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FEDERAL SIGNAL
*Advancing security and well-being.*

BOSS®: BACK OFFICE SYSTEM SOFTWARE
Version 3.0.2

# Installation and Configuration Guide

Part# AV000000000202

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**Version**

This manual documents version 3.0 of the PIPS BOSS software and was last updated on July 31, 2009.

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# 1. INTRODUCTION

This manual is intended for authorized personnel in installation and configuration of a BOSS system. The first section of the manual steps through the software installation process. The subsequent sections discuss configuration options for a BOSS system. Upon initial installation of a new BOSS system, the BOSS server application must be configured using the BOSS Controller application. Additionally, BOSS administrators may find the need to modify configuration settings after the system has already been in use.

## Using this Manual

The information in this document is organized sequentially, in the order that steps would be performed when initially setting up a new BOSS system. Additionally, the configuration section can be used as an ongoing reference for authorized personnel responsible for maintaining the system.

**Important Note: It is critical that only knowledgeable personnel attempt configuration modifications to a BOSS system. Incorrect configuration settings can cause serious issues with operation and/or adversely affect data integrity. When in doubt, it is best to consult with PIPS technical support before making system configuration changes.**

## Technical Support

Problems, suggestions, or questions? Please contact PIPS Technology. Software updates may be available on the Support section of the PIPS Technology Web site, http://pipstechnology.com (requires a login and password).

| Contact Information |
| --- |
| Customer Support<br>**Phone**: 1-865-392-5590<br>**Email**: support@pipstechnology.com |
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# 2. MINIMUM SYSTEM REQUIREMENTS

The minimum system configuration for BOSS 3.0 server is:

- Pentium compatible CPU at 1.5GHz
- Windows XP SP2 or later
- 512 MB of RAM
- 1 GB of hard drive space
- Microsoft SQL Server 2005 Express Edition

The recommended system configuration for BOSS 3.0 server is:

- Intel Xeon quad-core CPU at 2.0GHz
- Windows Server 2003 or 2008 Standard Edition
- 32 GB of RAM
- SCSI or SAS hard drives at 10,000 RPM
- 1 GB of hard drive space per 50,000 reads stored
- Microsoft SQL Server 2005 / 2008 Standard Edition

# 3. INSTALLING THE BOSS SERVER APPLICATION

## 3.1. INSTALLING THE APPLICATION FILES

### 3.1.1. RUNNING THE INSTALLER

This guide assumes that the Microsoft SQL Server 2005 / 2008 instance for BOSS has already been installed and is available. If the SQL Server is not available, stop now and continue installation after the SQL Server has been installed. For instructions how to install Microsoft SQL Server 2005 Express, please see the Appendix to this document. For other versions of Microsoft SQL Server, please follow the instructions provided by Microsoft.

**Note: It is not recommended that the installation be performed over a Remote Desktop connection. Also, it is recommended that antivirus utilities be disabled during the install.**

To commence the installation:

- Select link supplied by PIPS Technologies to BOSS 3.0 installation application.
- Run the BOSS 3.0 Setup executable. **On Windows Vista and Windows Server 2008, right click on the installer icon and select "Run As Administrator".**
- Follow instructions.

-OR-

- Insert BOSS 3.0 Installation CD.

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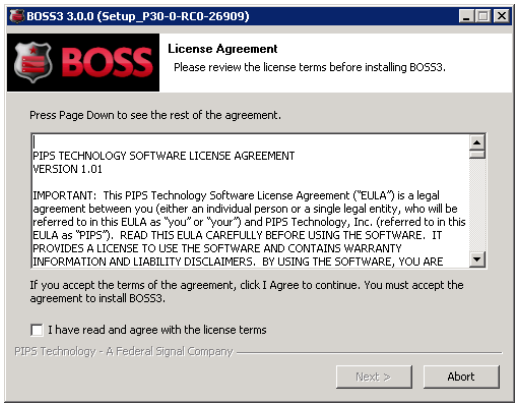
### 3.1.2. PIPS LICENSE AGREEMENT

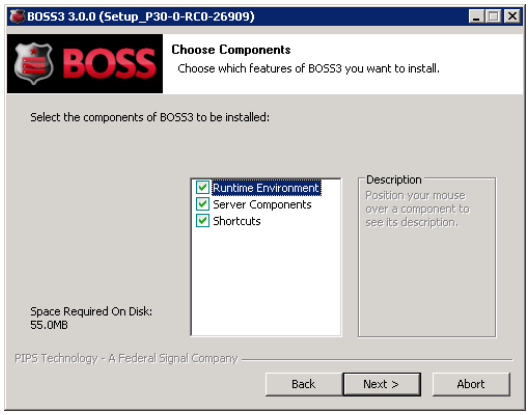
- Check the license agreement checkbox to acknowledge agreement with the license terms.
- Click Next to continue.




### 3.1.3. SELECTING THE INSTALLED COMPONENTS

Select the components you wish to install for BOSS 3.0.

- Runtime Environment (required)
- Server Components (required)
- Shortcuts (optional)
- Click *Next* to continue

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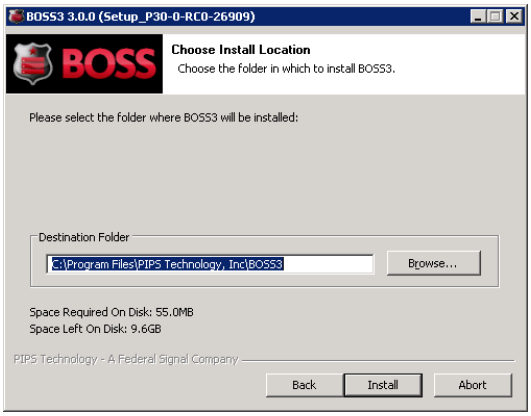
### 3.1.4. SELECTING THE INSTALLATION FOLDER

Select the location to install BOSS 3.0 by browsing your drive or typing location.



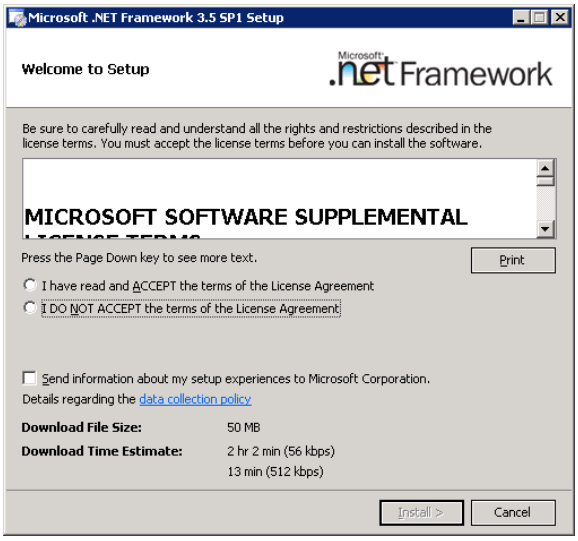

- Click *Install*. The installation will then commence.

### 3.1.5. INSTALLING MICROSOFT .NET FRAMEWORK

If Microsoft .NET Framework 3.5 SP1 is not already present on the system, it will be installed.

NOTE: The installation files will be downloaded from Microsoft website. Internet connection is required at this point. Download may take a long time.

- Acknowledge the license agreement checkbox to acknowledge agreement with the .NET Framework license terms and click *Next* to continue.

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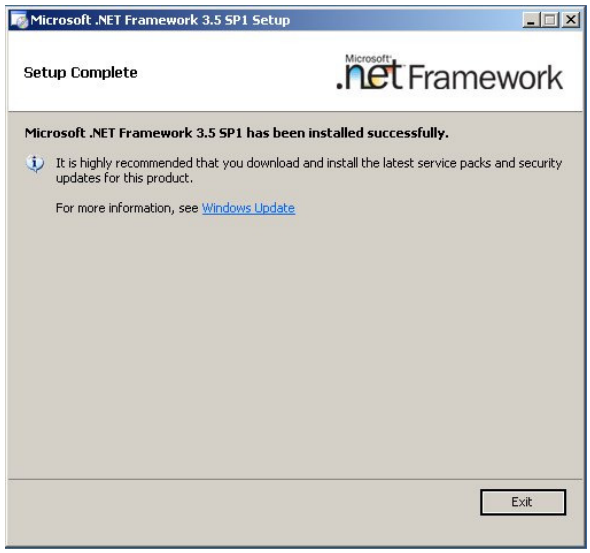
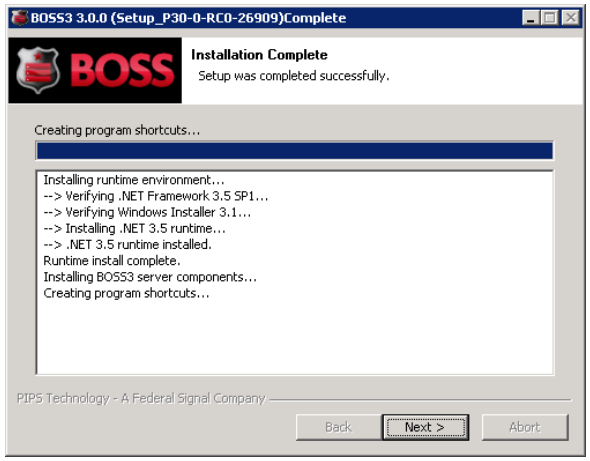
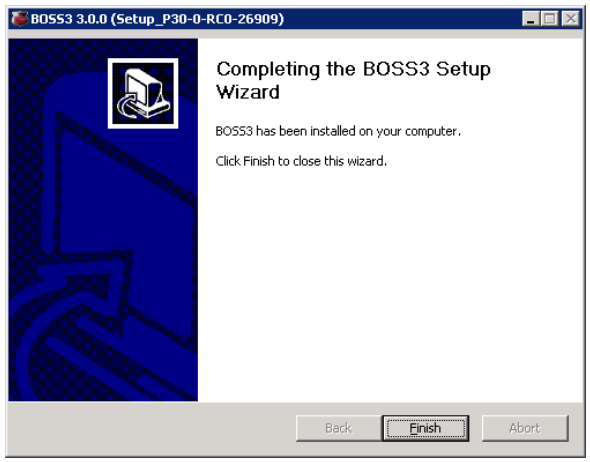
- After .NET installation completes, click *Exit* to continue BOSS installation.




- Click *Next* to continue.




- Click *Finish* to proceed to the licensing wizard.

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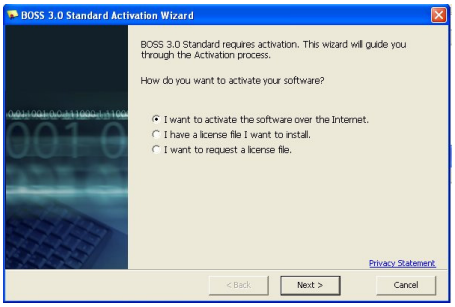
# 4. BOSS 3.0 LICENSE KEY MANAGEMENT

## 4.1. ENTERING A NEW LICENSE KEY

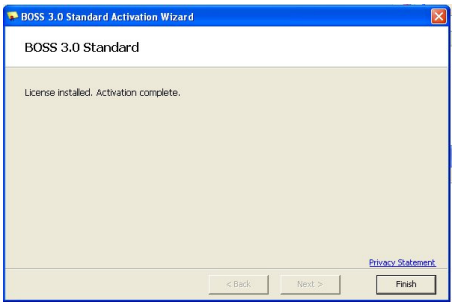
During the installation process, a valid BOSS 3.0 license key must be entered. When the Activation Wizard dialog is presented, select the option preferred:

- Activation over the Internet. Choose this if the server is connected to the Internet.
- License file. Choose this if you have been provided a license file.
- Request a license file. Choose this if you do not have internet connection and have not been provided a license file.
- Click Next to continue.




- Enter the license key provided by PIPS and click *Next*.

- The installation key will be retrieved over the internet. Click *Finish* to continue.

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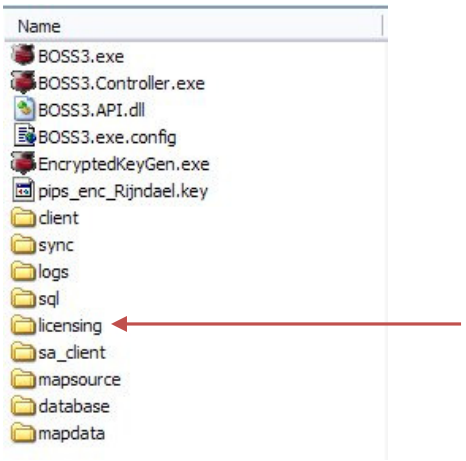
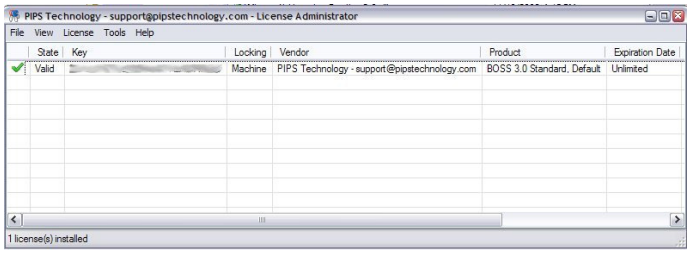
## 4.2. UPDATING A LICENSE KEY

If the BOSS license key becomes invalid, or if the license is upgrade, the existing license must be uninstalled first. Follow these steps to uninstall a BOSS license key:

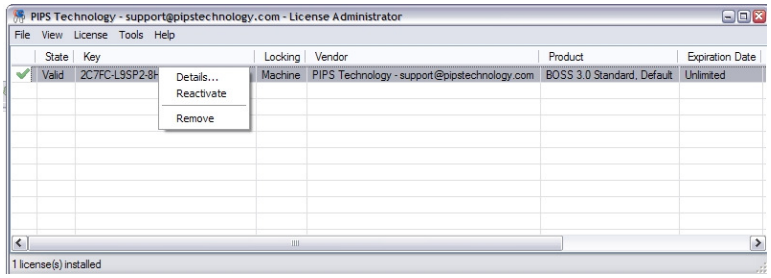
- Start Windows Explorer on the BOSS server.
- Navigate to the folder where the the BOSS server application is installed (by default C:\Program Files\PIPS Technology, Inc\BOSS3).
- Locate folder “licensing”.




- Open the folder and click on the application “Microsoft.Licensing.LicAdmin.exe”. You will be presented with the following screen:




- Select the license key. Right click, and from the context menu, select “Remove”.




- Select menu File → Activation Wizard to install the new license OR start the BOSS Controller application (section 6.1.1) and install the new license (section 4.1).

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# 5. MAP DISPLAY OPTIONS WITH BOSS

BOSS 3.0 can display collected plate read information plotted on a map. There are three different mechanisms for displaying maps within the BOSS Smart Client application.

## 5.1. U.S. CENSUS BUREAU "TIGER" MAPS

BOSS supports downloading U.S. Census Bureau "TIGER" maps data into BOSS. This data is available free of charge within BOSS. "TIGER" maps will work without Internet connection once the data has been downloaded.

"TIGER" maps provide coverage only for the Continental United States. Due to the size of the geographical data, coverage of this data should be limited to a few counties. Also, because of the limited nature of census information, address search with "TIGER" maps is approximate (per census block). If more coverage or more accuracy is required, other mapping options should be considered. Satellite imagery is not available with "TIGER" maps.

## 5.2. MICROSOFT MAPPOINT™

BOSS supports integration with Microsoft MapPoint™ 2006 (purchased separately). The MapPoint™ desktop application will have to be installed on **each workstation that uses the BOSS Smart Client**. MapPoint™ provides coverage for United States and Europe, and facilitates accurate address search. Satellite imagery is not available with Microsoft MapPoint™.

## 5.3. ADVANCED MAPPING WITH MICROSOFT VIRTUAL EARTH™

PIPS provides an option to purchase an "Advanced Mapping" option with BOSS. This option enables Microsoft Virtual Earth™ integration. Virtual Earth™ is an Internet-based service that BOSS can use to display maps in the Smart Client application.

In order to use Advanced Mapping, **the BOSS server and each Smart Client workstation will have to have an unimpeded Internet connection to microsoft.com available (no proxy servers)**. Virtual Earth™ supports accurate address search and satellite imagery.

For more information about Virtual Earth™, please see web site
http://www.microsoft.com/virtualearth/

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# 6. CONFIGURING THE BOSS SERVER APPLICATION

After the BOSS 3.0 installation is completed, the application must be configured using the BOSS controller program. The following sections explain how to use this program as well as the configuration settings that are available.

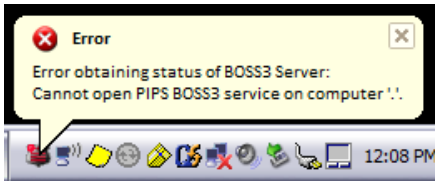
## 6.1. THE BOSS CONTROLLER APPLICATION

### 6.1.1. STARTING THE BOSS CONTROLLER

The BOSS application runs in the background as a Windows Service. The BOSS service is started automatically when the computer starts up.

The BOSS controller (BOSS3.Controller.exe) is the application used to configure and control the BOSS background service. The BOSS controller is installed on the server computer along with the server application. The shortcut to the BOSS controller program can be found in the All Programs → PIPS Technology → BOSS3 menu. When the BOSS Controller program is started an icon for the application will appear in the Windows System Tray at the lower right corner of the desktop. **On Windows Vista and Windows Server 2008, right click on the Controller icon and select "Run As Administrator".**

The BOSS application Windows Service is installed during the installation process. If the "PIPS BOSS3" Windows service is not present, an error message will be displayed:




In this case, contact PIPS Technology technical support.

### 6.1.2. STATUS COLORS

The icon for the controller program includes a "traffic light" that uses a color indicator to show the status of the BOSS service application. When the BOSS service application is running, the indicator is green. When the BOSS service application is not running, the indicator is red. Yellow color indicates that the application is changing state (starting or stopping).

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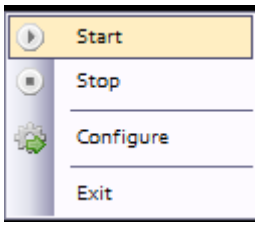
### 6.1.3. RIGHT CLICK MENU

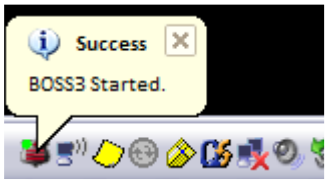
When the BOSS Controller system tray icon is right-clicked, a popup menu will appear:




| | |
|---|---|
| Start | Start the BOSS service (PIPS BOSS3) |
| Stop | Stop the BOSS service |
| Configure | Present the BOSS configuration dialog |
| Exit | Close the BOSS Controller application. (**Note:** This closes the BOSS Controller program, but does not stop the BOSS Server.) |

### 6.1.4. STARTING THE BOSS SERVICE

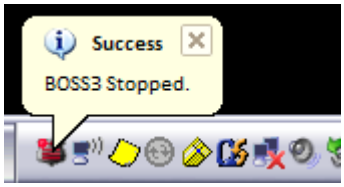
When the "Start" action is selected, and the service starts successfully, a "Success" message will be displayed:




The "traffic light" in the BOSS Controller icon will turn green to indicate the status.

### 6.1.5. STOPPING THE BOSS SERVICE

When the "Stop" action is selected, and the service stops successfully, a message will be displayed:

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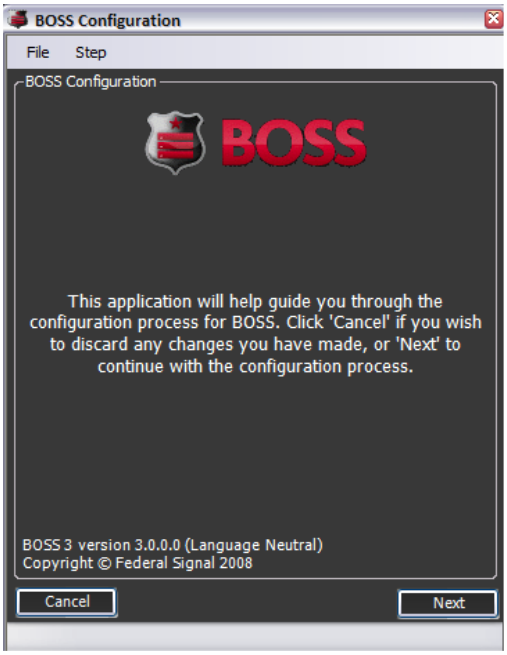
## 6.2. BOSS CONFIGURATION

### 6.2.1. ACTIVATING THE CONFIGURATION DIALOG

- Right click the controller system tray icon.
- Select the Configure option. The configuration dialog options will be explained in the following sections.

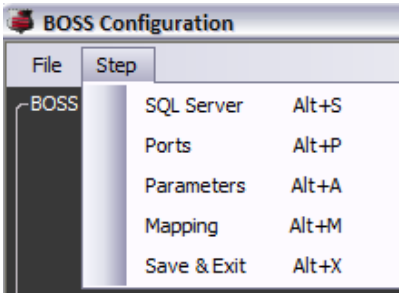
### 6.2.2. BOSS CONFIGURATION




- To step through all configuration screens, simply click the Next button on this first screen. Click *Next* on each subsequent screen after entering in the desired settings. *(Recommended for first time configuration of the system.)*

-OR-

- Click File to access the configuration menu and proceed to the step choice.

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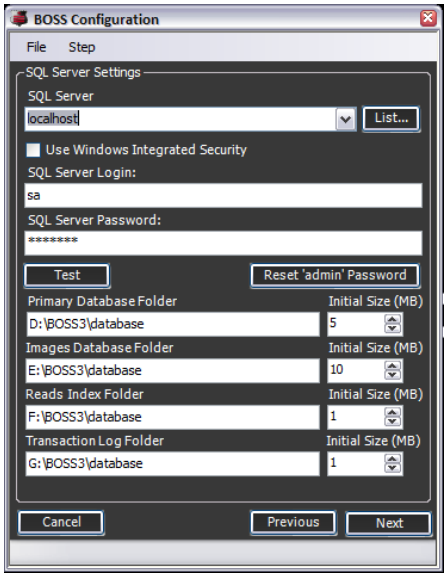
### 6.2.3. SQL SERVER CONFIGURATION

SQL Server configuration is required for a new BOSS system, in order to specify the location and necessary authentication information for the SQL database to store




**SQL Server** The SQL Server 2005 / 2008 instance selected. Press "List" to obtain a list of available SQL Servers. This requires that the "SQL Server Browser" service is running. You may also type in the server IP address or host name. Use "(local)" if the SQL Server is running on the same machine as the BOSS service.

**Use Windows Integrated Security**

If checked, BOSS will use the Windows Integrated Security to access the SQL Server database.

**SQL Server Login and SQL Server Password**

If Windows Integrated Security is not selected, the SQL Server login name and password BOSS will use to access the database.

**Test** The Test button can be used to test the SQL Server settings currently in place. The test button initiates a connection. A message box will appear to indicate whether the test connection fails or succeeds.

***BOSS requires approximately 1 GB of hard drive space per 70,000 reads. In order to improve performance, BOSS database can be divided to multiple locations as follows:***

**Primary Database Folder** The drive and folder where the BOSS primary database will reside.

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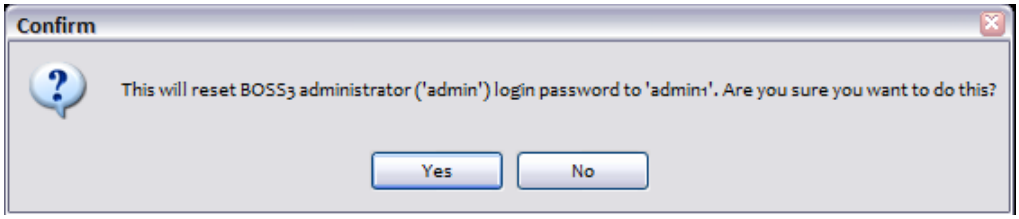
**Images Database Folder** The drive and folder where the BOSS will store images.

**Reads Index Folder** The drive and folder where BOSS will store database indices for stored plate reads.

**Transaction Log Folder** The drive and folder where BOSS will store the database transaction log file.

### 6.2.4. RESETTING THE ADMINISTRATOR PASSWORD

If the BOSS administrator ('admin') login password has been forgotten, you can press the "Reset 'admin' password" button to reset the password to 'admin1'.




Pressing *Yes* will immediately reset the password.

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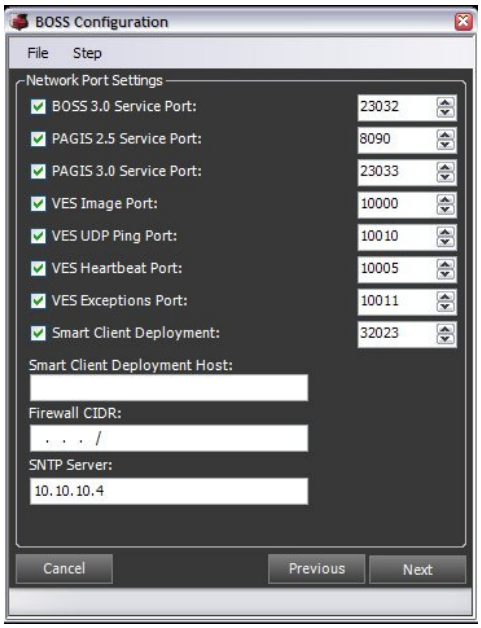
### 6.2.5. NETWORK PORT SETTINGS




BOSS uses a number of TCP/IP and UDP network ports for communication between server and client applications and server and license plate reading devices.

| Field | Description | Default |
|---|---|---|
| BOSS 3.0 Service Port | TCP/IP port used to provide access for BOSS Smart Clients | 23032 |
| PAGIS 2.5 Service Port | TCP/IP port used to provide access for PAGIS 2.5 mobile clients | 8090 |
| PAGIS 3.0 Service Port | TCP/IP port used to provide access for PAGIS 3.0 mobile clients | 23033 |
| VES Image Port | TCP/IP port used to receive reads from PIPS fixed cameras | 10000 |
| VES UDP Ping Port | UDP port used to receive keepalive ping messages from PIPS fixed cameras | 10010 |
| VES Heartbeat Port | TCP/IP port used to receive heartbeat status messages from PIPS fixed cameras. | 10005 |
| VES Exceptions Port | TCP/IP port used to receive exceptions messages from PIPS fixed cameras. | 10011 |
| Smart Client Deployment | TCP/IP port used for BOSS client installations via BOSS server | 32023 |

If the checkbox in front of the port name is left unchecked, the corresponding connection will be disabled.

**Smart Client Deployment Host**

If this information is entered, BOSS Smart Clients will use the given hostname to distribute smart clients. This can be left blank to use the current host name.

**Firewall CIDR**

BOSS provides a built-in “firewall” for incoming fixed camera connections. If a value is entered, only cameras with IP address

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matching the CIDR will be allowed to connect. CIDR is a standard, industry method for specifying a range of included IP addresses. The format of the CIDR entry is *A.B.C.D/N*, in which the dotted decimal portion before the '/' is interpreted, like an IPv4 address, as a 32-bit binary number that has been broken into four octets. The value of N indicates the number of shared initial bits, counting from the left-hand side of the address.

***Example:***
Take for example an entry of 10.200.200.255/24 The CIDR value 24 leaves 8 bits that can be changed. Therefore addresses 10.200.200.x are permitted addresses.

**SNTP Server**

BOSS has a built in Time Service. PIPS P372 cameras do not support automatic Daylight Savings Time (DST) adjustment. The BOSS Time Service provides a customized SNTP service for P372 cameras in order to support DST. In order to use the built-in Time Service, Windows Time service has to be disabled in the Services Control Panel, and the time server IP address entered in this field.

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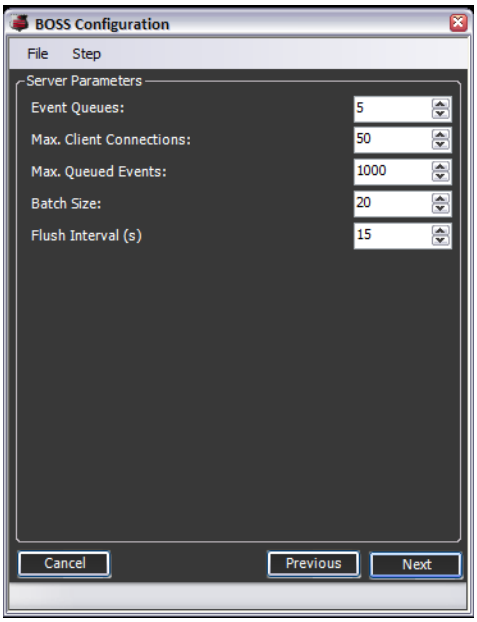
### 6.2.6. SERVER PARAMETERS




This panel allows configuration of performance parameters for fixed cameras. The parameters are as follows:

| | |
|---|---|
| **Event Queues** | The number of parallel processing queues for incoming reads. |
| **Max. Client Connections** | The maximum number of concurrent camera connections. This should be set to approximately 2 x number of fixed cameras. |
| **Max. Queued Events** | The maximum number of reads that are queued in memory. |
| **Batch Size** | The number of reads that are processed in a single batch. |
| **Flush Interval (s)** | The batch-processing interval in seconds. |

Server Parameters can be left to default values unless there are a large number fixed cameras.

Note: Setting these values to incorrect values can affect BOSS server operation adversely and/or cause loss of data.

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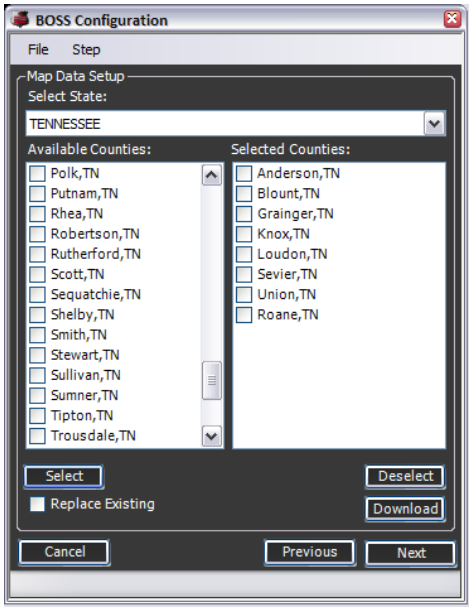
### 6.2.7. "TIGER" MAPS CONFIGURATION

BOSS 3.0 provides reporting on a map display by three alternative means (see chapter 4.). **This section of configuration needs only be completed if U.S. Census Bureau "TIGER" maps are used.**

BOSS provides for automated download of map data from the U.S. Census Bureau web site. U.S. Census Bureau offers yearly updated geographical information free of charge. In order to use "TIGER" maps, BOSS server will need an established connection to the Internet during the map download. After the maps have been downloaded, the Internet connection is no longer needed.




To configure maps for download:

- Select the desired state from the dropdown menu. A list of counties for the selected state will appear.
- Check the desired counties and click Select.

-OR-

- Check undesired counties and click Deselect.
- Counties from multiple states can be selected

Once the desired counties have been selected

- Click Download to start the download process. BOSS will connect the U.S. Census Bureau website and extract the desired county data sets.

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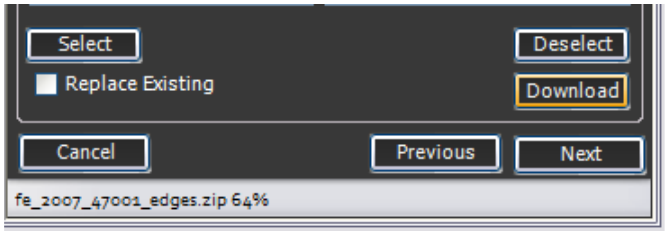
**Replace Existing** BOSS maintains a copy of downloaded counties. To start anew and download a fresh set of data, select this option before clicking the Download button.




The status bar will indicate the download and extraction process.

Note: Downloaded data sets may be very large. It is not recommended that a large number of counties be chosen for download. If support for a large geographical area is required, it is recommended that Microsoft MapPoint be installed on client PCs.

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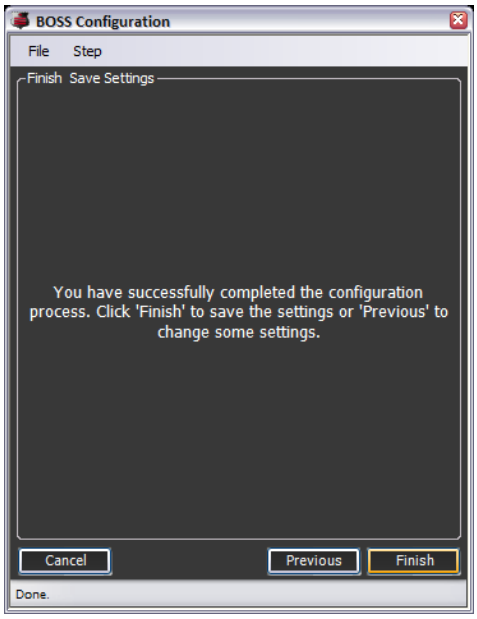
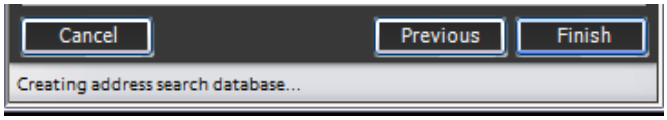
### 6.2.8. FINISHING CONFIGURATION




Click Finish to complete configuration. BOSS will save the chosen configuration. If U.S. Census Bureau "TIGER" maps were downloaded, BOSS will prepare the map package to download to Smart Clients. This may take several minutes. During processing, status will be displayed in the status bar:




Once the configuration process is complete, the configuration dialog will close automatically. In order to put the changed configuration in effect, the BOSS service will need to be stopped and restarted.

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# 7. DEPLOYING THE BOSS SMART CLIENT APPLICATION

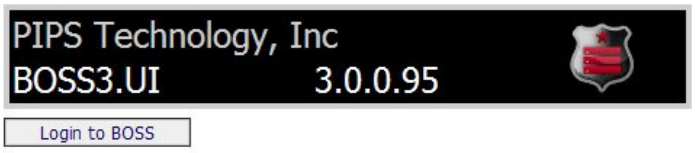
The BOSS Smart Client is a zero-administration desktop application meant for administration of the BOSS server application and querying data collected in the BOSS database. For more information about the Smart Client, please refer to the *BOSS 3.0 Software User's Manual* document.

There are two way to deploy the BOSS Smart Client application: Through a web browser or by copying the standalone executable to the client workstation.

## 7.1. WEB DEPLOYMENT

The advantage of deploying the Smart Client over a web browser is that the application will automatically check for updated versions every time it is started. The drawback of the web deployment is that Microsoft .NET Runtime 3.5 SP1 must be installed on each workstation that uses the Smart Client. The runtime is between 25 MB and 210 MB in size depending on the existing workstation system configuration.

To initiate a web deployment on a workstation, start up Microsoft Internet Explorer and navigate to web address http://{boss_server_IP_address}:32023/publish.htm, where {boss_server_IP_address} is the address of the server where the BOSS server application is running. E.g. to install the Smart Client on the BOSS server itself, navigate to http://127.0.0.1:32023/publish.htm. The installation web page will be presented.




- Click "Install" to install the .NET 3.5 SP1 runtime on the workstation if necessary. **This only needs to be done the first time the Smart Client application is installed on the workstation.**

  NOTE: If the installer presents a message "Cannot download the application", click OK to dismiss the message. Then proceed to launch the Smart Client application.

- Click "Login to BOSS" to launch the Smart Client application. You will be asked to confirm the installation when the application is launched for the first time.

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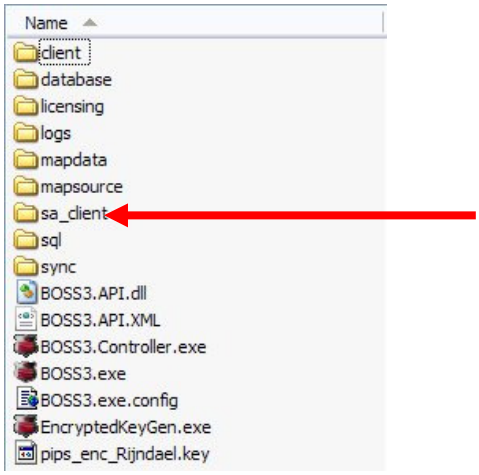
- Click "Install". The installer will download the application and you will be presented with the BOSS Login screen.

## 7.2. STANDALONE DEPLOYMENT

The BOSS Smart Client can be deployed as a single executable program. This program can be copied to any Windows workstation, or to a shared network drive. The advantage of this method is that the standalone program does not need .NET 3.5 SP1 runtime installed. The drawback of this deployment is that the standalone application does not check for newer versions of the software.

To deploy the standalone application:

- Start the Windows Explorer on the BOSS server
- Navigate to the folder where the BOSS server application is installed (by default **C:\Program Files\PIPS Technology, Inc\BOSS3**)
- Locate folder **sa_client**.
- Copy file **BOSS.UI.exe** to the workstation or shared network folder of choice.

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# 8. APPENDIX: INSTALLING SQL SERVER 2005 EXPRESS

BOSS 3.0 can be used with freely available Microsoft SQL Server 2005 Express Edition database. The following is an abridge guide for setting up SQL Server 2005 Express for use with BOSS 3.0.

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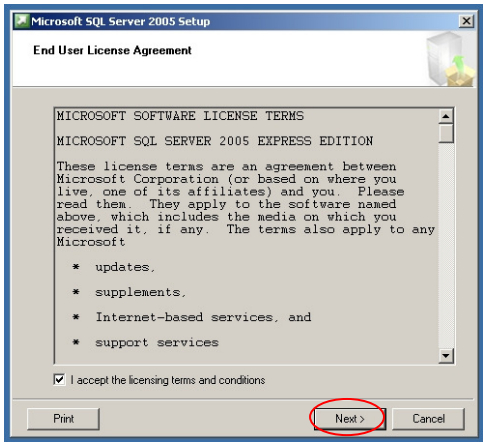


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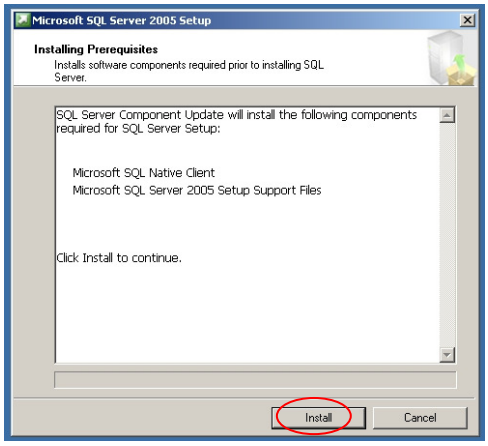


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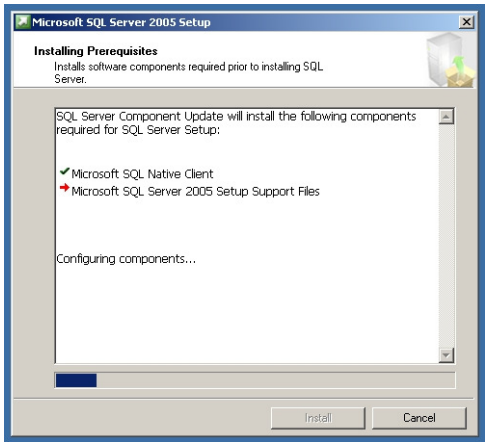


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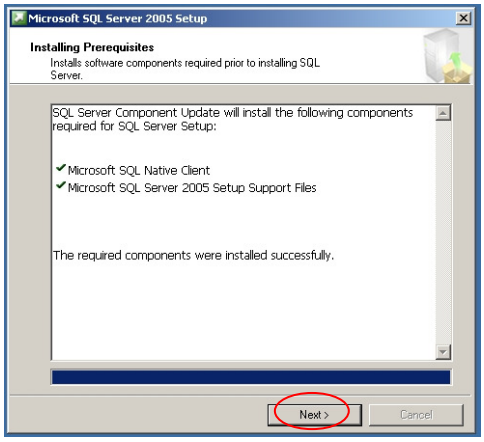


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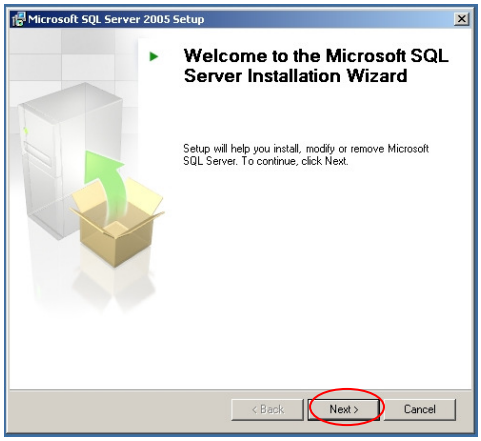


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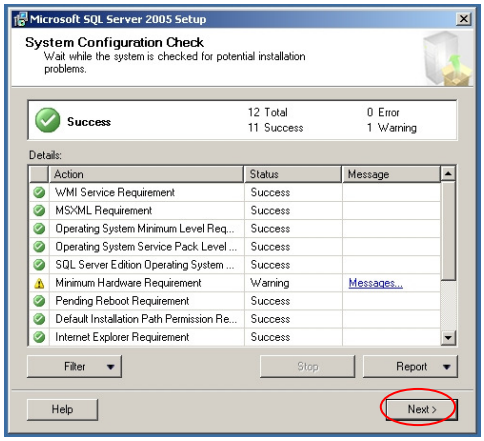


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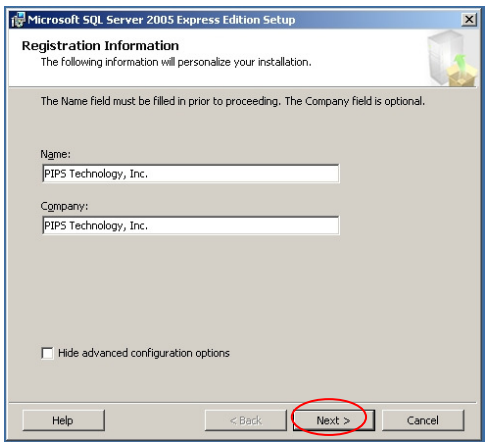


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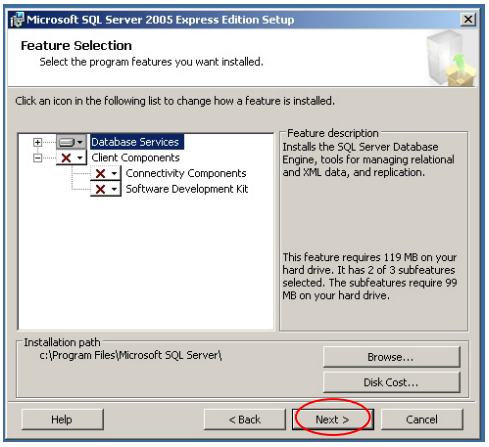


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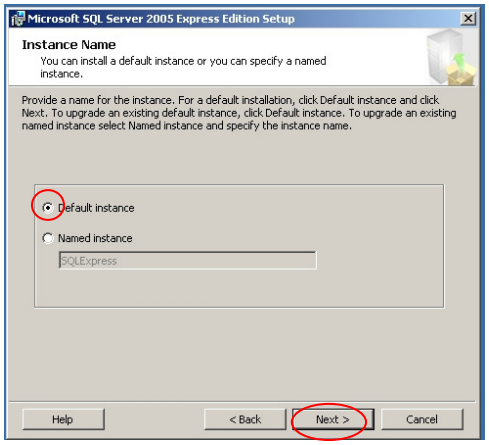


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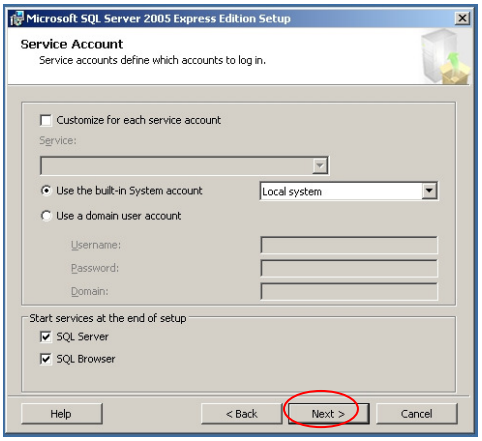


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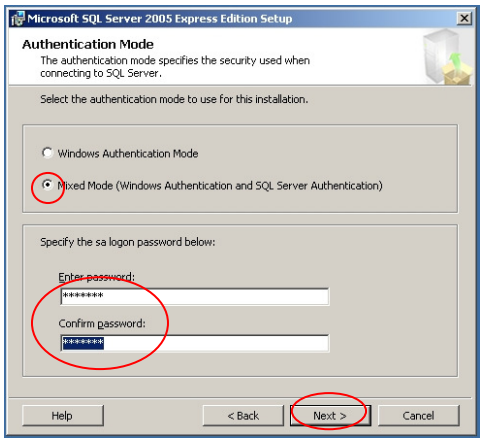


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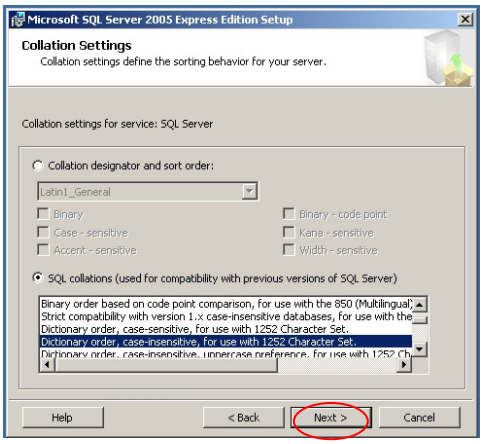


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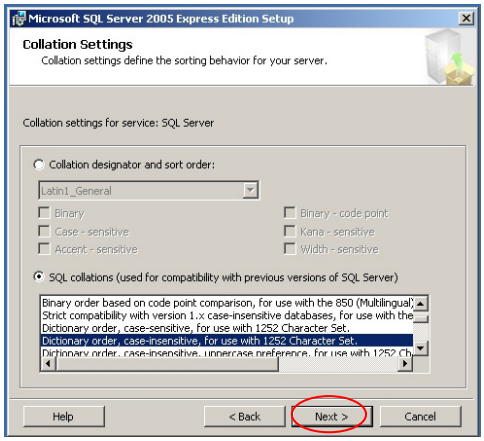


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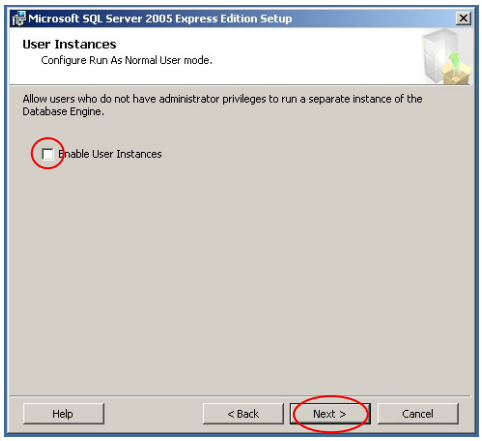


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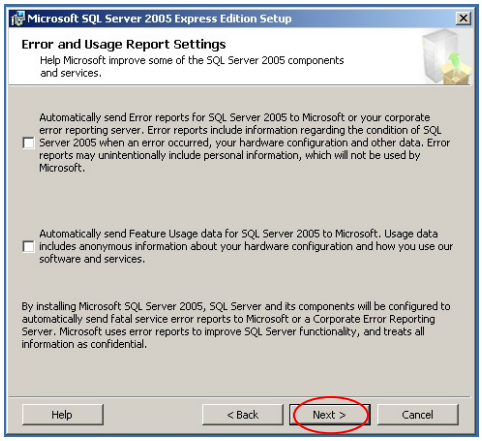


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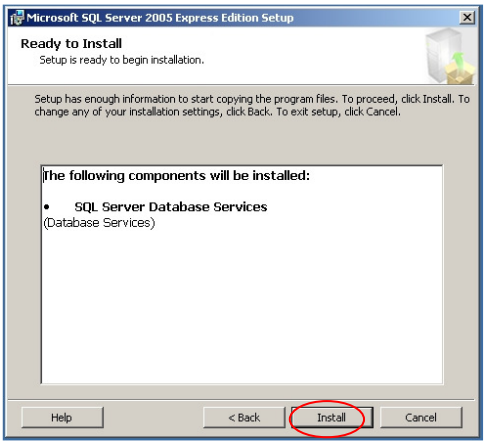


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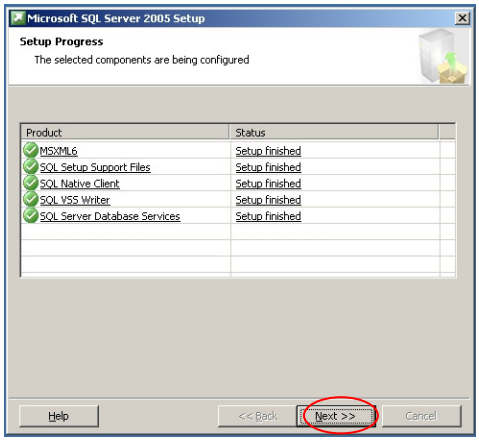


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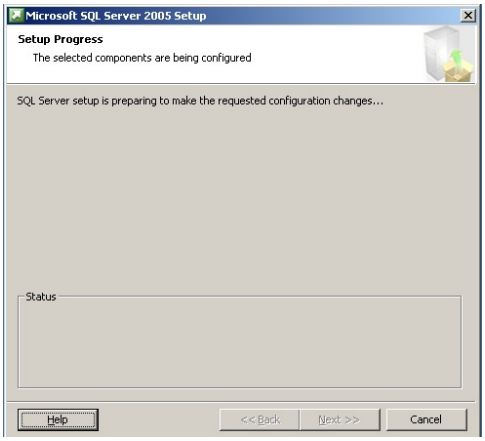


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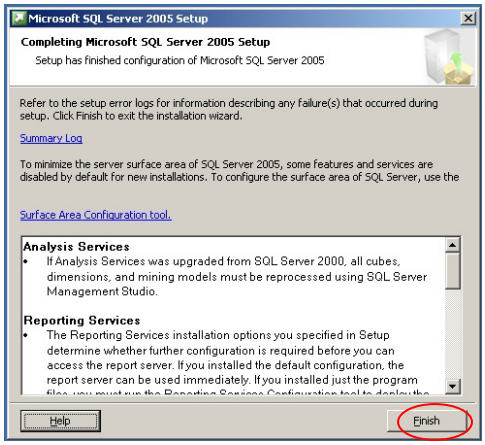


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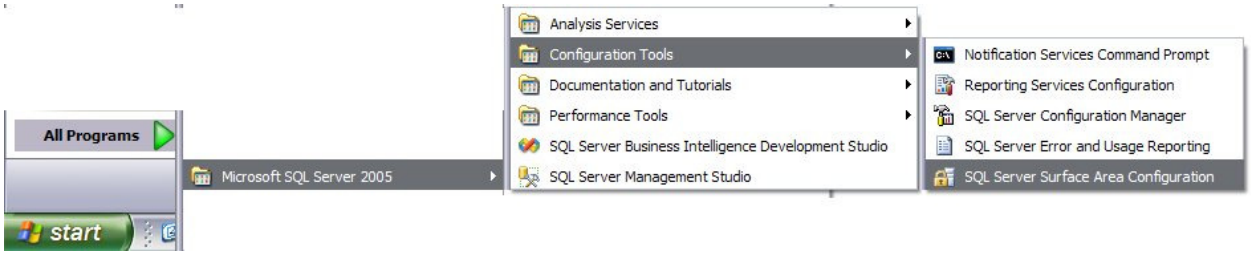


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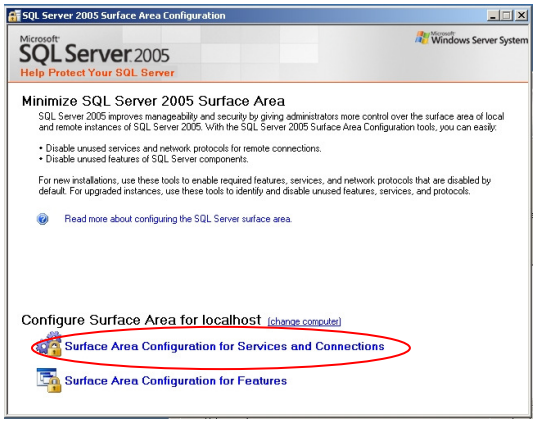


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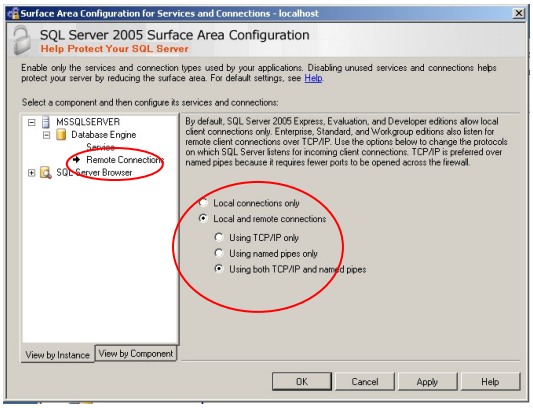


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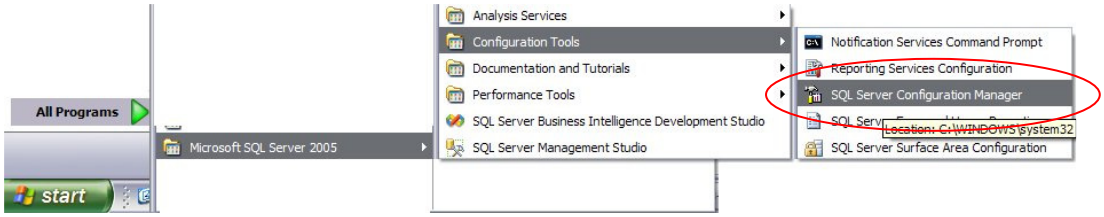


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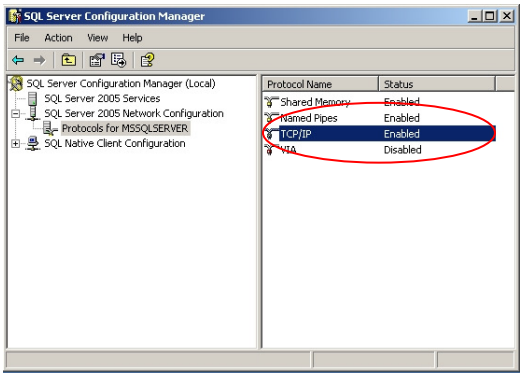


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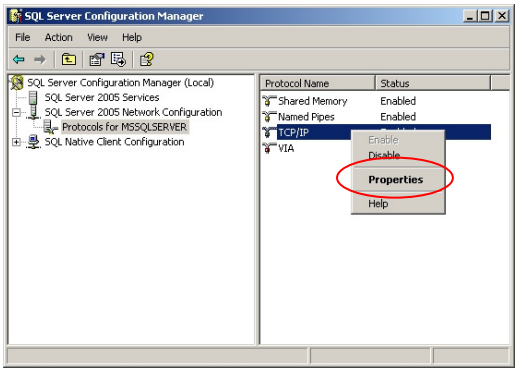


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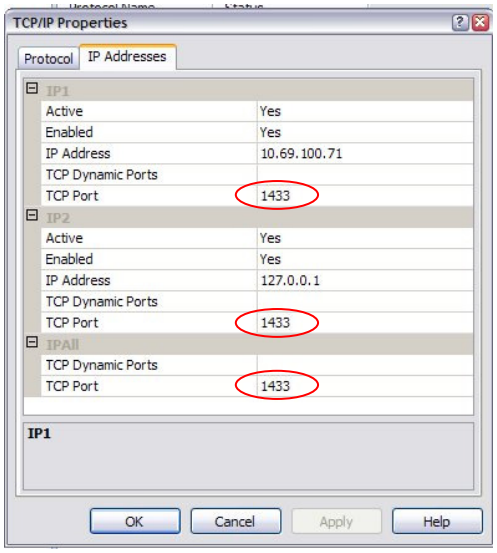


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