# Send alert by Email after Failover event

## First of all, is needed to configure database mail

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| Configuration of the profile in Database mail |

## Send an email once occurs a Failover Event

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| General Tab Error number 1480 (also called Replication Database Role Change), referenced above, represents information that the FCI database failed to change its expected role during the failover process or, in other words, the switching was unsuccessful due to unavailability of the particular database   Responses tab  Options Tab |

## Checking Synchronization of the databases

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| SELECT database\_name,  is\_failover\_ready  FROM sys.dm\_hadr\_database\_replica\_cluster\_states  WHERE replica\_id IN (  SELECT replica\_id  FROM sys.dm\_hadr\_availability\_replica\_states  )  *The value ‘0’ means that the availability databases are not synchronized* |

## Check which FCI node is active (T-SQL)

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| SELECT NodeName,  STATUS AS NodeStatus,  status\_description AS NodeStatusDescription,  is\_current\_owner AS CurrentlyActiveNode  FROM sys.dm\_os\_cluster\_nodes |

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| SELECT \* FROM sys.dm\_server\_services |

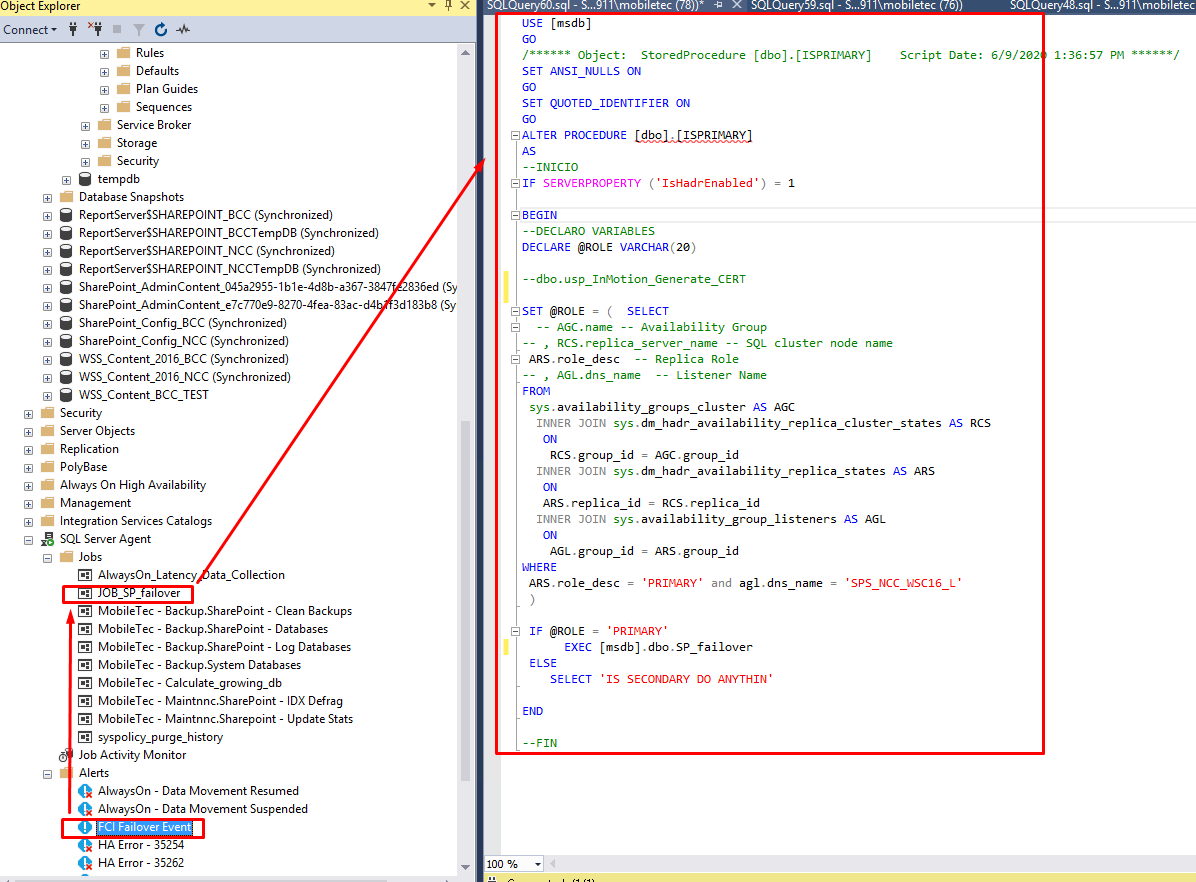
Alerts created

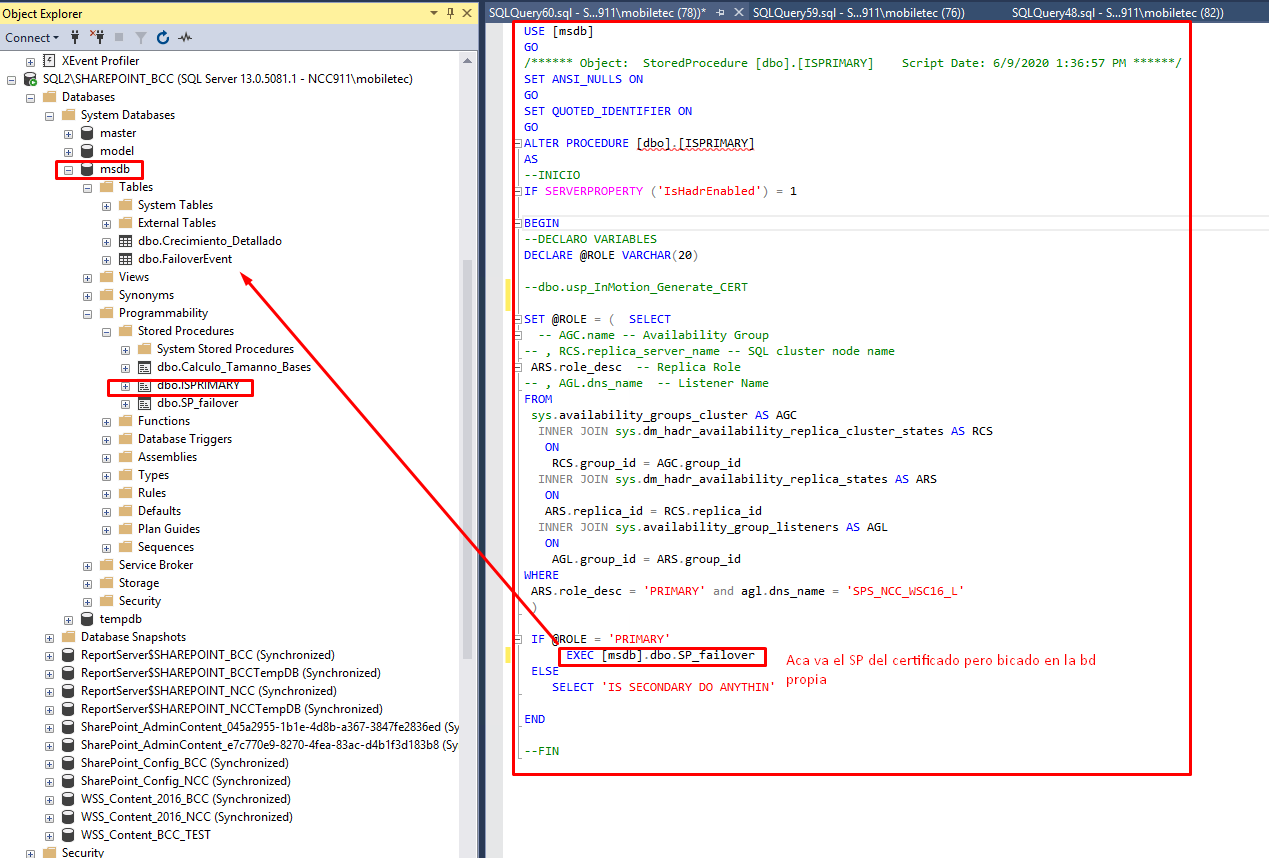
|  |
| --- |
| --Create SQL Server Alert for AlwaysOn Role Change  EXEC msdb.dbo.sp\_add\_alert  @name=N'AlwaysOn - Role Change',  @message\_id=1480,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=0,  @category\_name=N'[Uncategorized]',  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  --Create SQL Server Alert for AlwaysOn Data Movement Suspended  EXEC msdb.dbo.sp\_add\_alert  @name=N'AlwaysOn - Data Movement Suspended',  @message\_id=35264,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=0,  @category\_name=N'[Uncategorized]',  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  --Create SQL Server Alert for AlwaysOn Data Movement Resumed  EXEC msdb.dbo.sp\_add\_alert  @name=N'AlwaysOn - Data Movement Resumed',  @message\_id=35265,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=0,  @category\_name=N'[Uncategorized]',  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  EXEC msdb.dbo.sp\_add\_alert @name=N'HA Error - 35273',  @message\_id=35273,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=1,  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  EXEC msdb.dbo.sp\_add\_alert @name=N'HA Error - 35274',  @message\_id=35274,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=1,  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  EXEC msdb.dbo.sp\_add\_alert @name=N'HA Error - 35275',  @message\_id=35275,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=1,  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  EXEC msdb.dbo.sp\_add\_alert @name=N'HA Error - 35254',  @message\_id=35254,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=1,  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  EXEC msdb.dbo.sp\_add\_alert @name=N'HA Error - 35279',  @message\_id=35279,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=1,  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  EXEC msdb.dbo.sp\_add\_alert @name=N'HA Error - 35262',  @message\_id=35262,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=1,  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO  EXEC msdb.dbo.sp\_add\_alert @name=N'HA Error - 35276',  @message\_id=35276,  @severity=0,  @enabled=1,  @delay\_between\_responses=0,  @include\_event\_description\_in=1,  @job\_id=N'00000000-0000-0000-0000-000000000000'  GO |

Testing the errors

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| RAISERROR(35254,10,1) WITH LOG; |

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| --1 crear tabla  create table FailoverEvent  (  mainserver varchar(50)  )  --create sp  create procedure dbo.SP\_failover  as  insert into FailoverEvent (mainserver) values ('SQL2');  --3 run sp  exec dbo.SP\_failover  select \* from FailoverEvent  delete from FailoverEvent |





## Monitoring Availability Groups on the WSFC Cluster

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| select \* from sys.availability\_group\_listener\_ip\_addresses    select \* from sys.availability\_group\_listeners    select \* from sys.dm\_tcp\_listener\_states |

Verificar que se ha creado la clave maestra de datos:

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| SELECT name KeyName,  symmetric\_key\_id KeyID,  key\_length KeyLength,  algorithm\_desc KeyAlgorithm  FROM sys.symmetric\_keys; |

## Monitoring Availability Groups on the WSFC Cluster

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| Quorum status  select \* from sys.dm\_hadr\_cluster    select \* from sys.dm\_hadr\_cluster\_members    Instancias  select \* from sys.dm\_hadr\_instance\_node\_map |

## Monitoring Availability Groups

<https://docs.microsoft.com/en-us/sql/database-engine/availability-groups/windows/monitor-availability-groups-transact-sql?view=sql-server-ver15#WSFC>

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| --- |
| select \* from sys.availability\_groups |

## Monitoring Availability Databases

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| --- |
| select \* from sys.availability\_databases\_cluster    select \* from sys.databases |

<https://www.mssqltips.com/sqlservertip/3489/configure-sql-server-alerts-and-notifications-for-alwayson-availability-groups/>

<https://docs.microsoft.com/en-us/sql/database-engine/availability-groups/windows/always-on-extended-events?view=sql-server-ver15>

<https://www.mssqltips.com/sqlservertip/2973/configuring-alerts-for-sql-server-alwayson-availability-groups/>

<https://www.connectionstrings.com/sql-server/>

**How to know the main replica**

<https://www.mssqltips.com/sqlservertip/3206/finding-primary-replicas-for-sql-server-2012-alwayson-availability-groups-with-powershell/>

<https://www.mssqltips.com/sqlservertip/2573/monitor-sql-server-alwayson-availability-groups/>

<https://www.mssqltips.com/sqlservertip/2973/configuring-alerts-for-sql-server-alwayson-availability-groups/>

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| IF SERVERPROPERTY ('IsHadrEnabled') = 1  BEGIN  SELECT  AGC.name -- Availability Group  , RCS.replica\_server\_name -- SQL cluster node name  , ARS.role\_desc -- Replica Role  , AGL.dns\_name -- Listener Name  FROM  sys.availability\_groups\_cluster AS AGC  INNER JOIN sys.dm\_hadr\_availability\_replica\_cluster\_states AS RCS  ON  RCS.group\_id = AGC.group\_id  INNER JOIN sys.dm\_hadr\_availability\_replica\_states AS ARS  ON  ARS.replica\_id = RCS.replica\_id  INNER JOIN sys.availability\_group\_listeners AS AGL  ON  AGL.group\_id = ARS.group\_id  WHERE  ARS.role\_desc = 'PRIMARY'  END |

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| --- |
| IF SERVERPROPERTY ('IsHadrEnabled') = 1  BEGIN  SELECT  AGC.name -- Availability Group  , RCS.replica\_server\_name -- SQL cluster node name  , ARS.role\_desc -- Replica Role  , AGL.dns\_name -- Listener Name  FROM  sys.availability\_groups\_cluster AS AGC  INNER JOIN sys.dm\_hadr\_availability\_replica\_cluster\_states AS RCS  ON  RCS.group\_id = AGC.group\_id  INNER JOIN sys.dm\_hadr\_availability\_replica\_states AS ARS  ON  ARS.replica\_id = RCS.replica\_id  INNER JOIN sys.availability\_group\_listeners AS AGL  ON  AGL.group\_id = ARS.group\_id  WHERE  ARS.role\_desc = 'PRIMARY' and agl.dns\_name = 'SPS\_NCC\_WSC16\_L'  END  -----  select synchronization\_state, synchronization\_state\_desc, \* from sys.dm\_hadr\_database\_replica\_states |

select \* from sys.availability\_groups\_cluster

SELECT group\_id, \* FROM sys.availability\_groups\_cluster

SELECT group\_id, replica\_id, \* FROM sys.dm\_hadr\_availability\_replica\_cluster\_states

SELECT replica\_id, group\_id, role\_desc, \* FROM sys.dm\_hadr\_availability\_replica\_states where role\_desc = 'PRIMARY'

SELECT group\_id, dns\_name, \* FROM sys.availability\_group\_listeners where dns\_name = 'SPS\_NCC\_WSC16\_L'

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| --- |
| SELECT role\_desc FROM sys.dm\_hadr\_availability\_replica\_states where role\_desc = 'PRIMARY'  SELECT dns\_name, \* FROM sys.availability\_group\_listeners where dns\_name = 'SPS\_NCC\_WSC16\_L'  DECLARE @ROLE VARCHAR(10)  SET @ROLE = (SELECT role\_desc FROM sys.dm\_hadr\_availability\_replica\_states where role\_desc = 'PRIMARY')  IF @ROLE = 'PRIMARY'  SELECT 'PRINCIPAL'  ELSE  SELECT 'SECONDARY' |

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| IF SERVERPROPERTY ('IsHadrEnabled') = 1  BEGIN  --DECLARO VARIABLES  DECLARE @ROLE VARCHAR(20)  SET @ROLE = ( SELECT  -- AGC.name -- Availability Group  -- , RCS.replica\_server\_name -- SQL cluster node name  ARS.role\_desc -- Replica Role  -- , AGL.dns\_name -- Listener Name  FROM  sys.availability\_groups\_cluster AS AGC  INNER JOIN sys.dm\_hadr\_availability\_replica\_cluster\_states AS RCS  ON  RCS.group\_id = AGC.group\_id  INNER JOIN sys.dm\_hadr\_availability\_replica\_states AS ARS  ON  ARS.replica\_id = RCS.replica\_id  INNER JOIN sys.availability\_group\_listeners AS AGL  ON  AGL.group\_id = ARS.group\_id  WHERE  ARS.role\_desc = 'PRIMARY' and agl.dns\_name = 'SPS\_NCC\_WSC16\_L'  )  IF @ROLE = 'PRIMARY'  SELECT 'IS PRIMARY RUN SP CERTIFICATE'  ELSE  SELECT 'IS SECONDARY DO ANYTHIN'  END |

SP ISPRIMARY

|  |
| --- |
| CREATE PROCEDURE ISPRIMARY  AS  --INICIO  IF SERVERPROPERTY ('IsHadrEnabled') = 1  BEGIN  --DECLARO VARIABLES  DECLARE @ROLE VARCHAR(20)  SET @ROLE = ( SELECT  -- AGC.name -- Availability Group  -- , RCS.replica\_server\_name -- SQL cluster node name  ARS.role\_desc -- Replica Role  -- , AGL.dns\_name -- Listener Name  FROM  sys.availability\_groups\_cluster AS AGC  INNER JOIN sys.dm\_hadr\_availability\_replica\_cluster\_states AS RCS  ON  RCS.group\_id = AGC.group\_id  INNER JOIN sys.dm\_hadr\_availability\_replica\_states AS ARS  ON  ARS.replica\_id = RCS.replica\_id  INNER JOIN sys.availability\_group\_listeners AS AGL  ON  AGL.group\_id = ARS.group\_id  WHERE  ARS.role\_desc = 'PRIMARY' and agl.dns\_name = 'SPS\_NCC\_WSC16\_L'  )  IF @ROLE = 'PRIMARY'  EXEC DBO.SP\_failover  ELSE  SELECT 'IS SECONDARY DO ANYTHIN'  END  --FIN  GO |

SELECT name KeyName,

symmetric\_key\_id KeyID,

key\_length KeyLength,

algorithm\_desc KeyAlgorithm

FROM sys.symmetric\_keys;