



U.S. Department
of Transportation
Federal Aviation
Administration

Aviation Environmental Design Tool (AEDT)

Version 2c

Installation Guide

September 2016



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1 Installation Introduction

This document provides detailed instructions on how to install and run AEDT 2c. It is important to follow the installation instructions in the order listed below, as Microsoft SQL Server 2008 R2 is a prerequisite for AEDT. Installation components must run locally.

1. Install Microsoft SQL Server 2008 R2
2. Install AEDT 2c



To install software, the user must have administrative rights to the computer.



Installing AEDT 2b and AEDT 2c applications on the same computer is not supported. Uninstall AEDT 2b before installing AEDT 2c.

The AEDT 2b and 2c databases can be installed on the same database server, but on two separate SQL Server instances.

2 Technical Assistance

The AEDT Support website, <https://aedt.faa.gov/>, is the technical support hub for AEDT. Support requests, feedback on bugs, and feature requests should be submitted through this website. The AEDT installer and support resources such as documentation and frequently asked questions (FAQ) are also available on the AEDT Support website. Register on the website to request support or submit feedback on AEDT. Additional options for support include:

- E-mail: aedt-support@dot.gov
- Phone: 617-494-2603

Please include the AEDT Administrative File when requesting technical support. Please refer to Section 4.11.2 in the AEDT User Guide for instructions on generating the Administrative File.

3 System Requirements

System specifications for computers capable of hosting the AEDT 2c application are displayed in Table 3-1. The preferred specifications are listed with suggested minimum requirements where applicable. Through the use of SQL Server connectivity, it is possible to connect multiple computational clients to one central database server.

Table 3-1 AEDT 2c System Requirements

	AEDT 2c System Specifications	
	Minimum	Preferred
Operating Systems¹	Microsoft Windows 7 x64-based Systems	Microsoft Windows 7 x64-based Systems
Processor	Modern dual core processor with 2 GHz or higher clock	Modern many core (>2) processors with 2 GHz or higher clock
RAM	4 GB Memory	64 GB Memory
Hard-disk Space	500 GB Storage	2 TB Storage RAID
SQL Requirements	Microsoft SQL Server 2008 R2 (x64) or Microsoft SQL Server 2008 R2 Express (x64)	Microsoft SQL Server 2008 R2 (x64)
Software Requirements	Adobe Reader X (v10) or higher	Adobe Reader X (v10) or higher



AEDT requires administrative privileges for both 1) installation and 2) execution of the software.



OEM version of Microsoft SQL Server 2008 R2 can no longer be purchased. A business entity with a Microsoft Open License can purchase SQL Server 2014 and downgrade to SQL Server 2008 R2 or SQL Server 2012.



AEDT uses the accelerated map display that is part of the ArcGIS Runtime SDK for WPF in order to achieve performance benefits when displaying map layers. Accelerated display is disabled if the computer's graphics hardware does not meet requirements or when accessing AEDT remotely (e.g. through Remote Desktop). When accelerated display is disabled, map layers may require additional time to load.

¹ Use Windows Update to ensure your computer has the latest priority updates.

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The recommended screen resolution is 1920x1080.



It is recommend to include AEDT application as an exception to antivirus run time scan.

3.1 Note for International Users

AEDT supports only “English (United States)” format for the Windows Region and Language.

To change Windows Region and Language:

1. Open the Windows Control Panel.
2. Click *Region and Language*.
3. In the *Region and Language* dialog box, select “English (United States)” as the *Format*.
4. Click OK to save your changes and close the dialog box.

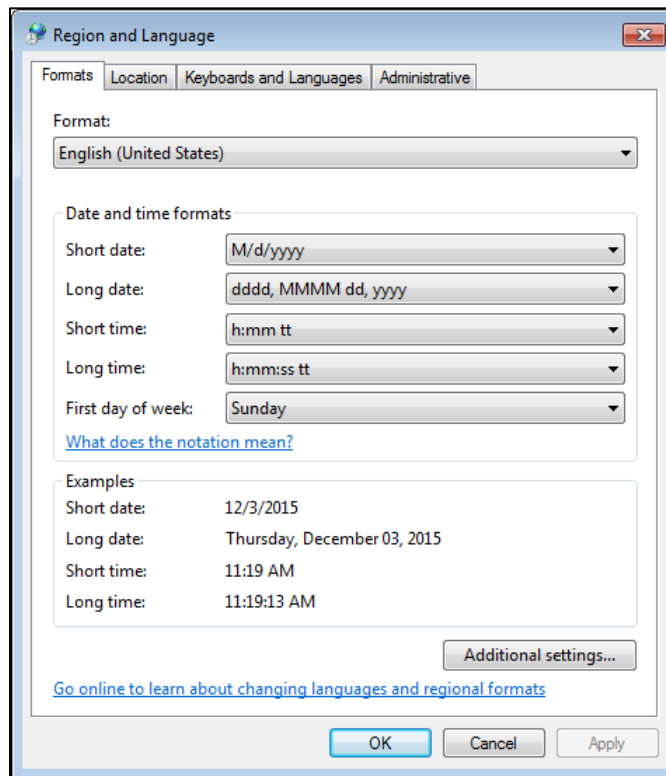


Figure 3-1 Windows Region and Language Dialog Box

4 Installation Package Contents

4.1 Required Software

SQL+Server+2008+R2+ExpressADV+x64.exe – Installer for Microsoft SQL Server 2008 R2 Express and SQL Server Management Studio Express for 64-bit operating systems

4.2 AEDT Software

Install AEDT 2c.exe – Installer for AEDT 2c

5 Software Installation

Install the required software in the order presented in this section. Instructions for verifying the AEDT database versions and steps to uninstall AEDT are also included in this section.

5.1 Install Microsoft SQL Server 2008 R2

Microsoft SQL Server 2008 R2 (x64) or Microsoft SQL Server 2008 R2 Express (x64) must be installed prior to installing AEDT. See Section 3 for system requirements. Microsoft SQL Server 2008 R2 Express (x64) is included in the AEDT 2c installation package (see Section 4). Instructions on installing the SQL Server 2008 R2 Express Edition are described below.



Microsoft SQL Server Management Studio (SSMS) Express is also installed as part of the installation. SQL Server Management Studio is a graphical management tool that allows for configuration and management of Microsoft SQL Server, including backing up and restoring databases and running SQL queries.



The following instructions are written for the Express Edition. The steps and options may be different for other SQL Server Editions.

To install Microsoft SQL Server 2008 R2 Express Edition:

1. Double-click the *SQL+Server+2008+R2+ExpressADV+x64.exe*.
2. Click *Run* if prompted to *Run* or *Cancel*.
3. The *SQL Server Installation Center* window will automatically launch when the files have finished extracting.
4. Click the *Installation* link on the left side of the window.
5. Click the appropriate installation option. Click the *New installation or add features to an existing installation* option unless upgrading from an older version.

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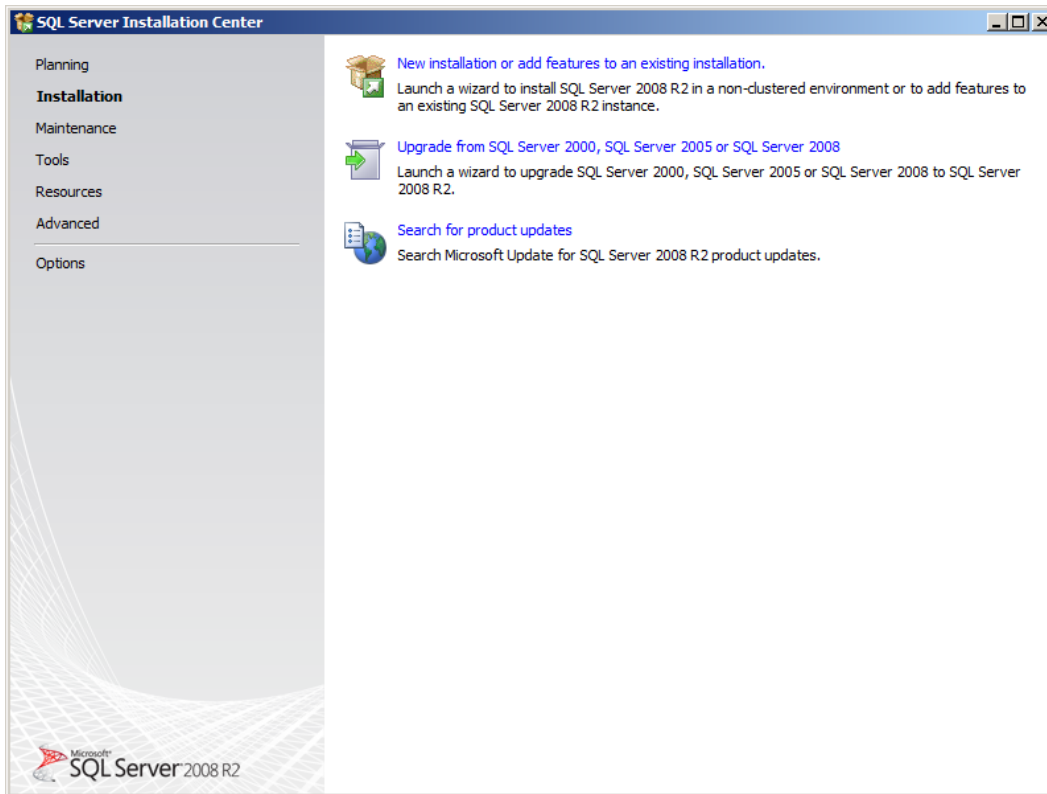


Figure 5-1 SQL Server 2008 R2 Express Installation – Installation Menu

6. SQL Server 2008 R2 Setup will automatically run *Setup Support Rules* which will identify potential installation issues.

7. *License Terms*: Read the terms and check the box that reads *I accept the license terms*. Click *Next*.

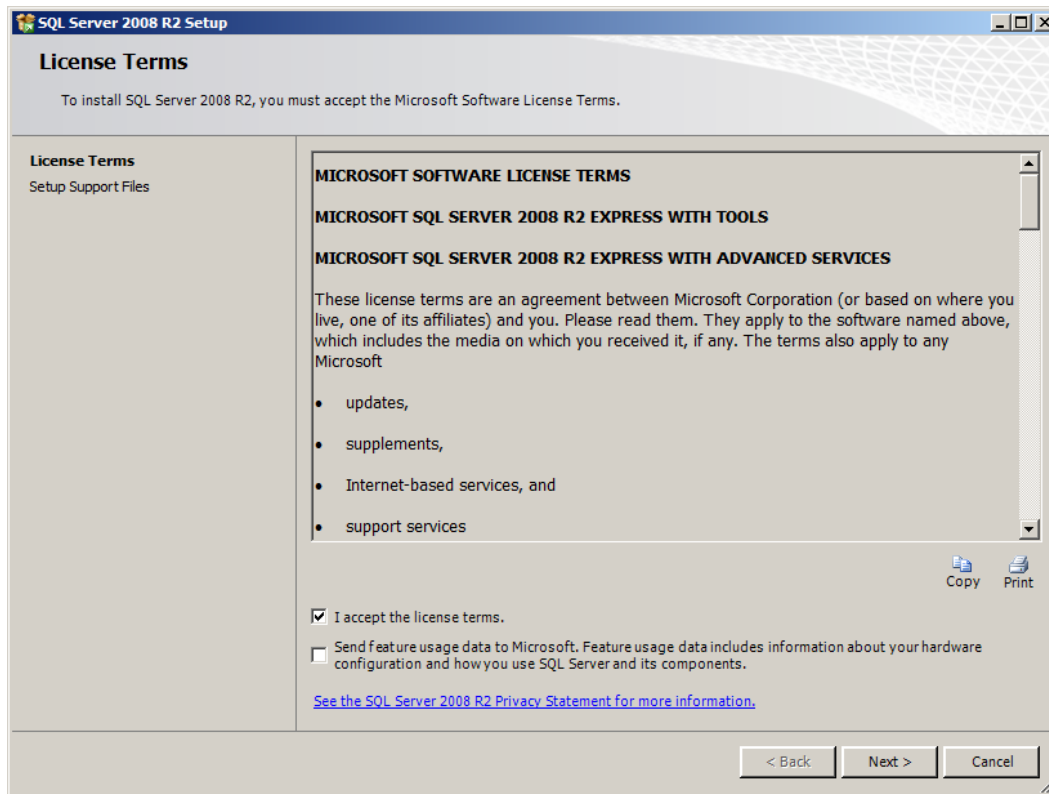


Figure 5-2 SQL Server 2008 R2 Setup – License Terms

8. SQL Server 2008 R2 Setup will automatically run *Setup Support Files*.

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9. *Feature Selection:* The list of features will be different depending on the SQL Server edition (e.g. Express vs. Standard). Select the following features (additional features are optional). Click *Next*.

- *Database Engine Services*
 - *SQL Server Replication*
 - *Full-Text Search*
- *Management Tools – Basic*

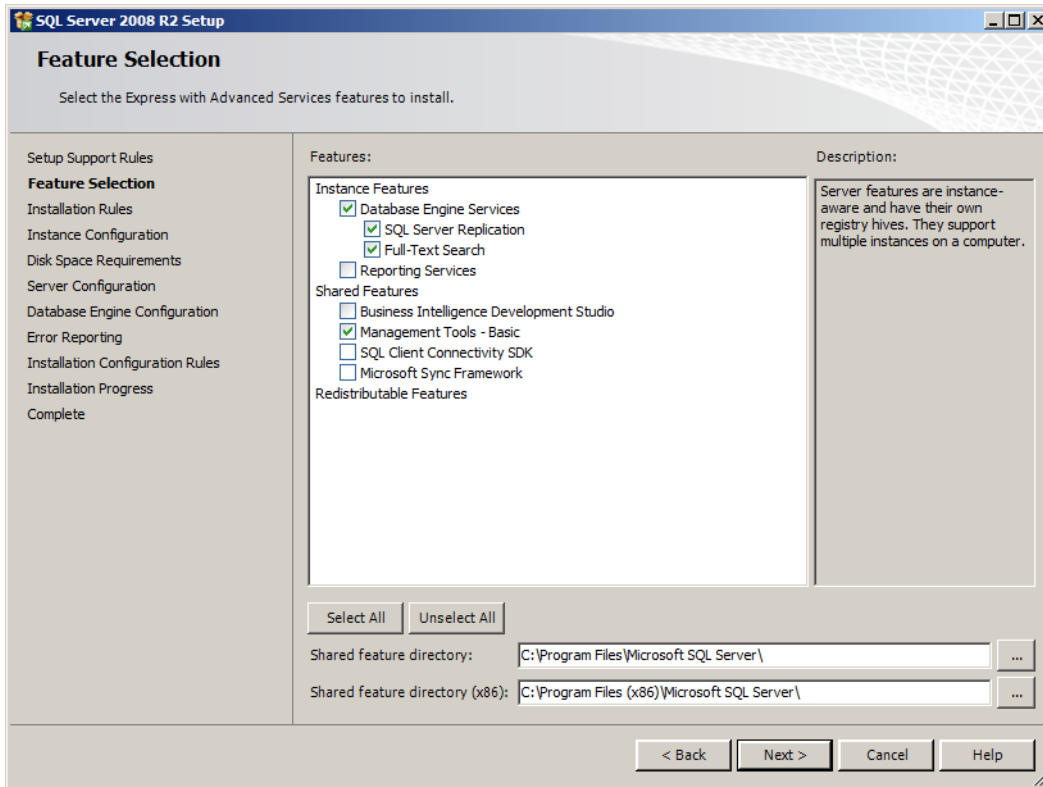


Figure 5-3 SQL Server 2008 R2 Setup – Feature Selection

10. *Instance Configuration*: Accept the default settings and click *Next*.

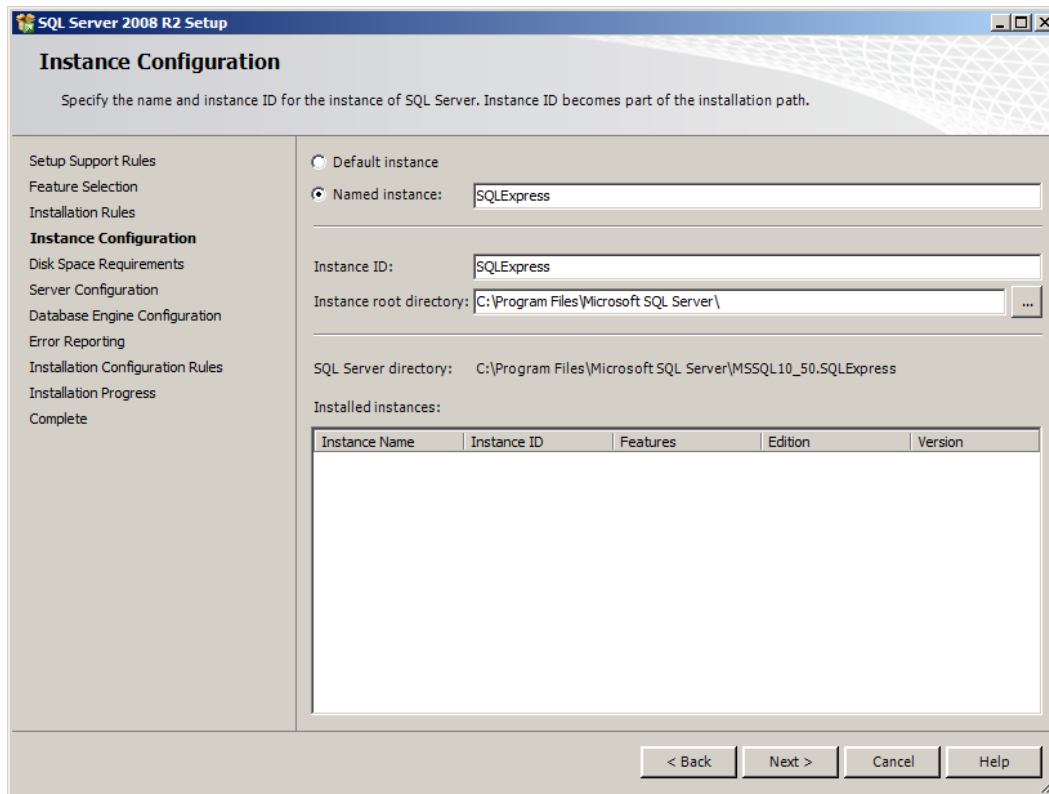


Figure 5-4 SQL Server 2008 R2 Setup – Instance Configuration

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11. *Server Configuration*: For the *SQL Server Database Engine* service, select *NT AUTHORITY\SYSTEM* in the *Account Name* field. Select *Automatic* in the *Startup Type* drop-down menu. Click *Next*.



When possible, use the same system or local account to configure the services. Network accounts can be used when NT authentication is required to establish a “back-end” SQL Server configuration.

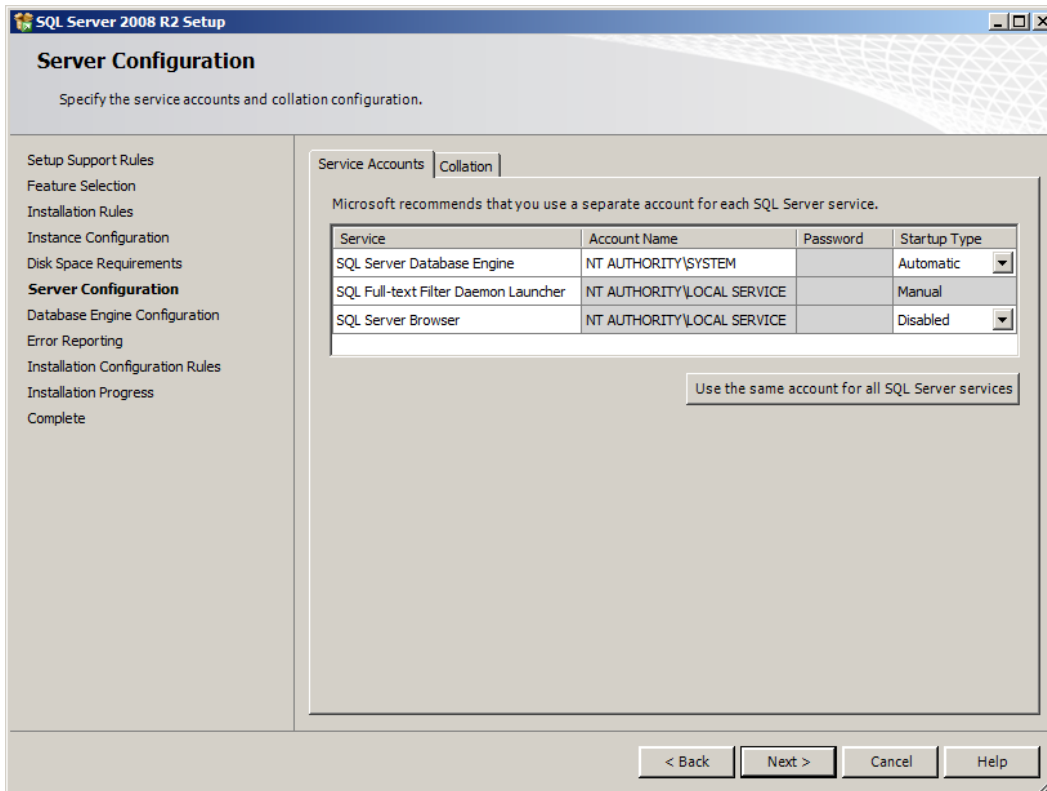


Figure 5-5 SQL Server 2008 R2 Setup – Server Configuration

12. *Database Engine Configuration*: Select the *Mixed Mode* radio button. Enter a password that is at least 10 characters long. Click *Add Current User*. Click *Next*.

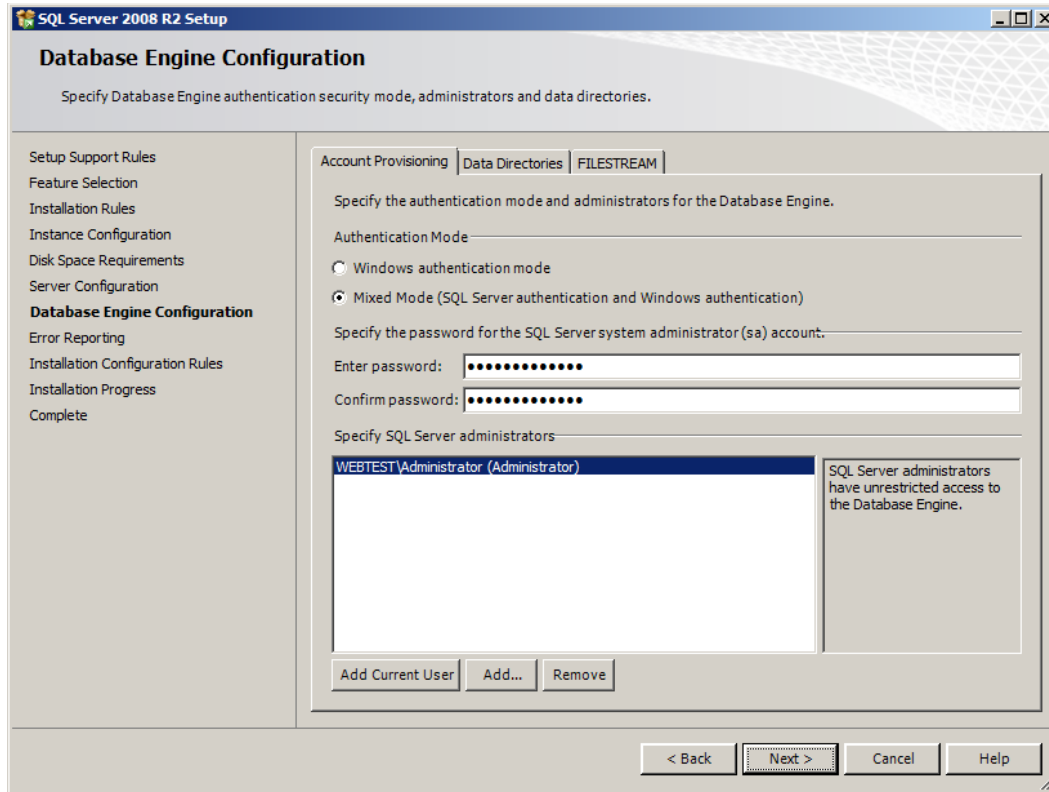


Figure 5-6 SQL Server 2008 R2 Setup – Database Engine Configuration

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13. *Error Reporting*: It is not necessary to select any of the options. Click *Next*.

14. *Installation Progress*: The progress bar and status will update until the installation is complete.

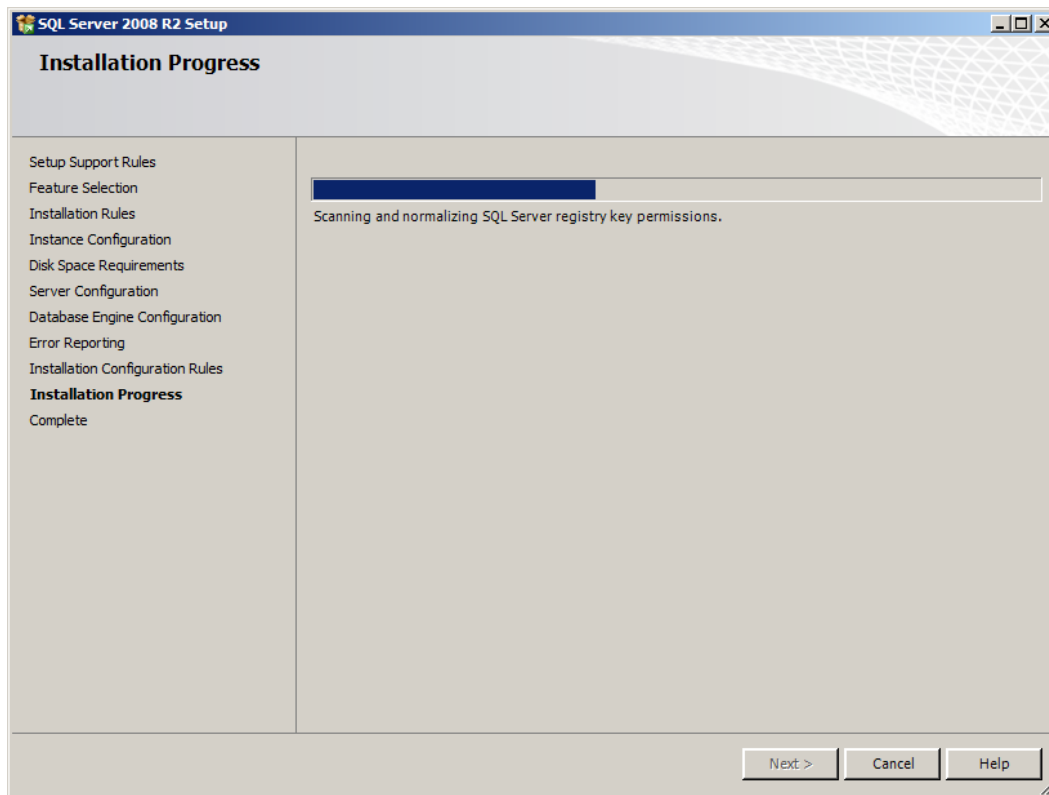


Figure 5-7 SQL Server 2008 R2 Setup – Installation Progress

15. *Complete*: The final screen will confirm that the installation was successful. Click *Close* to close the *Setup* window.

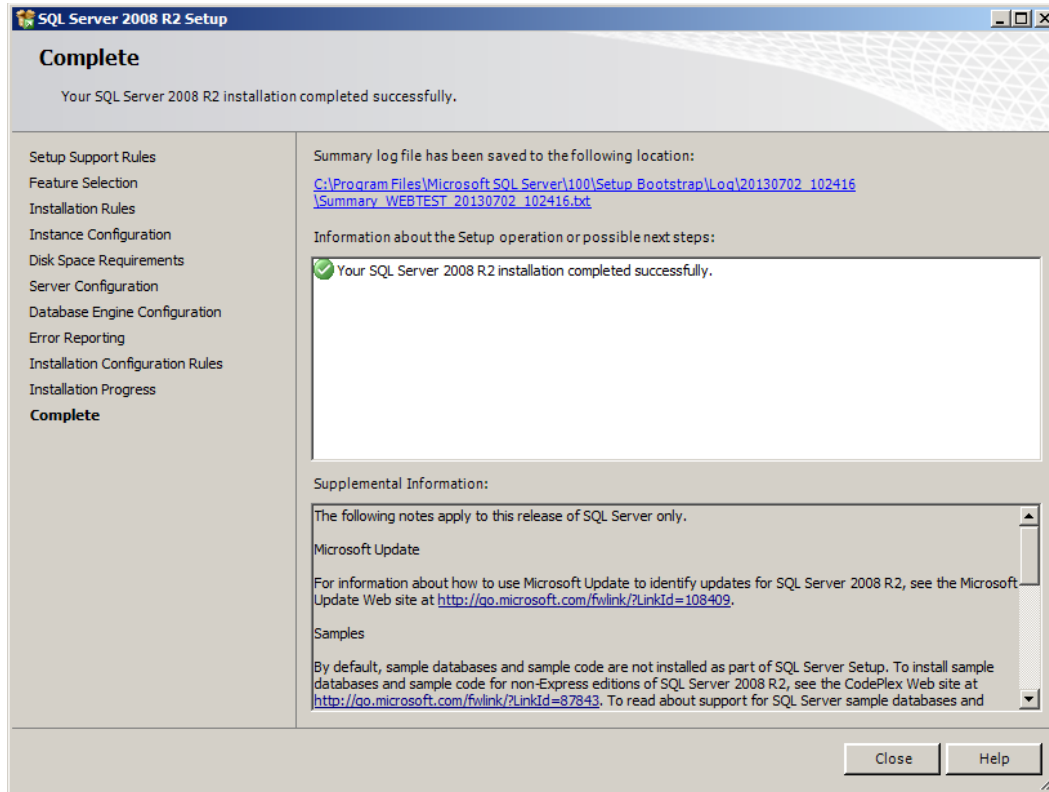


Figure 5-8 SQL Server 2008 R2 Setup – Complete

16. Close the *SQL Server Installation Center* window by clicking the X in the top right corner.

5.2 Install AEDT 2c

Follow the instructions below to install AEDT 2c. To install AEDT application, the user must have administrative rights to the computer.



Installing AEDT 2b and AEDT 2c applications on the same computer is not supported. A warning message will be displayed if installing AEDT 2c on a computer with AEDT 2b already installed is attempted. Uninstall AEDT 2b before installing AEDT 2c.

The AEDT 2b and 2c databases can be installed on the same database server, but on two separate SQL Server instances.

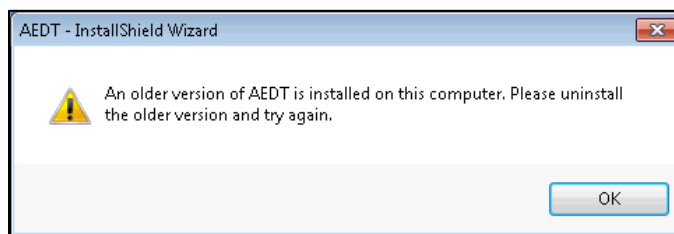


Figure 5-9 AEDT InstallShield Wizard Warning Message

5.2.1 Install AEDT 2c

Follow the instructions below to install the AEDT 2c application and databases.

1. To start the installer, double-click the *Install AEDT 2c.exe* file.
2. If the *User Account Control* dialog box appears, click *Yes*.

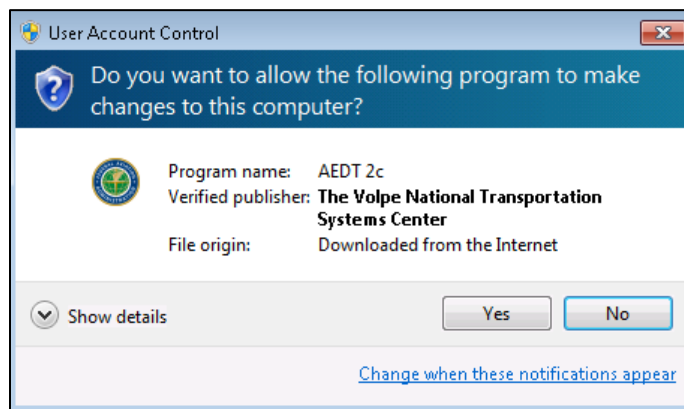


Figure 5-10 User Account Control Dialog Box

3. The InstallShield Wizard for AEDT will open. It will prompt to install the following required software if they are not already installed on the computer.
 - Microsoft .NET Framework 4.6.1
 - Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)
 - Microsoft Visual C++ 2008 SP1 Redistributable Package (x64)

Click *Install* to install the required software.

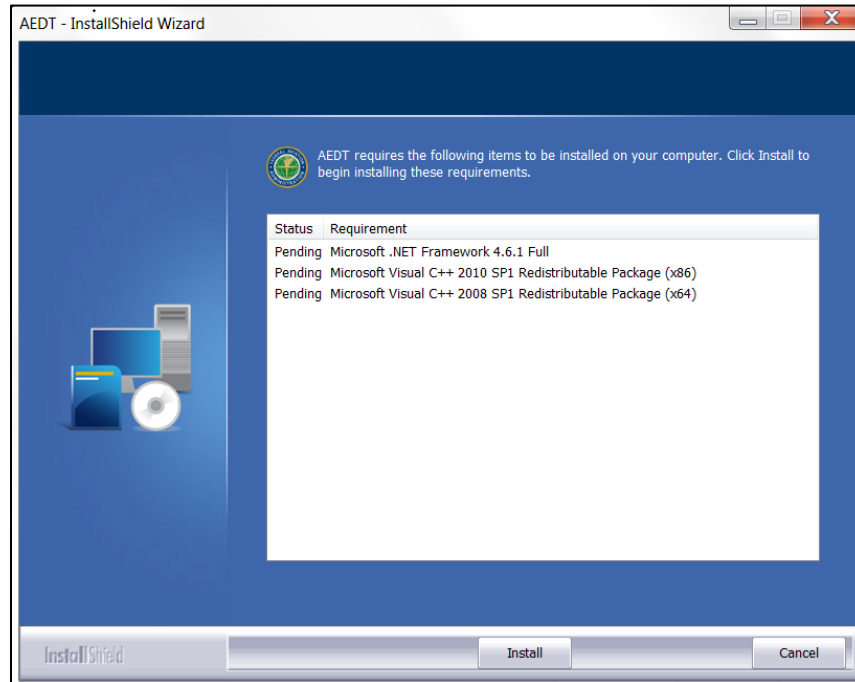


Figure 5-11 AEDT InstallShield Wizard – Requirement

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4. The InstallShield Wizard for AEDT will open. Click *Next*.

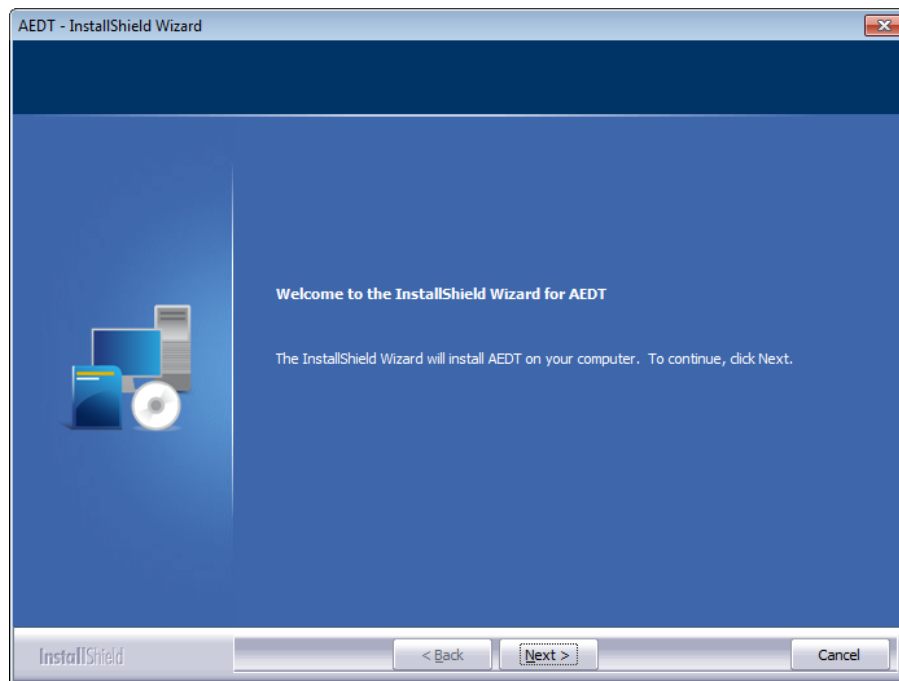


Figure 5-12 AEDT InstallShield Wizard – Welcome

5. Read the license terms and click *I accept the terms of the license agreement*. Click *Next*.

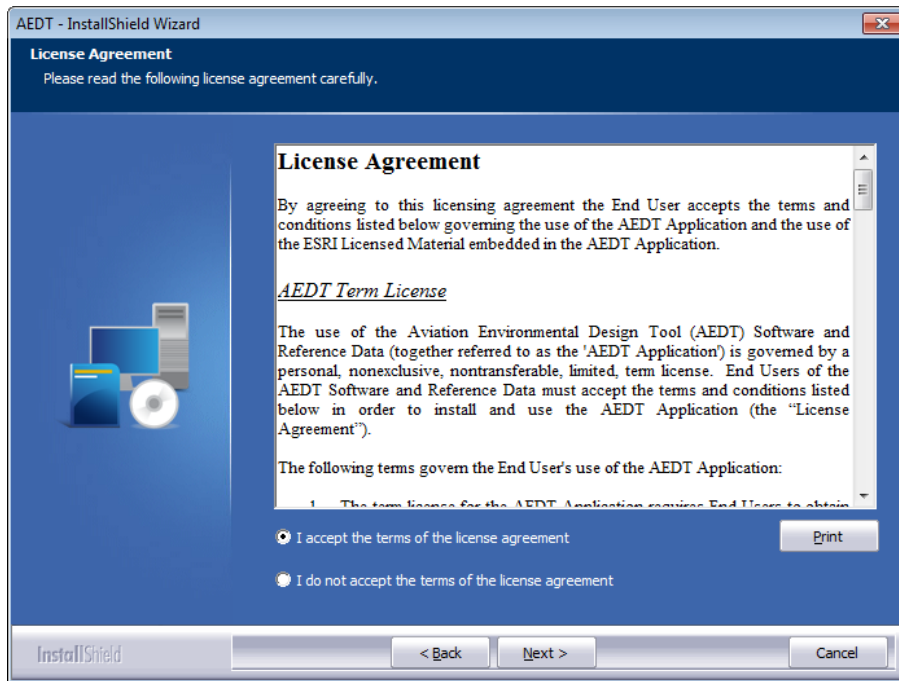


Figure 5-13 AEDT InstallShield Wizard – License Agreement

6. Select the *Complete setup* type and click *Next*.

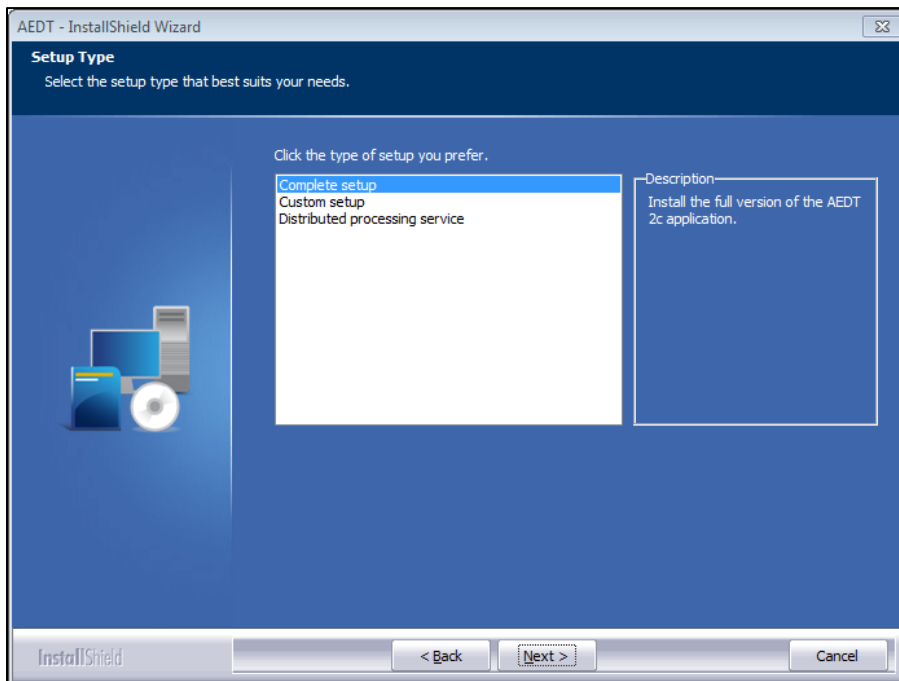


Figure 5-14 AEDT InstallShield Wizard – Setup Type

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7. Click *Browse* and select the desired database server instance. Click *Next*. The installer will connect to the database server and advance to the next step.

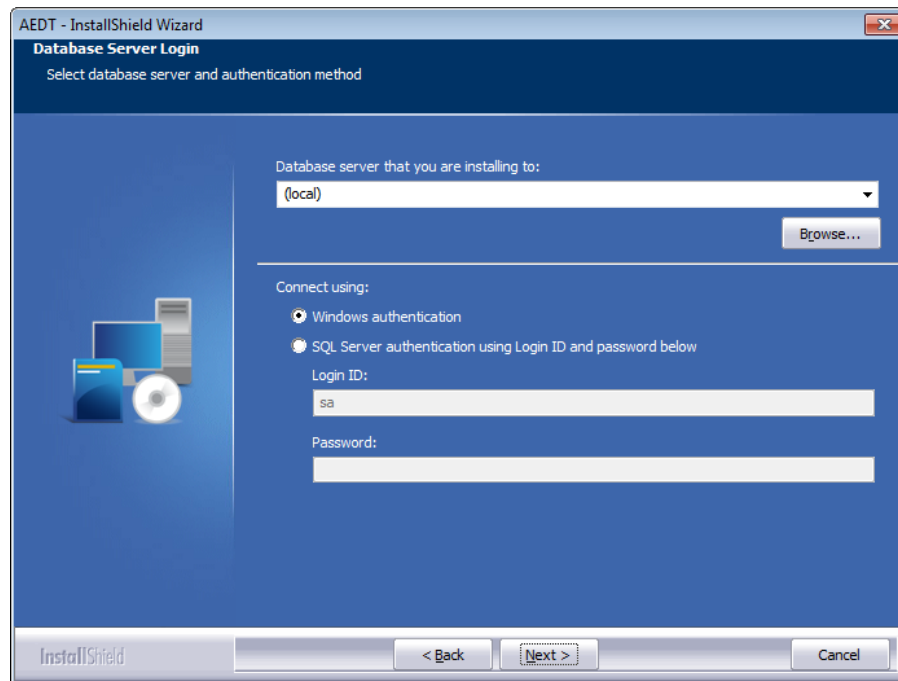


Figure 5-15 AEDT InstallShield Wizard – Database Server

8. Click *Install* to start the installation. The installation progress will be displayed.

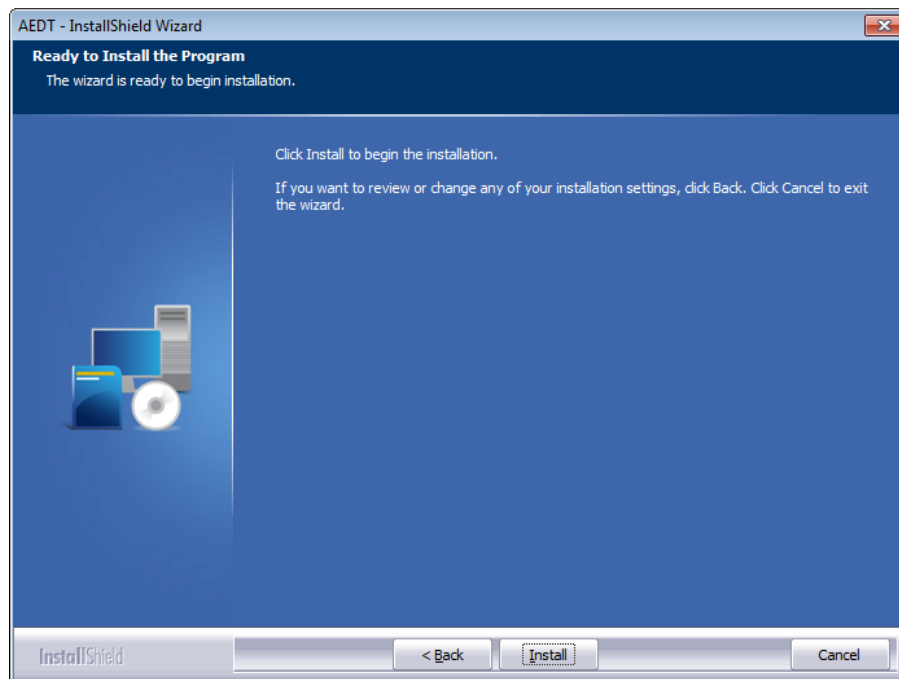


Figure 5-16 AEDT InstallShield Wizard – Ready to Install

9. Click *Finish* when installation is complete.

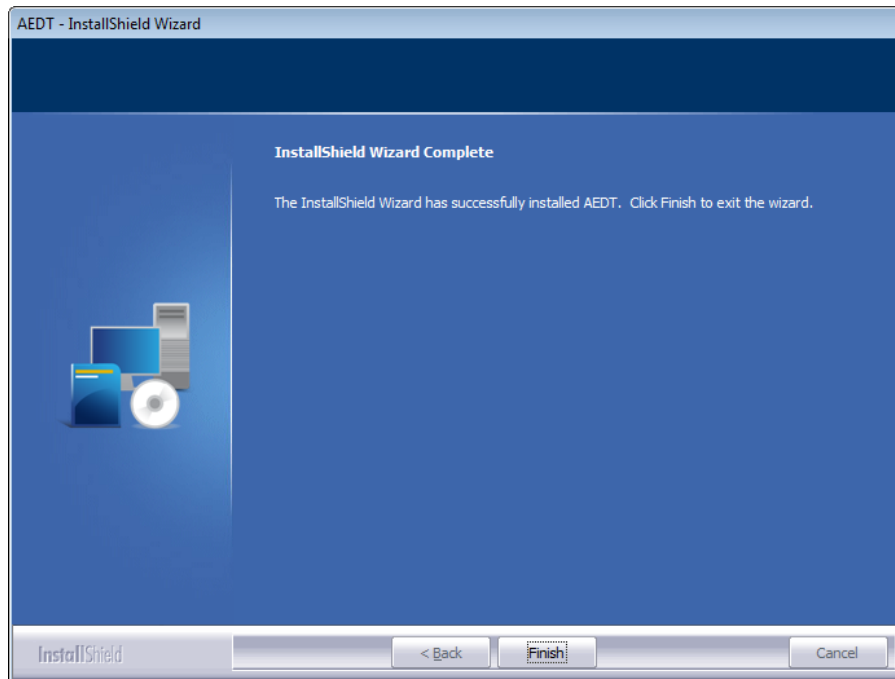


Figure 5-17 AEDT InstallShield Wizard – Installation Complete

10. A shortcut is created on the Desktop with the name: *AEDT 2c*.
11. AEDT 2c is ready for use.



AEDT Setup will start Microsoft Distributed Transaction Coordinator (DTC) service if it is not already started on the computer. The DTC provides services designed to ensure successful and complete transactions.

To check DTC settings on your computer:

1. Click the Windows Start button. In the "Search programs and files" text box, enter "services.msc".
2. Find the service, *Distributed Transaction Coordinator*, and double-click on it.
3. If the *Startup type* is set to *Manual*, change it to *Automatic*.
4. Click the *Log On* tab. The "Log on as" should be set to *Network Service*. To change to *Network Service*, select the "This account" option, then click *Browse*.
5. In the "Enter the object name to select" field, enter "Network Service", then click *OK*.
6. Restart the service.

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5.2.2 Upgrade User-Defined AEDT Study Databases

AEDT 2c supports upgrading studies from study database version 1.43.1 up through and including one version prior to the current version. Follow the instructions in the AEDT 2c User Guide to update a user-defined AEDT study database to the latest version.

5.3 Optional – Install AEDT Distributed Processing Service

Installing the AEDT distributed processing service is optional.

AEDT uses distributed computing to provide the ability to run metric results across a number of remote servers to reduce processing time. A distributed processing system is a collection of computers that communicate through a computer network. In AEDT, up to one fifty remote servers running Taskmaster (TM) service can be networked to a single AEDT client computer running AEDT. The AEDT GUI need only be installed on the AEDT client. On the remote servers a set of standard DLLs need to be installed. If a study references terrain and/or weather files, the necessary files must be placed on all remote servers in the same location specified in the *Definitions* tab on AEDT client. The specified file location must be exactly the same for all remote servers.

Each remote server receives a batch of flight operation information from the AEDT client, processes it, returns the resulting data, and awaits the next batch. The AEDT client assigns batches to the remote servers sequentially, as each remote server becomes available.

AEDT databases can reside on the AEDT client (see Figure 5-18 where S1, S2, S3, S4, S5, and S6 represent remote servers), or to reduce memory consumption on the AEDT client due to SQL server processing, the databases can reside on a separate database server (see Figure 5-19, where S1, S2, S3, S4, S5, and S6 represent remote servers). In the latter case, the AEDT client relays all necessary information to the remote servers. The remote servers do not communicate directly with the separate database server.

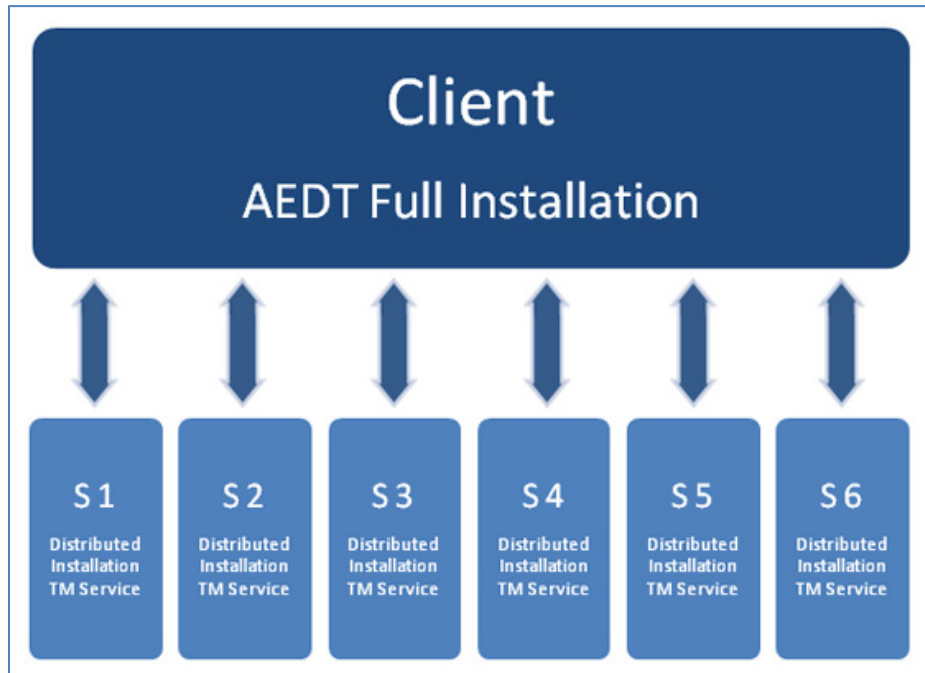


Figure 5-18 Distributed Processing

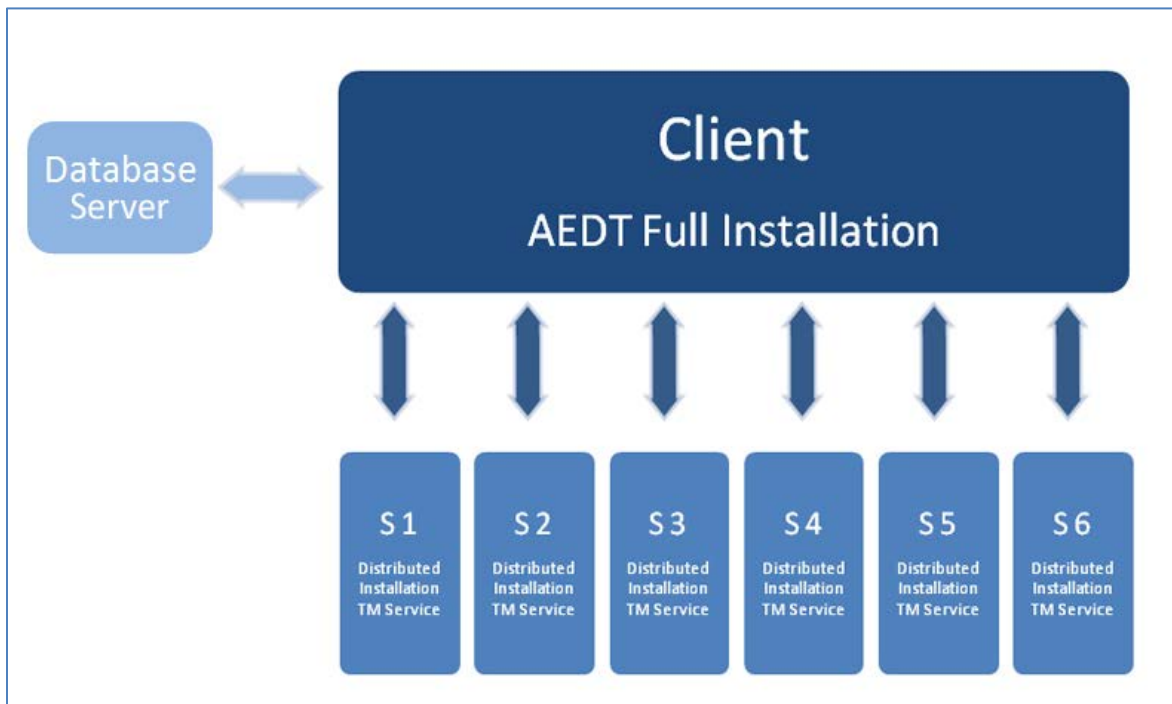


Figure 5-19 Distributed Processing with Separate Database Server

5.3.1 Setup AEDT Client

1. Install the entire AEDT system on the AEDT client, including Microsoft SQL Server, AEDT 2c, and AEDT databases. See sections 5.1 and 5.2.
2. Verify that the AEDT client can run a study successfully. This is an important verification step. If AEDT is not operational on a single machine, AEDT will not operate in distributed processing mode.

5.3.2 Setup Taskmaster Servers Running Distributed Processing Service

Repeat the following instructions for each remote server that is being utilized for distributed processing.



AEDT Setup will start Microsoft Distributed Transaction Coordinator (DTC) service if it is not already started on the computer. The DTC provides services designed to ensure successful and complete transactions.

The DTC service needs to be running on both client and server(s).

To install AEDT distributed processing service:

1. To start the installer, double-click the *Install AEDT 2c.exe* file.
2. If the *User Account Control* dialog box appears, click *Yes*.

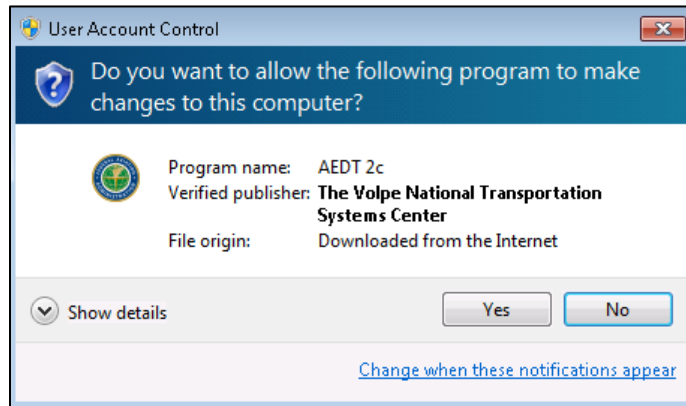


Figure 5-20 User Account Control Dialog Box

3. The InstallShield Wizard for AEDT will open. Click *Next*.

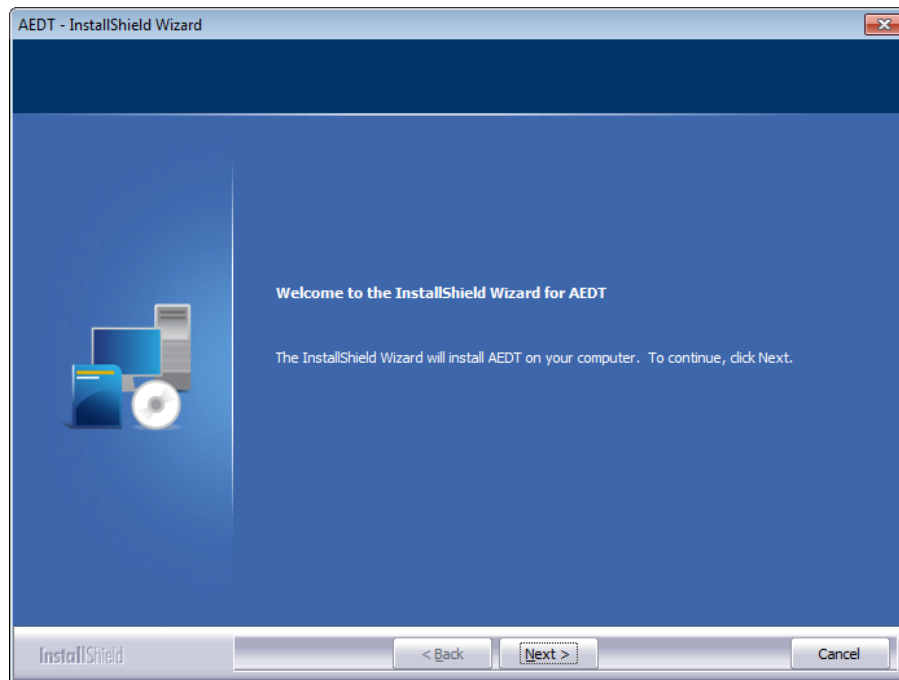


Figure 5-21 AEDT InstallShield Wizard – Welcome

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4. Read the license terms and click *I accept the terms of the license agreement*. Click *Next*.

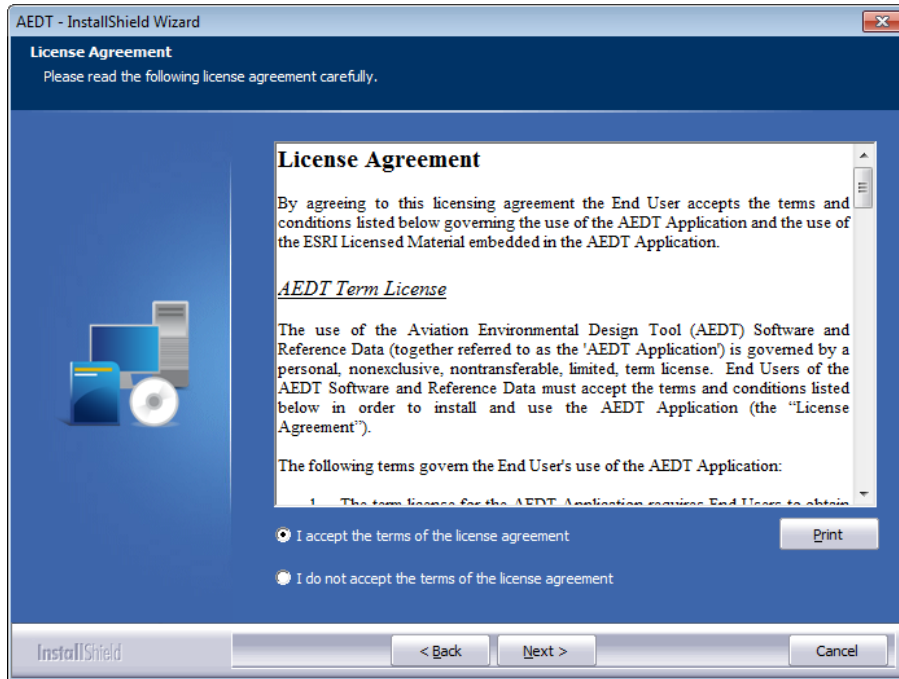


Figure 5-22 AEDT InstallShield Wizard – License Agreement

5. Select the *Distributed processing service* type and click *Next*.

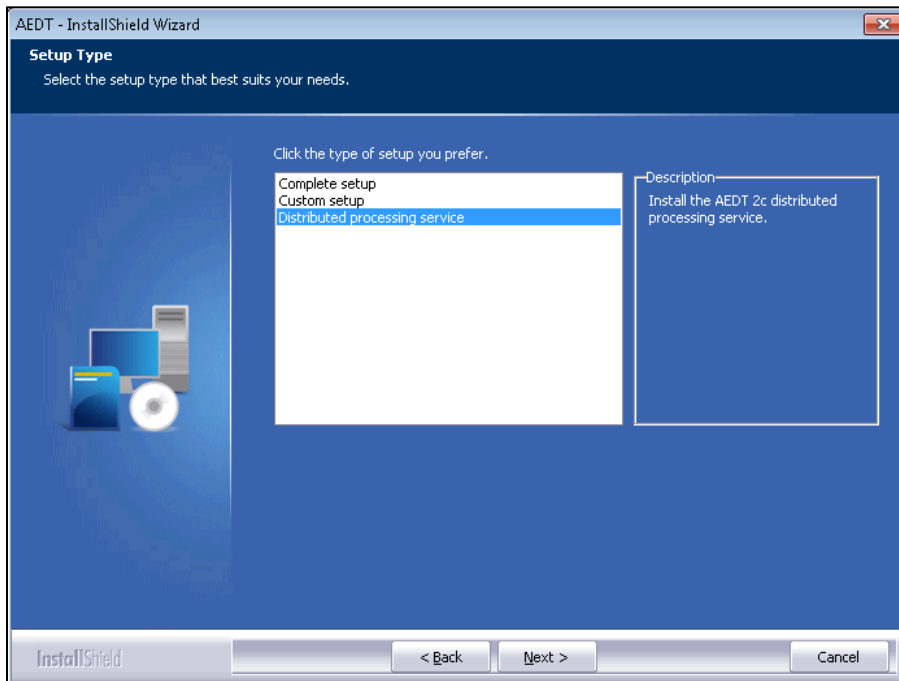


Figure 5-23 AEDT InstallShield Wizard – Setup Type

6. Enter a local user account to be used to start the AEDT distributed processing service. User name must be in the format of DOMAIN\Username (e.g. [computer name]\username), and the user must belong to the local *Administrators* group. Click *Next*. Verifying the account information may take a while.

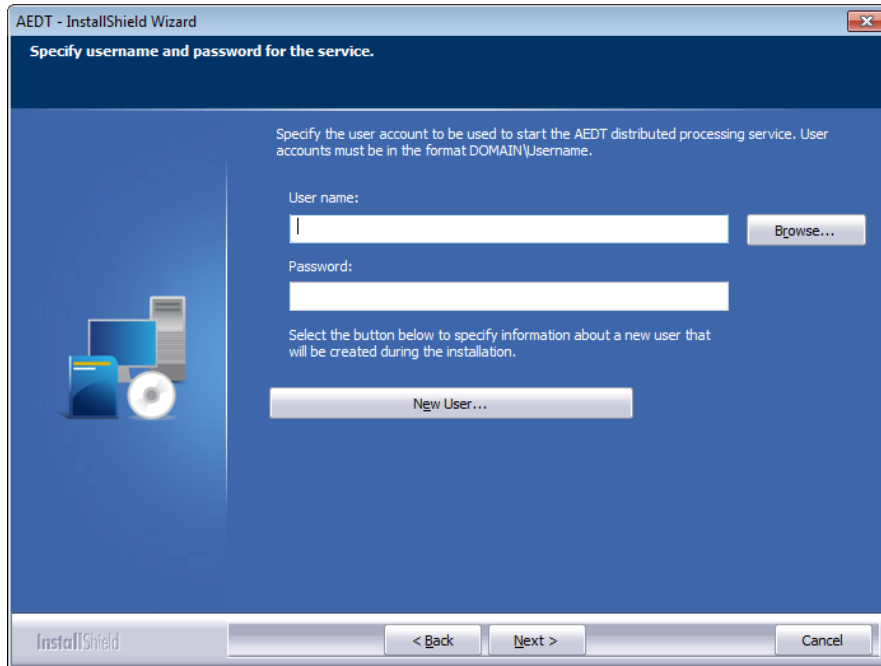


Figure 5-24 AEDT InstallShield Wizard – Specify User Account

7. Click *Install* to start the installation. The installation progress will be displayed.

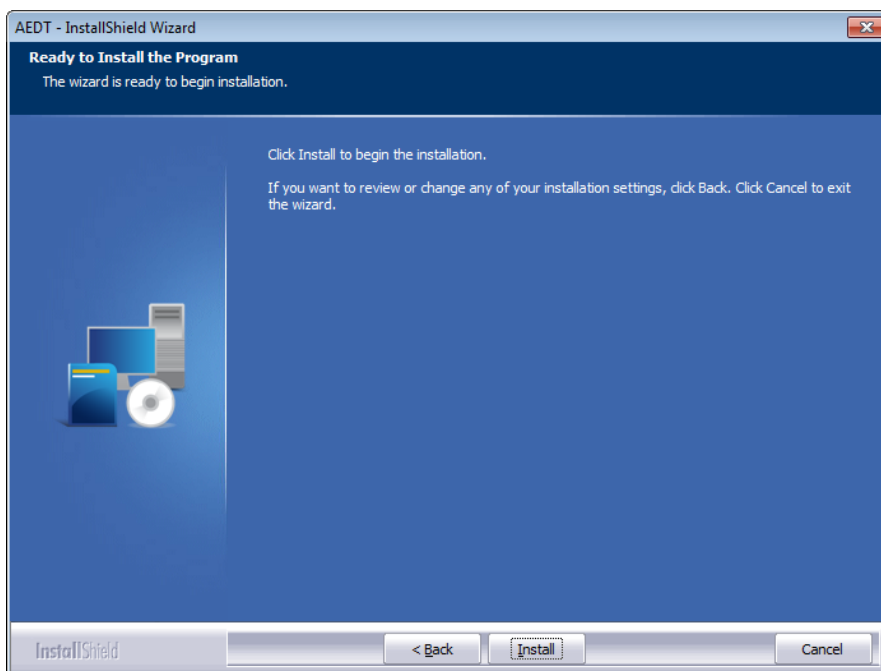


Figure 5-25 AEDT InstallShield Wizard – Ready to Install

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8. Click *Finish* when installation is complete.

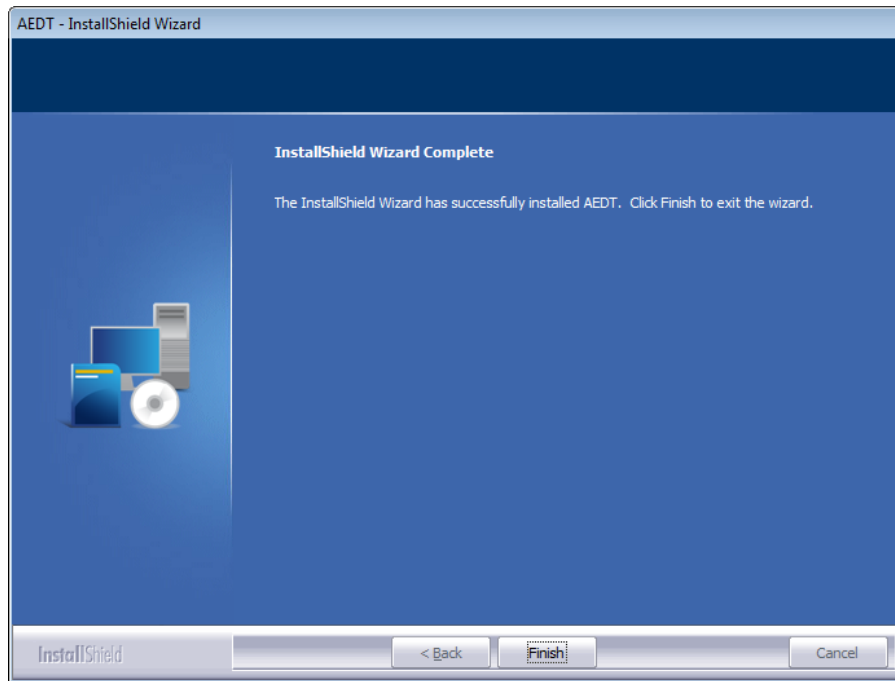


Figure 5-26 AEDT InstallShield Wizard – Installation Complete

9. The AEDT Distributed Processing Service is installed and automatically started. The files to support the service are installed under *C:\Program Files\FAA\AEDT*
10. To view the AEDT 2c Distributed Processing Service:
 - a. Click the *Windows Start* button, and enter "*services.msc*".
 - b. The *Services* dialog opens.
 - c. Find the "AEDT 2c Distributed Processing Service".

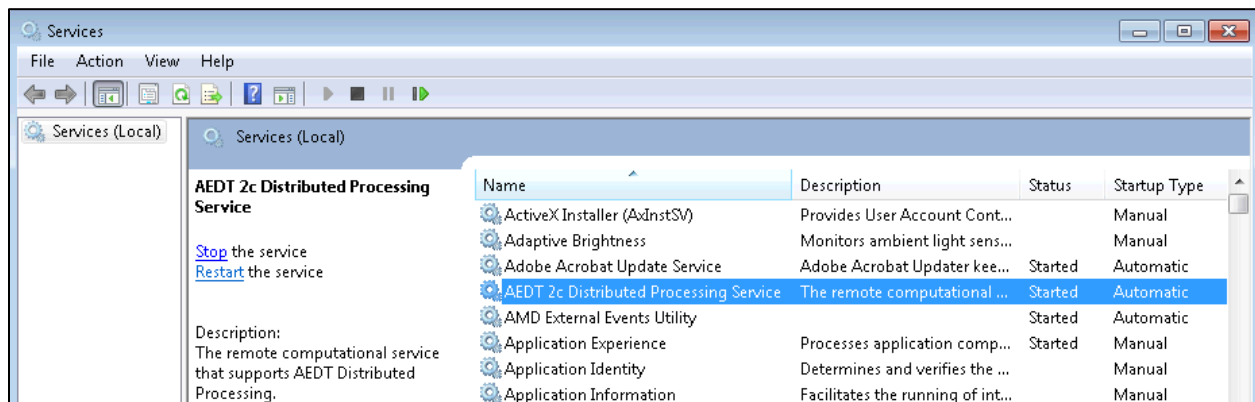


Figure 5-27 Services dialog

5.4 Manage AEDT Databases

The following AEDT system databases are installed as part of the complete AEDT installation. After installing AEDT, open the SQL Server Management Studio from the *Start* menu, *All Programs, Microsoft SQL Server 2008 R2, SQL Server Management Studio* and verify that all the AEDT system databases are listed.

- AIRPORT
- FLEET
- STUDY
- STUDY_DULLES
- STUDY_IFSET
- STUDY_INM
- STUDY_NIRS
- STUDY_PVD
- STUDY_WXYZ

5.4.1 Verify AEDT System Database Versions

1. Open SQL Server Management Studio from the *Start* menu, *All Programs, Microsoft SQL Server 2008 R2, SQL Server Management Studio*.
2. In the *Connect to Server* dialog box, enter or select the appropriate SQL Server instance name, then click the *Connect* button.
3. From the *File* menu, select *Open, File*.
4. Navigate to *C:\Program Files\FAA\AEDT\Script Files\InstallCheckDBversions.sql* and select *Open*.
5. Click the *Execute* button located on the toolbar.
6. Check the database versions displayed in the *Results* tab.

5.4.2 Backup SQL Server Database

1. Open SQL Server Management Studio from the *Start* menu, *All Programs, Microsoft SQL Server 2008 R2, SQL Server Management Studio*.
2. In the *Connect to Server* dialog box, enter or select the appropriate SQL Server instance name then click the *Connect* button.
3. In the *Object Explorer*, select the study database of interest.
4. Right-click on the database, and select *Tasks, Back Up...* to open the *Back Up Database* dialog box.
5. Verify that the *Backup type* is set to *Full*.
6. If an entry has already been added to the *Destination* field, select the entry and click the *Remove* button.
7. Click the *Add* button to open the *Select Backup Destination* dialog box.
8. Click the *...* button and browse to the desired location for storing the backup file.
9. Enter the desired file name in the *File Name* field, including the *.bak* extension. Click *OK*.
10. Click *OK* to close the *Select Backup Destination* dialog box.
11. Click *OK* to back up the database. A confirmation message will be displayed if the backup was successful.

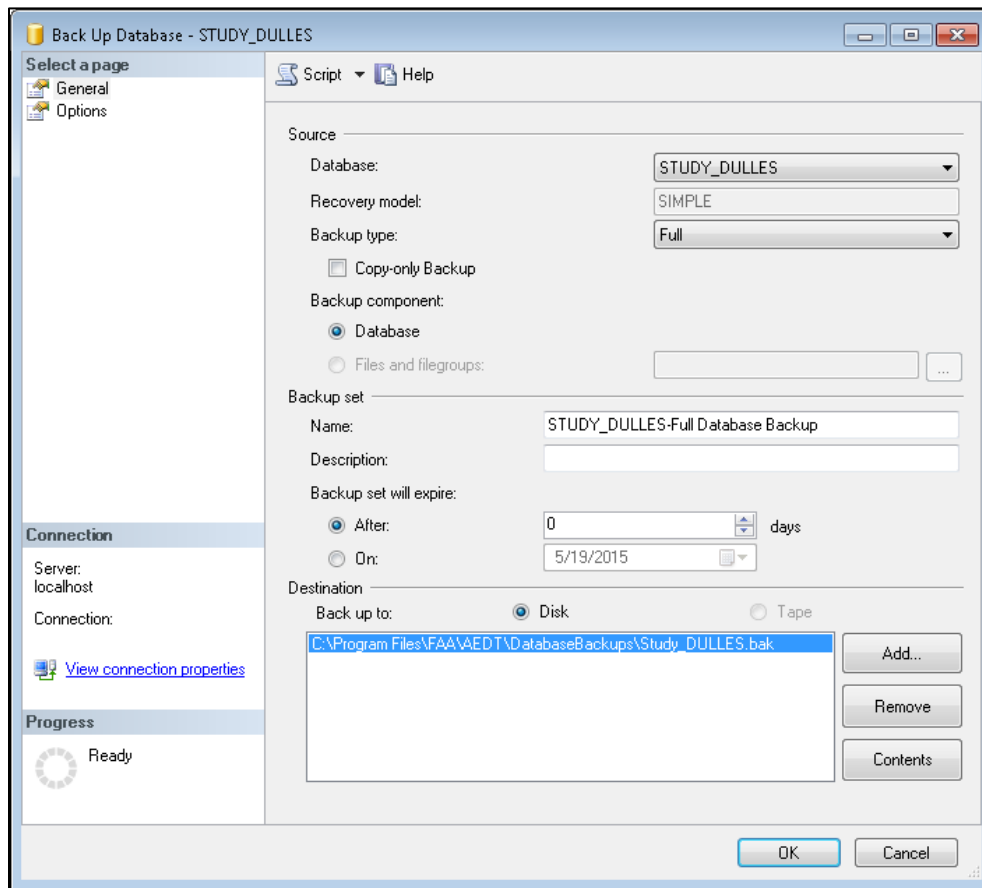


Figure 5-28 Microsoft SQL Server Management Studio – Back Up Database Dialog Box

5.4.3 Restore SQL Server Database

The SQL Server backup files (.bak) of the AEDT system databases are located in *C:\Program Files\FAA\AEDT\DatabaseBackups*.

1. Open SQL Server Management Studio from the *Start* menu, *All Programs, Microsoft SQL Server 2008 R2, SQL Server Management Studio*.
2. In the *Connect to Server* dialog box, enter or select the appropriate SQL Server instance name then click the *Connect* button.
3. In the *Object Explorer*, select the database of interest.
4. Right-click on the database, and select *Tasks, Restore, Database...* to open the *Restore Database* dialog box.
5. Select the *From device* radio button, then click the ... button to open the *Specify Backup* dialog box.
6. Click the *Add* button. Browse to the location of the previously stored back-up file, and click *OK*.
7. Click *OK* to close the *Specify Backup* dialog box.
8. Select the *Restore* checkbox for the backup file.
9. Select the *Options* page from the left side of the *Restore Database* dialog box.
10. Check the *Overwrite the existing database (WITH REPLACE)* option.
11. Click *OK* to restore the database. A confirmation message will be displayed if the restore was successful.

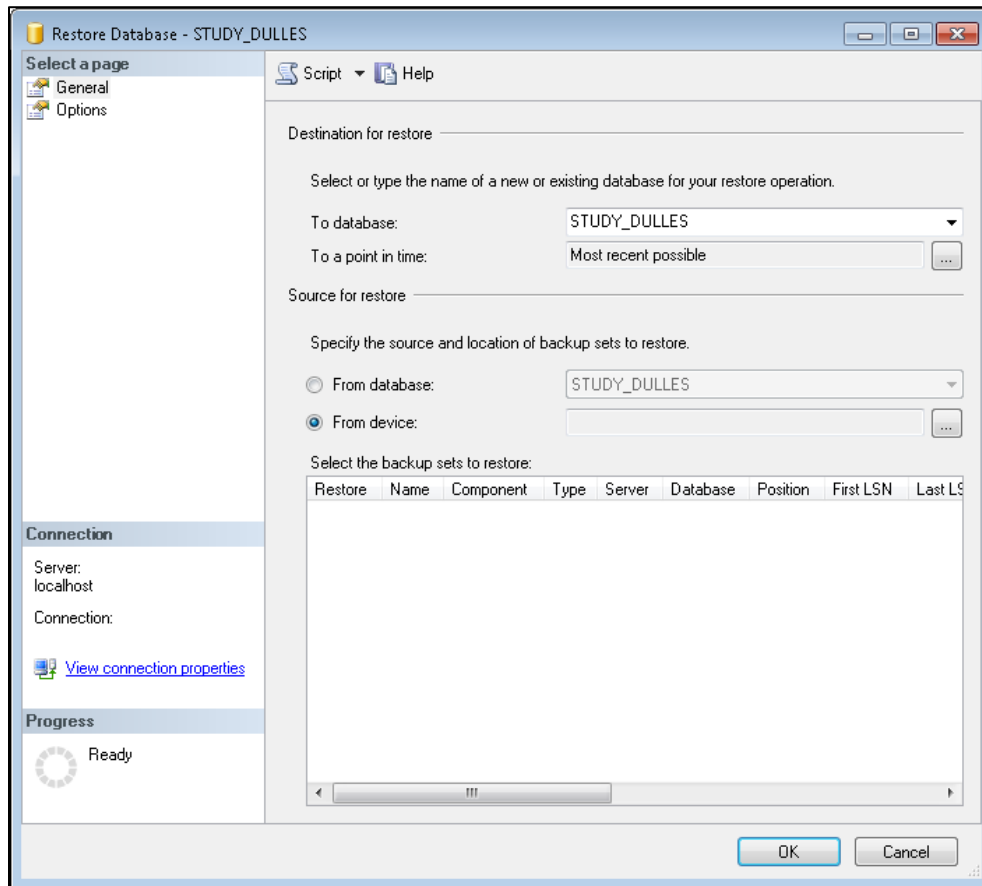


Figure 5-29 Microsoft SQL Server Management Studio – Restore Database Dialog Box

5.4.4 Delete SQL Server Database

AEDT study databases can be deleted in the SQL Server Management Studio. Exit the AEDT application before deleting an AEDT study database.

1. Open SQL Server Management Studio from the *Start* menu, *All Programs, Microsoft SQL Server 2008 R2, SQL Server Management Studio*.
2. In the *Connect to Server* dialog box, enter or select the appropriate SQL Server instance name then click the *Connect* button.
3. In the *Object Explorer*, select the database of interest.
4. Right-click on the database, and select *Delete* to open the *Delete Object* dialog box.
5. The “Delete backup and restore history information for databases” checkbox is selected by default. Change this setting as desired.
6. Select the “Close existing connections” checkbox.
7. Click *OK* to delete the database and close the dialog box.

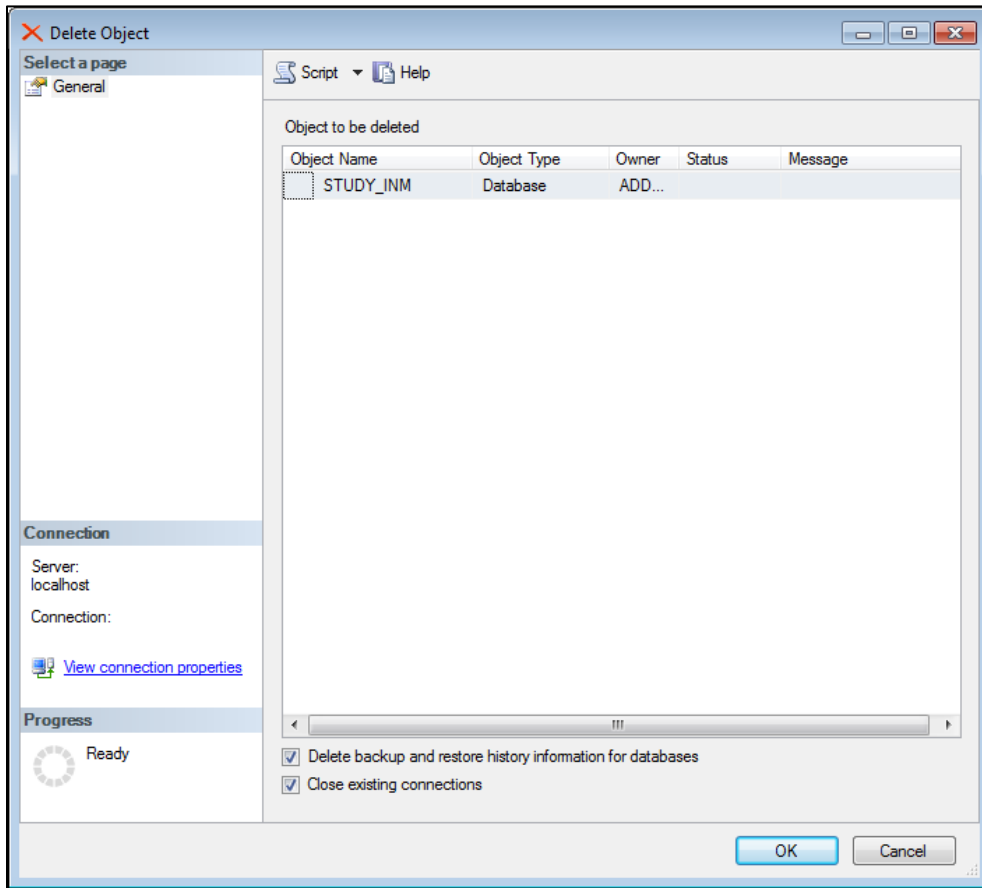


Figure 5-30 Microsoft SQL Server Management Studio – Delete Object Dialog Box

5.5 Steps to Uninstall AEDT

To uninstall AEDT:

1. Navigate to *Start, Control Panel*, and select *Uninstall a program*.
2. Select *AEDT* from the program list and click *Uninstall*.
3. A dialog box will open to confirm the uninstallation of AEDT. Click *Yes* to confirm. This will uninstall AEDT and the system databases.

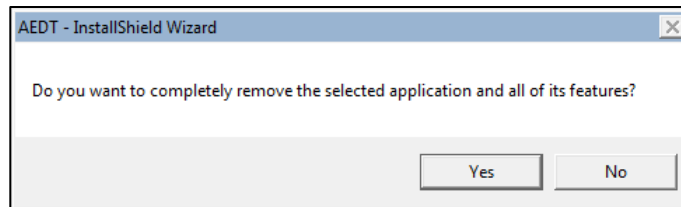


Figure 5-31 AEDT InstallShield Wizard – Uninstall Confirmation

4. The status bar will display an estimated time to finish removing the program.
5. Once the uninstallation is complete, the confirmation window will display. Click *Finish* to close the window.

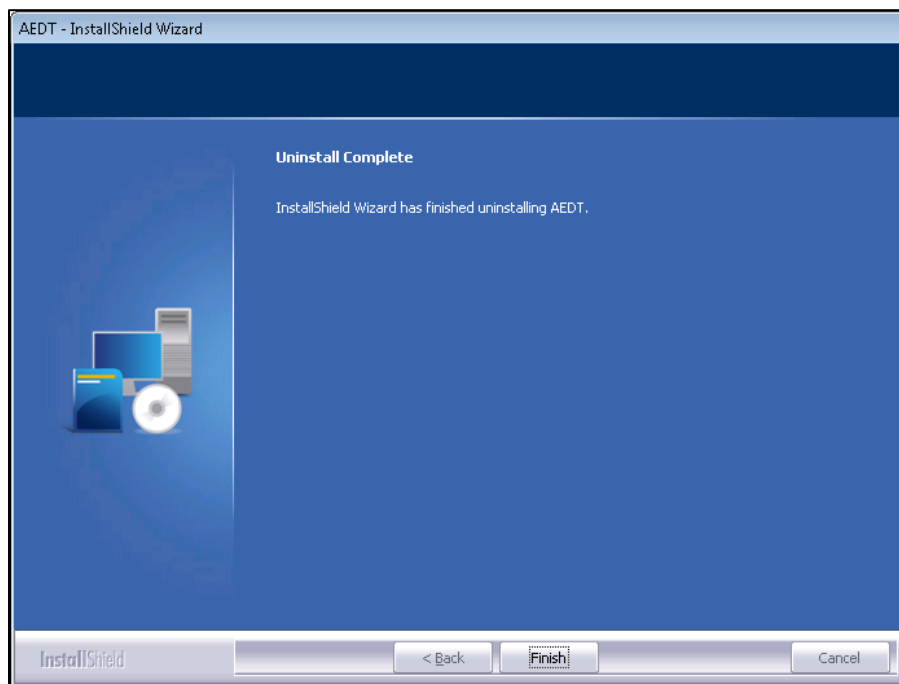


Figure 5-32 AEDT InstallShield Wizard – Uninstall Complete

6. Confirm that the following folder has been removed. If not, manually delete the folder.
 - C:\Program Files\FAA\AEDT