

Aviation Environmental Design Tool (AEDT)

Version 2c Service Pack 2

Installation Guide



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1 Installation Introduction

This document provides detailed instructions on how to install and run AEDT 2c Service Pack 2 (SP2). It is important to follow the installation instructions in the order listed below, as Microsoft SQL Server 2008 R2 or 2012 is a prerequisite for AEDT. Installation components must run locally.

- 1. Install Microsoft SQL Server 2008 R2 or 2012
- 2. Install AEDT 2c SP2



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

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.

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3 System Requirements

System specifications for computers capable of hosting the AEDT 2c SP2 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 SP2 System Requirements

AEDT 2c Service Pack 2 System Speci

	AEDT 2c Service Pack 2 System Specifications			
	Minimum	Preferred	For Running Global Level Studies	
Operating Systems ¹	Microsoft Windows 7 (x64)	Microsoft Windows 7 (x64) or Window Server 2012	Microsoft Windows 7 (x64) or Windows Server 2012	
Processor	Modern dual core processor with 2 GHz or higher clock	Modern many core (>2) processors with 2 GHz or higher clock	Modern many core (>2) processors with 2 GHz or higher clock	
RAM	8 GB	16 GB	64 GB	
Hard Disk Space	100 GB Storage	500 GB Storage	2 TB Storage RAID	
Microsoft SQL Server	SQL Server 2012 Express or SQL Server 2008 R2 Express	SQL Server 2012 or SQL Server 2008 R2	SQL Server 2012 or SQL Server 2008 R2	
Other Software	Adobe Reader X (v10) or higher	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.



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.

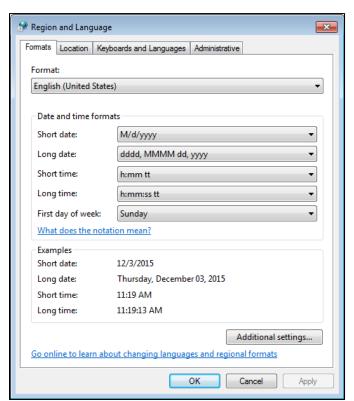


Figure 3-1 Windows Region and Language Dialog Box

Installation Guide: 2c SP2

4 Installation Package Contents

4.1 Microsoft SQL Server Software

- **SQL_Server_2012_SQLEXPRADV_x64_ENU.exe** Installer for Microsoft SQL Server 2012 Express and SQL Server Management Studio Express for 64-bit operating systems
- 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



The SQL Server Express (a free edition of SQL Server) has the following limitations:

- Limited to the lesser of one socket or four cores
- Maximum memory for the database engine is 1 GB
- Maximum database size is 10 GB per database

4.2 AEDT Software

- Install AEDT 2c SP2.exe Installer for AEDT 2c SP2 application
- Install AEDT 2c SP2 Distributed Processing.exe Installer for AEDT 2c SP2 Distributed Processing service (see Section 5.3)

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.

There are two typical installation configurations for AEDT.

- Standalone configuration: The AEDT GUI application and AEDT databases are all installed on one machine. For this setup, first install Microsoft SQL Server (Section 5.1), then the AEDT application (Section 5.2).
- Client Server configuration: The AEDT GUI application is installed on one or more client
 (individual) machines and connect to a separate database server where AEDT databases are
 installed. For this setup, first install the AEDT application on a SQL Server; then install the AEDT
 application on client machine(s) (Section 5.2). Accessing the same study database
 simultaneously by more than one user is not recommended.



For Client – Server configuration, it is recommended to install the full AEDT (both application and databases) on the database server. It is useful to have the AEDT application on the database server for troubleshooting.

In addition to the typical installation configurations, a distributed processing configuration can be setup to run metric results across a number of remote servers to reduce processing time, see Section 5.3.

5.1 Install Microsoft SQL Server

Microsoft SQL Server 2012 or Microsoft SQL Server 2008 R2 must be installed prior to installing AEDT. See Section 3 for system requirements. The Express Edition installers for Microsoft SQL Server 2012 and 2008 R2 are included in the AEDT installation package (see Section 4). Instructions on installing the SQL Server 2012 Express Edition are described below.



Starting with AEDT 2c SP2, Microsoft SQL Server 2012 is offcially supported.



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 SQL Server 2012 Express Edition. The steps and options may be different for other SQL Server Editions.

To install Microsoft SQL Server 2012 Express Edition:

- 1. Double-click the SQL_Server_2012_SQLEXPRADV_x64_ENU.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.

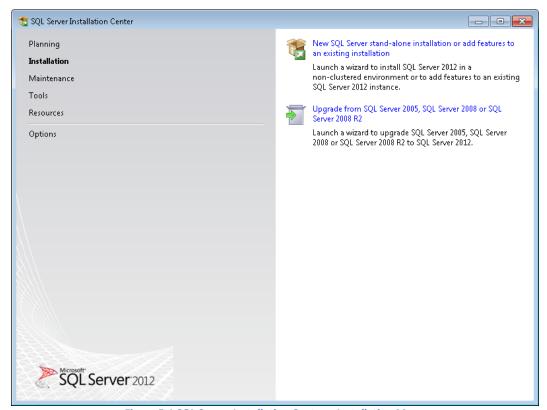


Figure 5-1 SQL Server Installation Center – Installation Menu

6. SQL Server 2012 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.

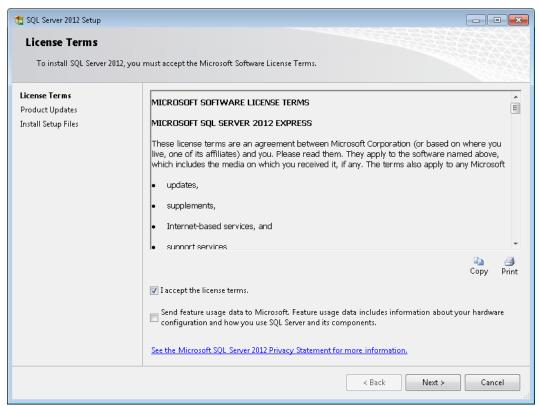


Figure 5-2 SQL Server 2012 Setup - License Terms

8. Product Updates: Check the box to include the SQL Server product updates. Click Next.

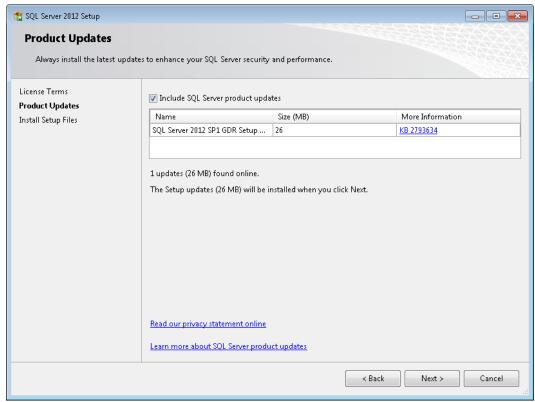


Figure 5-3 SQL Server 2012 Setup – Product Updates

9. SQL Server 2012 Setup will automatically run Install Setup Files.

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- 10. Feature Selection: The list of features will be different depending on the SQL Server Edition. Select the following features (additional features are optional). Click Next.
 - Database Engine Services
 - o SQL Server Replication
 - o Full-Text and Semantic Extractions for Search
 - Management Tools Basic

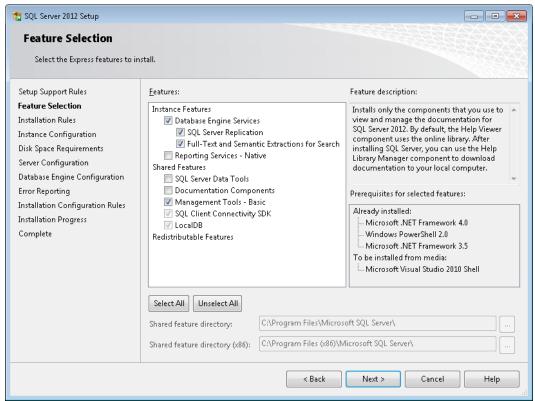


Figure 5-4 SQL Server 2012 Setup - Feature Selection

11. *Instance Configuration:* When installing the Express Edition, the "Named instance" option is selected by default. Select the desired instance option. If *Named instance* is selected, change the named instance name as needed. Click *Next*.

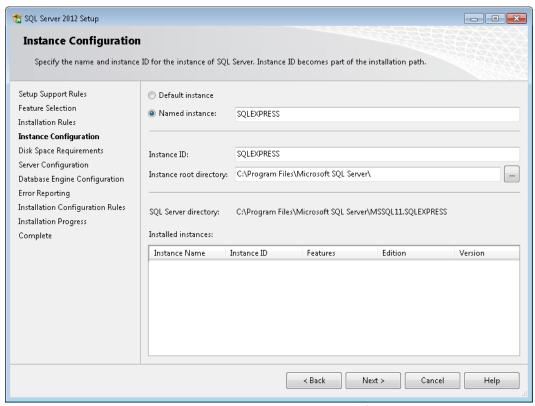


Figure 5-5 SQL Server 2012 Setup – Instance Configuration



The SQL Server instance selected in this step should also be selected when installing AEDT (see Figure 5-17). For example, if "Default instance" is selected in this step, select the "(local)" instance when installing AEDT. If "Named instance" is selected, select the "(local)\[named instance]" when installing AEDT.

12. Server Configuration: The default settings work in most cases. Change the settings if necessary. Click Next.

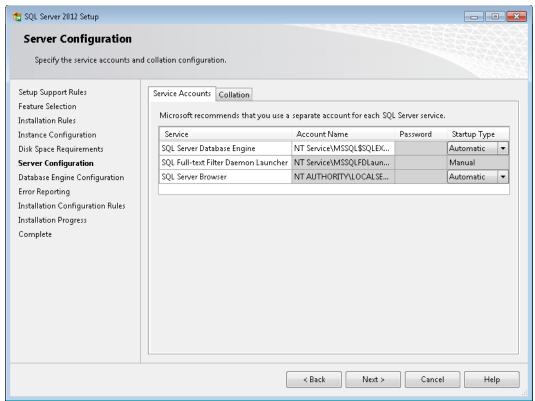


Figure 5-6 SQL Server 2012 Setup – Server Configuration

13. Database Engine Configuration: Select the desired authentication mode. Click Next.

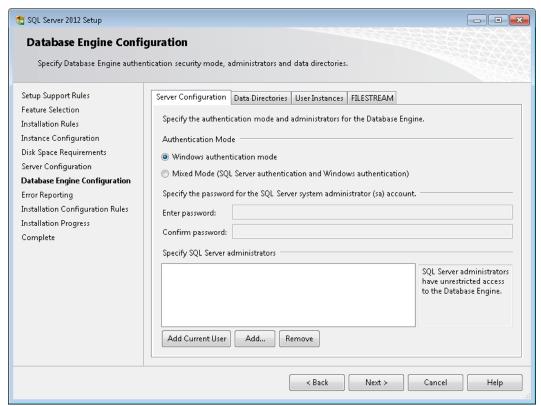


Figure 5-7 SQL Server 2012 Setup – Database Engine Configuration

- 14. Error Reporting: It is not necessary to select any of the options. Click Next.
- 15. Installation Progress: The progress bar and status will update until the installation is complete.

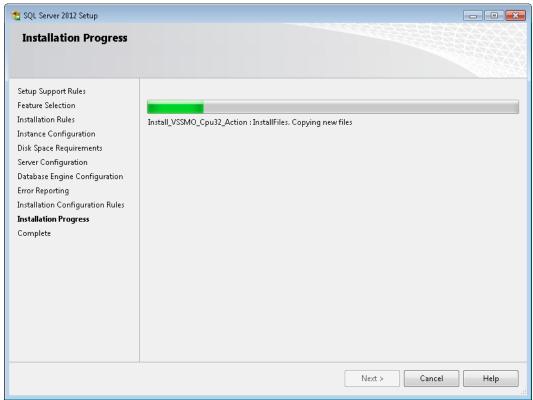


Figure 5-8 SQL Server 2012 Setup – Installation Progress

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

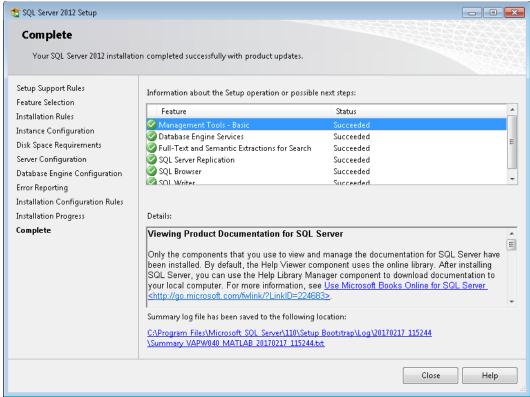


Figure 5-9 SQL Server 2012 Setup – Complete

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

5.2 Install AEDT 2c Service Pack 2

Follow the instructions below to install AEDT 2c SP2. To install the AEDT application, the user must have administrative rights to the computer.



What is side-by-side installation?

AEDT 2c SP2 can be installed side by side with an older AEDT release (e.g., 2c SP1, 2c, 2b SP3). The AEDT databases from two different versions can be installed on the same database server, but on two separate SQL Server instances. Create a new SQL Server instance before proceeding with side-by-side installation of AEDT.

Side-by-side installation supports installing AEDT 2c SP2 when an older AEDT release is already installed. It does not support installing an older AEDT release on top of AEDT 2c SP2.

5.2.1 Install AEDT 2c SP2

Follow the instructions below to install the AEDT 2c SP2 application and databases.

- 1. To start the installer, double-click the *Install AEDT 2c SP2.exe* file.
- 2. If the *User Account Control* dialog box appears, click *Yes*.

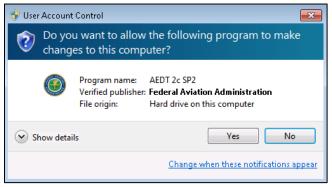


Figure 5-10 User Account Control Dialog Box

Installation Guide: 2c SP2

- 3. The setup wizard for AEDT will open. The following software is required to install AEDT. If they are not already installed, the setup wizard will initiate installation of the required software.
 - Microsoft .NET Framework 4.6.1
 - Microsoft Visual C++ 2010 SP2 Redistributable Package (x86)
 - Microsoft Visual C++ 2008 SP2 Redistributable Package (x64)

Accept the license agreements and click *Install* to install the required software.

4. The setup wizard will display the welcome screen. Click Next.

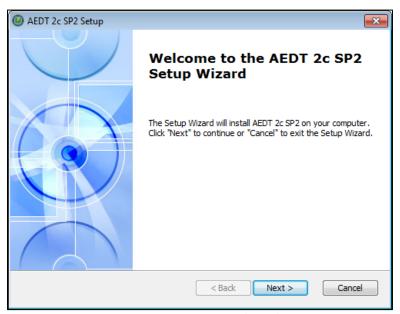


Figure 5-11 AEDT Setup Wizard – Welcome

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



Figure 5-12 AEDT Setup Wizard – License Agreement

Installation Guide: 2c SP2

6. If **AEDT 2c SP1** is already installed, the following screen will be displayed. Click *No* to install AEDT 2c SP2 alongside with AEDT 2c SP1. Click *Next*.



Clicking Yes to remove the older version (2c SP1) is not supported in the AEDT 2c SP2 installer. To upgrade (i.e. replace) AEDT 2c SP1 to AEDT 2c SP2, uninstall 2c SP1 in the Control Panel then re-run the 2c SP2 installer.



This screen is not displayed if AEDT versions older than 2c SP1 is already installed (e.g., 2c or 2b SP3). Side-by-side installation can be still performed by selecting a different SQL Server instance in subsequent step.

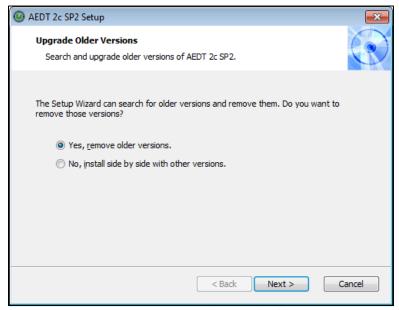


Figure 5-13 AEDT Setup Wizard – Upgrade Older Versions

- 7. Select the *Complete* setup type.
 - Complete: installs all the AEDT components to default location
 - *Custom*: allows users to customize which AEDT component(s) to install and change the location where the software is installed

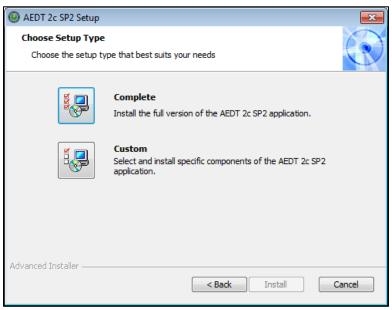


Figure 5-14 AEDT Setup Wizard – Setup Type

8. The setup wizard will browse for SQL servers on the network.

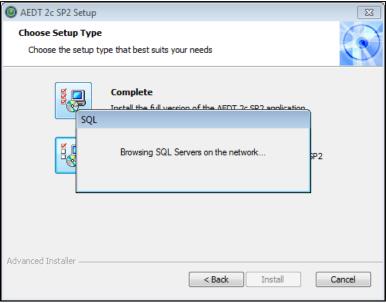


Figure 5-15 AEDT Setup Wizard – Browsing SQL Servers

9. Select the desired database server instance from the drop-down menu or type the name of the server in the *Server* field. Click *Next*. The installer will connect to the database server and advance to the next step.



Figure 5-16 AEDT Setup Wizard – SQL Database



If side-by-side installation was selected before, select a different SQL server instance that is not already in use by older version of AEDT. Otherwise, the following error message will be displayed.

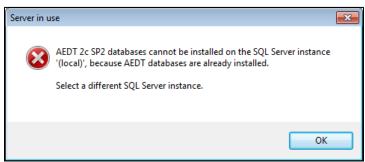


Figure 5-17 AEDT Setup Wizard – Server in Use Error

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

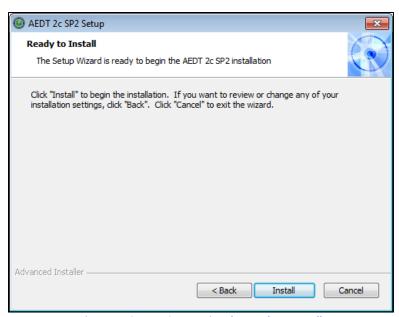


Figure 5-18 AEDT Setup Wizard – Ready to Install

11. Click Finish when installation is complete.

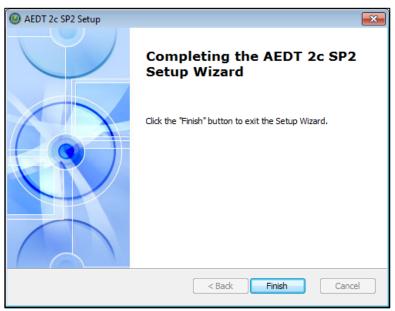


Figure 5-19 AEDT Setup Wizard – Installation Complete

- 12. A shortcut is created on the Desktop with the name: AEDT 2c SP2.
- 13. AEDT 2c SP2 is ready for use.

Installation Guide: 2c SP2



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.

5.2.2 Upgrade User-Defined AEDT Study Databases

AEDT 2c SP2 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 SP2 User Guide to update a user-defined AEDT study database to the latest version.

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5.3 Optional - Install AEDT Distributed Processing Service

Installing the AEDT Distributed Processing Service is optional. The AEDT Distributed Processing Service is also known as the Taskmaster (TM) Service.

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. Up to fifty remote servers running the Distributed Processing service can be networked to a single AEDT client computer running AEDT application. The AEDT application need only be installed on the AEDT client. On the remote servers, the AEDT Distributed Processing Service 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.

There are two installation configurations for distributed processing:

- Standalone configuration: AEDT databases reside on the AEDT client computer (see Figure 5-21 where S1, S2, S3, S4, S5, and S6 represent remote servers), or
- Client Server configuration: The databases reside on a separate database server (see Figure 5-22, where S1, S2, S3, S4, S5, and S6 represent remote servers). This configuration reduces memory consumption on the AEDT client due to SQL Server processing. The AEDT client relays all necessary information to the remote servers. The remote servers do not communicate directly with the separate database server.

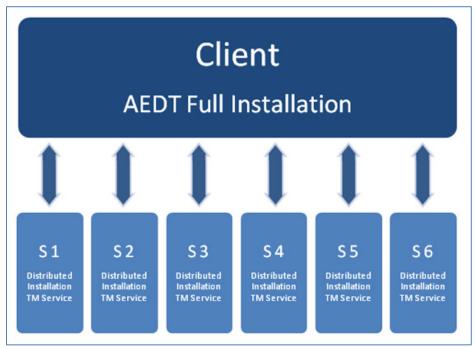


Figure 5-20 Distributed Processing

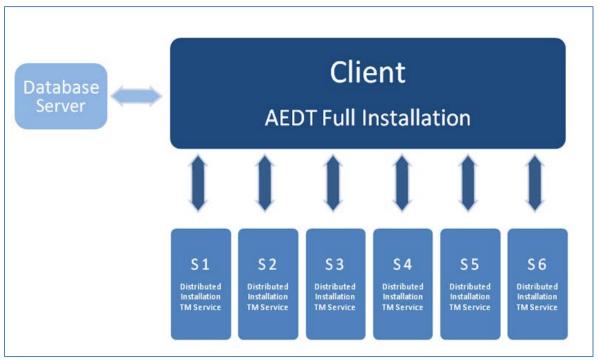


Figure 5-21 Distributed Processing with Separate Database Server

5.3.1 Setup AEDT Client

- 1. Install the entire AEDT system on the AEDT client, including Microsoft SQL Server, AEDT 2c SP2, 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 SP2 Distributed Processing.exe* file.
- 2. If the User Account Control dialog box appears, click Yes.

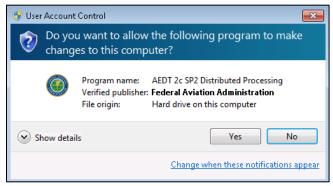


Figure 5-22 User Account Control Dialog Box

Installation Guide: 2c SP2

3. The Setup Wizard for AEDT will open. Click Next.

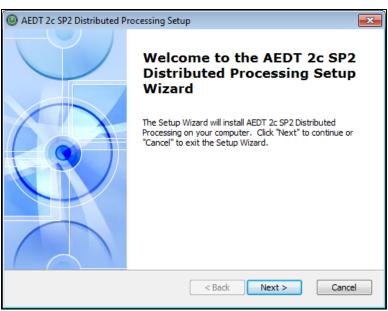


Figure 5-23 AEDT Setup Wizard - Welcome

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



Figure 5-24 AEDT Setup Wizard – License Agreement

5. Enter a user account to be used to start the AEDT distributed processing service. The user must belong to the local *Administrators* group. Click *Next*. Verifying the account information may take a while.



Figure 5-25 AEDT Setup Wizard – Specify User Account



The user account for starting the AEDT Distributed Processing Service can be either a local user or a network user.

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

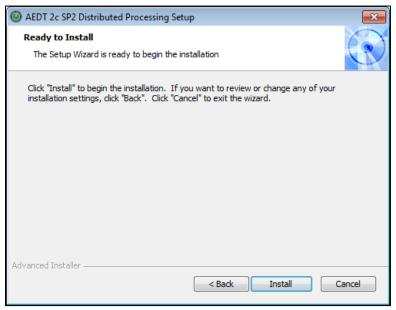


Figure 5-26 AEDT Setup Wizard – Ready to Install

7. Click *Finish* when installation is complete.

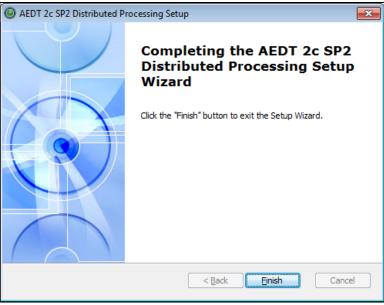


Figure 5-27 AEDT Setup Wizard – Installation Complete

- 8. The AEDT Distributed Processing Service is installed and automatically started. The files to support the service are installed under C:\Program Files\FAA\AEDT 2c SP2 Distributed Processing
- 9. To view the AEDT 2c SP2 Distributed Processing Service:
 - a. Click the Windows Start button, and enter "services.msc".
 - b. The Services dialog opens.
 - c. Find the "AEDT 2c SP2 Distributed Processing Service".

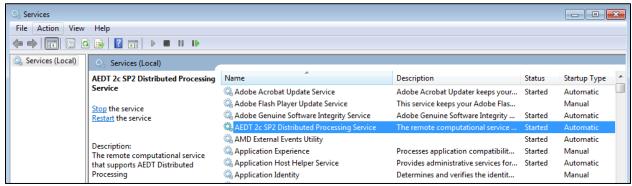


Figure 5-28 Services dialog

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 2012, 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 2012, 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* 2012, 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.

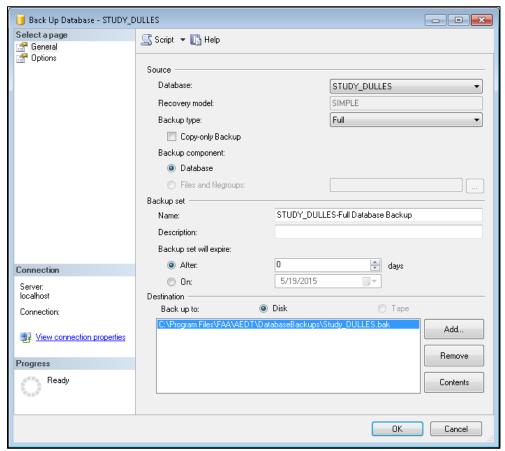


Figure 5-29 Microsoft SQL Server Management Studio – Back Up Database Dialog Box

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* 2012, *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.

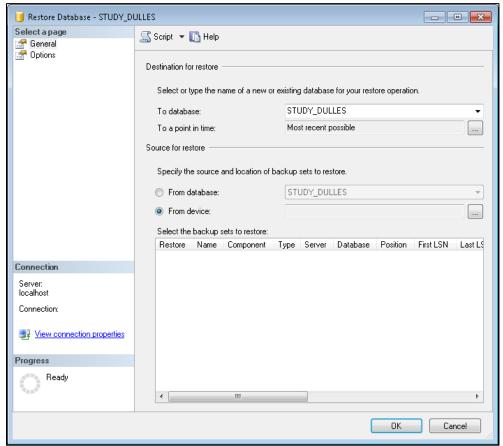


Figure 5-30 Microsoft SQL Server Management Studio – Restore Database Dialog Box

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* 2012, *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.

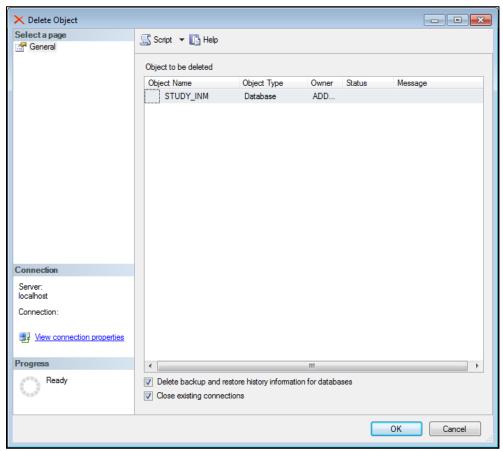


Figure 5-31 Microsoft SQL Server Management Studio – Delete Object Dialog Box

5.5 Steps to Uninstall AEDT



Before uninstalling AEDT, save desired files from the C:\AEDT folder and from the study output directories – C:\AEDT\DATA\[User name]\[Study name]@[SQL Server Instance Name]\Output_Files in a different location.

To uninstall AEDT:

- 1. Navigate to *Start, Control Panel*, and select *Programs and Features*.
- 2. Select AEDT 2c SP2 from the program list and click Uninstall.
- 3. If the *User Account Control* dialog box appears, click *Yes*.

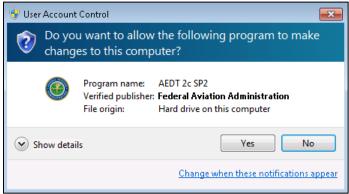


Figure 5-32 User Account Control Dialog Box

4. A dialog box will open to confirm the uninstallation of AEDT. Click Yes to confirm.

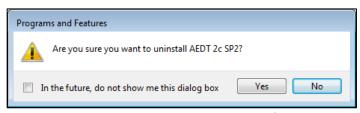


Figure 5-33 AEDT Setup Wizard – Uninstall Confirmation

- 5. The status bar will display an estimated time to finish removing the program.
- 6. The dialog will automatically close when the uninstallation is complete.
- 7. Check the following folders and manually delete them as necessary.
 - C:\Program Files\FAA\AEDT
 - C:\AEDT



If you receive the "Error opening installation log file. Verify that the specified log file location exists and is writable" message when uninstalling AEDT, log off and log in again. This is a known issue with Windows installer.