Framework Deployment Guide

Framework Database Replication for Database Recovery Using MS SQL Cluster with AlwaysOn

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This section describes the configuration of a Disaster Recovery / Business Continuity architecture, as described in Disaster Recovery / Business Continuity. The configuration is based on the MS Failover Cluster and MS SQL AlwaysOn software.

> **Important**
>
> This page is not a step-by-step guide. It is a description of reference architecture; it tells you what components are needed and where. A customer can copy a file (on Linux), create an image of their entire Virtual Machine and clone it (this is the recommended way, keeping in mind the complexity of the Disaster Recovery architecture and the number of components involved), or deploy each additional installation package individually and adjust the resulting configuration (since each installation package can alter aspects of configuration objects, such as changing startup paths).

Operation

System Startup Procedure and Normal Operating Mode

If Configuration and Log databases have not been added to the AlwaysOn High Availability Group, complete step 2 of the procedure Configuration for MS SQL Replication Processes, “Add Configuration and Log Databases to AlwaysOn High Availability Group”.

1. Check database status.
   - All databases at the primary node have status “Synchronized”.
   - All databases at the secondary node have status “Synchronizing”.
   - The Availability Replicas folder shows status at Node 1 “Primary” and Node 2 “Secondary”.
   - The Availability Databases folder shows the data moving icon as a “green arrow” for all databases.

   At this point, the database system is ready for normal operation.

2. Start the system.

   a. Launch the main live Master Configuration Server primary/backup pair at Site 1.

b. Launch the main live Master Solution Control Server to control the main Master Configuration Server pair at Site 1.

c. Launch the main Message Server at Site 1 to support communications for Solution Control Servers controlling site components.

d. Launch Solution Control Server at Sites 1 and 2.

e. Using Solution Control Server, start the Configuration Server Proxy pair at Sites 1 and 2.

f. Using Solution Control Server, start the Framework site components.

At this point Site 1 and Site 2 systems are ready for normal operation.

Disaster Recovery Switchover

At this point, all system components residing at Host 2 are lost and not running:

- Main live Master Configuration Server primary/backup pair
- Main live Master Solution Control Server
- Main Message Server at Site 1
- MS SQL database

Perform the following steps to move activity to the secondary live Master Configuration Server primary/backup pair.

1. Switch MSSQL replication processes over to the secondary site.

a. Check the Availability Groups status: Availability Replicas Node 1 has the question mark and Node 2 shows status “Resolving”. Databases shows status “Not Synchronizing”.

b. Start the Failover wizard by right-clicking the Availability Group object at Node 2 (Primary) in the Availability Groups folder.

c. Select Node 2 as new Primary replica.

d. Confirm potential data loss.

e. Observe Failover wizard completion results to ensure there are no errors. Check the Availability Replicas Nodes status: Node 2 is Primary and Node 1 is Secondary.

At this point, the Secondary database is ready for operation in failover mode.

2. Start the system in failover mode.

a. Launch the secondary live Master Configuration Server primary/backup pair at Site 2.

b. Launch the secondary live Master Solution Control Server to control the main Master Configuration Server pair at Site 2.

c. Launch the secondary Message Server at Site 2 to support communication for Solution Control Servers controlling site components.

Configuration Server Proxies have reconnected to the secondary live Master Configuration Server primary/backup pair and resume

normal operation.

Switching Back to Normal Operating Mode

1. Stop the secondary Message Server at Site 2.
2. Stop the secondary live Master Solution Control Server at Site 2.
3. Stop the secondary live Master Configuration Server primary/backup pair at Site 2.
4. Back up the Configuration and Log databases at Node 2.
5. Start MS SQL Server at Node 1.
6. Switch the MS SQL replication processes back to the original primary.

   At this point we assume that MS SQL server at Node 1 is restored and running with existing Configuration and Log Message Server databases that have outdated configuration data. If databases are lost, complete the procedure Configuration of MS SQL Replication Processes.

   a. Check if the Availability Replicas folder has listed Node 1 running as Secondary. Configuration and Log databases at Node 2 have “Synchronized” status, and Configuration and Log databases at Node 1 have “Not Synchronizing” status.

   b. Start the Resume Data Movement procedure (right-click and select it from the context menu) for Configuration and Log databases at Node 1.

   c. Wait until data move starts and the databases statuses are changed to “Synchronized” at Node 2 and “Synchronizing” at Node 1. You might have to refresh your display to see that the database status has changed. Then, start the Failover Wizard (right-click the Availability Groups object and select it from the context menu).

   d. Change Availability Mode to “Synchronous” in the Availability Group object property page.

   e. Check if Configuration and Log databases statuses are “Synchronized” at Node 2 and “Synchronizing” at Node 1. Then, start the Failover Wizard.

   f. Connect to the Availability Replica at Node 1.

   g. Ensure that the Summary contains the correct information. Click **Finish** and watch the Progress. Check to ensure there are no errors in the results.

   h. Change the Availability Mode to “Asynchronous” on the Availability Group object property page. Wait until the Configuration database at Primary node 1 has status “Synchronized” and the database at secondary Node 2 has status “Synchronizing”.

   i. Start the system in normal operating mode (Step 1, above).

Configuration Example

At this point we assume that AlwaysOn High Availability Group is configured. AlwaysOn High Availability Group listener has no port range set.

Configuration for MS SQL Replication Processes

1. Using the initialization scripts in the Installation Package, create the database objects for the Configuration and Log Message Server databases at Node 1.

2. Add the Configuration and Log Message Server Databases to the AlwaysOn High Availability Group.

a. Start the Add Database Wizard to add the Configuration Database to the AlwaysOn High Availability Group.

b. Select the Configuration Database from the database list.

c. Select the initial data synchronization mode “Full” and point to the shared location accessible from both nodes.

d. Connect to the second node using the Domain user account.

e. Check if the Validation pass and Summary have accurate information. Click Next on Validation and Summary pages. Check the Results page to ensure there are no errors and the Configuration Database shows the “Restoring…” status.

f. Wait until the Configuration Database at the Primary node shows status “Synchronized” and the database at the secondary node has status “Synchronizing”. You might have to refresh your display to see the change in database status.

g. Repeat Steps a-f for Log Message Server databases for Sites 1 and 2.

Configuration of Genesys Components

1. Install the main live Master Configuration Server primary/backup pair at Site 1.

2. Install the secondary dormant Configuration Server primary/backup pair at Site 2.

3. Launch the main live Master Configuration Server primary/backup pair at Site 1.

4. Using Genesys Administrator connected to the Primary Master Configuration Server at Site 1, configure Master Solution Control Server, Message Server for distributed SCS, and Backup Master Configuration Server.

5. Install Master Solution Control Server, Message Server for distributed SCS, and Master Backup Configuration Server on Site 1.

6. Copy Master Solution Control Server, Message Server for distributed SCS, and Master Backup Configuration Server working directories to Site 2.

7. Launch Master Solution Control Server and Message Server for distributed SCS.

8. Using Genesys Administrator connected to the Primary Master Configuration Server at Site 1, configure and install Configuration Server Proxies, Solution Control Servers, and Message Servers for network logging for Sites 1 and 2.

9. Start Configuration Server Proxies at Sites 1 and 2.

10. Start Solution Control Servers at Sites 1 and 2.

11. Start Message Servers for network logging at Sites 1 and 2.

12. Install Framework Components at Site 1 using the Configuration Server Proxy host and port at Site 1.

13. Install Framework Components at Site 2 using the Configuration Server Proxy host and port at Site 2.