Johnson Controls

P2000AE

Security Management System

Enterprise Configuration

Option

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Option

Version 4.1 and higher, December 2008

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Johnson Controls

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Declaration of Conformity

This product complies with the requirements of the European Council Electromagnetic Compatibility directive 2004/108/EEC and the Low Voltage Directive 2006/95/EEC.

This equipment must not be modified for any reason and it must be installed as stated in the Manufacturer's instruction.

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.

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INTRODUCTION

The P2000 Enterprise option 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.

NOTE

Throughout this manual the terms P2000AE and P2000 are used interchangeably.

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

The screen captures shown in this manual may differ slightly, depending on the software 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: Configuring P2000 Regional Server*, provides instructions for establishing P2000 regional server as a Database Subscriber (including how to move P2000 Enterprise Regional Site data to the P2000 Enterprise Central Site).

- *Appendix A: Allocated ID Ranges*, contains a table designed to help you keep track of replication ID ranges assigned to central and regional centers.

- *Appendix B: Database Tables*, identifies articles (database tables) corresponding to the Configuration publication.

- *Appendix C: 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 option.

Configuring P2000AE Enterprise option requires knowledge about P2000 operations, such as database backup and restoration, as well as advanced network skills.

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.

Cautions remind you that certain actions, if not performed exactly as stated, can cause damage to equipment, security problems, or cause the system to operate incorrectly due to errors in system setup or programming.

Warnings indicate that the possibility of personal injury exists if an action or actions are not performed exactly as stated.

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 MS SQL Server's Database Replication.

The main advantage of the MS SQL Server Database Replication is to share cardholder and badge information, as well as the ability to configure cardholder access rights from any workstation within the enterprise system.

Data replication for the P2000 Enterprise Configuration is implemented with a Publisher and Distributor together on one P2000 Central Site, and one or more 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.
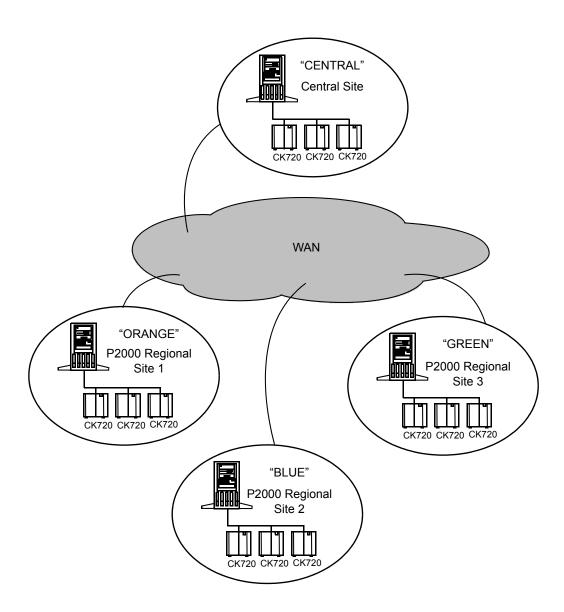
Each regional site synchronizes its data with the central site. It receives data updates from the central site and/or regional sites.

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 you regularly back up the following databases: P2000EntityConfig, master, MSDB (on the central and all regional servers) and Distributor (on the central server only).

Microsoft SQL Server Requirements

The central server requires Microsoft® SQL Server 2005.

The regional server requires SQL Server 2005 or SQL Server 2005 Express Edition.

NOTE

The database size on systems using SQL Server 2005 Express Edition is limited to 4GB.

Enterprise Configuration and Redundant Systems

P2000 Enterprise Configuration can utilize a Fault Tolerance solution (with Marathon everRun™) for central and regional servers.

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 one or more articles that is made available for a subscriber by a publisher/distributor. "P2000EntityConfig" is a publication used in the P2000 Enterprise Configuration.

Publisher/Distributor – The server of the P2000 central site.

Subscriber – The server of the P2000 regional site.

Subscription – The result of a subscriber signing up for a publication.

P2000 "P2000EntityConfig" Publication

The P2000 publication established in the P2000 Enterprise Configuration named "P2000EntityConfig." This publication contains cardholder, badge, and configuration information.

Audit, XAction and alarms are *not* included in the publication. Instead, the Remote Message Service is used to forward the information and display it in the Real Time List.

P2000 Publication Filters

Filters are used to control what data gets replicated from the central site to the regional site(s).The following filtering methods are available:

- By site - You can select to replicate information pertaining either all sites or the local site only.

- By active entity - When selected, only the information about employees with "Enabled" flag set for a regional site gets replicated.

- By status - When selected, in addition to the normally replicated information the hardware status and employee status information is also replicated.

The "site" filter is decided upon when setting up the subscription. Different regional sites can use different setting for this filter.

The "active entity" and "status" filters are set up with the publication and cannot be changed at a later time. All regional sites use the same "status" and "active entity" filters.

The choice of filter criteria significantly impacts the required database size and the number of changes to be replicated on daily basis. Only the Enterprise systems that use site filtering should consider the use of SQL Server 2005 Express Edition for their regional sites.

CONFIGURING P2000 CENTRAL SERVER

Prior to following the instructions in this chapter, install the P2000 software on the central server and on the regional servers and backup the databases.

> **NOTE**
>
> *Procedures described in this manual 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.*

Unless you have knowledge of the SQL Server, read the section "General Notes on Using SQL Server" on page 2-2 and refer to it when needed.

Use the following tables for reference during configuration of the P2000 Enterprise sites:

Table 2-1: Central Site Settings

Item	Factory Settings	Customer Settings
P2000 Server name*	CENTRAL	
P2000 Site name*	CentralSite	
Windows account name**	psqlserver	
Windows password	Master1	
SQL server name*	CENTRAL	
SQL Server account name	p2kEnterprise	
SQL Server account password	Master1	
Replication Set Identity Range***	10,000,000 to 20,000,000	

* The name has to be unique within the Enterprise system.

** 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.

***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. Use the table provided in *Appendix A: Allocated ID Ranges* to keep track of additional changes.

Table 2-2: Regional Site Settings

Item	Factory Settings	Customer Settings
P2000 Server name*	ORANGE	
P2000 Site name*	ORANGE	
Windows account name** (the same as for the central server)	psqlserver	
Windows password (the same as for the central server)	Master1	
SQL server name*	ORANGE	
SQL Server account name (the same as for the central server)	p2kEnterprise	
SQL Server account password (the same as for the central server)	Master1	
Replication Set Identity Range***	20,000,000 to 30,000,000	

* The name has to be unique within the Enterprise system.

** 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.

***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. Use the table provided in *Appendix A: Allocated ID Ranges* to keep track of additional changes.

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 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 "SQL Server Login Account in Windows" on page 2-5.

Opening the Microsoft SQL Server Management Studio

➤ **To open the Microsoft SQL Server Management Studio:**

1. Log in to the system as administrator.

2. Go to **Start**>**Programs**>**Microsoft SQL Server 2005**>**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 already provided under **Databases**>**P2000EntityConfig**> **Programmability**>**Stored Procedures**. When a script has to be typed or edited, procedures described in this chapter will inform you to do so.
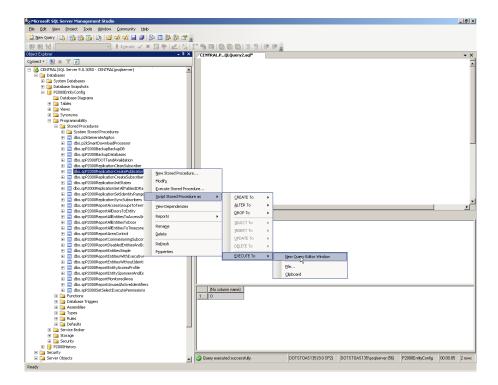
It is recommended that before executing any script you parse it for correctness. After executing you should verify that no errors have occurred.

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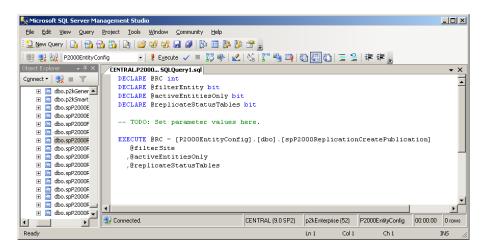
➤ **To run a script:**

1. In the SQL Server Management Studio, in the left window pane expand the entry for the server and go to **Databases**>**Programmability**>**Stored Procedures**.

2. Find the script to be executed, right-click on it and go to **Script Stored Procedure as**>**EXECUTE To**>**New Query Editor Window**.

   In the example below the following script is selected for execution: **dbo.spP2000ReplicationCreatePublication**.
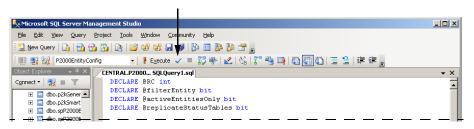
3. A script opens in the right window pane. If edits are required, follow the manual instructions to type them.
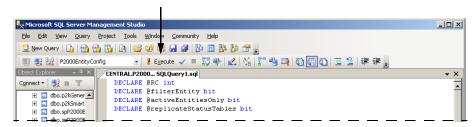
4. Click the "Parse Query" button to check the integrity of the script.

Click to parse query
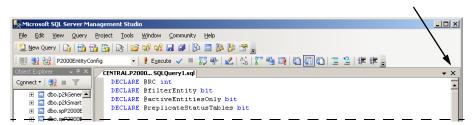
5. Wait for the text "Command(s) completed successfully" to appear in the lower window pane under **Messages**.

6. Click the **! Execute** button.

Click to execute query

7. Verify that the following message appears at the bottom of the window: "Query executed successfully."

8. Close the query window by clicking the **X** button in the top right corner.

Click to close query

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

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 2-8.

➤ **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`
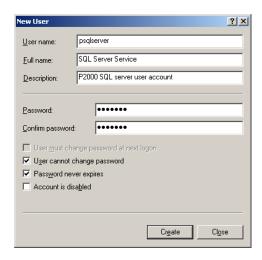
    Enter and confirm password (`Master1`).
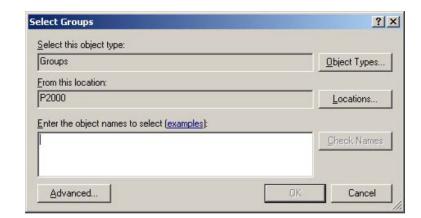
    Un-select the **User must change password at next logon** check box.

    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 "Login Account in SQL Server" on page 2-11.

▶ **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 icon for the domain, right-click **Users**, and go to **New**>**User**.

4. In the New Object-User window, fill out the following fields:
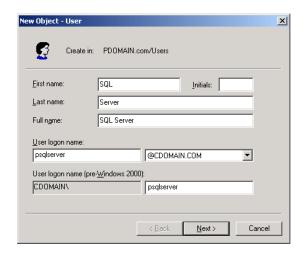
First name: SQL
Last name: Server
Full name: (filled out automatically)
User logon name: psqlserver
User logon name (pre-Windows 2000): psqlserver
(for example: CDOMAIN\psqlserver)

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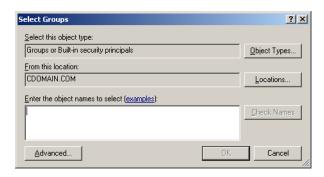
5. Specify and confirm the password (Master1). Un-select the **User must change password at next logon** check-box, then select the following check boxes: **User cannot change password** and **Password never expires**.

Click **Next**.
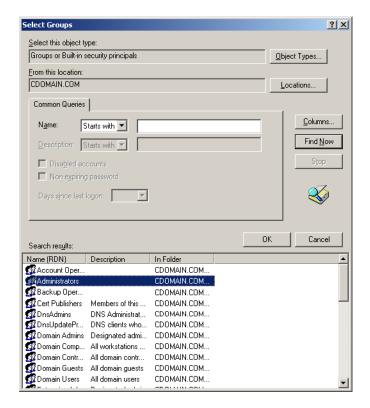
6. Verify the settings and click **Finish**.

7. You are now back to the Active Directory Users and Computers window. Double-click the **Users** icon.

8. In the right window panel, double-click the **SQL Server** icon.

9. 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.
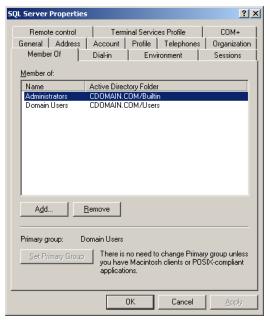
11. In the expanded window, click the **Find Now** button.

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.

LOGIN ACCOUNT IN SQL SERVER

You need to create a designated account in the SQL Server to run the replication process.

Creating the "p2kEnterprise" Account

➤ **To create "p2kEnterprise" account:**

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

4. Create an account with the following settings:

- **Login name**: `p2kEnterprise`

- **SQL Server authentication**: selected

- **Password** and **Confirm password**: `Master1`
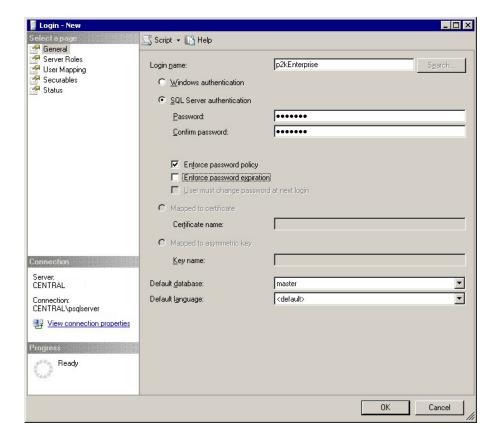
- **Enforce password policy**: selected

- **Enforce password expiration**: un-select
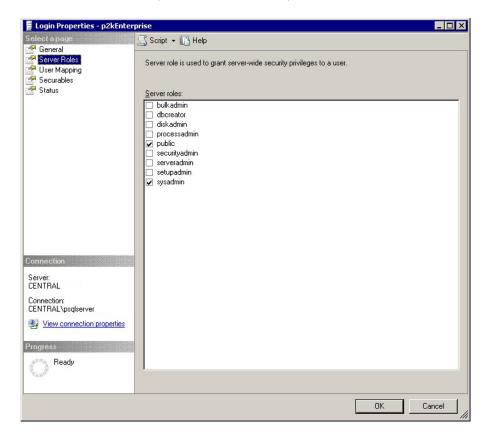
- **Default database:** `master`

- **Default database:** `<default>`

Do not close this window yet.

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

6. Close the Microsoft SQL Server Management Studio.

REGISTERING SQL SERVERS AND MODIFYING POLICY

Registering servers allows you to view those servers' databases from the local Microsoft SQL Server Management Studio window.

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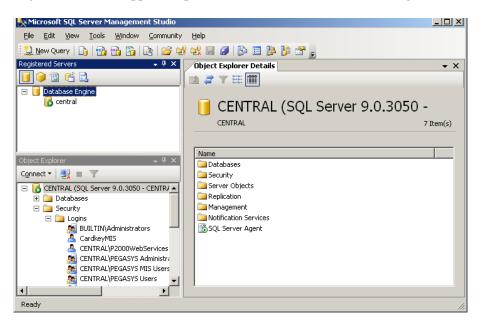
The number of SQL servers is limited by the SQL Server license.

➤ **To register server(s):**
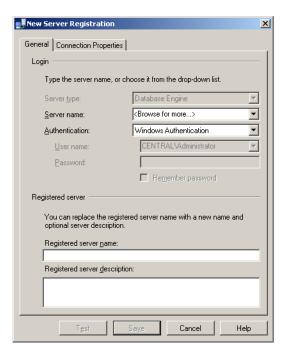
1. Open the Microsoft SQL Server Management Studio.

2. Go to **View**>**Registered Servers**.

3. In the left window pane the local server is already listed under **Registered Servers**.
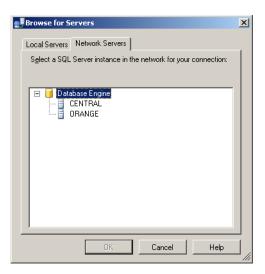
    Right-click on the upper left pane area and select **New**>**Server Registration**.
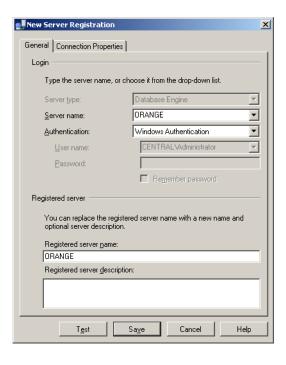
4. From the **Server name** drop-down list select **<Browse for more...>**.
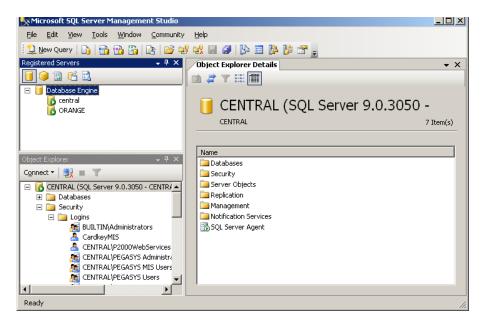
5. In the Browse for Servers window, click the **Network Servers** tab and expand the **Database Engine** folder.

6. Select the server to be registered and click **OK**.

7. In the New Server Registration window accept the default settings by clicking **Save**.
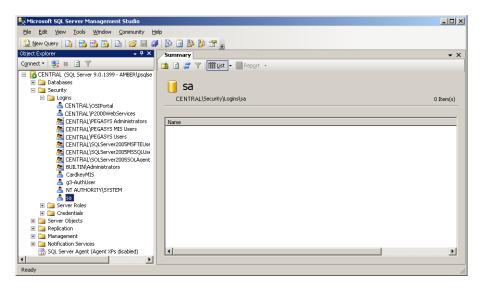
8. Verify that the newly added server (in this example, "ORANGE") is listed under **Registered Servers**.
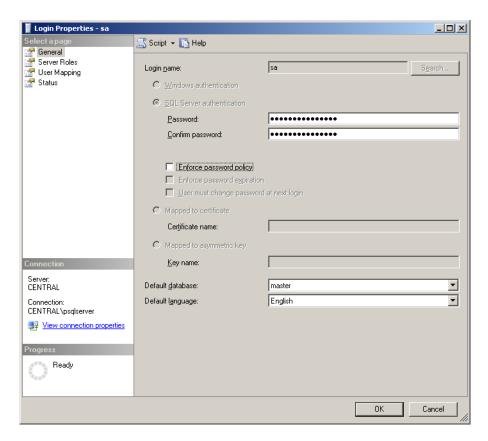
9. Close the **Registered Servers** window pane by clicking the **X** button.

➤ **To modify "sa" password policy:**

1. In the SQL Server Management Studio window expand the navigation tree for the central server and under **Security>Logins** double-click the **sa** icon.
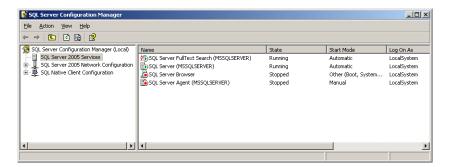
2. In the Login Properties - sa window un-select the **Enforce password policy** check box and click **OK**.
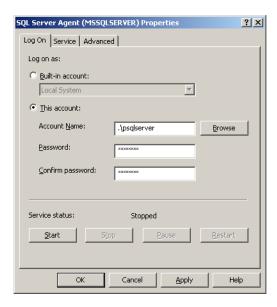
3. Close the window.

➤ **To modify SQL Server Agent (MSSQLSERVER) account:**
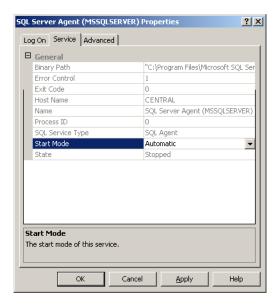
1. Go to **Start**>**Programs**>**Microsoft SQL Server 2005**>**Configuration Tools**>**SQL Server Configuration Manager**.

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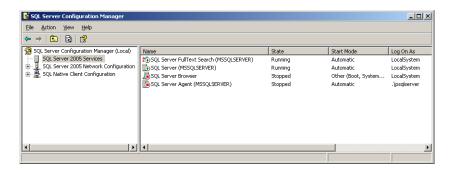
3. Select **This account** radio button and browse for the psqlserver account or type `.\psqlserver`. Specify and confirm password (`Master1`).

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."

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 on **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`).

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

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

5.   Close the SQL Server Configuration Manager window.
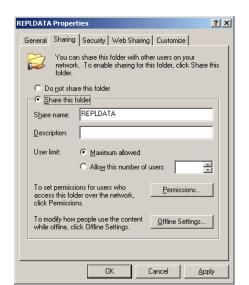
ESTABLISHING SHARED DIRECTORIES

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:
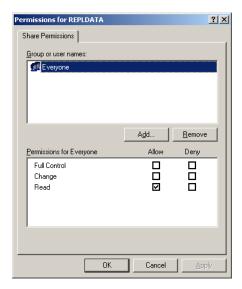
1.   Right-click the **Start** button and select **Explore** to launch Windows Explorer.

2.   Go to C:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL.

3.   Right-click the **REPLDATA** folder and select **Sharing...**
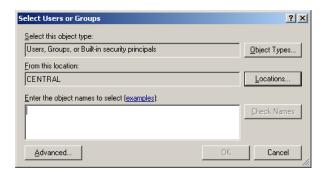
4. Select the **Share this folder** radio button and click **Permissions**.
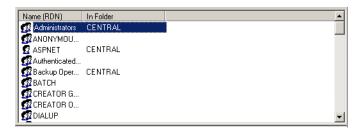
5. In the Permissions for REPLDATA window, click **Add**.
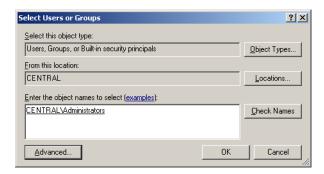
6. In the Select Users or Groups window, click the **Advanced...** button.
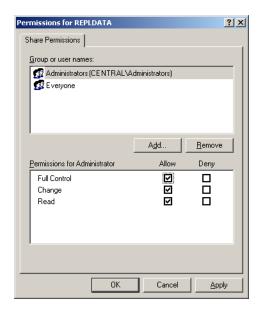
7. In the expanded window, click the **Find Now**.

8. Highlight the **Administrators** entry in the search results and click **OK**.

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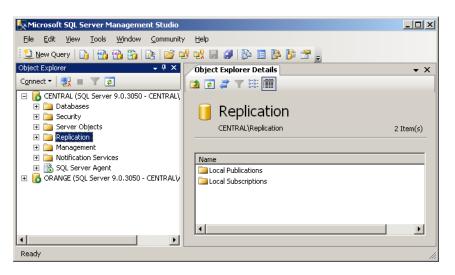
11. In the Properties window for the server click **OK**.

12. Close Windows Explorer.

CONFIGURING PUBLISHER AND DISTRIBUTOR

Publisher and distributor are configured on a central server.

➤ **To configure the central server for publication and distribution:**
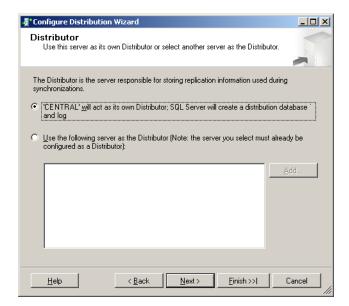
1. Open the Microsoft SQL Server Management Studio.

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

3. The Configure Distribution Wizard starts. Click **Next**.
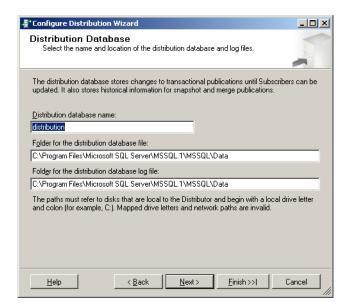
4. Verify that the central server is selected as Distributor; click **Next**.
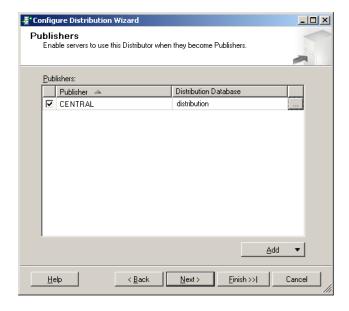
5. Enter the location of the snapshot folder: `\\CENTRAL\REPLDATA` (the name of your central server may vary according to custom settings).

   Click **Next**.

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

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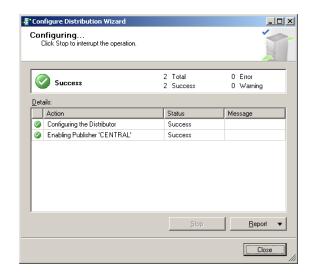
8. Verify that the **Configure Distributions** check box is selected and click **Next**.

9. View the settings and click **Finish**.
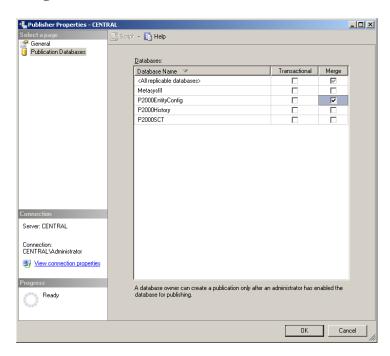
10. Verify that the configuration has been successful and click **Close**.

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 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 **P2000EntityConfig** check box in the **Merge** column. Click **OK**.

3. Close the Microsoft SQL Server Management Studio window.
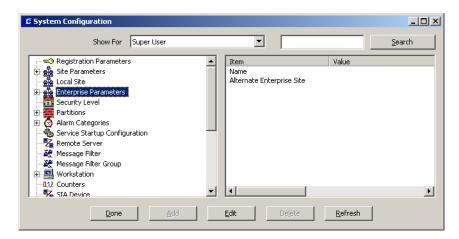
ESTABLISHING AN ENTERPRISE SYSTEM

To establish an enterprise configuration, the P2000 software must be registered with the Enterprise option.

For instructions on defining system-wide Time Zones and Access Groups refer to the *P2000 Software User Manual*.

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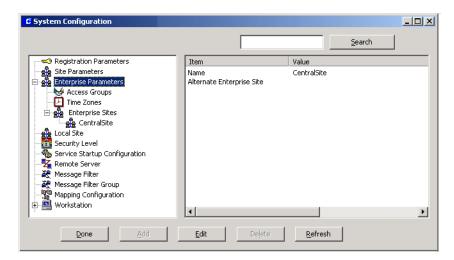
5. From the drop-down list select the name of your local site as defined during the P2000 software installation. Click **OK**.

6. Verify that the site is listed in the right window pane. Click **Done** to close the System Configuration window.

SETTING UP P2000 PUBLICATION

When creating publication you will decide which filters to apply to the data published by the central server. All subscribes (regional servers) are impacted by these filters. See "P2000 Publication Filters" on page 1-6 for more details.

Preparatory Procedures

Before continuing:

■ Stop all P2000 Services

■ Quit monitoring of P2000 Services

■ Exit the P2000 application

The SQL Server Agent must be running.

Creating P2000EntityConfig Publication

When creating publication, you need to be logged in to the "p2kEnterprise" account.
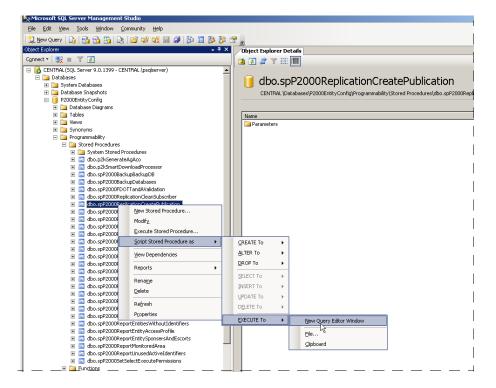
➢ **To create publication:**
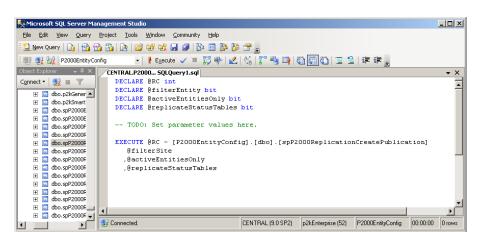
1. Go to **Start**>**Programs**>**Microsoft SQL Server 2005**>**SQL Server Management Studio**.

2. Select the central server and the **SQL Server Authentication**.

   Use `p2kEnterprise` and `Master1` password as login credentials. Click **Connect**.

3. In the left window pane expand the entry for the central server and go to **Databases**>**P2000EntityConfig**>**Programmability**>**Stored Procedures**>**System Stored Procedures**.

4. Right-click **dbo.spP2000ReplicationCreatePublication** and go to **Script Stored Procedure as**>**EXECUTE To**>**New Query Editor Window**.

5. A script opens in the right window pane.

6. Set the filters according to the needs of your system:

   ■ To enable a filter, in the corresponding script line type: `= 1`

   ■ To disable a filter, in the corresponding script line type: `= 0`

   Filters have the following functionality:

Filter Name	Description
filterSite	Enable to support site filtering by subscriber.
activeEntitiesOnly	Enable to replicate only the information about employees with "Enabled" flag set for a regional site.
replicateStatusTables	Enable to replicate the hardware status and employee status information (in addition to the normally replicated information).

Refer to *Appendix B: Database Tables* for a list of all available articles and how their publication is impacted by filter configuration.

In the example below "filterSite" and "activeEntitiesOnly" filters are enabled while "replicateStatusTables" filter is disabled:

```
EXECUTE @RC = [P2000EntityConfig].[dbo].[spP2000ReplicationCreatePublication]
    @filterSite = 1
    ,@activeEntitiesOnly = 1
    ,@replicateStatusTables = 0
```
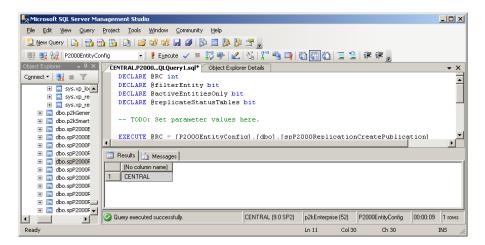
7. Parse and execute the query.
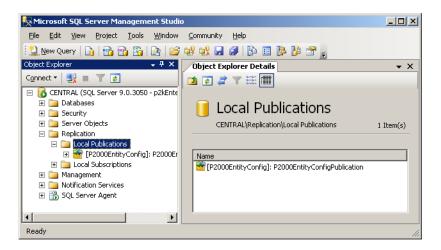
8. Under Results (lower right window pane). verify that "CENTRAL" is listed.
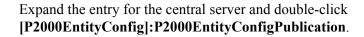
9. Close the query window pane without saving the script.
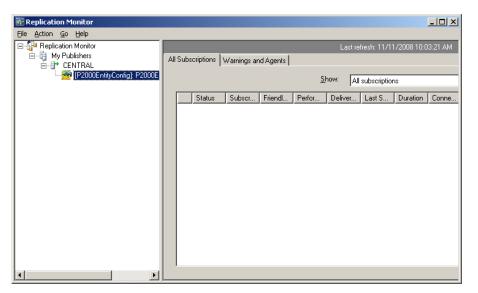
➣ **To generate a snapshot:**

1. In the SQL Server Management Studio, in the left window pane expand the entry for the central server and the **Replication** folder.

2. Right-click on **Local Publications** and select **Launch Replication Monitor**.
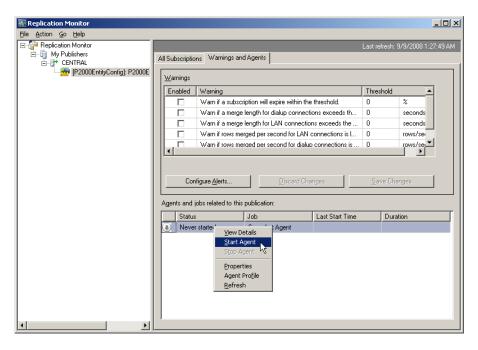
3. The Replication Monitor window opens.

Expand the entry for the central server and double-click **[P2000EntityConfig]:P2000EntityConfigPublication**.

4. In the right window pane click the **Warnings and Agents** tab.

5. In the lower right pane right-click on the newly created agent in the agents and jobs list and select **Start Agent**.

6. Wait until the process is complete. This may take several minutes.

Snapshot status
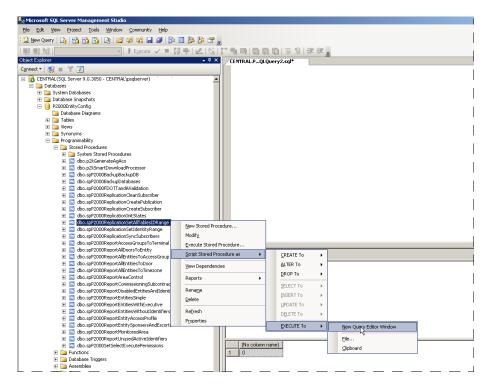
7. Close the Replication Monitor window.

SETTING UP IDENTITY RANGE

▶ **To set up identity range:**

1. In the SQL Server Management Studio, in the left window pane expand the
    entry for the server and go to **Databases**>**P2000EntityConfig**>
    Programmability>**Stored Procedures**.

2. Open the **dbo.spP2000ReplicationSetAllTablesIDRange** script in a new
    query window.

To do so, right-click on **dbo.spP2000ReplicationSetAllTablesIDRange** and go to **Script Stored Procedure as**>**EXECUTE To**>**New Query Editor Window**.

3. Edit the identity range as follows:

```
@IdentityRangeStart = XX
,@IdentityRangeEnd = YY
```

where XX is the beginning of the range and YY is the end of the range.

The example below shows set range of 10,000,000 to 20,000,000:

```
EXECUTE @RC = [P2000EntityConfig].[dbo].[spP2000ReplicationSetAllTablesIDRange]
    @IdentityRangeStart = 10000000
   ,@IdentityRangeEnd = 20000000
```
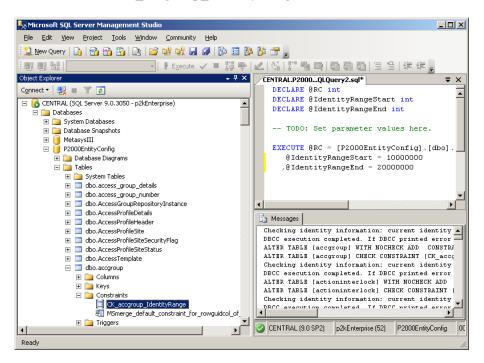
NOTE

To keep track of the values, take note in Table A-1, "Allocated ID Ranges."
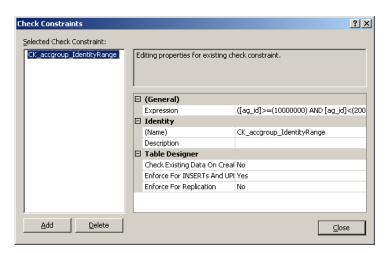
---

4. Parse and execute the query.
5. Close the query window pane without saving the script.

➤ **To verify that the ID range has been set correctly:**

1. Expand **Database**>**P2000EntityConfig**>**Tables**>**dbo.accgroup**>
    Constrains.

2. Double-click on **CK_accgroup_IdentityRange**.

3. In the Check Constraints window view the identity range under **General**.
    Click **Close**.
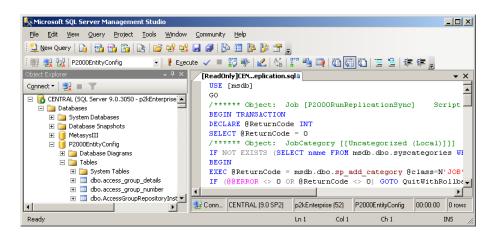
4. Close the query without saving it.

CREATING P2000 REPLICATION JOB

➤ **To create P2000 replication job:**

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

2. Browse for the following file: **CreateP2000RunReplication.sql** located in C:\Program Files\Johnson Controls\P2000\SQL. Select it and click **Open**.

3. In the SQL Server Management Studio select **P2000EntityConfig** as the database.

4. Parse and execute the query.
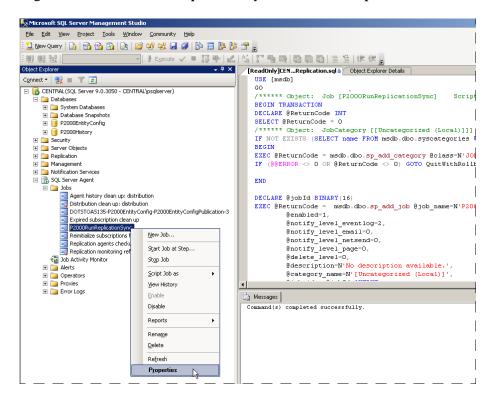
5. Close the query window pane without saving the script.
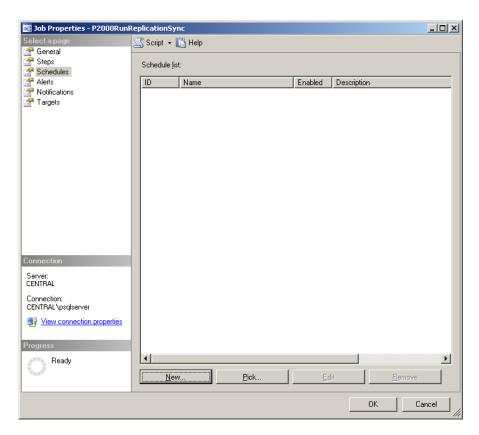
➤ **To schedule replication:**

1. In the SQL Server Management Studio expand the entry for the central server and go to **SQL Server Agent**>**Jobs**.

2. Click the **Refresh** button.

3. Right-click on **P2000RunReplicationSync** and select **Properties**.

4. In the Job Properties - P2000RunReplicationSync window highlight **Schedules** and click the **New** button.
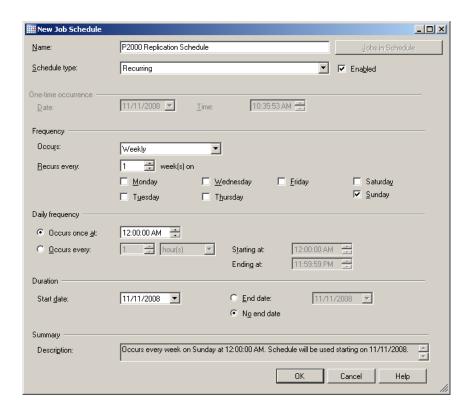
5. The New job Schedule window appears.

    For **Name** enter `P2000 Replication Schedule`. Make selections according to the needs of your system and click **OK.**

NOTE

*By default the replication process is set at a **weekly** interval. Adjust the setting according to the needs of your system.*

---

6. In the Job Properties - P2000RunReplicationSync window click **OK**.

You have successfully scheduled a new replication job.

Chapter 3

CONFIGURING P2000 REGIONAL SERVER

To become a regional server, a P2000 server needs to establish the subscription to a P2000 central server. The data on the regional server needs to be incorporated into the central server. 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.

Some of the procedures described in this chapter (such as merging the databases) are performed on the central server.

This chapter describes database merge and establishing subscriptions as well as several preparatory steps. Finishing procedures as performed on the regional and central server are also included.

It is assumed here that you have knowledge on how to use the P2000 backup utility. For detailed instructions refer to the *P2000 Software User Manual*.

Unless you have knowledge of the SQL Server, read the section "General Notes on Using SQL Server" on page 2-2 and refer to it when needed.
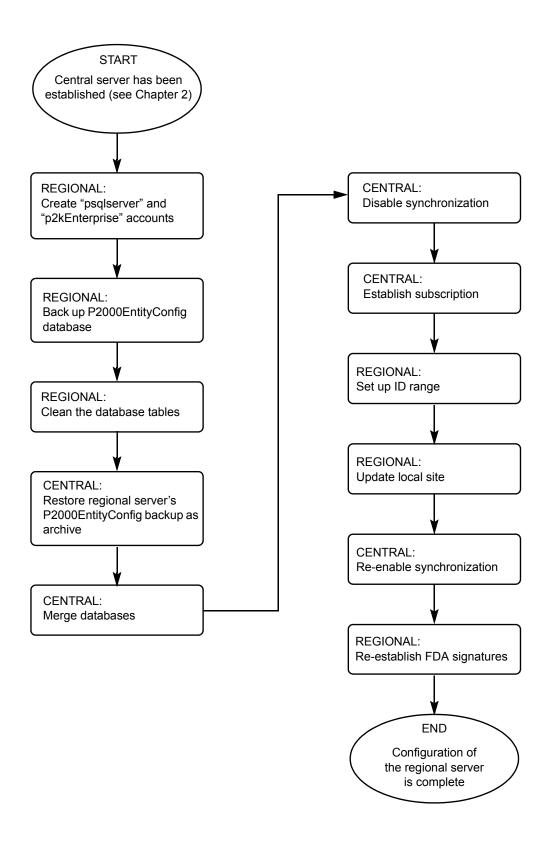
Before proceeding, ensure proper network connectivity and name resolution. All regional servers must not only successfully ping the central server, but also be able to register the central server by name in the SQL Server Management Studio. The central server must be able to register and open all registered servers in SQL Server Management Studio.

CONFIGURATION OUTLINE (NEW SITE)

The following flowchart illustrates configuration process during which a new P2000 site becomes a regional server and a subscriber to the P2000EntityConfig publication. Instructions in this chapter, beginning with "Creating User Accounts" on page 3-7, correspond to this scenario.

> **NOTE**
> *If your P2000 server is a live site, you will need to perform additional tasks that are not described in detail in this document. See "Configuration Outline (Live Site)" on page 3-3 for details.*

```
        ╭───────────────────────╮
       ╱         START           ╲
      │   Central server has been  │
      │   established (see Chapter 2) │
       ╲                         ╱
        ╰───────────────────────╯
                   │
                   ▼
      ┌─────────────────────────┐          ┌─────────────────────────┐
      │ REGIONAL:               │    ┌────▶ │ CENTRAL:                │
      │ Create "psqlserver" and │    │      │ Disable synchronization │
      │ "p2kEnterprise" accounts│    │      └─────────────────────────┘
      └─────────────────────────┘    │                   │
                   │                  │                   ▼
                   ▼                  │      ┌─────────────────────────┐
      ┌─────────────────────────┐    │      │ CENTRAL:                │
      │ REGIONAL:               │    │      │ Establish subscription  │
      │ Back up P2000EntityConfig│   │      └─────────────────────────┘
      │ database                │    │                   │
      └─────────────────────────┘    │                   ▼
                   │                  │      ┌─────────────────────────┐
                   ▼                  │      │ REGIONAL:               │
      ┌─────────────────────────┐    │      │ Set up ID range         │
      │ REGIONAL:               │    │      └─────────────────────────┘
      │ Clean the database tables│   │                   │
      └─────────────────────────┘    │                   ▼
                   │                  │      ┌─────────────────────────┐
                   ▼                  │      │ REGIONAL:               │
      ┌─────────────────────────┐    │      │ Update local site       │
      │ CENTRAL:                │    │      └─────────────────────────┘
      │ Restore regional server's│   │                   │
      │ P2000EntityConfig backup as│ │                   ▼
      │ archive                 │    │      ┌─────────────────────────┐
      └─────────────────────────┘    │      │ CENTRAL:                │
                   │                  │      │ Re-enable synchronization│
                   ▼                  │      └─────────────────────────┘
      ┌─────────────────────────┐    │                   │
      │ CENTRAL:                │────┘                   ▼
      │ Merge databases         │          ┌─────────────────────────┐
      └─────────────────────────┘          │ REGIONAL:               │
                                           │ Re-establish FDA signatures│
                                           └─────────────────────────┘
                                                       │
                                                       ▼
                                            ╭───────────────────────╮
                                           ╱          END            ╲
                                          │     Configuration of       │
                                          │    the regional server     │
                                          │      is complete           │
                                           ╲                         ╱
                                            ╰───────────────────────╯
```

CONFIGURATION OUTLINE (LIVE SITE)

This section outlines how to configure a live P2000 server to become a regional site. The main difference between this process and configuring a new P2000 system is the existence of database records and badgemaster files on the P2000 server.

There are two possible scenarios for establishing a live P2000 site as a part of an Enterprise system:

- Upgrade the existing system to Enterprise Configuration. In this scenario you need un-install and re-install the P2000 software as well as configure the server as a regional server.Considerable server down time is involved.

- Use additional server hardware on which to install the P2000 software and configure the server as a regional server. While you are performing these tasks, the panels and workstations continue to communicate with the "old" server. Once the new server is ready, you switch the workstations and panels to communicate with it.

The flow chart on the next pages outlines the configuration process for the regional server. Most steps are identical to those performed when configuring a new system. The flow chart also clearly identifies steps that are specific to "live server" scenario.
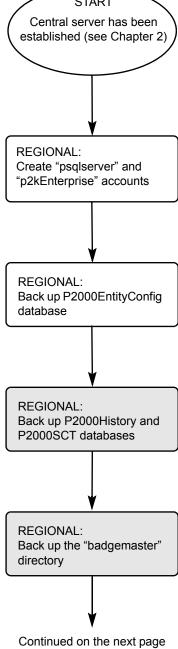
This section does not describe "live server" scenario procedures in detail. For reference information see the *P2000 Server Workstation Software Installation Manual* and the *User Manual P2000 Software User Manual.*
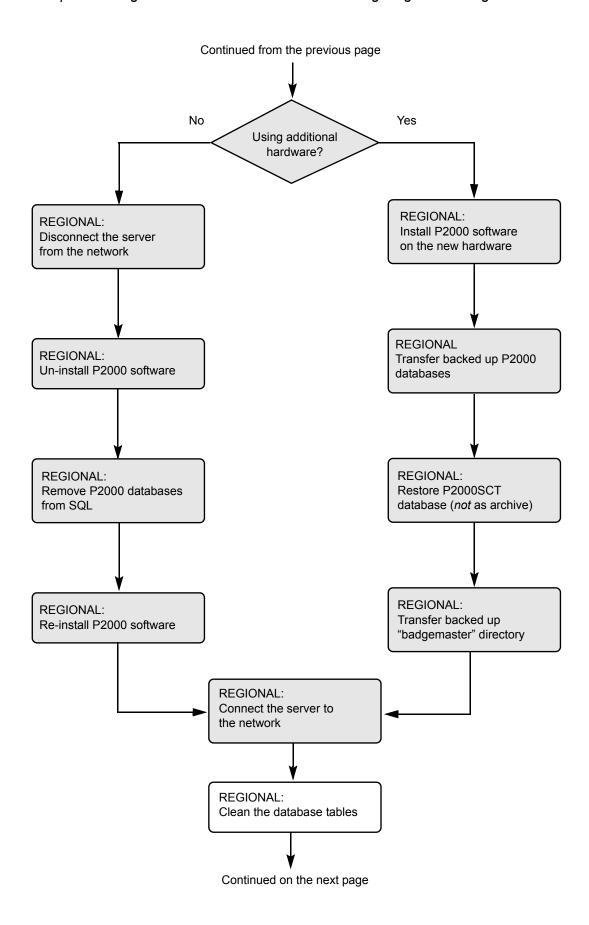
Backup of Existing Data

When configuring a live P2000 site as a regional server, all current data in the regional server should be backed up, because it will be deleted and then partially re-initialized with the current contents of the P2000 central server database. Currently active P2000 alarms will be removed.
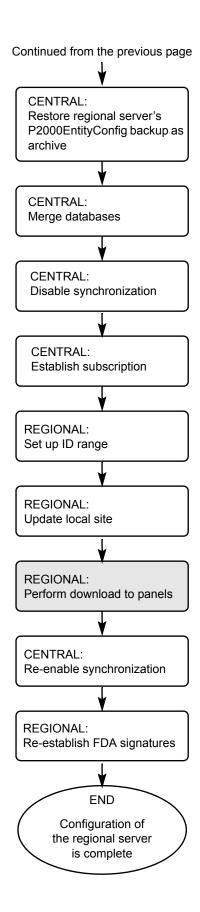
Using P2000 backup utility you can restore P2000History backup to archive and run standard P2000 reports against it.

White background indicates procedures that are the same for establishing a new system or a live system as a regional server.

Gray background indicates procedures that are unique to establishing a live system as a regional server.

START

Central server has been established (see Chapter 2)

REGIONAL:
Create "psqlserver" and "p2kEnterprise" accounts

REGIONAL:
Back up P2000EntityConfig database

REGIONAL:
Back up P2000History and P2000SCT databases

REGIONAL:
Back up the "badgemaster" directory

Continued on the next page

Continued from the previous page

No   **Using additional hardware?**   Yes

REGIONAL:
Disconnect the server
from the network

REGIONAL:
Install P2000 software
on the new hardware

REGIONAL:
Un-install P2000 software

REGIONAL
Transfer backed up P2000
databases

REGIONAL:
Remove P2000 databases
from SQL

REGIONAL:
Restore P2000SCT
database (*not* as archive)

REGIONAL:
Re-install P2000 software

REGIONAL:
Transfer backed up
"badgemaster" directory

REGIONAL:
Connect the server to
the network

REGIONAL:
Clean the database tables

Continued on the next page

Continued from the previous page

```
          │
          ▼
┌─────────────────────────┐
│ CENTRAL:                │
│ Restore regional server's│
│ P2000EntityConfig backup as│
│ archive                 │
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│ CENTRAL:                │
│ Merge databases         │
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│ CENTRAL:                │
│ Disable synchronization │
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│ CENTRAL:                │
│ Establish subscription  │
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│ REGIONAL:               │
│ Set up ID range         │
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│ REGIONAL:               │
│ Update local site       │
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│ REGIONAL:               │
│ Perform download to panels│
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│ CENTRAL:                │
│ Re-enable synchronization│
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│ REGIONAL:               │
│ Re-establish FDA signatures│
└─────────────────────────┘
          │
          ▼
       ╭─────────╮
      ╱   END     ╲
     │ Configuration of│
     │ the regional server│
      ╲ is complete  ╱
       ╰─────────╯
```

CREATING USER ACCOUNTS

Just like on the central server, two special user accounts must be created on the regional server.

Creating the "psqlserver" Account

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 new Windows account

- Assign administrator rights to it

Instructions are the same as for the central server. Please refer to the "" section on page 2-2.

Creating the "p2kEnterprise" Account

Create a new SQL Server account on the P2000 regional server(s), using the same SQL Server account name and password as used on the P2000 central server (see Table 2-1 for reference). You will:
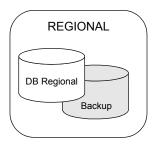
- Create a new SQL account

- Assign administrator rights to it

- Log in with the new `p2kEnterprise` login name

Instructions are the same as for the central server. Please refer to the "Setting Up P2000 Publication" section on page 2-28.

DATABASE MERGE OUTLINE

See the following illustration for an outline of the database merge preparation and process. The drawings will be repeated in the sections that follow to help you identify which part of the process is being implemented.
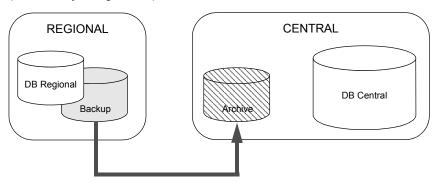
PART I:

The P2000EntityConfig database is backed up on the regional server.

The backup is be re-named with a unique name and placed in a location accessible from the central server (e.g. a shared folder).

PART II:

The database backed up on the regional server is restored *as an archive* (P2000EntityConfigArchive) on the central server.
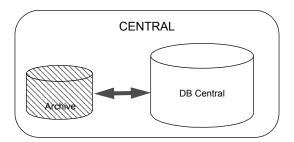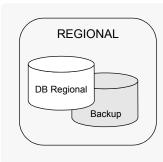
> ⚠ **CAUTION**
>
> Back up the databases on the central server to avoid accidental loss of data and configuration information.

PART III:

The P2000EntityConfig database of the regional server is merged with the P2000EntityConfig database of the central server.

PREPARING THE DATABASE FOR MERGE

REGIONAL

DB Regional

Backup

PART I:

The P2000EntityConfig database is backed up on the regional server.

The backup is be re-named with a unique name and placed in a location accessible from the central server (e.g. a shared folder).

Backing Up the P2000EntityConfig Database

Perform the tasks below:

■ Using the P2000 backup utility, back up the P2000EntityConfig database.

The purpose of the database backup is to be used during database merge on the central server.

■ Re-name the database backup to a name unique in the system, e.g. "OrangeBackup.bak"

⚠ CAUTION

The backup of the regional server's database **must have a unique name** to prevent the central server's database (*.bak file) from being accidentally overridden.

■ Create a shared folder on the desktop and copy the "OrangeBackup.bak" file to is so it can be accessed over the network. (As an alternative you can copy the file to an outside media).

Cleaning the Regional Server's Database Tables

Before continuing:

■ Stop all P2000 Services

■ Quit monitoring of P2000 Services

■ Exit the P2000 application
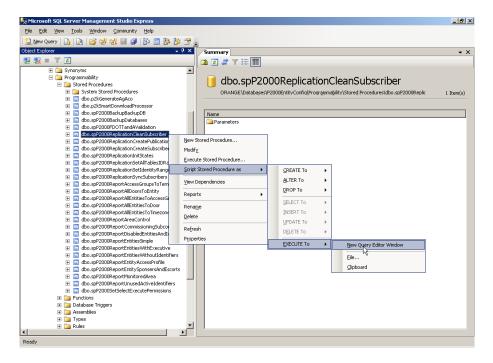
You can now proceed with cleaning the database tables.

➤ **To clean the database tables:**

1. Open the Microsoft SQL Server Management Studio.

2. Select the regional server and the **SQL Server Authentication**.

   Use `p2kEnterprise` user name and `Master1` password as login credentials. Click **Connect**.

3. Expand the entry for the central server and go to **Databases**>**P2000EntityConfig**>**Programmability**>**Stored Procedures**.

4. Right-click on **dbo.spP2000ReplicationCleanSubscriber** and select **Script Stored Procedures as**>**EXECUTE to**>**New Query Editor Window**.
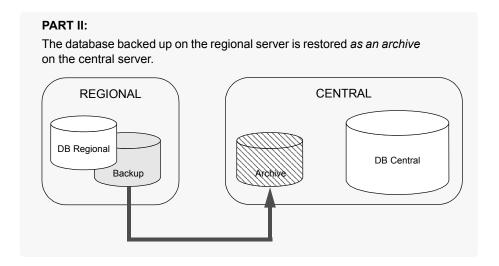
5. Parse and execute the query.

6. Close the query window pane without saving the script.

7. Close the Microsoft SQL Server Management Studio window.

MERGING DATABASES ON THE CENTRAL SERVER

This section describes how to merge the regional and central server's databases.

Restoring Regional Server's Database on Central Server

The P2000EntityConfig database backed up on the regional server needs to be restored *as an archive* on the central server.

PART II:

The database backed up on the regional server is restored *as an archive* on the central server.
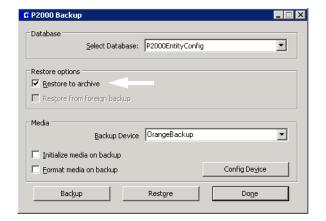
At this point you have given the backup a unique name (e.g. "OrangeBackup.bak") and made is accessible by placing in a shared folder or on a flash drive.

> ⚠ **CAUTION**
>
> The backup of the regional server's database **must have a unique name** to prevent the central server's database from being accidentally overridden during copying process.

Perform the following tasks:

- Place the backup file in the following location on the central server:

  C:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\Backup

- Using the P2000 backup utility restore the backup file *as an archive* on the central server
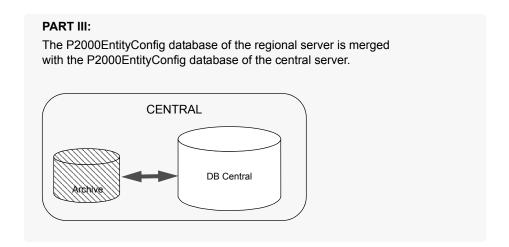
Merging Regional Central Server's Database into Central Server

At this point, the original P2000EntityConfig database you had backed up on the P2000 regional server has been restored as archive at the P2000 central server and it is ready for merging.

> ⚠ **CAUTION**
>
> Back up the databases on the central server to avoid accidental loss of data and configuration information.

PART III:

The P2000EntityConfig database of the regional server is merged with the P2000EntityConfig database of the central server.

▶ **To merge the databases:**

1. Go to **Start**>**Programs**>**Microsoft SQL Server 2005**>**SQL Server Management Studio**.

2. Select the central server and the **SQL Server Authentication**.

Use `p2kEnterprise` user name and `Master1` password as login credentials. Click **Connect**.
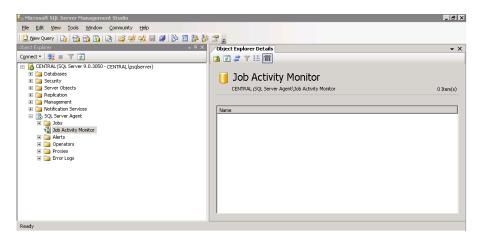
3. Go to **File**>**Open** and browse for the **P2000_MergeEntityConfig.sql** file (C:\Program Files\Johnson Controls\Cardkey P2000\sql). Select it and click **Open**.

4. Parse and execute the query.

5. Close the query window pane without saving the script.

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

At this point the central server contains all the data and you can establish subscriptions the regional server(s).

ESTABLISHING SUBSCRIPTIONS
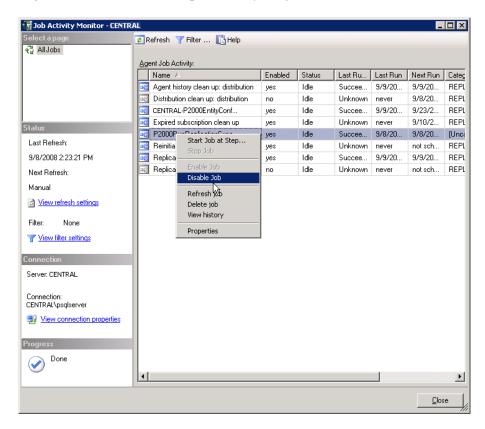
➤ **To disable replication synchronization:**

1. In the Microsoft SQL Server Management Studio expand the entry for the central server and go **SQL Server Agent**>**Job Activity Monitor**.

2. Right-click on **Job Activity Monitor** and select **View Job Activity**.

3. Right-click on **P2000RunReplicationSynch** job and select **Disable Job**.
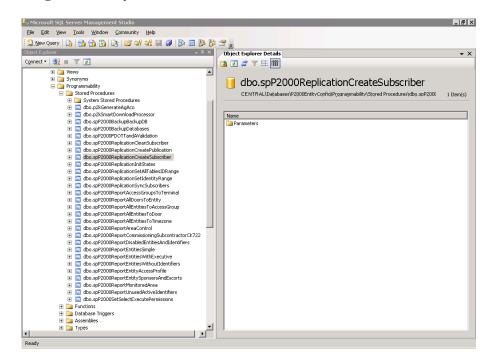
4. Wait until **P2000RunReplicationSynch** job status shows "Idle" and the **Enabled** status is "no."

5. Close the Job Activity Monitor window.

➤ To generate snapshot:

1. Using the instructions from page 2-31, generate a new snapshot.

☞ **To create a subscription:**

1. In the Microsoft SQL Server Management Studio expand the entry for the central server and go to **Databases**>**P2000EntityConfig**>**Programmability**>**Stored Procedures**.

2. Right-click on **dbo.spP2000ReplicationCreateSubscriber** and go to **Script Stored Procedure as**>**EXECUTE to**>**New Query Editor Window**

3. Edit the script by entering the following information:

   ■ siteName - P2000 site name of the regional server

   ■ useFilter - Type 1 to enable the site filter or 0 to disable it. When enabled, only the information pertaining the local site will be replicated. When disabled, information pertaining all sites will be replicated. See "P2000 Publication Filters" on page 1-6 for reference information.

   ■ subscriberName - The computer name of the regional server

   For example:

   ```
   EXECUTE @RC = [P2000EntityConfig].[dbo].[spP2000ReplicationCreateSubscriber]
       @siteName = 'ORANGE'
       ,@useFilter = 1
       ,@subscriberName = 'ORANGE'
   ```

4. Parse and execute the query.

5. Close the query window pane without saving the script.

☞ **To initialize a subscription:**
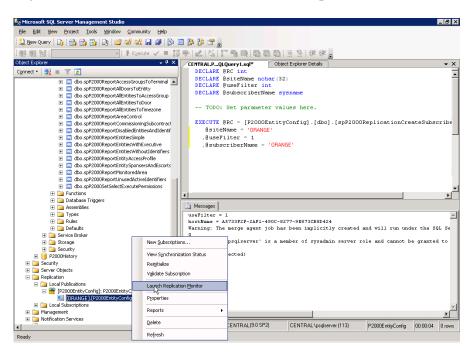
1. In the left window pane go to **Replication**>**Local Publications**>**[P2000EntityConfig]: P2000EntityConfigPublication**.

2. The new subscriber is now listed. In our example:
[ORANGE][P2000EntityConfig]
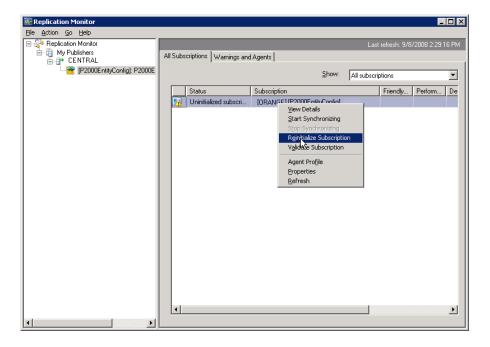
Right-click on the subscriber and select **Launch Replication Monitor**.
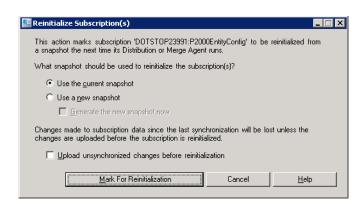
3. When the Replication Monitor opens, in the left window pane expand the entry on for the central server and highlight **[P2000EntityConfig]: P2000EntityConfigPublication**.

In the right window pane right-click on the subscription and select **Reinitialize Subscription**. (If there are more than 1, select the newly created subscription).
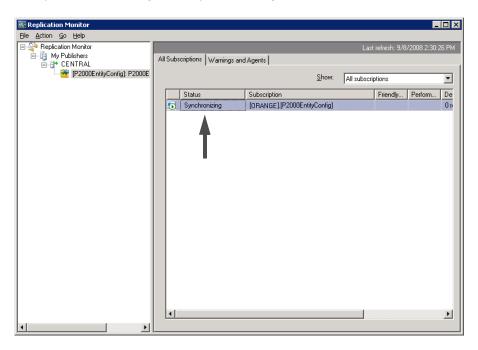
4. In the Reinitialize Subscription(s) window verify that the **Use the current snapshot** radio button is selected. Un-select the check box **Upload unsynchronized changes before reinitialization**.

   Click **Mark for Reinitialization**.

5. Right-click on the subscription again and **Start Synchronizing**.

6. Verify that status changes to "Synchronizing."

7. Wait for the synchronization to complete (the status will change to "Not synchronizing."). Depending on the database size, the process may take from a few minutes to several hours.

CONFIGURING THE REGIONAL SERVER

Setting Up Regional Server's Identity Range

▶ **To set up identity range:**

1. In the SQL Server Management Studio, in the left window pane expand the entry for the regional server and go to **Databases**>**Programmability**>**Stored Procedures**.

2. Right-click on **dbo.spP2000ReplicationSetAllITablesIDRange** and go to **Script Stored Procedures as**>**EXECUTE to**>**New Query Editor Window**.

3. Edit the identity range as follows:

```
@IdentityRangeStart = XX
,@IdentityRangeEnd = YY
```

where XX is the beginning of the range and YY is the end of the range.

NOTE
To keep track of the values, take note in Table A-1, "Allocated ID Ranges."

4. Parse and execute the query.

5. Close the query window pane without saving the script.

▶ **To verify that the ID range has been set correctly:**
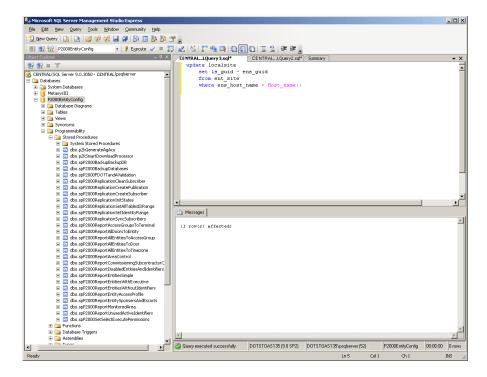
1. Expand **Database**>**EntityConfig**>**Tables**>**dbo.accgroup**>**Constraints**.

2. Double-click on **CK_accgroup_IdentityRange**.

3. In the right window pane should display new identity range.

Updating "Local Site" Information on Regional Server

▶ **To update local site:**

1. Expand the entry for the regional server and go to **Databases**>**P2000EntityConfig**.

2. Click **New Query**.

3. Type in the following command:

```
update localsite
set ls_guid = ens_guid
from ent_site
where ens_host_name = Host_name ()
```

4. Parse and execute the query.

5. Close the query window pane without saving the script.
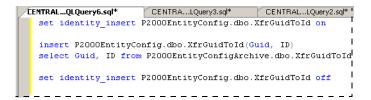
☞ **To insert status records:**

1. In the SQL Server Management Studio connect to the regional server.

2. Go to **P2000EntityConfig**>**Programmability**>**Stored Procedures**.

3. Right-click on the stored procedure **SP2000ReplicationInitStates** an go to **Script Stored Procedure as**>**EXECUTE to**>**New Query Editor Window**.

4. Parse and execute the query.

5. Close the query window pane without saving the script.

☞ **To secure CK722 record ID:**
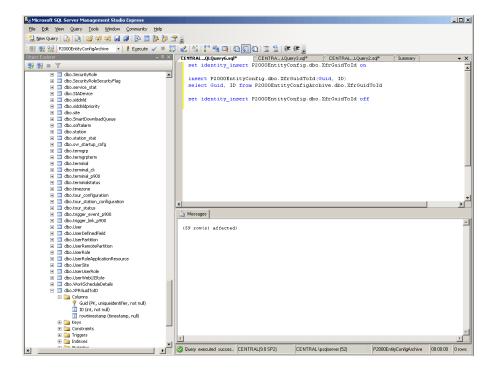
1. Manually enter the following script:

```
set identity_insert P2000EntityConfig.dbo.XfrGuidToId on
insert P2000EntityConfig.XfrGuidToId(Guid, Id)
select Guid, ID from P2000EntityConfigArchive.XfrGuidToId
set identity_insert P2000EntityConfig.dbo.XfrGuidToId off
```

2. Parse and execute the query.

3. Close the query window pane without saving the script.
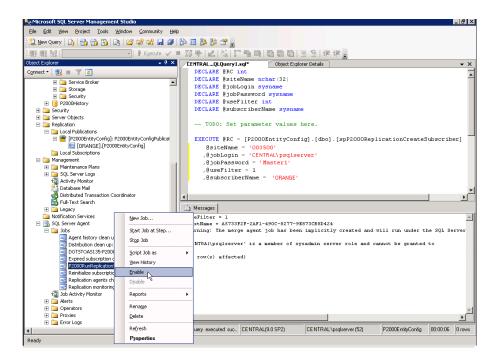
▷ To complete server configuration:

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).

RE-ENABLING SYNCHRONIZATION ON CENTRAL SERVER

▷ To re-enable synchronization job:

1. Connect to the central server using Remote Desktop.

2. Open Microsoft SQL Management Studio.

3. Expand the entry for the central server. Go to **SQL Server Agent**>**Jobs**.

4. Right-click on **P2000RunReplicationSynch** and select **Enable**.
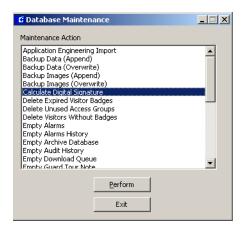
5. Wait until the subscription has been successfully synchronized.

RE-ESTABLISHING FDA SIGNATURES

The following procedure can be performed from either the regional or the central server. It applies to FDA-compliant systems only.
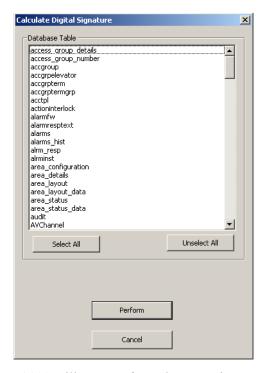
➤ **(Central or Regional) To re-establish FDA signatures:**

1. From the P2000 main menu select **System**>**Database Maintenance**. Enter the password when prompted and click **OK**.

2. From the database maintenance window, select **Calculate Digital Signature** and click the **Perform** button.

3. Click **OK** to confirm the action.

4. In the Calculate Digital Signature window, click the **Select All** button and then the **Perform** button.

5. 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.

6. From the database maintenance window, select **Validate Digital Signature** and click the **Perform** button.

7. In the Validate Digital Signature window, click the button **Select All** and then the **Perform** button.

8. 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.

9. To close the Database Maintenance window, click **Exit**.

ALLOCATED ID RANGES

Table A-1: Allocated ID Ranges

Server	From	To	Assigned by	Date

Table A-1: Allocated ID Ranges

Server	From	To	Assigned by	Date

DATABASE TABLES

DATABASE TABLES

The subsequent list identifies articles (database tables) corresponding to the Configuration publication.

Table B-1: Database Tables and Filters

Table	Subject to Status Filter	Subject to Row Filter	
		Site	Active Entity Only
access_group_details		x	
AccessGroupRepository Instance		x	
AccessProfileDetails		x	x
AccessProfileHeader		x	x
AccessProfileSite		x	x
AccessProfileSite SecurityFlag		x	x
AccessProfileSiteStatus	x	x	x
accgroup		x	
accgrpelevator		x	
accgrpterm		x	
accgrptermgrp		x	
actioninterlock		x	
AlarmCategory			
alarmcolors		x	
AlarmOption			
alarmresptext		x	
alrminst		x	
ApplicationResource			
area_configuration		x	
area_details		x	
area_layout		x	

Table B-1: Database Tables and Filters

Table	Subject to Status Filter	Subject to Row Filter	
		Site	Active Entity Only
area_layout_data		x	
area_status	x	x	
autobadge			
AVChannel		x	
avdrycontact		x	
AVMonitor		x	
AVPreset		x	
AVSite		x	
BadgeField			
BadgeLayout			
BadgeMagFormula			
BadgeSetup			
cardevent		x	
CCTVAlarm		x	
CCTVAuxiliaryCamera		x	
CCTVAuxiliarySystem		x	
CCTVCamera		x	
CCTVMacros		x	
CCTVMonitor		x	
CCTVPattern		x	
CCTVPreset		x	
CCTVSequence		x	
CCTVServer		x	
CCTVSwitch		x	
CCTVTour		x	
counter		x	
counter_p900		x	
dataimport_fields		x	
dataimport_mapping		x	
DisplayName			
elevator		x	
elevatordetails		x	
enable_code		x	
ent_site		x	
enterprise_parameters		x	
Entity		x	x

Table B-1: Database Tables and Filters

Table	Subject to Status Filter	Subject to Row Filter	
		Site	Active Entity Only
EntityAreaStatus	x	x	x
EntityEntity		x	x
EntityGroup		x	
EntityGroupEntity		x	
EntityImage		x	x
EntityMusterZoneStatus	x	x	x
EntityRepositoryInstanceStatus	x	x	x
EntitySite		x	x
EntitySiteStatus	x	x	x
EntitySiteStatusSave	x	x	x
EntityUserDefinedField		x	x
EnumSet			
EnumValue			
EnumValueEnumValue			
esp_parameters		x	
event		x	
event_action		x	
event_trigger		x	
ExternalIP		x	
fascn_ccc		x	
flag_p900		x	
floorgrp		x	
floorgrpdata		x	
floormask		x	
floormaskdata		x	
floorname		x	
GenericText		x	
holiday		x	
icon_image			
icon_image_set			
icon_overlay		x	
Identifier		x	x
IdentifierAccessProfileHeader		x	x
IdentifierImage		x	x
IdentifierStatus	x	x	x
igdata		x	

Table B-1: Database Tables and Filters

Table	Subject to Status Filter	Subject to Row Filter	
		Site	Active Entity Only
imagerecallfilter		x	
input		x	
input_ck		x	
input_p900		x	
input_status	x	x	
Input2CamInfo		x	
inputgrp		x	
intercom_exchange		x	
intercom_station		x	
journal			
loopconfig		x	
map		x	
mapimage		x	
messagefilter		x	
mfg_item		x	
MSEAGraphic		x	
MSEAItemCategory		x	
MSEAP2kADXMap		x	
MSEASitePartitionMap		x	
msgfiltergroup		x	
MusterDefinition		x	
MusterPrinters		x	
MusterReaders		x	
ogdata		x	
Organization			
output		x	
output_p900		x	
output_status	x	x	
outputgrp		x	
P900sysparameters		x	
panel		x	
panel_ck		x	
panelholiday		x	
panelstatus	x	x	
paneltz		x	
partition			

Table B-1: Database Tables and Filters

Table	Subject to Status Filter	Subject to Row Filter	
		Site	Active Entity Only
portconfig		x	
reason			
redundancy_cfg		x	
redundancy_isolation_ip		x	
remoteserver		x	
report		x	
reportdata		x	
RepositoryCategory			
RepositoryCategory RepositoryClass			
RepositoryClass			
RepositoryDataType			
RepositoryDataTypeRepositoryType			
RepositoryDefaultValue			
RepositoryInstance		x	
RepositoryInstanceStatus	x	x	
RepositoryProperty			
RepositoryPropertyGroup			
RepositoryProperty GroupRepository Property			
RepositoryType			
RepositoryValue			
requestapprovers		x	
requestapprovers_details		x	
requestconfig		x	
SecLevelRanges		x	
SecurityFlag			
SecurityRole		x	
SecurityRoleSecurityFlag		x	
SIADevice		x	
site		x	
SmartDownloadQueue		x	
softalarm		x	
station		x	
station_stat	x	x	
svr_startup_cnfg		x	
termgrp		x	

Table B-1: Database Tables and Filters

Table	Subject to Status Filter	Subject to Row Filter	
		Site	Active Entity Only
termgrpterm		x	
terminal		x	
terminal_ck		x	
terminal_p900		x	
terminalstatus	x	x	
timezone		x	
tour_configuration		x	
tour_station_configuration		x	
tour_status	x	x	
trigger_event_p900		x	
trigger_link_p900		x	
User		x	x
UserDefinedField			
UserPartition		x	x
UserRemotePartition		x	x
UserRole			
UserRoleApplicationResource			
UserSite		x	x
UserUserRole		x	x
UserWebUIStyle		x	x
WorkScheduleDetails		x	x

IMPORTANT NOTES

This appendix provides you with important information on the functioning of the enterprise system as well as troubleshooting tips.

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.

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. In such case you need to assign a new ID range to the server. If the problem persists, contact technical support.

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.