



P2000

Security Management System

Enterprise Configuration

PRELIMINARY

P2000

Security Management System

Enterprise Configuration

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If this shipment (or any part thereof) is supplied as second-hand equipment, equipment for sale outside the European Economic Area or as spare parts for either a single unit or system, it is not covered by the Directives.

TABLE OF CONTENTS

Chapter 1: Introduction

About This Manual	1-1
Manual Summary	1-1
Technical Support	1-2
Qualification for Installation and Use	1-2
Note on Other Manufacturer's Documentation	1-2
Manual Conventions	1-2
About the P2000 Enterprise Configuration	1-3
Key Terms	1-4
P2000 Publications	1-5

Chapter 2: Configuring P2000 Central Server

General Notes on Using the SQL Server	2-3
Opening the Microsoft SQL Server Management Studio	2-3
Executing Scripts (Example)	2-3
Procedures Specific to SQL Server 2005	
SQL Server Login Account In Windows	2-6
Creating the "psqlserver" Account	2-6
Creating SQL Server Account for Servers on the Domain	2-9
Connecting to the SQL Server	2-12
Establishing Shared Directories	2-16
Configuring Publisher and Distributor	2-18
Generating P2000 Stored Procedures	2-24
Establishing an Enterprise System	2-25
Populating the Enterprise Settings	2-26
Setting Up P2000 Publications	2-28
Snapshots	2-30
Replication Set Identity Range	2-32
Procedures Specific to SQL Server 2008 R2	
SQL Server Login Account in Windows	2-35
Creating the "psqlserver" Account	2-35
Creating the "BUILTIN\Administrators" Account	2-37
Creating SQL Server Account for Servers on the Domain	2-40
Connecting to the SQL Server	2-43
Establishing Shared Directories	2-47
Configuring Publisher and Distributor	2-50
Generating P2000 Stored Procedures	2-56
Establishing an Enterprise System	2-56
Populating the Enterprise Settings	2-58
Setting Up P2000 Publications	2-59

Snapshots	2-60
Replication Set Identity Range	2-61

Chapter 3: Merging Data Between Sites

Merging Data Between Sites.....	3-1
Live System Upgrade to Enterprise Configuration Using Additional Hardware.....	3-2
Live System Upgrade to Enterprise Configuration Without Additional Hardware.....	3-11
Rules for Data Merging	3-16

Chapter 4: Configuring P2000 Regional Server

Preparing for Configuration	4-1
Changing the Login Account.....	4-2
Connecting to the SQL Server	4-4
Establishing Subscriptions	4-4
Replication Set Identity Range.....	4-17

Appendix A: Publications

Appendix B: Important Notes

Initialization	B-1
Deadlocks and Retries.....	B-1
Identity Columns	B-1
Primary Key Violation.....	B-1
Calling sp_adjustpublisheridentityrange.....	B-2
Connectivity Loss	B-2

INTRODUCTION

The P2000 Enterprise Configuration advanced feature allows customers with multiple sites to communicate with each other to share Cardholder/Badge information. Cardholders can be granted access to doors at all assigned sites within the Enterprise system.

In the P2000 Enterprise Configuration, one P2000 site becomes the *P2000 Central Site* and all other P2000 systems within the enterprise become *P2000 Regional Sites*. Each regional site synchronizes its data with the central site. Database replication is implemented through the use of Microsoft SQL Server database technologies.

ABOUT THIS MANUAL

This document is to be used as a supplement to the P2000 documentation. It details the information concerning the P2000 Enterprise Configuration:

- Configuring the P2000 Central Site
- Moving data from existing P2000 Regional Sites to the P2000 Central Site
- Configuring a P2000 Regional Site

NOTE

Throughout this manual, the terms Pegasys and P2000 are used interchangeably.

NOTE

The screen captures shown in this manual may differ slightly, depending on the firmware version you are using.

MANUAL SUMMARY

- **Chapter 1: Introduction**, defines the key terms and conventions used throughout the manual, as well as provides introduction to the P2000 Enterprise system.
- **Chapter 2: Configuring P2000 Central Server**, contains instructions on setting up the P2000 central server for Enterprise Configuration.

- **Chapter 3: Merging Data Between Sites**, describes how to move P2000 Enterprise Regional Site data to the P2000 Enterprise Central Site.
- **Chapter 4: Configuring P2000 Regional Server**, provides instructions for establishing P2000 regional server as a Database Subscriber.
- **Appendix A: Publications**, identifies publications and their corresponding articles (database tables).
- **Appendix B: Important Notes**, provides reference information useful for troubleshooting.

Technical Support

Technical assistance is provided to Johnson Controls authorized dealer representatives from 5 a.m. PT (Pacific Time) to 5 p.m. PT Monday through Friday. System users can get answers to operator questions by calling the local Johnson Controls Inc. sales/service office.

The authorized dealer representatives can also provide you with information on the maintenance contracts and the on-site field service.

Qualification for Installation and Use

Installers and users of the P2000 Enterprise Configuration System must complete appropriate training and obtain certification prior to installing and using this advanced feature.

Note on Other Manufacturer's Documentation

Johnson Controls does not duplicate documentation of other equipment manufacturers. When necessary, as in some installation procedures, we will provide documentation that *supplements* other manufacturer's documentation. When unpacking your equipment, **keep all original manufacturer documentation for future reference**.

Manual Conventions

The following items are used throughout this manual to indicate special circumstances, exceptions, important points regarding the equipment or personal safety, or to emphasize a particular point.

NOTE

Notes indicate important points or exceptions to the information provided in the main text.

IMPORTANT

Important messages remind you that certain actions, if not performed exactly as stated, may cause damage to equipment or make your system non-operational.

- Procedures that need to be performed on the **central** server are indicated by an arrow with a letter “C.”
- Procedures that need to be performed on the **regional** server are indicated by an arrow with a letter “R.”
- Procedures that need to be performed on the **both** servers are indicated by a plain black arrow.

ABOUT THE P2000 ENTERPRISE CONFIGURATION

To implement the P2000 Enterprise Configuration, P2000 utilizes the Microsoft® SQL Server® Database Replication.

Data replication for the P2000 Enterprise Configuration is implemented with a Publisher and Distributor together on one P2000 Central Site, and multiple Subscribers on P2000 Regional Sites.

In the P2000 Enterprise Configuration, one P2000 site becomes the P2000 Central Site, also called “central site” or “central server” throughout this manual.

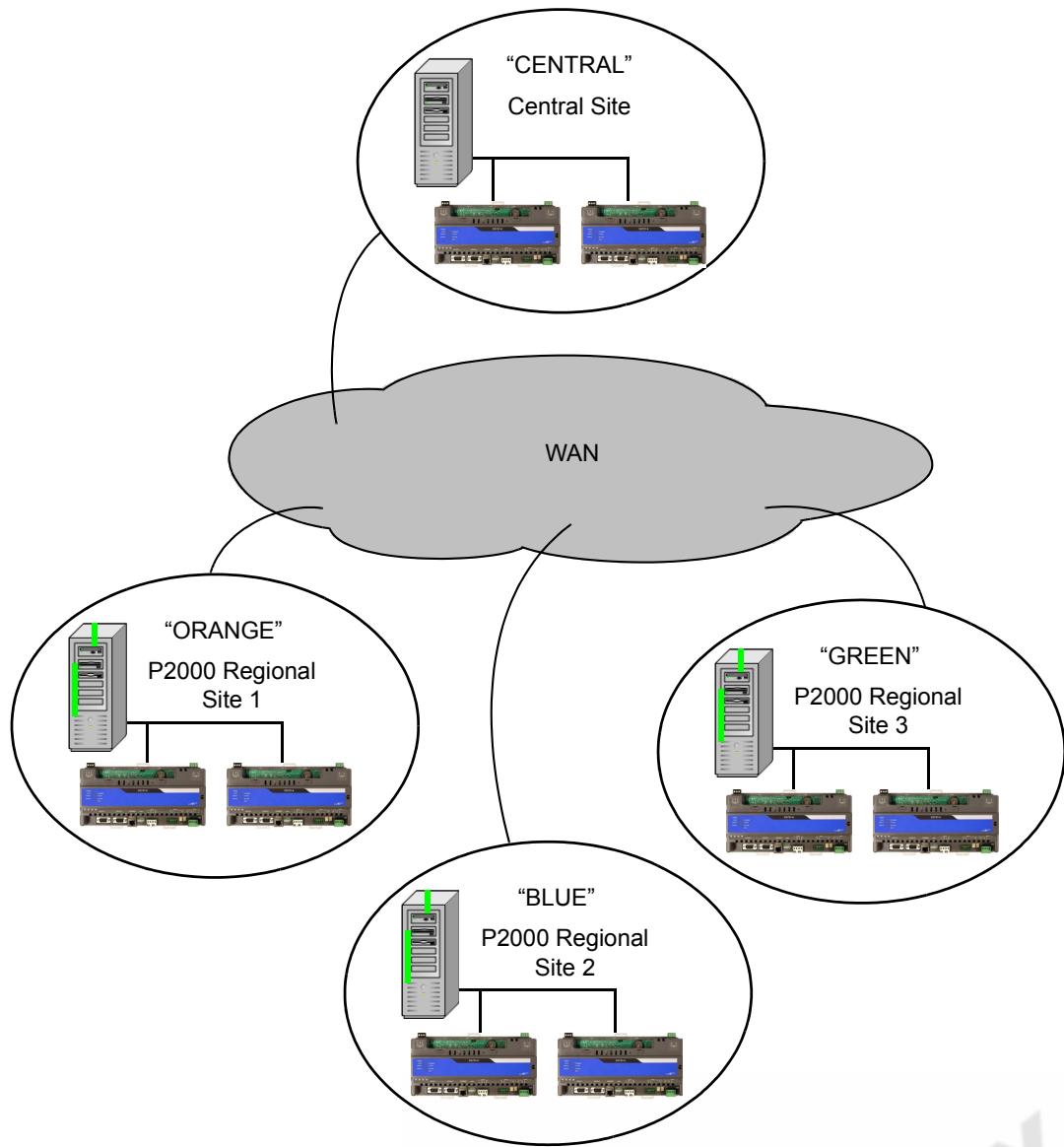
All other P2000 systems within the enterprise become P2000 Regional Sites, also called “regional sites” or “regional servers” throughout this manual.

Each regional site synchronizes its data with the central site. It receives data updates from the central site and/or regional sites.

In order for the MS SQL Server Database Replication to operate correctly, the central and regional sites need to be properly configured. This manual contains information necessary to perform P2000 Enterprise Configuration.

NOTE

It is strongly recommended that all P2000 servers in the P2000 Enterprise Configuration system use the same version of the Microsoft SQL Server.



Key Terms

The following section aims to provide a quick translation between the SQL Server and P2000 terminologies:

Articles – Database tables. An article contains data from a table.

Publication – A set of database tables (for example, Cardholder/Badge) that is made available for a subscriber by a publisher/distributor.

Publisher/Distributor – The server of the P2000 Central Site.

Subscriber – The server of the P2000 Regional Site

P2000 Publications

The following publications are established in P2000:

- Enterprise – mandatory for all enterprise sites; contains site and subscription information.
- Configuration – contains cardholder, badge and other configuration information.
- FDA – contains all secondary tables for FDA compliance (when applicable) that are in the P2000 database.
- Alarms – contains alarm information.
- Transaction – contains transaction history information.
- Audit – contains audit information.
- BadgeImages – contains cardholder fingerprints, portraits and signatures.
- BadgeImages FDA – contains all secondary tables for FDA compliance from the BadgeImages database.

The main reason for establishing multiple publications is to logically separate the different components of the Pegasys and BadgeImages database. You can establish and use either all of these publications or a subset of them.

Do not establish a publication unless you want a regional server to receive this information through database replication. The main publications are Configuration and BadgeImages. Typical subscriptions that you might *not* want to establish are:

- FDA – the only reason to replicate them to the central server would be to have a remote storage location for them.
- Alarms – rather than be replicated, they can be sent to another system using P2000 Remote Message Server to become instantly available for Alarm Monitors.
- Transaction – like Alarms, they can be sent to another system using P2000 Remote Message Server and would then be displayed in the P2000 Real Time List, whereas replication only adds them to the database for reporting purposes, (also achieved by the P2000 Remote Message Server).
- Audit – as Transaction.
- BadgeImages FDA – the only reason to replicate them to the central server would be to have a remote storage location for them.

The main advantage of the MS SQL Server Database Replication versus the P2000 Remote Message Server is that when using replication, the audit and transaction messages are transferred to the P2000 Central Server even after the network connection has been disrupted and restored. In case of lasting network connection disruption, the message buffer within the P2000 Remote Message Server may not be sufficient to buffer all messages generated by the local system.

Ensure proper network connectivity and name resolution. All Regional Servers must not only successfully ping the Central Server, but also be able to register the Central Server by name in the SQL Enterprise Manager. The Central Server must be able to register and open all registered servers in SQL Enterprise Manager.

PRELIMINARY

CONFIGURING P2000 CENTRAL SERVER

Prior to configuring the central server, install the P2000 prerequisites and software (see the *P2000 Server/Workstation Software Installation Manual* for details) and backup the databases.

The steps within this section will tell you how to:

- Assign a new Microsoft Windows account to the SQL Services
- Configure the central site's database server as a Distributor and Publisher
- Establish the P2000 Publications
- Create snapshots for all P2000 Publications

Use the following tables for reference during P2000 Central and Regional Sites configuration:

Table 2-1: Central Site Settings

Item	Factory Settings	Customer Settings
P2000 Server name ¹	CENTRAL	
Windows account name ²	psqlserver	
Windows password	Master1	
SQL server name ¹	CENTRAL	
SQL administrator account ²	sa	
SQL administrator account password	Master1	
SQL “built-in” administrator account ³	BUILTIN\Administrators	
Replication Set Identity Range ⁴	10,000,000 to 19,999,999	

1. The name has to be unique within the Enterprise system.
2. Choosing different settings may impact the setup of your server. It is recommended that you use the factory settings, or contact Technical Support for assistance.
3. Only in systems using SQL Server 2008 and SQL Server 2008 R2
4. Each ID range should be unique within the Enterprise system and cannot be re-used. If you need to re-assign the server's ID range, use a new range.

Table 2-2: Regional Site Settings

Item	Factory Settings	Customer Settings
P2000 Server name ¹	ORANGE	
Windows account name ² (the same as for the central server)	psqlserver	
Windows password (the same as for the central server)	Master1	
SQL server name ¹	ORANGE	
SQL administrator account ² (the same as for the central server)	sa	
SQL administrator account password (the same as for the central server)	Master1	
SQL “built-in” administrator account (the same as for the central server) ³	BUILTIN\Administrators	
Replication Set Identity Range ⁴	20,000,000 to 29,999,999	

1. The name has to be unique within the Enterprise system.
2. Choosing different settings may impact the setup of your server. It is recommended that you use the factory settings, or contact Technical Support for assistance.
3. Only in systems using SQL Server 2008 and SQL Server 2008 R2
4. Each ID range should be unique within the Enterprise system and cannot be re-used. If you need to re-assign the server's ID range, use a new range.

NOTE

The procedures described in this chapter are to be performed starting with a clean P2000 installation. The P2000 Enterprise Configuration cannot be set up properly through an upgrade from earlier versions of P2000 software.

NOTE

On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).

NOTE

Screen captures and examples provided in this document (including network paths, logins, passwords, server names etc.) reflect the above “Factory Settings.” The information may be different on your system.

GENERAL NOTES ON USING THE SQL SERVER

This section describes some basic procedures such as opening the Microsoft SQL Server Management Studio or executing scripts. These steps are frequently required during the configuration of the regional and central server and are not repeated in detail each time. You can use the procedures in this section for reference.

If you are familiar with the Microsoft SQL Server Management Studio, proceed with one of the following:

- “Procedures Specific to SQL Server 2005” on page 2-6
- “Procedures Specific to SQL Server 2008 R2” on page 2-35

NOTE

Procedures and windows depicted in this section may vary slightly depending on the SQL Server version you are using. However, general outline can be followed.

Opening the Microsoft SQL Server Management Studio

The following procedures were performed on SQL Server 2008 R2.

► To open the Microsoft SQL Server Management Studio:

1. Log in to the system as administrator.
2. Go to **Start>Programs>Microsoft SQL Server 2008 R2>SQL Server Management Studio**.
3. Select the server to connect to and click **Connect**.



Executing Scripts (Example)

Several procedures in this chapter require you to find and execute scripts in the SQL Server Management Studio.

In most cases the scripts are located in:

C:\Program Files\Johnson Controls\P2000\sql

When a script has to be typed or edited, procedures described in this chapter will inform you to do so.

It is recommended that before executing any script you parse it for correctness. After executing you should verify that no errors have occurred.

See the procedure below for details on how to find, parse, and execute a stored script:

► To execute a script:

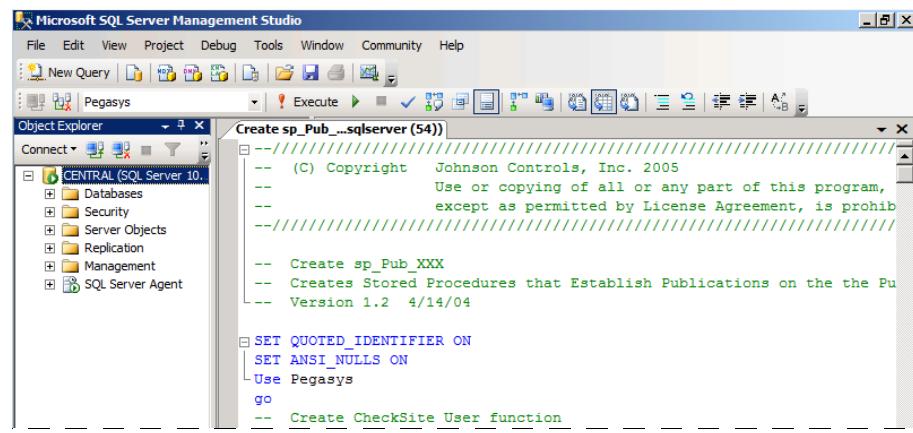
1. In the SQL Server Management Studio, go to **File>Open File** and browse for the script. Unless noted otherwise, the scripts are located in:

C:\Program Files\Johnson Controls\P2000\sql

2. Select the script and click **Open**.
3. A script opens in the right window pane. If edits are required, follow the manual instructions to type them.

In the example below the following script is selected for execution:

Create sp_Pub_XXX_2005.sql.



```

Microsoft SQL Server Management Studio
File Edit View Project Debug Tools Window Community Help
New Query | Execute | 
Object Explorer | Pegasys | Create sp_Pub_XXX_2005.sql (54)
CENTRAL (SQL Server 10.0.1942.0)
Databases Security Server Objects Replication Management SQL Server Agent
Create sp_Pub_XXX_2005.sql (54)
--- (C) Copyright Johnson Controls, Inc. 2005
--- Use or copying of all or any part of this program,
--- except as permitted by License Agreement, is prohib
--- Create sp_Pub_XXX
--- Creates Stored Procedures that Establish Publications on the the Pu
--- Version 1.2 4/14/04

SET QUOTED_IDENTIFIER ON
SET ANSI_NULLS ON
USE Pegasys
GO
--- Create CheckSite_User function

```

The script (may require manual edits)

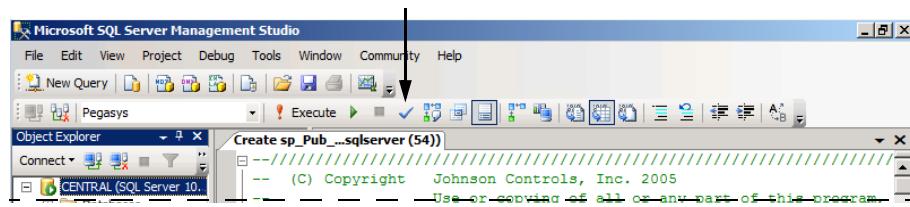
- Verify that the right database is selected.

Selected database



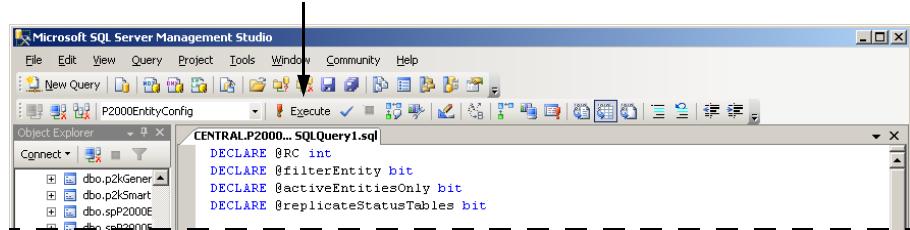
- Click the “Parse Query” button to check the integrity of the script.

Click to parse query



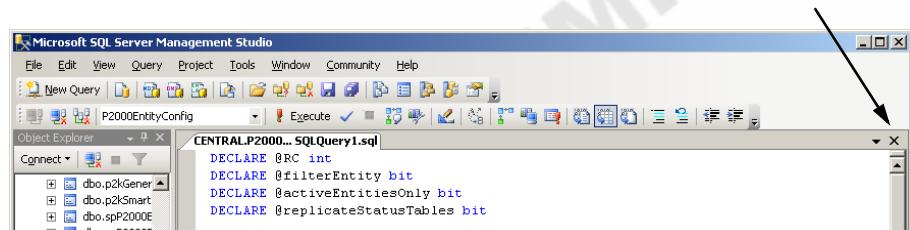
- Wait for the text “Command(s) completed successfully” to appear in the lower window pane under **Messages**.
- Click the ! Execute button.

Click to execute query

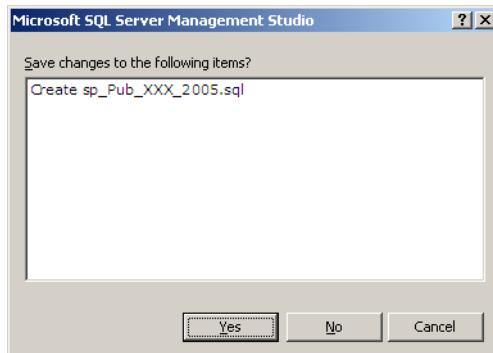


- Verify that the following message appears at the bottom of the window: “Query executed successfully.”
- Close the query window by clicking the X button in the top right corner.

Click to close query



10. If asked whether to save changes to the query, click **No**.



From here, follow the right set of instructions for your system:

- “Procedures Specific to SQL Server 2005” on page 2-6
- “Procedures Specific to SQL Server 2008 R2” on page 2-35

PROCEDURES SPECIFIC TO SQL SERVER 2005

SQL SERVER LOGIN ACCOUNT IN WINDOWS

During replication, SQL Server and SQL Server Agent cannot run as “local system,” but require a separate account on all participating servers. To create it, follow the steps below.

Creating the “psqlserver” Account

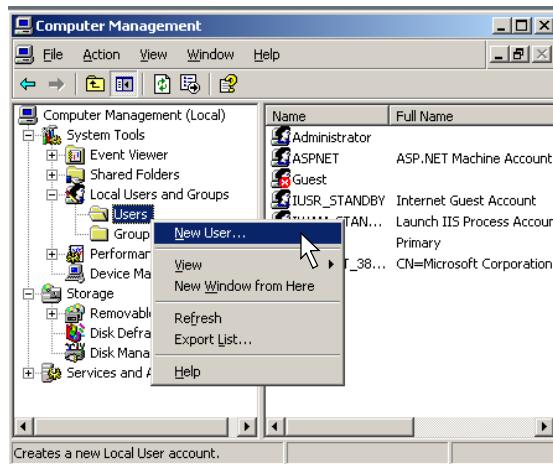
The steps for creating and configuring the “psqlserver” account vary depending on whether or not the P2000 server is on the domain.

If your P2000 server is *not* on the domain, follow the steps below. For instructions to be used on a P2000 server that is on the domain, see page 2-9.

► To create a local service user account for the SQL Server:

1. Go to **Start>Programs>Administrative Tools>Computer Management**.
2. In the Computer management window, under **Computer Management (Local)** expand the **Local Users and Groups** folder.

3. Right-click the **Users** icon and select **New User**.



4. In the New User window, fill out the following fields:

User name: psqlserver

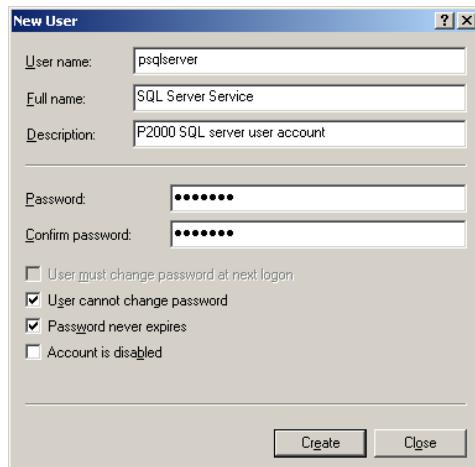
Full name: SQL Server Service

Description: P2000 SQL service user account

Enter and confirm password (Master1).

Un-select the **User must change password at next logon** check box.

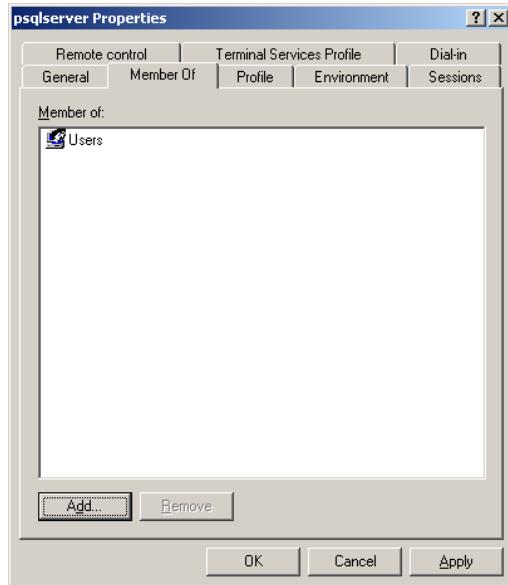
Select the following check boxes: **User cannot change password** and **Password never expires**. Click **Create**.



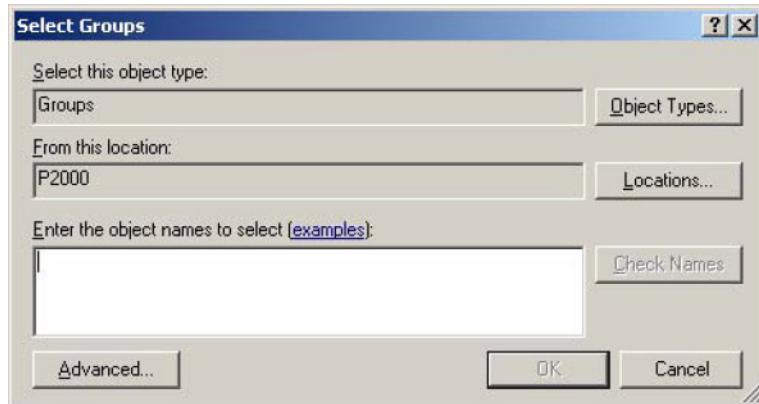
5. Click **Close**.

6. You are now back to the Computer Management window. In the right window pane, double-click the **psqlserver** icon.

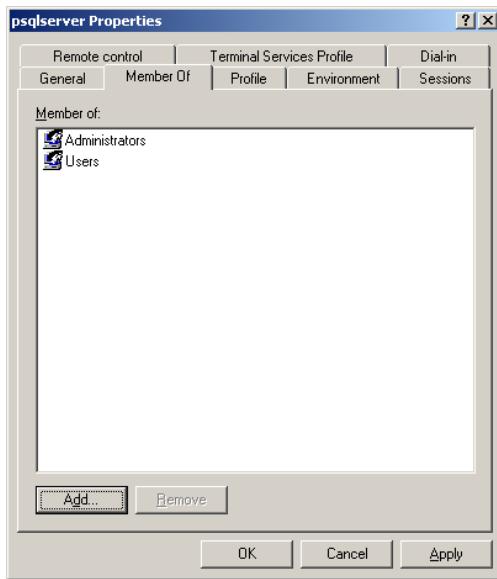
7. The psqlserver Properties window opens. Click the **Member Of** tab and the **Add...** button.



8. In the Select Groups window, click the **Advanced...** button.



9. In the expanded window, click the **Find Now** button.
10. From the search results window, double click on **Administrators**, and then click **OK**.
11. You are back to the psqlserver Properties window; verify that “psqlserver” is now a member of Administrators. Click **OK**.



12. Close the Computer Management window. Go to “Connecting to the SQL Server” on page 2-12.

Creating SQL Server Account for Servers on the Domain

NOTE

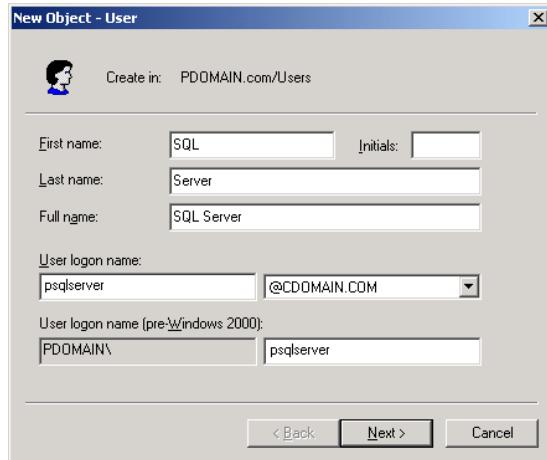
*The section below should **only** be performed on servers on the domain. It is recommended to use local accounts to avoid dependencies on domain for P2000 service operation.*

► **To create a domain user account for the SQL server:**

1. At the domain controller, log on to the domain as the system administrator.
2. Go to **Start>Programs>Administrative Tools>Active Directory Users and Computers**.
3. In the Active Directory Users and Computers window, under the **CDOMAIN.com** icon, right-click **Users**, and go to **New>User**.
4. In the New Object-User window, fill out the following fields:

First name:	SQL
Last name:	Server
Full name:	(filled out automatically)
User logon name:	psqlserver
User logon name (pre-Windows 2000):	psqlserver
(for example: CDOMAIN\psqlserver)	

Click **Next**.



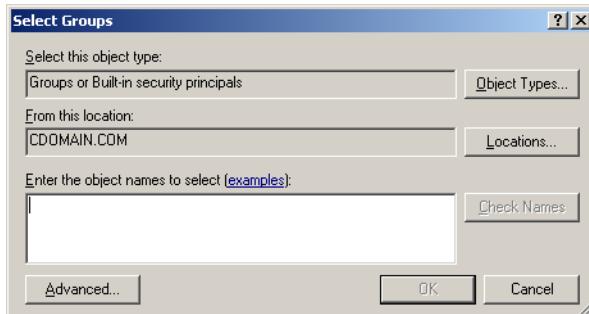
- Specify and confirm the password (Master1). Un-select the **User must change password at next logon** check-box, then select the following check boxes: **User cannot change password** and **Password never expires**.

Click **Next**.



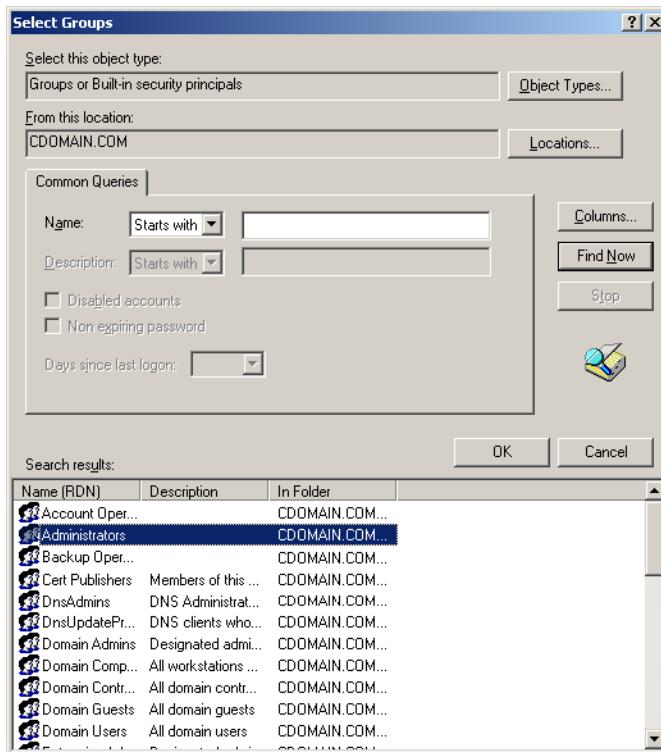
- Verify the settings and click **Finish**.
- You are now back to the Active Directory Users and Computers window. Double-click the **Users** icon.
- In the right window panel, double-click the **SQL Server** icon.
- The SQL Server Properties window opens. Click the **Member Of** tab and the **Add...** button.

10. In the Select Groups window, click the **Advanced...** button.



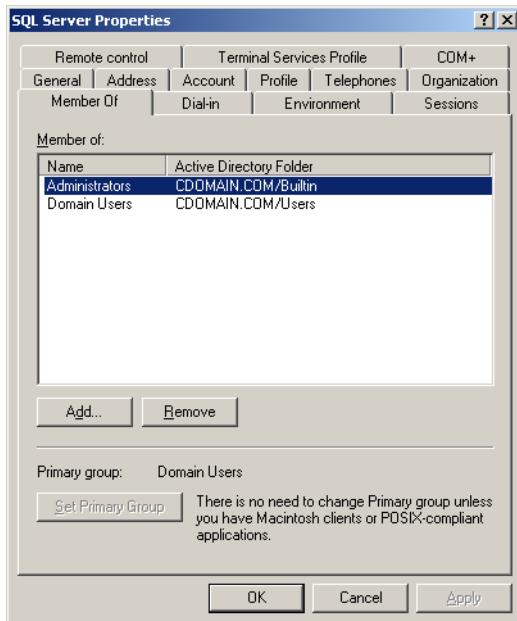
11. In the expanded window, click the **Find Now** button.

12. Highlight **Administrators** and click **OK**.



13. You are back to the select Groups window. Click **OK**.

14. You are back to the SQL Server Properties window. Verify that the SQL Server is now a member of Administrators.



15. Click **OK** to close the SQL Service Properties window.
16. Close the Active Directory Users and Computers window.

From now on, use the “psqlserver” account every time you log in to establish or configure the Enterprise system.

CONNECTING TO THE SQL SERVER

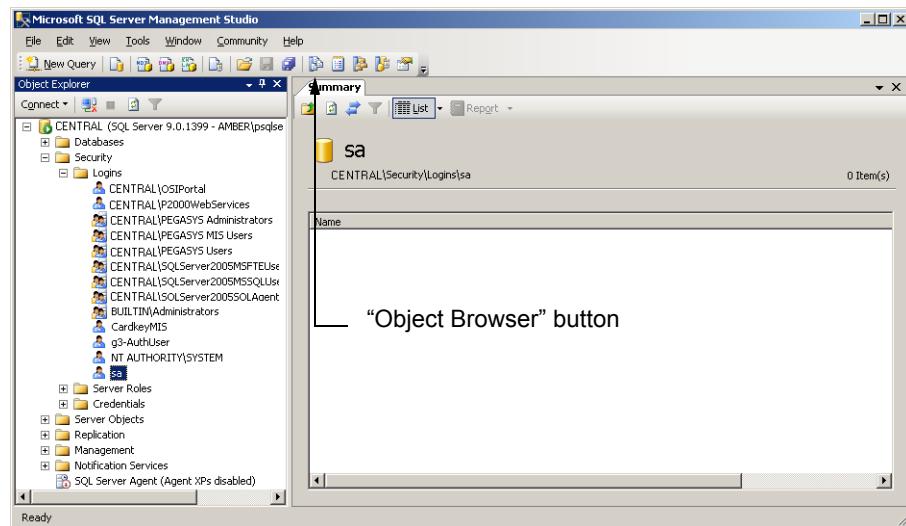
The number of servers is limited by the SQL Server license.

➤ To modify “sa” password policy:

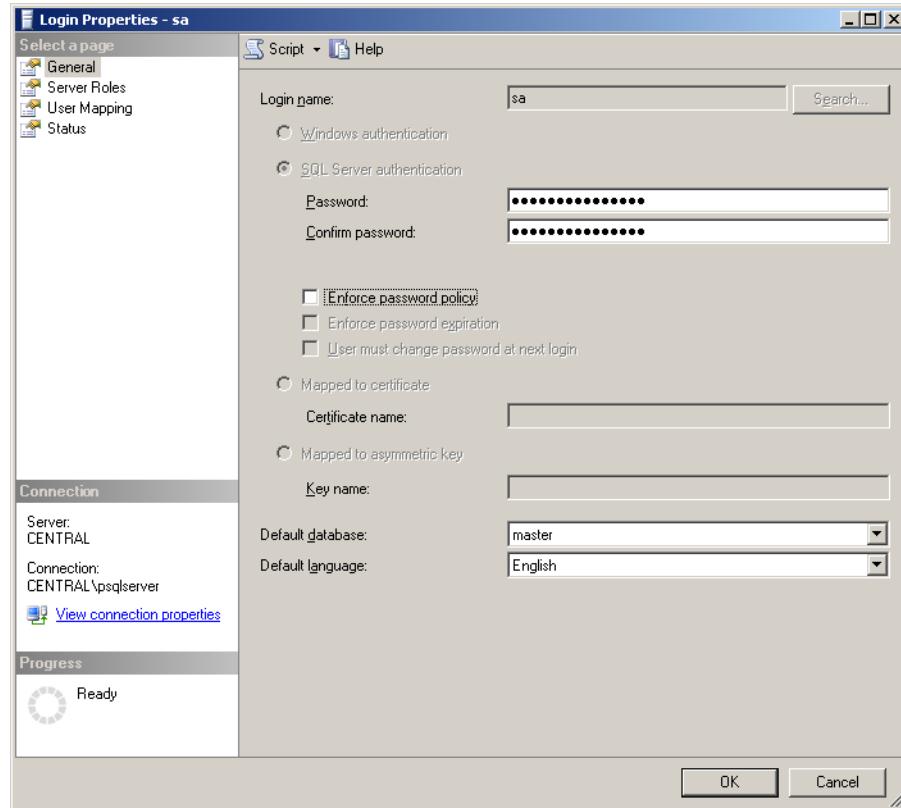
1. Go to **Start>Programs>Microsoft SQL Server 2005>SQL Server Management Studio**.
2. Select the central server and click **Connect**.



3. The Microsoft SQL Server Management Studio window opens. (If the left window panel is not displayed by default, click the “Object Browser” button.) Expand the navigation tree for the central server and under **Security>Logins** double-click the **sa** item.



4. In the Login Properties - sa window un-select the **Enforce password policy** check box and click **OK**.

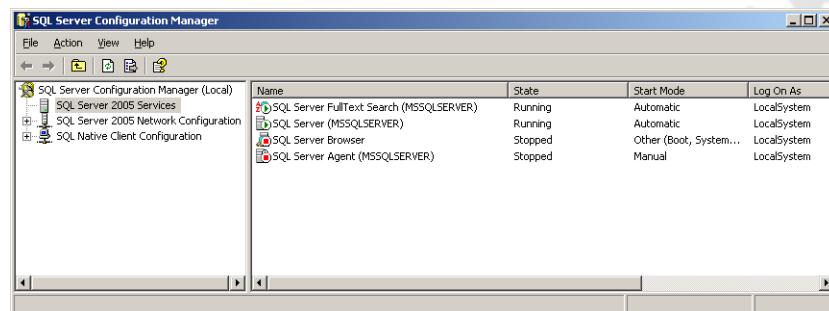


5. Close the window.

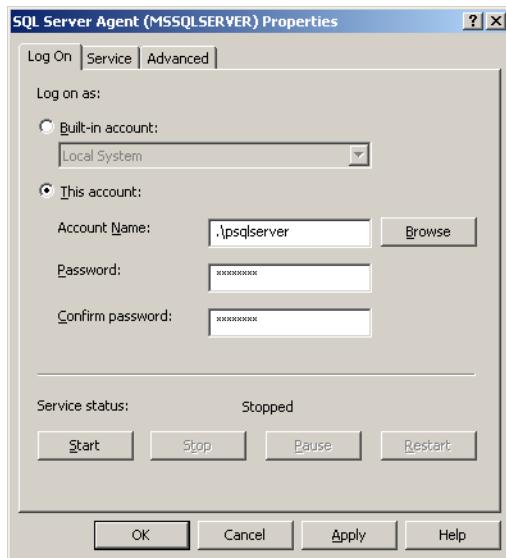
► To modify SQL Server Agent (MSSQLSERVER) account:

1. Go to Start>Programs>Microsoft SQL Server 2005>Configuration Tools>SQL Server Configuration Manager.
2. The SQL Server Configuration Manager window opens.

In the left window pane highlight **SQL Server 2005 Services**. In the right window pane right-click on **SQL Server Agent (MSSQLSERVER)** and select **Properties**.



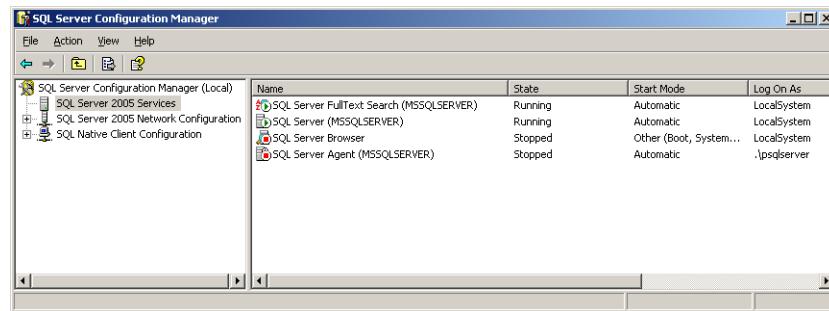
3. Select This account radio button and browse for the psqlserver account or type .\psqlserver. Specify and confirm password (Master1).



4. Click the **Service** tab. From the **Start Mode** drop-down list select **Automatic** and click **OK**.



5. In the SQL Server Configuration Manager window right-click on **SQL Server Agent (MSSQLSERVER)** and select **Start**. Wait until the status changes to "Running."



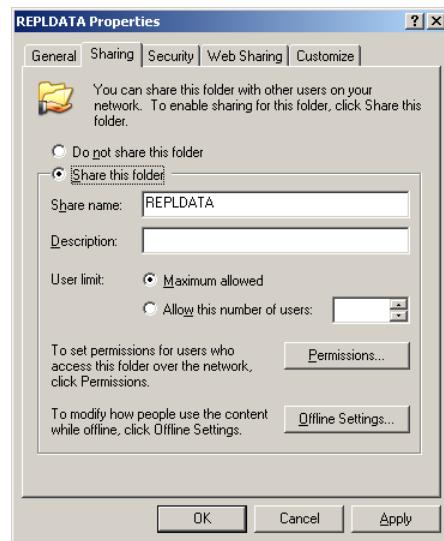
6. Close the SQL Server Configuration Manager window.

ESTABLISHING SHARED DIRECTORIES

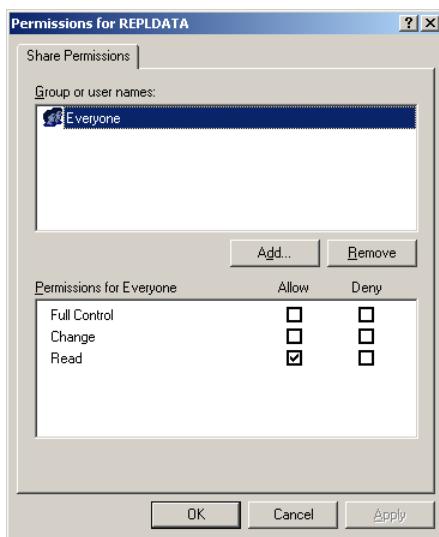
The REPLDATA folder will be used to store snapshots, and will be available to all SQL Servers in the Enterprise system.

To establish shared directory:

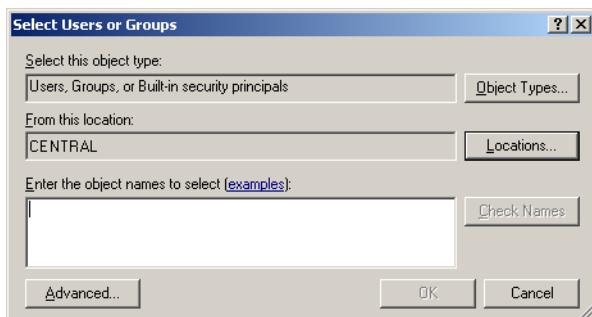
1. Right-click the **Start** button and select **Explore** to launch Windows Explorer.
2. Go to \Program Files\Microsoft SQL Server\MSSQL.1\MSSQL.
3. Right-click the **REPLDATA** folder and select **Sharing...**
4. Select the **Share this folder** radio button and click **Permissions**.



5. In the Permissions for REPLDATA window, click **Add...**.



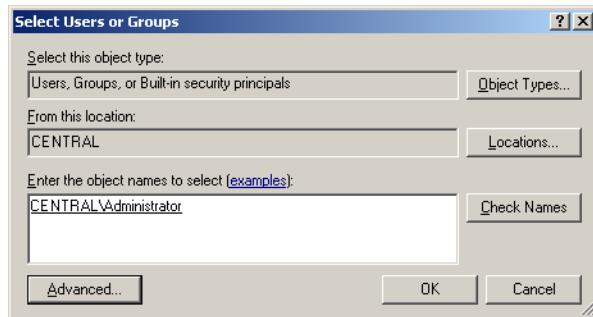
6. In the Select Users or Groups window, click the **Advanced...** button.



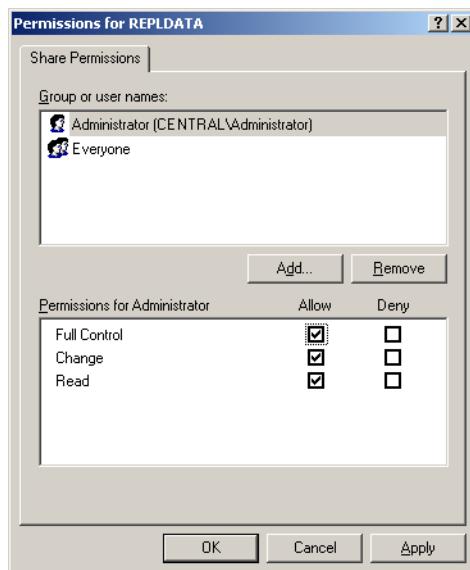
7. In the expanded window, click the **Find Now**.
8. Highlight the **Administrator** entry in the search results and click **OK**.

Name (RDN)	In Folder
Administrator	CENTRAL
Administrators	CENTRAL
ANONYMOU...	
ASPNET	CENTRAL
Authenticated...	
Backup Oper...	CENTRAL
BATCH	
CREATOR G...	
CREATOR O...	
DIALUP	

9. In the Select Users or Groups window, click **OK**.



10. In the Permissions for REPLDATA window, select **Full Control** in the Allow column and click **OK**.



11. In the Properties window for the server click **OK**.

12. Close Windows Explorer.

CONFIGURING PUBLISHER AND DISTRIBUTOR

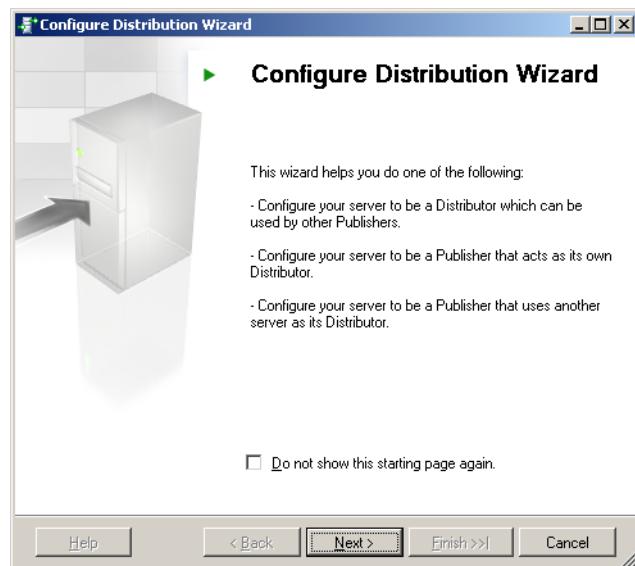
Publisher and distributor are configured on a central server.

 **To configure the server for publication and distribution:**

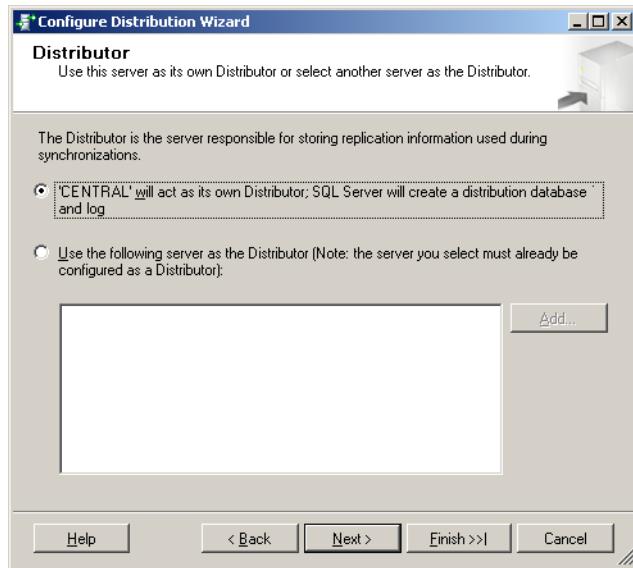
1. Go to **Start>Programs>Microsoft SQL Server 2005>SQL Server Management Studio**.
2. In the Connect to Server window, select the central server and click **Connect**.



3. The Microsoft SQL Server Management Studio window opens. Under the server icon, right-click on the **Replication** folder and select **Configure Distribution...**
4. The Configure Distribution Wizard starts. Click **Next**.



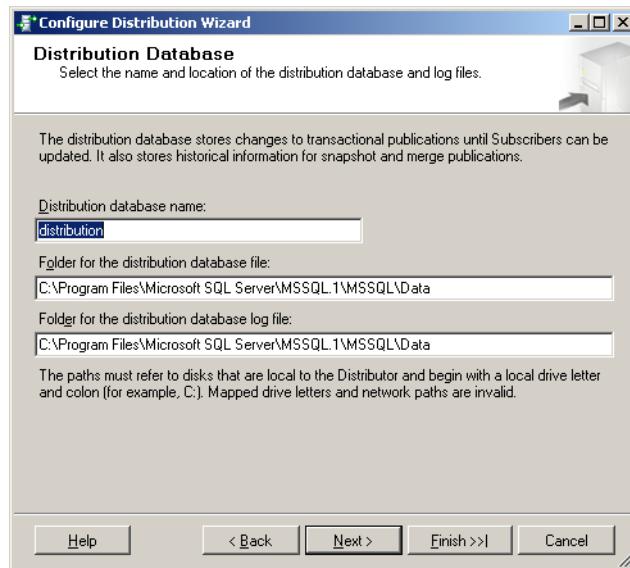
5. Verify that the central server is selected as Distributor; click **Next**.



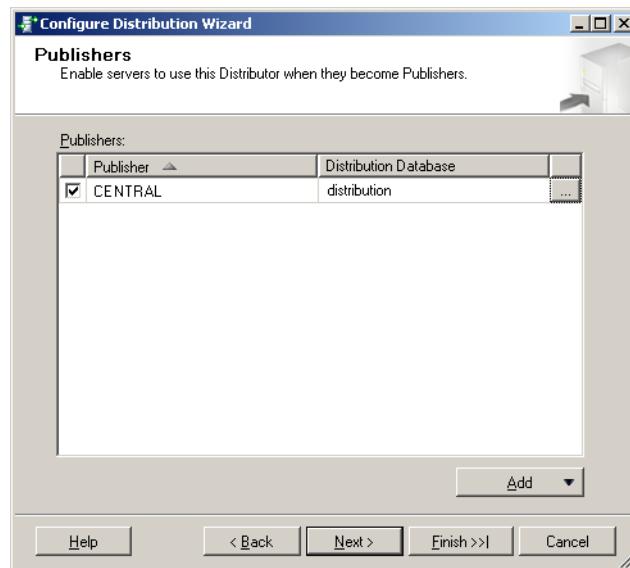
6. Enter the location of the snapshot folder: \\CENTRAL\\REPLDATA.
Click **Next**.



7. Accept the default settings by clicking **Next**.



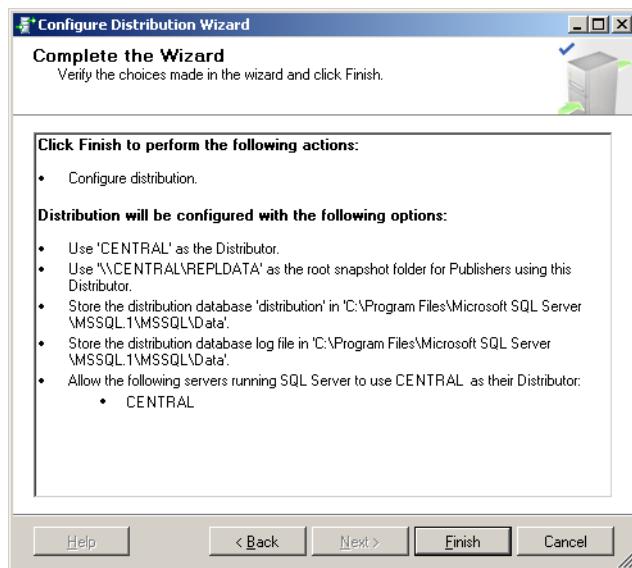
8. Verify that the central server is selected and click **Next**.



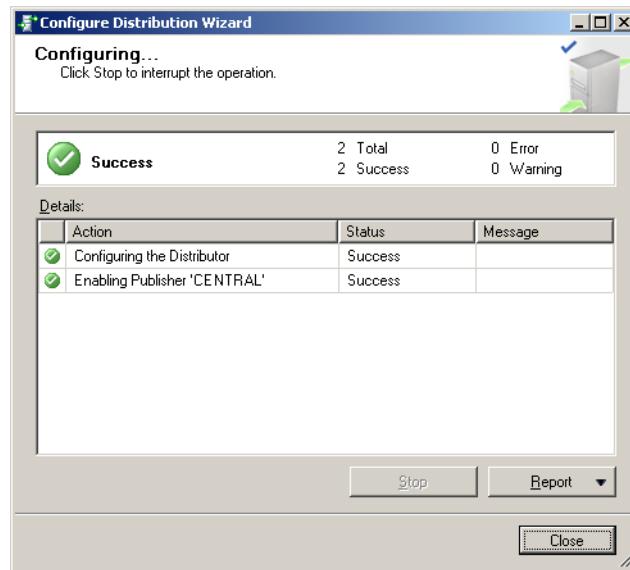
9. Verify that the **Configure Distributions** check box is selected and click **Next**.



10. View the settings and click **Finish**.



11. Verify that the configuration has been successful and click **Close**.

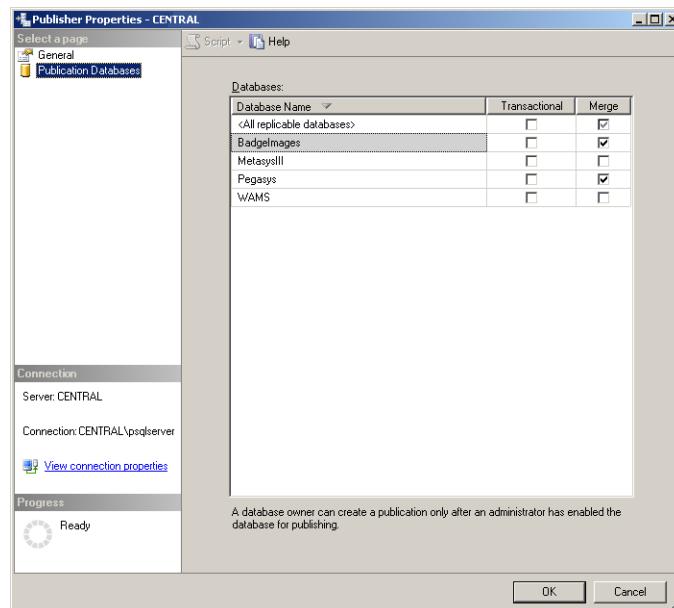


12. Keep the Microsoft SQL Server Management Studio window open.

➤ To configure Publisher properties:

1. In the Microsoft SQL Server Management Studio window right click on **Replication** and select **Publisher Properties**.
2. In the left window pane of the Publisher Properties window highlight **Publication Databases**.

In the right window pane select the **BadgeImages** and **Pegasys** check boxes in the **Merge** column. Click **OK**.



3. Keep the Microsoft SQL Server Management Studio window open.

Generating P2000 Stored Procedures

➤ To generate P2000 stored procedures for Publisher/Distributor:

1. In the Microsoft SQL Server Management Studio go to **File>Open>File**.
2. Browse for the **Create sp_Pub_XXX_2005.sql** file located in
C:\Program Files\Johnson Controls\P2000\sql
Select it and click **Open**.

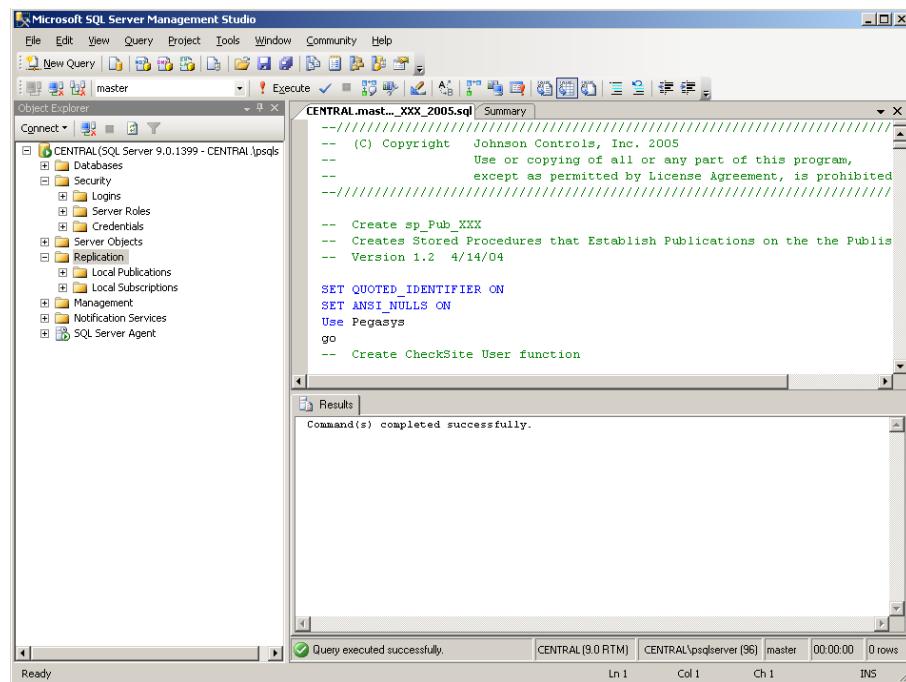
NOTE

On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).

3. In the Connect to Server window, select the central server and click **Connect**.



4. Parse and execute the query.



5. Close the Microsoft SQL Server Management Studio window.

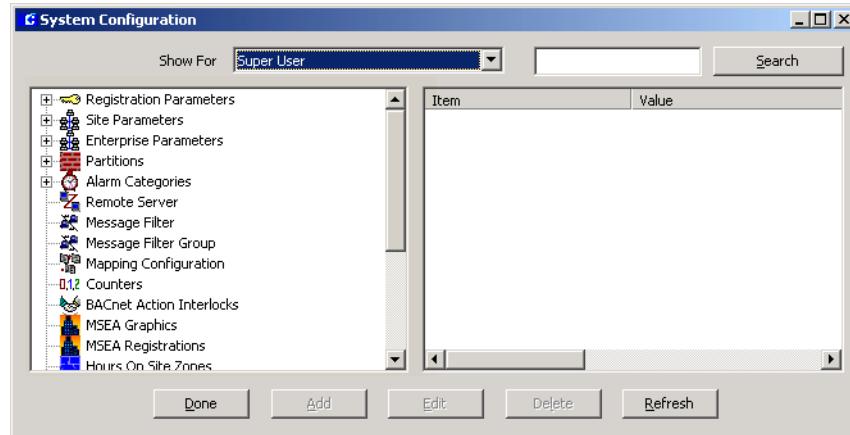
ESTABLISHING AN ENTERPRISE SYSTEM

To establish an enterprise configuration, Enterprise Time Zones and Access Groups need to be defined. For instructions on defining Time Zones and Access Groups refer to the *P2000 Software User Manual*. You can define them now or at a later time.

In addition, on the central server the local site has to be defined as the Enterprise Site. This is done automatically. The enterprise parameters must be set manually, as described in the procedure below.

To identify the P2000 server as the Enterprise site:

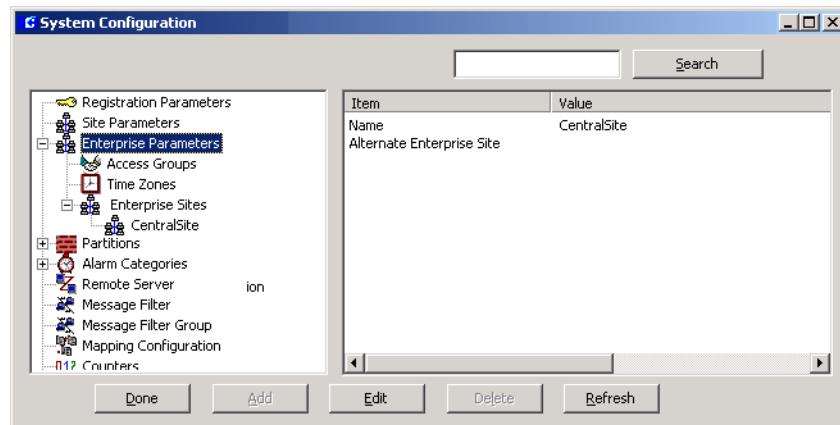
1. Log in to P2000 (factory settings are Cardkey for **User Name** and master for **Password**).
2. From the main menu select **Config> System**.
3. If required, specify the password and click **OK** (master is the factory setting).
4. Right-click the **Enterprise Parameters** icon and select **Edit**.



5. From the drop-down list select the name of your local site as defined during the P2000 software installation. Click **OK**.



6. Verify that the site is listed in the right window pane. Keep the System Configuration window open.



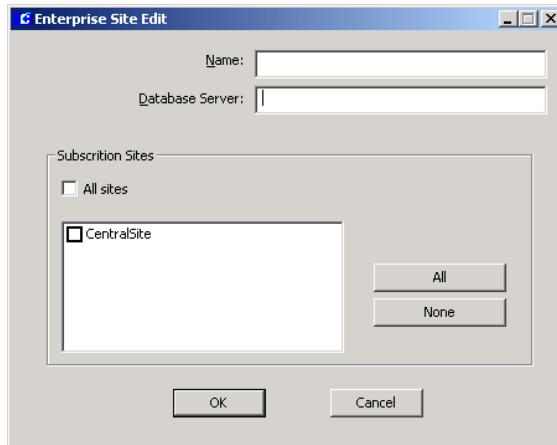
POPULATING THE ENTERPRISE SETTINGS

Before any subscriptions can be created, the initial site tables must be populated. This is done on the Central Site in the Enterprise Site Edit screen of P2000.

 **To add regional sites:**

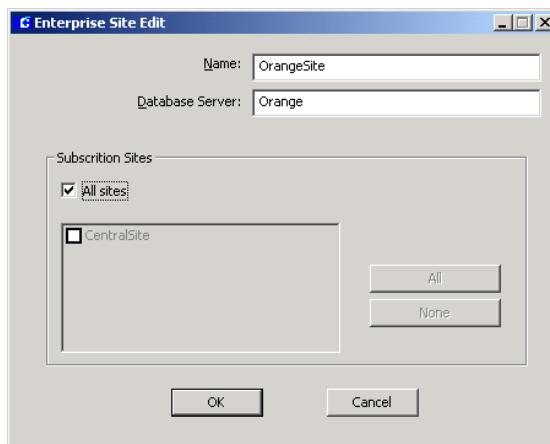
Add the sites that have already been established. More sites can be added at a later time.

1. In the System Configuration window, under **Enterprise Parameters** right-click the **Enterprise Sites** icon and select **Add**.
2. The Enterprise Site Edit window opens where you can add a new site. Each site added so far is listed.

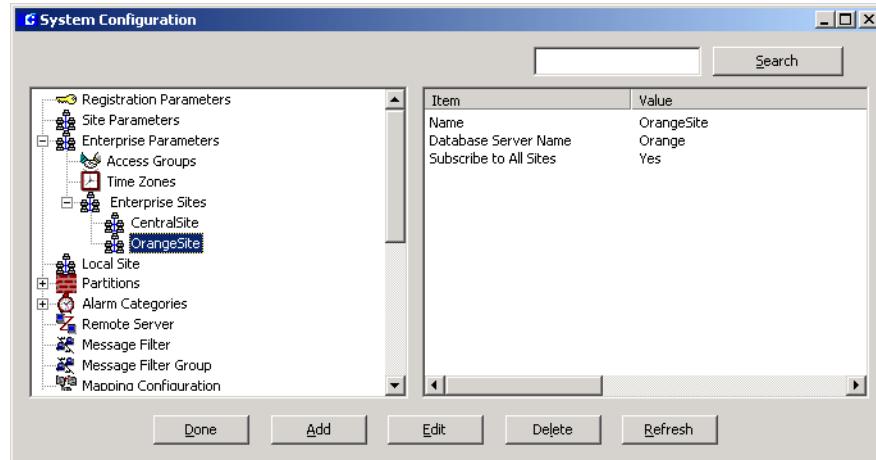


3. Specify the name and database server of the regional site.

For **Subscription Sites** select the sites for which you want the data to be available on this regional server. Selecting **All sites** will subscribe this server to data from the entire Enterprise system. Click **OK**.



4. Repeat steps 1 and 2 for each regional site.
5. Verify that the added site(s) appear in the System Configuration window. Close this window.



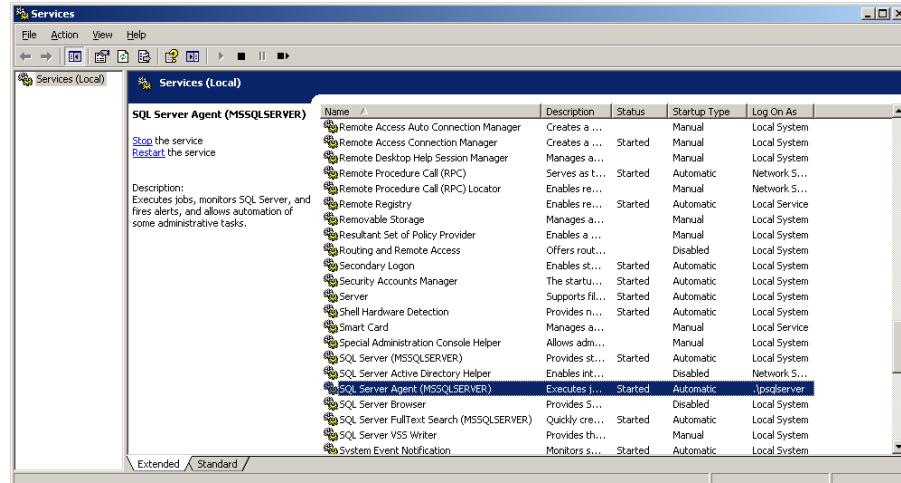
SETTING UP P2000 PUBLICATIONS

IMPORTANT

Before proceeding, stop all P2000 Services on the central site and quit their monitoring.

► To verify that the SQL Server Agent is started:

1. Go to Start>Programs>Administrative Tools>Services.
2. In the Services window, verify that the **SQL Server Agent (MSSQLSERVER)** is running.



3. Close the Services window.

 To create publications:

1. Go to Start>Programs>Microsoft SQL Server 2005>SQL Server Management Studio.
2. In the Connect to Server window, select the central server and click **Connect**.



3. The Microsoft SQL Server Management Studio window opens. Go to **File>Open>File**.
4. Browse for the **Create All Publications.sql** file located in **C:\Program Files\Johnson Controls\P2000\sql**. Select it and click **Open**.

NOTE

On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).

5. Remove the entire “EXEC” statement line for all such publications that you do not want to create (see “Key Terms” on page 1-4 for more information on how to decide which publications to establish).

```

-- Copyright 2004 Johnson Controls, Inc.
-- Use or copying of all or any part of this program,
-- except as permitted by License Agreement, is prohibited.
-- Create All Publications
-- Creates all the publications on a Publisher
-- Version 1.0 3/17/04

SET QUOTED_IDENTIFIER ON
SET ANSI_NULLS ON

DECLARE @PegPublisher SYSNAME
Set @PegPublisher = HOST_NAME()

Use Pegasys

```

6. Parse and execute the query.

```
-- ///////////////////////////////////////////////////
-- (C) Copyright Johnson Controls, Inc. 2004
-- Use or copying of all or any part of this program,
-- except as permitted by License Agreement, is prohibited.
-- //////////////////////////////////////////////

-- Create All Publications
-- Creates all the publications on a Publisher
-- Version 1.0 3/17/04

SET QUOTED_IDENTIFIER ON
SET ANSI_NULLS ON

DECLARE @PegPublisher SYSNAME
Set @PegPublisher = HOST_NAME()

Use Pegasys
```

It is recommended that you scroll down and review error messages under the **Messages** tab. Resolve any reported problems before proceeding.

7. Exit Query Analyzer *without* saving the script file. Keep the Microsoft SQL Server Management Studio window open.

SNAPSHOTS

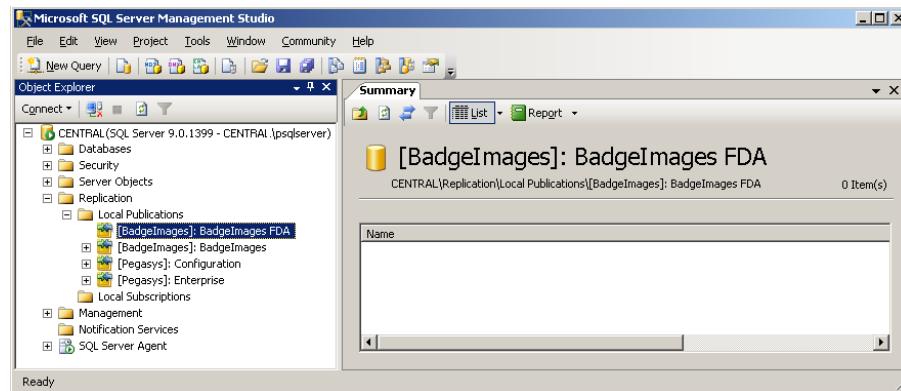
Once the publications are created, you need to generate the snapshots for each publication. The snapshots contain the initial data from the Publisher, schema (database structure) information, and initialization parameters for tables with identity columns.

NOTE

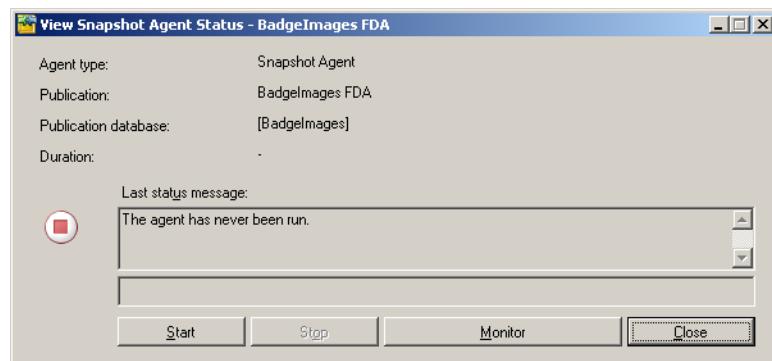
It is recommended that you run each snapshot separately. If multiple snapshots are run simultaneously, deadlocks can occur and the distribution control tables may get corrupted.

To run a snapshot:

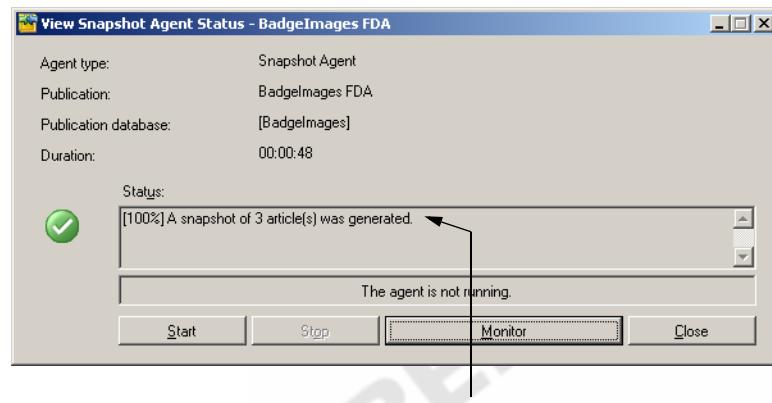
1. In the Microsoft SQL Server Management Studio window, expand the navigation tree and go to **Replication>Local Publications** folder.



2. Right-click on a publication and select **View Snapshot Agent Status**.
3. In the select View Snapshot Agent Status window click **Start**.



4. Click **Close**.
 5. The status will change from “The agent has never been run” to “Starting Agent” and to “100%.”
- Wait for the snapshot to complete (as indicated by the “100%” status). The process may take several minutes.



Completed snapshot

6. For each publication, run its associated snapshot agent as described in steps 3 and 4. Snapshots should be run one at a time.

The number of snapshots depends on the number of previously established publications. Some snapshots may take several minutes to complete.

7. When all snapshots are completed, it is recommended that you backup the databases.

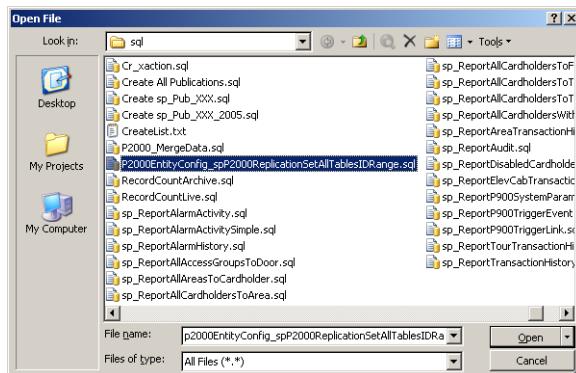
REPLICATION SET IDENTITY RANGE

► To set up identity range:

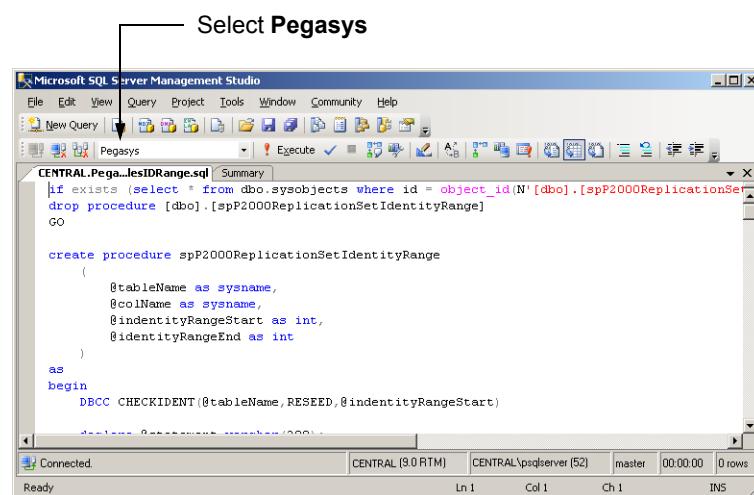
1. In the Microsoft SQL Server Management Studio go to **File>Open>File**.
2. Browse for the following file:
P2000EntityConfig_spP2000ReplicationSetAllTablesIDRange.sql
located in
C:\Program Files\Johnson Controls\P2000\sql
Select it and click **Open**.

NOTE

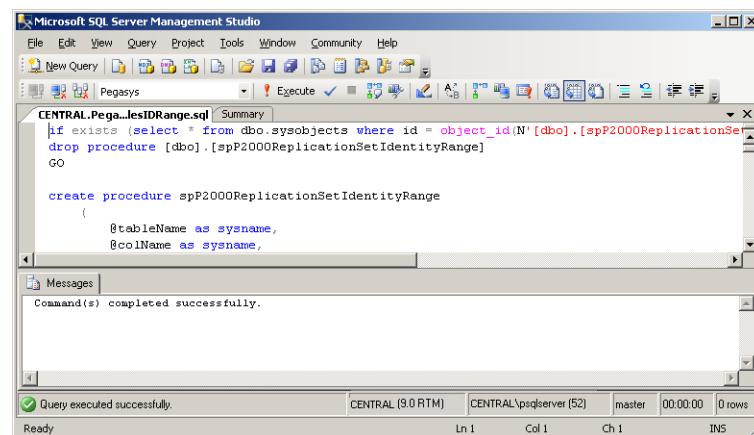
On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).



3. In the Connect to Server window, select the server for which you are setting the identity range and click **Connect**.
4. In the Microsoft SQL Server Management Studio window select the **Pegasys** database the drop-down list.



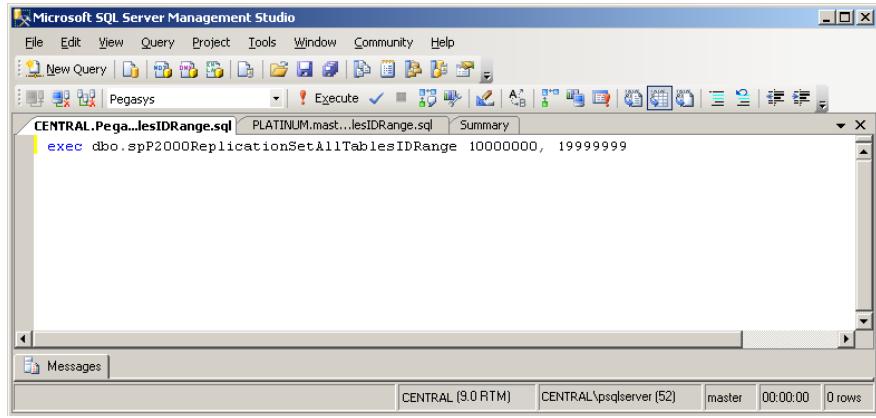
5. Parse and execute the query.
6. In the lower window pane verify that the commands were completed successfully.



7. Click the **New Query** button.
8. Type in the following command:

```
exec dbo.spP2000ReplicationSetAllTablesIDRange XX, YY
```

 Where XX is the beginning of the ID range, and YY is the end of the ID range.
 See Table 2-1 for reference.



9. Parse and execute the query.

It is recommended that you scroll down and review error messages under the **Messages** tab. Resolve any reported problems before proceeding.

10. Close the Microsoft SQL Server Management Studio window.

Congratulations, you have successfully defined the required publications for your P2000 Enterprise Solution.

PROCEDURES SPECIFIC TO SQL SERVER 2008 R2

SQL SERVER LOGIN ACCOUNT IN WINDOWS

During replication, SQL Server and SQL Server Agent cannot run as “local system,” but require a separate account on all participating servers.

Creating the “psqlserver” Account

The steps for creating and configuring the “psqlserver” account vary depending on whether or not the P2000 server is on the domain.

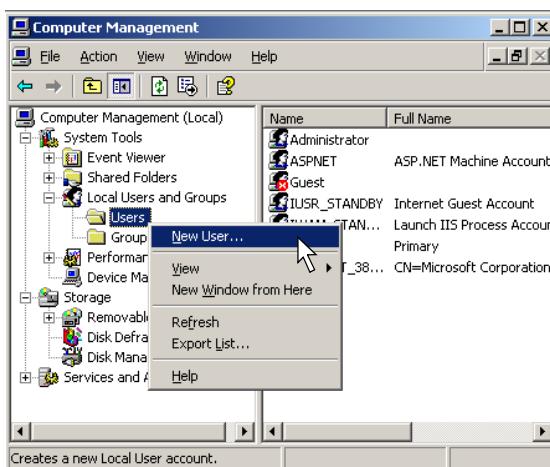
If your P2000 server is *not* on the domain, follow the steps below. For instructions to be used on a P2000 server that is on the domain, see page 2-40.

NOTE

The “psqlserver” account has to be created on the central and regional servers. See the following procedure for details.

► To create a local service user account for the SQL Server:

1. Go to **Start>Administrative Tools>Computer Management** (the path may vary depending on your operating system).
2. In the Computer management window, under **Computer Management (Local)** expand the **Local Users and Groups** folder.
3. Right-click the **Users** icon and select **New User...**



4. In the New User window, fill out the following fields:

User name: psqlserver

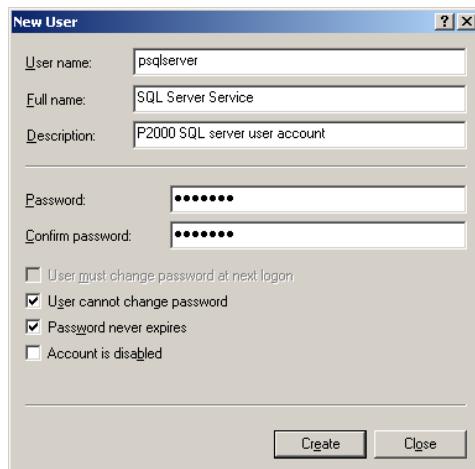
Full name: SQL Server Service

Description: P2000 SQL service user account

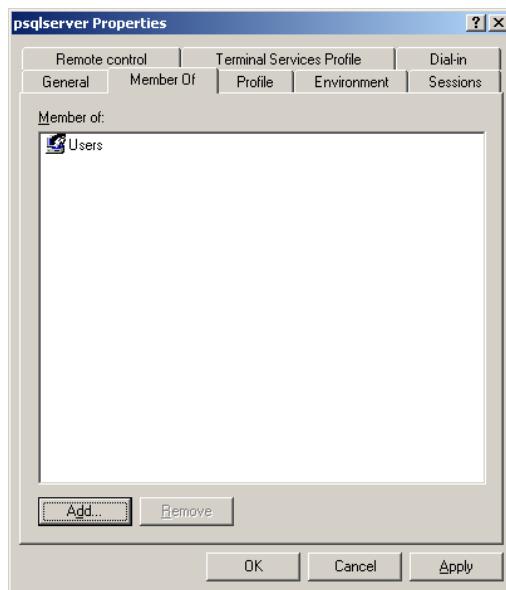
Enter and confirm password (Master1).

Un-select the **User must change password at next logon** check box.

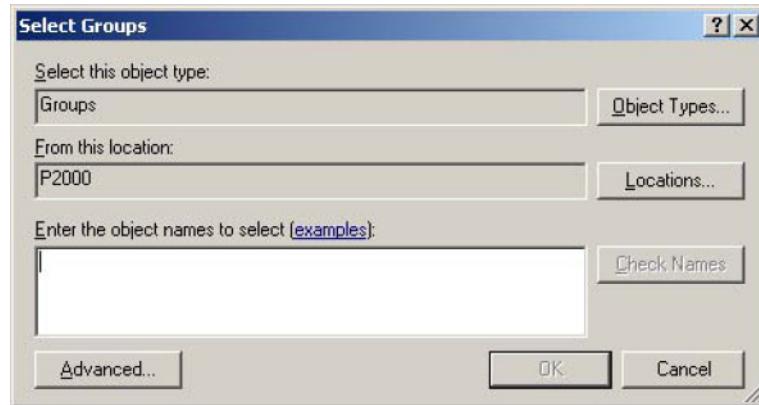
Select the following check boxes: **User cannot change password** and **Password never expires**. Click **Create**.



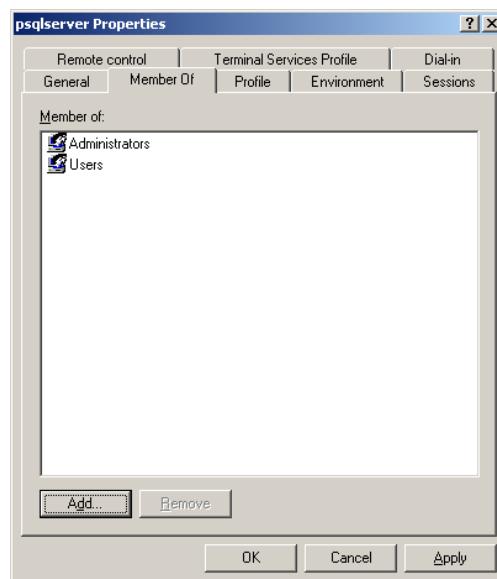
5. Click **Close**.
6. You are now back to the Computer Management window. In the right window pane, double-click the **psqlserver** icon.
7. The psqlserver Properties window opens. Click the **Member Of** tab and the **Add...** button.



8. In the Select Groups window, click the **Advanced...** button.



9. In the expanded window, click the **Find Now** button.
10. From the search results window, double click **Administrators**, and then click **OK**.
11. You are back to the psqlserver Properties window; verify that “psqlserver” is now a member of Administrators. Click **OK**.



12. Close the Computer Management window.

Creating the “BUILTIN\Administrators” Account

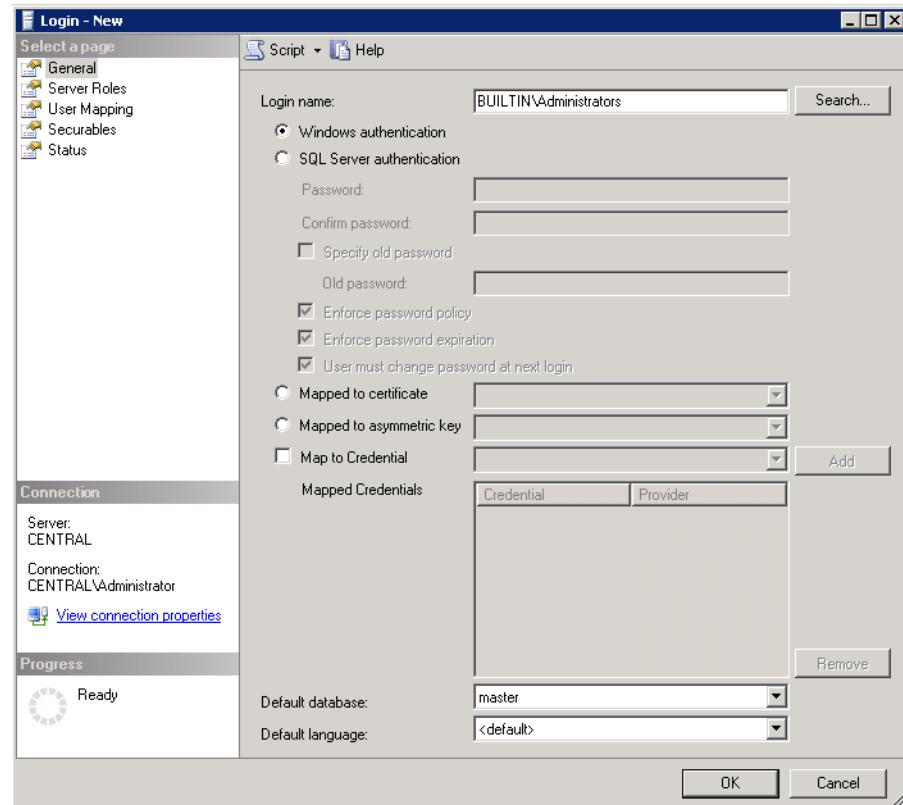
► **To create “BUILTIN\Administrators” account:**

1. Open the Microsoft SQL Server Management Studio.
2. Expand the entry for the server and the **Security** folder.
3. Right-click **Logins** and select **New Login**.

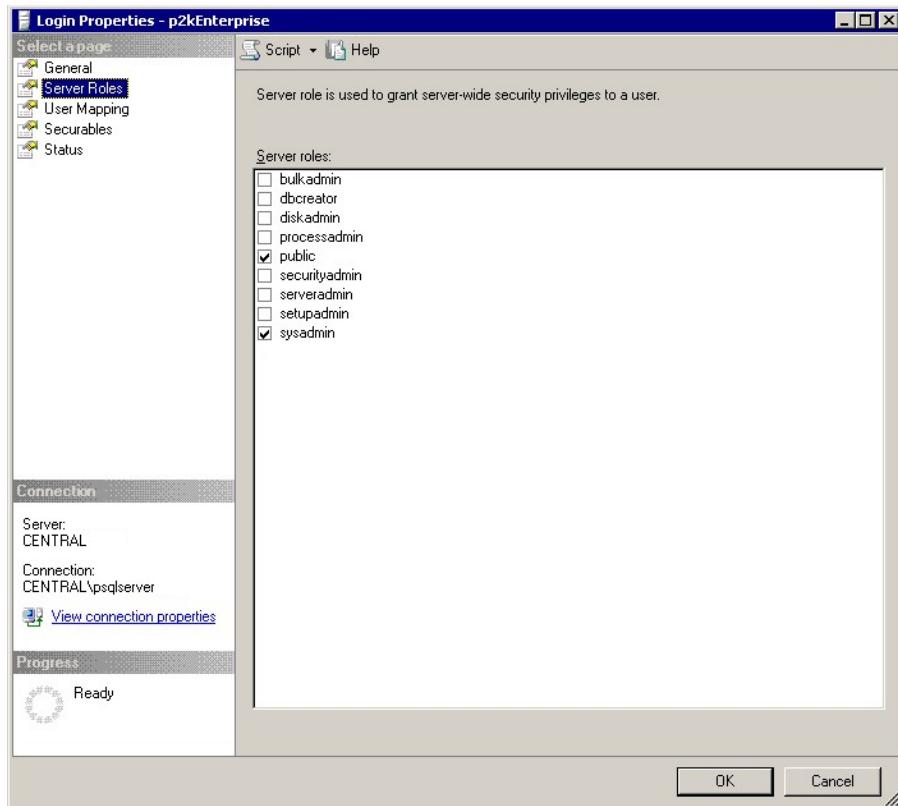
4. Create an account with the following settings:

- **Login name:** BUILTIN\Administrators
- **Default database:** master
- **Default language:** <default>

Do not close this window yet.



5. In the left window pane click **Server Roles**. In addition to **public** check box which is selected by default, also select **sysadmin**.

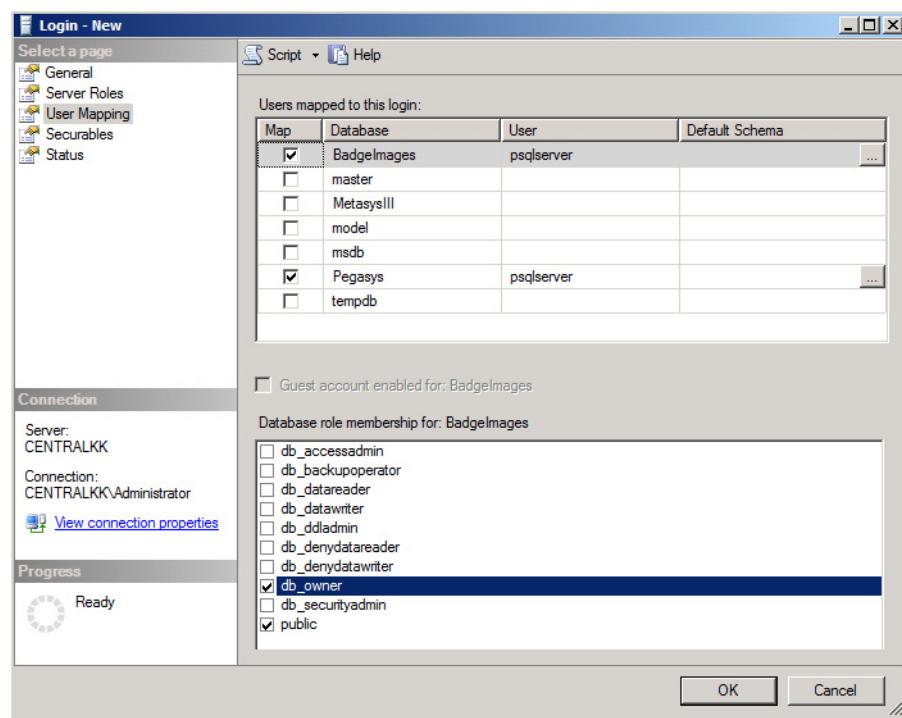


6. In the left window pane click **User Mapping**.

In the upper right window pane, select **BadgeImages**, and in the lower right window pane select **db_owner** and **public**.

Then, in the upper right window pane, select **Pegasys**, and in the lower right window pane select **db_owner** and **public**.

Click **OK**.



7. Close the Microsoft SQL Server Management Studio.

From now on, use the “psqlserver” account every time you log in to establish or configure the Enterprise system.

You are now ready proceed with “Connecting to the SQL Server” on page 2-43.

Creating SQL Server Account for Servers on the Domain

NOTE

*The section below should **only** be performed on servers on the domain. It is recommended to use local accounts to avoid dependencies on domain for P2000 service operation.*

► To create a domain user account for the SQL server:

1. At the domain controller, log on to the domain as the system administrator.
2. Go to **Start>Programs>Administrative Tools>Active Directory Users and Computers** (the path may vary depending on your operating system).
3. In the Active Directory Users and Computers window, under the icon for the domain, right-click **Users**, and go to **New>User**.
4. In the New Object-User window, fill out the following fields:

First name:

SQL

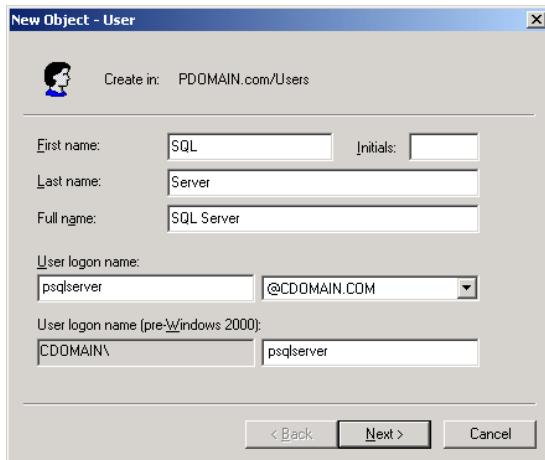
Last name:

Server

Full name:

(filled out automatically)

User logon name: psqlserver
User logon name (pre-Windows 2000): psqlserver
 (for example: CDOMAIN\psqlserver)
 Click **Next**.



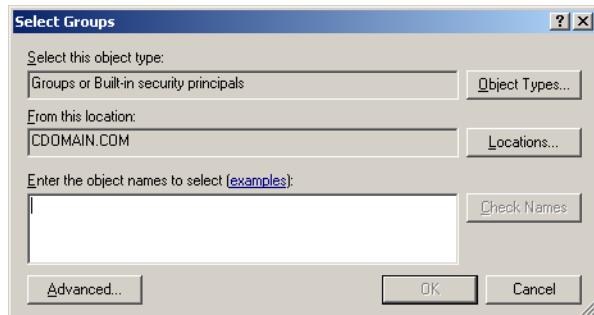
- Specify and confirm the password (Master1). Un-select the **User must change password at next logon** check-box, then select the following check boxes: **User cannot change password** and **Password never expires**.

Click **Next**.



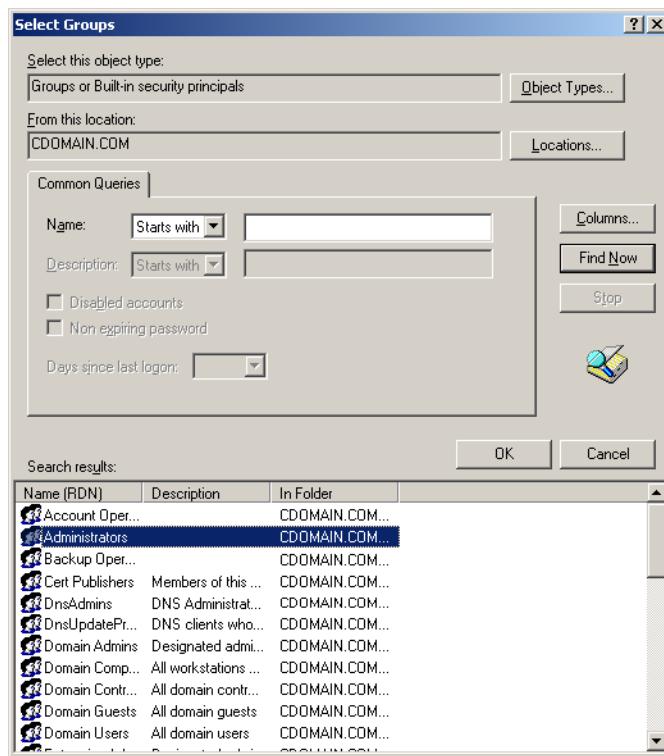
- Verify the settings and click **Finish**.
- You are now back to the Active Directory Users and Computers window. Double-click the **Users** icon.
- In the right window panel, double-click the **SQL Server** icon.
- The SQL Server Properties window opens. Click the **Member Of** tab and the **Add...** button.

10. In the Select Groups window, click the **Advanced...** button.



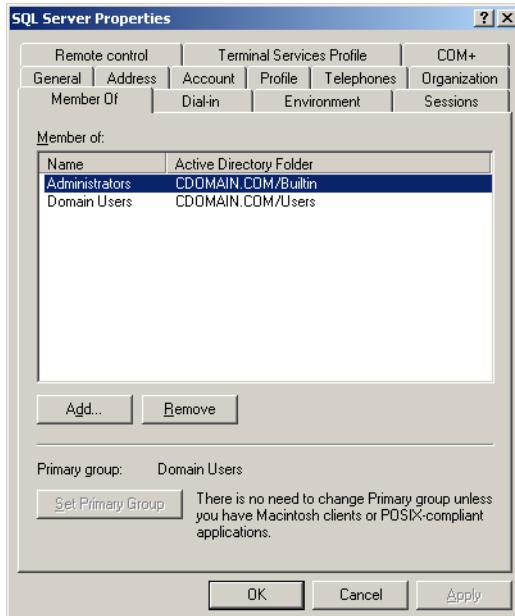
11. In the expanded window, click the **Find Now** button.

12. Highlight **Administrators** and click **OK**.



13. You are back to the select Groups window. Click **OK**.

14. You are back to the SQL Server Properties window. Verify that the SQL Server is now a member of Administrators.



15. Click **OK** to close the SQL Service Properties window.
16. Close the Active Directory Users and Computers window.

From now on, use the “psqlserver” account every time you log in to establish or configure the Enterprise system.

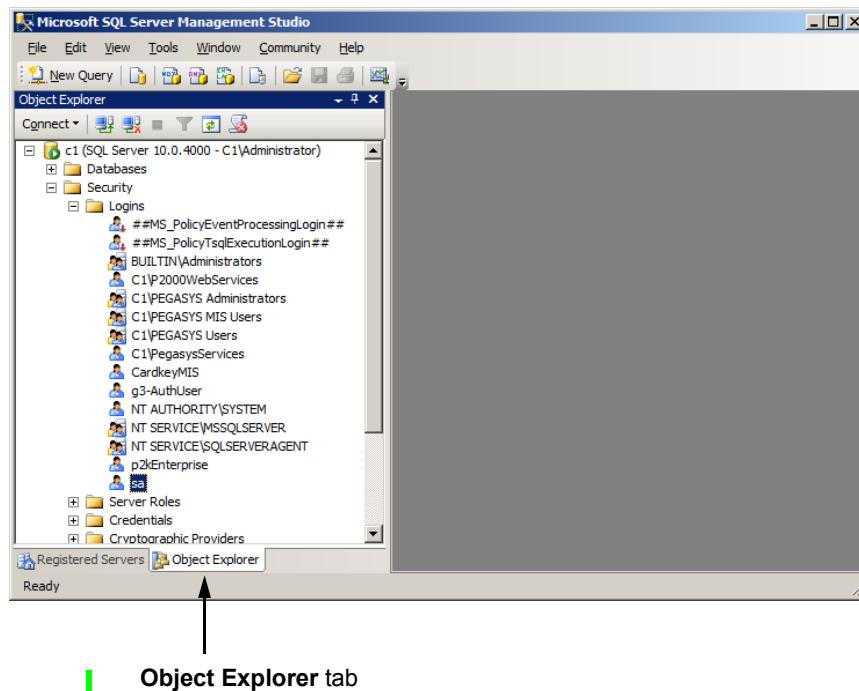
You are now ready proceed with “Connecting to the SQL Server” on page 2-43.

CONNECTING TO THE SQL SERVER

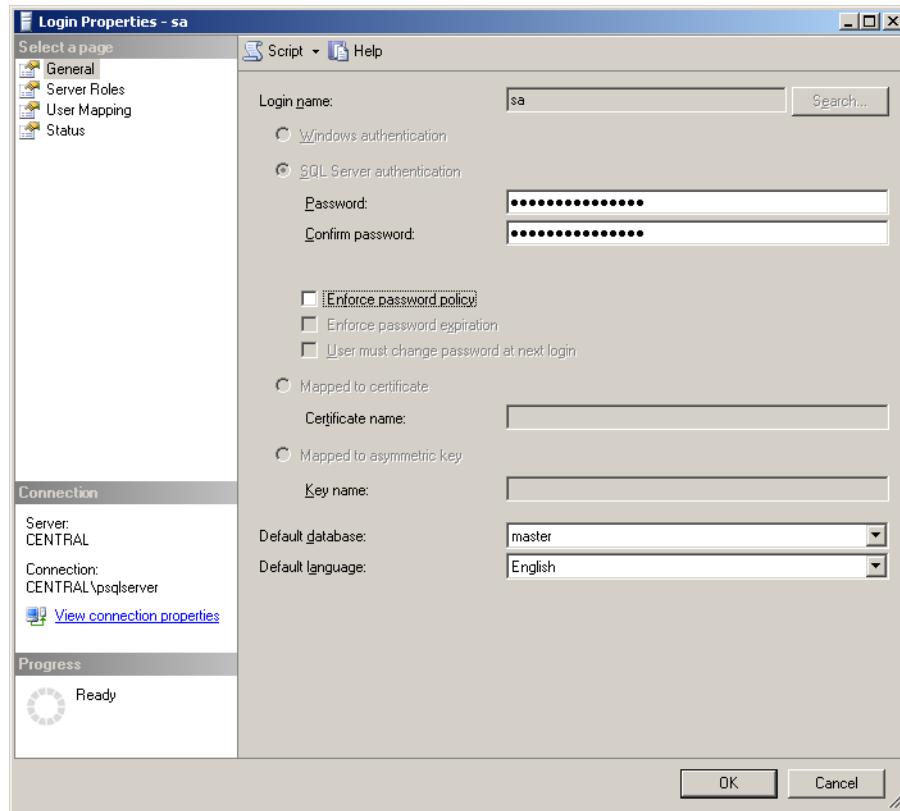
The number of servers is limited by the SQL Server license.

► To modify “sa” password policy:

1. In the SQL Server Management Studio window, click the **Object Explorer** tab and expand the navigation tree for the central server. Under **Security>Logins** double-click the **sa** item.



2. In the Login Properties - sa window un-select the **Enforce password policy** check box and click **OK**.

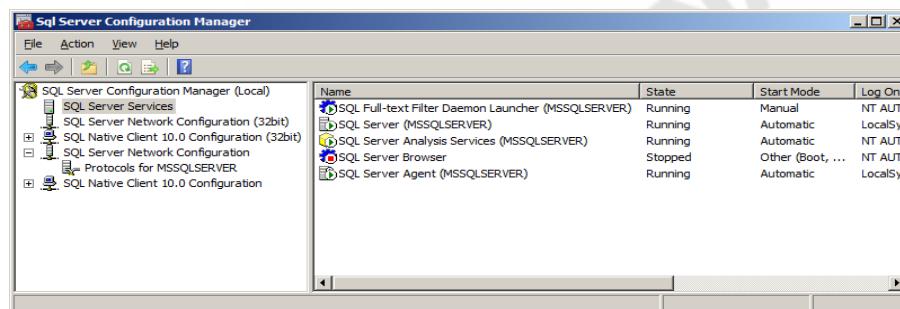


3. Close the window.

► **To modify SQL Server Agent (MSSQLSERVER) account:**

1. Go to **Start>Programs>Microsoft SQL Server 2008 R2>Configuration Tools>SQL Server Configuration Manager**.
2. The SQL Server Configuration Manager window opens.

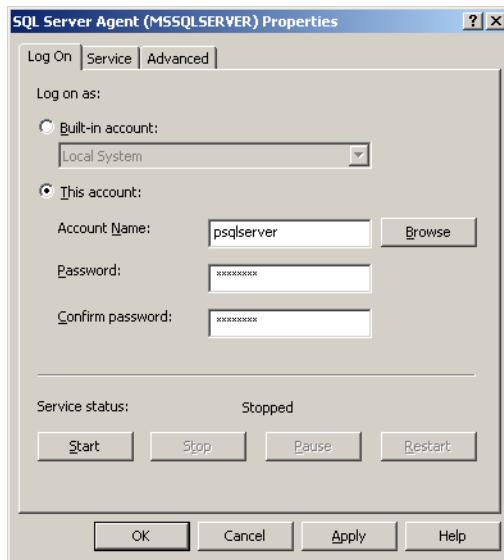
In the left window pane highlight **SQL Server Services**. In the right window pane right-click **SQL Server Agent (MSSQLSERVER)** and select **Properties**.



3. Select **This account** radio button and browse for the “psqlserver” account or type psqlserver. Specify and confirm password (Master1).

NOTE

If you re-open the SQL Server Agent (MSSQLSERVER) Properties window later, the account name will appear as “.\psqlserver.”



4. When prompted to restart the service, click **Yes**.
5. Wait while the **SQL Server Agent (MSSQLSERVER)** service stops and restarts.

The next procedure is very similar, only this time you will be modifying the SQL Server (MSSQLSERVER) account.

► To modify **SQL Server (MSSQLSERVER)** account:

1. In the right window pane of the SQL Server Configuration Manager window right-click **SQL Server (MSSQLSERVER)** and select **Properties**.
2. In the SQL Server (MSSQLSERVER) Properties window select **This account** radio button and browse for the “psqlserver” account or type psqlserver. Specify and confirm password (Master1).

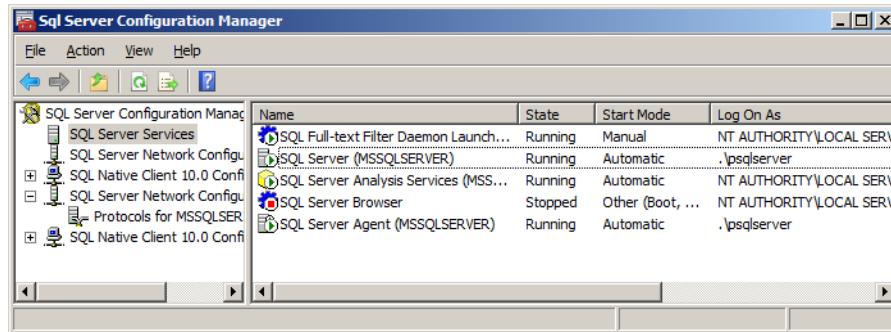
NOTE

If you re-open the SQL Server (MSSQLSERVER) Properties window later, the account name will appear as “.\psqlserver.”

3. When prompted to restart the service, click **Yes**.
4. Wait while the **SQL Server (MSSQLSERVER)** service stops and restarts.
5. Close the SQL Server Configuration Manager window.

➤ To verify that the services are running:

1. In the right window pane of the SQL Server Configuration Manager window, verify that the **SQL Server (MSSQLSERVER)** right-click **SQL Server Agent (MSSQLSERVER)** services are running.



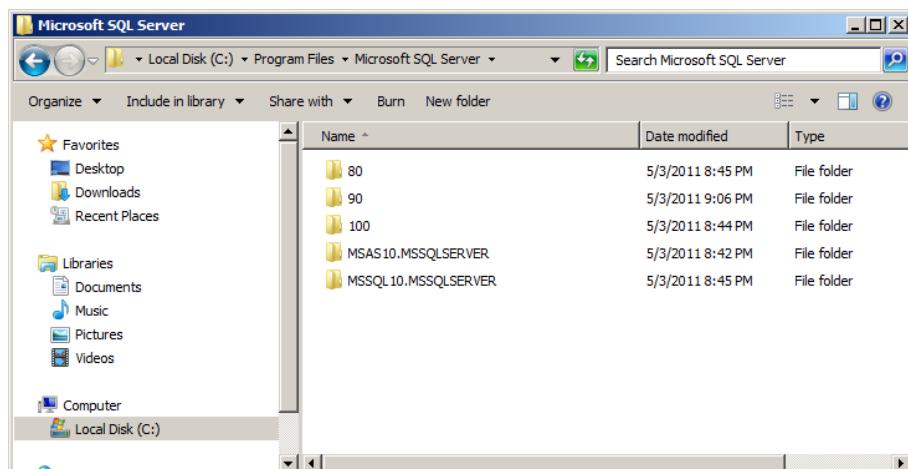
2. Close the SQL Server Configuration Manager window.

ESTABLISHING SHARED DIRECTORIES

The REPLDATA folder will be used to store the snapshot, and will be available to all SQL Servers in the Enterprise system.

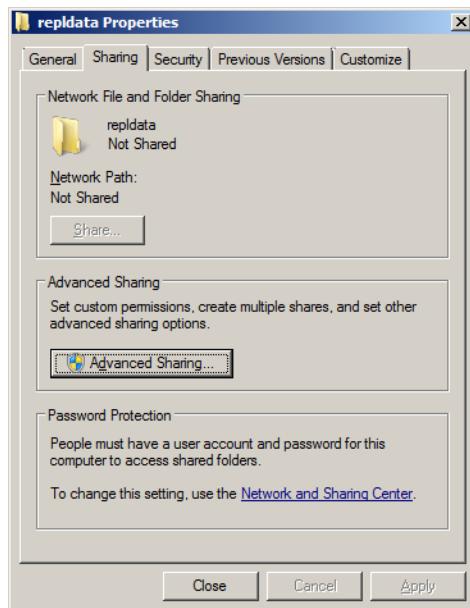
➤ To establish shared directory:

1. Right-click the **Start** button and select **Open Windows Explorer**.
2. Go to C:\Program Files\Microsoft SQL Server\MSSQL.10.MSSQLSERVER\MSSQL.

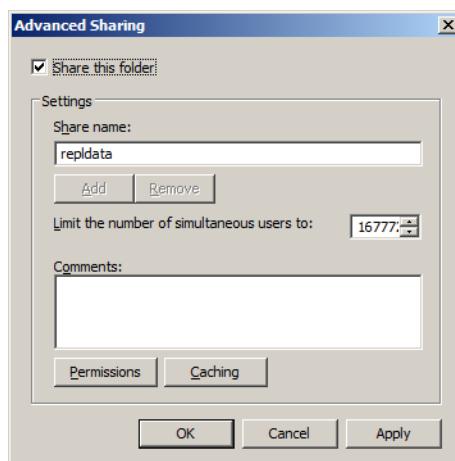


3. Right-click the **repldata** folder and select **Share with>Advanced sharing...**

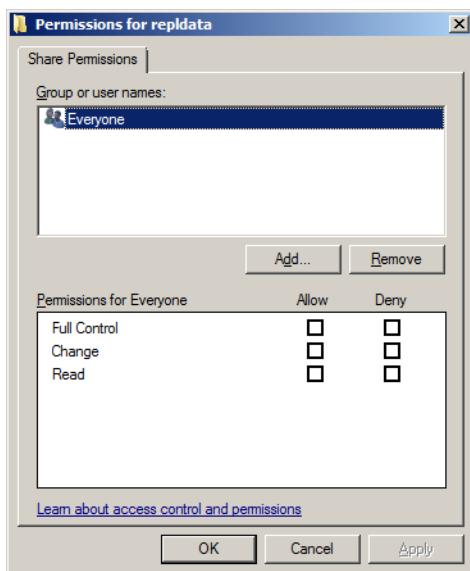
4. In the repldata Properties window click the **Advanced Sharing...**button.



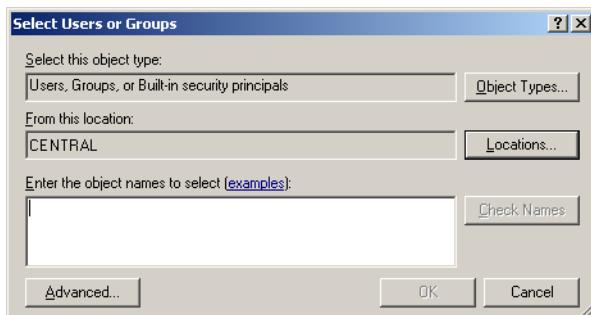
5. In the Advanced Sharing window select the **Share this folder** check box and click **Permissions**.



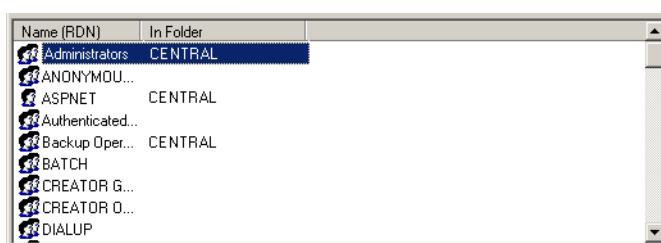
6. In the Permissions for REPLDATA window, click **Add...**



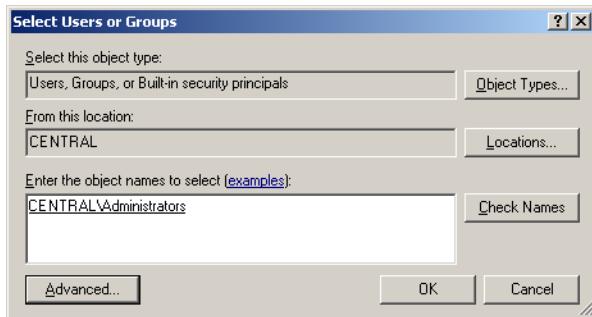
7. In the Select Users or Groups window, click the **Advanced...** button.



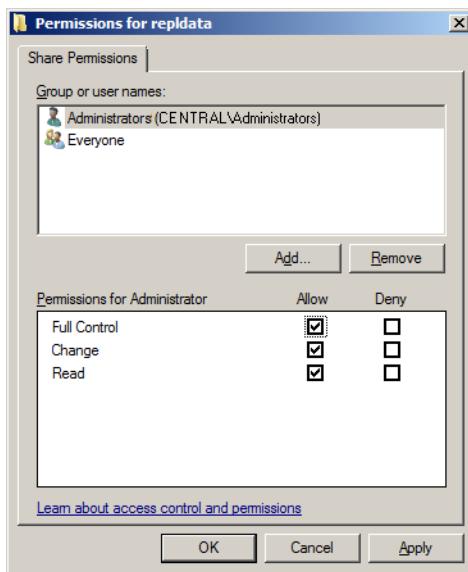
8. In the expanded window, click the **Find Now**.
9. Highlight the **Administrators** entry in the search results and click **OK**.



10. In the Select Users or Groups window, click **OK**.



11. In the Permissions for repldata window, select **Full Control** in the **Allow** column and click **OK**.



12. In the Properties window for the server click **OK**.

13. Close Windows Explorer.

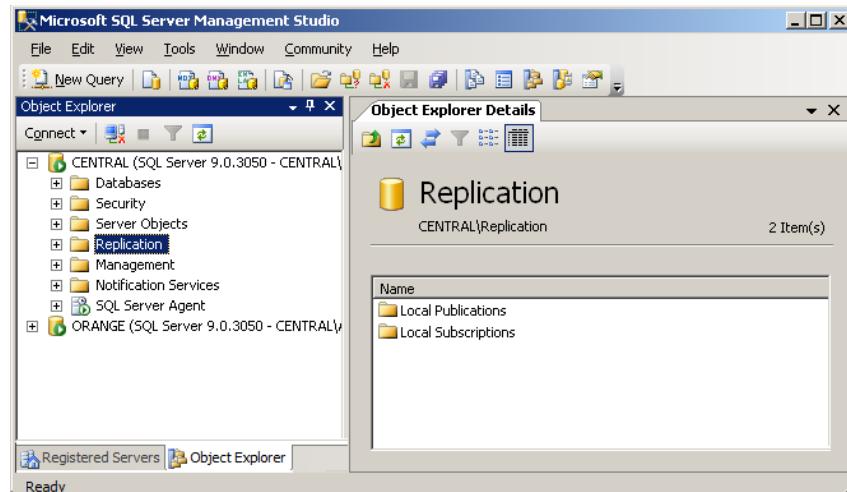
CONFIGURING PUBLISHER AND DISTRIBUTOR

Publisher and distributor are configured on a central server.

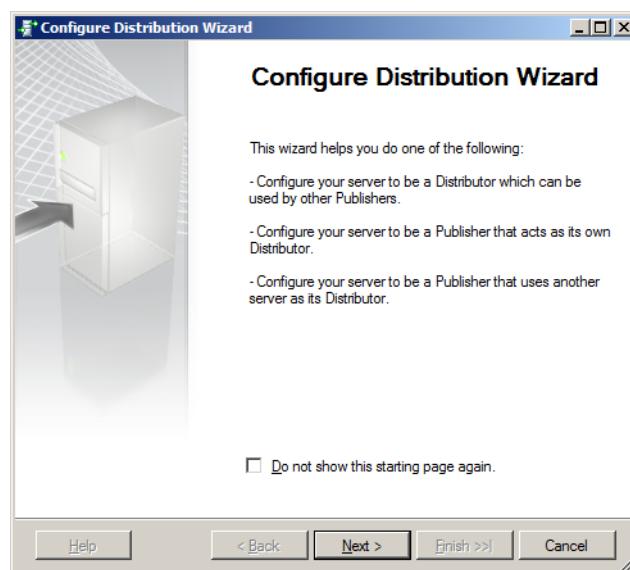
➤ To configure the central server for publication and distribution:

1. Open the Microsoft SQL Server Management Studio.

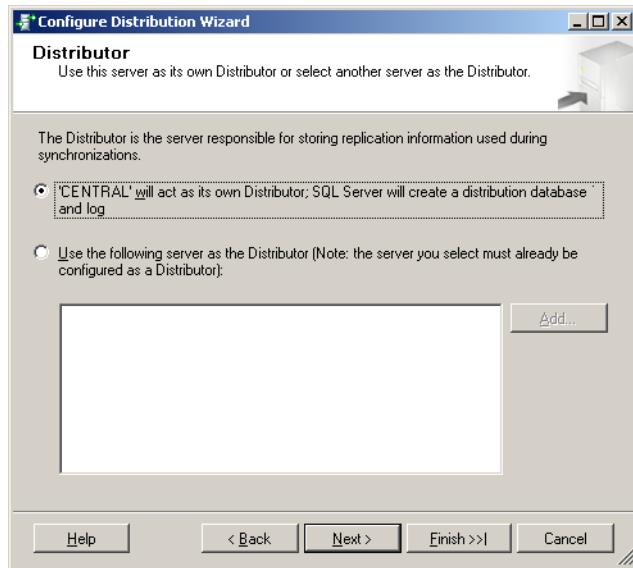
2. Under the central server's icon, right-click the **Replication** folder and select **Configure Distribution...**



3. The Configure Distribution Wizard starts. Click **Next**.

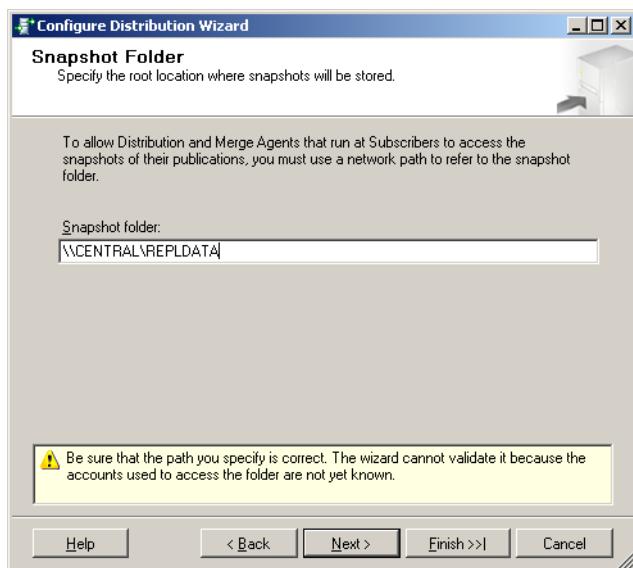


4. Verify that the central server is selected as Distributor; click **Next**.

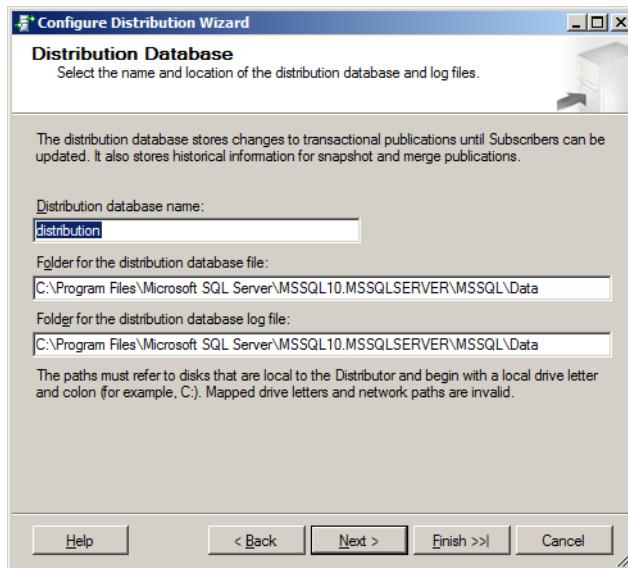


5. Enter the location of the snapshot folder: \\CENTRAL\\REPLDATA (the name of your central server may vary according to custom settings).

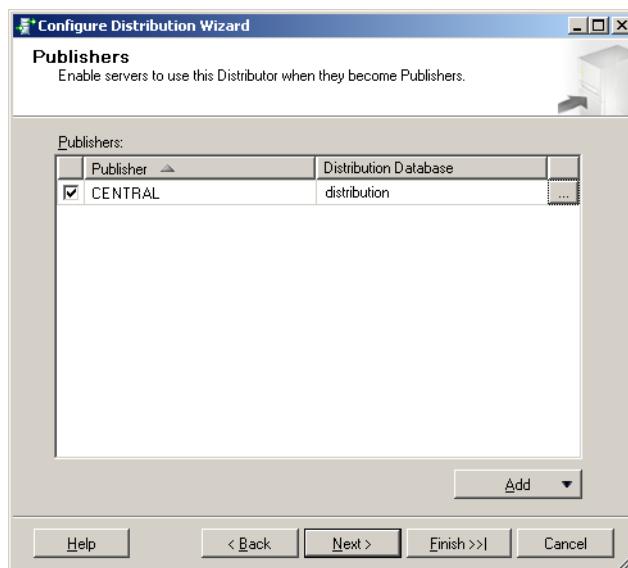
Click **Next**.



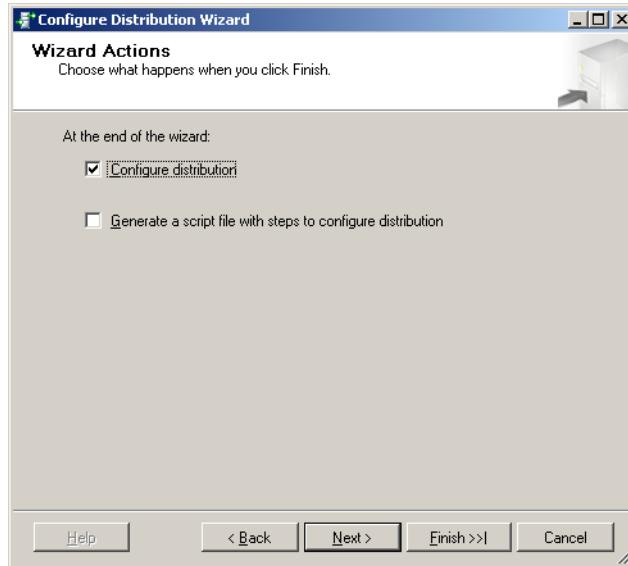
6. Accept the default settings by clicking **Next**.



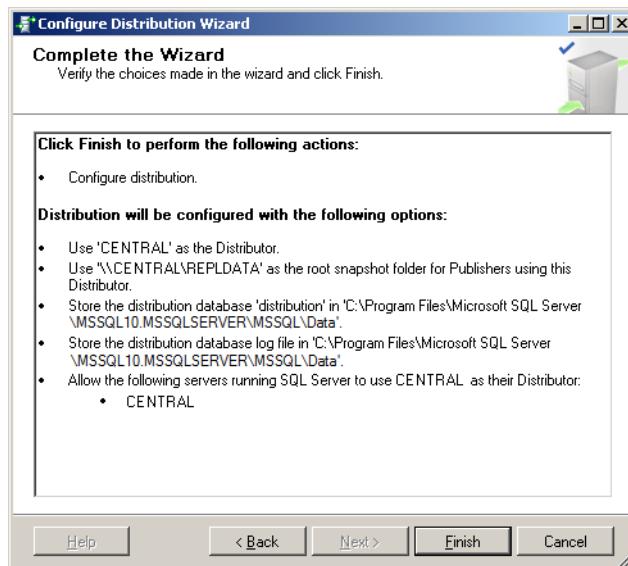
7. Verify that the central server is selected and click **Next**.



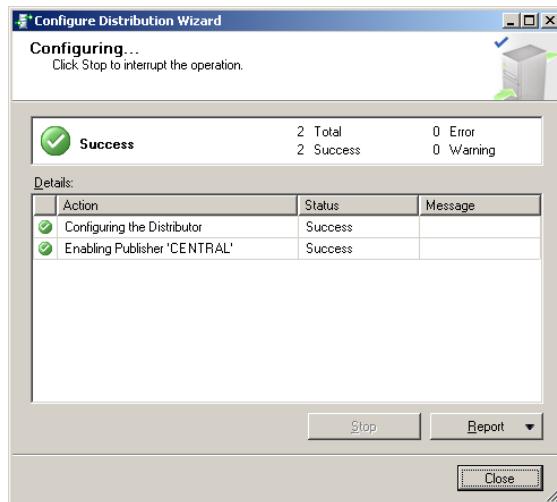
8. Verify that the **Configure Distributions** check box is selected and click **Next**.



9. View the settings and click **Finish**.



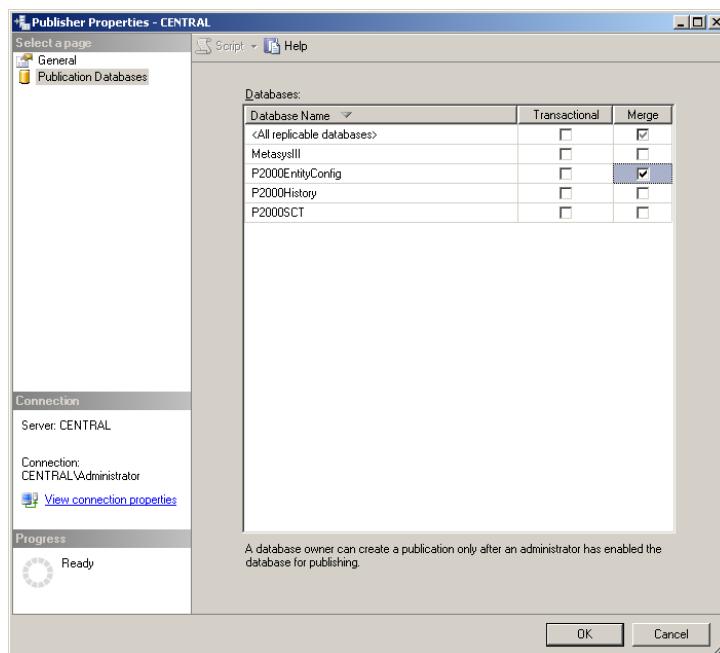
10. Verify that the configuration has been successful and click **Close**.



11. Keep the Microsoft SQL Server Management Studio window open.

➤ To configure Publisher properties:

1. In the Microsoft SQL Server Management Studio window right click **Replication** and select **Publisher Properties**.
2. In the left window pane of the Publisher Properties window highlight **Publication Databases**.
In the right window pane select the **BadgeImages** and **Pegasys** check boxes in the **Merge** column. Click **OK**.



3. Keep the Microsoft SQL Server Management Studio window open.

Generating P2000 Stored Procedures

➤ **To generate P2000 stored procedures for Publisher/Distributor:**

1. In the Microsoft SQL Server Management Studio window go to **File>Open>File**.
2. Browse for the **Create sp_Pub_XXX_2005.sql** file located in **C:\Program Files\Johnson Controls\P2000\sql**
Select it and click **Open**.

NOTE

On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).

3. Select the central server and click **Connect**.
4. Parse and execute the query. When the query is complete, close the Microsoft SQL Server Management Studio window.

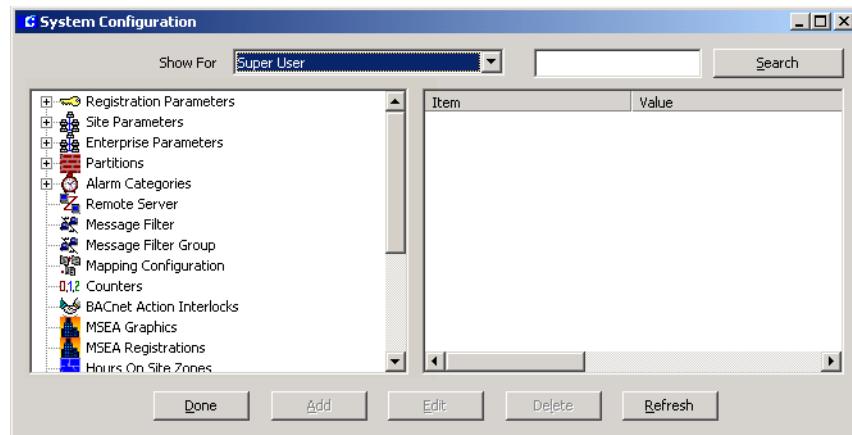
ESTABLISHING AN ENTERPRISE SYSTEM

To establish an enterprise configuration, Enterprise Time Zones and Access Groups need to be defined. For instructions on defining Time Zones and Access Groups refer to the *P2000 Software User Manual*. You can define them now or at a later time.

In addition, on the central server the local site has to be defined as the Enterprise Site. This is done automatically. The enterprise parameters must be set manually, as described in the procedure below.

➤ **To identify the P2000 server as the Enterprise site:**

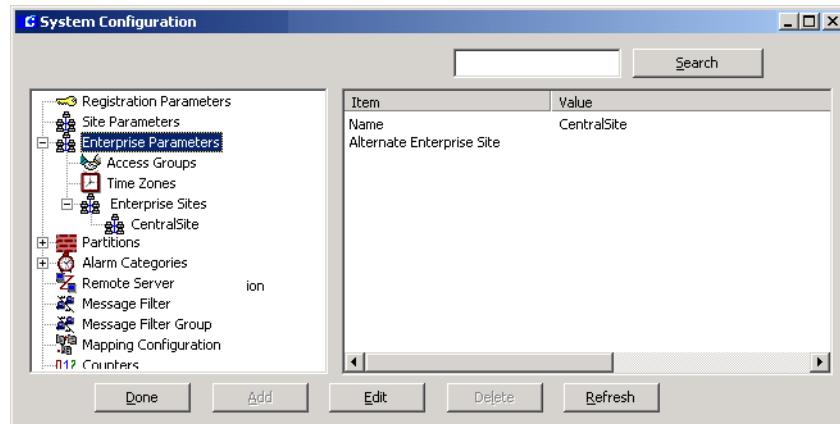
1. Log in to P2000 (factory settings are Cardkey for **User Name** and master for **Password**).
2. From the main menu select **Config>System**.
3. If required, specify the password and click **OK** (master is the factory setting).
4. Right-click the **Enterprise Parameters** icon and select **Edit**.



5. From the drop-down list select the name of your local site as defined during the P2000 software installation. Click **OK**.



6. Verify that the site is listed in the right window pane. Keep the System Configuration window open.



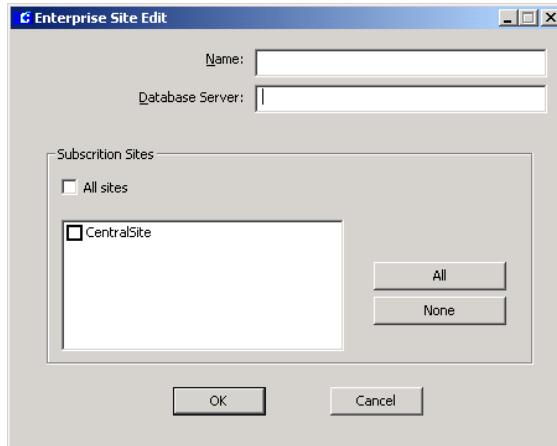
POPULATING THE ENTERPRISE SETTINGS

Before any subscriptions can be created, the initial site tables must be populated. This is done on the Central Site in the Enterprise Site Edit screen of P2000.

► To add regional sites:

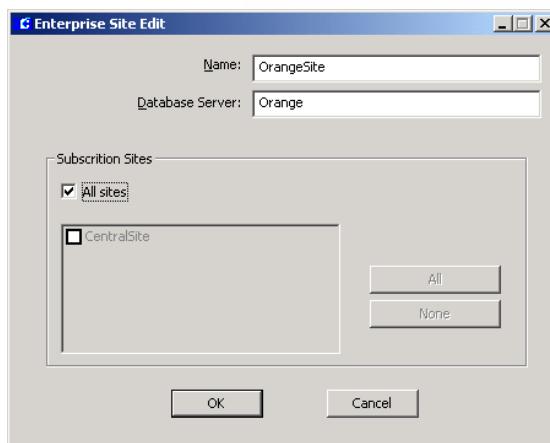
Add the sites that have already been established. More sites can be added at a later time.

1. In the System Configuration window, under **Enterprise Parameters** right-click the **Enterprise Sites** icon and select **Add**.
2. The Enterprise Site Edit window opens where you can add a new site. Each site added so far is listed.



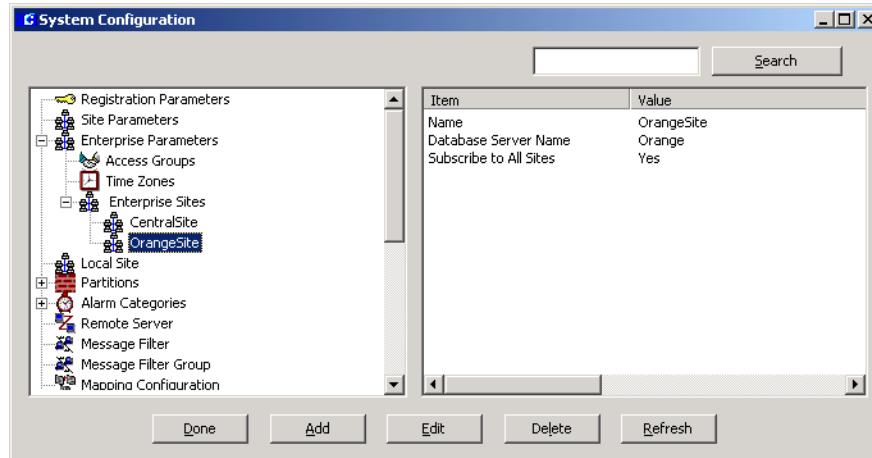
3. Specify the name and database server of the regional site.

For **Subscription Sites** select the sites for which you want the data to be available on this regional server. Selecting **All sites** will subscribe this server to data from the entire Enterprise system. Click **OK**.



4. Repeat steps 1 and 2 for each regional site.

5. Verify that the added site(s) appear in the System Configuration window. Close this window.



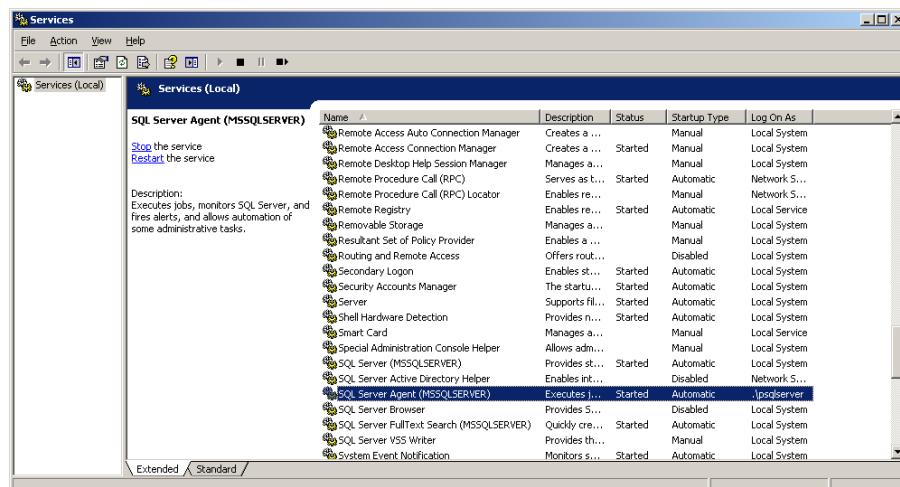
SETTING UP P2000 PUBLICATIONS

IMPORTANT

Before proceeding, stop all P2000 Services on the central site and quit their monitoring.

➤ To verify that the SQL Server Agent is started:

1. Go to Start>Programs>Administrative Tools>Services.
2. In the Services window, verify that the **SQL Server Agent (MSSQLSERVER)** is running.



3. Close the Services window.

► **To create publication:**

1. From the SQL Server Management Studio, browse for the **Create All Publications.sql** file located in
C:\Program Files\Johnson Controls\P2000\sql
Select it and click **Open**.

NOTE

On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).

2. Remove the entire “EXEC” statement line for all such publications that you do not want to create (see “Key Terms” on page 1-4 for more information on how to decide which publications to establish).
3. Parse and execute the query.
4. It is recommended that you scroll review error messages under the **Messages** tab. Resolve any reported problems before proceeding.
5. Exit *without* saving the script file. Keep the Microsoft SQL Server Management Studio window open.

SNAPSHOTS

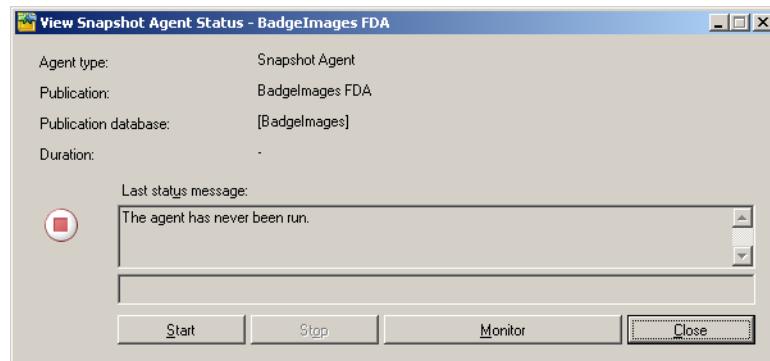
Once the publications are created, you need to generate the snapshots for each publication. The snapshots contain the initial data from the Publisher, schema (database structure) information, and initialization parameters for tables with identity columns.

NOTE

It is recommended that you run each snapshot separately. If multiple snapshots are run simultaneously, deadlocks can occur and the distribution control tables may get corrupted.

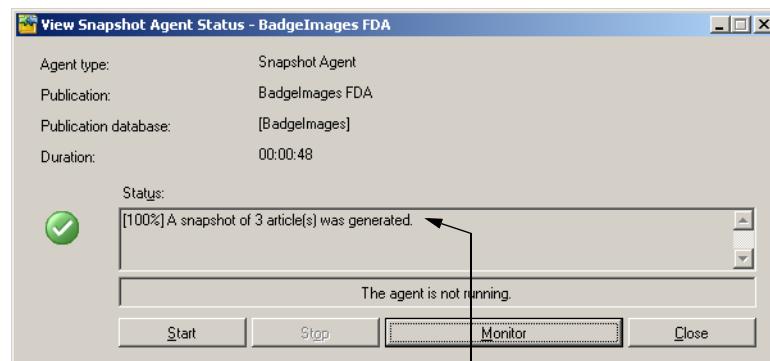
► **To run a snapshot:**

1. In the Microsoft SQL Server Management Studio window, expand the navigation tree and go to **Replication>Local Publications** folder.
2. Right-click on a publication and select **View Snapshot Agent Status**.
3. In the select View Snapshot Agent Status window click **Start**.



4. Click **Close**.
5. The status will change from “The agent has never been run” to “Starting Agent” and to “100%.”

Wait for the snapshot to complete (as indicated by the “100%” status). The process may take several minutes.



Completed snapshot

6. For each publication, run its associated snapshot agent as described in steps 3 and 4. Snapshots should be run one at a time.
- The number of snapshots depends on the number of previously established publications. Some snapshots may take several minutes to complete.
7. When all snapshots are completed, it is recommended that you backup the databases.

REPLICATION SET IDENTITY RANGE

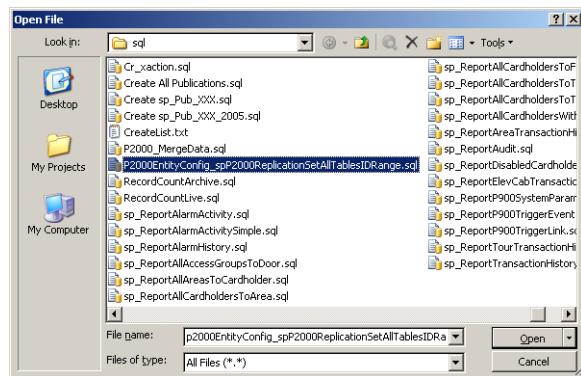
► To set up identity range:

1. In the Microsoft SQL Server Management Studio window go to **File>Open>File**.

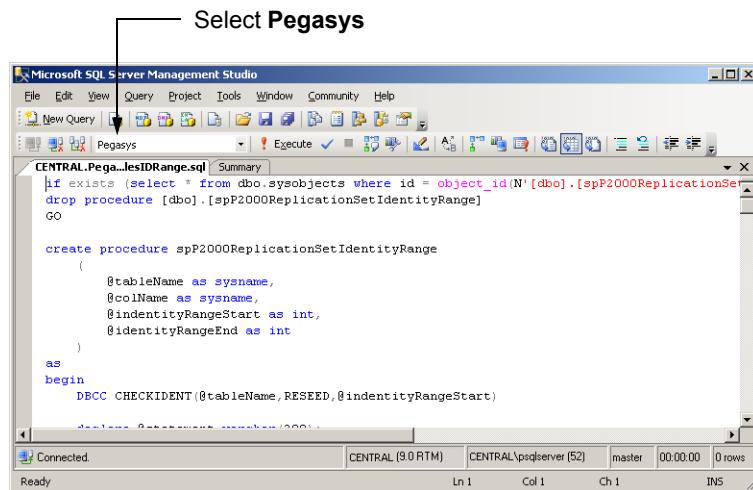
2. Browse for the following file:
P2000EntityConfig_spP2000ReplicationSetAllTablesIDRange.sql
located in
C:\Program Files\Johnson Controls\P2000\sql
Select it and click **Open**.

NOTE

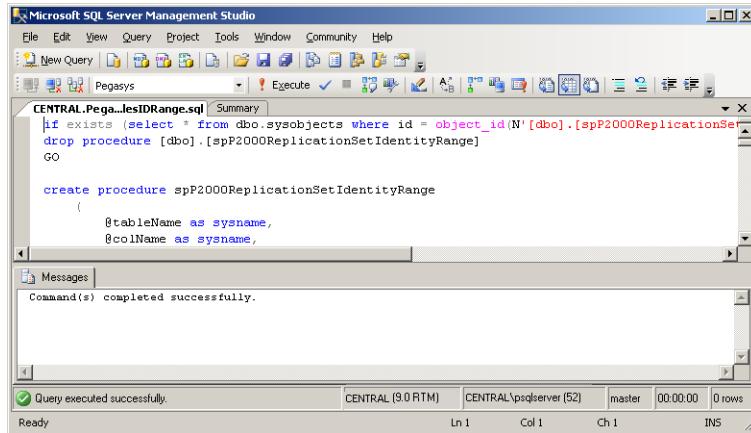
On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).



3. Select the central server and click **Connect**.
4. In the Microsoft SQL Server Management Studio window select Pegasys from the drop-down list and the ! **Execute** button.



- In the lower window pane verify that the commands were completed successfully.



The screenshot shows the Microsoft SQL Server Management Studio interface. A query window titled 'CENTRAL.Pega...lesIDRange.sql' displays a script for creating a stored procedure. The script includes a comment about dropping the procedure if it exists, followed by the create procedure statement. Below the script, the 'Messages' tab shows the message 'Command(s) completed successfully.' The status bar at the bottom indicates 'Query executed successfully.' and provides other session details.

```

if exists (select * from dbo.sysobjects where id = object_id(N'[dbo].[spP2000ReplicationSetIdentityRange]'))
drop procedure [dbo].[spP2000ReplicationSetIdentityRange]
GO

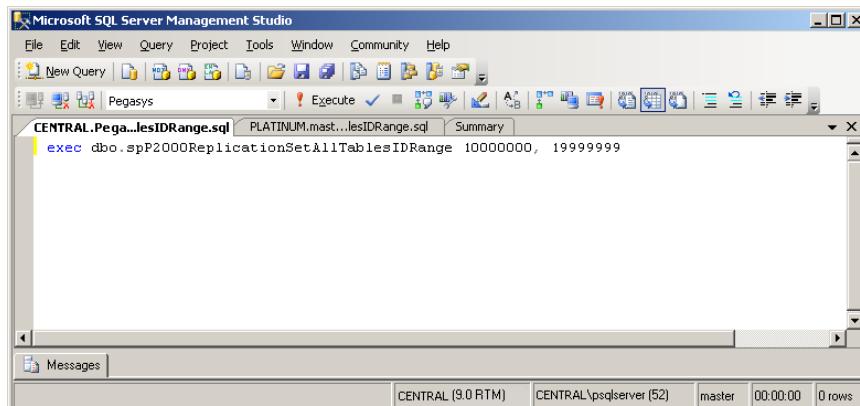
create procedure spP2000ReplicationSetIdentityRange
(
    @tableName as sysname,
    @colName as sysname,
)

```

- Click the New Query button.
- Type in the following command:

```
exec dbo.spP2000ReplicationSetAllTablesIDRange XX, YY
```

Where XX is the beginning of the ID range, and YY is the end of the ID range.
See Table 2-1 for reference.



The screenshot shows the Microsoft SQL Server Management Studio interface. A query window titled 'CENTRAL.Pega...lesIDRange.sql' contains the command 'exec dbo.spP2000ReplicationSetAllTablesIDRange 10000000, 19999999'. The status bar at the bottom indicates 'Query executed successfully.' and provides other session details.

```
exec dbo.spP2000ReplicationSetAllTablesIDRange 10000000, 19999999
```

- Parse and execute the query.
It is recommended that you scroll down and review error messages under the **Messages** tab. Resolve any reported problems before proceeding.
- Close the Microsoft SQL Server Management Studio window.

Congratulations, you have successfully defined the required publications for your P2000 Enterprise Solution.

PRELIMINARY

MERGING DATA BETWEEN SITES

To establish the subscription of a P2000 regional server to a P2000 central server, the data currently stored within the P2000 databases needs to be backed up and incorporated into the P2000 central server.

This is mandatory, as all data in the regional server will be deleted and partially re-initialized with the current contents of the P2000 central server database.

MS SQL Server's Database replication requires this action to ensure that the database tables and contents of the P2000 central server and the P2000 regional server are synchronized.

NOTE

It is strongly recommended that all P2000 servers in the P2000 Enterprise Configuration system use the same version of the Microsoft SQL Server.

This chapter outlines a procedure to move the most important configuration information from the P2000 regional server into the database of the P2000 central server.

The data recorded in tables associated with the following publications will *not* be maintained:

- FDA
- BadgeImages FDA
- Xaction
- Audit
- Alarms

It is therefore mandatory that you make a database backup of the P2000 regional server before the subscription is established. Using P2000 utilities, restore this backup as PegasysBackup database on the regional and the central servers. Once restored on the regional server, you can run standard P2000 reports against this database.

MERGING DATA BETWEEN SITES

This section outlines the steps required to merge the data between the P2000 regional server and the P2000 central server:

| There are two possible scenarios for establishing a live P2000 site version 3.11 as a part of an Enterprise system. In the first scenario, you will be using additional server hardware taking on the P2000 server functions during the transition. In the second scenario, no additional hardware is necessary.

Please refer to the following sections:

- “Live System Upgrade to Enterprise Configuration Using Additional Hardware” on page 3-2
- “Live System Upgrade to Enterprise Configuration Without Additional Hardware” on page 3-11

| When installing a clean site, follow the instructions for “Live System Upgrade to Enterprise Configuration Without Additional Hardware” on page 3-11.

Live System Upgrade to Enterprise Configuration Using Additional Hardware

| You are starting with the P2000 system version 3.11 that is to become a regional site in the P2000 Enterprise Configuration.

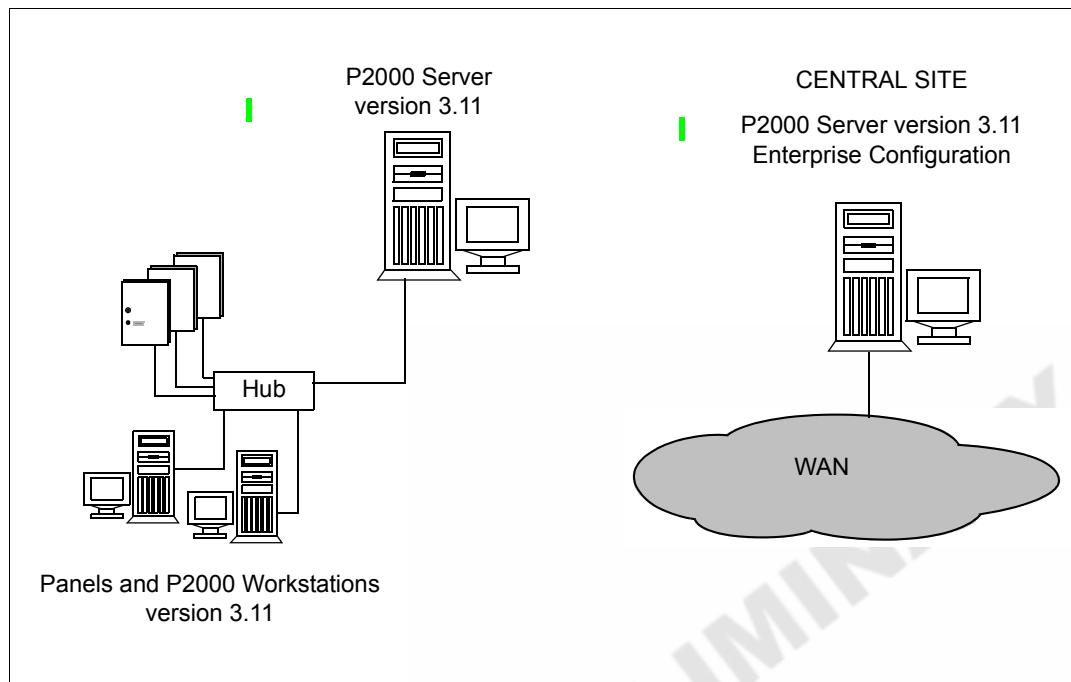


Figure 3-1: Live System Upgrade: Starting Point

► **To establish a regional site as a part of P2000 Enterprise Configuration:**

1. On the additional server hardware, install P2000 version 3.11 using the standard installation procedures. See the *P2000 Server/Workstation software Installation Manual* for details.
2. Register the P2000 software and the options used by your system (including the Enterprise Configuration option).

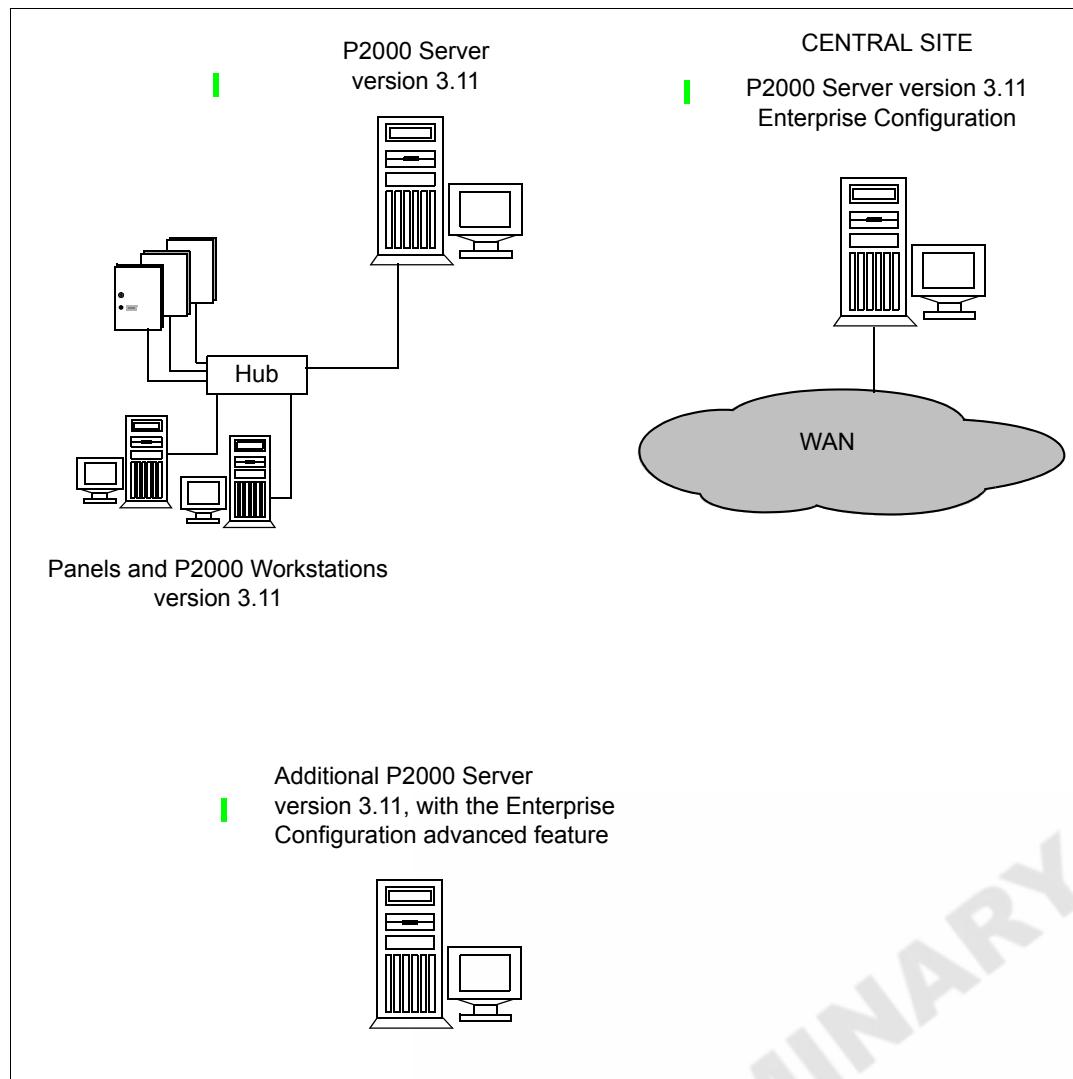
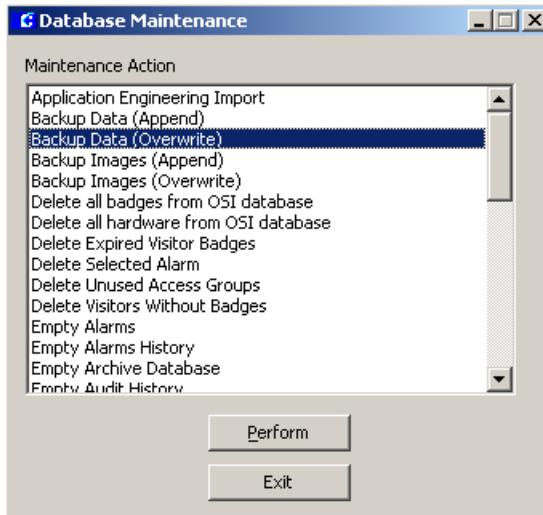


Figure 3-2: Live System Upgrade: Installing Additional Server

3. Backup the Pegasys and BadgeImages databases on the regional server using P2000 backup utility:
- From the P2000 Main menu, select **System>Database Maintenance**. Enter password when prompted and click **OK**. The Database Maintenance window appears.
 - Depending on your current setup, select **Backup Data Append** or **Backup Data Overwrite** to backup the Pegasys database; click **Perform**.



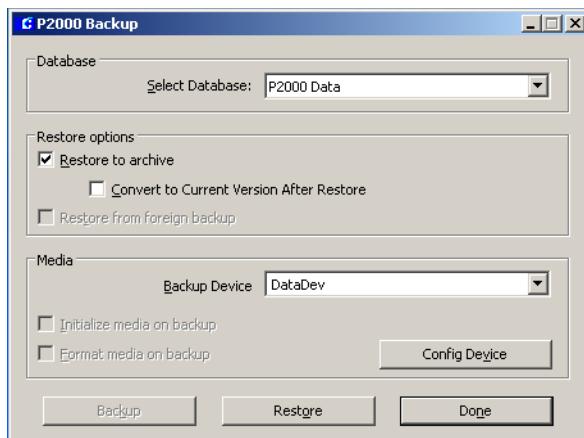
NOTE

Backup device needs to be configured prior to performing backup. Refer to the P2000 Software User Manual for details.

- Click **Yes** to confirm that you want to backup the data (this action cannot be undone). The P2000 backup utility will begin the backup and will exit when the procedure is completed.
 - Depending on your current setup, select **Backup Images Append** or **Backup Images Overwrite**. Click **Perform** to backup the P2000 BadgeImages database; click **Perform**.
 - Click **Yes** to confirm that you want to backup the data (this action cannot be undone). The P2000 backup utility will begin the backup and will exit when the procedure is completed.
 - Click **Exit** to close the Database Maintenance window.
4. Back up the Badge Layouts and application files.

It is recommended that you back up the entire N:\Bmaster and C:\Program Files\Johnson Controls\CARDKEY P2000\Badgemaster directory, including all subdirectories.

5. Restore the Pegasys and BadgeImages databases as well as Badge Layout files as *archives* on the newly established P2000 regional server:
- Go to **Start>Programs>Johnson Controls>P2000>Database Backup**. The P2000 Backup window appears.
 - From the **Select Database** drop-down list select **P2000 data**. Select the **Restore to archive** check box to place the databases in an offline location. Un-select the **Convert to Current Version After Restore** check box. From the **Backup Device** drop-down list select the device and click **Restore** to start the process.



- In the Select Backup To Restore window click **View Contents**.
- In the Backup Contents window select the backup you wish to restore and click **OK**.
- In the Select Backup To Restore window click **OK** to start the process.
- A message will notify you that the process has been completed. Click **OK** to return to the P2000 Backup window.
- From the **Select Database** drop-down list select **P2000 Badge Images**. Select the **Restore to archive** check box to place the databases in an offline location. From the **Backup Device** drop-down list select the device and click **Restore** to start the process.
- In the Select Backup To Restore window click **View Contents**.
- In the Backup Contents window select the backup you wish to restore and click **OK**.
- In the Select Backup To Restore window click **OK** to start the process.
- A message will notify you that the process has been completed. Click **OK** to return to the P2000 Backup window.
- Click **Done** to close the P2000 Backup window.

IMPORTANT

Do not reboot the server until instructed to do so on page 3-10.

6. Establish subscriptions between the newly installed P2000 server and the central site. For detailed steps refer to *Chapter 4: Configuring P2000 Regional Server*.

The panels and workstations are still communicating with the previous P2000 server.

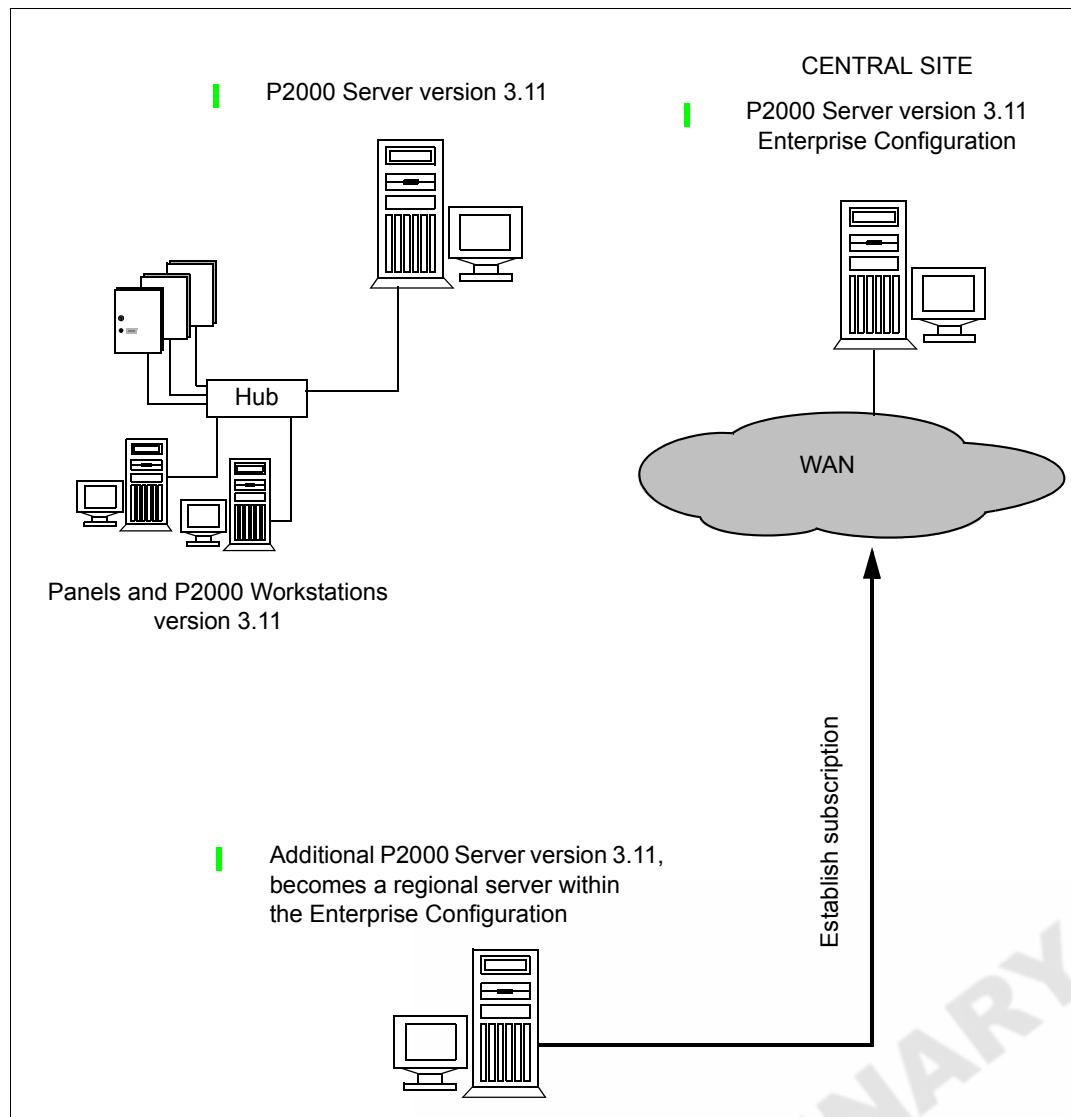


Figure 3-3: Live System Upgrade: Configuring Additional Server

7. Suspend subscriptions form this region.
8. After the reboot, stop the P2000 services and applications, and quit service monitoring.
9. Verify that the SQL Server and SQL Server Agent services are running.

10. Merge the archived databases using the P2000_mergedata script:

- From the SQL Server Management Studio run the **P2000_mergedata.sql** script. The file is located in:

C:\Program Files\Johnson Controls\P2000\sql

NOTE

On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).

Keep the Microsoft SQL Server Management Studio window open.

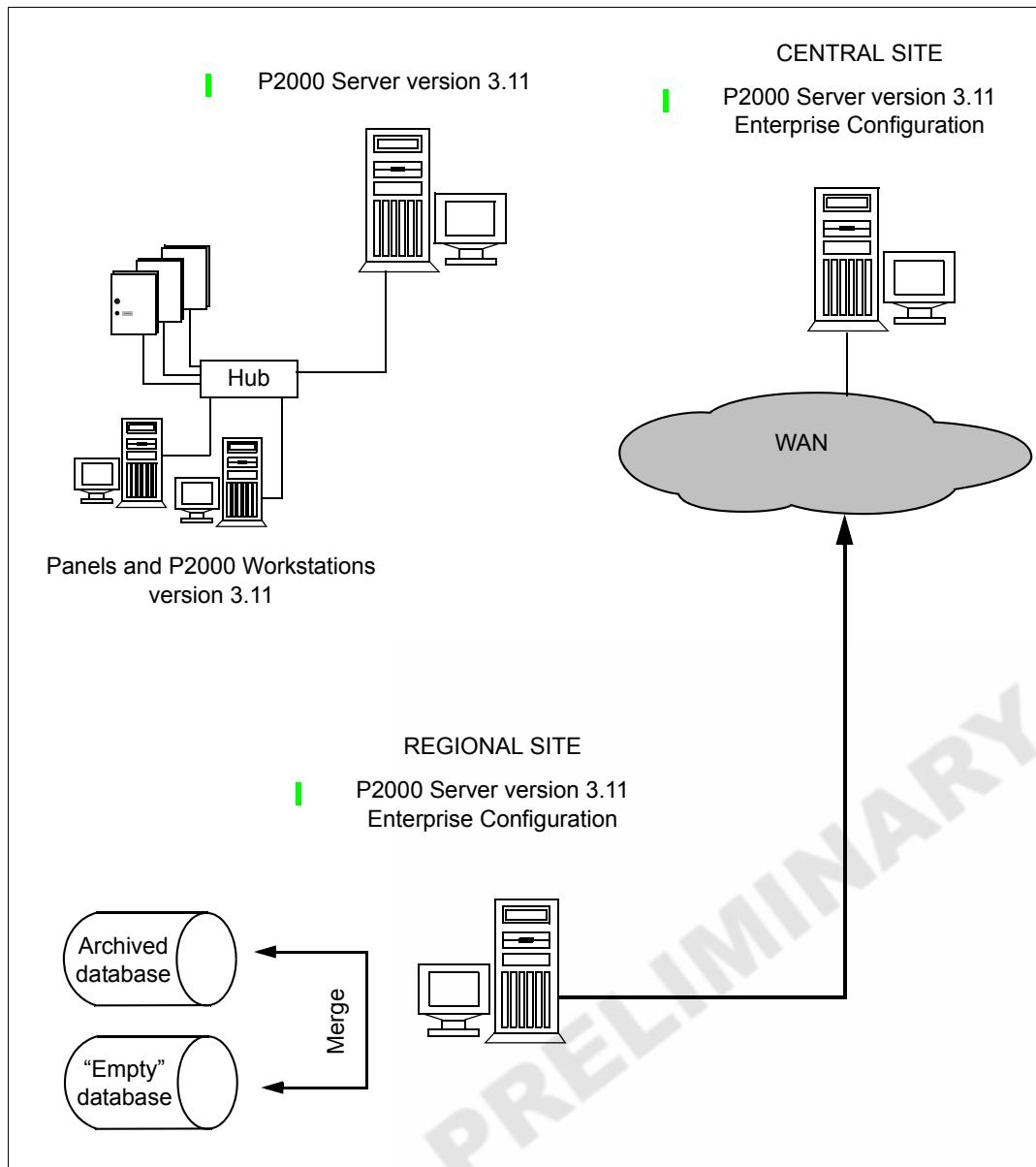


Figure 3-4: Live System Upgrade: Restoring Databases

11. Verify database integrity:

- In the SQL Server Management Studio window click the **New Query** button.

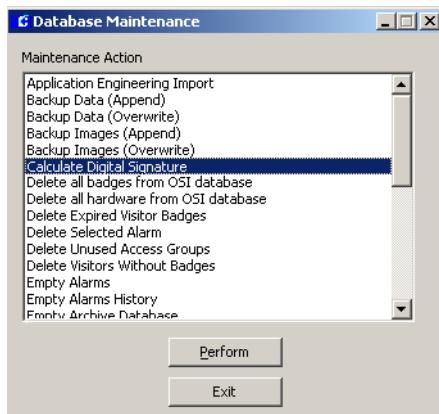
- Type in the following command:

```
use pegasys
dbcc checkdb
go
use badgeimages
dbcc checkdb
go
```

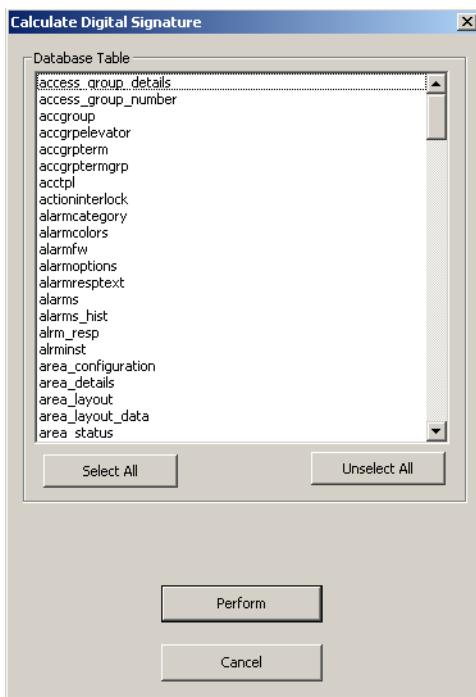
- Parse and execute the script.
- Scroll down in the lower window pane and find the line:
“CHECKDB found 0 allocation errors and 0 consistency errors in database ‘Pegasys’.”
- Scroll down further and find the line:
“CHECKDB found 0 allocation errors and 0 consistency errors in database ‘BadgeImages’.”
- Close the Microsoft SQL Server Management Studio window.

12. For FDA-compliant systems, re-establish FDA signatures:

- From the P2000 main menu select **System>Database Maintenance**. Enter the password when prompted and click **OK**.
- From the database maintenance window, select **Calculate Digital Signature** and click the **Perform** button.



- Click **OK** to confirm the action.
- In the Calculate Digital Signature window, click the **Select All** button and then the **Perform** button.



- P2000 will now perform the operations on the database. This may take a few minutes. When the process is completed make sure there are no invalid signatures. Click **Cancel** to close the window.
- From the database maintenance window, select **Validate Digital Signature** and click the **Perform** button.
- In the Validate Digital Signature window, click the button **Select All** and then the **Perform** button.
- P2000 will now perform the operations on the database. This may take a few minutes. When the process is completed make sure there are no invalid signatures. Click **Cancel** to close the window.
- To close the Database Maintenance window, click **Exit**.

13. Activate replication job and manually start the replication cycle (one at a time).
14. Manually add modifications that occurred to the “old” database since the backup time.
15. Verify that the P2000 regional server is fully operational and switch the panels and P2000 Workstations to communicate with it:
 - Configure the P2000 Workstations to communicate with the new server’s computer name.
 - Configure the panels to communicate with the new server’s IP address.
 - Perform download to all panels.

Refer to the *P2000 Software User Manual* for detailed instructions.

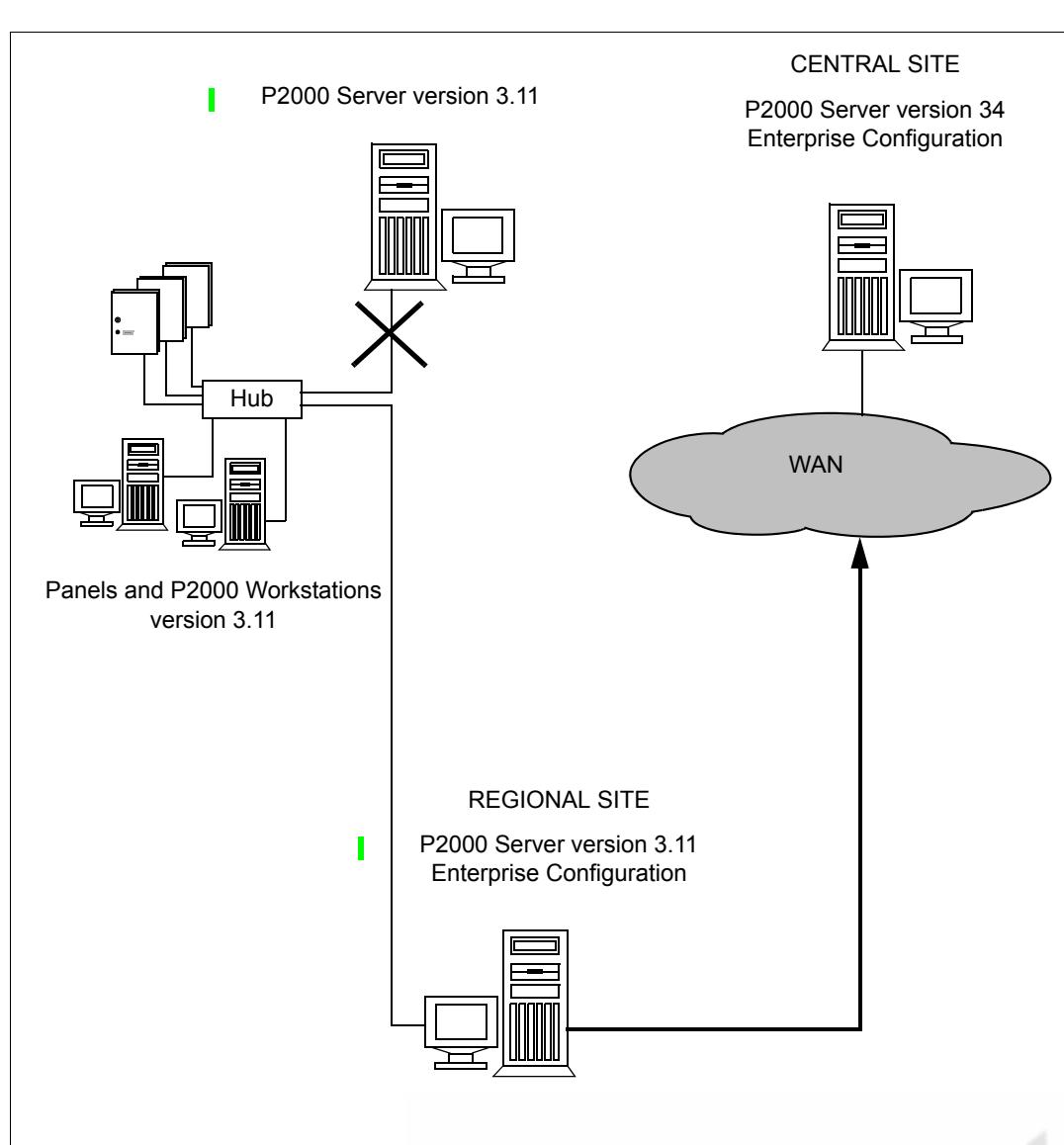


Figure 3-5: Live System Upgrade: Connecting Panels and P2000 Workstations to the Regional Server

16. Reboot the server.

➤ **To complete the configuration:**

1. Reboot P2000 regional server.
2. Launch P2000 on P2000 regional server.
3. Back up the P2000 regional server database (overwrite the initial backup).
4. Verify data on the P2000 regional server.
5. In System Configuration, define the P2000 regional site as an Enterprise Site (refer to the *P2000 Software User Manual* for details).

6. Perform a download to all panels.
7. Under Site Parameters, the smart download delay for all sites should be configured as 2 times longer than replication time, plus 1 minute.

Live System Upgrade to Enterprise Configuration Without Additional Hardware

The P2000 prerequisites and software must be installed before proceeding.

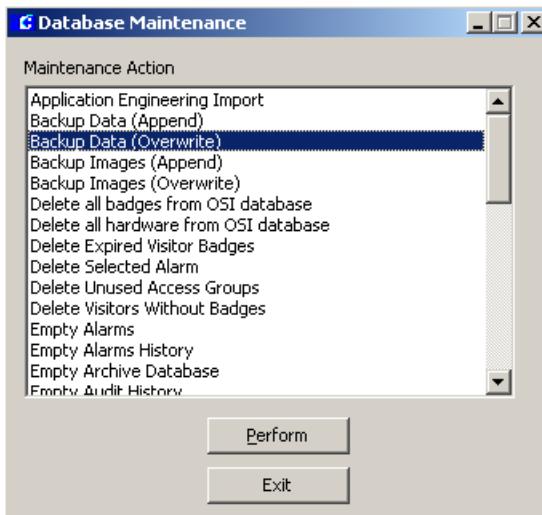
When configuring the P2000 regional server, you need to ensure that the information originally provided when configuring the P2000 central server is available to you. We therefore recommend that you ask the administrator of the P2000 central server to send you the information recorded when configuring the central server.

► To upgrade a regional site to become a part of P2000 Enterprise Configuration:

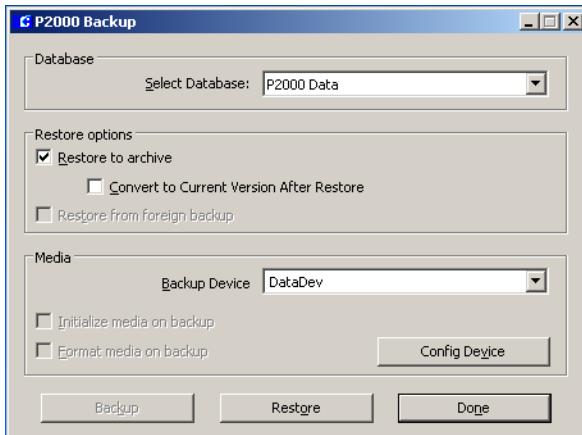
1. Backup the Pegasys and BadgeImages databases on the regional server using P2000 backup utility:
 - From the P2000 Main menu, select **System>Database Maintenance**. Enter password if prompted and click **OK**. The Database Maintenance window appears.
 - Depending on your current setup, select **Backup Data Append** or **Backup Data Overwrite** to backup the Pegasys database; click **Perform**.

NOTE

Backup device needs to be configured prior to performing backup. Refer to the P2000 Software User Manual for details.



- Click **Yes** to confirm that you want to backup the data (this action cannot be undone). The P2000 backup utility will begin the backup and will exit when the procedure is completed.
 - Depending on your current setup, select **Backup Images Append** or **Backup Images Overwrite**. Click **Perform** to backup the P2000 BadgeImages database; click **Perform**.
 - Click **Yes** to confirm that you want to backup the data (this action cannot be undone). The P2000 backup utility will begin the backup and will exit when the procedure is completed.
 - Click **Exit** to close the Database Maintenance window.
2. Make note of the P2000 Installation Key and Registration/Option Keys.
3. Restore the Pegasys and BadgeImages databases *as archives* on the regional server:
- Go to **Start>Programs>Johnson Controls>P2000>Database Backup**. The P2000 Backup window appears.
 - From the **Select Database** drop-down list select **P2000 data**. Select the **Restore to archive** check box to place the databases in an offline location. Un-select the **Convert to Current Version After Restore** check box. From the **Backup Device** drop-down list select the device and click **Restore** to start the process.



- In the Select Backup To Restore window click **View Contents**.
- In the Backup Contents window select the backup you wish to restore and click **OK**.
- In the Select Backup To Restore window click **OK** to start the process.
- A message will notify you that the process has been completed. Click **OK** to return to the P2000 Backup window.
- From the **Select Database** drop-down list select **P2000 Badge Images**. Select the **Restore to archive** check box to place the databases in an offline location. From the **Backup Device** drop-down list select the device and click **Restore** to start the process.
- In the Select Backup To Restore window click **View Contents**.

- In the Backup Contents window select the backup you wish to restore and click **OK**.
- In the Select Backup To Restore window click **OK** to start the process.
- A message will notify you that the process has been completed. Click **OK** to return to the P2000 Backup window.
- Click **Done** to close the P2000 Backup window.

Steps 4 through 9 should be performed only on systems with databases that are not clean (have existing data).

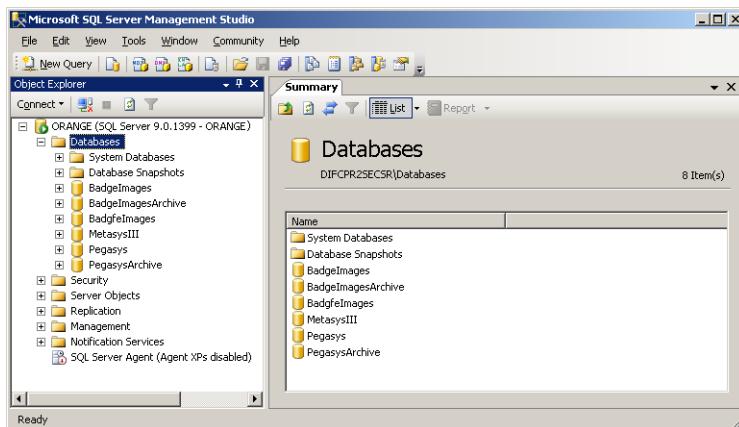
4. Back up the Badge Layouts and application files.

It is recommended that you back up the entire N:\Bmaster and C:\Program Files\Johnson Controls\CARDKEY P2000\Badgemaster directory, including all subdirectories.

NOTE

If this is a clean installation, skip steps 5-7.

5. Using the Add/Remove programs utility, un-install P2000 software, but *do not un-install* the P2000 database, badge layout files, or user groups.
6. Manually remove the Pegasys and BadgeImages databases. Do not remove the archive.
 - Open the SQL Server Management Studio.
 - Under the icon for the regional (local) server highlight the **Databases** folder. A list of available databases will be displayed.
 - In the right window pane, right-click on the **Pegasys** database icon and select **Delete**.



- In the Delete Object window click **OK**.
- In the Microsoft SQL Server Management Studio right-click on the **BadgeImages** database icon and select **Delete**.
- In the Delete Object window click **OK**.
- Close the Microsoft SQL Server Management Studio window.

7. Perform a clean install of P2000 version 3.11 software. See the *P2000 Server/Workstation software Installation Manual* for details.
8. Register the P2000 software and the options used by your system (including the Enterprise Configuration option).
9. After the reboot, stop the P2000 services, applications, and service monitoring.
10. Verify that the SQL Server and SQL Server Agent services are running.
11. Restore the backed up Pegasys and BadgeImages databases as well as Badge Layout files as *archives*.

IMPORTANT

Do not reboot the server until instructed to do so on page 3-16.

12. Establish subscriptions between the newly installed P2000 server and the central site. For detailed steps refer to *Chapter 4: Configuring P2000 Regional Server*.
13. Suspend replication jobs.
14. Merge the archived databases using the P2000_mergedata script.
 - From the SQL Server Management Studio run the **P2000_mergedata.sql** script. The file is located in:
C:\Program Files\Johnson Controls\P2000\sql

NOTE

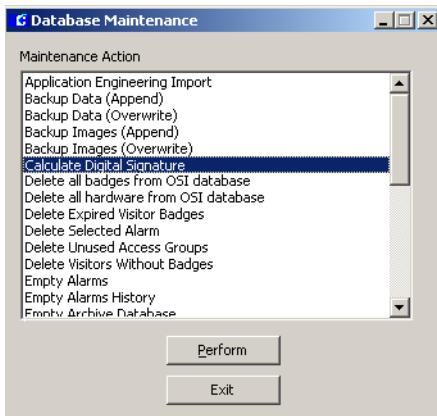
On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).

Keep the Microsoft SQL Server Management Studio window open.

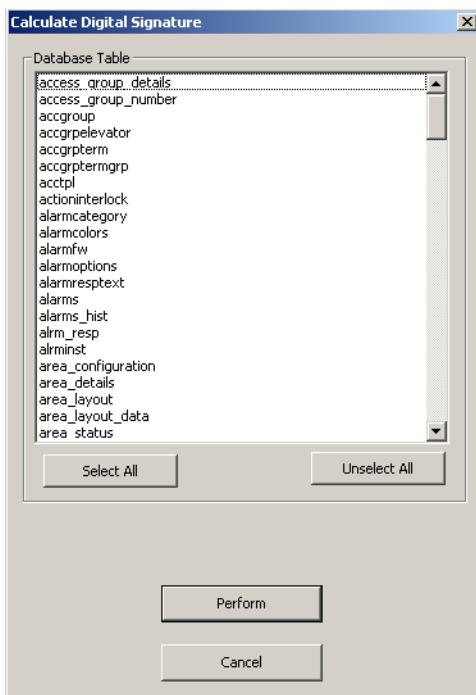
15. Verify database integrity:
 - In the SQL Server Management Studio window click the **New Query** button.
 - Type in the following command:

```
use pegasys
dbcc checkdb
go
use badgeimages
dbcc checkdb
go
```
 - Parse and execute the script.
 - Scroll down in the lower window pane and find the line:
“CHECKDB found 0 allocation errors and 0 consistency errors in database ‘Pegasys’.”

- Scroll down further and find the line:
“CHECKDB found 0 allocation errors and 0 consistency errors in database ‘BadgeImages’.”
 - Close the Microsoft SQL Server Management Studio window.
16. For FDA-compliant systems, re-establish FDA signatures:
- From the P2000 main menu select **System>Database Maintenance**. Enter the password when prompted and click **OK**.
 - From the database maintenance window, select **Calculate Digital Signature** and click the **Perform** button.



- Click **OK** to confirm the action.
- In the Calculate Digital Signature window, click the **Select All** button and then the **Perform** button.



- P2000 will now perform the operations on the database. This may take a few minutes. When the process is completed make sure there are no invalid signatures. Click **Cancel** to close the window.
 - From the database maintenance window, select **Validate Digital Signature** and click the **Perform** button.
 - In the Validate Digital Signature window, click the button **Select All** and then the **Perform** button.
 - P2000 will now perform the operations on the database. This may take a few minutes. When the process is completed make sure there are no invalid signatures. Click **Cancel** to close the window.
 - To close the Database Maintenance window, click **Exit**.
17. Reactivate replication jobs and manually start replication cycles one at a time.
18. Re-enter the Registration Key and the Option Keys backed up in step 2 on page 3-12. You must include the option Key for Enterprise Configuration.
19. Reboot the server.

➤ **To complete the configuration:**

1. Reboot P2000 regional server.
2. Launch P2000 on P2000 regional server.
3. Back up the P2000 regional server database (overwrite the initial backup).
4. Verify data on the P2000 regional server.
5. In System Configuration, define the P2000 regional site as an Enterprise Site (refer to the *P2000 Software User Manual* for details).
6. Perform a download to all panels.
7. Under Site Parameters, the smart download delay for all sites should be configured as 2 times longer than replication time, plus 1 minute.
8. Verify that the P2000 regional server is fully operational and perform download to all panels.

Refer to the *P2000 Software User Manual* for detailed instructions.

RULES FOR DATA MERGING

When merging the data from the P2000 regional server into the P2000 central server, the following rules are applied:

- Records that already exist in the P2000 central server will not be modified, as they are currently active within the existing P2000 Enterprise.
- Only the records explicitly designated to be merged will be merged into the central database.

- Conflicts of badge numbers (that is, if a badge number is already assigned to another cardholder) are always resolved assuming that the P2000 central server has the correct information.

As a consequence of the above rules, it is recommended that you check the cardholder/badge security settings before the subscription is established, or before a new P2000 regional server becomes the active P2000 server for the regional system.

In addition, any configuration changes between backing up the P2000 regional server and completing the data subscription, have to be re-entered into the P2000 system.

PRELIMINARY

PRELIMINARY

CONFIGURING P2000 REGIONAL SERVER

This chapter describes how to establish a P2000 regional server as a Database Subscriber.

NOTE

Do not proceed with procedures described in this chapter until you have been directed to do so from Chapter 3.

NOTE

Procedures and windows depicted in this section may vary slightly depending on the SQL Server version you are using. However, general outline can be followed.

PREPARING FOR CONFIGURATION

You will begin with creating a new Windows account with administrator rights on the P2000 regional server(s), using the same Windows account name and password as used on the P2000 central server (see Table 2-1 for reference). You will:

- Create a `psqlserver` Windows account and assign administrator rights to it
- *SQL Server 2008 or SQL Server 200 R2*: Create a “`BUILTIN\Administrators`” account in the SQL server and assign to it server roles as well as user mappings

Afterwards, you should always log on to the server using the new `psqlserver` account.

The procedures for the two tasks listed above are the same as for the central server. For detailed instructions, see “SQL Server Login Account In Windows” (until you get to section “Connecting to the SQL Server”). This section starts on:

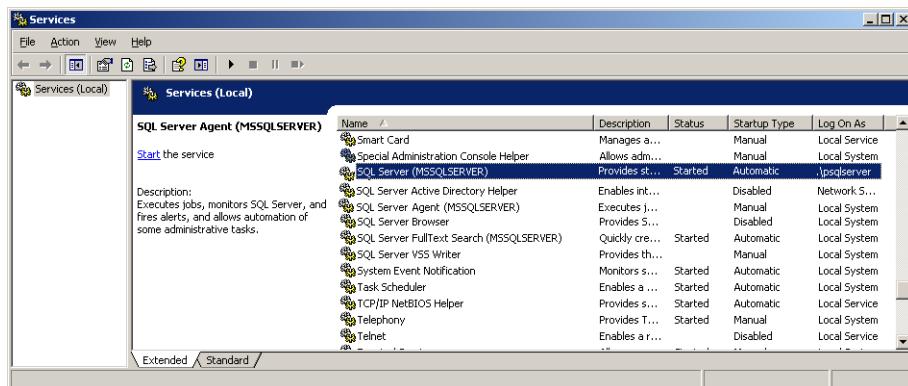
- Page 2-6 if you are using SQL Server 2005
- Page 2-35 if you are using SQL Server 2008 R2

After completing the procedures, continue with “Changing the Login Account.”

CHANGING THE LOGIN ACCOUNT

► To change the login account for the SQL Server:

1. Go to **Start>Programs>Administrative Tools>Services**.
2. Right-click the **SQL Server (MSSQLSERVER)** icon and select **Properties**.



3. Under the **Log On** tab, select the **This Account** radio button. Browse for the **psqlserver**. Specify and confirm password (Master1 is the factory setting); click **OK**.



4. If asked to confirm new log on rights, click **OK**.



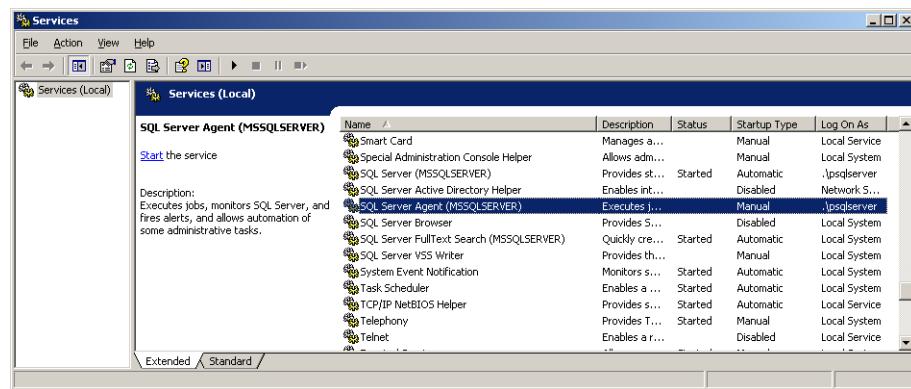
5. Click **OK**. Keep the Services window open.



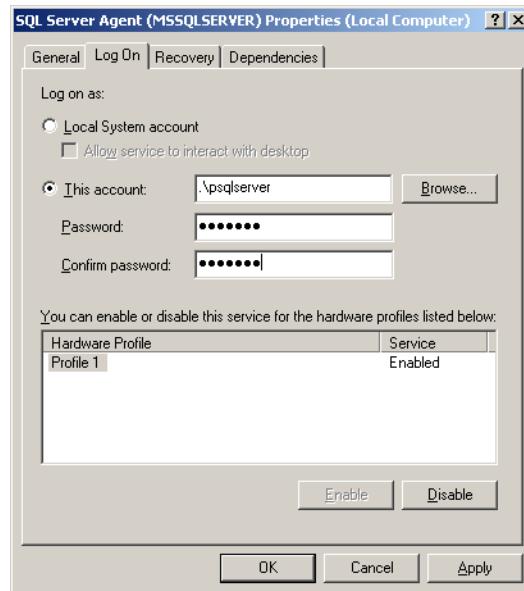
To modify SQL Server Agent (MSSQLSERVER) account:

This procedure is very similar to the one performed for the psqlserver account.

1. In the Services window, right-click the **SQL Server Agent (MSSQLSERVER)** icon and select **Properties**.



2. Under the **Log On** tab, select the **This Account** radio button. Browse for **psqlserver** or type **.\psqlserver**. Specify and confirm password (Master1 is the factory setting).



3. Click on the **General** tab and from the **Startup type** drop-down list select **Automatic**. Click **OK**.

4. In the Services window right-click the **SQL Server Agent (MSSQLSERVER)** icon and select **Start**.
5. Close the Services window.
6. Restart the services.
7. Stop the P2000 services and applications, and quit service monitoring.

CONNECTING TO THE SQL SERVER

You need to:

- Connect to the SQL Server
- Assign a password to the SQL Server's administrator account

Instructions for the above two tasks are the very similar to those for the central server. This time, however, you will be logging in to the regional server.

For detailed instructions, see "Connecting to the SQL Server" (until you get to section "Establishing Shared Directories"). This section starts on:

- Page page 2-12 if you are using SQL Server 2005
- Page page 2-43 if you are using SQL Server 2008 R2

Afterwards, continue with "Changing the Login Account."

ESTABLISHING SUBSCRIPTIONS

Establish the subscriptions from their respective regional sites. Procedures described in this section need to be performed from each regional site.

NOTE

Establish only one Subscriber at a time.

IMPORTANT

Before proceeding, stop all P2000 Services on the regional site and quit their monitoring.

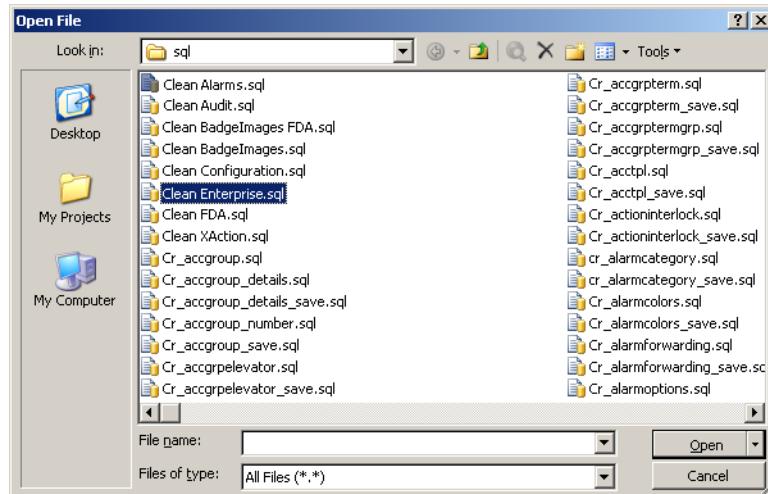
➤ **To clean the database tables:**

1. Open the SQL Server Management Studio.
2. In the Connect to Server window, select the regional server Windows authentication. Click **Connect**.

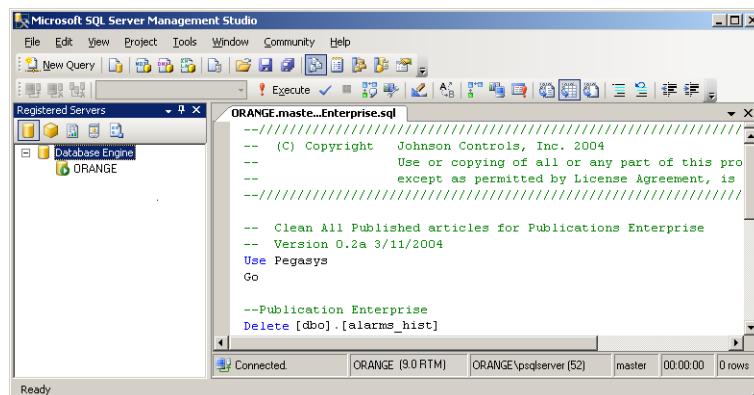
3. In the SQL Server Management Studio window, go to **File>Open>File**.
4. Browse for the **Clean (publication name).sql** file located in:
C:\Program Files\Johnson Controls\P2000\sql
Select it and click **Open**.

NOTE

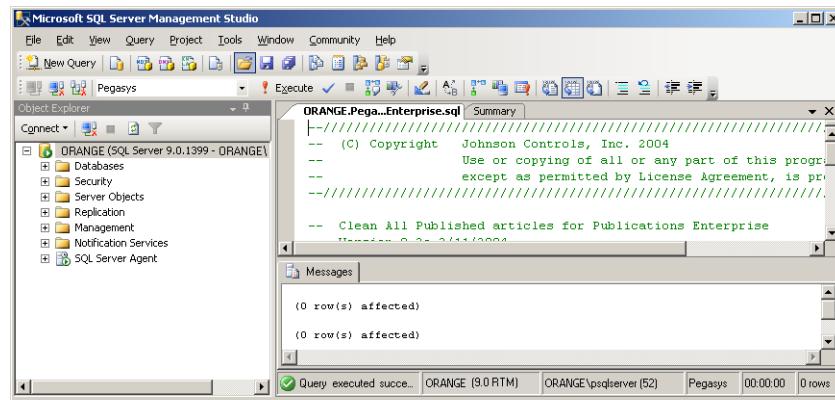
On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).



5. In the SQL Server Management Studio window click the ! Execute button.



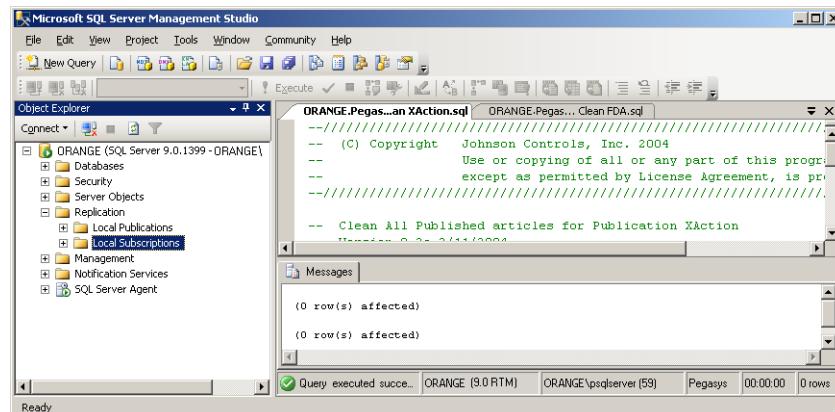
6. Verify that the file was executed without errors.



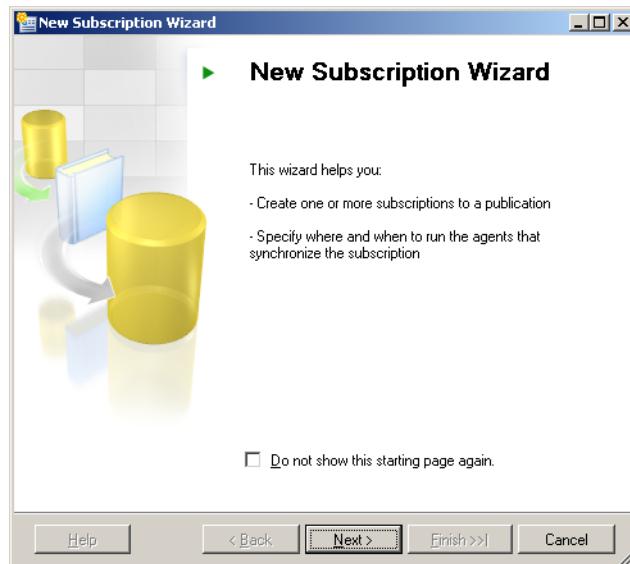
7. Repeat steps 3-6 for all **Clean (publication name).sql** files.
8. Keep the Microsoft SQL Server Management Studio window open.

➤ To establish a subscription for a publication:

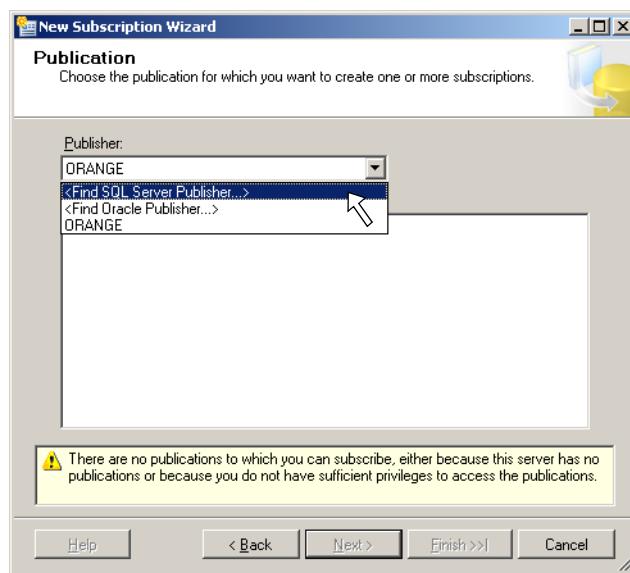
1. In the Microsoft SQL Server Management Studio window, expand the entry for the regional server. Under **Replication**, right-click the **Local Subscriptions** folder and select **New Subscriptions...**



2. The New Subscription Wizard opens. Click **Next**.



3. From the **Publisher** drop-down list select <**Find SQL Server Publisher...>**.



4. Select the **CENTRAL** server and click **Connect**.

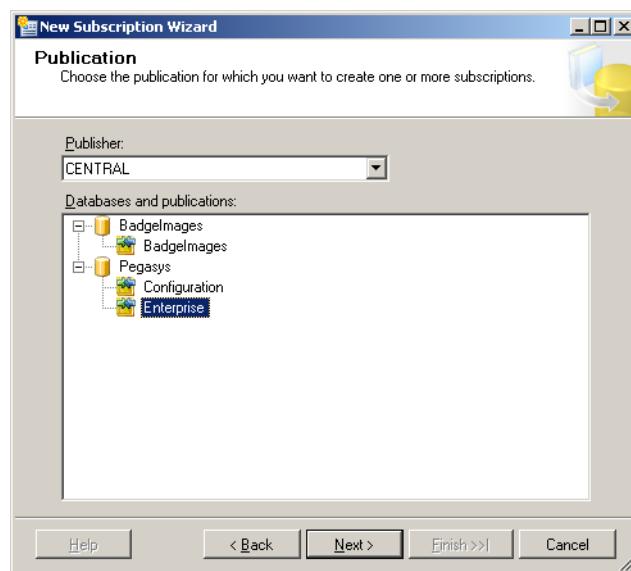


5. Expand the navigation tree to display all available subscriptions. The list of available subscriptions depends on the number of previously established publications (see step 5 on page 2-29 for reference).

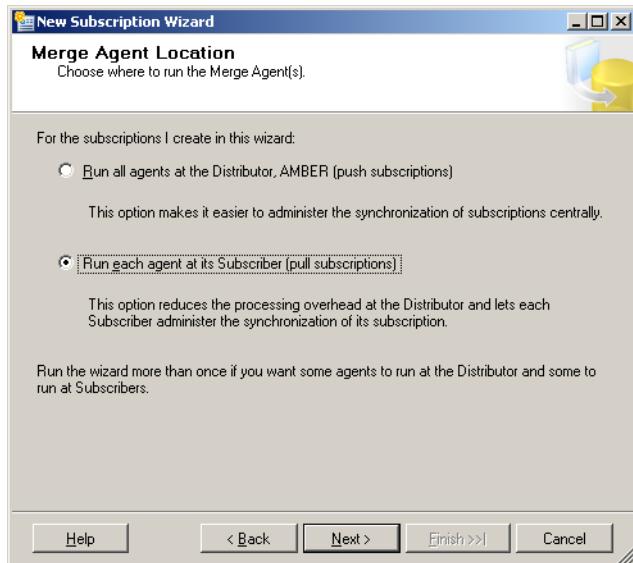
Subscriptions should be established in the following order:

- Enterprise
- Configuration
- FDA
- BadgeImages
- BadgeImages FDA
- Audit
- XAction
- Alarms

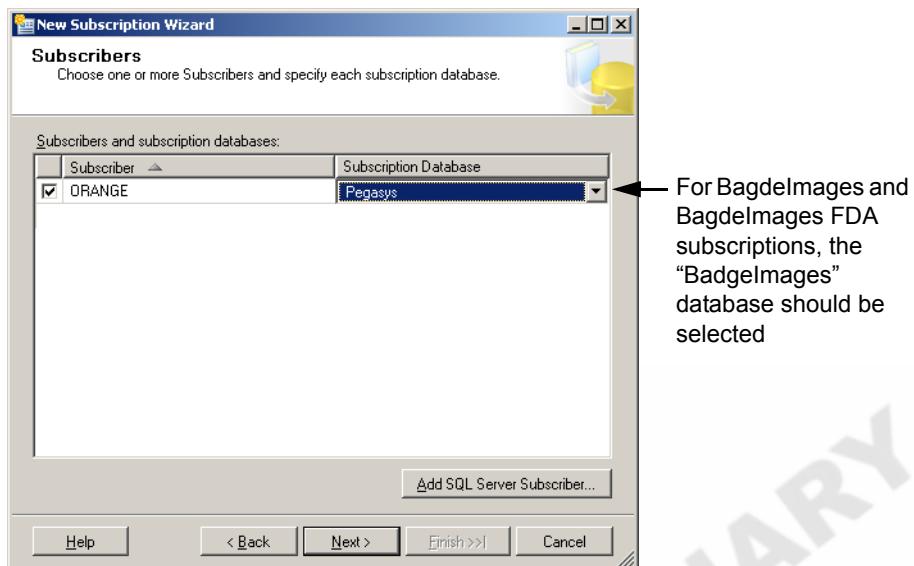
Select a subscription and click **Next**.



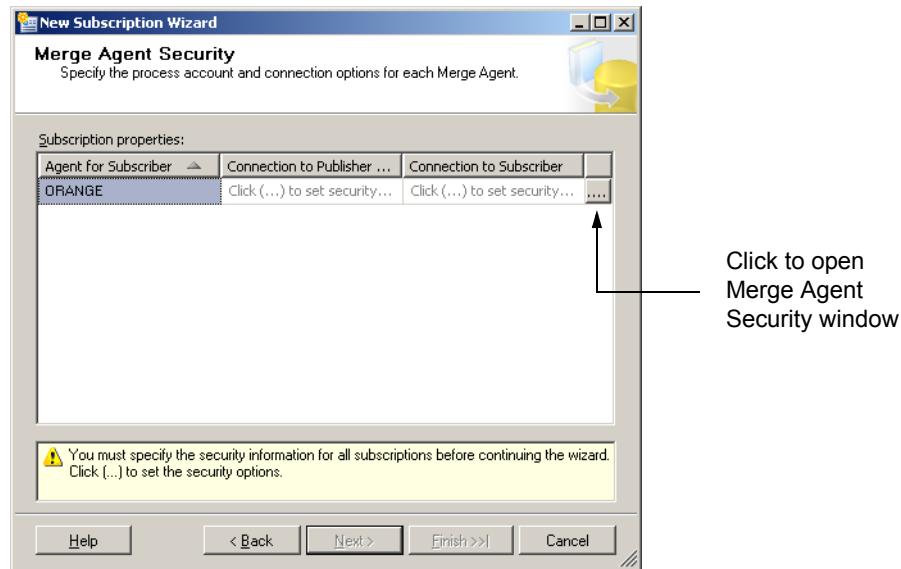
6. Verify that the following radio button is selected: **Run each agent at its Subscriber (pull subscriptions)**. Click Next.



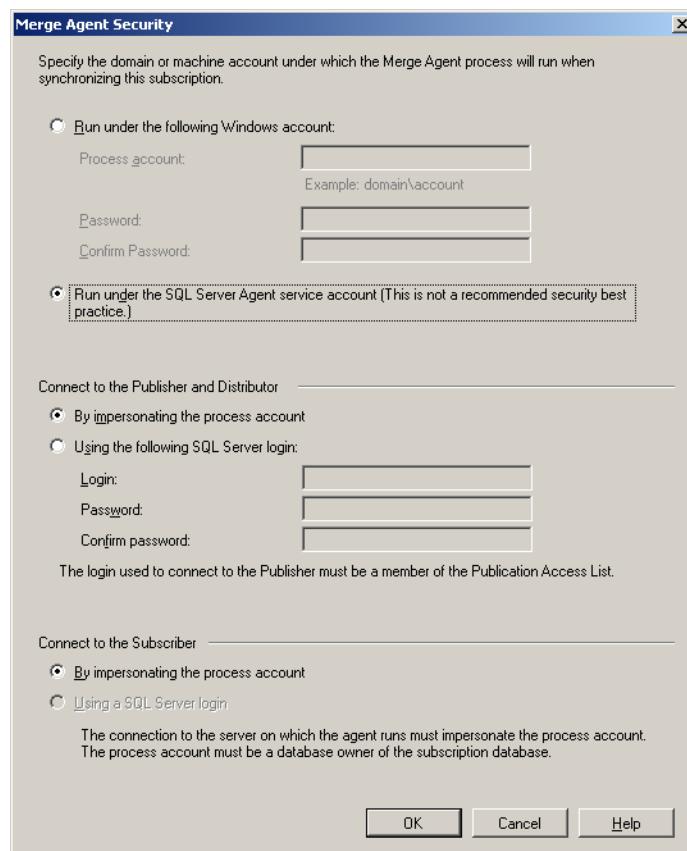
7. Verify that the regional server is selected as subscriber and click Next.



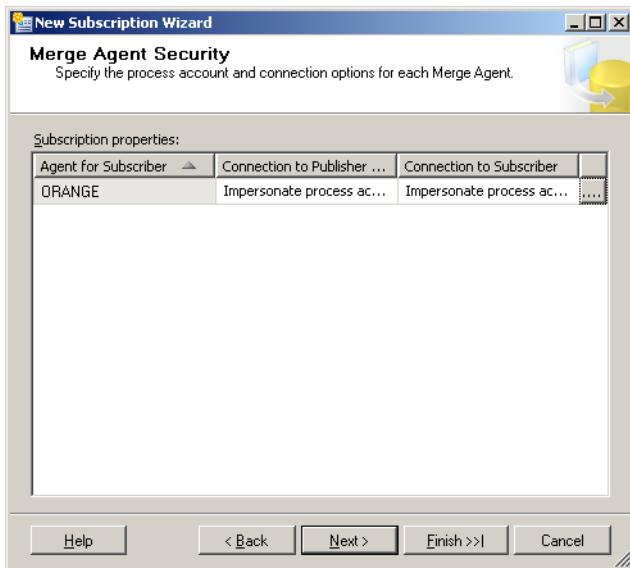
8. Click the “Browse” button to open the Merge Agent Security window.



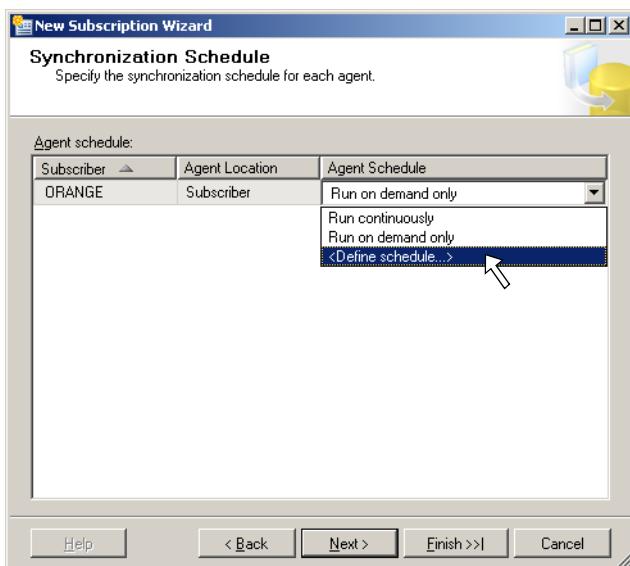
9. In the Merge Agent Security window select the radio button for **Run Under SQL Server Agent service account (This is not recommended security best practice)**, click **OK**.



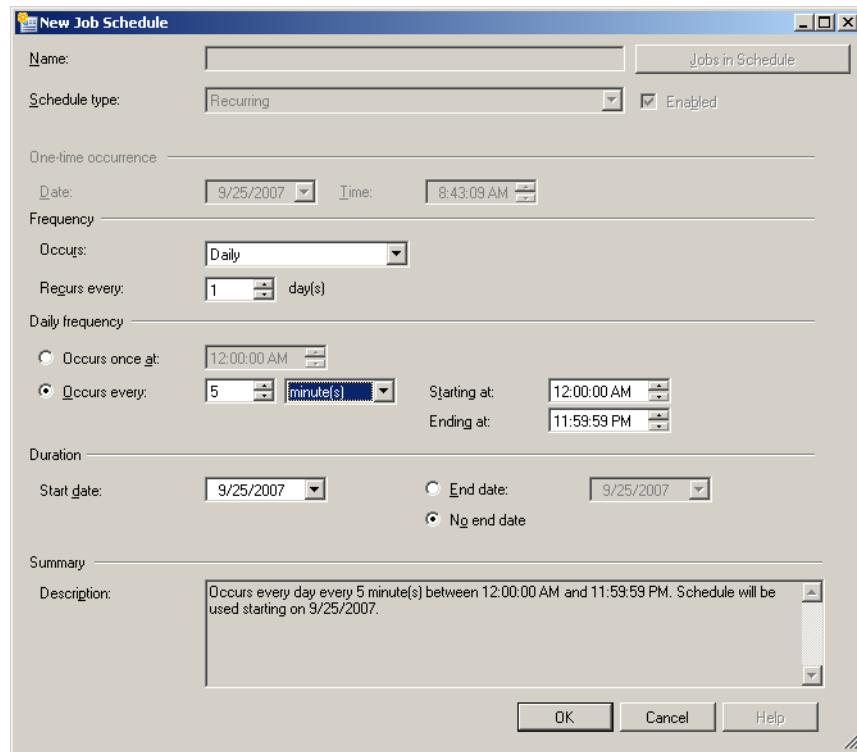
10. Click **Next**.



11. From the **Agent Schedule** drop-down menu select <**Define schedule...**>.



12. Each subscription's schedule can be adjusted to fit the needs of the Enterprise system. In the New Job Schedule window set up the schedule of a subscription and click **OK**. (Each subscription's schedule has to be adjusted separately). See Table 4-1 for recommendations.



The recommended settings are:

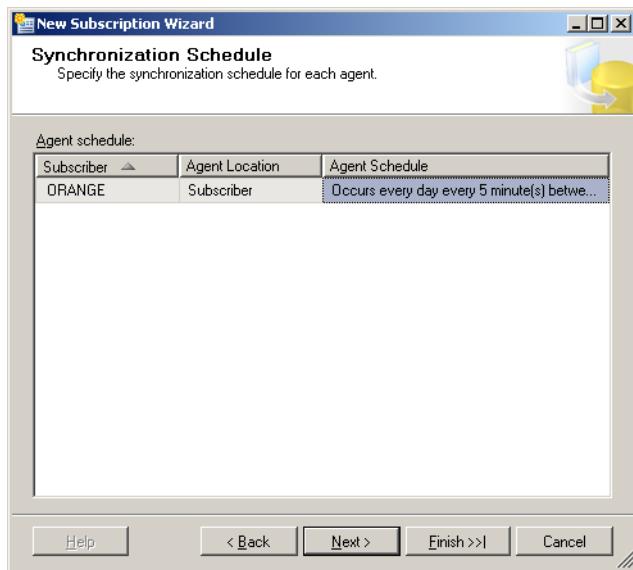
Table 4-1: Recommended Replication Schedule

Publication	Recommended Replication
Enterprise, Configuration, BadgelImages	Every 5 minutes
FDA, Alarms, Audit, BadgelImages FDA, XAction	Every 1 hour (for instant availability in Alarm Monitors, use Remote Message Service rather than more frequent replication).

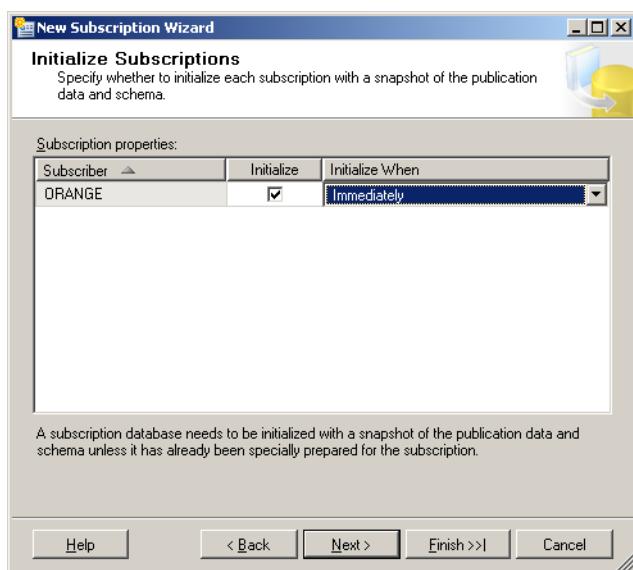
The replication cycle should be staggered to ensure that only one subscriber attempts to re-synchronize with the central server at a time.

It is recommended that you use primary numbers for the time between replication cycles (for example: 5 minutes at Site 1, 7 minutes at Site 2, 11 minutes at site 3, and so on).

13. View the new schedule settings and click **Next**.



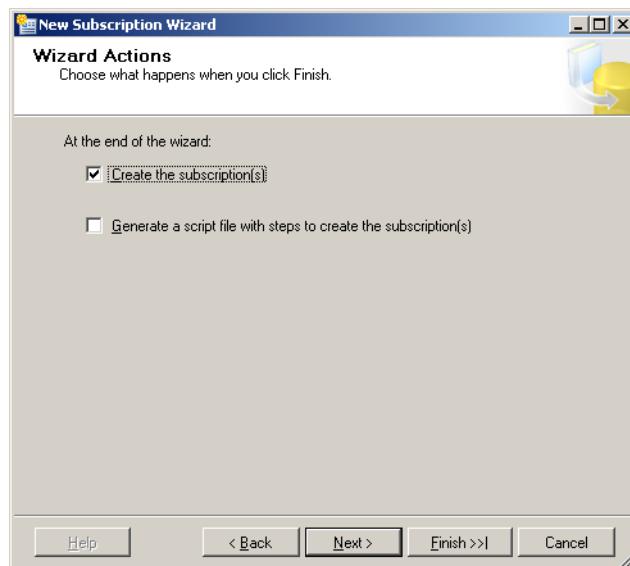
14. Verify that **Immediately** is selected from the **Initialize When** drop-down list and click **Next**.



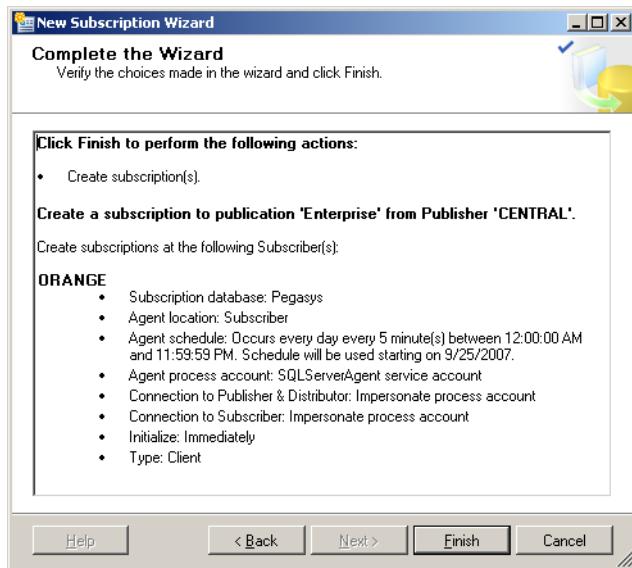
15. The **Subscription Type** should be set to **Client**. Click **Next**.



16. Verify that **Create the Subscriptions** check box is selected and click **Next**.



17. Click **Finish**.

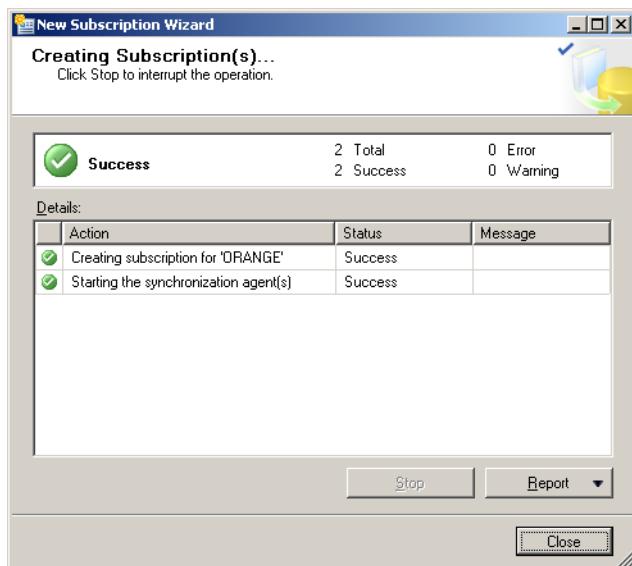


18. Wait while the subscription is being created.

NOTE

Depending on the size of the central site database, applying a snapshot through a wide area network can take a considerable amount of time. MS SQL Server offers the option to apply the snapshot to a local hard drive. Refer to the MS SQL Server information about further details about this option.

19. Verify that the subscription was created successfully and click **Close**.

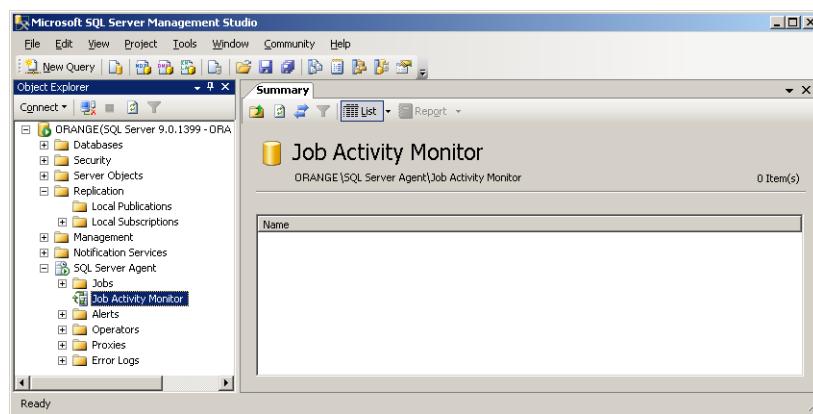


20. Repeat steps 1 through 19 for each publication you want to subscribe to.
21. Verify that all subscriptions are successfully established.
22. Keep the Microsoft SQL Server Management Studio window open.

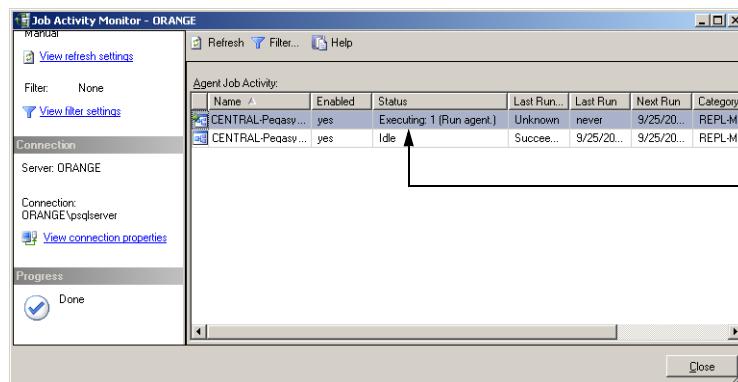
When the subscriptions are established, the Merge Agent runs the data merge based on the schedule and initialize time configured in the previous procedure. The following steps let you verify that the merge is complete:

To verify completion of the Merge Agent activity:

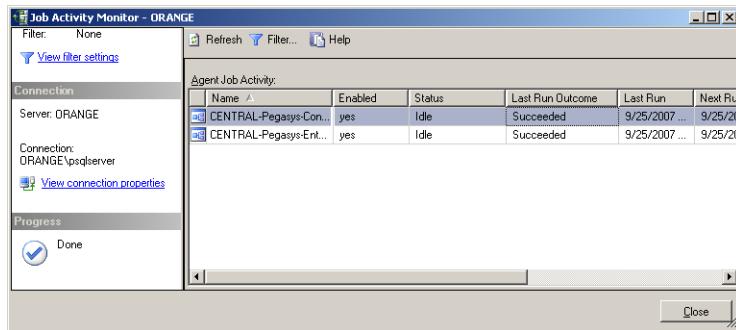
1. In the Microsoft SQL Server Management Studio window under the icon for the regional server go to **SQL Server Agent>Jobs** and double click on **Job Activity Monitor**.



2. In the right window pane the **Agent Job Activity** column displays established subscription (the list may vary depending on your system). Notice the subscription in progress.



3. Wait until all subscriptions are complete as indicated by the “Succeeded” and “Idle” messages and close the window.



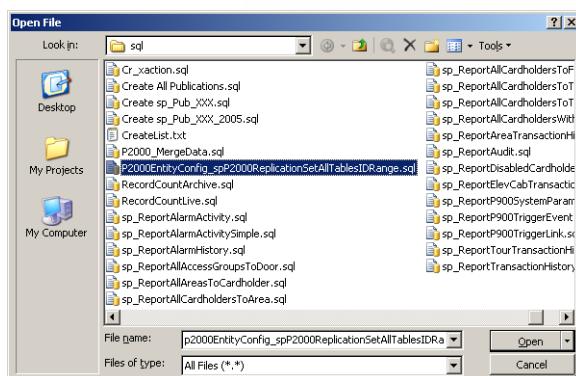
REPLICATION SET IDENTITY RANGE

► To set up identity range:

1. Click the “Open File” button in the Microsoft SQL Server Management Studio window or go to **File>Open>File**.
2. Browse for the following file:
P2000EntityConfig_spP2000ReplicationSetAllTablesIDRange.sql
located in
C:\Program Files\Johnson Controls\P2000\sql
Select it and click **Open**.

NOTE

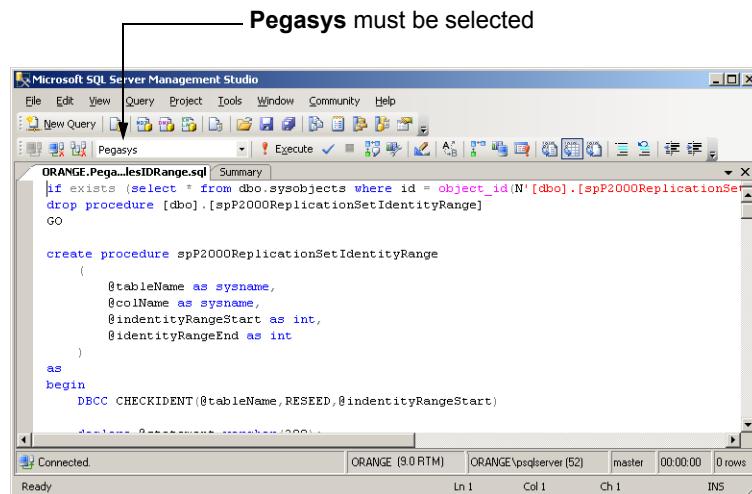
On 64-bit Microsoft Windows operating systems supported by P2000, the Johnson Controls directory is located in Program Files (x86).



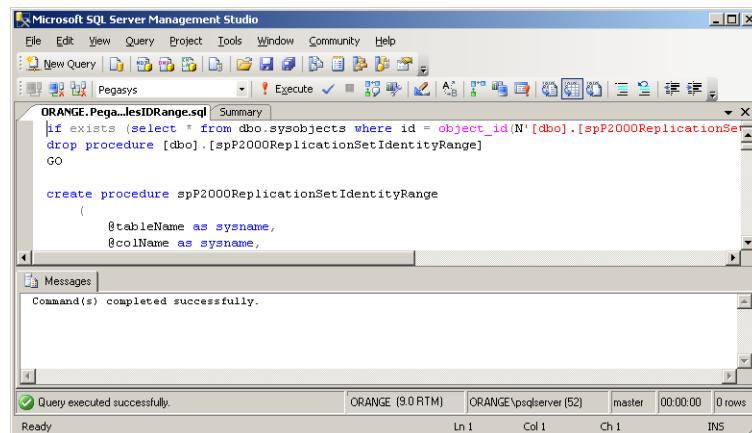
3. In the Connect to Server window select the regional server and click **Connect**.



4. In the Microsoft SQL Server Management Studio window verify that **Pegasys** is selected from the drop down list and click the **! Execute** button. It is recommended that you scroll down and review error messages under the **Messages** tab. Resolve any reported problems before proceeding.



5. In the lower window pane verify that the commands were completed successfully.

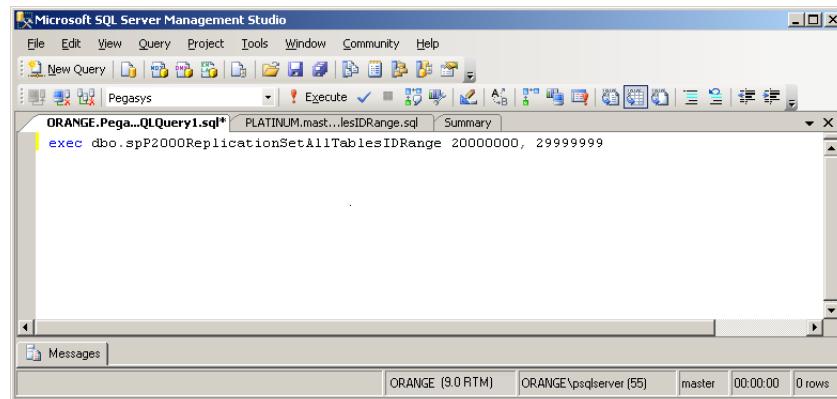


6. Click the **New Query** button.

7. Type in the following command:

```
exec dbo.spP2000ReplicationSetAllTablesIDRange XX, YY
```

Where XX is the beginning of the ID range, and YY is the end of the ID range.
See Table 2-2 reference.



8. Click the “Parse Query” button to check integrity of the script.
9. As in step 4, verify that **Pegasys** is selected from the drop down list and click the **! Execute** button.
10. Close the Microsoft SQL Server Management Studio window.

PRELIMINARY

PUBLICATIONS

The subsequent list identifies publications and their corresponding articles (database tables).

Alarms

alarms_hist
alrm_resp

Audit

audit

Configuration

access_group_details
accgroup
accgrpelevator
accgrpterm
accgrtermgrp
acctpl
actioninterlock
alarmcolors
alarmresptext
alrminst
area_configuration
area_details
area_layout
area_layout_data
autobadge
AVChannel
avdrycontact
AVMonitor
AVPreset
AVSite
bacnetsource
badge
badgefields
badgelayout
badgemagformula

badgepurpose
badgesetup
badgesite
badgestatus
BadgeStatusSave
cardevent
cardholder
cardholdersite
CCTVAlarm
CCTVAuxiliaryCamera
CCTVAuxiliarySystem
CCTVCamera
CCTVMacros
CCTVMonitor
CCTVPattern
CCTVPreset
CCTVSequence
CCTVServer
CCTVSwitch
CCTVTour
company
connections
counter
counter_p900
dataimport_fields
dataimport_mapping
dept
dnld_req_rule
dnld_req_timed
drycontact_status
elevator
elevatordetails
enable_code

event	panel
event_action	panel_ck
event_trigger	panel_p900
fascn_ccc	panelholiday
flag_p900	panelstatus
floorgrp	paneltz
floorgrpdata	partition
floormask	pin_number
floormaskdata	portconfig
floorname	privgrp
GenericText	privgrpdata
holiday	reason
icon_image	redundancy_cfg
icon_image_set	redundancy_isolation_ip
icon_overlay	remoteserver
idbadge	report
igdata	reportdata
imagerecallfilter	requestapprovers
input	requestapprovers_details
input_ck	requestconfig
input_p900	SecLevelRanges
input_status	service_stat
Input2CamInfo	site
inputgrp	softalarm
intercom_exchange	station
intercom_station	station_stat
intercom_station_status	svr_startup_cfg
journal	term_pin_number
loopconfig	termgrp
map	termgrpterm
mapimage	terminal
messagefilter	terminal_ck
mfg_item	terminal_p900
msgfiltergroup	terminalstatus
MusterDefinition	timezone
MusterPrinters	tour_configuration
MusterReaders	tour_note
ogdata	tour_station_configuration
output	trigger_event_p900
output_ck	trigger_link_p900
output_p900	udfboolean
output_status	udfdate
outputgrp	udfgen
P900sysparameters	udfnum

udftext
userpartition
userprivgrp
userremotepartitions
users
usersite
webaccessctrl

cardholdersite_save
CCTVAlarm_save
CCTVAuxiliaryCamera_save
CCTVAuxiliarySystem_save
CCTVCamera_save
CCTVMacros_save
CCTVMonitor_save
CCTVPattern_save
CCTVPreset_save
CCTVSequence_save
CCTVServer_save
CCTVSwitch_save
CCTVTour_save
company_save
connections_save
counter_p900_save
counter_save
dataimport_fields_save
dataimport_mapping_save
dept_save
elevatordetails_save
enable_code_save
ent_site_save
enterprise_parameters_save
event_action_save
event_save
event_trigger_save
fascn_ccc_save
flag_p900_save
floorgrp_save
floorgpdata_save
floormask_save
floormaskdata_save
floorname_save
GenericText_save
holiday_save
icon_image_save
icon_image_set_save
icon_overlay_save
idbadge_save
IDSequences_save
igdata_save
imagerecallfilter_save
input_ck_save

Enterprise

enterprise_parameters
ent_site
esp_parameters

FDA

access_group_details_save
accgroup_save
accgrpelevator_save
accgrpterm_save
accgrptermgrp_save
acctpl_save
actioninterlock_save
alarmcolors_save
alarmfw_save
alarmresptext_save
alrminst_save
area_configuration_save
area_details_save
area_layout_data_save
area_layout_save
AVChannel_save
avdrycontact_save
AVMonitor_save
AVPreset_save
AVSite_save
bacnetsource_save
badge_save
badgefields_save
badgelayout_save
badgemagformula_save
badgepurpose_save
badgesetup_save
badgesite_save
cardevent_save
cardholder_save

input_p900_save	SecLevelRanges_save
input_save	site_save
Input2CamInfo_save	softalarm_save
inputgrp_save	station_save
intercom_exchange_save	svr_startup_cfg_save
intercom_station_save	term_pin_number_save
journal_save	termgrp_save
localsite_save	termgrpterm_save
loopconfig_save	terminal_ck_save
map_save	terminal_p900_save
mapimage_save	terminal_save
messagefilter_save	timezone_save
mfg_item_save	tour_configuration_save
msgfiltergroup_save	tour_station_configuration_save
MusterDefinition_save	trigger_event_p900_save
MusterPrinters_save	trigger_link_p900_save
MusterReaders_save	udfboolean_save
ogdata_save	udfdate_save
output_ck_save	udfgen_save
output_p900_save	udfnum_save
output_save	udftext_save
outputgrp_save	userpartition_save
P900sysparameters_save	userprivgrp_save
panel_ck_save	userremotepartitions_save
panel_p900_save	users_save
panel_save	usersite_save
panelholiday_save	
paneltz_save	
partition_save	XAction
pin_number_save	redn_xaction
portconfig_save	request_queue_hist
privgrp_save	xaction
privgrpdata_save	
reason_save	
redundancy_cfg_save	
redundancy_isolation_ip_save	
remoteserver_save	BadgeImages
report_save	fingerprint
reportdata_save	portrait
requestapprovers_ave	signature
requestapprovers_details_save	
requestconfig_save	BadgeImages FDA
	fingerprint_save
	portrait_save
	signature_save

IMPORTANT NOTES

Initialization

Execution of the snapshot agent places exclusive locks on the target tables as well as some of the system tables used to manage the replication process. If multiple snapshots are running simultaneously against the same database, a deadlock can cause a failure in generating the snapshot. The snapshots are currently configured not to start immediately. Each snapshot agent must be started by an operator. Automatic, timed snapshot starts will be added.

Deadlocks and Retries

When a deadlock occurs, one process or job gets aborted. All changes are supposed to be rolled back in a transaction. Frequently, not all the changes are reversed. This applies to both the initial snapshot generation and the Subscriber initialization where the snapshot is applied. The Subscriber initialization is far more sensitive and prone to problems. In particular, the Subscriber table holding replication identity ranges and the replication identity constraint on some merged tables do not get cleaned up.

Identity Columns

Identity columns are managed by assigning value ranges to each Subscriber. As a value range is used up, a new one is assigned. Current range values available for each article (published table) are kept on the distribution database on the Publisher in the MSrepl_identity_range table. Additionally, the MSrepl_identity_range table in the subscribing database contains current range assignments for that database.

Primary Key Violation

The primary key in the MSrepl_identity_range table (in the subscribing database) is an object id assigned to specific articles. If a process is aborted, this table is not always cleared out. A second (and every subsequent) attempt by the merge agent to initialize will generate a Primary Key Violation for this table. Recommended recourse is to drop the subscription and re-create it.

Calling sp_adjustpublisheridentityrange

The replication identity constraint is applied to a subscribing table during merge initialization and whenever a new range has been assigned. Old constraints are not always removed when subscription initialization is aborted and retried. This leads to multiple, disjointed ranges assigned to an identity column in a table. When a table insert is attempted, the user gets a SQL Server message that a range is exhausted, advising they run “sp_adjustpublisheridentityrange” on the Publisher. Running this stored procedure will not help. Either the extra constraints on the table must be removed or the database dropped and re-created.

Connectivity Loss

With two Subscribers and multiple panel simulators running, one subscribing machine consistently lost contact with the Publisher. Merge operations would fail on the subscribing machine and not be updated on the Publisher’s replication monitor. Attempts to connect to SQL Server with the Enterprise manager and the Query Analyzer failed. However, if the P2000 user interface is closed, connectivity is restored and the merge jobs succeed. Subsequently, P2000 can be re-run.