

## Introduction

American Innovations (AI) is pleased to announce version 1.9 of our Pipeline Compliance System Axis® software (PCS Axis®). This document explains how to install the following items on a user's local computer running in a non-client/server environment:

- Microsoft® SQL Server® Express 2008 R2 SP2 with Tools, 64-bit version
- PCS Axis software, job service, and database
- PCS Axis Connection Manager

Topics in this document include those in the following list:

- *PCS Axis Best Practices* (page 2)
- *Installation Requirements* (page 10)
- *Downloading and Installing SQL Server Express 2008 R2 SP2 with Tools* (page 12)
- *Installing PCS Axis* (page 13)
- *Activating Your PCS Axis License* (page 20)
- *Activating Your Bridge Import License* (page 21)
- *Starting PCS Axis Job Service* (page 22)
- *Product Support and Training* (page 25)

If you have questions or need assistance with the installation, contact [PCS Technical Services](#) using the contact information on page 25.

## PCS Axis Best Practices

*PCS Axis Best Practices* is a series of topics demonstrating best practices for setting up the PCS Axis<sup>®</sup> database and related services on a network server running Microsoft<sup>®</sup> SQL Server<sup>®</sup> 2008 R2. Topics include those in the following list:

- *Importing Large Amounts of Data in PCS Axis*
- *Running PCS Axis Job Service* (page 3)
- *Managing PCS Axis Database* (page 5)
- *Running SQL Server (MSSQLServer) Service* (page 8)

### Importing Large Amounts of Data in PCS Axis

Index fragmentation may occur in the PCS Axis database after importing large amounts of data using Bridge Import, Bullhorn Bridge, or Field Computer. Index fragmentation can result in slow system performance. The list below identifies best practice methods that can prevent index fragmentation:

- Enable the option *Reindex after import* in the Bridge definition of a Bridge Import or Bullhorn Bridge. See [PCS Axis Help](#) for more information.
- Create a scheduled database maintenance job on the central database server using the *Reindex Stored Procedure* provided with the PCS Axis installation file. See the next section for information about how to create a scheduled database maintenance job.

**NOTE:** SQL server maintenance jobs can only be created when running a full version of SQL server. SQL Server Express does not support this feature.

### Creating a Database Maintenance Job on the Server

The PCS Axis download package provided by PCS Technical Services includes the *Reindex Stored Procedure* labeled *dbo.DefragmentIndexes*, as well as the PCS Axis installation file. Information in this section explains how to create a scheduled database maintenance job on the central database server using the *Reindex Stored Procedure*.

Schedule the database maintenance job to run daily or once a week during an off-peak time. Scheduling the database maintenance job at regular intervals will ensure optimum system performance by reorganizing and defragmenting the indexes in the PCS Axis database. For more information about database maintenance, visit the Microsoft<sup>®</sup> website at [http://technet.microsoft.com/en-us/library/ms187658\(v=sql.105\).aspx](http://technet.microsoft.com/en-us/library/ms187658(v=sql.105).aspx).

**NOTE:** A process included in the *Reindex Stored Procedure* sets the “fill factor limit” of the PCS Axis database. If you want to reset the “fill factor limit”, use Microsoft SQL Server<sup>®</sup> Management Studio (SSMS) to run the optional utility script provided in the PCS Axis v1.9 download package. The optional utility script is labeled *Defrag Fill Factor Reset Post Deployment.SQL*.

After installing PCS Axis, complete the following steps on the central database server to create a schedule database maintenance job using the provided *Reindex Stored Procedure*:

- 1 Start SQL Server Management Studio (SSMS). Click **Start > All Programs > Microsoft SQL Server 2008 R2 > SQL Server Management Studio**.
- 2 Use SSMS to create a scheduled database maintenance job for the PCS Axis database using the provided *Reindex Stored Procedure* labeled **dbo.DefragmentIndexes**. Set the job to run daily or once a week during an off-peak time.

**IMPORTANT:** AI recommends running the stored procedure daily or once a week during non-peak hours.

For a best practice guide in creating database maintenance jobs, visit the Microsoft website at [http://technet.microsoft.com/en-us/library/ms187658\(v=sql.105\).aspx](http://technet.microsoft.com/en-us/library/ms187658(v=sql.105).aspx).

- 3 Exit SSMS.

## Running PCS Axis Job Service

When installing PCS Axis in a client/server network (with or without synchronization), run the *PCS Axis Job Service* under a domain account or a SQL Server account with access to the server and PCS Axis database. To set up *PCS Axis Job Service*, follow these steps:

- 1 Click the Windows **Start** button  and navigate to *Computer*. Right-click **Computer** and select **Manage** in the shortcut menu to open the *Computer Management* console (Figure 1).
- 2 Double-click **Services and Applications** in the left pane of the console. Then click **Services** to display a list of services in the middle pane.

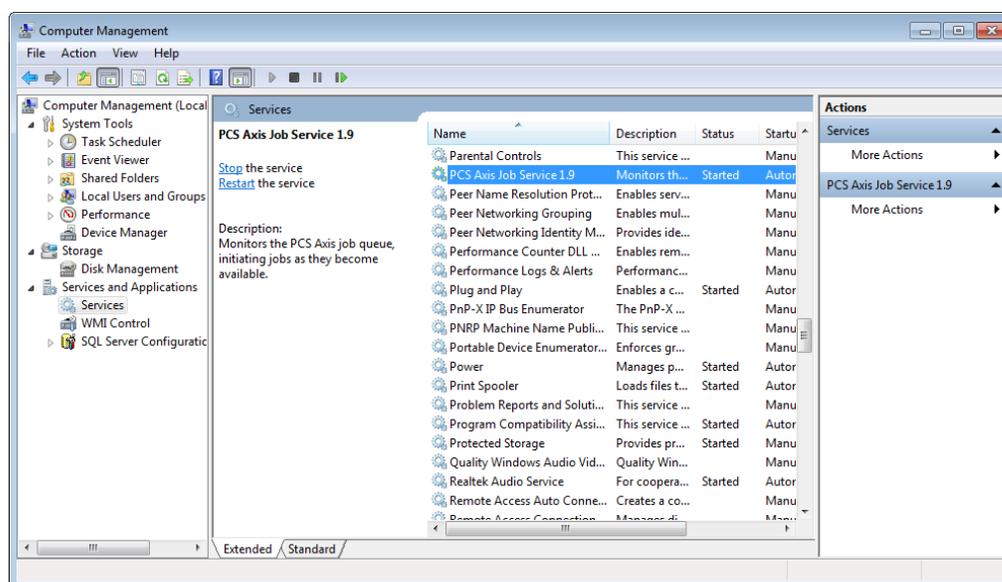


Figure 1. Computer Management Console

- 3 Right-click **PCS Axis Job Service 1.9** and select **Properties** in the shortcut menu to open the *Properties* dialog box (Figure 2).

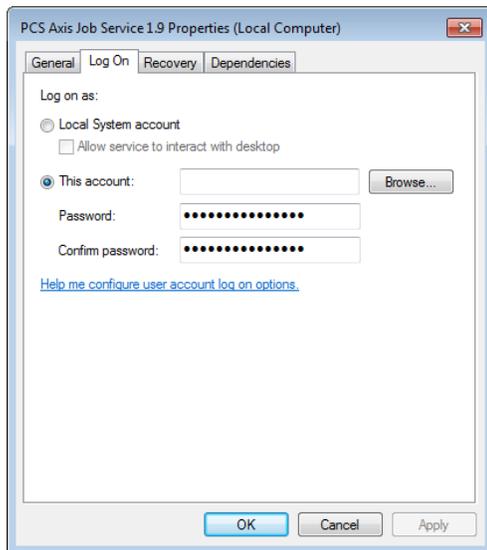


Figure 2. PCS Axis Job Service 1.9 Properties

- 4 Click the **Log On** tab and select the option **This account**.
- 5 Set up *PCS Axis Job Service* with a user account to log on as a service using a domain account or a SQL Server account with access to the server and PCS Axis database. Type the user name and password in the appropriate fields (*This account*, *Password*, *Confirm Password*). You can also view a list of appropriate user account by clicking *Browse > Advanced > Find Now*.

**NOTE:** The user account must be a member of the *Axis\_Users* group and have access to the database server and PCS Axis database.

- 6 Click **Apply** and then **OK** to close the *Properties* dialog box and return to the *Computer Management* console.
- 7 Click **File > Exit** to close the *Computer Management* console.

## Managing PCS Axis Database

Information in this section covers best practices for managing the PCS Axis database using Microsoft® SQL Server® Management Studio (SSMS). Topics include those in the following list:

- *Setting the Database Owner*
- *Recommended Autogrowth Setting* (page 6)

### Setting the Database Owner

To prevent errors from occurring when migrating or restoring the PCS Axis database, or when establishing a connection, set the “Owner” of the database using the “sa” account. To set the database “Owner” follow these steps:

- 1 Start SQL Server Management Studio (SSMS). Click **Start > Microsoft SQL Server 2008 R2 > SQL Server Management Studio**.
- 2 Double-click the **Databases** folder in *Object Explorer* to open the folder.
- 3 Right-click the **PCS Axis database** and select **Properties** in the shortcut menu to open the *Database Properties* dialog box (Figure 3).
- 4 Select **Files** in the *Select a page* navigation panel.
- 5 Type **sa** in the *Owner* field. Then click **OK** to save changes and close the dialog box.

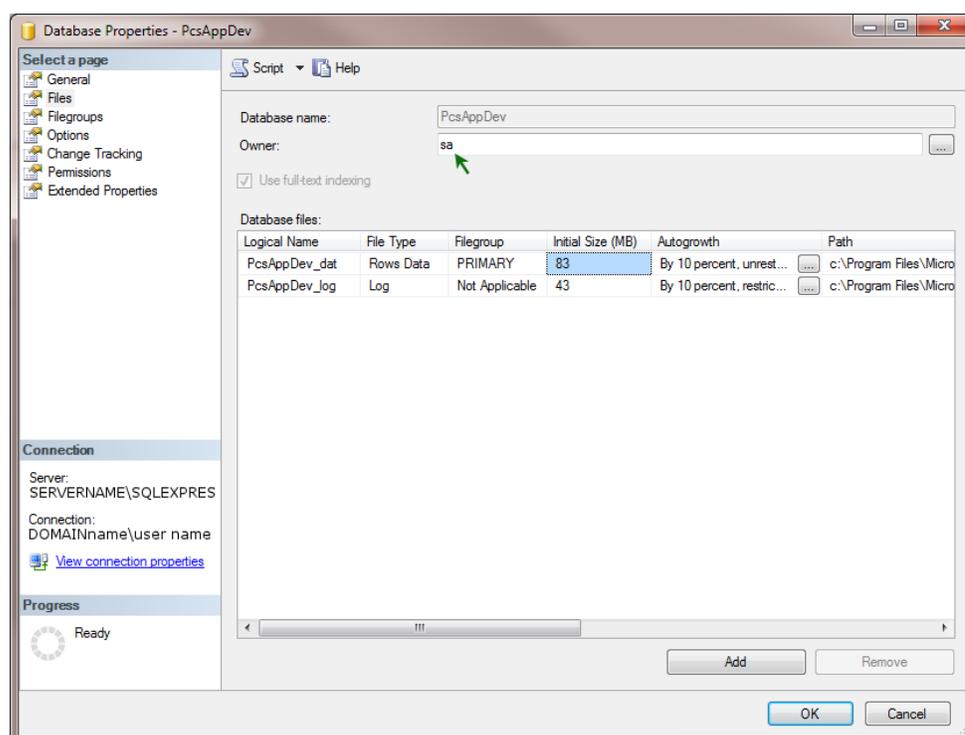


Figure 3. Database Owner

## Recommended Autogrowth Setting

Information in this section applies to the PCS Axis database and log file. If you are running PCS Axis in a client/server network with synchronization, the information also applies to the publication and subscription databases.

*Autogrowth* indicates how much additional space is allocated when the PCS Axis database and log file require more space. Setting *Autogrowth* properties allow the PCS Axis database and log file to resize automatically based on a predetermined percentage. Because the database resizing process is a significant drain on computer resources, it is recommended that you set properties in a manner that does not allow the database to constantly resize itself.

**NOTE:** When using PCS Axis with synchronization, set *Autogrowth* properties after you create the publication and subscription databases.

To set *Autogrowth* properties for the database (*\_dat*) and log (*\_log*) files, follow these steps:

- 1 Start SSMS. Click **Start > Microsoft SQL Server 2008 R2 > SQL Server Management Studio**.
- 2 Double-click **Databases** in *Object Explorer*.
- 3 Right-click the PCS Axis database and select **Properties** in the shortcut menu to open the *Database Properties* dialog box.
- 4 Click **Files** in the *Select a page* navigation panel (Figure 4).

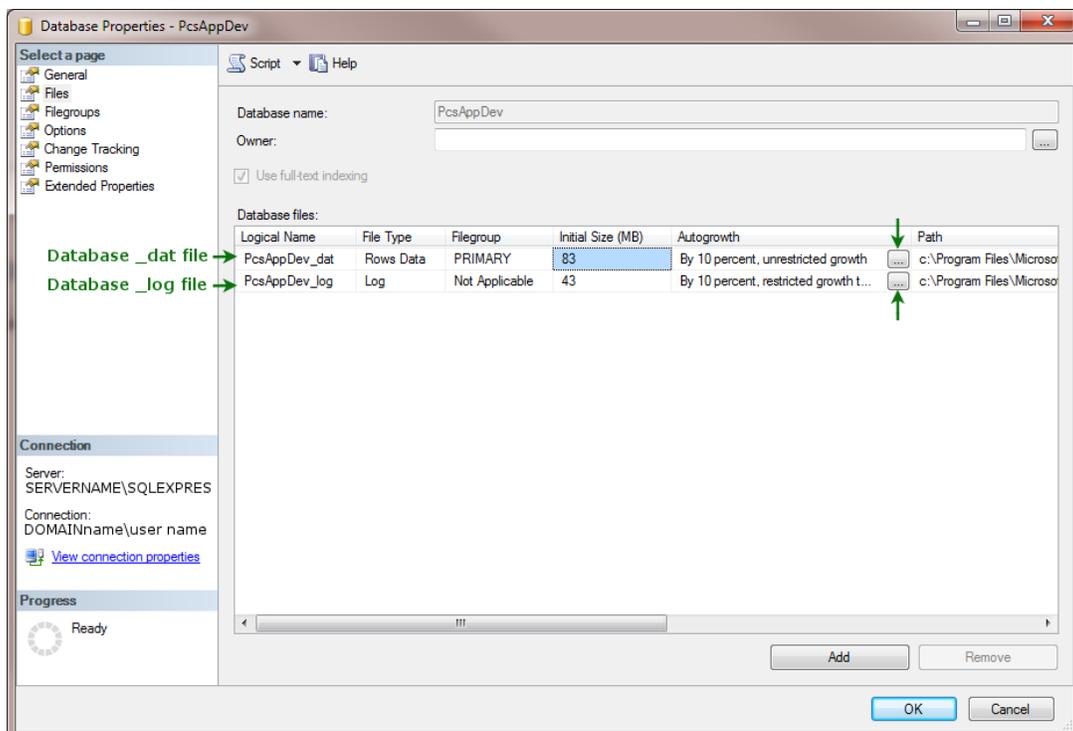


Figure 4. Files - Database Properties

- 5 Complete the following steps to set *Autogrowth* properties for the database (*\_dat*) and log (*\_log*) files:
  - a Click the ... ellipsis button in the *Autogrowth* column of the database *\_dat* file to open the *Change Autogrowth* dialog box (Figure 5).
  - b Click the **Enable Autogrowth** check box to place a check mark inside the check box.
  - c For the *File Growth* property setting, select the option **In Percent** and then type **10** in the adjacent field. This property setting automatically allocates 10% additional space when the database requires more space.
  - d Click **OK** to close the *Change Autogrowth* dialog box.
  - e Repeat step 5 for the database *\_log* file.
  - f Click **OK** to close the *Database Properties* dialog box. Then click **File > Exit** to exit SSMS.

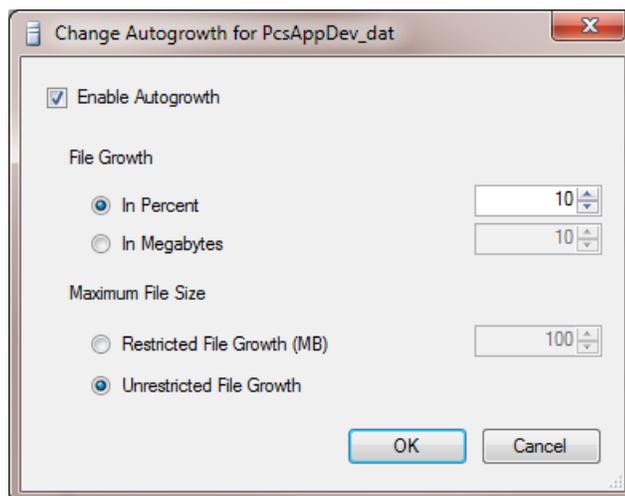


Figure 5. *Change Autogrowth*

## Running SQL Server (MSSQLSERVER) Service

Run the Windows *SQL Server (MSSQLSERVER)* service under a domain account with access to the PCS Axis database. To set up the service, follow these steps:

- 1 Click the Windows **Start** button  and navigate to *Computer*. Right-click **Computer** and select **Manage** in the shortcut menu to open the *Computer Management* console (Figure 6).
- 2 Double-click **Services and Applications** in the left pane of the console. Then click **Services** to display a list of services in the middle pane.

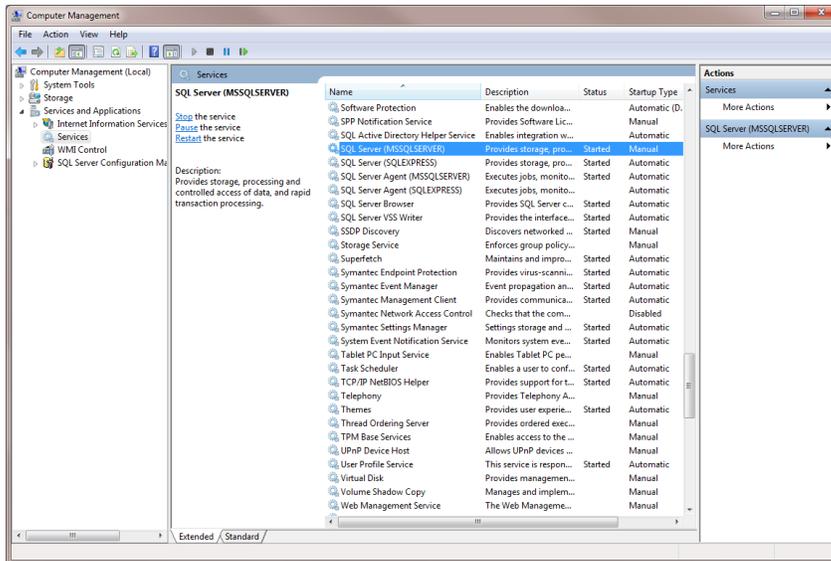


Figure 6. Computer Management Console

- 3 Right-click **SQL Server (MSSQLSERVER)** and select **Properties** in the shortcut menu to open the *Properties* dialog box (Figure 7).

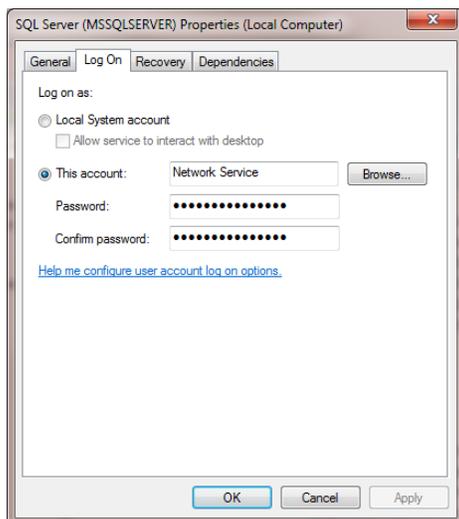


Figure 7. SQL Server (MSSQLSERVER) Properties

- 4 Click the **Log On** tab and select the option **This account**.
- 5 Set up *SQL Server (MSSQLSERVER)* with a user account to log on as a service using a domain account with access to the PCS Axis database. Type the user name and password in the appropriate fields (*This account, Password, Confirm Password*). You can also view a list of appropriate user account by clicking *Browse > Advanced > Find Now*.
- 6 Click **Apply** and then **OK** to close the *Properties* dialog box and return to the *Computer Management* console.
- 7 Click **File > Exit** to close the *Computer Management* console.

## Installation Requirements

Before installing PCS Axis, verify the following items are available and the computer meets the system requirements identified in Table 1 (page 10):

- *PCS Axis License File*: The installation prompts you for the PCS Axis license file provided by AI.
  - *Bridge Import License File*: If your company purchased the optional Bridge add-on to import data from a third-party application, activating Bridge import for operation requires the license file provided by AI.
- NOTE:** A Bridge license file is not required to import data from Bullhorn® Asset Tracker (BAT™) or export data from PCS Axis. You can maintain all PCS Axis licenses for your organization in the same shared folder location. PCS Axis will request the file and location the first time each user opens the PCS Axis application. The Bridge activation key is assigned only once for the PCS Axis database; once it is assigned it functions for all users.
- *PCS Axis Installation File*: Install PCS Axis using either the installation DVD provided by AI or the installation file downloaded from a location identified in an email from PCS Technical Services.
  - *System Requirements*: Verify the computer meets the system requirements identified in Table 1 (page 10).

*Table 1. Single User Computer Requirements*

Properties	Recommended
Processor	Intel Core i7
Processor Speed	2.3 GHz or faster
RAM	16 GB
Operating System	Windows 7 64-bit, Service Pack 1 (SP1)
Available Disk Space	720 MB (see note)
Resolution	1920x1080
Relational Database Software	SQL Server Express 2008 R2 SP2, 64-bit
Microsoft .NET Framework	Version 4.5 (see note)

### NOTES:

- Larger databases may require more RAM for optimum performance.

- *Microsoft .NET Framework*: If the target computer does not have Microsoft .NET Framework v4.5 installed, the PCS Axis installation automatically installs it for you. This feature requires an active Internet connection to complete the installation of .NET Framework v4.5.
- *PCS Axis Installation*: This installation installs the PCS Axis application, database, and job service on the local computer of a single user in a non-client/server network.
- *Microsoft SQL Server Express 2008 R2 SP2, 64-bit*: A 64-bit version of Microsoft SQL Server 2008 Express R2 SP2 (or Standard edition for databases exceeding 10 GB) must be installed on the computer.
- *Disk Space*: Sufficient disk space must be reserved for database use (11 GB when using Microsoft SQL Server 2008 Express).

## Downloading and Installing SQL Server Express 2008 R2 SP2 with Tools

Information in this section explains how to download and install the 64-bit version of *SQL Server Express 2008 R2 SP2 with Tools*.

Complete the following steps

- 1 Visit the Microsoft Download Center at <http://www.microsoft.com/download/>.
- 2 Type **SQL Server 2008 R2 SP2 Express Edition** in the search bar and then click the  search button.
- 3 Click the link **Microsoft® SQL Server® 2008 R2 SP2 - Express Edition** to open the product download page.

**NOTE:** Information related to the installation is available when clicking the  expand button for any of the following items: *Details, System Requirements, Install Instructions, and Related Resources*.

- 4 Click **Download** to open a page with a list of files available for download.
- 5 Complete the following steps to download and install the 64-bit version of the installation file labeled *SQLEXPRTW\_x64\_ENU.exe*:
  - a Click the check box for the installation file labeled **SQLEXPRTW\_x64\_ENU.exe**. Then click **Next** to begin the download.
  - b To install, double-click the **SQLEXPRTW\_x64\_ENU.exe** installation file and follow on-screen prompts. PCS Axis functions normally with a default installation set up with all default options.

## Installing PCS Axis

Information in this section explains how to install PCS Axis on the local computer of a single user in a non-client/server network. Tasks include those in the following list:

- Install the PCS Axis software and job service.
- Use *Connection Manager* to connect to an instance of SQL server.
- Use *Connection Manager* to install a blank database or select the test database provided with PCS Axis.

**NOTE:** *Connection Manager* is a utility software provided with PCS Axis. You can use the utility to install a blank database, upgrade an existing database, and create entries for connection settings to other PCS Axis databases.

Complete the following steps:

- 1 If you are using the installation DVD to install PCS Axis, insert the DVD in the DVD/CD-ROM drive of the computer. Open Windows Explorer to view the contents of the installation DVD.

If you previously downloaded the installation file using a link in an email from PCS Technical Services, navigate to the location of the installation file.

**NOTE:** A single installation file labeled *setup.exe* is used to install PCS Axis. If the target computer does not have Microsoft .NET Framework v4.5 installed, the installation automatically installs it. This feature requires an active Internet connection to complete the installation of .NET Framework v4.5.

- 2 Double-click the **setup.exe** installation file to open the PCS Axis dialog box (Figure 8).

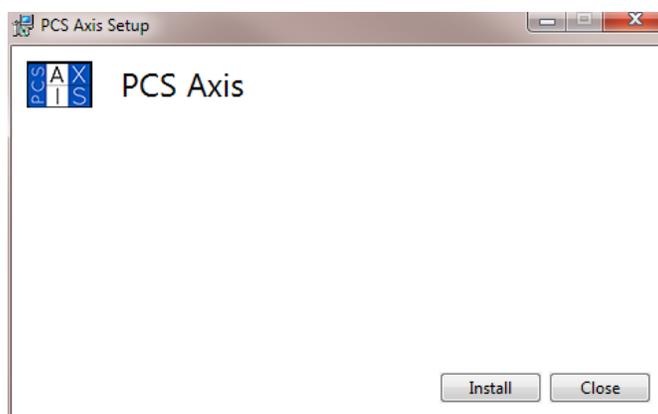


Figure 8. PCS Axis Installation

- 3 Click **Install** in the PCS Axis dialog box (Figure 8) to open *Setup Wizard* (Figure 9, page 14).
- 4 Click **Next** to read the *End-User License Agreement*. To accept the license agreement, click the check box **I accept the terms in the License Agreement** to place a check mark inside the check box.

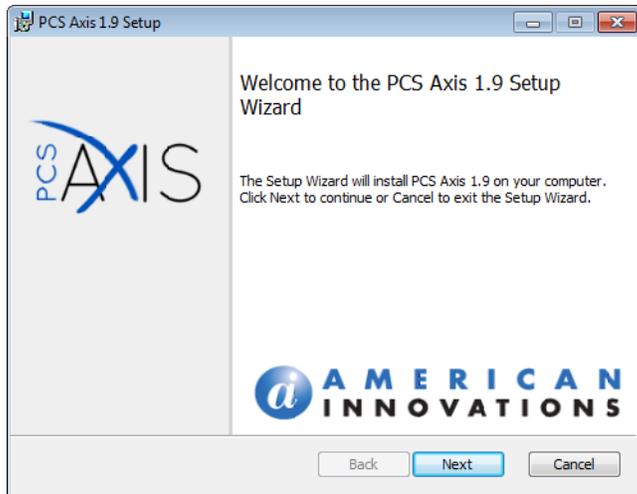


Figure 9. Setup Wizard

- 5 Click **Next** to display *Custom Setup* (Figure 10).
- 6 By default the  **PCS Axis** application is selected for installation. Click the down arrow in  **PCS Axis Job Service** and select the option **Entire feature will be installed on local hard drive** (Figure 10).
- 7 Click **Next** and then click **Install** to begin the installation.

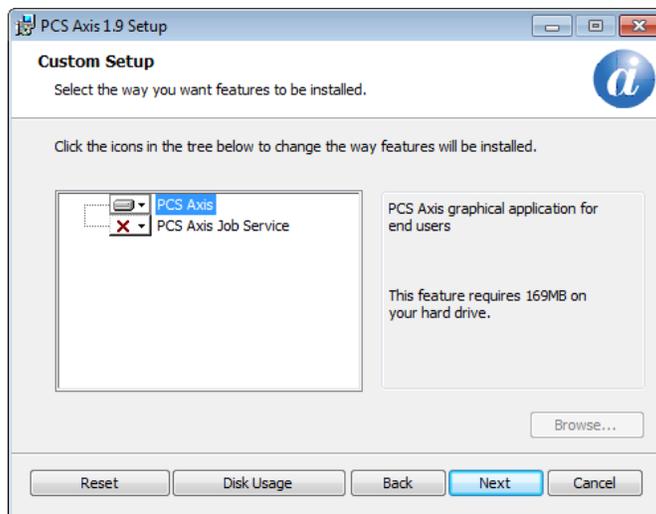


Figure 10. Custom Setup

When the installation completes and after a short delay, *Connection Manager* opens automatically on top of *Setup Wizard* (Figure 11).

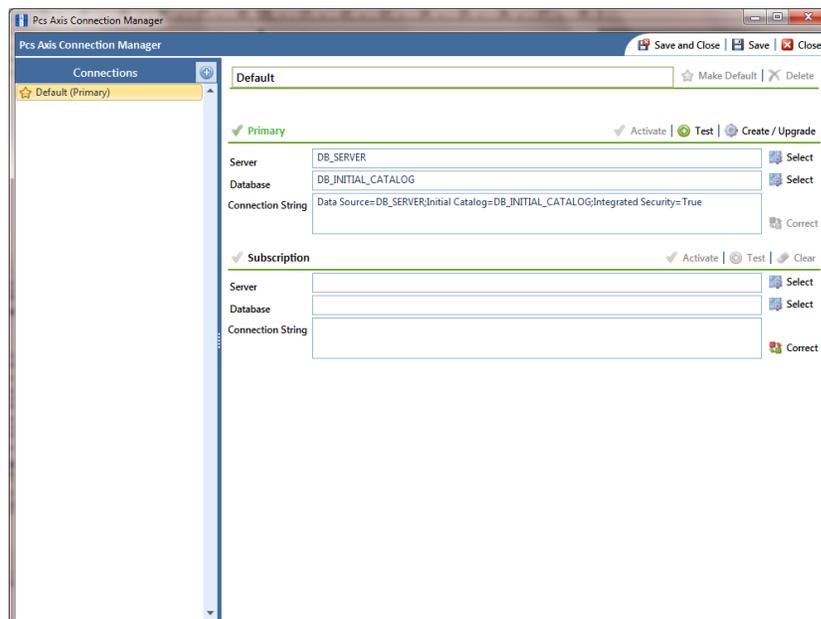


Figure 11. *Connection Manager*

- 8 Complete step "a" or "b" in the *Primary* group box of *Connection Manager* to connect to the SQL server instance (Figure 11):
  - a Type the name of the SQL server instance in the **Server** field. When entering the name, also include the name of the local computer. Use the following format when entering information in the *Server* field:
 

LocalComputerName\LocalSQLServerInstanceName

– or –
  - b Click  **Select** in the *Server* field to open the *Select Server* dialog box (Figure 12, page 16). Select the SQL server instance and then click  **Close** to close the dialog box and return to *Connection Manager*.

**NOTE:** The *SQL Server Express 2008 R2* installation automatically creates a default server instance. The default server instance is identified in the *Select Server* dialog box with a period and also as *.\SqlExpress*. See the next figure for an example (Figure 12, page 16).

- 9 Continue either with step 10 to create and connect to a new empty PCS Axis database or step 11 (page 18) to connect to the test database provided with PCS Axis.

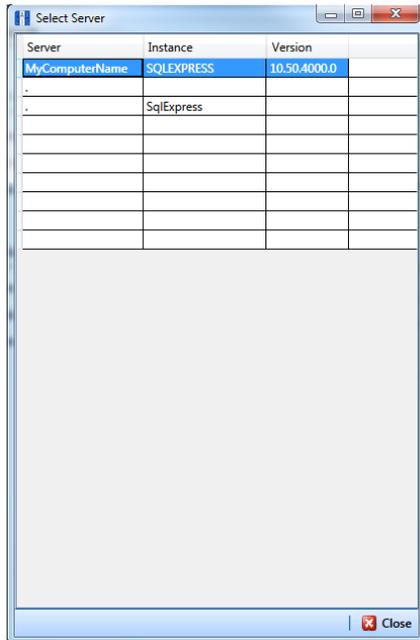


Figure 12. Select Server

- 10 Complete the following steps in the *Primary* group box of *Connection Manager* to create and connect to a new empty PCS Axis database. If needed, you can also use these same steps to create a new empty database for training purposes.
  - a Type a name for the new database in the **Database** field and then click  **Create/Upgrade**. When a message displays asking if you want to create the database, click  **Yes** to begin the process. The *Create Or Update Database* window opens displaying status information during the process (Figure 13, page 17).
  - b When the message *Update Completed* displays at the bottom of the *Create Or Update Database* window, click  **Close** to close the window and return to *Connection Manager*.

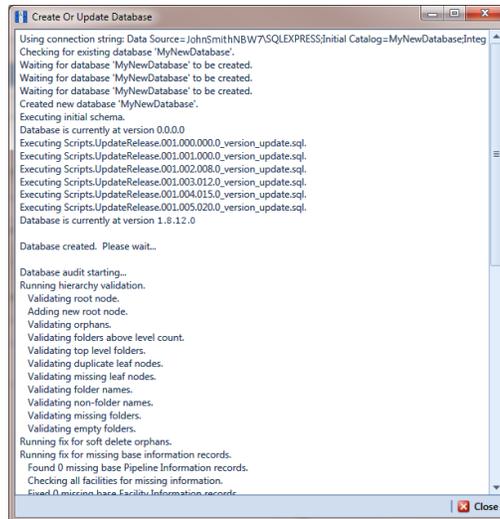


Figure 13. Create Or Update Database

- c Click  **Test** in *Connection Manager* to verify the connection to the server and database. When the message *Connection successful* displays, click  **OK** to close the message.

If the connection to the server and database failed, verify the name of the SQL server instance is correct (previously set up in step 8, page 16) and the Windows service labeled *SQL Server (SQLEXPRESS)* is running. To verify the service is running, follow these steps:

- (1) Click the Windows  **Start** button and then right-click **Computer**. Select **Manage** in the shortcut menu to open the *Windows Computer Management* console.
- (2) Open *Services and Applications* and then click **Services**.
- (3) Navigate to *SQL Server (SQLEXPRESS)* and verify *Started* displays in the *Status* column. If the service is not running, select the service and then click **Start** in the upper left-hand area of the window (Figure 14, page 18).
- (4) Click **File > Exit** to close *Windows Computer Management*.

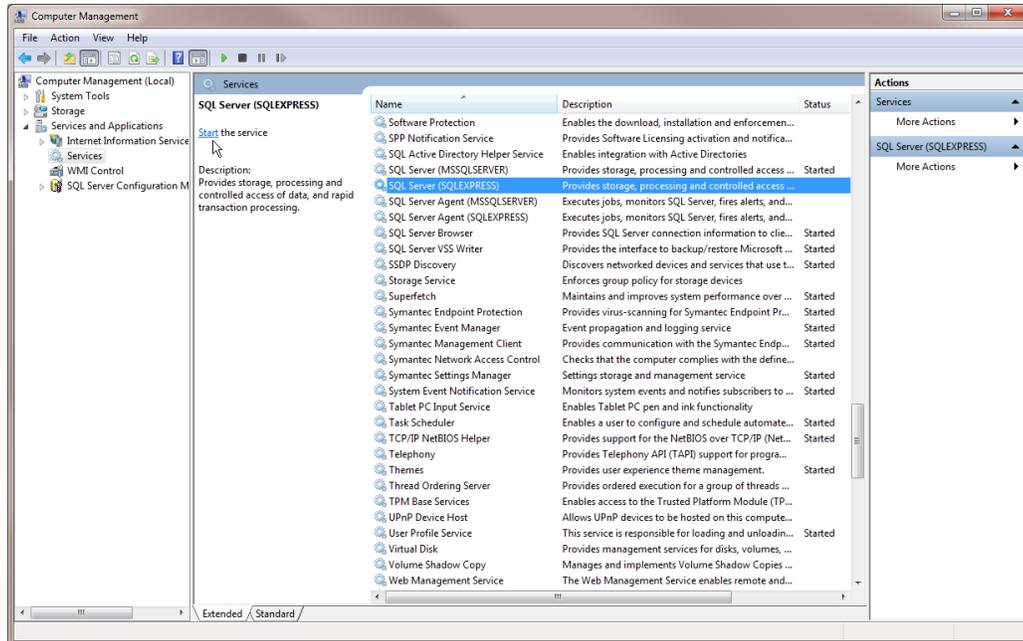


Figure 14. SQL Server (SQLEXPRESS) Service

- d In *Connection Manager*, click  **Test** to verify the connection to the server and database. If a connection cannot be established, contact PCS Technical Services using the contact information on page 25.
  - e Click  **Save and Close** to exit *Connection Manager*.
  - f Click **Finish** in *Setup Wizard* and then click **Close** in the PCS Axis dialog box to close the PCS Axis installation file (Figure 8, page 13).
  - g Continue with the next section *Activating Your PCS Axis License* (page 20).
- 11** Complete either step "a" or "b" in the *Primary* group box of *Connection Manager* (Figure 11, page 15) to connect to the test database provided with the PCS Axis software:
- a Type **pcsappdev** in the *Database* field. This field is not case sensitive. Then continue with step "c" (page 19).
  - or -
  - b Click  **Select** in the *Database* field to open the *Select Database* dialog box (Figure 15, page 19). Select **PcsAppDev** and then click  **Close** to return to *Connection Manager*. Continue with step "c" (page 19).

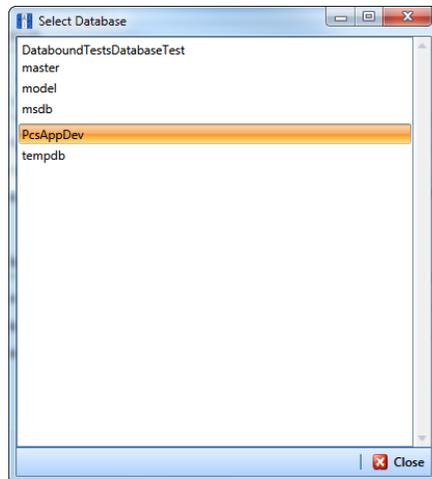


Figure 15. Select Database

- c Click  **Test** in *Connection Manager* to verify the connection to the server and database. When the message *Connection successful* displays, click  **OK** to close the message.

If the connection to the server and database failed, verify the name of the SQL server instance is correct (previously set up in step 8, page 16) and the Windows service labeled *SQL Server (SQLEXPRESS)* is running. To verify the service is running, follow these steps:

- (1) Click the Windows  **Start** button and then right-click **Computer**. Select **Manage** in the shortcut menu to open the Windows *Computer Management* console.
  - (2) Open *Services and Applications* and then click **Services**.
  - (3) Navigate to the *SQL Server (SQLEXPRESS)* service and verify *Started* displays in the *Status* column. If the service is not running, select the service and then click **Start** in the upper left-hand area of the window (Figure 14, page 18).
  - (4) Click **File > Exit** to close Windows *Computer Management*.
  - (5) In *Connection Manager*, click  **Test** to verify the connection to the server. If a server connection cannot be established, contact PCS Technical Services using the contact information on page 25.
- d Click  **Save and Close** to exit *Connection Manager*.
- e Click **Finish** in *Setup Wizard* and then click **Close** in the PCS Axis dialog box to close the PCS Axis installation file (Figure 8, page 13).
- f Continue with the next section *Activating Your PCS Axis License* (page 20).

## Activating Your PCS Axis License

Activating the PCS Axis software for operation requires the license file provided by AI at the time you purchased the PCS Axis software. If you are unable to locate your license file, contact PCS Technical Services for assistance. See the contact information on page 25.

To activate the PCS Axis software for operation, follow these steps:

- 1 Click the Windows  **Start** button and navigate to the program folder labeled *PCS Axis 1.9*. Click to open the program folder and then click  **PCS Axis 1.9** to launch the software.
- 2 When the *Activation Key* message opens, click  **OK** and then locate and select your PCS Axis activation key (Figure 16).

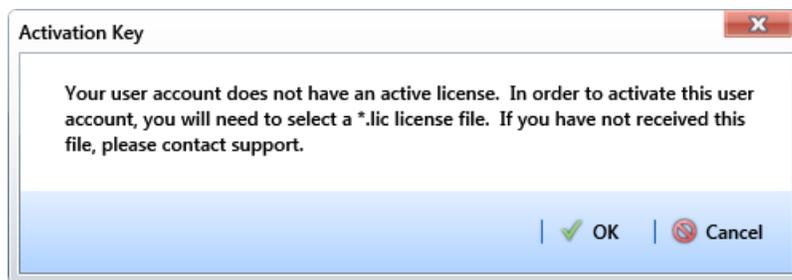


Figure 16. *Activation Key*

- 3 When the *License Agreement* window opens, click  **I Agree**.
- 4 Continue the installation with one of the following steps:
  - a If your company purchased the optional Bridge add-on, continue with the next section entitled *Activating Your Bridge Import License* (page 21).
  - or–
  - b If your company did not purchase the optional Bridge add-on, continue with the section entitled *Starting PCS Axis Job Service* (page 22).

## Activating Your Bridge Import License

If your company purchased the optional Bridge import add-on, running a Bridge import for the first time requires you to activate Bridge using the license file provided by AI.

**NOTE:** A Bridge license is required only for those operations that use the *Basic Bridge* function to import data. Operations using the *Bullhorn Bridge* function to import data do not require a Bridge import license. Likewise, using Bridge to export data from PCS Axis also does not require a Bridge license.

To activate Bridge import for operation, follow these steps:

- 1 If PCS Axis is not running, click **Start** > **PCS Axis** to launch the software. Or, click the desktop shortcut  **PCS Axis** if one is available.
- 2 Click **Tools** > **Job Service Viewer** to open the *Job Service Console* window (Figure 17).
- 3 Click **Activate Bridge Import License**. When the *Activation Key* dialog box opens, navigate to the license file and select it. Then click **Open** to close the dialog box and return to the *Job Service Console*.

The message *Valid* now displays in the *License* field. If *Not Valid* is displaying instead, contact PCS Technical Services for assistance using the contact information on page 25.

For information about how to set up and use Bridge, click **Tools** > **Bridge** and then click the  help button to open a help topic.

- 4 Continue the installation with the next section entitled *Starting PCS Axis Job Service* (page 22).

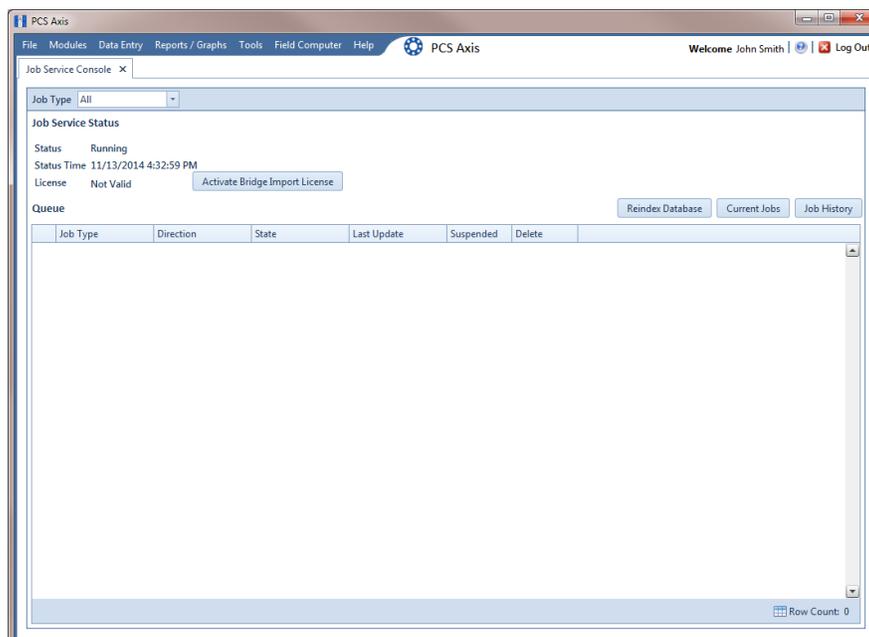


Figure 17. Job Service Console

## Starting PCS Axis Job Service

The purpose of *PCS Axis Job Service* is to monitor the PCS Axis job queue, initiating jobs as they become available. The following procedure explains how to use Windows Services to start *PCS Axis Job Service*.

Complete the following steps:

- 1 Click the Windows  **Start** button and navigate to *Computer*. Right-click **Computer** and select **Manage** in the shortcut menu to open the *Computer Management* console (Figure 18).
- 2 Double-click **Services and Applications** in the left pane of the console. Then click **Services** to display a list of services in the middle pane.

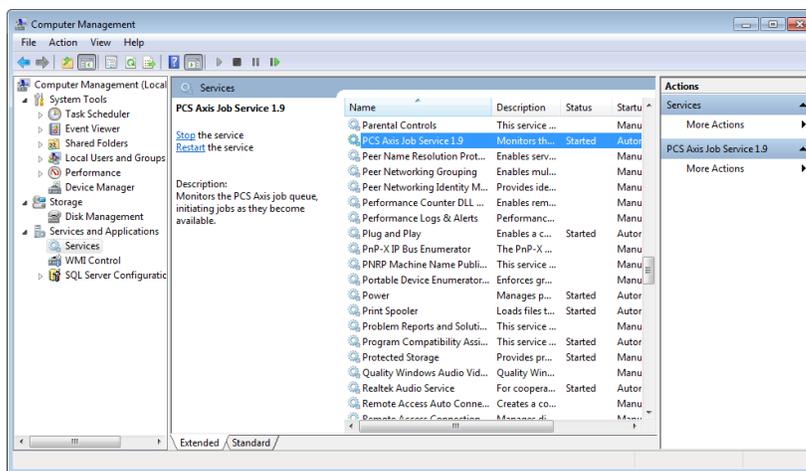


Figure 18. Computer Management Console

- 3 Right-click **PCS Axis Job Service 1.9** (Figure 18) and select **Properties** in the shortcut menu to open the *Properties* dialog box (Figure 19, page 23).
- 4 Click the **Log On** tab and select the option **Local System account**. Then click the check box **Allow service to interact with desktop**.
- 5 Click **Apply** and then **OK** to close the *Properties* dialog box and return to the *Computer Management* console.

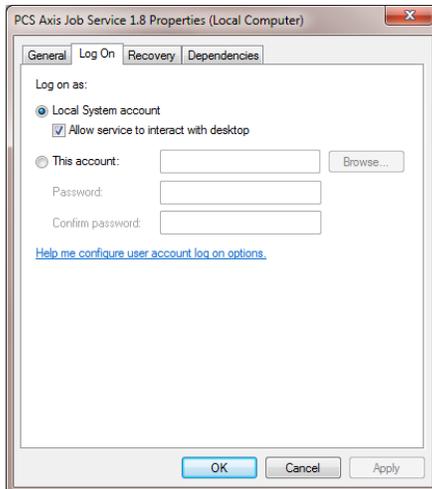


Figure 19. PCS Axis Job Service 1.9 Properties

- 6 Select **PCS Axis Job Service 1.9** and then click **Start** (Figure 20).
- 7 Click **File > Exit** to close the *Computer Management* console.

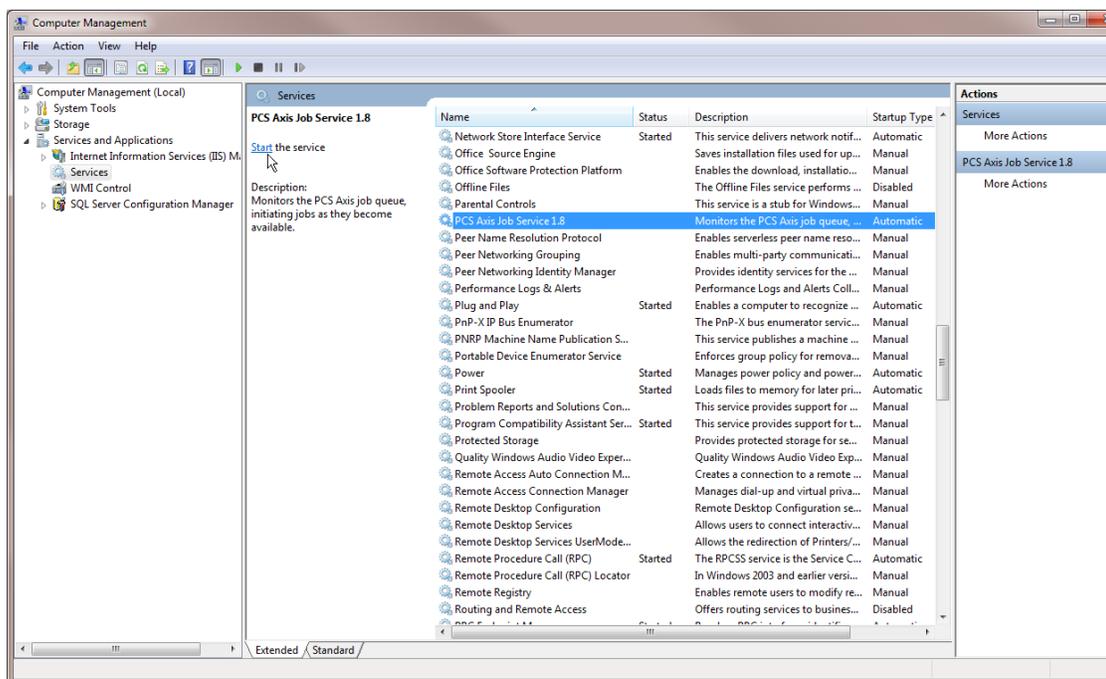


Figure 20. Computer Management Console

- Start PCS Axis and then click **Tools > Job Service Viewer**. Verify the message *Running* displays in the *Status* field (Figure 21).

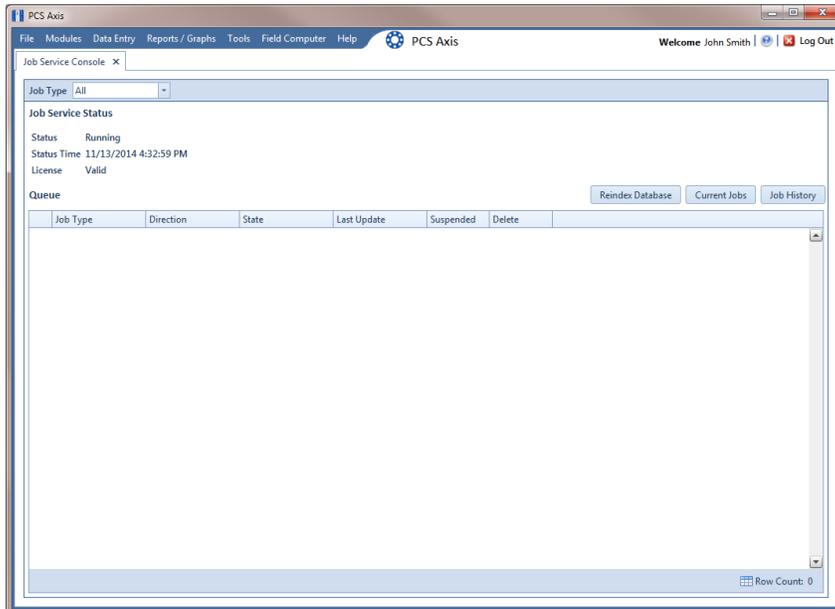


Figure 21. Job Service Console

- Open the *About* window in PCS Axis to view information about the software and database version. Click **Help > About PCS Axis** to open the *About* window (Figure 22).

**NOTE:** Clicking *Copy To Clipboard* in the *About* window copies the following information to the Windows clipboard: database connection; software application version; and build information (date and time). After copying information to the clipboard, you can then paste it in an email or other type of document, such as Microsoft Word. Use this feature when contacting PCS Technical Services for support with PCS Axis.

The PCS Axis v1.9 installation is now complete. For information about how to set up and use PCS Axis, click the  help button in any window when running the software. Or click **Help** in the main menu of PCS Axis.

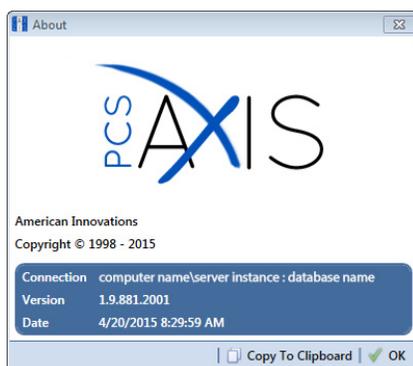


Figure 22. About PCS Axis

## Product Support and Training

If you have a suggestion, question, feature request, or a bug to report-your feedback would be appreciated. Also if you have a training need for your organization or would like to know more about upcoming PCS Axis training classes, please use any of the following contact information to reach PCS Technical Services:

Support E-mail: [pcstechservices@aiworldwide.com](mailto:pcstechservices@aiworldwide.com)  
Support Telephone: 1-800-229-3404 (select 1, then press 2)  
American Innovations: <http://www.aiworldwide.com>

