:37:27.6581090		SERVICE ENGINE [EntityLongRunning] - RUNNING : Actor HaHealthActor for Server Id 1689
2022-02-08 17:37:28.1097638	Unknown	Rehydrate replica states: (orcasInstanceId:77828556-5da2-4c7e-8976-b66926064aab replicationRole:WalReplica epoch:16 roleState:Healthy lastStateUpdateTime:11/17/2021 1:38:03
2022-02-08 17:37:28.1177327	Primary	Getting health report from vmagent. serverMetadata.OriginalPrimaryServerName=carrierwave, serverMetadata.VirtualMachineName=ad1c99b4178a, serverMetadata.ReplicationSe
2022-02-08 17:37:28.1185202	Standby	Getting health report from vmagent. serverMetadata.OriginalPrimaryServerName=carrierwave, serverMetadata.VirtualMachineName=cabee5b1aa28, serverMetadata.ReplicationSe
2022-02-08 17:37:28.1665401	WalReplica	Request api/Health/WalReplica/carrierwave-yuoo/120
2022-02-08 17:37:28.3800772	Standby	Succeeded to get health report from vmagent. serverMetadata.OriginalPrimaryServerName=carrierwave, serverMetadata.VirtualMachineName=cabee5b1aa28, serverMetadata.Rep
2022-02-08 17:37:28.3809798	Standby	Server Healthy: True, HealthReport: ("DbStatus":"healthy","ContainerStatus":"running","ContainerHealthStatus":"healthy","ContainerHealthFailingStreak":0,"ContainerOOMKilled":fals
2022-02-08 17:37:28.3929088	WalReplica	WalReplica Healthy: True, HealthReport: ("DbStatus":"unhealthy","ContainerStatus":"running","ContainerHealthStatus":"unknown","ContainerHealthFailingStreak":0,"ContainerOOMK
2022-02-08 17:37:28.4307975	Primary	Succeeded to get health report from vmagent. serverMetadata.OriginalPrimaryServerName=carrierwave, serverMetadata.VirtualMachineName=ad1c99b4178a, serverMetadata.Rep
2022-02-08 17:37:28.4317003	Primary	Server Healthy: True, HealthReport: ("DbStatus":"healthy","ContainerStatus":"running","ContainerHealthStatus":"healthy","ContainerHealthFailingStreak":0,"ContainerOOMKilled":fals
2022-02-08 17:37:28.4503207	Primary	Sending request to api/Db/Health/PgBouncerReport
2022-02-08 17:37:28.5153732	Primary	PgBouncer disabled. response.StatusCode=OK, response.ReasonPhrase=OK, Milliseconds=62.4976.
2022-02-08 17:37:28.5172760		SERVICE ENGINE [EntityLongRunning] - COMPLETED : Actor HaHealthActor for Server Id 1689

**HaHealthActor runs every 10 secs. Message with "Rehydrate replica states"** gives idea on what is the state of replicas (primary, standby and wal replica) every 10 secs. This gives good idea on when failover happened and different states of failover on director side.

#### 10. Review HA Connectivity Dashboard -

[https://portal.microsoftgeneva.com/dashboard/MicrosoftDBForPGFlexProd/VNet/HA Connectivity](https://portal.microsoftgeneva.com/dashboard/MicrosoftDBForPGFlexProd/VNet/HA%20Connectivity) this dashboard will monitor the connectivity of :

- Standby to Primary
- WalReplica to Primary
- WalReplica to Standby

#### 11. Sometime upgrades causes the issues. Check **orcasbreadth\orcasbreadth upgrades.xts**, search by server name to find any recent upgrade happened or not and with timelines you can find issue happening after upgrade or not.

#### 12. In VNET integrated server, make sure the customer meet this requirement if any NSG exists, review this TSG [HA Provisioning failed - NSG Rules](#)