

# PrivateWire Gateway Load Balancing and High Availability using Microsoft SQL Server Replication

## Introduction

The following document describes how to install PrivateWire in high availability mode using database replication. For more information please refer to PrivateWire documentation chapter 21

This document is about to describe an advance PrivateWire Gateway configuration, and SQL Server configuration assuming the reader has pretty good understanding and knowledge of PrivateWire Gateway, SQL Server and networking.

When performing SQL replication between PrivateWire gateways, we recommend replicating only the users and group tables (list of tables to replicate can be found later in this document). Meaning that all other information such as rules or setup parameters should be entered in both replicated gateways manually.

## Prerequisites

1. It is assumed that the reader has pretty good knowledge of PrivateWire and a good knowledge of Microsoft SQL Server and how to setup Microsoft SQL server in database replication mode.
2. Environment: Two Gateways installed using ODBC wizard on Microsoft SQL Server Database.
3. Each gateway need to have a special gateway ID assigned to (it requested during the ODBC compliant installation)
4. All of the gateways should be joined to Microsoft Domain (NT,2000,2003)
5. In order to eliminate some permissions and access problems SQL Server services (*Ms SQL Server* and *SQL Server Agent*) should be configure to run as the same domain user account (not local system account)  
Note: Be sure that the domain user account you are using has local administrator privileges on the gateways.
6. Use the PrivateWire administration to define the gateway configurations such as rules-tables, definitions, servers and setup parameters on each gateway before establishing the replication process.
7. The gateway's rules table should allow communication between the gateways on the SQL server port (default is 1433), and Microsoft Directory services ports.

## SQL Server Replication Terminology

### Merge replication

Merge replication is the process of distributing data from Publisher to Subscribers, allowing the Publisher and Subscribers to make updates while connected or disconnected, and then merging the updates between sites when they are connected. Merge replication is "many to many" replication.

### Publication

A publication is a collection of one or more articles from one database. This grouping of multiple articles makes it easier to specify a logically related set of data and database objects that you want to replicate together.

### Subscriber

Subscribers are servers that receive replicated data. Subscribers subscribe to publications, not to individual articles within a publication, and they subscribe only to the publications that they need

### Distributor

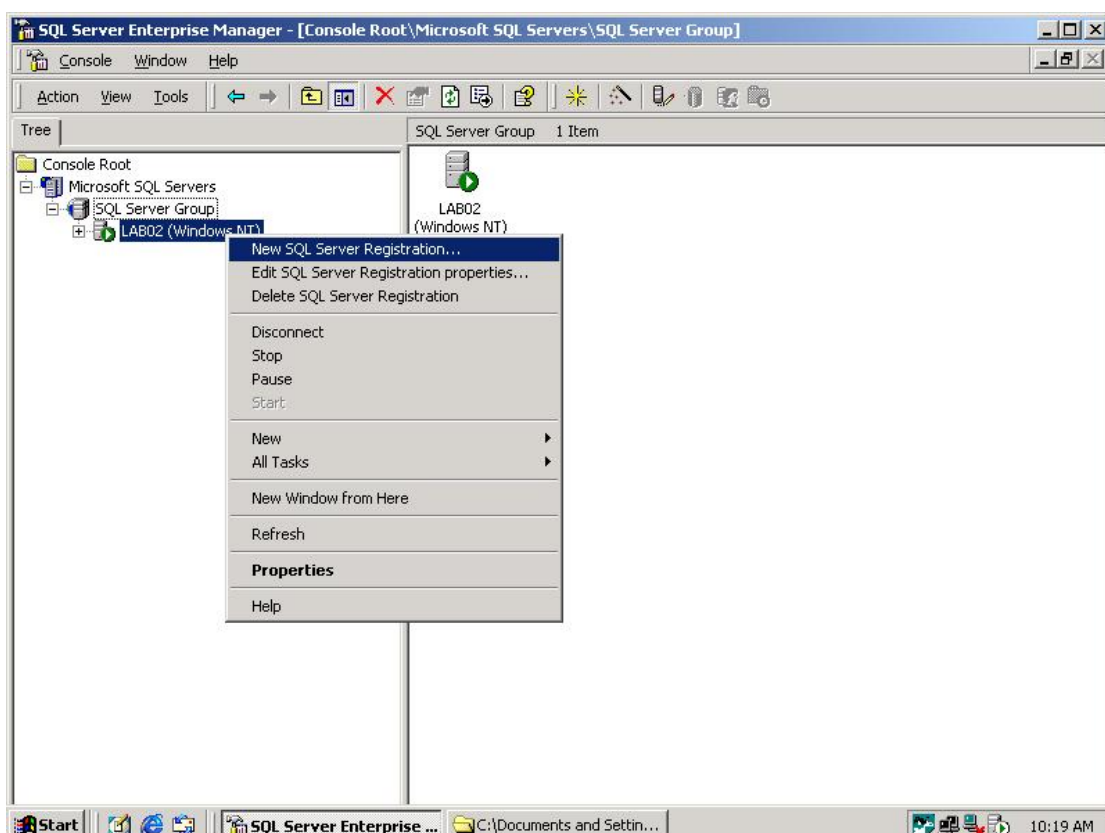
The Distributor is a server that hosts the distribution database and stores history data, and/or transactions and Meta data

## **Setting database replication**

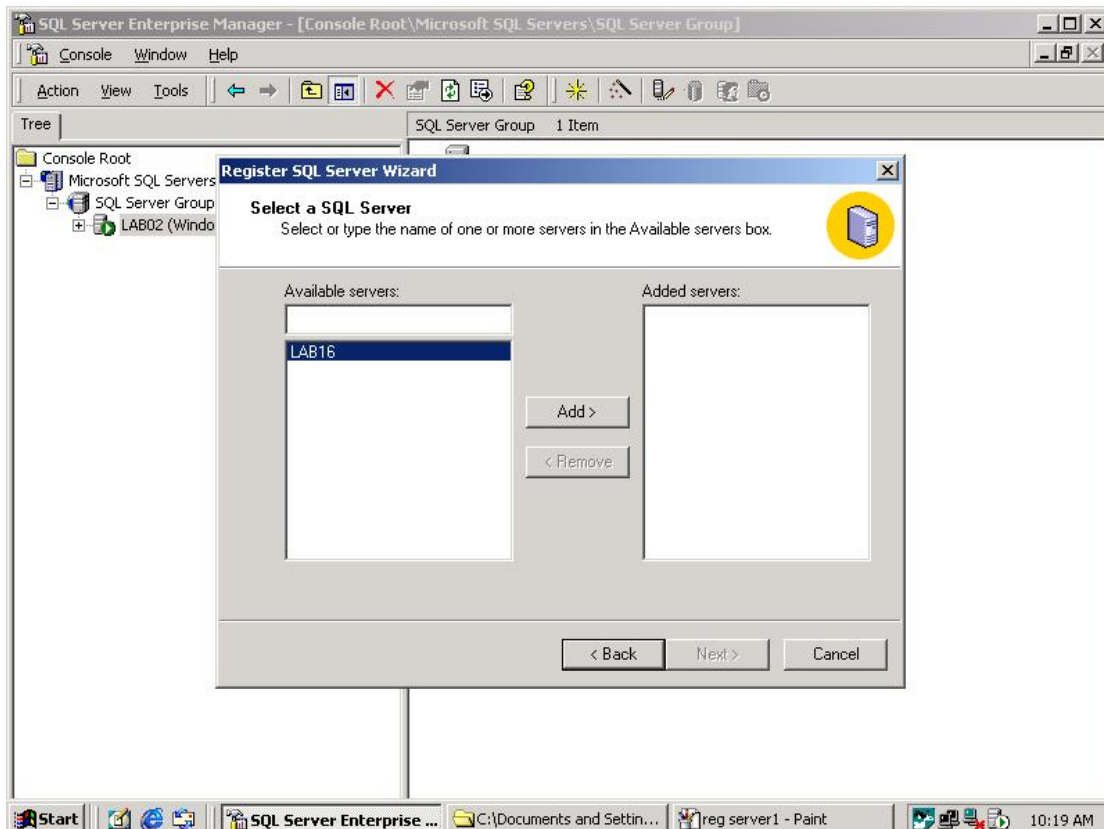
### SQL Servers registration

In order to ensure proper installation and to ease up some procedures it would be better to register both SQL Servers on the machine that you are going to manage the replication process from.

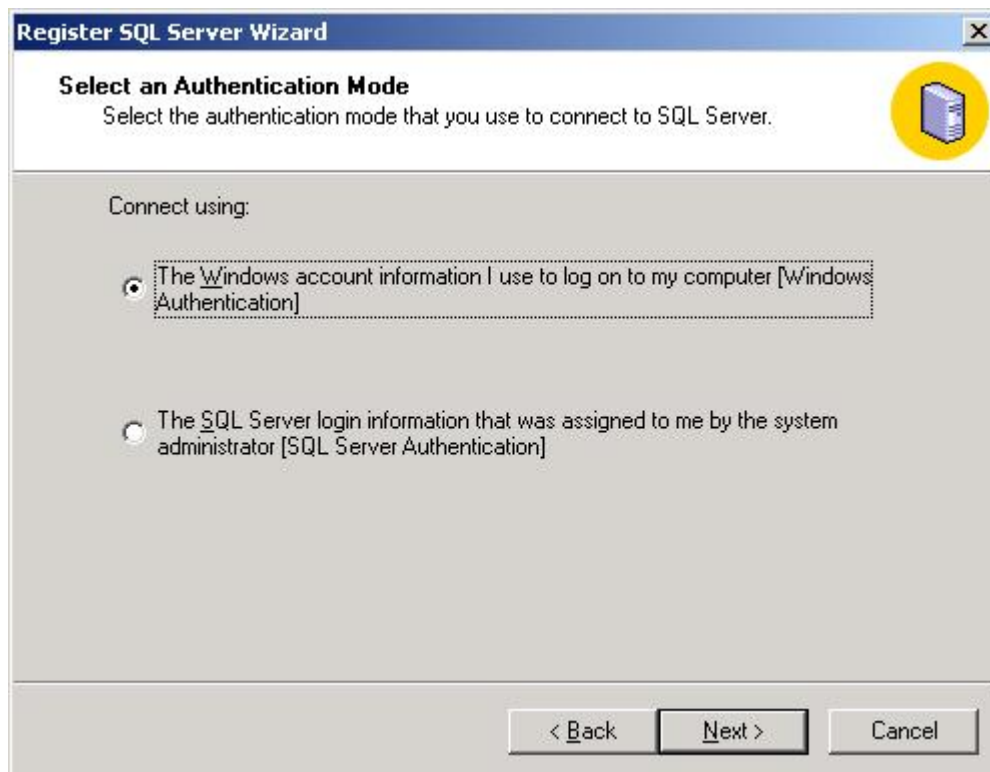
1. Right click the SQL Server and choose the "New SQL Server Registration"



2. Choose your second SQL Server then click Add, click "Next"



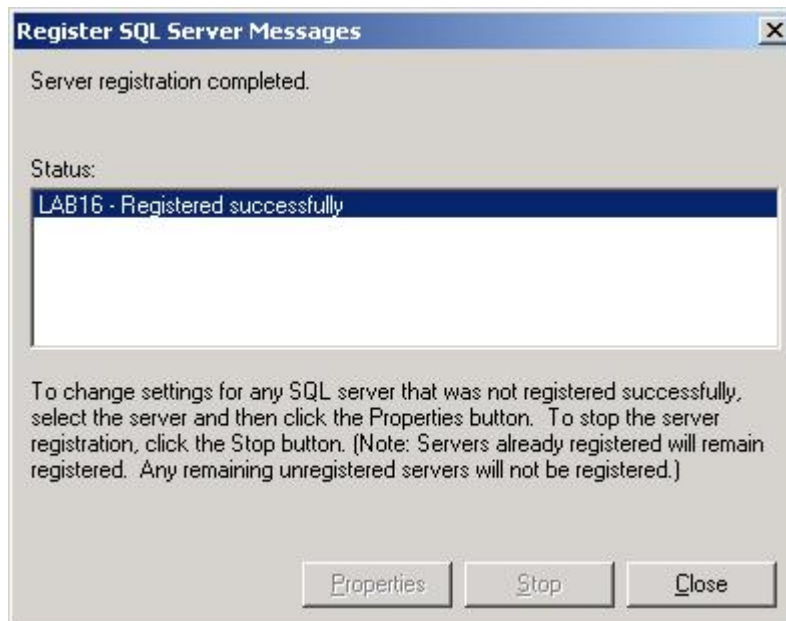
3. Click "Next"



4. Click "Next"



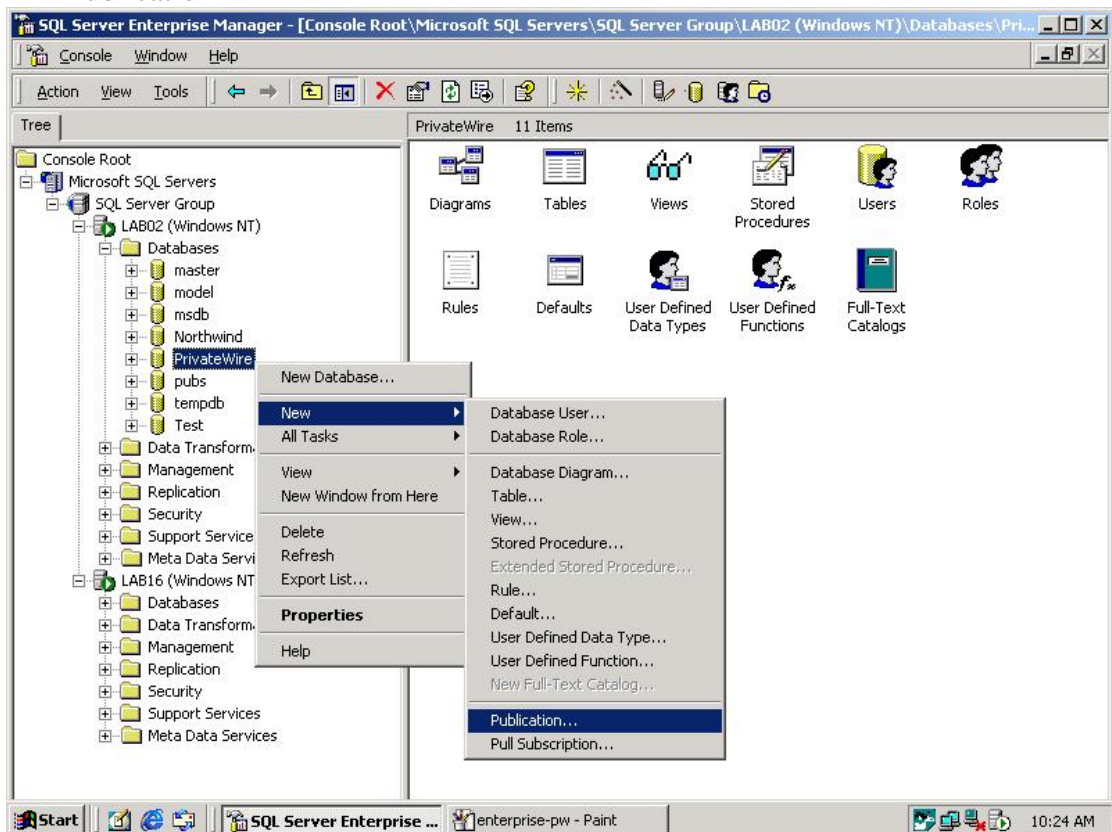
5. Click "Close"



6. Now that both SQL servers are registered you can start with the Replication.

## Create Publication Wizard

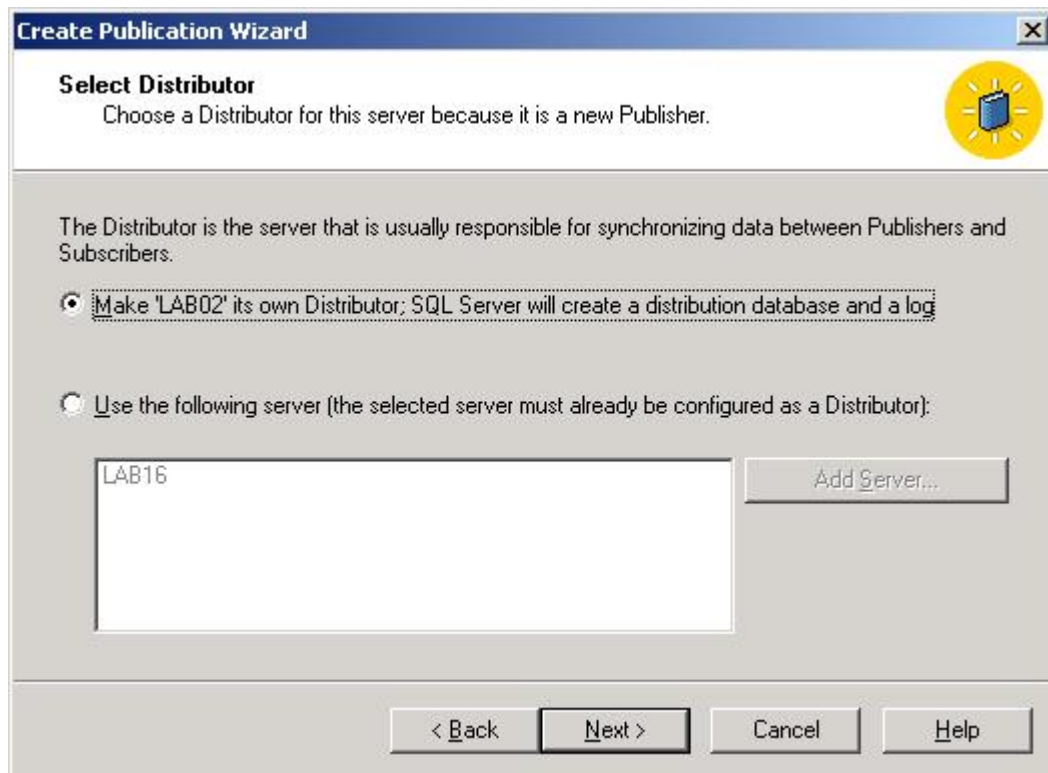
1. Right click the PrivateWire DB, choose the "New" menu then choose "Publication"



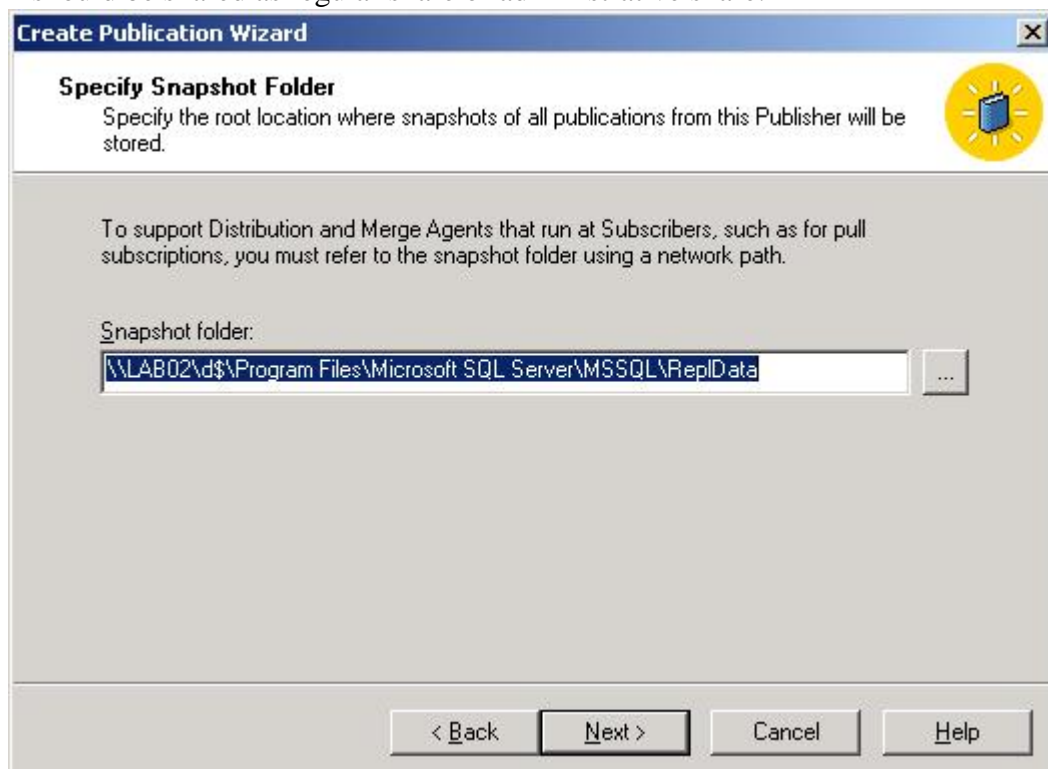
2. The Publication Wizard will start, click "Next"



3. Select the server that will be used as the distributor (it's O.K if you choose the local machine)



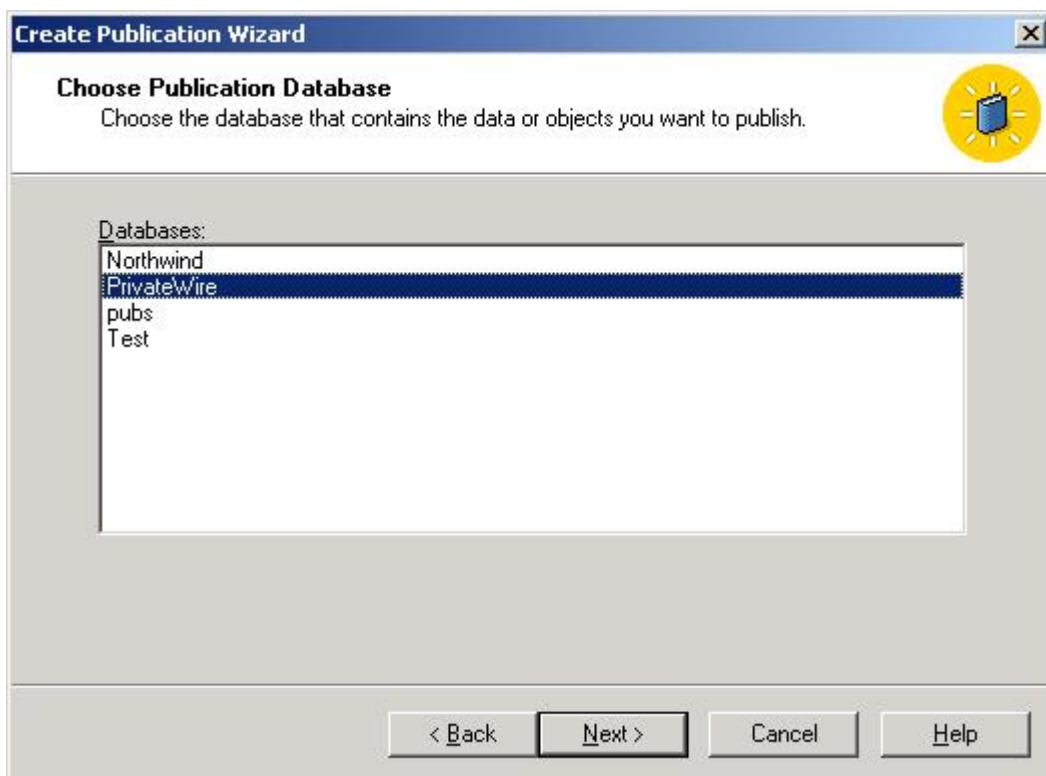
4. Specify snapshot folder to sharing the replication information, this folder should be shared as regular share or administrative share.



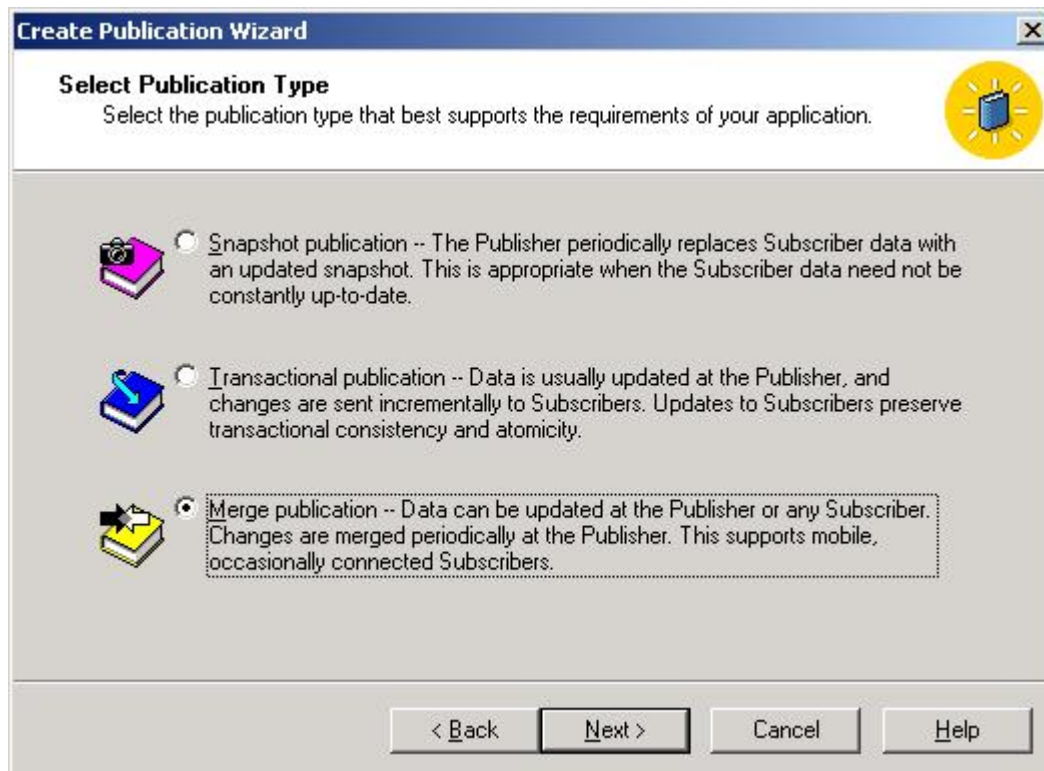
5. The following warning will appear if you specified an administrative share click "Yes" to continue



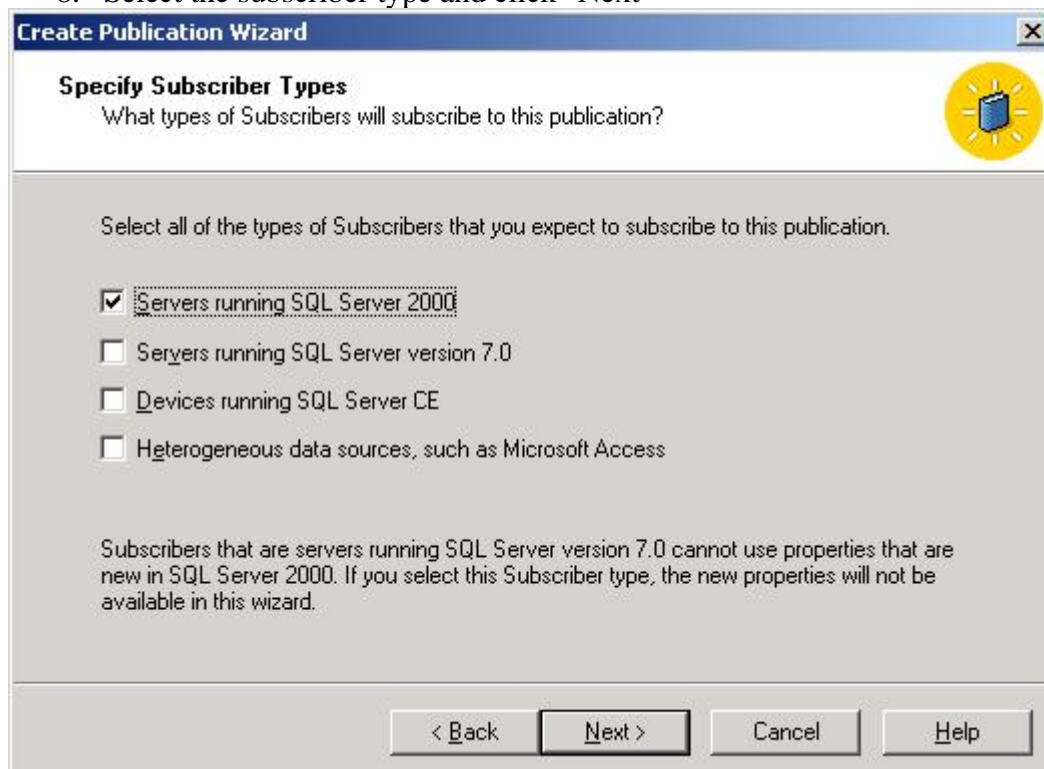
6. Choose the PrivateWire Database you want to replicate



7. Select "Merge publication" as publication type and click "Next"

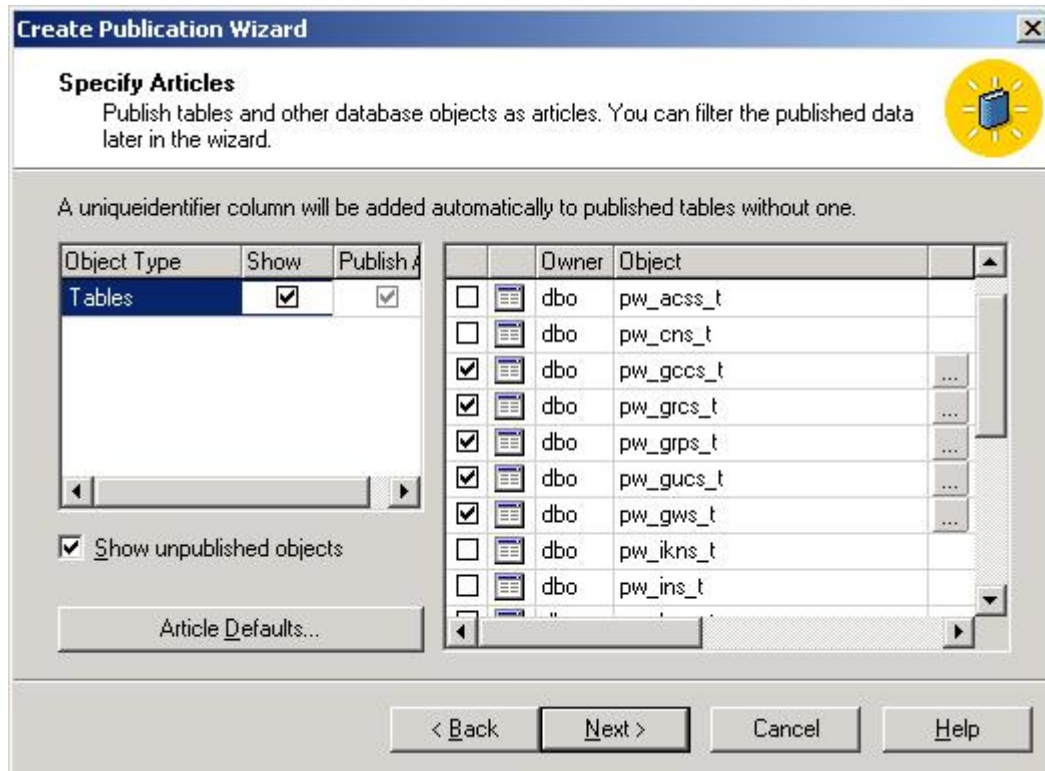


8. Select the subscriber type and click "Next"

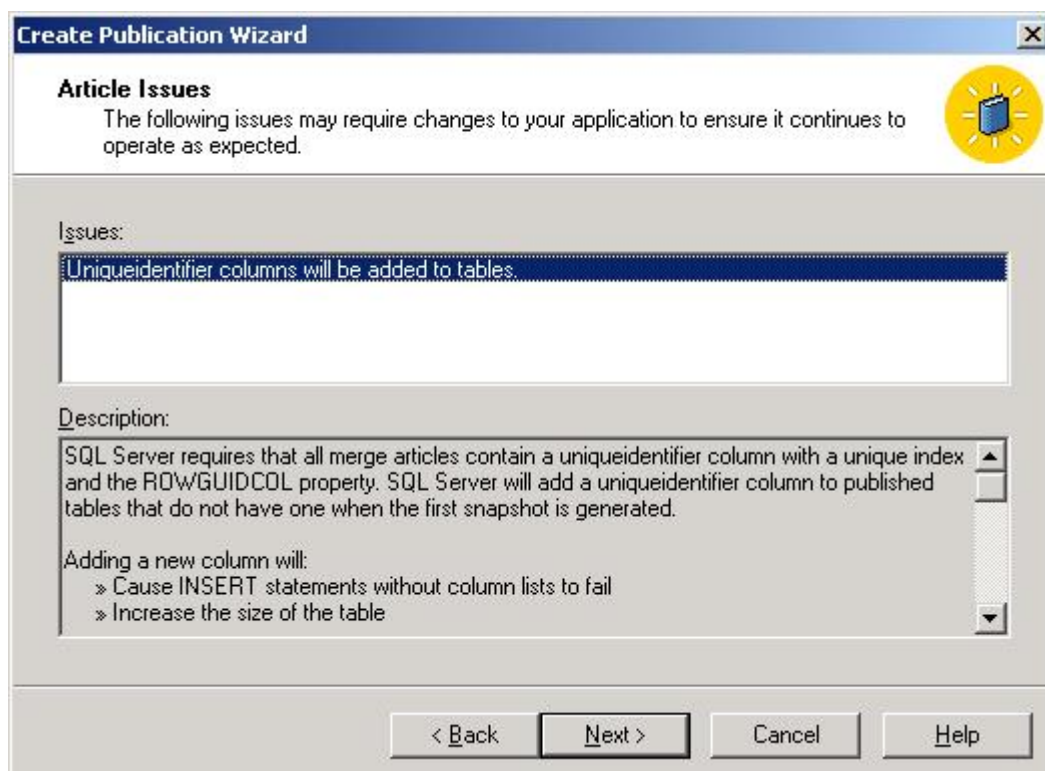


- Specify the desired tables you want to publish in this replication, For PrivateWire replication you should **not** select the following tables since these tables must be local:

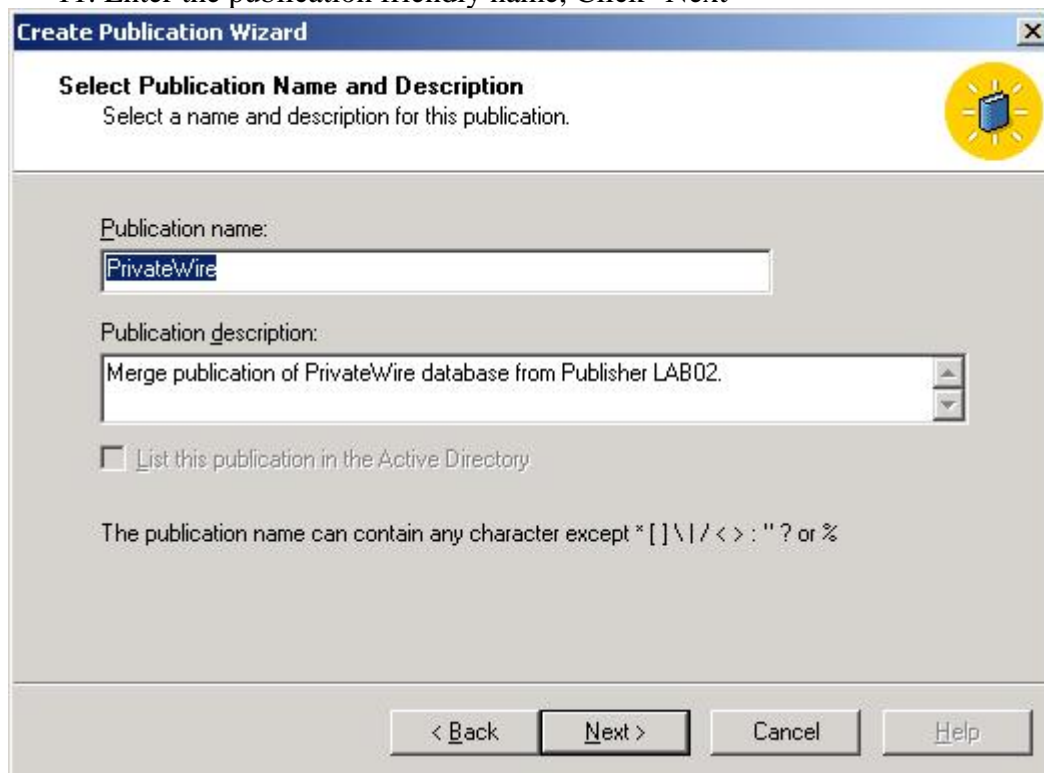
*pw\_accs\_t, pw\_acss\_t, pw\_cns\_t, pw\_ikns\_t, pw\_ins\_t, pw\_logs\_t, pw\_rts\_t*  
Click "Next"



- Click "Next"



11. Enter the publication friendly name, Click "Next"



**Create Publication Wizard**

**Select Publication Name and Description**  
Select a name and description for this publication.

Publication name:  
PrivateWire

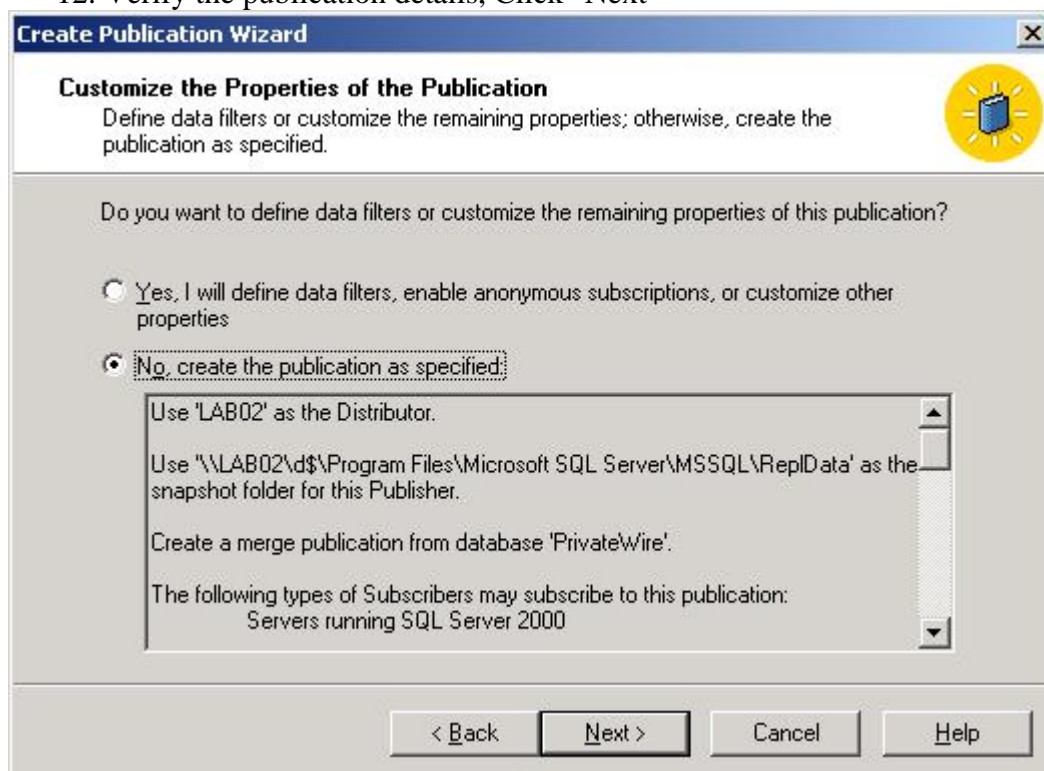
Publication description:  
Merge publication of PrivateWire database from Publisher LAB02.

List this publication in the Active Directory

The publication name can contain any character except "[ ] \ / < > : " ? or %

< Back   Next >   Cancel   Help

12. Verify the publication details, Click "Next"



**Create Publication Wizard**

**Customize the Properties of the Publication**  
Define data filters or customize the remaining properties; otherwise, create the publication as specified.

Do you want to define data filters or customize the remaining properties of this publication?

Yes, I will define data filters, enable anonymous subscriptions, or customize other properties

No, create the publication as specified:

Use 'LAB02' as the Distributor.

Use '\\LAB02\d\$\Program Files\Microsoft SQL Server\MSSQL\RepData' as the snapshot folder for this Publisher.

Create a merge publication from database 'PrivateWire'.

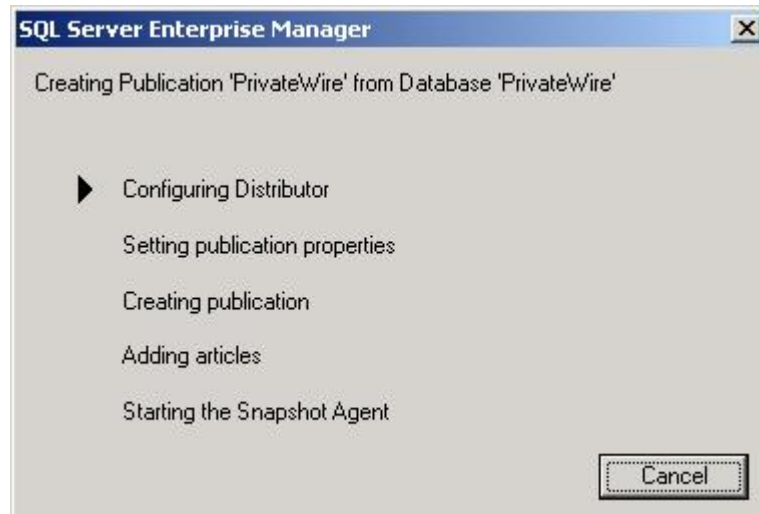
The following types of Subscribers may subscribe to this publication:  
Servers running SQL Server 2000

< Back   Next >   Cancel   Help

13. Click "Finish"



14. The following progress window will appear



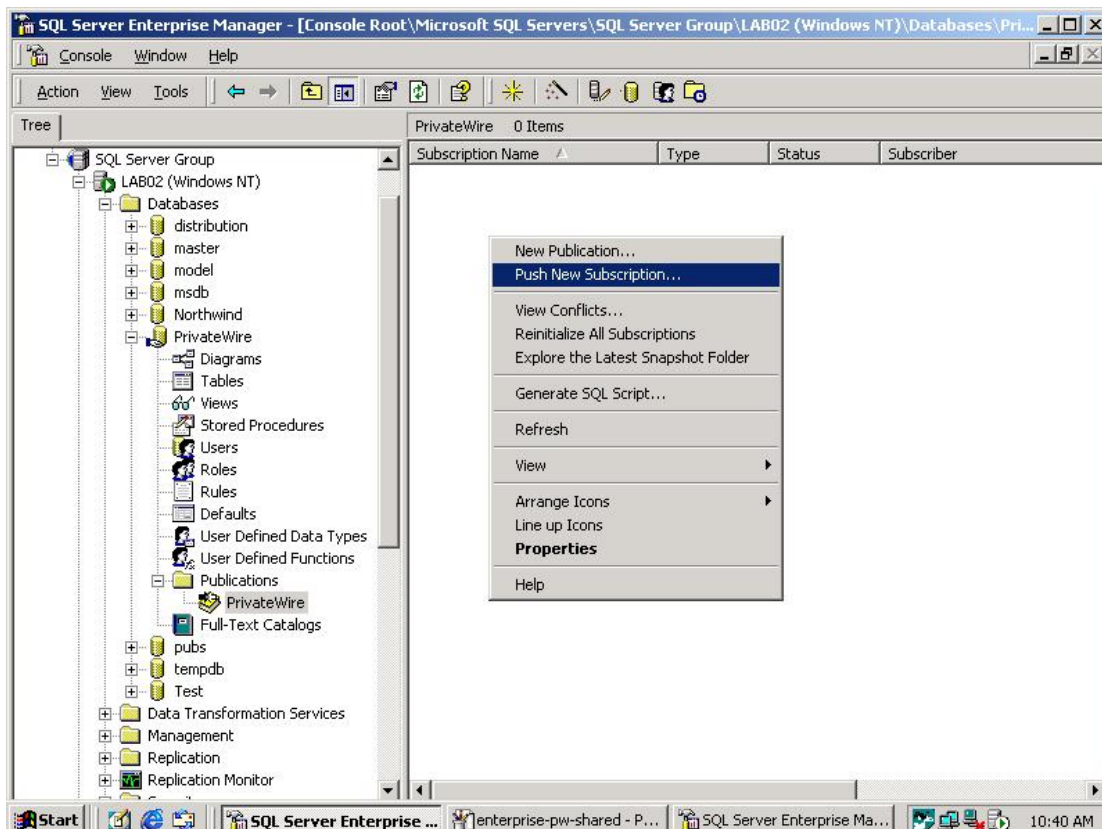
- The following window will appear notifying that the publication were created successfully.



After creating the publication, a hand mark will indicate that the PrivateWire has publication. And you can see that the Replication monitor was added to the SQL server tree.

### Create Push Subscription Wizard

- Expand the PrivateWire database, expand the "Publications" folder and right click on the "PrivateWire" publication.
- On the menu choose "Push New Subscription"



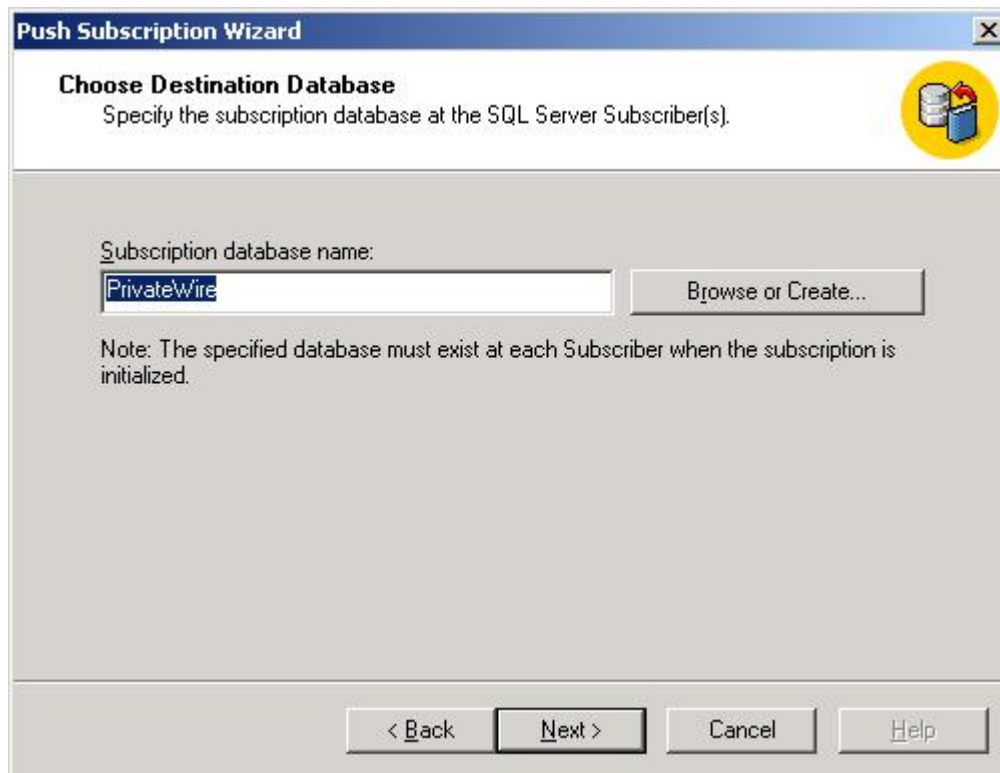
3. The Push Subscription Wizard will open, click "Next".



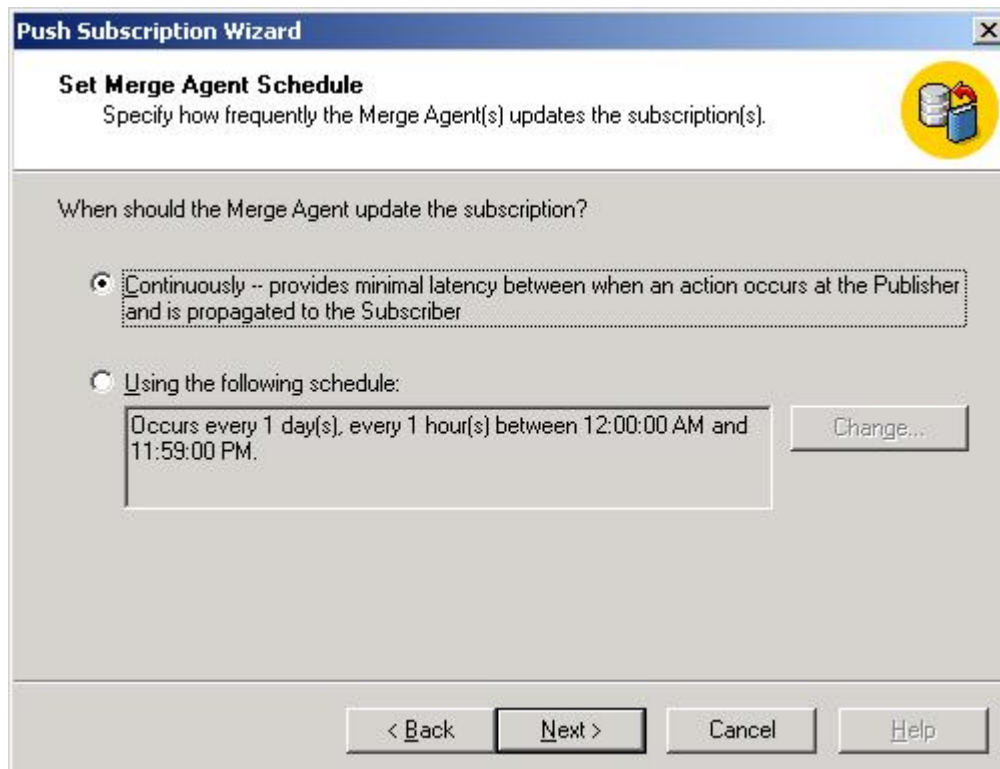
4. Select the other SQL Server that will be replicated, click "Next".



5. Select the database name, click "Next".



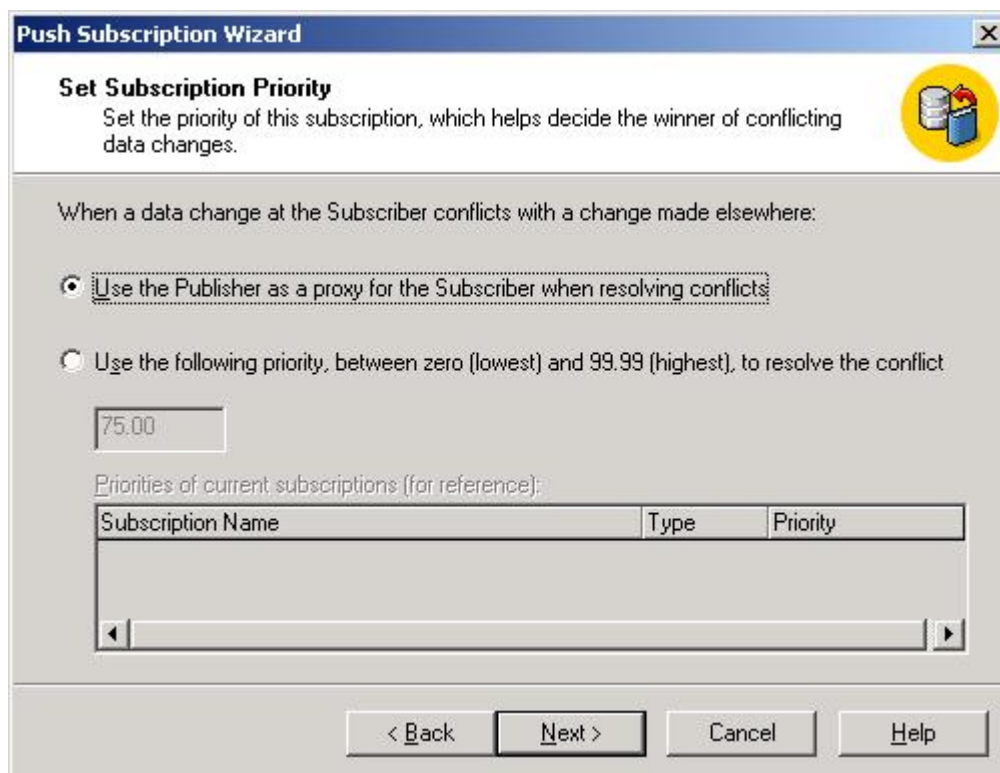
6. Set the Merge Agent to run "Continuously", click "Next".



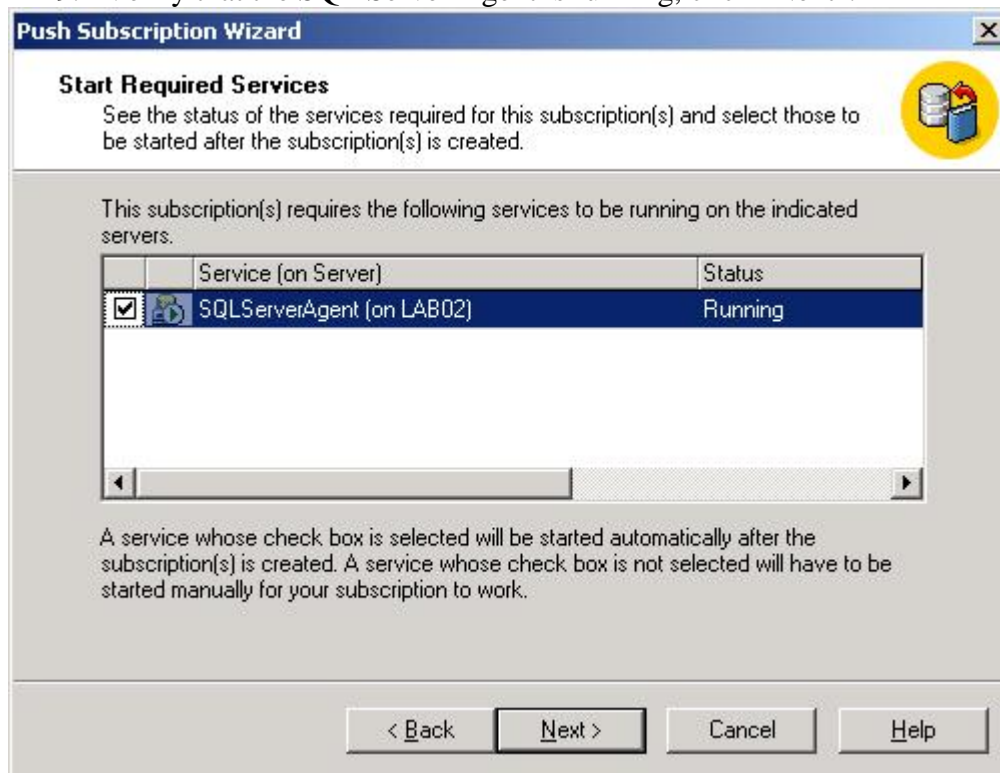
7. Select "No", click "Next".



8. Select "Use the Publisher as proxy for the Subscriber..." click "Next".



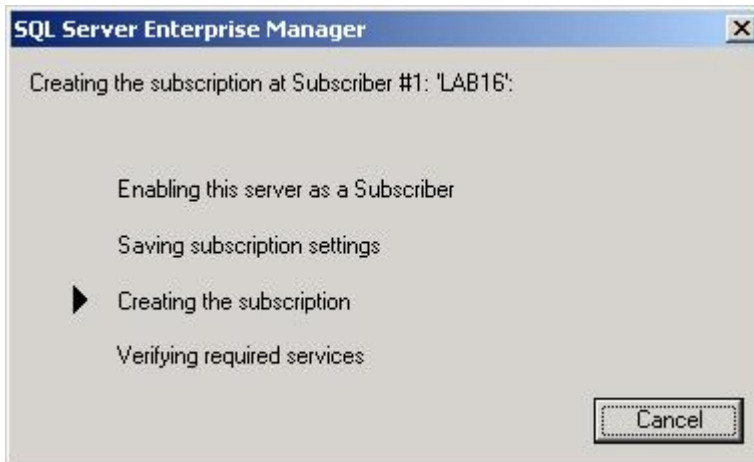
9. Verify that the SQL Server Agent is running, click "Next".



10. Verify the subscription details, click "Next".



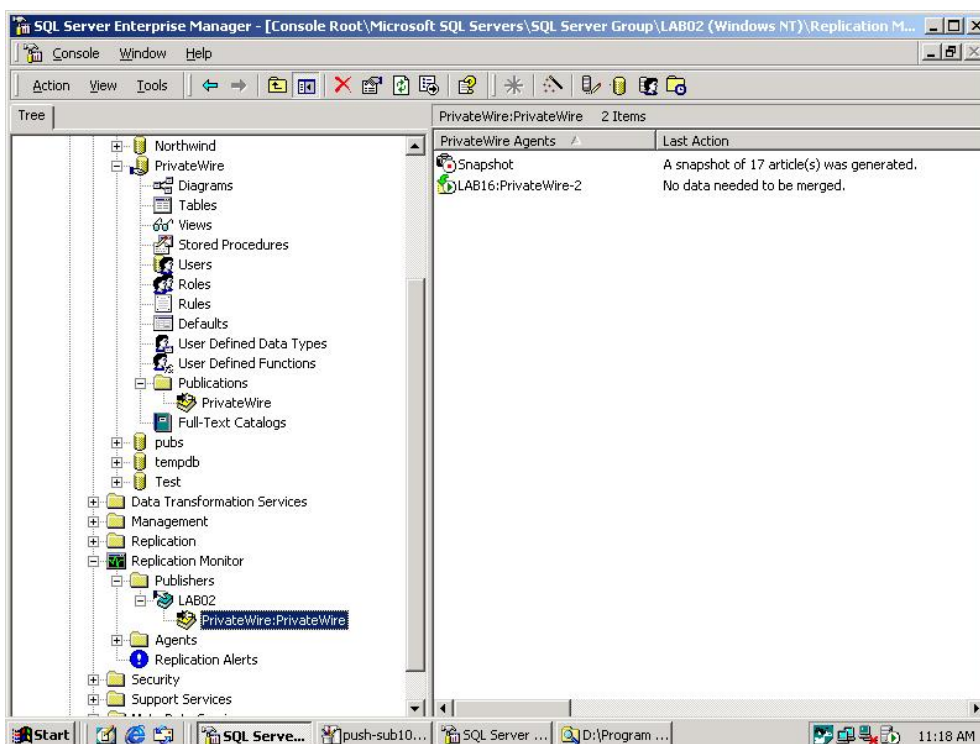
16. The following progress window will appear.



17. The following window will appear notifying that the subscription were created successfully.



18. After creating successfully the publication and subscription your Enterprise Manager window should look like that:



### Replication tests

After establishing the replication successfully, you can perform several tests to see how the replication works, for example you can add a user to one gateway, and then you should see this user on the second gateway after minute or two.

### Replication maintenance

1. You should read the SQL Server logs periodically to see if there is errors
2. Check the Replication Monitor on the Enterprise Manager to see the replication agent's status and logs.