# SQL Replication Reference

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## Associate Objects with Publications

The association between objects and publications is stored in DBAdmin.Repl.PubObject. Objects can be tables, views, stored procedures, or functions. The following script can be used to query publications associated with a particular object. Update the variables @DatabaseName, @SchemaName and @ObjectName. This returns the last, and unique, part of the full publication name. The below query returns ‘SysproCompany100\_001 ‘. The complete publication name is

[SysproCompany100]: SysproCompany100\_001

Square brackets surrounding names must be removed. For more information on publication naming refer to the section [Publication Naming](#_Publication_Naming).

DECLARE @DatabaseName AS SYSNAME = 'SysproCompany100'

,@SchemaName AS SYSNAME = 'dbo'

,@ObjectName AS SYSNAME = 'ApWithholdTax';

SELECT Publication, [Schema], [Object], [Type], PubCreatedOn

FROM DBAdmin.Repl.PubObject

WHERE Publication LIKE (@DatabaseName + '%')

AND [Schema] = @SchemaName

AND [Object] = @ObjectName;

The following script can be used to query objects associated with a particular publication. Update the variable @PublicationName. Note: only use the last, and unique, part of the publication name, as returned by the above query. For more information on publication naming refer to the section [Publication Naming](#_Publication_Naming).

DECLARE @PublicationName AS SYSNAME = 'SysproCompany100\_001';

SELECT Publication, [Schema], [Object], [Type], PubCreatedOn

FROM DBAdmin.Repl.PubObject

WHERE Publication = @PublicationName

ORDER BY [Schema], [Type], [Object];

## Publication Naming

The naming convention for publications is:

[*source\_database*]: *destination\_database*\_*unique\_identifier*

An example publication name is:

[SysproCompany100]: SysproCompany100\_001.

## Dropping a Publication

Dropping a publication consists of the following steps

1. Dropping subscriptions to the publication.
2. Dropping the publication.

These steps are contained in the set of scripts named *database\_name*\_DropRepl.sql. For example, the drop publication script for SysyproCompany100 is named SysproCompany100\_DropRepl.sql. To run the script

1. Open the script in SSMS
2. Enter [CMD mode](#_CMD_Mode)
3. Set the script variables Pub and Pubs to the publication name. Only one publication can be entered at a time. Rerun the script for each publication. For example, to drop the publication SysproCompany100\_005 set the variables as follows:

:SETVAR Pub "SysproCompany100\_005"

:SETVAR PubS "'SysproCompany100\_005'"

## Create a Publication

Creating a publication consists of the following steps

1. Set DbAdmin.dbo.PubObject.PubCreatedOn = ‘0001-01-01’ for all rows

WHERE Publication = ‘*publication\_name*’

1. Adding a publication
2. Adding a publication snapshot
3. Adding articles to the publication

Steps 2 – 4 are contained in the set of scripts named *database\_name*\_CreatePub.sql. For example, the create publication script for SysyproCompany100 is named SysproCompany100\_CreatePub.sql. To run the script

1. Open the script in SSMS
2. Enter [CMD mode](#_CMD_Mode)
3. Set the script variables Pub and Pubs to the publication name. Only one publication can be entered at a time. Rerun the script for each publication. For example, to create the publication SysproCompany100\_005 set the variables as follows:

:SETVAR Pub "SysproCompany100\_005"

:SETVAR PubS "'SysproCompany100\_005'"

## Start Replication

Starting replication consists of the following steps

1. Add a subscription to the publication at the publisher
2. Add a subscription to the publication at the subscriber
3. Add a job for the subscription at the subscriber
4. Start the snapshot for the publication

These steps are contained in the set of scripts named *database\_name*\_StartRepl.sql. For example, the start replication script for SysproCompny100 is named SysproCompany100\_StartRepl.sql. To run the script

1. Open the script in SSMS
2. Enter [CMD mode](#_CMD_Mode)
3. Set the script variables Pub and Pubs to the publication name. Only one publication can be entered at a time. Rerun the script for each publication. For example, to start replication for the publication SysproCompany100\_005 set the variables as follows:

:SETVAR Pub "SysproCompany100\_005"

:SETVAR PubS "'SysproCompany100\_005'"

## SQLCMD Mode

To enter CMD mode.

1. Open the script you want to run in SSMS.
2. Select Query -> SQLCMD Mode.

## DBAdmin.Repl.PubObject

The table DBAdmin.Repl.PubObject contains all publications, the objects they contain and the date the publication was created in the following format.

**PubObjectId Publication Schema Object Type PubCreatedOn**

102953 SysproCompany100\_005 dbo udf\_OrderUnitPrice Function 2020-05-17 21:56:34.1387947

When a publication is created this table is referenced to determine what articles to create and associate with the publication. If the PubCreatedOn does not equal ‘0001-01-01’ then it is assumed that the article already exists and no attempt will be made to create it. Before a publication and its articles are created all rows matching the publication must have PubCreatedOn set to ‘0001-01-01’, signifying that the article does not exist. To set PubCreatedOn to '0001-01-01' for all rows where Publication = SysproCompany100\_005 run the following.

DECLARE @PublicationName AS SYSNAME = 'SysproCompany100\_005';

UPDATE [DBAdmin].[Repl].[PubObject]

SET PubCreatedOn = '0001-01-01'

WHERE Publication = @PublicationName

## Publication Object Assignment

Objects are assigned to publications as follows:

* Publications ending in \_001 contain empty tables.
* Publications ending in \_002 contain tables containing >1 AND <10,000 rows.
* Publications ending in \_003 contain tables containing >10,000 AND <1,000,000 rows.
* Publications ending in \_004 contain table containing >1,000,000 rows.
* Publications ending in \_005 contain stored procedures, functions and views.
* Publications ending in \_006 or greater contain snapshots.

## Adding Objects to Replication

If a new object (table tec.) is added to a database and the object needs to be replicated, a row will have to be added to DbAdmin.dbo.PubObject and the publication that the new object will be assigned to will have to be recreated.

## Monitoring Replication Startup

After the *database\_name*\_StartRepl.sql script has completed the next phase of replication startup can be monitored within Replication Monitor. Select the publication you wish to monitor, select the Agents tab and check the snapshot progress. When the snapshot has been created and copied to the distribution file share the snapshot complete percent will be 100%. The next step is to apply the snapshot. This can be monitored from Resource Monitor by observing disk activity. Start Task Manager -> Performance tab -> Open Resource Monitor at bottom of page. Select the Disk tab. Expand Disk Activity. Sort by Total (B/sec). First .sch files will be applied to create the database objects. Next the .bcp files will be applied to populate the tables with data.