**Replication Topic:**

Replication availability is object level like Tables ,Views and Store procedures

Remaining all are databases level availability like Always-on , DB Mirroring and log shipping.

Replication Types:

Peer-Peer: it is a two way replication with multiple nodes

Merge: it is a two way or bi replication

Transactional: It is one way replication from publisher to subscribers

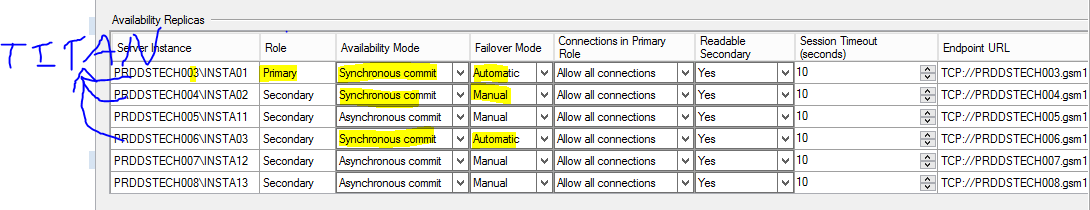
What is Snapshot agent do:

What is log reader agent do:

Distributor agent do:

Publisher agent do:

Asynchronous commit and synchronous Mode : (these are availabililty modes)

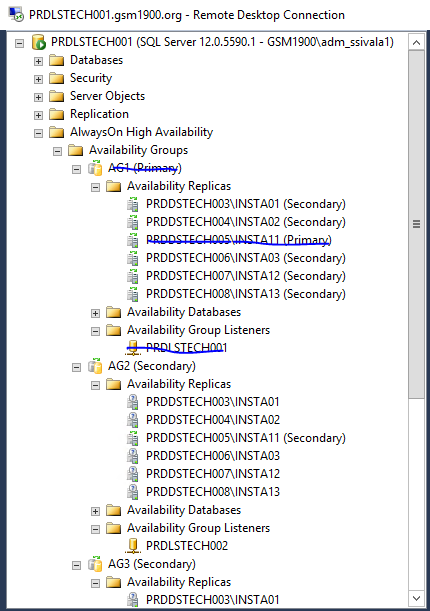


Answer: There are three topics here high performance, high protection and high protection with automatic

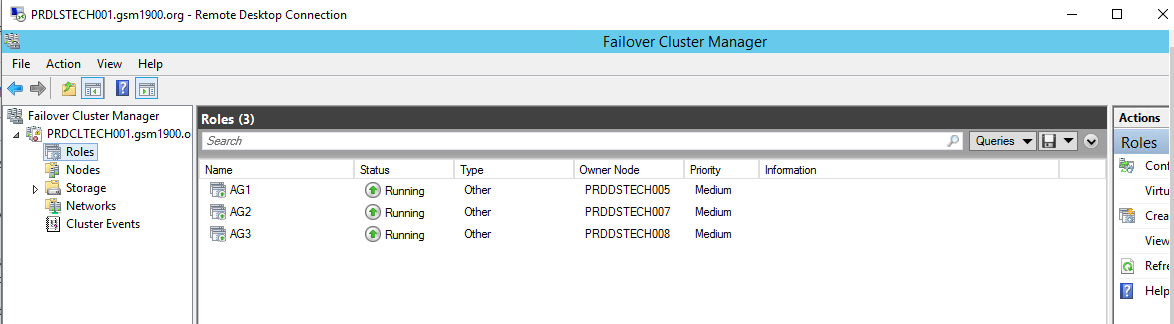
Generally, The primary server will be synchronous commit and at least one secondary server should be also synchronous commit for HA Automatic failover (**high protection**) (because keeping synchronous means when updated data in primary will be sent to all secondary servers and all the secondary synchronous servers will send the response to primary server as it receives the data and then only data will be committed in primary)

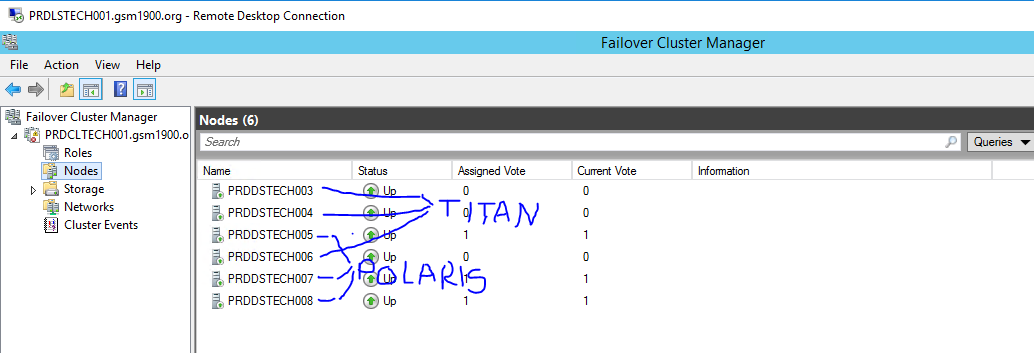
We can keep Maximum of 3 secondary servers as synchronous (but by keeping 3 secondary’s as synchronous and that too we should not keep the DR servers as Synchronous commit (When PR is primary server) as it will lead to high performance issue as the DR servers will be in other data center so network latency can occur and it may take time to receive response which will be delay in updating data updated)

**Tech Servers :**

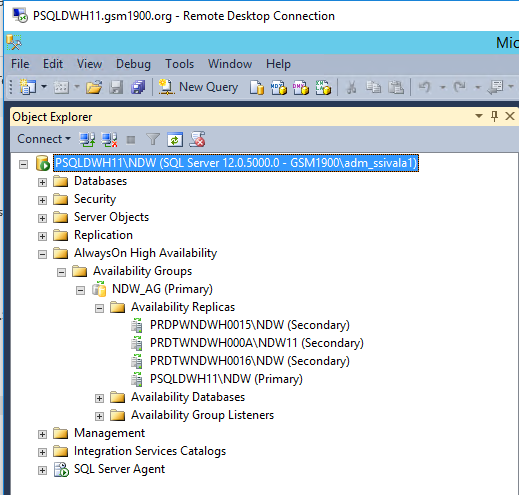


**Failover cluster manager of Tech servers**

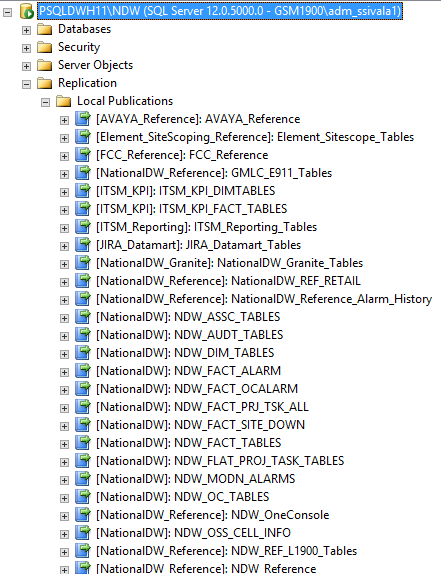


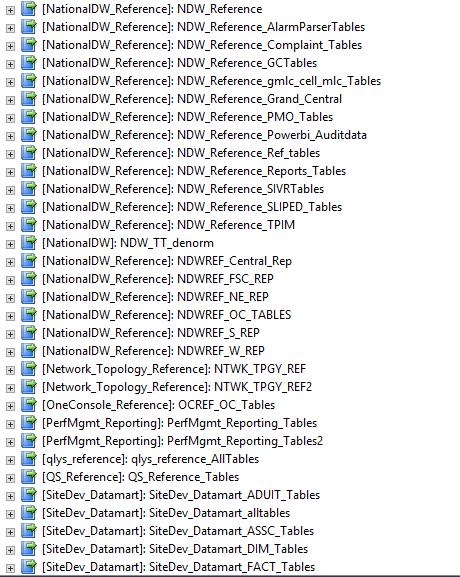


**NDW Servers environment :**

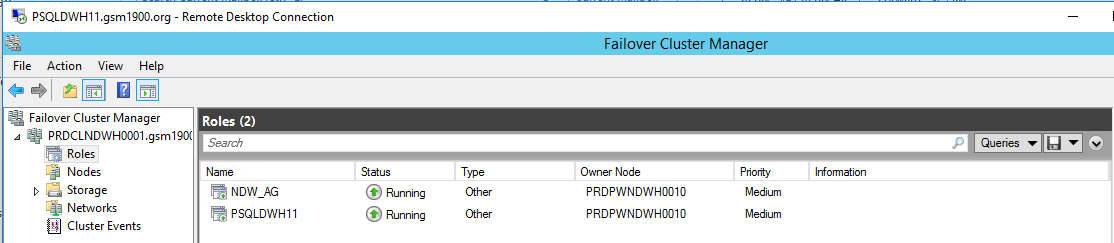


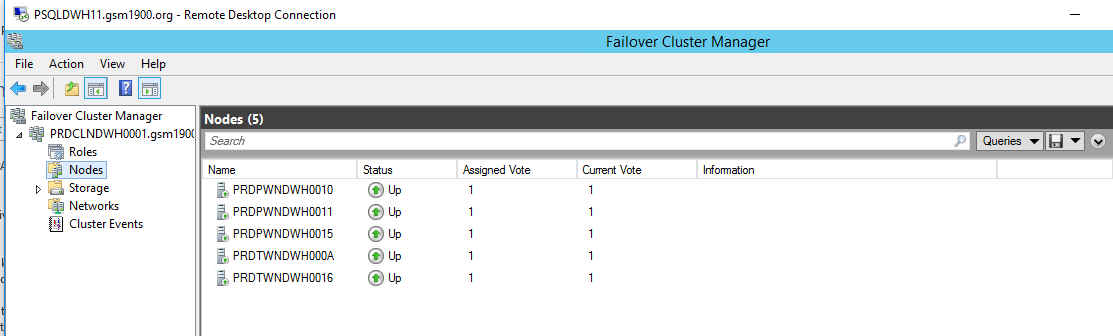
**Replication of NDW**

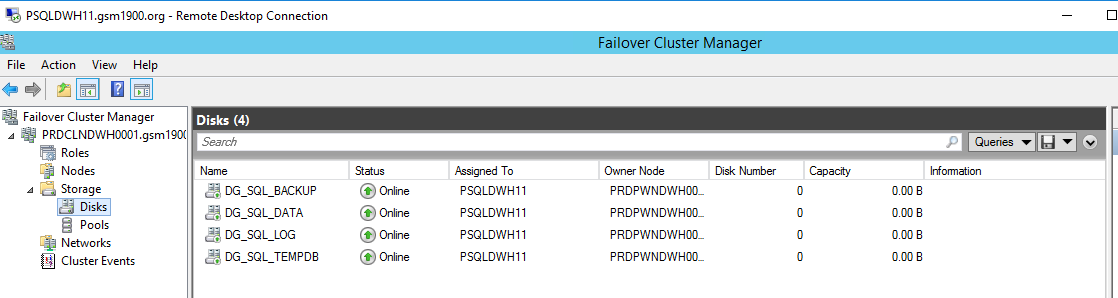




**Cluster failover manager :**







**Orphan Users :**

**Orphaned users in SQL Server occur when a database user is based on a login in the master database, but the login no longer exists in master. This can occur when the login is deleted, or when the database is moved to another server where the login does not exist.**

**First, make sure that this is the problem. This will lists the orphaned users:**

**EXEC sp\_change\_users\_login 'Report'**

**If you already have a login id and password for this user, fix it by doing:**

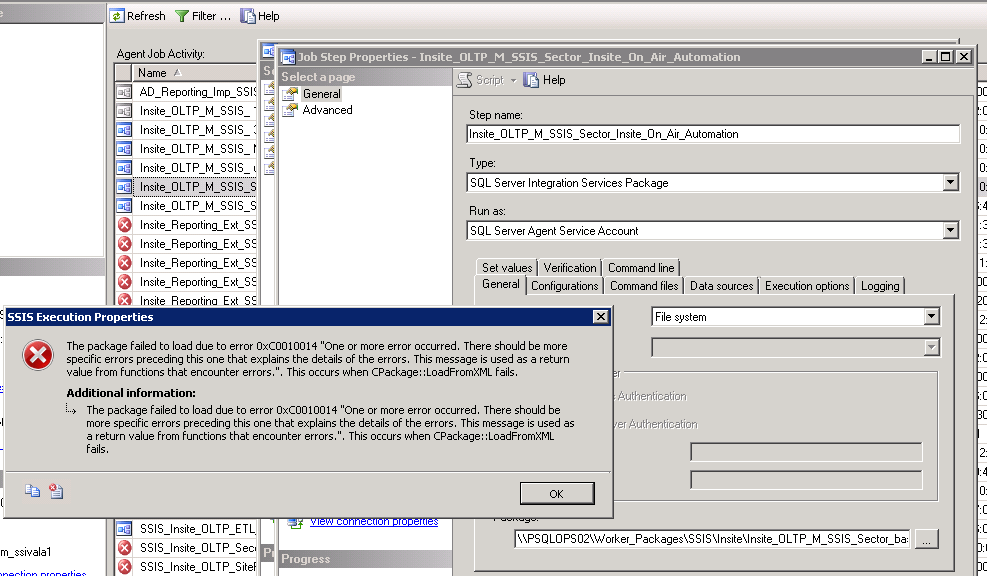
**EXEC sp\_change\_users\_login 'Auto\_Fix', 'user'**

**If you want to create a new login id and password for this user, fix it by doing:**

**EXEC sp\_change\_users\_login 'Auto\_Fix', 'user', 'login', 'password'**

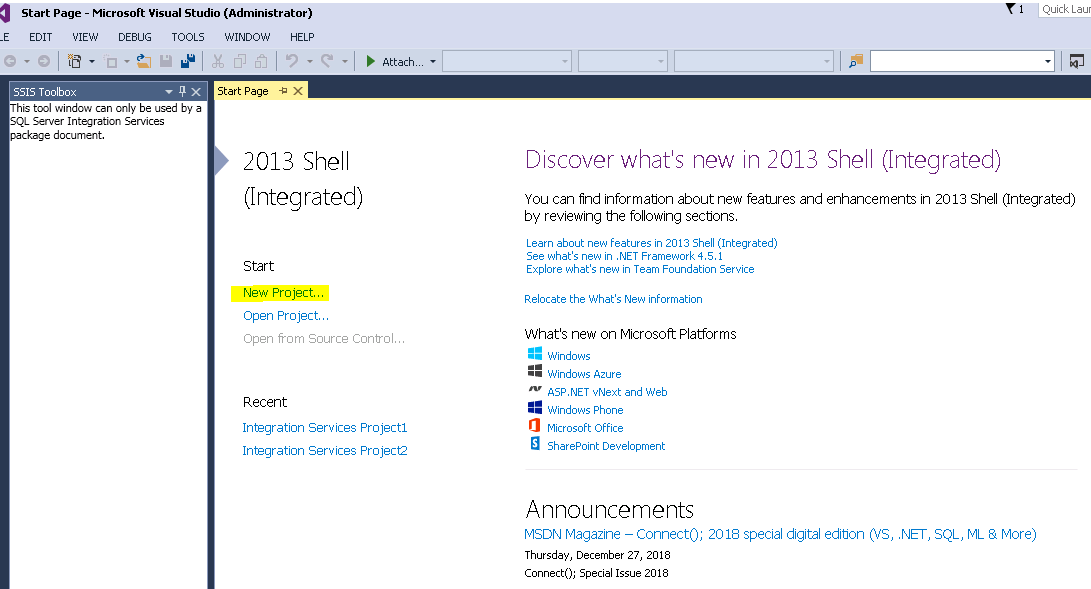
**SSIS deployment : when we deployed the SSIS packages .dtsx and .ispac packages and after configured the job the package will execute according to job schedule**

**And while configuring the job in configurations tab if we see this type of below error message this is due to compatibililty mode and then please open this in 2014 version and then it will ask the password please give it there.**



**When we need to troubleshoot for any SSIS package errors we will open the SQL server datatools for Visualstudio and select the new project and select file and execute and you can find the step where the package is failing**





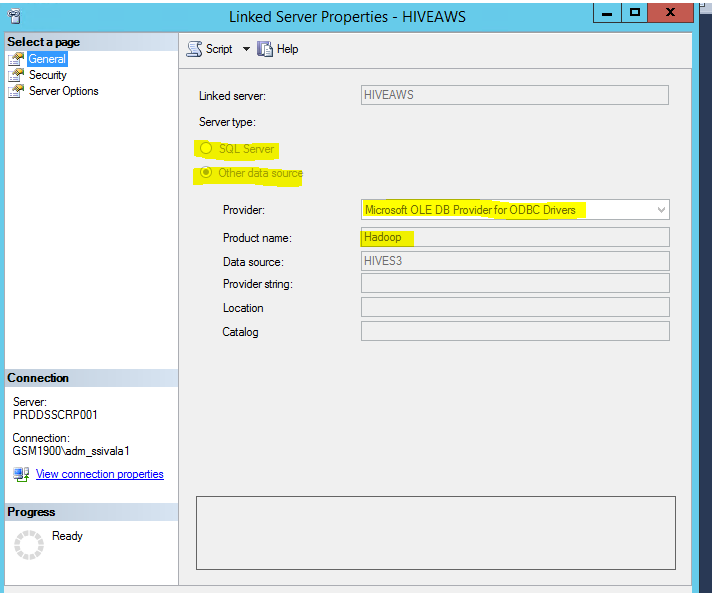
**General linked server issues :**

**SQL server should be selected if the destination servers are SQL servers**

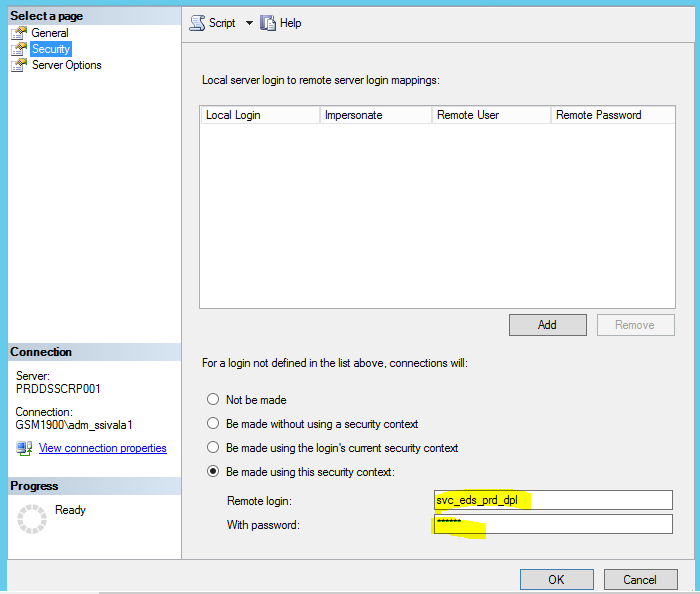
**If other the select other data source**

**If it is sql server then select sql drivers if other data source select the below highlighted option**

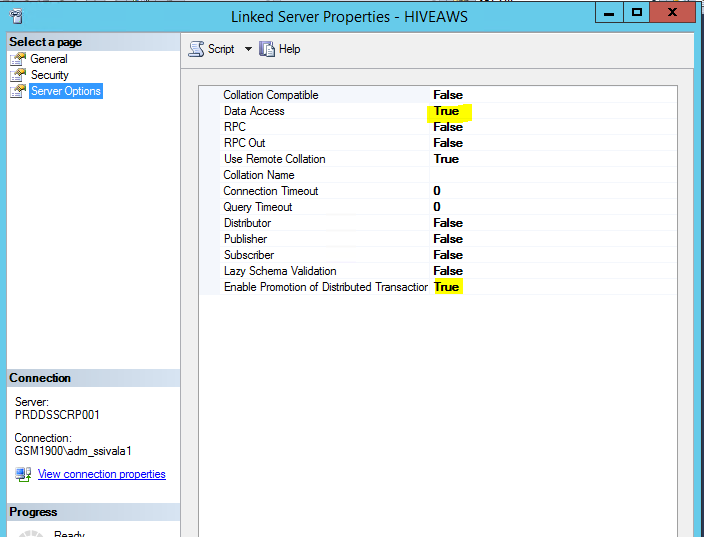
**And also check the providers should be available and drivers also installed by checking**

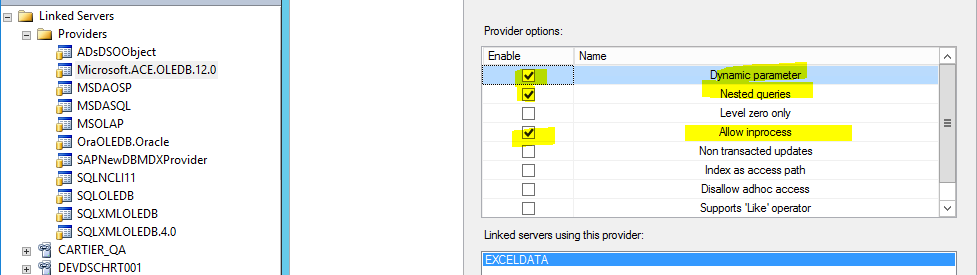


**The below login should be in the destination server and should have the access on the login**



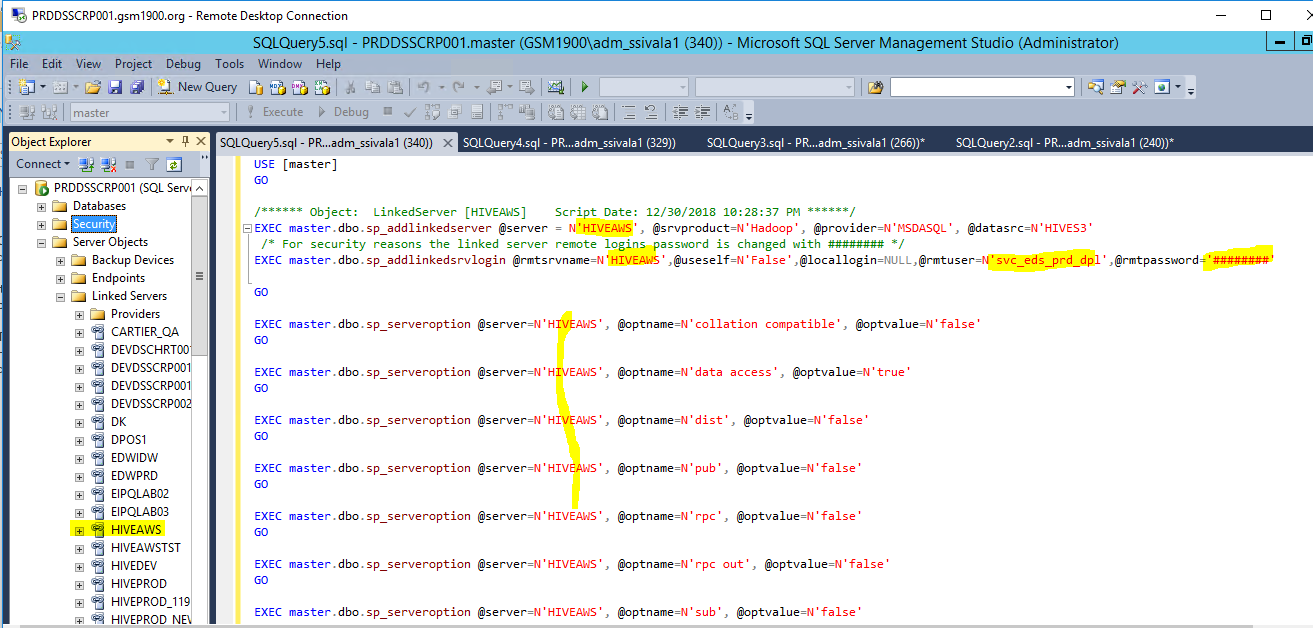
**The below options should be True**





**How to create the linked server :**

**Script out the related linked server and change the following Parameters and**



**Sample script for creation of linked server :**

USE [master]

GO

/\*\*\*\*\*\* Object: LinkedServer [HIVEAWS] Script Date: 12/30/2018 10:28:37 PM \*\*\*\*\*\*/

EXEC master.dbo.sp\_addlinkedserver @server = N'HIVEAWS', @srvproduct=N'Hadoop', @provider=N'MSDASQL', @datasrc=N'HIVES3'

/\* For security reasons the linked server remote logins password is changed with ######## \*/

EXEC master.dbo.sp\_addlinkedsrvlogin @rmtsrvname=N'HIVEAWS',@useself=N'False',@locallogin=NULL,@rmtuser=N'svc\_eds\_prd\_dpl',@rmtpassword='########'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'collation compatible', @optvalue=N'false'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'data access', @optvalue=N'true'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'dist', @optvalue=N'false'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'pub', @optvalue=N'false'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'rpc', @optvalue=N'false'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'rpc out', @optvalue=N'false'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'sub', @optvalue=N'false'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'connect timeout', @optvalue=N'0'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'collation name', @optvalue=null

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'lazy schema validation', @optvalue=N'false'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'query timeout', @optvalue=N'0'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'use remote collation', @optvalue=N'true'

GO

EXEC master.dbo.sp\_serveroption @server=N'HIVEAWS', @optname=N'remote proc transaction promotion', @optvalue=N'true'

GO

Replicaton Trouble shoot commands

select Max(entry\_time),min(entry\_time) from MSrepl\_transactions

select \* from MSrepl\_transactions where xact\_seqno=0x00000020000096740004 --entry\_time='2018-09-06 08:39:13.657'

select \* from MSrepl\_commands where xact\_seqno=0x00000020000096740004

select \* from MSdistribution\_agents where subscriber\_id in (6,8,9,16) and publisher\_database\_id=33

and subscriber\_db='Element\_SiteScoping\_Reference' and publication='Element\_Sitescope\_Tables'

select \* from MSsubscriptions where publisher\_database\_id=33 and article\_id=1

select \* from MSarticles where article\_id=1 and publisher\_db='Element\_SiteScoping\_Reference'

select \* from MSpublications where publication\_id=100

select \* from MSdistribution\_status where agent\_id in (617,619,618,620)

sp\_spaceused MSrepl\_commands

select min(xact\_seqno) from MSrepl\_commands nolock

sp\_who2 650

Primary key violation error in replication sample error and steps

select \* from MSrepl\_errors

Error : The row was not found at the Subscriber when applying the replicated UPDATE command for Table '[dbo].[audit\_nest\_status]' with Primary Key(s): [audit\_nest\_status\_id] = 38536916

Workaround is we will find the row based on the above error and we will add this in the subscriber based on business requirement.

If the error is : duplicate record found then we will delete the record at the subscriber end

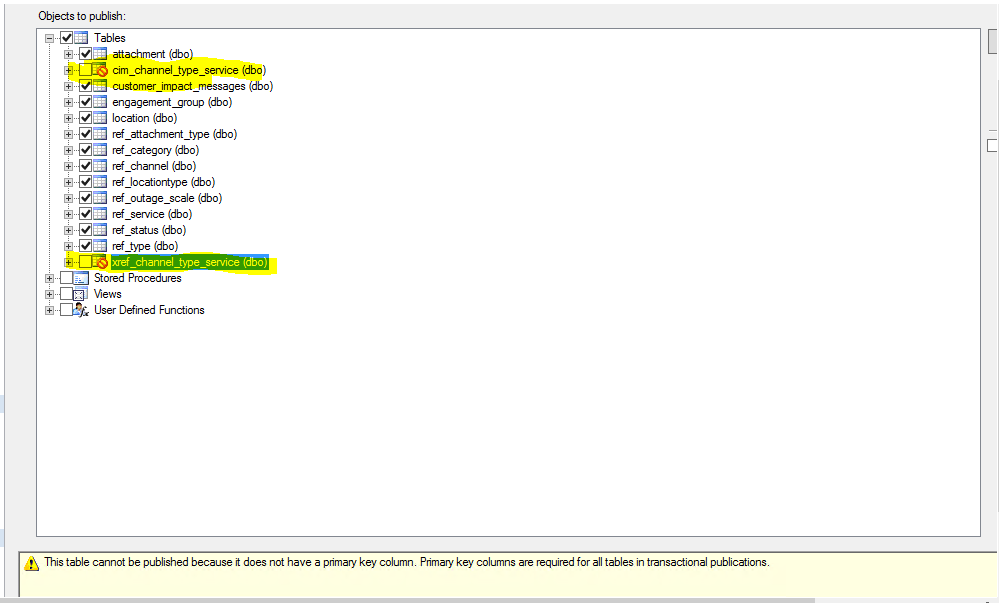
If the error is clustered index is missing at the subscriber end then the total transactions will be in pending state and we need to add the same index in subscriber as per publisher.

**When we will take the log backup :**

* The database is currently **ONLINE** and you are planning to perform the restore operation on the database then begin by backing up the tail of the log. To avoid any error for an ONLINE database, you must use the …**WITH NORECOVERY** option of the BACKUP Transact-SQL statement.
* If a database is **OFFLINE** and fails to start and you need to restore the database, first back up the tail of the transaction log file. Because no transactions can occur during such time, it is optional to use**WITH NORECOVERY** during such times.
* If a database is **DAMAGED**, then try to take a tail-log backup by using **WITH CONTINUE\_AFTER\_ERROR**option of the BACKUP statement.

**Replication error:**

We can’t replicate to subscribers if any table\Article is not having the Primary key column



**Log reader agent: it will send the transactions data from publisher to the distributor server**

**Distributor agent: it will send the transactions data from distributor to the subscriber**

**Snapshot agent: It will send the complete data to the subscribers and first it will collect all the metadata and will put it in the share path of distro server and then it will send to the subscribers**

* **When the bulk insert is going on the publisher database and if latency becomes high what you will do?**

**I will export and import the data from publisher to all the subscribers (or)**

**We can remove the articles and add them again**

**-🡪 When you are facing the issue in replication of data\schemas check the below things**

**1) Mainly you can check the blockings on the servers**

**2) Check who is db\_owner for that database and make sure that it should not be individual login even though the login is having sysadmin permissions and please change it to db\_owner or sysadmin permission or check the other databases by using sp\_helpdb that what owner account it is having so make that as db\_owner**

**---- Sometimes we will observe that there is high latency from distributor to subscriber in moving transactions**

**Resolution: we will stop the agent from GUI and run the below command in command prompt in all the subscribers so that transactions will move fastly**

C:\Program Files\Microsoft SQL Server\120\COM

DISTRIB.EXE -Subscriber [PSQLNRPDB1,54000 ] -SubscriberDB [Network\_Topology\_Reference] -Publisher [PSQLDWH11\NDW] -Distributor [PSQLOPS05\DISTRO2] -DistributorSecurityMode 1 -Publication [NTWK\_TPGY\_REF] -PublisherDB [Network\_Topology\_Reference]    -Continuous  -QueryTimeout 65534

**--- if any new article is added in the existing publication and when replicating the table to subscribers please make sure that go to publication properties and subscriber options allow anonymous subscriptions options should be false other wise when you click View snapshot agent status all the table will replicate again fresh**