OTP AUTHENTICATION SYSTEM

MSSQL Transactional Replication Setup

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Introduction

This document will show the steps on how to configure the transactional replication using MSSQL 2008 R2 for OTP database.

The following are the items needed to setup or configure.
Distributor (running on main server)
Publisher (running on DR site/backup server)
Subscription (push if running on main server, pull if running on backup/DR site server)

Requirements

- make sure that the 2 SQL servers can ping and telnet the 1433 port from both sides.
- the main site server with OTP db is already added or created.
- the current backup of main server database is already restored to DR/Backup Server and initialized with the OTP Web Manager.
- SQL management studio is installed and ready to use.

Pre-requisites

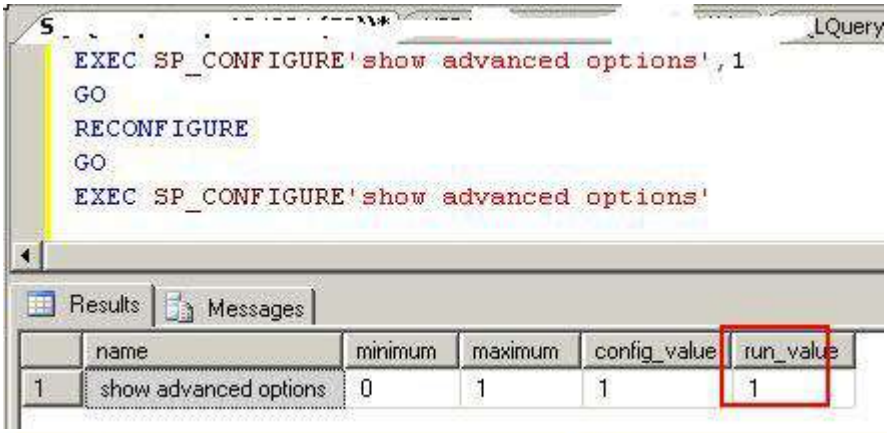
A. Identify the SQL server name on both SQL DB server.

1. Login to SSMS and right click on the DB server name and select “New QUERY”
2. Execute the command below on the main site DB server
   select @@servername
3. Execute the command below on the backup or DR site server

B. Make sure to enable the SQL Server Agent

1. Login to SSMS and right click on the DB server name and select “New QUERY”
2. Execute the command below on the main site DB server
   Exec sp_configure ‘show advanced options’, 1
   Go
   Reconfigure
   Go
   Exec sp_configure ‘show advanced options’

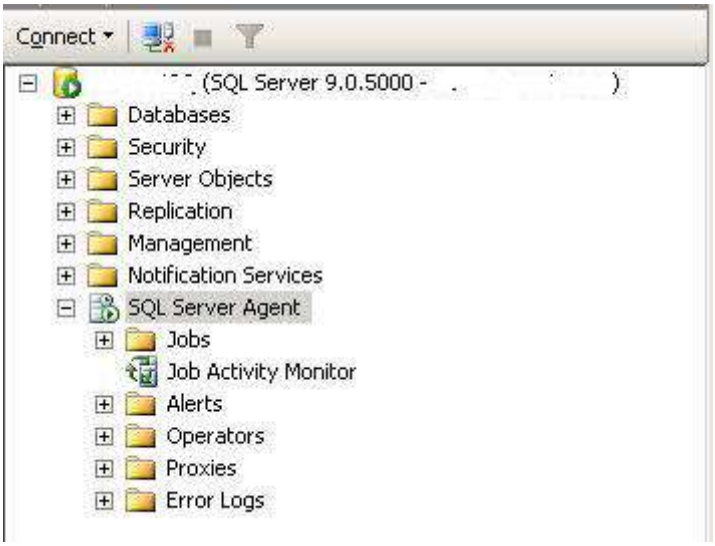
   Result should show like this below.



3. Now change the setting for ‘Agent XPs’.

```
Exec sp_configure ‘agent xps’, 1
Go
Reconfigure
```

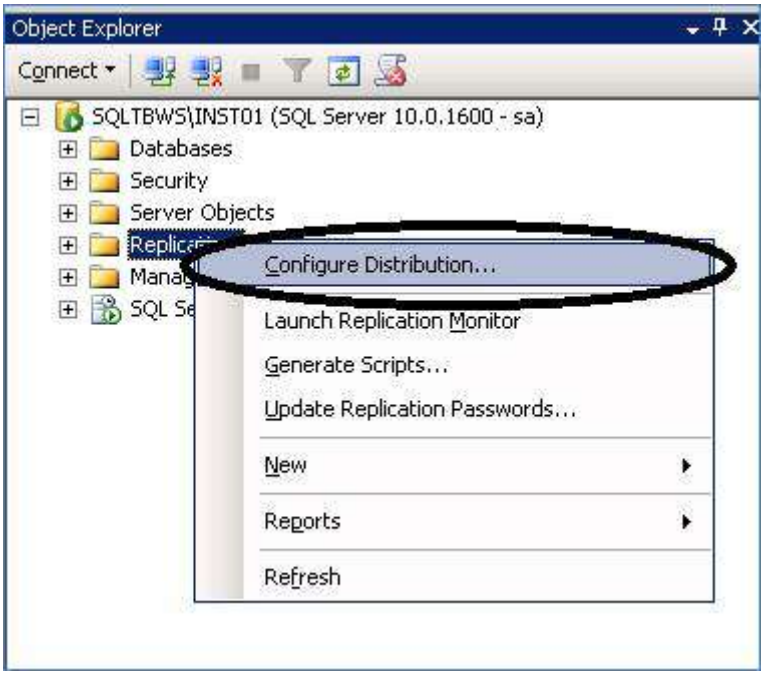
4. Restart the SQL Server Agent service.

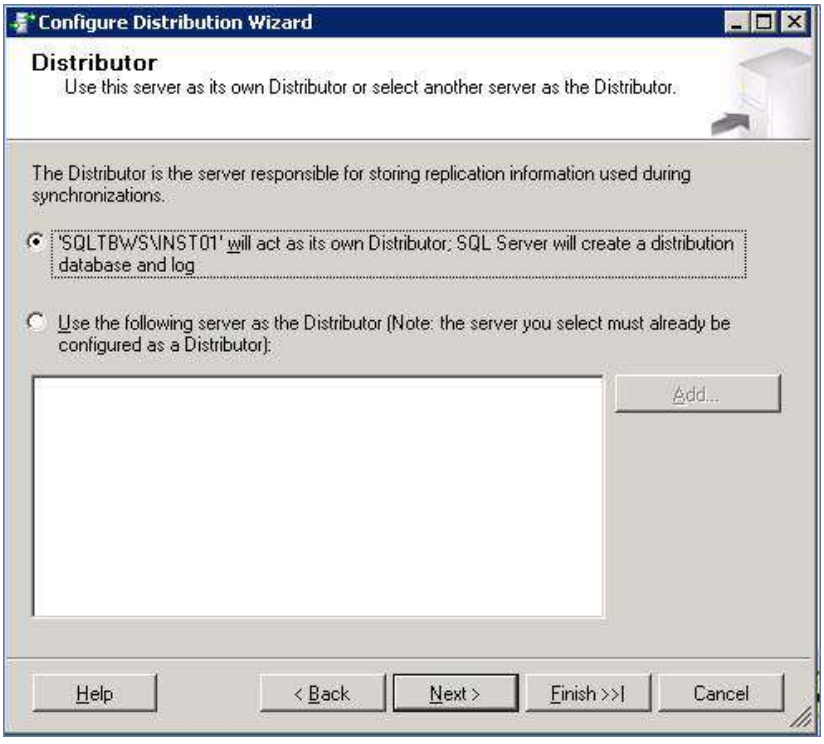


5. Do the same steps on the backup or DR site SQL server.

Configure Distribution Database

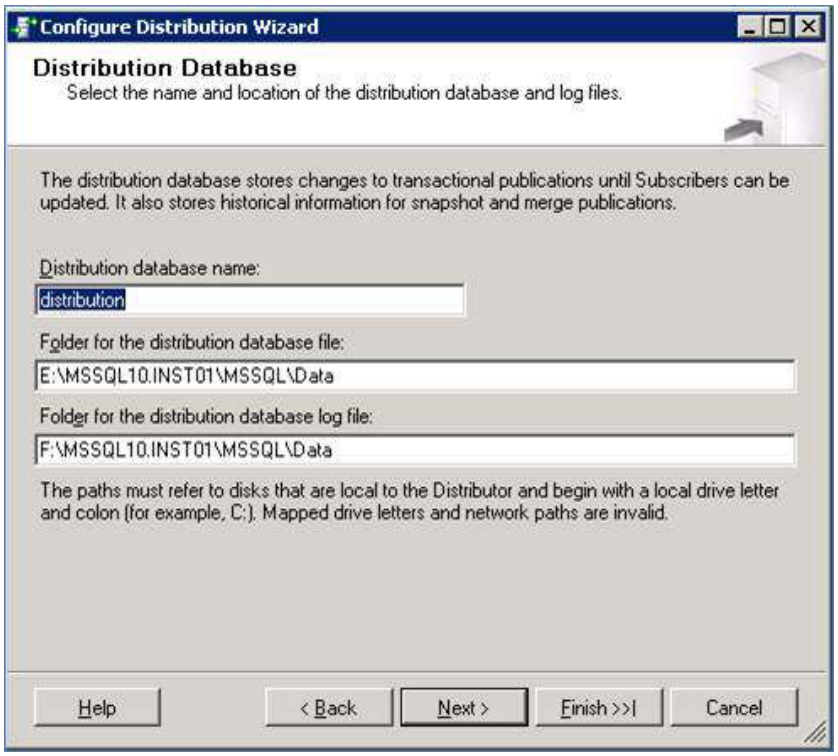
1. Connect to SSMS and login using the SERVERNAME of the main site server.
2. Right click on the REPLICATION node > CONFIGURE DISTRIBUTION.



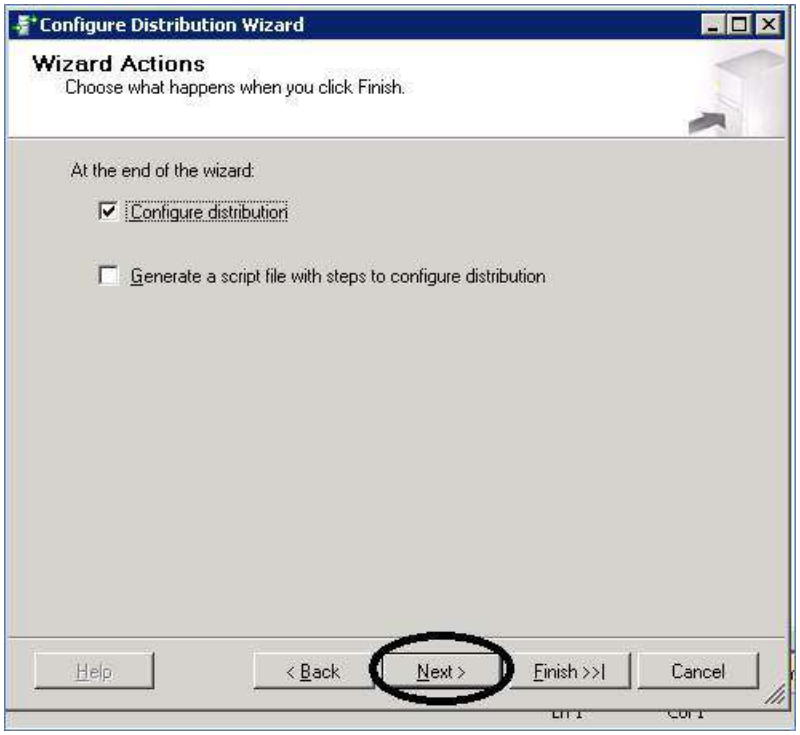


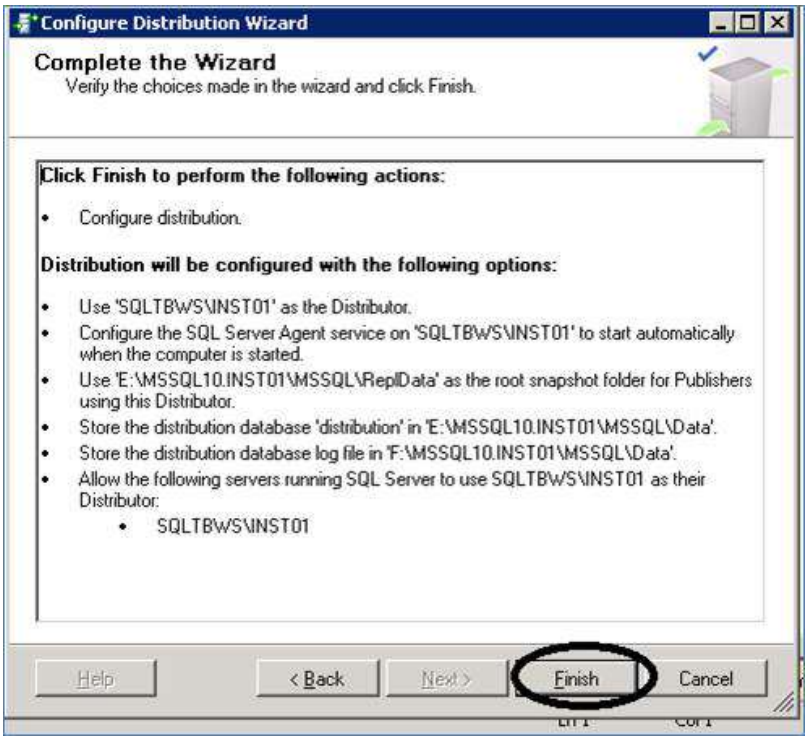
- On the image above, the Wizard is asking for the location of where the Distributor server. Please select the first option and click next.

- Select “Start automatically”.



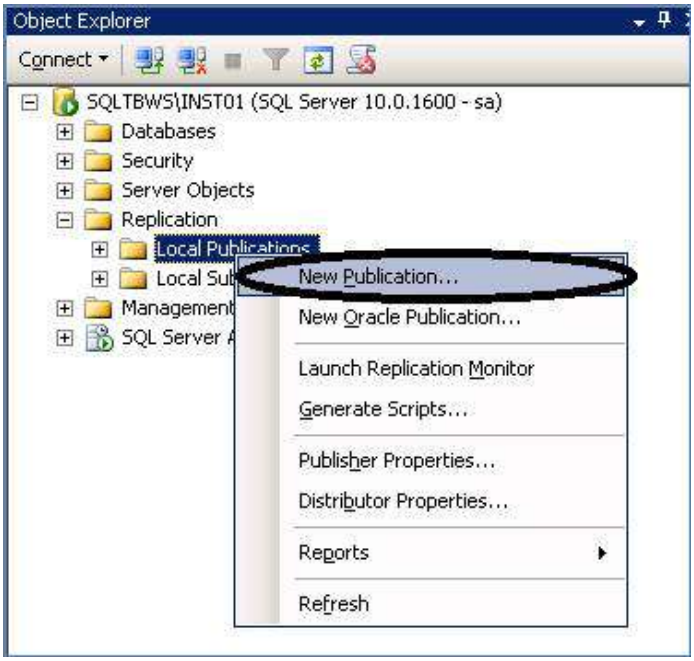
- On the distribution name, set it to “otpdist”



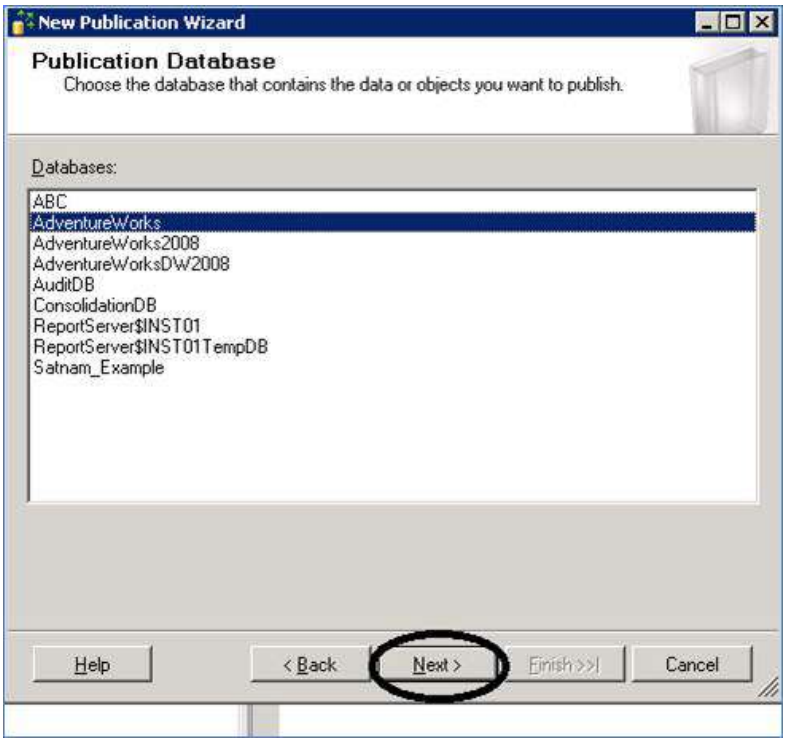


Create the Publisher

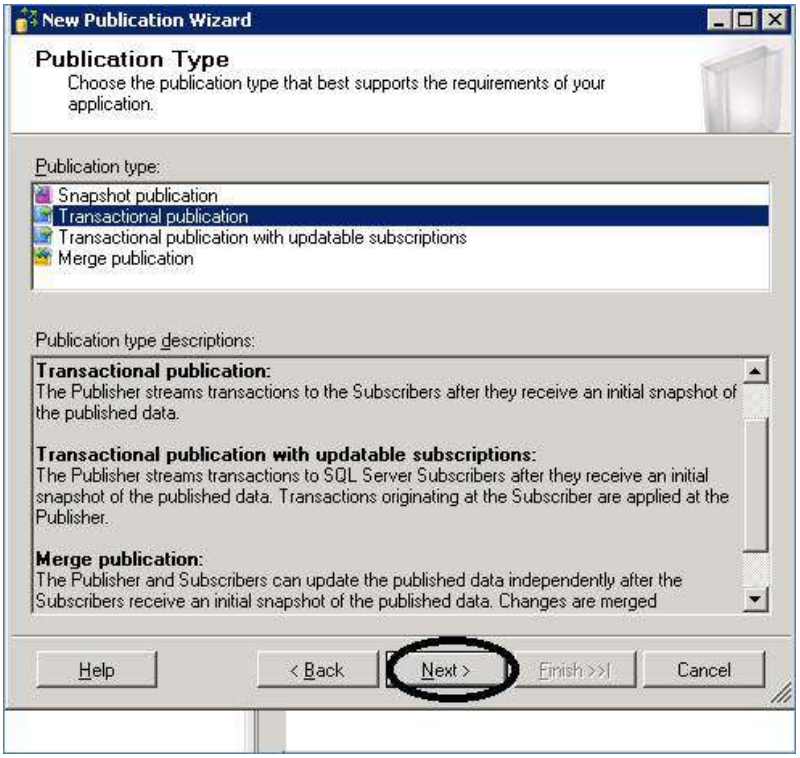
1. Right click on the Local Publications and select new Publications.

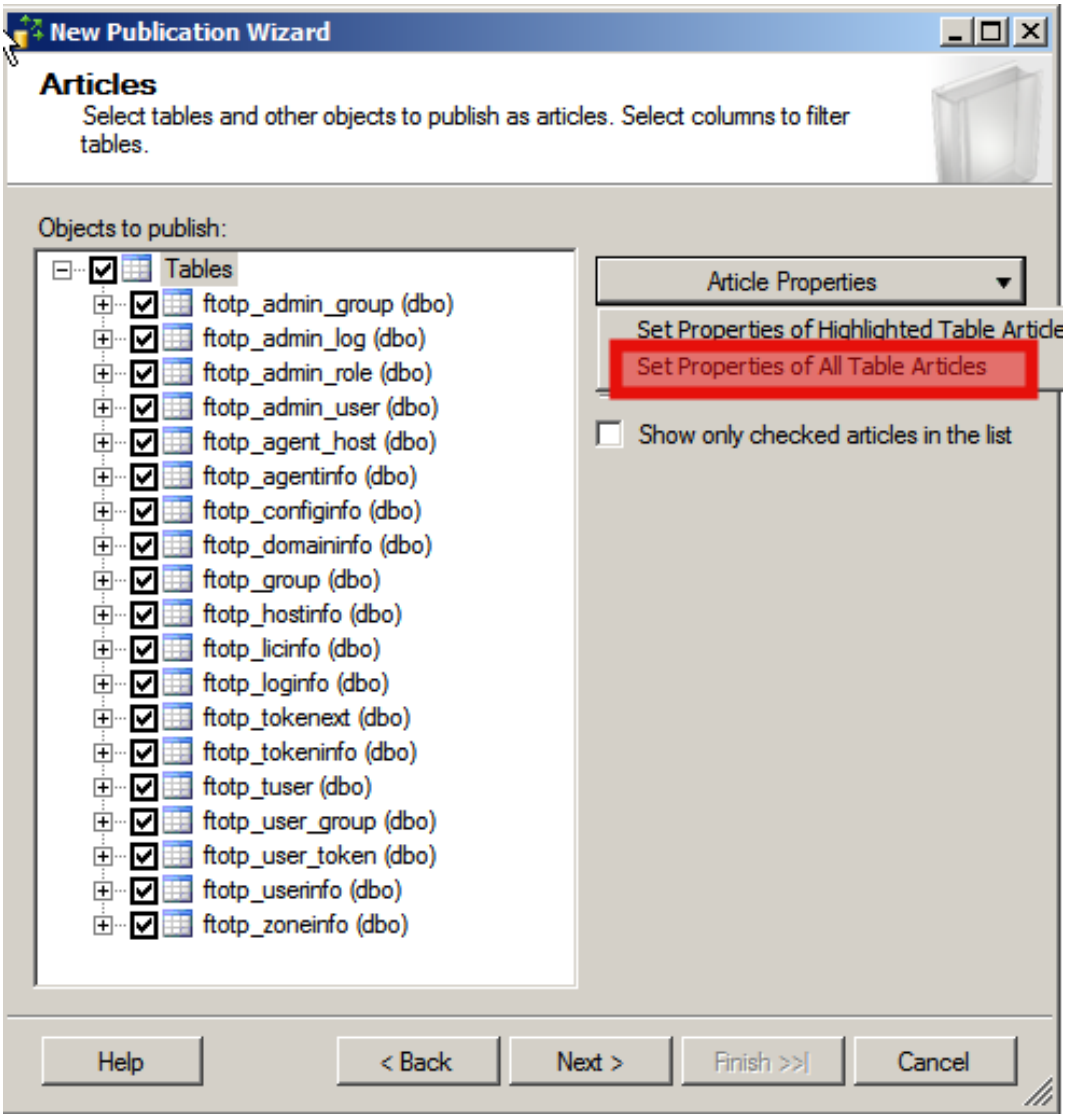

Object Explorer
Connect
SQLTBWS\INST01 (SQL Server 10.0.1600 - sa)
Databases
Security
Server Objects
Replication
Local Publications
Local Sub
Management
SQL Server A
New Publication...
New Oracle Publication...
Launch Replication Monitor
Generate Scripts...
Publisher Properties...
Distributor Properties...
Reports
Refresh


New Publication Wizard
New Publication Wizard
This wizard helps you:
- Select the data and database objects you want to replicate.
- Filter the published data so that Subscribers receive only the data they need.
After you finish the wizard, you can create subscriptions to the new publication at other servers.
Do not show this starting page again.
Help
< Back
Next >
Finish >>|
Cancel

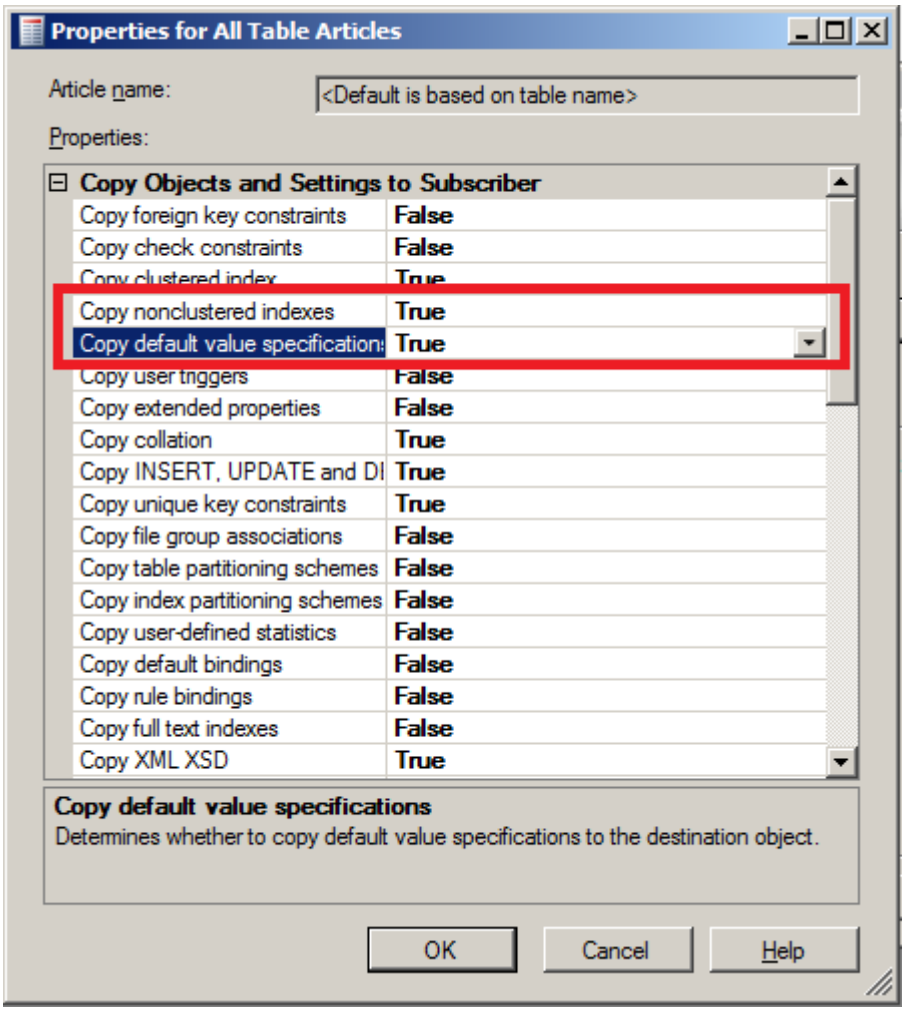


- Select OTP database from the resulting list.



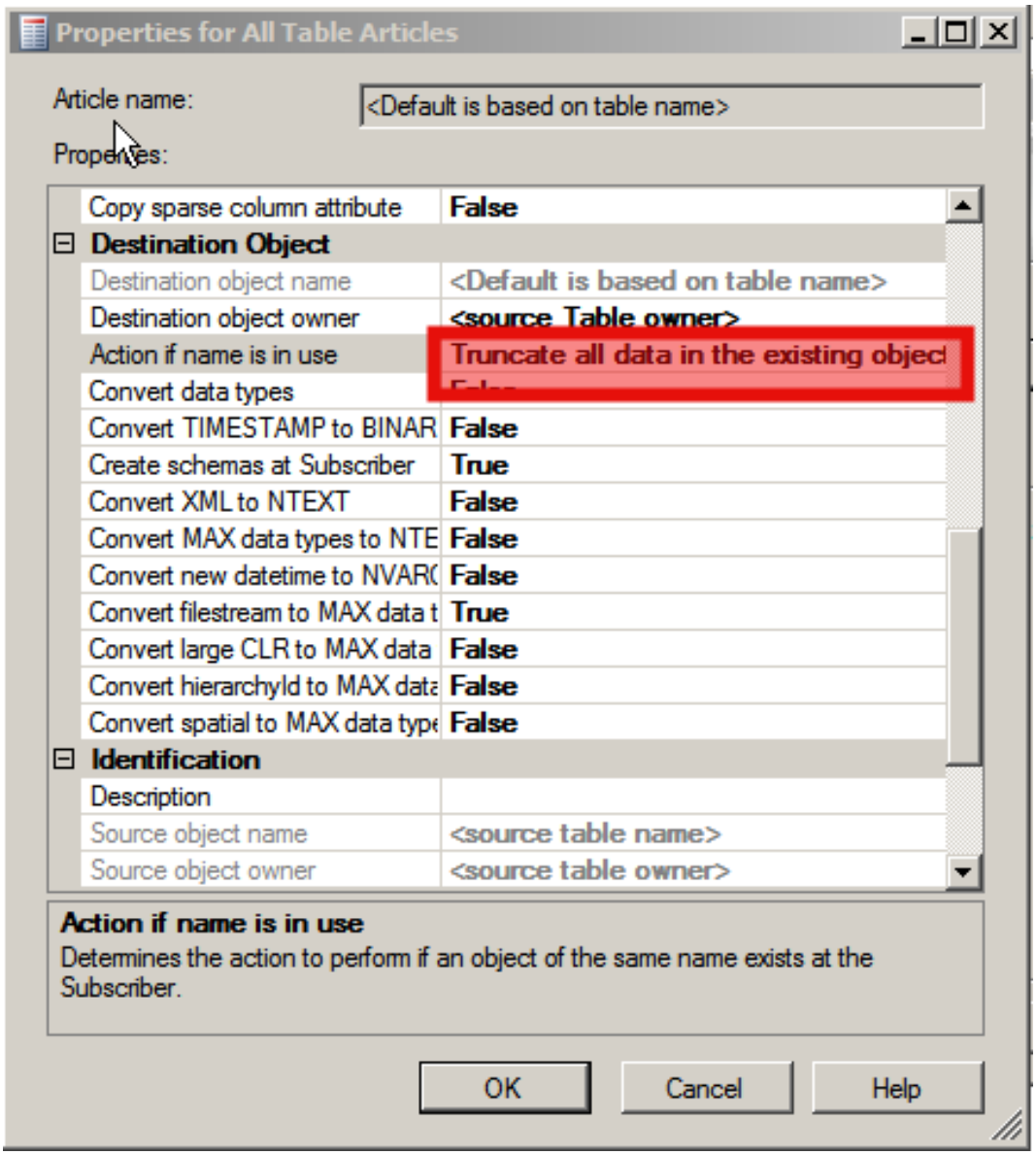


- Select all tables for the OTP database.
- Click on “Set Properties of All tables Articles”

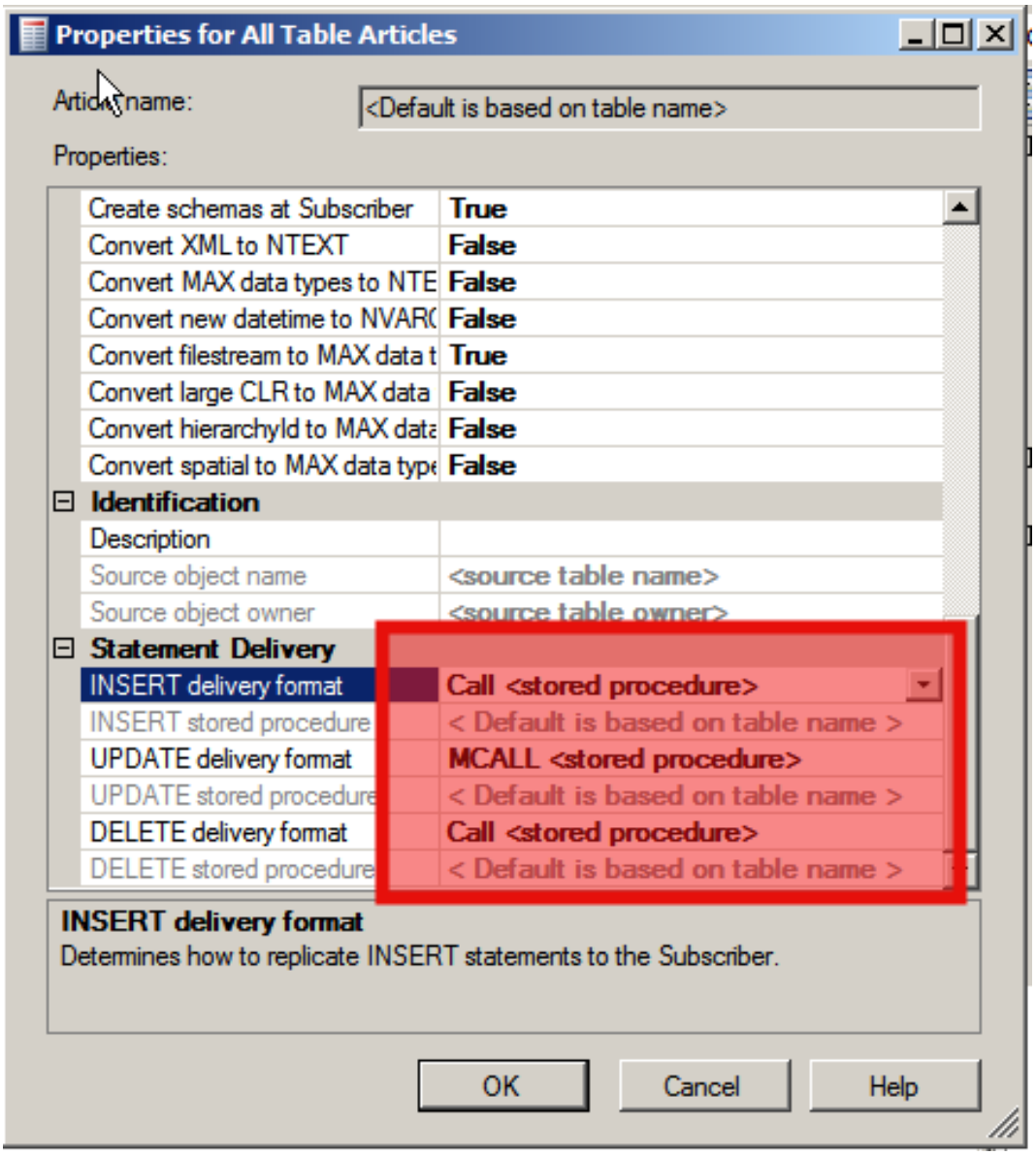


On Copy Objects and Settings to Subscriber, "Copy nonclustered indexes" and "Copy default value specifications" should be set to True.

This is to ensure that the default settings or values of the original database will be transferred to the replicated database.

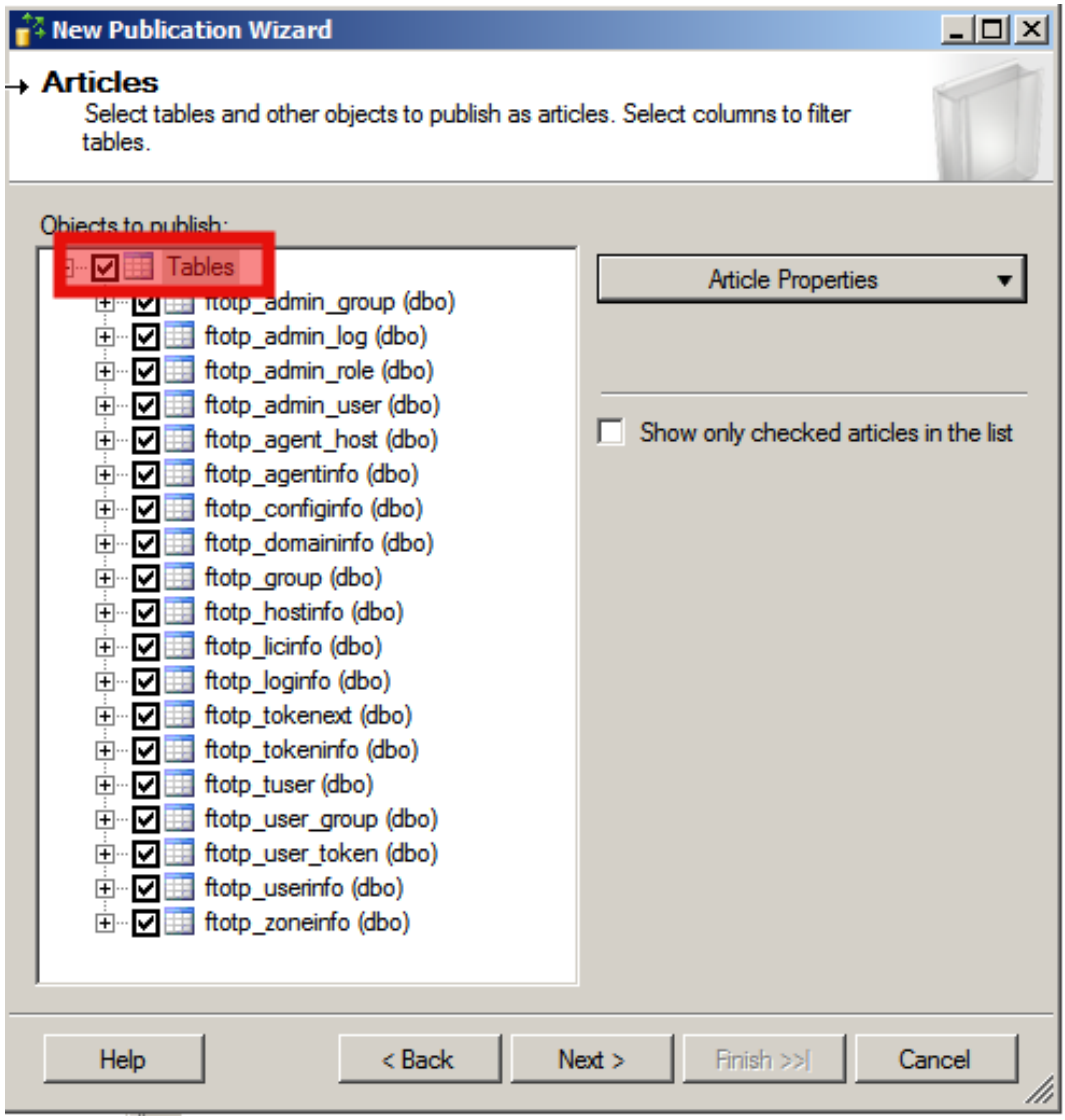


On Destination Object > Action if name is in use > Select “Truncate all data in the existing objects”

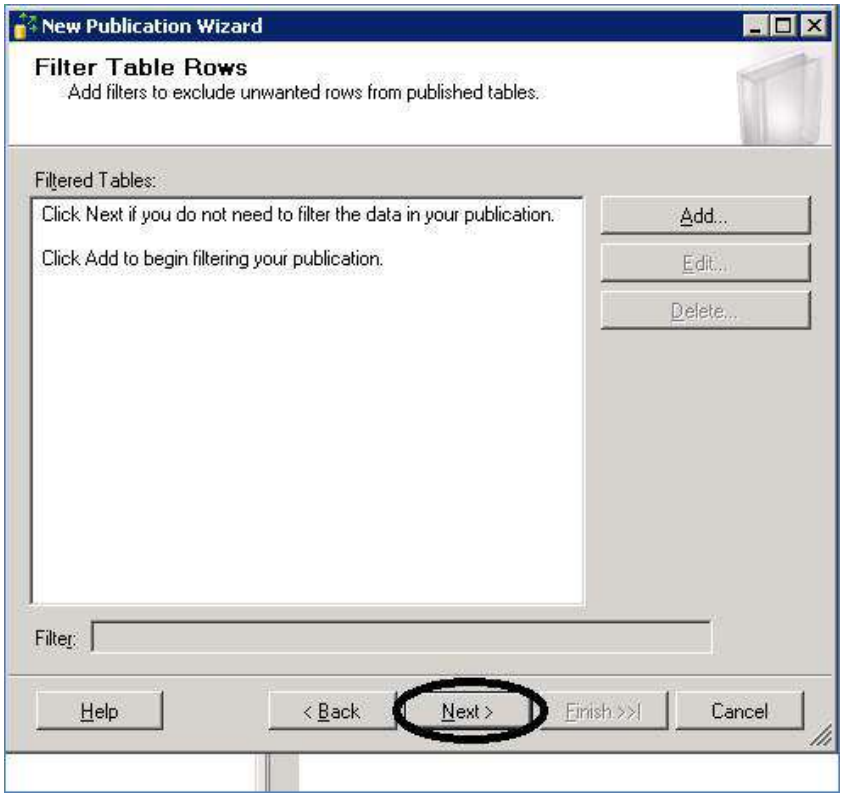


On Statement Delivery, update the items [INSERT, UPDATE, DELETE] as shown as above.

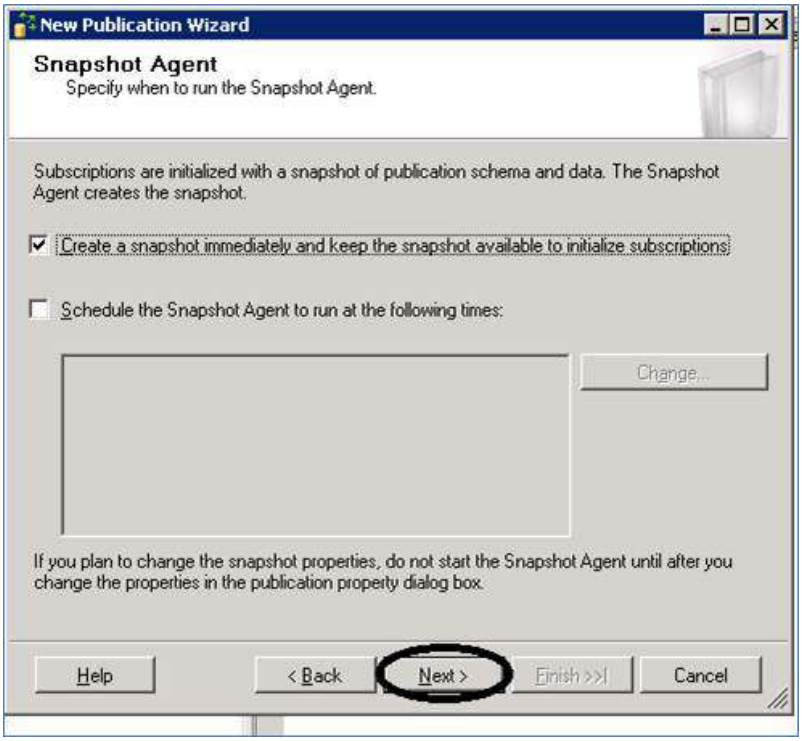
“

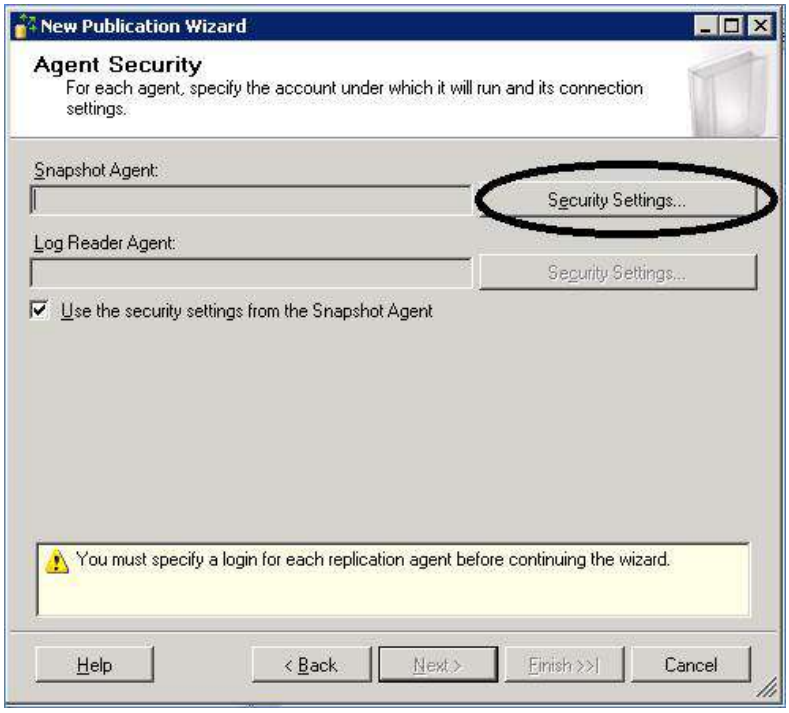


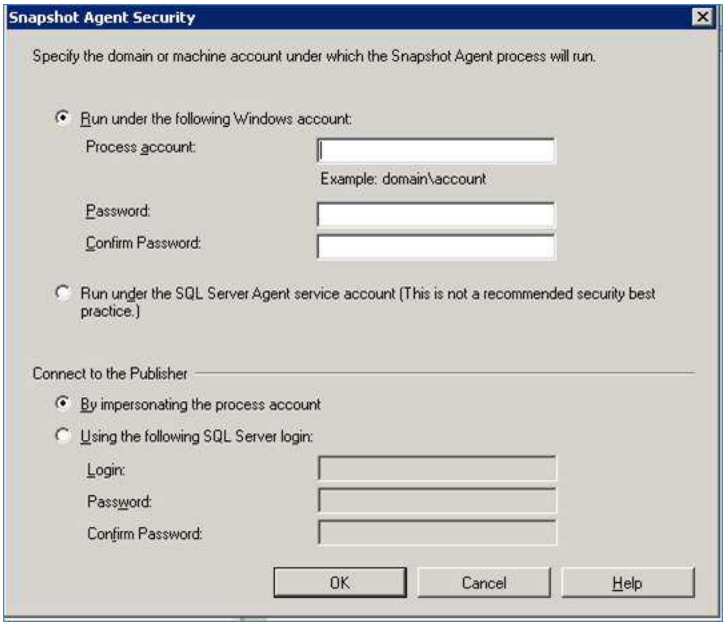
Click NEXT to continue.



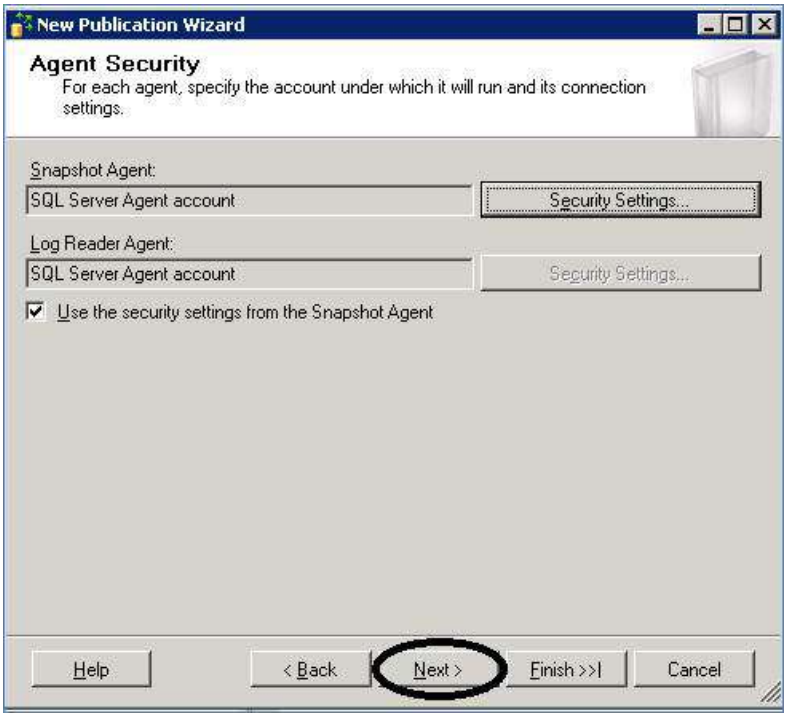
- no Filter is needed.



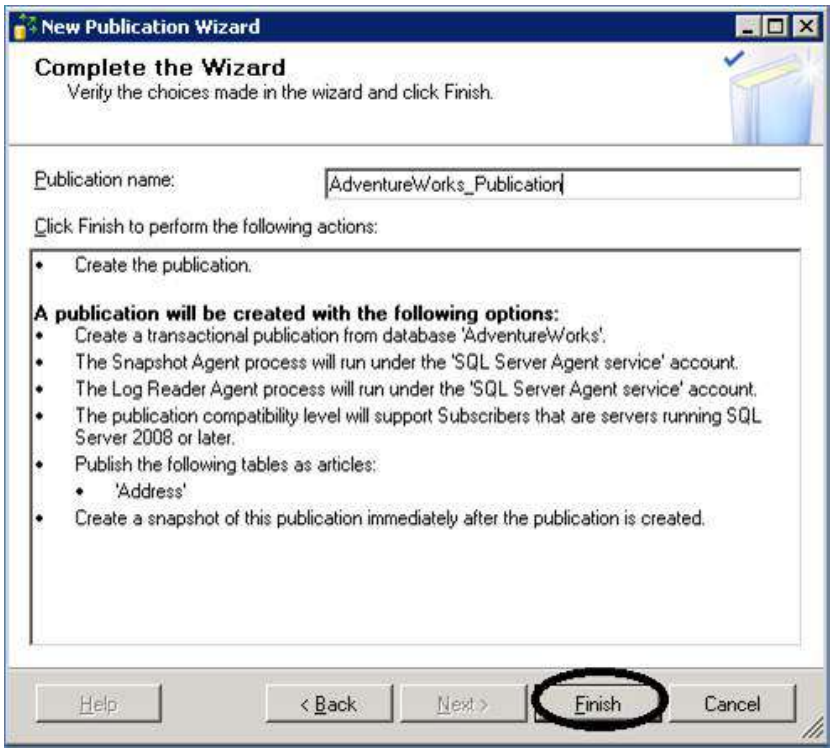




- Select “Run under the SQL Server Agent service account”
- On connect to the Publisher, select “By impersonating the process account”


New Publication Wizard
Agent Security
For each agent, specify the account under which it will run and its connection settings.
Snapshot Agent:
SQL Server Agent account
Security Settings...
Log Reader Agent:
SQL Server Agent account
Security Settings...
Use the security settings from the Snapshot Agent
Help
< Back
Next >
Finish >>|
Cancel


New Publication Wizard
Wizard Actions
Choose what happens when you click Finish.
At the end of the wizard:
Create the publication
Generate a script file with steps to create the publication
Help
< Back
Next >
Finish >>|
Cancel

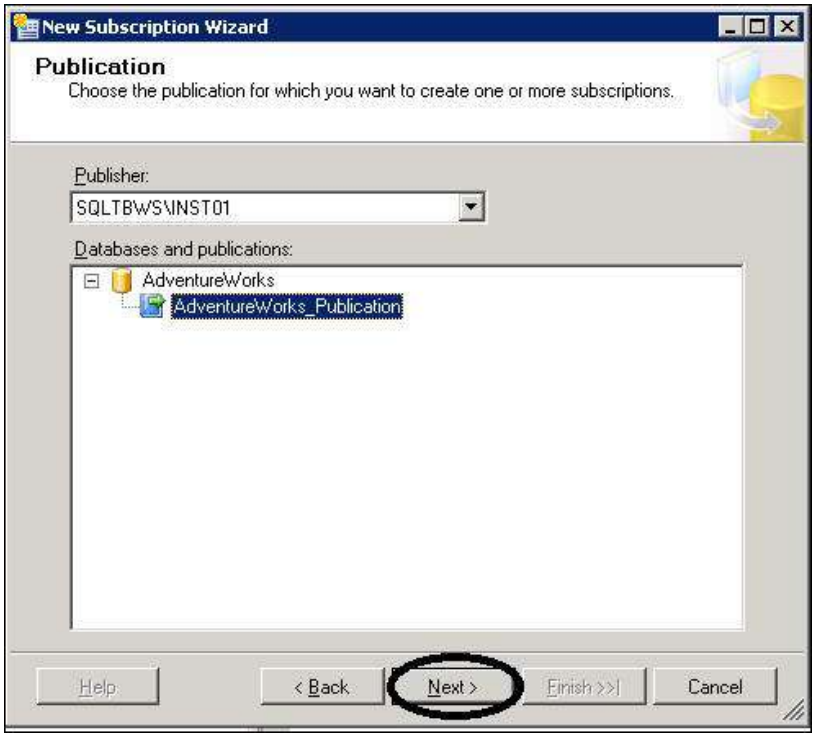


- Use otppub on the publication name.
- Click Finish.

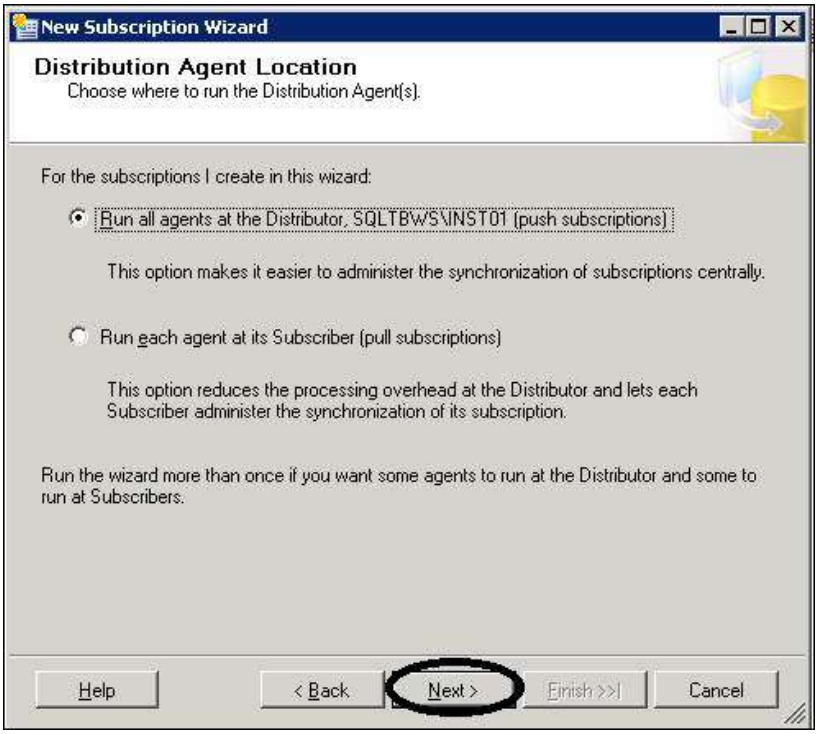
Create the SUBSCRIBER

1. Right click on the publisher create and select New Subscription.

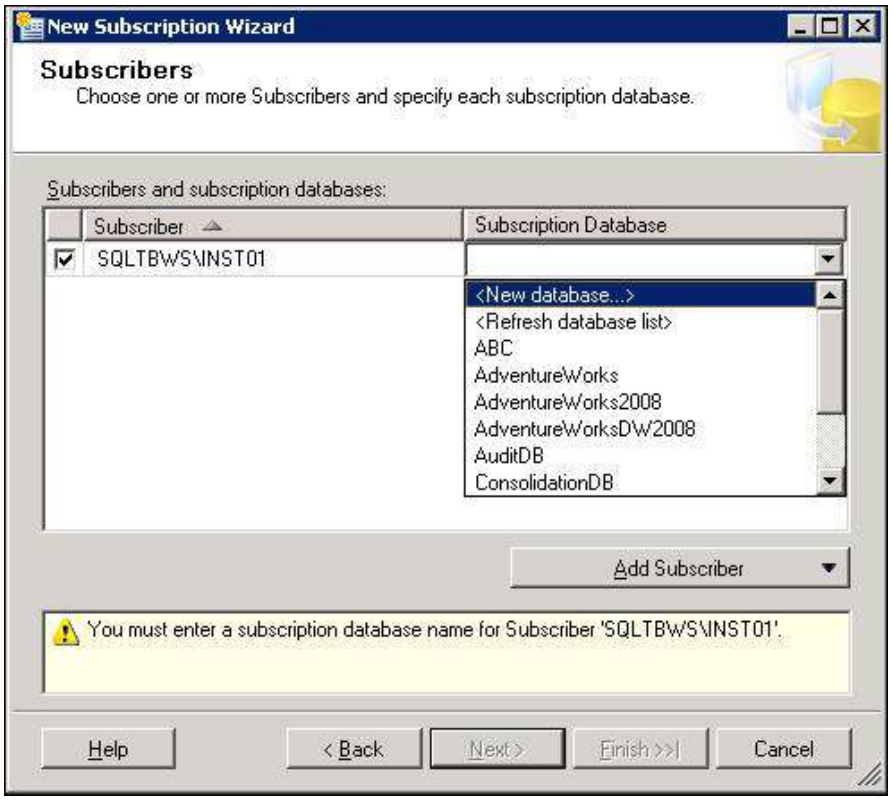
- here the otppub should be listed.



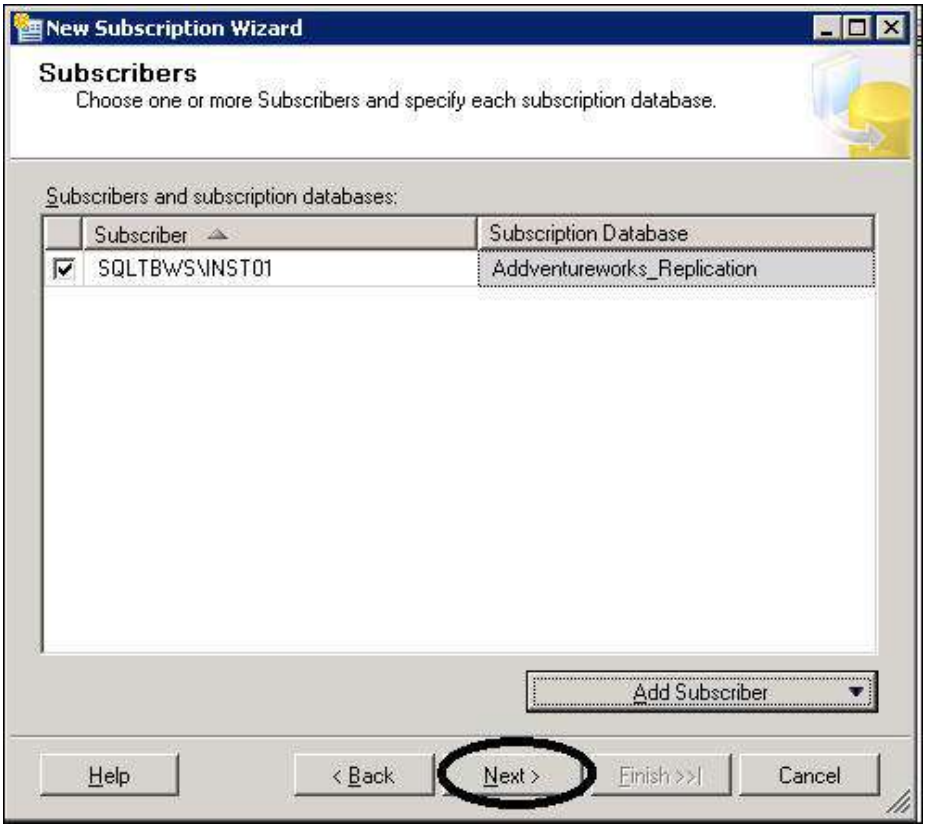
- here the otppub is listed.



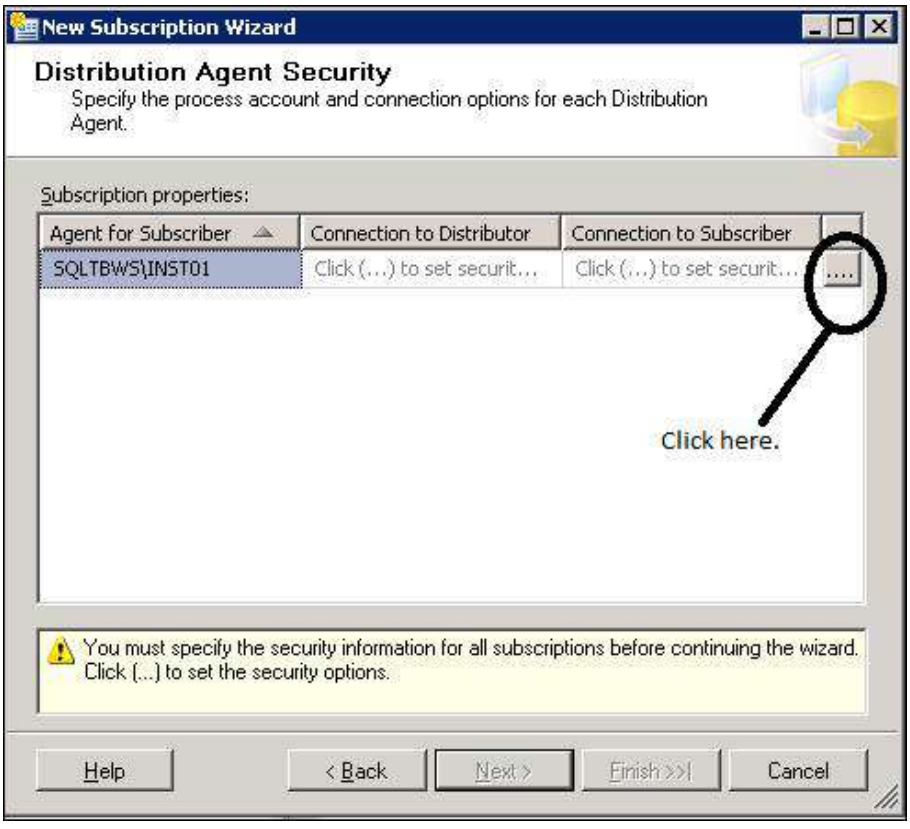
- If PUSH subscription, select the first option otherwise, select the second option for setting up PULL subscription.

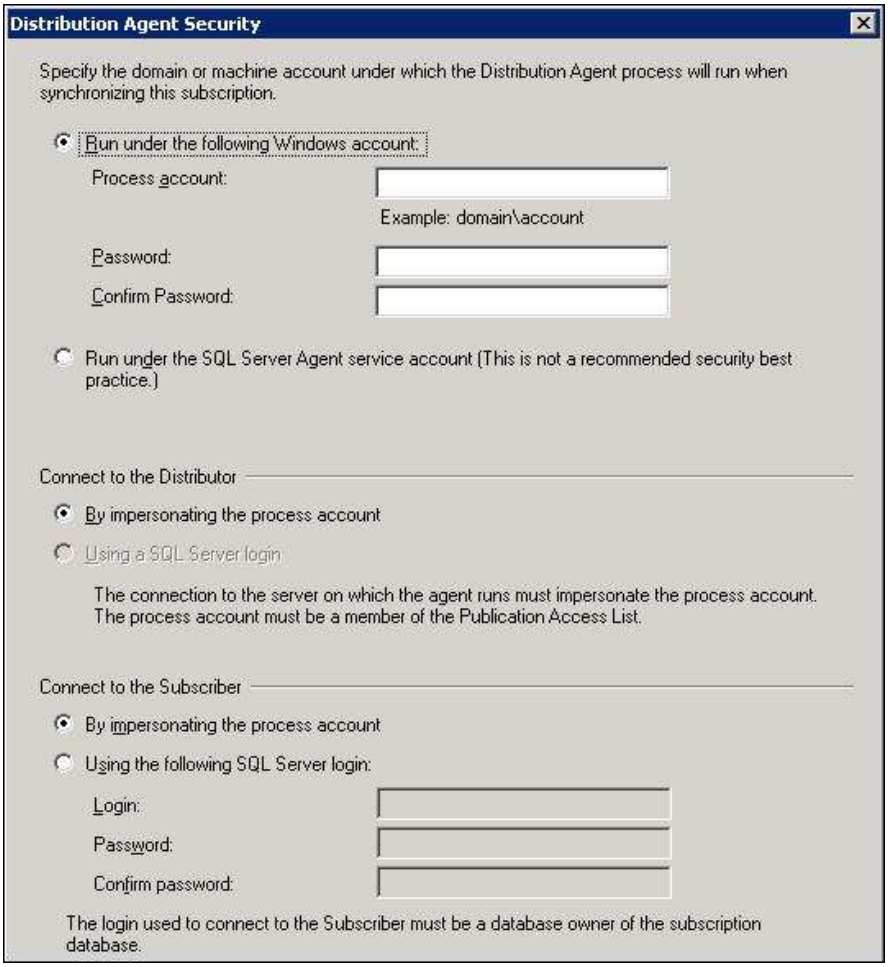


- Click on ADD SUBSCRIBER and login to the backup or DR site server.

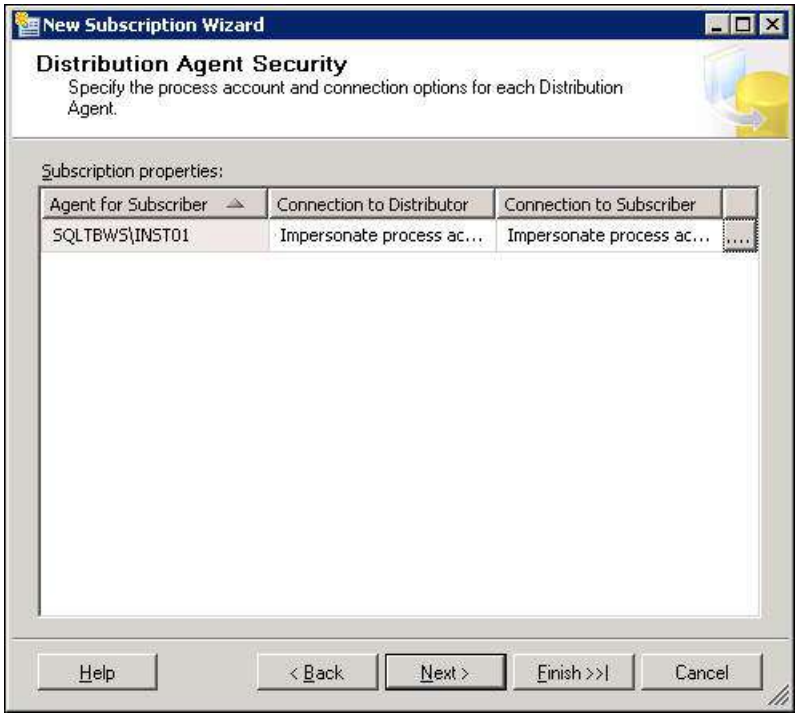


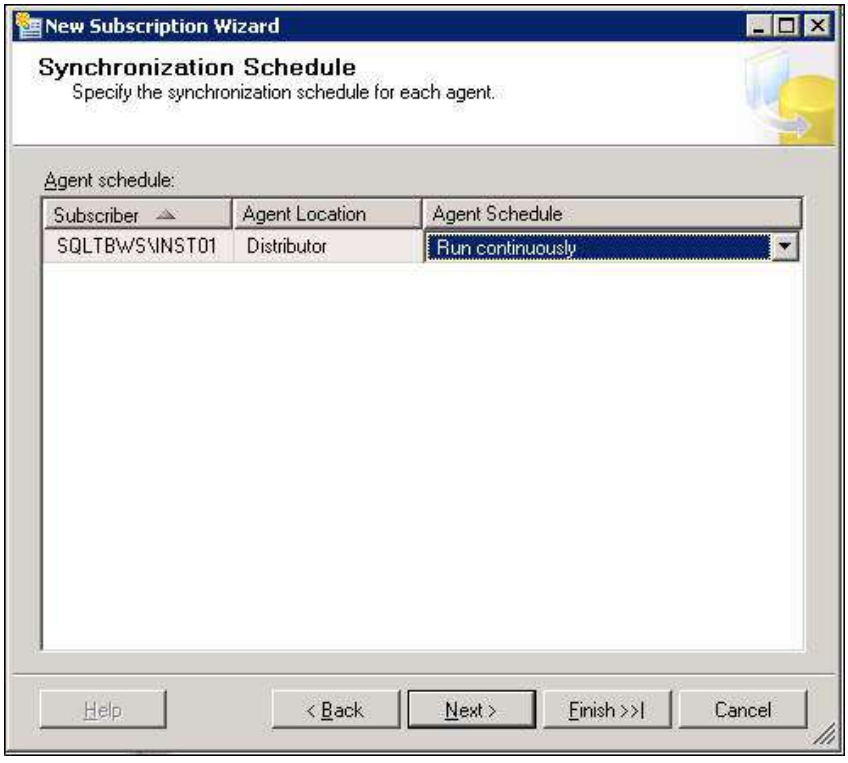
- select the OTP database which is located in the backup or DR site server.

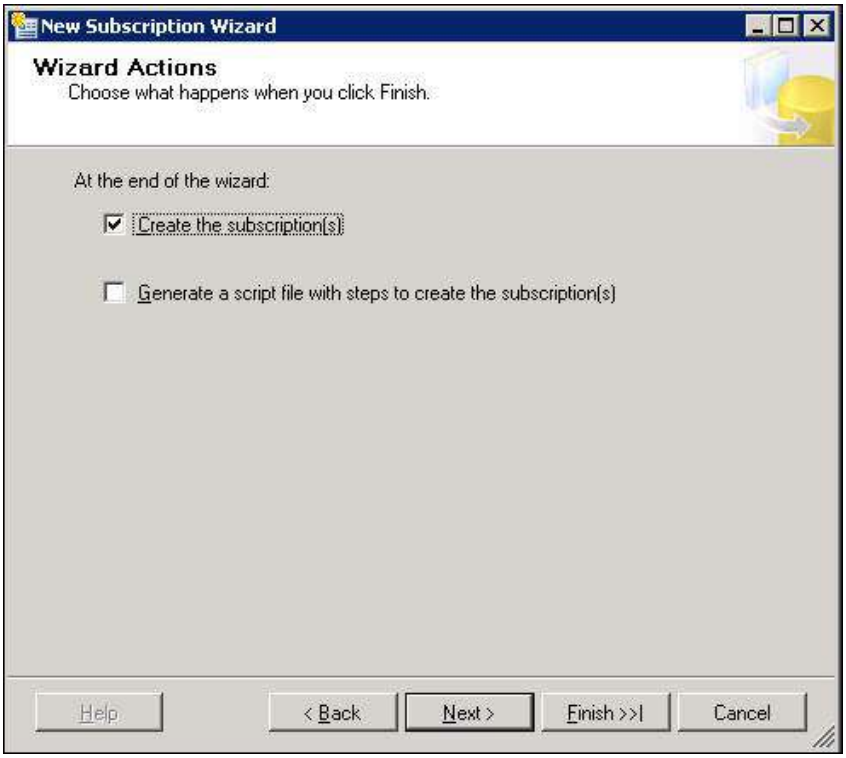




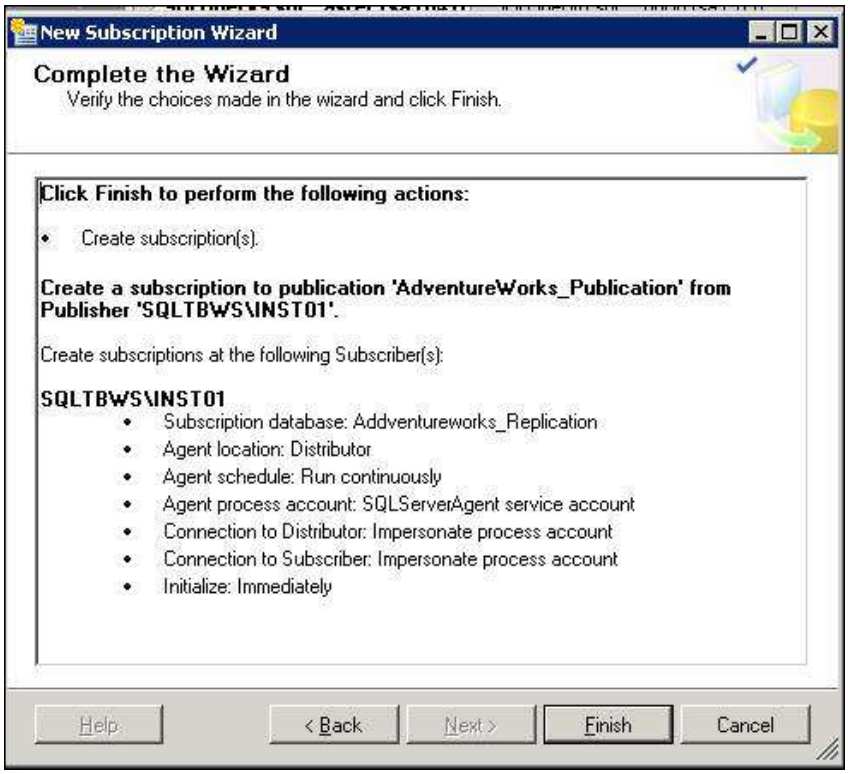
- Select “Run under SQL SERVER AGENT service account”
- On Connect to the Distributor - select “By impersonating the process account”
- On Connect to the Subscriber - select “Using the following SQL Server login”. You may use Sa and the password.


New Subscription Wizard
Distribution Agent Security
Specify the process account and connection options for each Distribution Agent.
Subscription properties:
Agent for Subscriber
Connection to Distributor
Connection to Subscriber
SQLTBWS\INST01
Impersonate process ac...
Impersonate process ac...
....
Help
< Back
Next >
Finish >>|
Cancel


New Subscription Wizard
Synchronization Schedule
Specify the synchronization schedule for each agent.
Agent schedule:
Subscriber
Agent Location
Agent Schedule
SQLTBWS\INST01
Distributor
Run continuously
Help
< Back
Next >
Finish >>|
Cancel



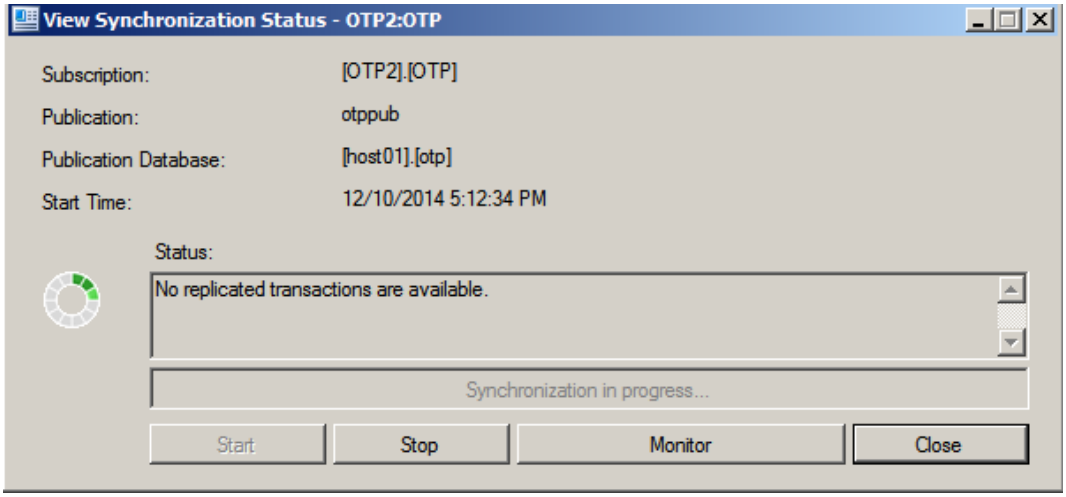
- use otpsub as the name of the subscription.



You have successfully set the Transactional Replication in SQL Server 2008 R2

Check Synchronization Status

1. Search for the subscription> right click and select > View synchronization status.



Ensure the correct Stored Procedures are created on the Subscriber

1. Run the "Update_script.sql" on the DR/Backup Server OTP Database. (Note: Please refer on the attachment " Update_script.sql", if no attachment is found, just simply create a new query on the OTP Database and type the script below:

```
---ON Subcriber do:
------------------------------------------------------------------------
--Using SQL Enterprise Manager update the following field:
--[dbo].[ftotp_admin_group]   ==> [groupid]   [int] IDENTITY(1, 1) NOT NULL ,
--[dbo].[ftotp_admin_log]     ==> [logid]     [int] IDENTITY(1, 1) NOT NULL ,
--[dbo].[ftotp_admin_role]    ==> [groupid]   [int] IDENTITY(1, 1) NOT NULL ,
--[dbo].[ftotp_admin_user]    ==> [userid]    [int] IDENTITY(1, 1) NOT NULL ,
--[dbo].[ftotp_domaininfo]    ==> [domainid]  [int] IDENTITY(1, 1) NOT NULL ,
--[dbo].[ftotp_group]         ==> [groupid]   [int] IDENTITY(1, 1) NOT NULL ,
--[dbo].[ftotp_loginfo]       ==> [idnum]     [int] IDENTITY(1, 1) NOT NULL ,
--[dbo].[ftotp_tuser]         ==> [tid]       [int] IDENTITY(1, 1) NOT NULL ,
--[dbo].[ftotp_zoneinfo]      ==> [zoneid]    [int] IDENTITY(1, 1) NOT NULL ,


-- OPen SQL Analyse and run this script:
--sp_MSins_ftotp_admin_group
Alter procedure "sp_MSins_dboftotp_admin_group" @c1 int,@c2
varchar(64),@c3 varchar(255),@c4 varchar(32)
AS
BEGIN
set identity_insert ftotp_admin_group on
```

```
insert into "ftotp_admin_group"("groupid", "groupname", "groupdesc",
"membership")
values (@c1, @c2, @c3, @c4)
set identity_insert ftotp_admin_group off
END
GO

--sp_MSins_ftotp_admin_log
alter procedure "sp_MSins_dboftotp_admin_log" @c1 int,@c2 varchar(64),@c3
int,@c4 datetime,@c5 varchar(64),@c6 int,@c7 varchar(64),@c8
varchar(64),@c9 varchar(64),@c10 varchar(64),@c11 varchar(64),@c12
varchar(64),@c13 varchar(64),@c14 varchar(255),@c15 varchar(255)
AS
BEGIN
set identity_insert ftotp_admin_log on
insert into "ftotp_admin_log"("logid", "operator", "domainid", "logtime",
"actionid", "actionresult", "actiondomain", "actionadmingroup",
"actionadminuser", "actionuser", "actiontoken", "actionhost", "actionagent",
"actiondesc", "hashcode")
values (@c1, @c2, @c3, @c4, @c5, @c6, @c7, @c8, @c9, @c10, @c11, @c12,
@c13, @c14, @c15)
set identity_insert ftotp_admin_log off
END
GO

--sp_MSins_ftotp_admin_role
Alter procedure "sp_MSins_dboftotp_admin_role" @c1 int,@c2
varchar(64),@c3 int,@c4 int,@c5 int,@c6 int,@c7 int,@c8 int,@c9 int,@c10
int,@c11 int,@c12 int,@c13 int,@c14 int,@c15 int,@c16 varchar(255)
AS
BEGIN
set identity_insert ftotp_admin_role on
insert into "ftotp_admin_role"("groupid", "groupname", "userprivs",
"tokenprivs", "hostprivs", "agentprivs", "userlogprivs", "domainprivs",
"admingroupprivs", "adminuserprivs", "adminlogprivs", "admingroup",
"usergroup", "distprivs", "otherprivs", "groupdesc")
values (@c1, @c2, @c3, @c4, @c5, @c6, @c7, @c8, @c9, @c10, @c11, @c12,
@c13, @c14, @c15, @c16)
set identity_insert ftotp_admin_role off
END
GO

--sp_MSins_ftotp_admin_user
```

```
Alter procedure "sp_MSins_dboftotp_admin_user" @c1 int,@c2
varchar(64),@c3 int,@c4 int,@c5 int,@c6 varchar(64),@c7 int,@c8 int,@c9
int,@c10 varchar(64),@c11 varchar(255)
AS
BEGIN
set identity_insert ftotp_admin_user on
insert into "ftotp_admin_user"("userid", "username", "domainid", "roleid",
"admgroupid", "password", "errorcnt", "locktimeout", "loginlock", "watermark",
"userdesc")
values (@c1, @c2, @c3, @c4, @c5, @c6, @c7, @c8, @c9, @c10, @c11)
set identity_insert ftotp_admin_user off
END
GO

--sp_MSins_ftotp_domaininfo
Alter procedure "sp_MSins_dboftotp_domaininfo" @c1 int,@c2
varchar(64),@c3 int,@c4 int,@c5 varchar(255)
AS
BEGIN
set identity_insert ftotp_domaininfo on
insert into "ftotp_domaininfo"("domainid", "domainname", "parentid",
"domainlevel", "domaindesc")
values(@c1, @c2, @c3, @c4, @c5)
set identity_insert ftotp_domaininfo off
END
GO

--sp_MSins_ftotp_group
Alter procedure "sp_MSins_dboftotp_group" @c1 int,@c2 varchar(32),@c3
varchar(128)
AS
BEGIN
set identity_insert ftotp_group on
insert into "ftotp_group"("groupid", "groupname", "groupdesc")
values(@c1, @c2, @c3)
set identity_insert ftotp_group off
END
GO

--sp_MSins_ftotp_loginfo
Alter procedure "sp_MSins_dboftotp_loginfo" @c1 int,@c2 varchar(64),@c3
varchar(32),@c4 datetime,@c5 varchar(255),@c6 int,@c7 varchar(255)
AS
BEGIN
set identity_insert ftotp_loginfo on
```

```
insert into "ftotp_loginfo"("idnum", "userid", "token", "otptime", "logcontent",
"loglevel", "hashcode")
values (@c1, @c2, @c3, @c4, @c5, @c6, @c7)
set identity_insert ftotp_loginfo off
END
GO

--sp_MSins_ftotp_tuser
Alter procedure "sp_MSins_dboftotp_tuser" @c1 int,@c2 varchar(64),@c3
varchar(50),@c4 varchar(50),@c5 int,@c6 varchar(50)
AS
BEGIN
set identity_insert ftotp_tuser on
insert into "ftotp_tuser"("tid", "tusername", "taddtime", "tupdatetime", "tisdel",
"tdeltime")
values(@c1, @c2, @c3, @c4, @c5, @c6)
set identity_insert ftotp_tuser off
END
GO

--sp_MSins_ftotp_zoneinfo
Alter procedure "sp_MSins_dboftotp_zoneinfo" @c1 int,@c2 varchar(64),@c3
int,@c4 varchar(255)
AS
BEGIN
set identity_insert ftotp_zoneinfo on
insert into "ftotp_zoneinfo"("zoneid", "zonename", "zonenumber", "zonedesc")
values(@c1, @c2, @c3, @c4)
set identity_insert ftotp_zoneinfo off
END
GO


--sp_MSupd_ftotp_admin_group
Alter procedure "sp_MSupd_dboftotp_admin_group"
 @c1 int,@c2 varchar(64),@c3 varchar(255),@c4 varchar(32),@pkc1 int
,@bitmap binary(1)
as
begin
update "ftotp_admin_group" set
"groupname" = case substring(@bitmap,1,1) & 2 when 2 then @c2 else
"groupname" end
,"groupdesc" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else
"groupdesc" end
```

```
,"membership" = case substring(@bitmap,1,1) & 8 when 8 then @c4 else
"membership" end
where "groupid" = @pkc1
if @@rowcount = 0
        if @@microsoftversion>0x07320000
                exec sp_MSreplraiserror 20598
end
GO

--sp_MSupd_ftotp_admin_log
Alter procedure "sp_MSupd_dboftotp_admin_log"
 @c1 int,@c2 varchar(64),@c3 int,@c4 datetime,@c5 varchar(64),@c6 int,@c7
varchar(64),@c8 varchar(64),@c9 varchar(64),@c10 varchar(64),@c11
varchar(64),@c12 varchar(64),@c13 varchar(64),@c14 varchar(255),@c15
varchar(255),@pkc1 int
,@bitmap binary(2)
as
begin
update "ftotp_admin_log" set
"operator" = case substring(@bitmap,1,1) & 2 when 2 then @c2 else "operator"
end
,"domainid" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else
"domainid" end
,"logtime" = case substring(@bitmap,1,1) & 8 when 8 then @c4 else "logtime"
end
,"actionid" = case substring(@bitmap,1,1) & 16 when 16 then @c5 else
"actionid" end
,"actionresult" = case substring(@bitmap,1,1) & 32 when 32 then @c6 else
"actionresult" end
,"actiondomain" = case substring(@bitmap,1,1) & 64 when 64 then @c7 else
"actiondomain" end
,"actionadmingroup" = case substring(@bitmap,1,1) & 128 when 128 then @c8
else "actionadmingroup" end
,"actionadminuser" = case substring(@bitmap,2,1) & 1 when 1 then @c9 else
"actionadminuser" end
,"actionuser" = case substring(@bitmap,2,1) & 2 when 2 then @c10 else
"actionuser" end
,"actiontoken" = case substring(@bitmap,2,1) & 4 when 4 then @c11 else
"actiontoken" end
,"actionhost" = case substring(@bitmap,2,1) & 8 when 8 then @c12 else
"actionhost" end
,"actionagent" = case substring(@bitmap,2,1) & 16 when 16 then @c13 else
"actionagent" end
,"actiondesc" = case substring(@bitmap,2,1) & 32 when 32 then @c14 else
"actiondesc" end
```

```
,"hashcode" = case substring(@bitmap,2,1) & 64 when 64 then @c15 else
"hashcode" end
where "logid" = @pkc1
if @@rowcount = 0
        if @@microsoftversion>0x07320000
                exec sp_MSreplraiserror 20598
end
GO

--sp_MSupd_ftotp_admin_role
Alter procedure "sp_MSupd_dboftotp_admin_role"
 @c1 int,@c2 varchar(64),@c3 int,@c4 int,@c5 int,@c6 int,@c7 int,@c8 int,@c9
int,@c10 int,@c11 int,@c12 int,@c13 int,@c14 int,@c15 int,@c16
varchar(255),@pkc1 varchar(64),@bitmap binary(3)
as
begin
update "ftotp_admin_role" set
"groupname" = case substring(@bitmap,1,1) & 1 when 1 then @c2 else
"groupname" end
,"userprivs" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else
"userprivs" end
,"tokenprivs" = case substring(@bitmap,1,1) & 8 when 8 then @c4 else
"tokenprivs" end
,"hostprivs" = case substring(@bitmap,1,1) & 16 when 16 then @c5 else
"hostprivs" end
,"agentprivs" = case substring(@bitmap,1,1) & 32 when 32 then @c6 else
"agentprivs" end
,"userlogprivs" = case substring(@bitmap,1,1) & 64 when 64 then @c7 else
"userlogprivs" end
,"domainprivs" = case substring(@bitmap,1,1) & 128 when 128 then @c8 else
"domainprivs" end
,"admingroupprivs" = case substring(@bitmap,2,1) & 1 when 1 then @c9 else
"admingroupprivs" end
,"adminuserprivs" = case substring(@bitmap,2,1) & 2 when 2 then @c10 else
"adminuserprivs" end
,"adminlogprivs" = case substring(@bitmap,2,1) & 4 when 4 then @c11 else
"adminlogprivs" end
,"admingroup" = case substring(@bitmap,2,1) & 8 when 8 then @c12 else
"admingroup" end
,"usergroup" = case substring(@bitmap,2,1) & 16 when 16 then @c13 else
"usergroup" end
,"distprivs" = case substring(@bitmap,2,1) & 32 when 32 then @c14 else
"distprivs" end
,"otherprivs" = case substring(@bitmap,2,1) & 64 when 64 then @c15 else
"otherprivs" end
```

```
,"groupdesc" = case substring(@bitmap,2,1) & 128 when 128 then @c16 else
"groupdesc" end
where "groupid" = @pkc1
if @@rowcount = 0
        if @@microsoftversion>0x07320000
                exec sp_MSreplraiserror 20598
end
GO

--sp_MSupd_ftotp_admin_user
Alter procedure "sp_MSupd_dboftotp_admin_user"
 @c1 int,@c2 varchar(64),@c3 int,@c4 int,@c5 int,@c6 varchar(64),@c7
int,@c8 int,@c9 int,@c10 varchar(64),@c11 varchar(255),@pkc1 varchar(64)
,@bitmap binary(2)
as
begin
update "ftotp_admin_user" set
"username" = case substring(@bitmap,1,1) & 1 when 1 then @c2 else
"username" end
,"domainid" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else
"domainid" end
,"roleid" = case substring(@bitmap,1,1) & 8 when 8 then @c4 else "roleid" end
,"admgroupid" = case substring(@bitmap,1,1) & 16 when 16 then @c5 else
"admgroupid" end
,"password" = case substring(@bitmap,1,1) & 32 when 32 then @c6 else
"password" end
,"errorcnt" = case substring(@bitmap,1,1) & 64 when 64 then @c7 else
"errorcnt" end
,"locktimeout" = case substring(@bitmap,1,1) & 128 when 128 then @c8 else
"locktimeout" end
,"loginlock" = case substring(@bitmap,2,1) & 1 when 1 then @c9 else "loginlock"
end
,"watermark" = case substring(@bitmap,2,1) & 2 when 2 then @c10 else
"watermark" end
,"userdesc" = case substring(@bitmap,2,1) & 4 when 4 then @c11 else
"userdesc" end
where "userid" = @pkc1
if @@rowcount = 0
        if @@microsoftversion>0x07320000
                exec sp_MSreplraiserror 20598
end
GO

--sp_MSupd_ftotp_domaininfo
Alter procedure "sp_MSupd_dboftotp_domaininfo"
```

```
 @c1 int,@c2 varchar(64),@c3 int,@c4 int,@c5 varchar(255),@pkc1 int
,@bitmap binary(1)
as
begin
update "ftotp_domaininfo" set
"domainname" = case substring(@bitmap,1,1) & 2 when 2 then @c2 else
"domainname" end
,"parentid" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else "parentid"
end
,"domainlevel" = case substring(@bitmap,1,1) & 8 when 8 then @c4 else
"domainlevel" end
,"domaindesc" = case substring(@bitmap,1,1) & 16 when 16 then @c5 else
"domaindesc" end
where "domainid" = @pkc1
if @@rowcount = 0
        if @@microsoftversion>0x07320000
                exec sp_MSreplraiserror 20598
end
GO

--sp_MSupd_ftotp_group
Alter procedure "sp_MSupd_dboftotp_group"
 @c1 int,@c2 varchar(32),@c3 varchar(128),@pkc1 int
,@bitmap binary(1)
as
begin
update "ftotp_group" set
"groupname" = case substring(@bitmap,1,1) & 2 when 2 then @c2 else
"groupname" end
,"groupdesc" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else
"groupdesc" end
where "groupid" = @pkc1
if @@rowcount = 0
        if @@microsoftversion>0x07320000
                exec sp_MSreplraiserror 20598
end
GO

--sp_MSupd_ftotp_loginfo
Alter procedure "sp_MSupd_dboftotp_loginfo"
 @c1 int,@c2 varchar(64),@c3 varchar(32),@c4 datetime,@c5
varchar(255),@c6 int,@c7 varchar(255),@pkc1 int
,@bitmap binary(1)
as
begin
```

```
update "ftotp_loginfo" set
"userid" = case substring(@bitmap,1,1) & 2 when 2 then @c2 else "userid" end
,"token" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else "token" end
,"otptime" = case substring(@bitmap,1,1) & 8 when 8 then @c4 else "otptime"
end
,"logcontent" = case substring(@bitmap,1,1) & 16 when 16 then @c5 else
"logcontent" end
,"loglevel" = case substring(@bitmap,1,1) & 32 when 32 then @c6 else "loglevel"
end
,"hashcode" = case substring(@bitmap,1,1) & 64 when 64 then @c7 else
"hashcode" end
where "idnum" = @pkc1
if @@rowcount = 0
        if @@microsoftversion>0x07320000
                exec sp_MSreplraiserror 20598
end
GO

--sp_MSupd_ftotp_tuser
Alter procedure "sp_MSupd_dboftotp_tuser"
 @c1 int,@c2 varchar(64),@c3 varchar(50),@c4 varchar(50),@c5 int,@c6
varchar(50),@pkc1 int
,@bitmap binary(1)
as
begin
update "ftotp_tuser" set
"tusername" = case substring(@bitmap,1,1) & 2 when 2 then @c2 else
"tusername" end
,"taddtime" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else
"taddtime" end
,"tupdatetime" = case substring(@bitmap,1,1) & 8 when 8 then @c4 else
"tupdatetime" end
,"tisdel" = case substring(@bitmap,1,1) & 16 when 16 then @c5 else "tisdel" end
,"tdeltime" = case substring(@bitmap,1,1) & 32 when 32 then @c6 else
"tdeltime" end
where "tid" = @pkc1
if @@rowcount = 0
        if @@microsoftversion>0x07320000
                exec sp_MSreplraiserror 20598
end
GO

--sp_MSupd_ftotp_zoneinfo
Alter procedure "sp_MSupd_dboftotp_zoneinfo"
 @c1 int,@c2 varchar(64),@c3 int,@c4 varchar(255),@pkc1 int
```

```
        ,@bitmap binary(1)
        as
        begin
        update "ftotp_zoneinfo" set
        "zonename" = case substring(@bitmap,1,1) & 2 when 2 then @c2 else
        "zonename" end
        ,"zonenumber" = case substring(@bitmap,1,1) & 4 when 4 then @c3 else
        "zonenumber" end
        ,"zonedesc" = case substring(@bitmap,1,1) & 8 when 8 then @c4 else
        "zonedesc" end
        where "zoneid" = @pkc1
        if @@rowcount = 0
                if @@microsoftversion>0x07320000
                        exec sp_MSreplraiserror 20598
        end
GO
```

Notes:

1. Transactional Replication is only a one way replication, all the updates from the Main Server database are replicated on the OTP Database on the DR/Backup Server.

2. The updates or changes that is made on the OTP Database in the DR/Backup Server is not replicated to OTP Database in Main Server. A manual restore of the OTP Database from DR/Backup Server to the Main Server should be performed.

3. If the OTP Database in Main Server and DR/Backup Server data is not synchronized with each other (eg. Admin Log table in Main Server have already 100 records and the Admin Log Table in DR/Backup Server have 101 or more records, or vice versa), this will result to an error, " ***violation of primary key constraint cannot insert duplicate key***".

   This error can be resolved depending on which server has the updated database or records.

   a) If the Main Server have the updated database or record, you need to reinitialize the replication using a new snapshot, so that the DR/Backup Server will be forced to have the updated database or record from the Main Server.

   b) If the DR/Backup Server have the updated database or record, you need to restore the updated database of DR/Backup Server to Main Server and reconfigure the replication. (Please see Restoring the updated database from DR/Backup server to Main Server for more information.)

4. To check if the data from Main Server is replicated on the DR/Backup Server, you may just simply do a query on both database. (Never check the replication using the OTP Web Manager, this will yield the error mentioned above.)

Restoring the updated database from DR/Backup server to Main Server

1. Backup the most recent OTP Database from the DR/Backup Server.
2. Copy the backup of the database to the Main Server.
3. Restore the OTP Database of Main Server using the backup database from DR/Backup Server.
4. Restoring the database will also delete the current replication configuration. You need to manually start the replication configuration. Just simply follow the steps above to have the replication reconfigured.