U.S. Department of Transportation
Federal Aviation Administration

Aviation Environmental Design Tool (AEDT)

Version 3e

Installation Manual

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1 Installation Introduction

This document provides instructions on how to install the AEDT 3e. It is important to follow the installation instructions in the order listed below, as Microsoft SQL Server 2017 is a prerequisite for AEDT 3e. Installation components must run locally.

1. Install Microsoft SQL Server 2017
2. Install AEDT 3e

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 Manual for instructions on generating the Administrative File.

3 System Requirements

System specifications for computers capable of hosting the AEDT 3e application are displayed in Table 3-1. The preferred specifications are listed with suggested minimum requirements where applicable.

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

Table 3-1 AEDT 3e System Requirements

	AEDT 3e System Specifications		
	Minimum	**Noise Only (Recommended)**	**Emissions Dispersion and Multi-Airport Studies (Recommended)[1]**
Operating Systems[2]	Windows 10 (x64)	Windows 10 (x64) or Windows Server 2016	Windows 10 (x64) or Windows Server 2016
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 or more
Hard Disk Space	100 GB Storage	500 GB Storage	500 GB Solid State Drive (SSD) for single airport emissions dispersion 4 TB or more SSD for large scale emissions analysis
Microsoft SQL Server	Express Edition, Version 2017	Standard/Enterprise Edition, Version 2017	Standard/Enterprise Edition, Version 2017, running on the SSD[3]
Other Software	Adobe Acrobat Reader	Adobe Acrobat Reader	Adobe Acrobat Reader

The recommended screen resolution is 1920 x 1080.

[1] While it is possible to generate emissions dispersion metric results with less than the recommended configuration, the time required for those runs to complete will be significantly longer.
[2] Use Windows Update to ensure your computer has the latest priority updates.
[3] Please see Section 5.2.5 *SQL Server – Maximum Server Memory Setting* for important information on limiting the maximum server memory of SQL Server.

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.

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

3.1 Note for International Users

3.1.1 SQL Server Collation

During the SQL Server installation, select **SQL_Latin1_General_CP1_CI_AS**. Please refer to Figure 5-9 *SQL Server 2017 Setup – Server Configuration, Collation tab*.

Upgrading an older AEDT study database to the latest study version will fail if different collation is used.

3.1.2 Windows Region and Language

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

To change Windows Region and Language:

1. Open the Windows Settings.
2. Click *Time & Language*.
3. From the left-hand panel, click *Region & language*.

   This screen may vary depending on your version of Windows 10.
4. Under *Languages*, select "English (United States)".

   If it is not already listed, use the *Add a language* option to add the "English (United States)" language.

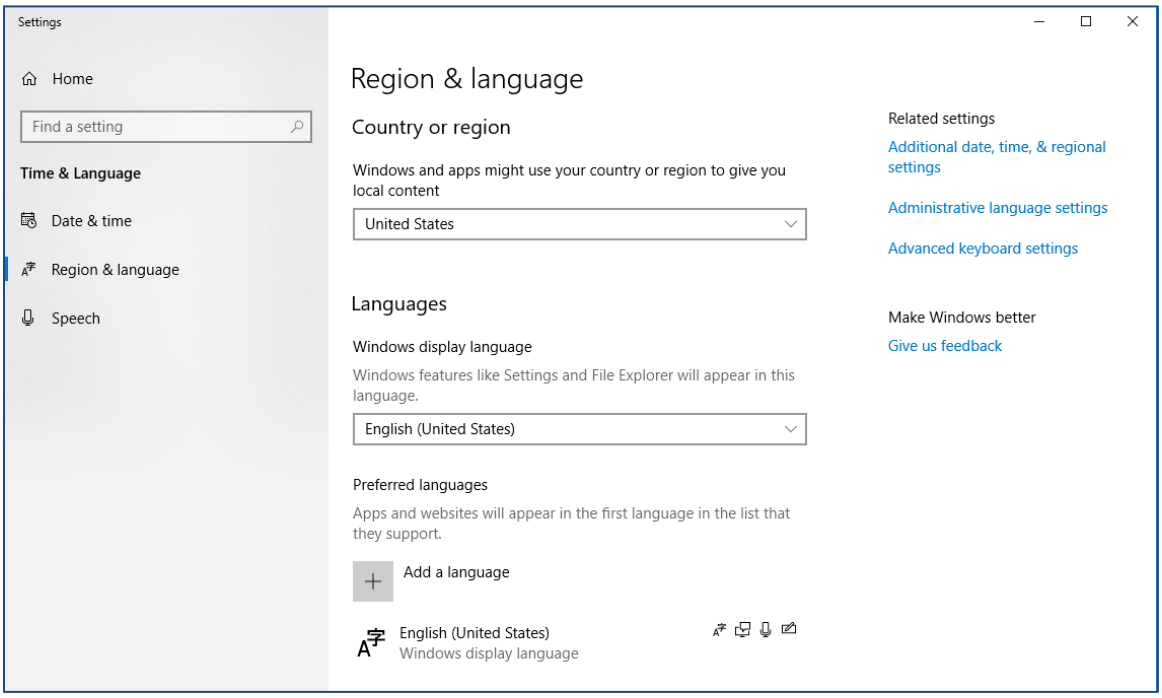

Figure 3-1 Windows Region & Language Settings

3.1.3 Windows System Locale

When the Windows system locale is not set to **English (United States)**, contour generation may fail with "*The name of the Field is invalid: valid names may contain letters, numbers or underscores*" error.

To change Windows System Locale:

1. In the *Region & language* settings dialog, click the **Administrative language settings**.
2. In the "Language for non-Unicode programs" section, click the **Change system locale** button.
3. Change the Current system locate to "**English (United States)**".
4. Click OK to close the dialog.

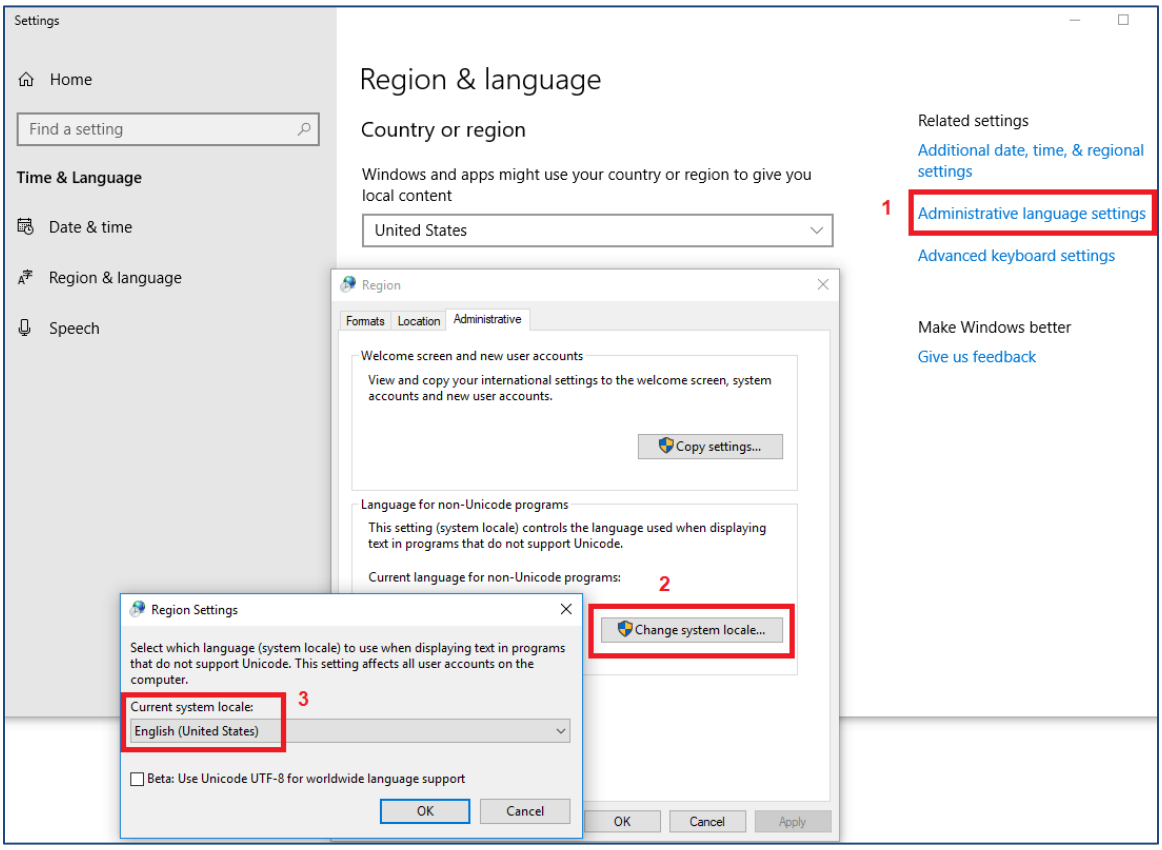

Figure 3-2 Windows Region Settings – System Locale

3.1.4 Windows Performance Counter

Some international users may receive the following exception message when starting AEDT for the first time after installing AEDT.

Airport DB version: unable to retrieve.
Fleet DB version: unable to retrieve.
Exception: System.InvalidOperationException: Cannot load Counter Name data because an invalid index '' was read from the registry.
at System.Diagnostics.PerformanceCounterLib.GetStringTable(Boolean isHelp)

This error indicates that the Windows performance counter settings has become corrupted and must be reset.

To reset the Windows performance counter setting:

1. From Windows Start, type **cmd**.
2. Right-click on cmd.exe and click Run as administrator.
3. In the command prompt, type **LODCTR.exe /R** and press enter. The following message will be displayed "*Info: Successfully rebuilt performance counter setting from system backup store*".
4. Start AEDT to confirm that it starts successfully.

4 Installation Package Contents

4.1 Microsoft SQL Server Software

Remove the Startup parameter -T4631 from the SQL Server 2017 instance, if it was previously added for AEDT 3c. For instructions on removing this parameter, see Section 5.2.2.

4.1.1 Microsoft SQL Server 2017 Express Edition

The SQL Server *Express* Edition is a free edition of SQL Server. As specified in Table 3-1 AEDT 3e System Requirements, **using the SQL Server *Standard* Edition or higher is strongly recommended for running large studies**.

The Microsoft SQL Server 2017 Express Edition can be downloaded from this link: https://www.microsoft.com/en-us/download/details.aspx?id=55994

The SQL Server Express Edition (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

4.1.2 SQL Server 2017 for Microsoft Windows Latest Cumulative Update

The SQL Server 2017 for Microsoft Windows Latest Cumulative Update can be downloaded from this link: https://support.microsoft.com/en-us/help/4047329/sql-server-2017-build-versions

4.1.3 SQL Server Management Studio Express

The SQL Server Management Studio Express for 64-bit operating systems can be downloaded from this link (minimum version is 17.9.1 or higher): https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-ver15

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.

4.2 AEDT Software

- **Install AEDT 3e.exe** – Installer for AEDT 3e application
- **Install AEDT 3e Distributed Processing.exe** – Installer for AEDT 3e Distributed Processing service (see Section 5.4)

5 Software Installation

This section contains installation instructions for Microsoft SQL Server, AEDT software, and AEDT Distributed Processing Service. Instructions for verifying the AEDT database versions and steps to uninstall AEDT are also included.

5.1 Typical Installation Configurations

There are two typical installation configurations for AEDT: Standalone configuration; or Client–Server configuration.

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 5.4.

5.1.1 Standalone Installation Configuration

In the **Standalone configuration,** the AEDT GUI application and AEDT databases are all installed on one machine.

For this setup:

1) Install Microsoft SQL Server (Section 5.2).
2) Install the AEDT application (Section 5.3).

5.1.2 Client – Server Installation Configuration

In the **Client-Server configuration,** the AEDT GUI application is installed on one or more client (individual) machines and connect to a remote database server where AEDT databases are installed.

On both the client machines, enable the **TCP/IP** protocol network configuration and run the **SQL Server Browser** service.

On the remote database server machine, enable the **Named Pipes** and **TCP/IP** protocols for SQL Server Network Configuration; and run the **SQL Server Browser** service.

Accessing the same study database simultaneously by more than one user is not recommended.

Here are the installation instructions for the Client-Server configuration.

1) On the remote SQL Server, run the AEDT installer.
   a. Select the *Custom* setup type.
   b. Only check the "AEDT 3e System Databases" and the "AEDT 3e Sample Databases". Uncheck the other options.
   c. Proceed with the installation.
   d. After the installation is complete, confirm that the AEDT database backup files (.bak) exist in the AEDT *DatabaseBackups* folder (e.g., C:\Program Files\FAA\AEDT3e\DatabaseBackups)
   e. Start SQL Server Management Studio, and confirm that the AEDT system and sample databases are listed.

2) On a client machine, run the AEDT installer.
   a. Select the *Custom* setup type.
   b. Only check the "AEDT 3e", "Sample PEM Data", and "Visual C++ Redistributable". Uncheck the database options.
   c. Proceed with the installation.
   d. After the installation is complete, open the ConnectionStrings.config file under the AEDT application directory (e.g., C:\Program Files\FAA\AEDT3e)
   e. For all connection strings, change the “Data Source” property to point to the remote SQL Server instance name, then save the file.
   f. Start AEDT. In the Open Study dialog, enter the instance name of the remote SQL Server database server.

5.2 Install Microsoft SQL Server

5.2.1 Instructions for Installing the SQL Server 2017 Express Edition

Instructions on installing the SQL Server 2017 Express Edition are described below. The steps and options may be different for other SQL Server Editions or different versions of the SQL Server installer.

To install Microsoft SQL Server 2017 Express Edition:

1. Double-click the **SQLServer2017-SSEI-Expr.exe**.

2. The *SQL Server 2017 Express Edition* window will automatically launch.

Figure 5-1 SQL Server 2017 Express Edition – Installation Type

3. Click the ***Custom*** installation type.

4. In the next screen, specify the location for SQL Server media download and click ***Install***. It will download installation packages and open the *SQL Server Installation Center* window.

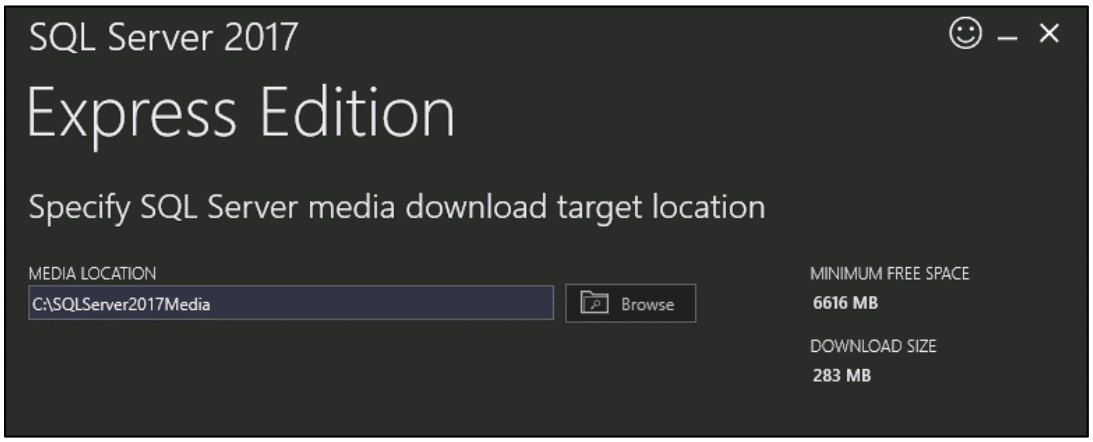

Figure 5-2 SQL Server 2017 Express Edition – Media Location

5. In the *SQL Server Installation Center* window, click the ***Installation*** link on the left side of the window.

6. Click the appropriate installation option. Click the ***New SQL Server stand-alone installation or add features to an existing installation*** option unless upgrading from an older version.

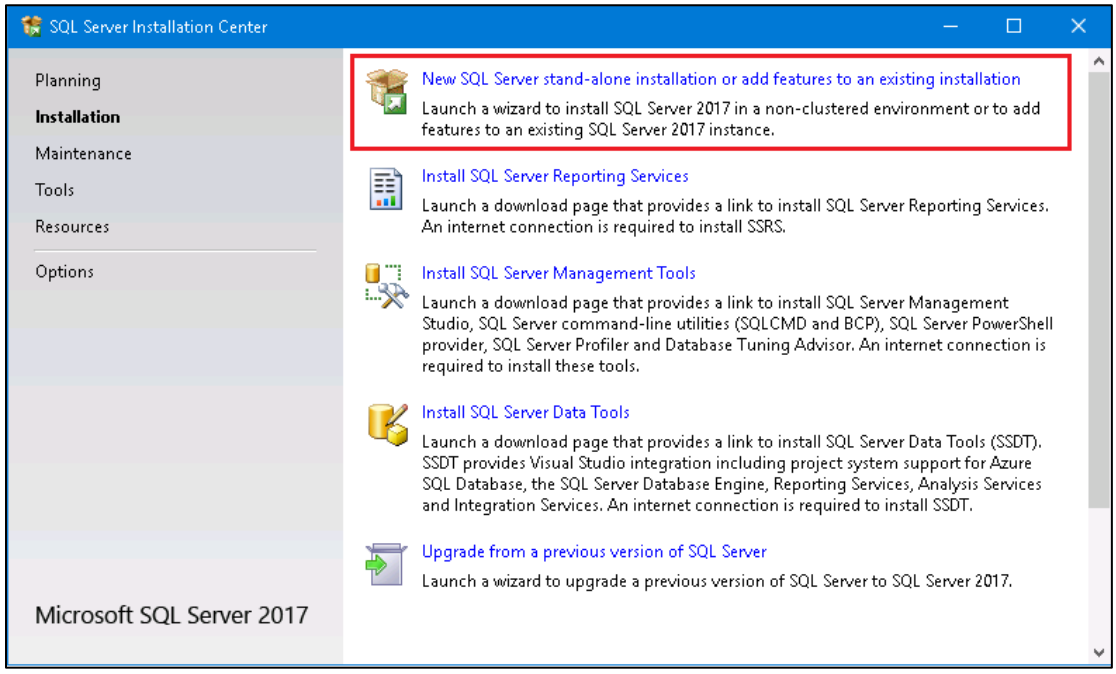

Figure 5-3 SQL Server Installation Center – Installation Menu

7. SQL Server 2017 Setup will automatically run *Setup Rules* which will identify potential installation problems that might occur. Click *Next*.

8. *Installation Type*: Select the ***Perform a new installation of SQL Server 2017*** option. Click *Next*.

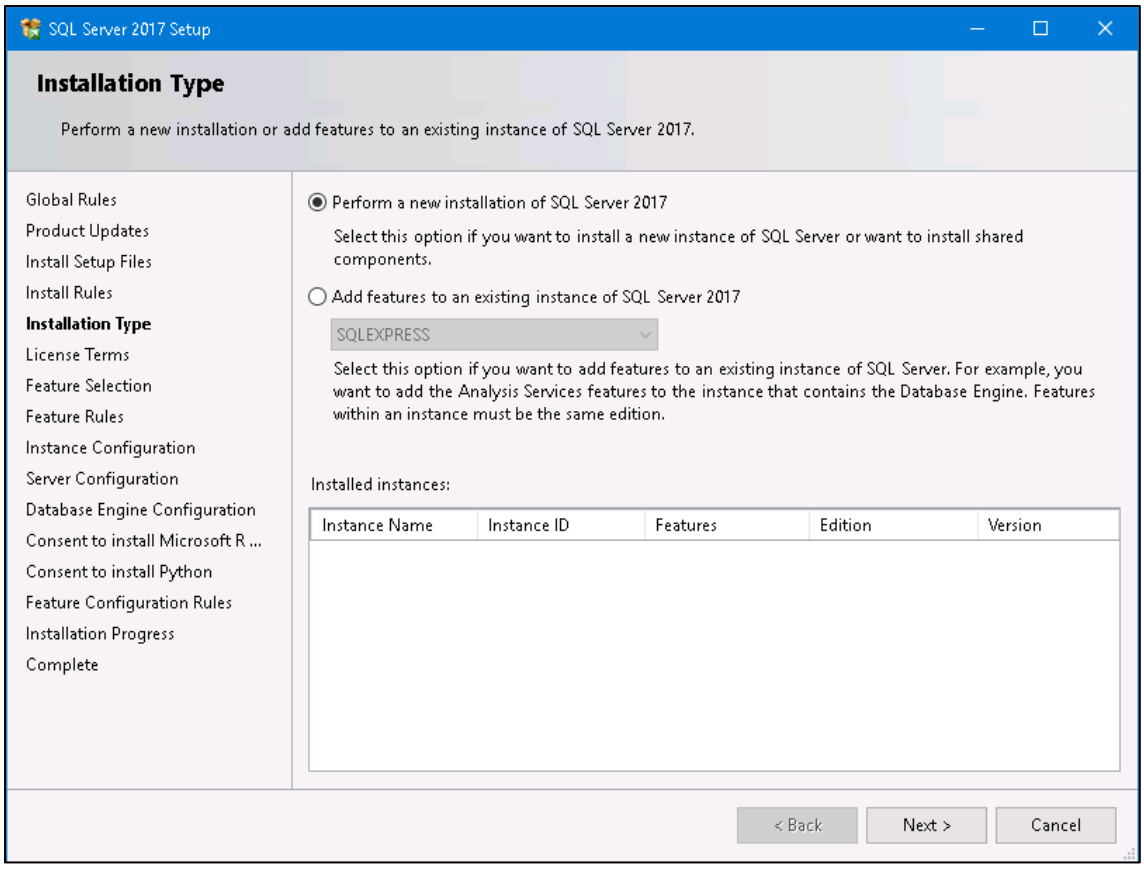

Figure 5-4 SQL Server 2017 Setup – Installation Type

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

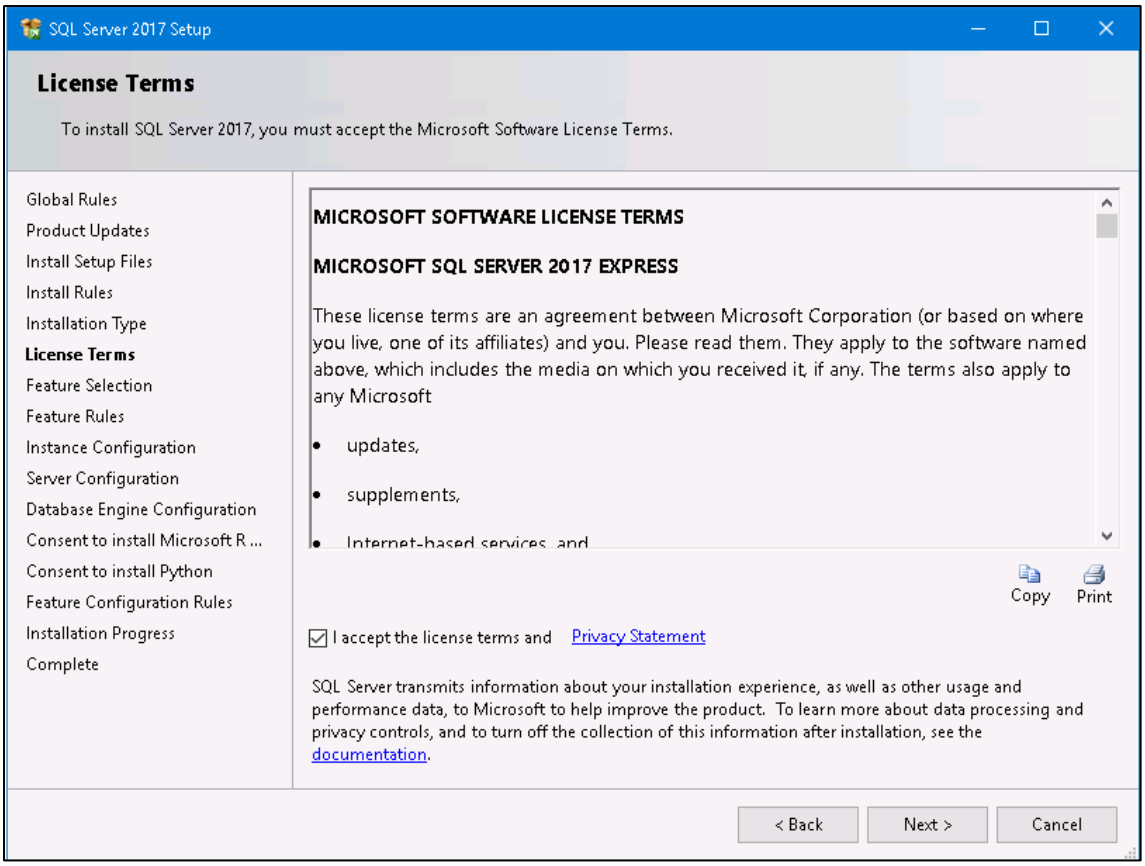

Figure 5-5 SQL Server 2017 Setup – License Terms

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*
        - *SQL Server Replication*
        - *Full-Text and Semantic Extractions for Search*
    - *SQL Client Connectivity SDKSQL*

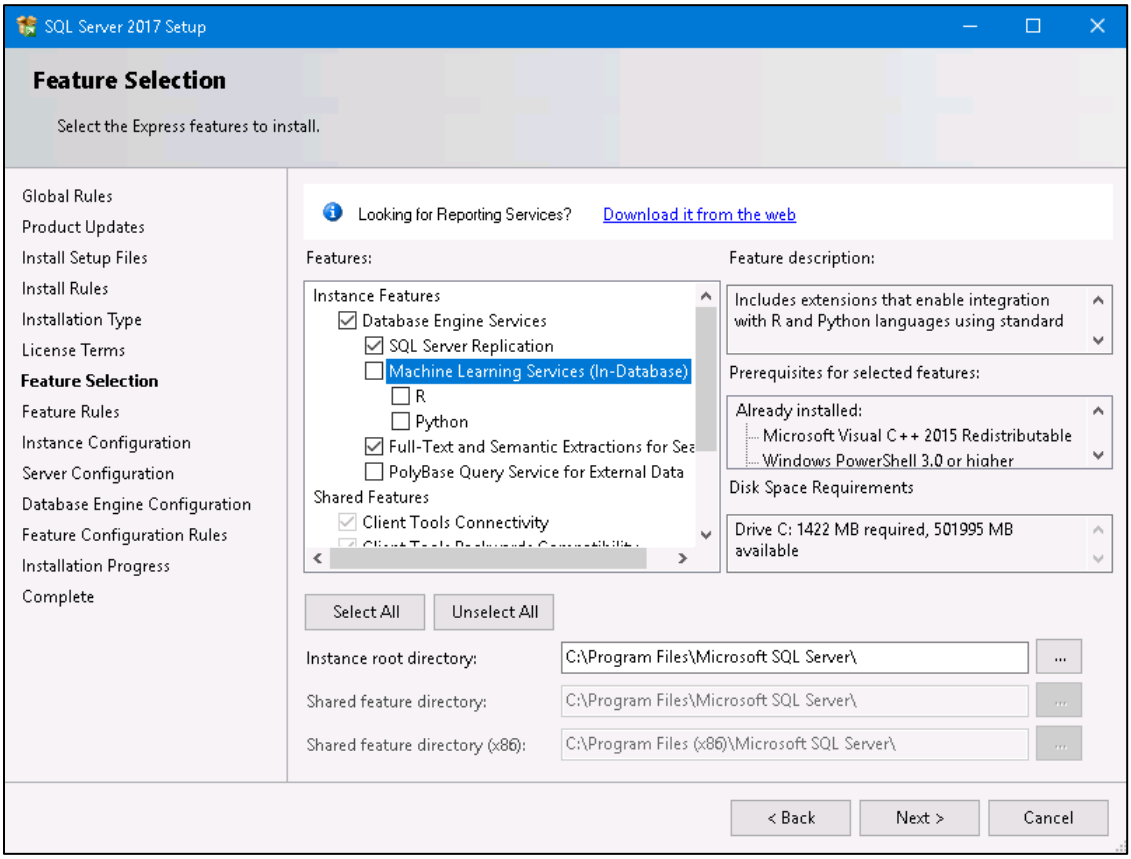

Figure 5-6 SQL Server 2017 Setup – Feature Selection

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*.

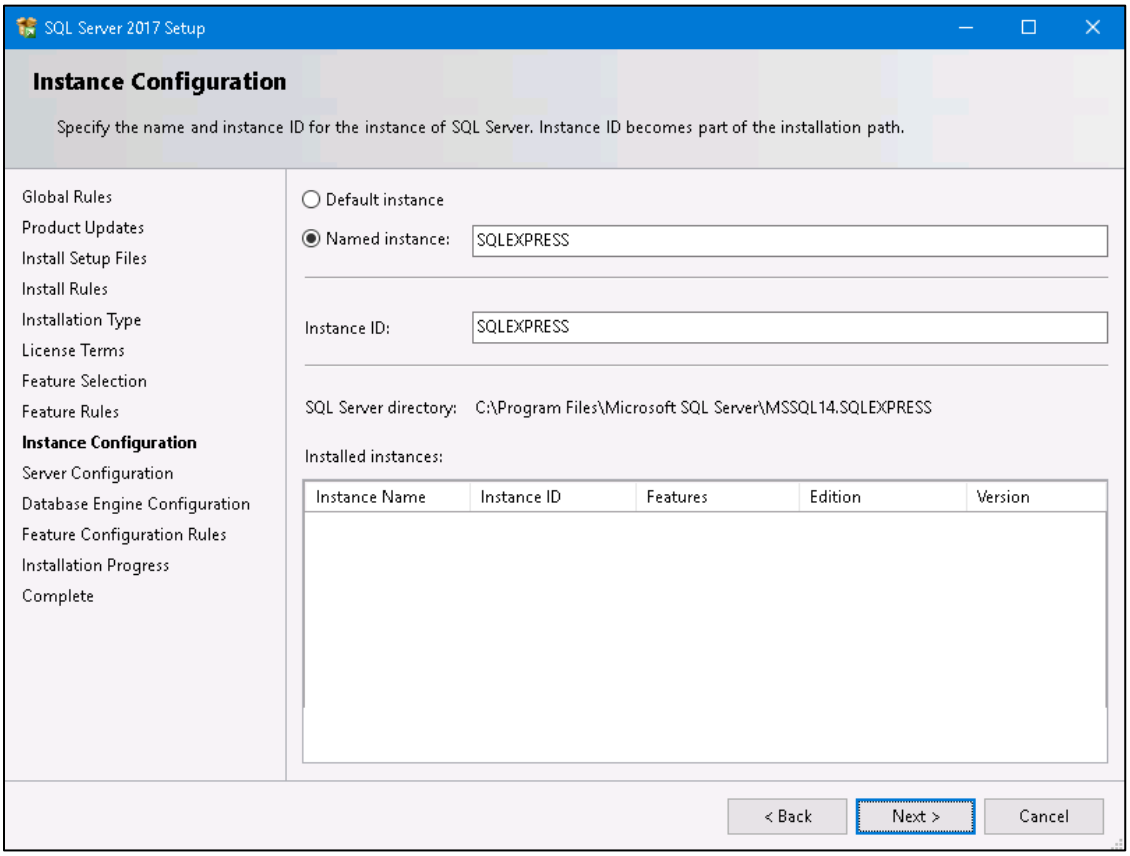

Figure 5-7 SQL Server 2017 Setup – Instance Configuration

The SQL Server instance created in this step should be selected when installing AEDT (see Figure 5-25).

12. *Server Configuration*: In the *Service Account* tab, the default settings work in most cases. Change the settings if necessary.

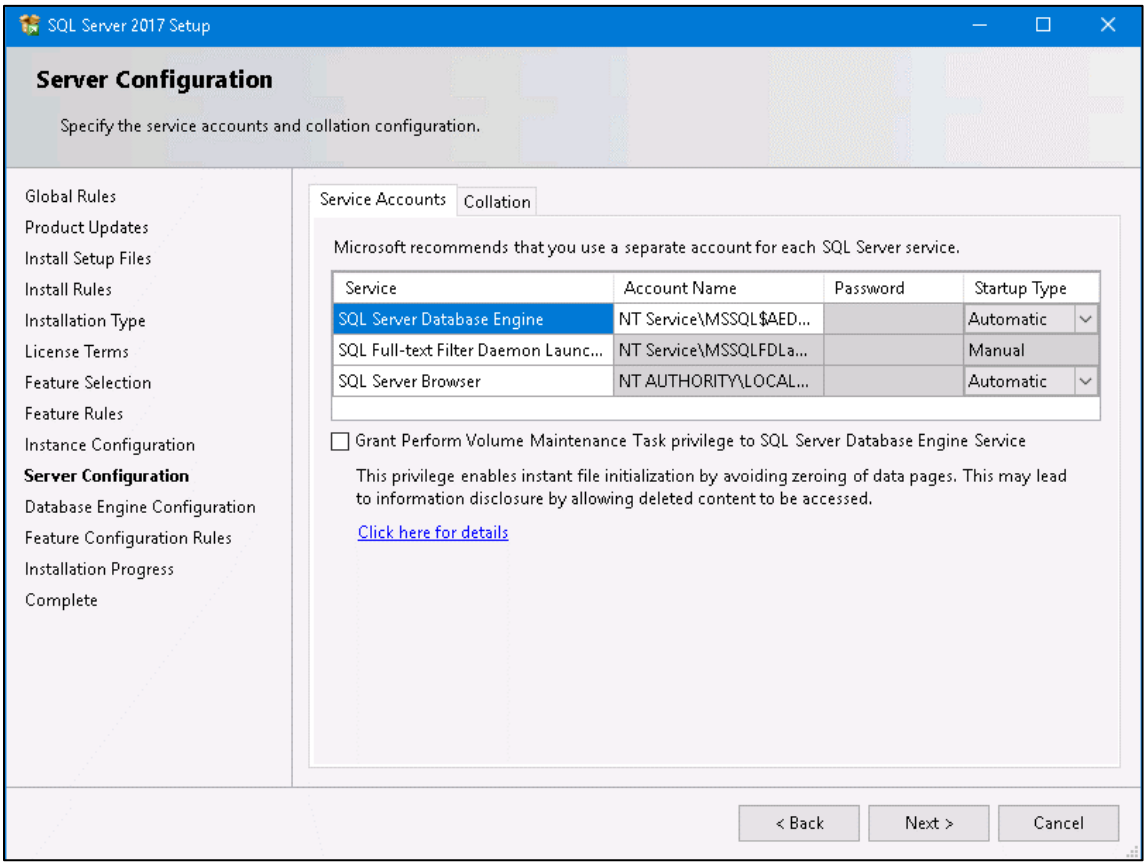

Figure 5-8 SQL Server 2017 Setup – Server Configuration, Service Accounts Tab

13. *Server Configuration*: Click the *Collation* tab and confirm that "**SQL_Latin1_General_CP1_CI_AS**" is selected. Click *Next*.

> The default collation may be different for international users; ensure that **SQL_Latin1_General_CP1_CI_AS** is selected. Upgrading an AEDT study database (in a different collation) to the latest study version is not supported.

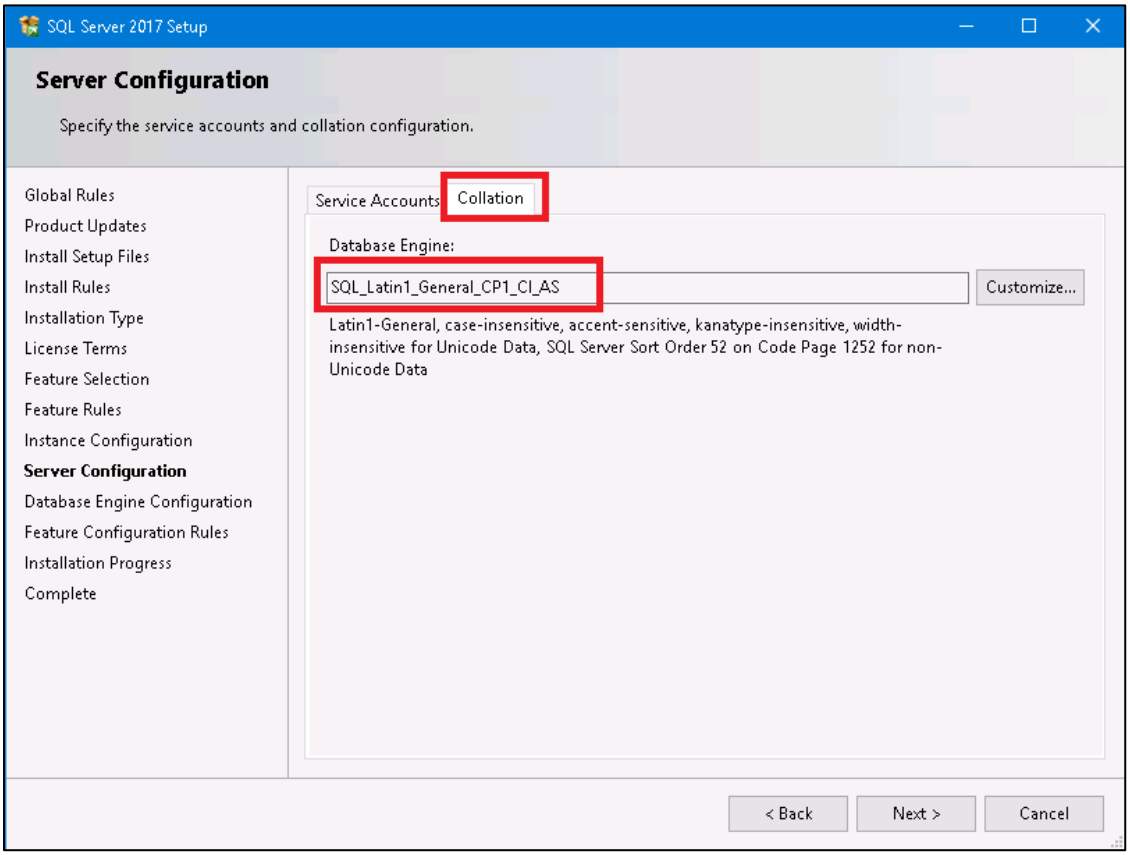

Figure 5-9 SQL Server 2017 Setup – Server Configuration, Collation tab

14. *Database Engine Configuration*: Select the desired authentication mode, then specify SQL Server administrators. This is equivalent to granting the **sysadmin** server role to the users.

- **Add the user who will be installing AEDT as a SQL Server administrator.**
- **Add the user who will be using/running AEDT as a SQL Server administrator.**

Click *Next*.

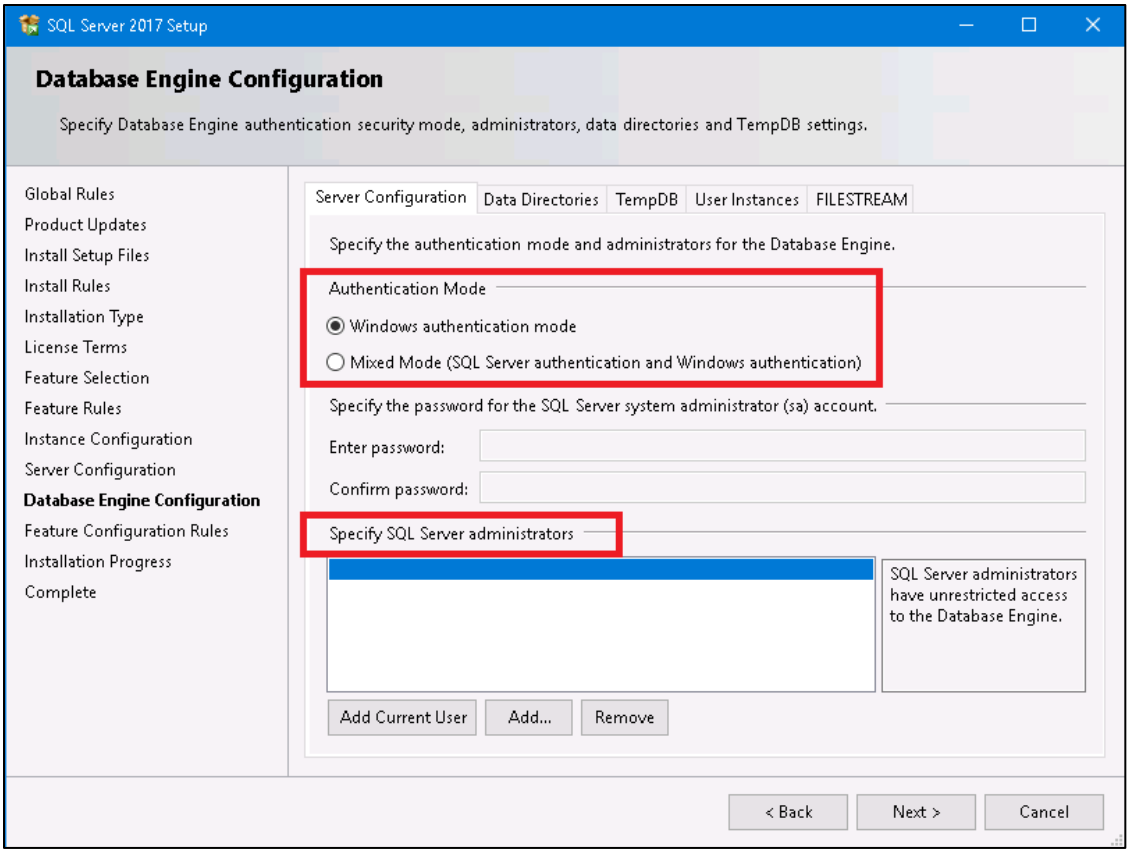

Figure 5-10 SQL Server 2017 Setup – Database Engine Configuration

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

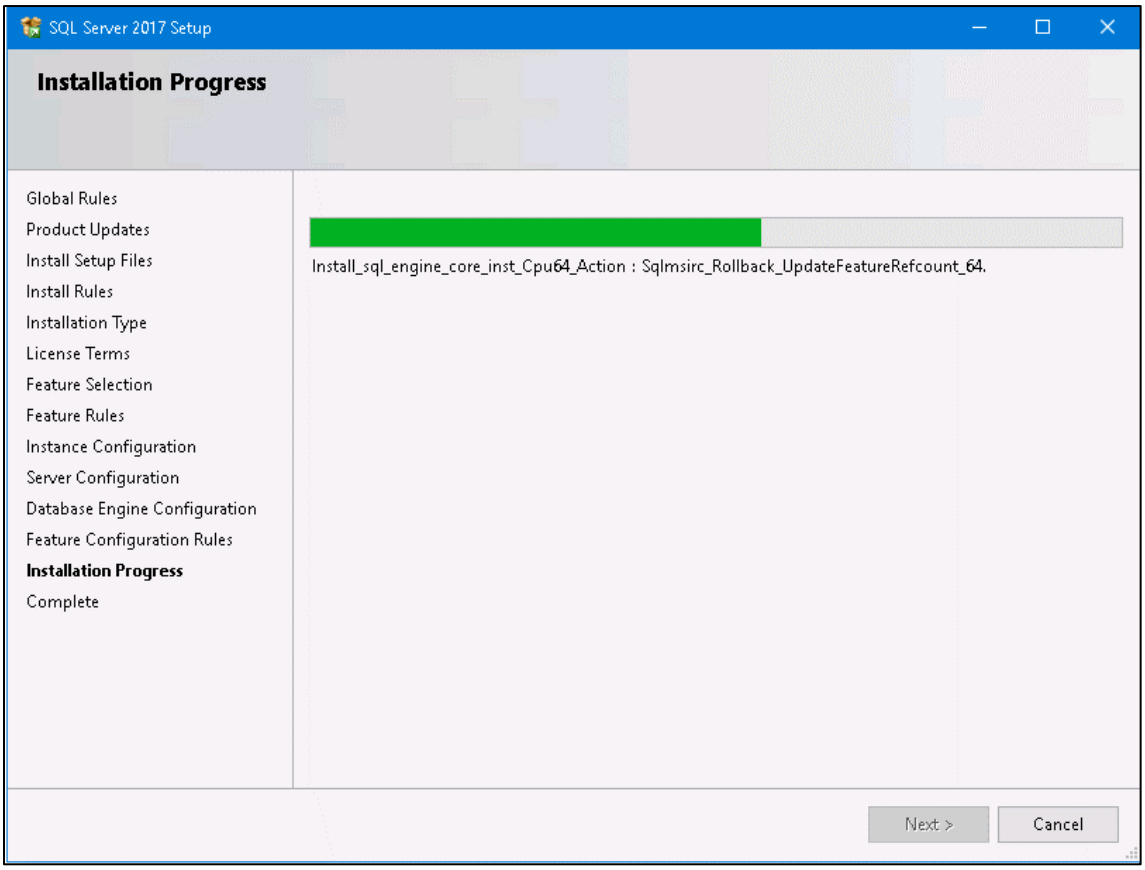

Figure 5-11 SQL Server 2017 Setup – Installation Progress

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

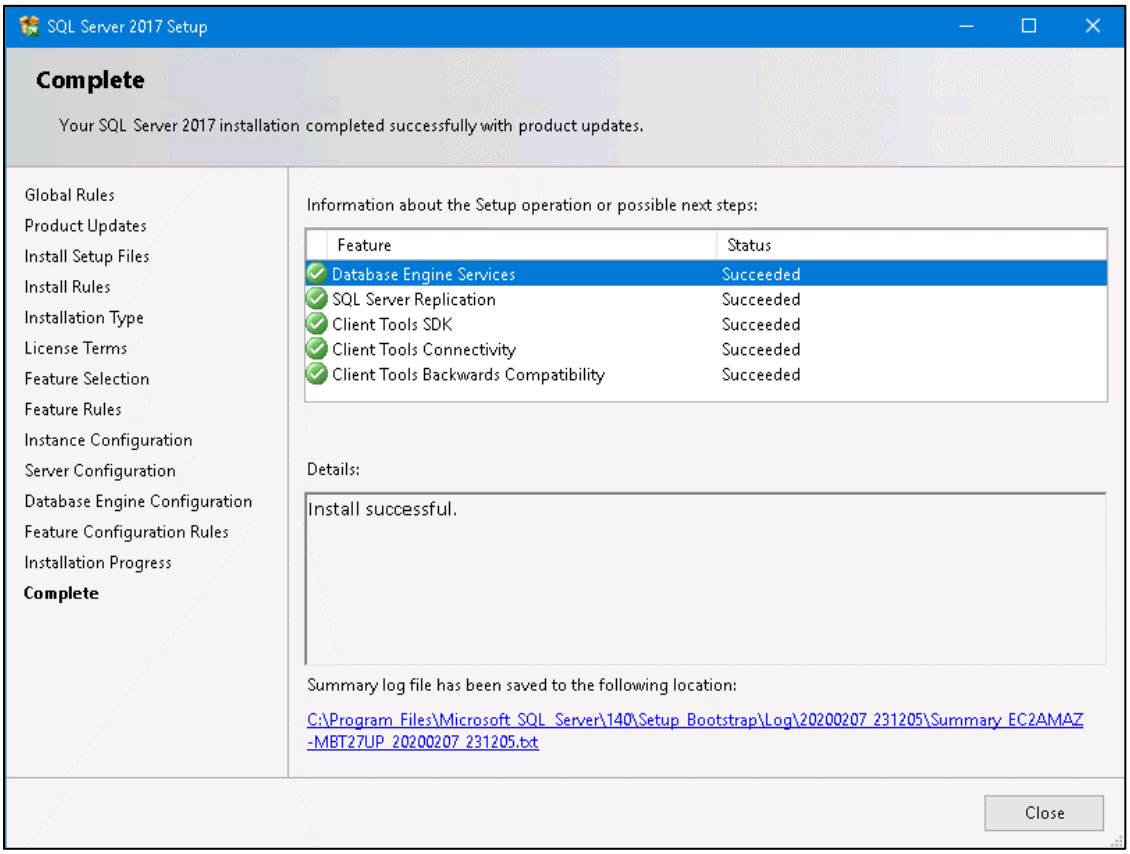

Figure 5-12 SQL Server 2017 Setup – Complete

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

5.2.2 SQL Server 2017 – Remove Startup Parameter

Remove the –T4631 startup parameter from the SQL Server 2017 instance, if it was previously added for AEDT 3c. Leaving this flag will cause an error when running metric results in AEDT 3e.

1. Start the ***SQL Server 2017 Configuration Manager***.
2. From the left-pane, select the ***SQL Server Services***.
3. From the right-pane, select the SQL Server 2017 instance. The instance name will be different depending on your installation
4. Right-click on the SQL Server 2017 instance and choose ***Properties***.

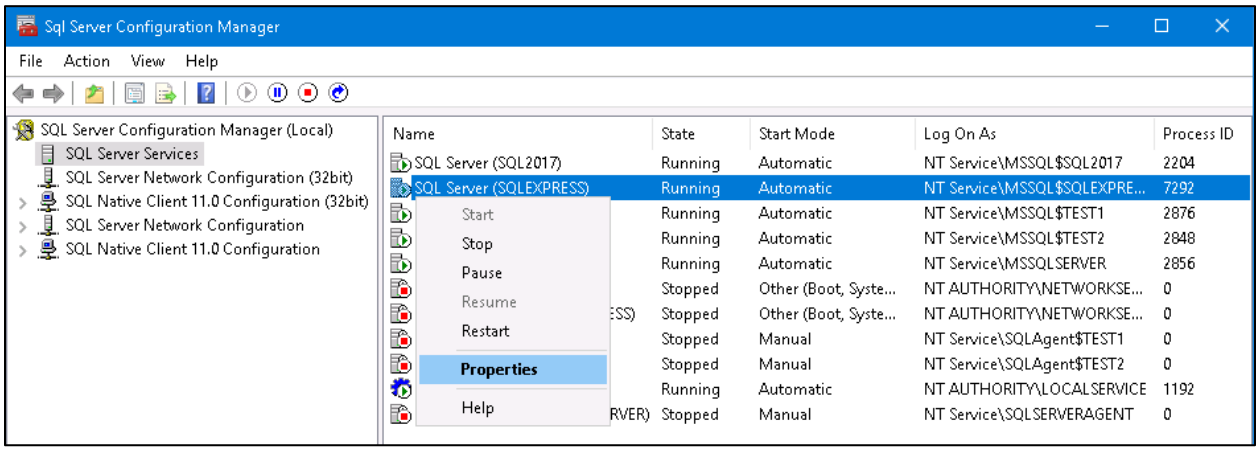

Figure 5-13 SQL Server 2017 Configuration Manager

5. In the SQL Server Properties dialog, click the ***Startup Parameters*** tab.
6. Select the **-T4631** entry and click the ***Remove*** button.
7. Click the ***Apply*** button.

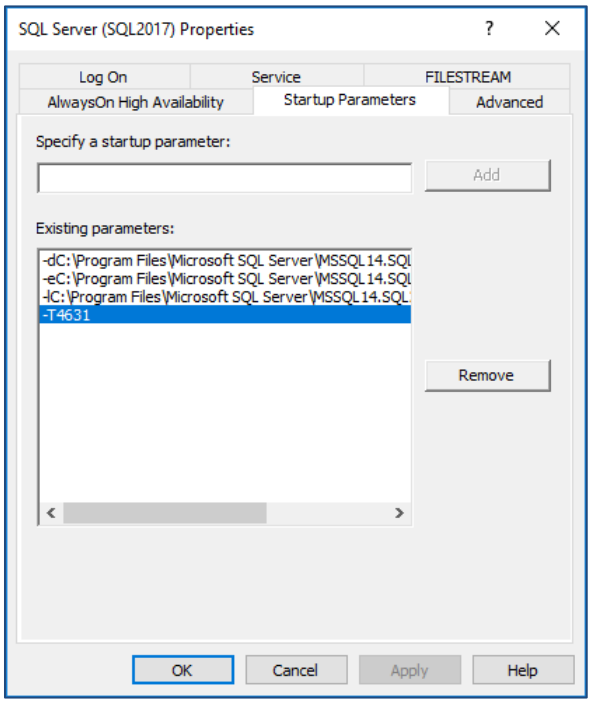

Figure 5-14 SQL Server Properties – Startup Parameters

8. Click *OK* in the "restart the service" warning prompt.

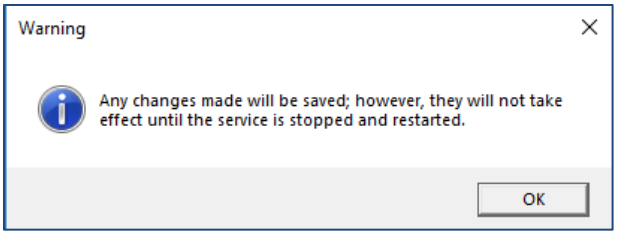

Figure 5-15 SQL Server Service Warning

9. Click *OK* to close the *SQL Server Properties* dialog.
10. Right-click on the SQL Server 2017 instance and choose **Restart**.

5.2.3 Install Microsoft SQL Server Management Studio

Download the SQL Server Management Studio Express for 64-bit operating systems (minimum version is 17.9.1 or higher) from the following link. Double-click on the executable to open the installer. Accept or update the location and click *Install* to install the software.

https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-ver15

5.2.4 SQL Server – sysadmin Server Role

As explained in the SQL Server installation instructions (see Figure 5-10 SQL Server 2017 Setup – Database Engine Configuration), both the user who will be installing AEDT (e.g., IT personnel) and the user who will be using AEDT **must be a SQL Server administrator**.

If those users were not added as SQL Server administrator during SQL Server installation, then follow the steps below to add them to the **sysadmin** server role.

1. Open SQL Server Management Studio.
2. In the *Connect to Server* dialog box, enter or select the SQL Server instance name where AEDT databases are installed.
3. Select the appropriate Authentication method, then click the *Connect* button.
4. In the *Object Explorer*, expand the *Security* folder, then the *Server Roles* folder.
5. Double-click on the *sysadmin* to open the *Server Role Properties* dialog.
6. Click the *Add* button and add the desired user account(s), and click OK.

5.2.5 SQL Server – Maximum Server Memory Setting

When running an annual emissions or emissions dispersion analysis, it is important to limit the SQL Server's Maximum server memory. This only applies to standalone configurations where the AEDT application and the database server are located on the same machine. This does not apply to remote database servers.

The maximum recommended server memory depends on the RAM installed on the computer and the type of hard drive – hard disk drive vs. solid state drive (SSD). As specified in the System Requirements, using SSD is highly recommend for running an emissions dispersion analysis.

The recommended range for the Maximum server memory is 25% to 50% of the RAM.

For example, if you have a 32 GB RAM machine, then set the SQL Server Maximum server memory to 8000 MB (8 GB), up to 16000 MB (16 GB).

1. In SQL Server Management Studio, connect to the SQL Server instance where AEDT databases are installed.
2. Right-click on the server instance and click *Properties*.
3. In the *Server Properties* dialog box, click the *Memory* tab on the left.
4. Change the *Maximum server memory* option.
5. Click *OK* to save your changes.

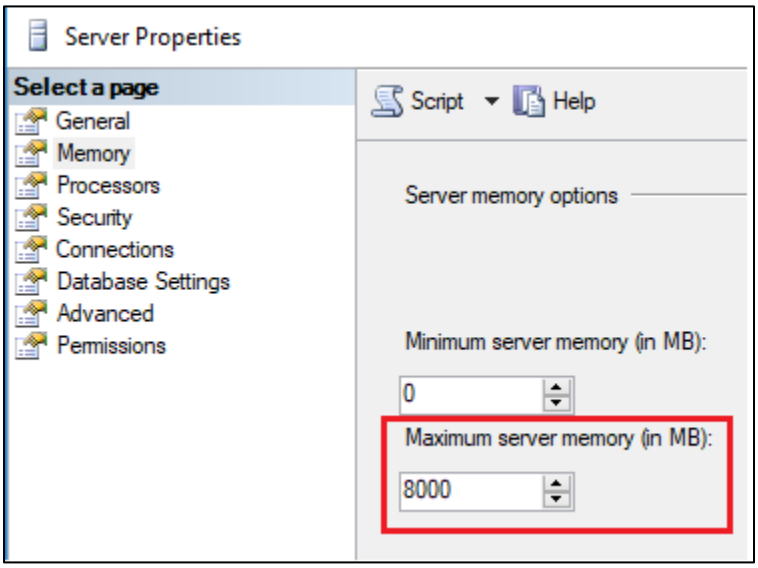

Figure 5-16 SQL Server Properties – Maximum Server Memory

For more details, please review this link: https://www.mssqltips.com/sqlservertip/4182/setting-a-fixed-amount-of-memory-for-sql-server/

5.3 Install AEDT 3e

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

5.3.1 Older AEDT Installations and AEDT 3e

For users with an older AEDT release (e.g., AEDT 3d) already installed on their computer, please decide whether to:

1) Remove the older AEDT installation; or
2) Install AEDT 3e side-by-side with an older AEDT installation.

Option 1: Remove the older AEDT installation

- **Uninstall the older AEDT version first before installing AEDT 3e!**
- Do not choose the "remove and upgrade older AEDT version" option during the AEDT 3e installation. Choosing this option will install AEDT 3e into the older AEDT application folder and data folder (e.g., AEDT 3e application files will be installed into the existing AEDT 3d folders).

Option 2: Install AEDT 3e side-by-side with an older AEDT installation

- **Create a separate SQL Server 2017 instance before installing AEDT 3e!**
- Select the "install side by side with other versions" option during the AEDT 3e installation.

What is side-by-side installation?

AEDT 3e can be installed side by side with an older AEDT release (e.g., AEDT 2d/3b/3c/3d). 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 newer AEDT version when an older AEDT version is already installed. It does not support installing an older AEDT on top of newer AEDT version.

How to Upgrade a Study that Contains Equipment that have been Removed from AEDT 3d/3e

In rare instances, equipment determined to not have a suitable data option for modeling will be removed from the Fleet database and not reassigned. The equipment in Table 5-1 and in Table 5-2 have been removed from the AEDT 3d and 3e Fleet Database.

These equipment must be removed or reassigned from study databases built prior to AEDT 3d in order to successfully update using the study update procedure.

If your existing AEDT study contains operations that use these equipment, please delete such operations or assign different equipment prior to upgrading your study to AEDT 3e.

Table 5-1 AEDT 3c Equipment Removed from AEDT 3d (Fleet 3.40.6) without Reassignments

3c Equip ID	3c Airframe Model	3c Engine Model	3c Engine ID	Update Type	Reason not remapped
4136	Embraer ERJ175-E2	CF34-10E5	1860	General Update	Service start delayed to 2021
4146	Mitsubishi MRJ-90	CF34-10E5	1860	EDB update	Development paused
4251	Boeing 777-9X	GE90-115B	1517	Boeing update	Not yet in service
5302	Embraer ERJ175-E2	CF34-10E5	1910	General update	Service start delayed to 2021
5343	Boeing 777-9X Freighter	GE90-115B	1517	Boeing update	Not yet in service
5425	Boeing 777-9	GE90-94B	1795	Boeing update	Not yet in service
5342	Boeing 777-8X	GE90-115B	2087	Boeing update	Not yet in service

Table 5-2 AEDT 3d Equipment Removed from AEDT 3e (Fleet 3.45.4) without Reassignments

3d Equip ID	3d Airframe Model	3d Engine Model	3d Engine ID	Update Type	Reason not remapped
4128	Boeing 737-7	LEAP-1B23	2173	Boeing Update	Not yet in service
6402	Boeing 737-7	LEAP-1B25	2174	Boeing Update	Not yet in service
6403	Boeing 737-7	LEAP-1B27	2175	Boeing Update	Not yet in service

Changes to aircraft operations may be made to an existing study in a previous version of AEDT (2b/3b/3c/3d) or by using SQL scripts.

How to Delete or Edit Aircraft Operations in AEDT (2b/3b/3c/3d):

1. Open the study in AEDT.
2. Delete the appropriate aircraft operations in the *Operations* tab by selecting the operation and clicking *Delete* in the *Aircraft Actions* ribbon group; or
3. Use the Edit Aircraft Operation wizard to change equipment by selecting the operation and clicking *Edit* in the *Aircraft Actions* ribbon group.

How to Delete Aircraft Operations using SQL:

1. Use the following SQL script to delete aircraft operations with equipment that have been removed from AEDT and remove them from operation group(s) if they are assigned.

```
USE [YOUR_STUDY_NAME];

DELETE FROM [dbo].[CASE_AIR_OPERATION]
WHERE AIR_OP_ID in
(SELECT AIR_OP_ID FROM [dbo].[AIR_OPERATION] WHERE AIRCRAFT_ID in (SELECT distinct
[AIRCRAFT_ID] FROM [dbo].[AIR_OPERATION_AIRCRAFT] where EQUIPMENT_ID in
(4136,4146,4251,5302,5343,5425,5342,6402,6403,4128)))

DELETE FROM [dbo].[AIR_OPERATION] WHERE AIRCRAFT_ID in (SELECT distinct
[AIRCRAFT_ID] FROM [dbo].[AIR_OPERATION_AIRCRAFT] where EQUIPMENT_ID in
(4136,4146,4251,5302,5343,5425,5342,6402,6403,4128))
```

How to Assign Different Equipment to Aircraft Operations Using SQL:

1. To identify aircraft operations with equipment that have been removed from AEDT, use the following SQL statement:

```
SELECT * FROM [dbo].[AIR_OPERATION] WHERE AIRCRAFT_ID in (SELECT distinct
[AIRCRAFT_ID] FROM [dbo].[AIR_OPERATION_AIRCRAFT] where EQUIPMENT_ID in
(4136,4146,4251,5302,5343,5425,5342,6402,6403,4128))
```

2. To identify records in the AIR_OPERATION_AIRCRAFT table with equipment that have been removed from AEDT, use the following SQL statement:

```
SELECT * FROM [dbo].[AIR_OPERATION_AIRCRAFT] where EQUIPMENT_ID in
(4136,4146,4251,5302,5343,5425,5342,6402,6403,4128)
```

3. Based on the results from the previous query, construct a SQL UPDATE statement for each AIRCRAFT_ID (a sample is provided below). The goal is to replace the EQUIPMENT ID for equipment that have been removed from AEDT 3e with something else. The user must choose a new EQUIPMENT ID for the parameter “NEW_ID”.

```
UPDATE [dbo].[AIR_OPERATION_AIRCRAFT] SET EQUIPMENT_ID=NEW_ID WHERE AIRCRAFT_ID=
```

4. Last step is to update the flight profile of aircraft operations from step 1. This information is stored in the PROFILE_ID column of the AIR_OPERATION table. It is recommended to update the profile ID within the AEDT 3e GUI, after the study has been upgraded to AEDT. This can be done by editing an existing aircraft operation and assigning a flight profile in the *Edit Aircraft Operations* wizard. If the profile is not updated, then an operation may fail to be processed.

5.3.2 Install AEDT 3e

For the standalone installation (see Section 5.1.1), SQL Server 2017 must be installed prior to installing AEDT 3e.

To install AEDT application and databases:

1. To start the installer, double-click the ***Install AEDT 3e.exe*** file.

2. The setup wizard for AEDT will open.

3. If the following software 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)
   - Microsoft Visual C++ Redistributable for Visual Studio 2015 Update 3 (x64)

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

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

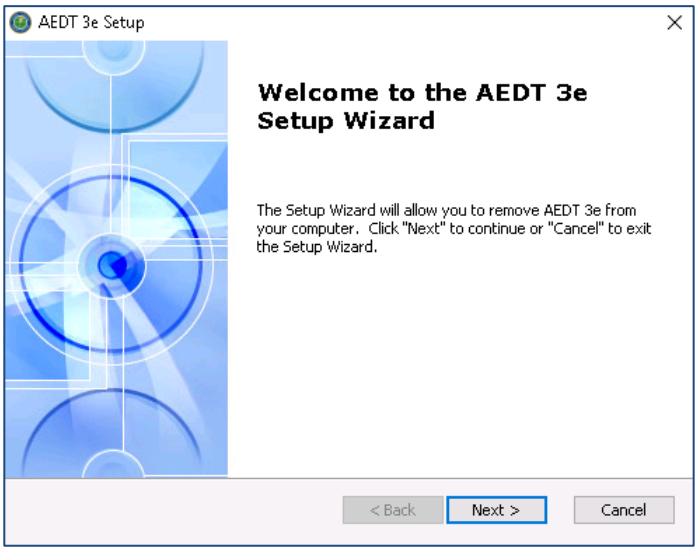

Figure 5-17 AEDT Setup Wizard – Welcome

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

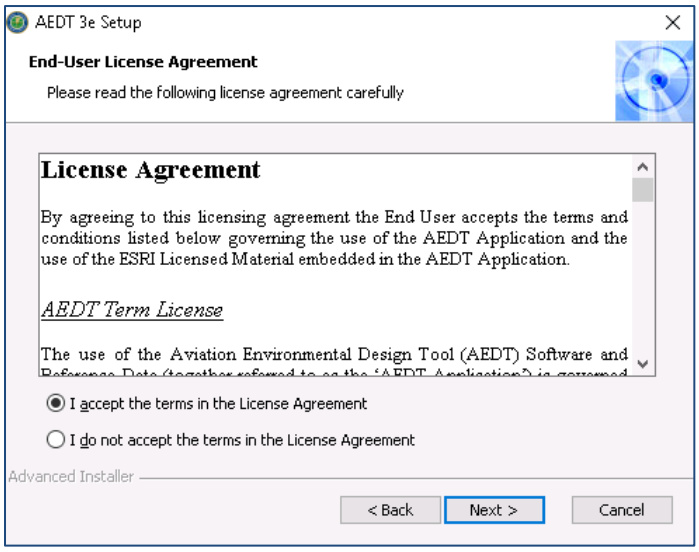

Figure 5-18 AEDT Setup Wizard – License Agreement

6. **If an older AEDT version is already installed**, the following screen will be displayed (Figure 5-19).

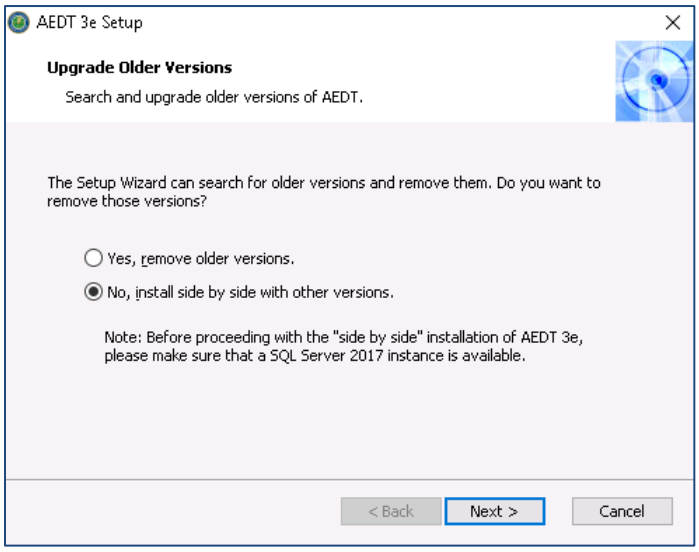

Figure 5-19 AEDT Setup Wizard – Upgrade Older Versions

Before proceeding, please review Section 5.3.1 *Older AEDT Installations and AEDT 3e* for detailed instructions.

- Click *Yes* to remove the older AEDT version and install AEDT 3e. Clicking *Yes* will display the following warning.

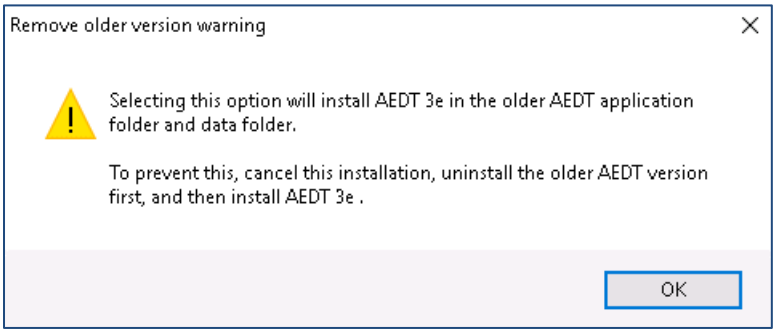

Figure 5-20 AEDT Setup Wizard – Remove Older Version Warning

- Click *No* to install AEDT 3e alongside with older AEDT version.

Click *Next* to continue.

7. Select the ***Custom*** setup type.

   The ***Custom*** setup is recommended and described in this section since the locations of the AEDT installation folder and the data folder can be viewed and modified through this path in the installer.

   - *Complete*: installs all the AEDT components to default locations
     - The following default installation locations are used:
       - AEDT installation folder – C:\Program Files\FAA\AEDT3e
       - AEDT data folder – C:\AEDT3e

   - *Custom*: allows users to customize which AEDT component(s) to install and change the locations where the software is installed

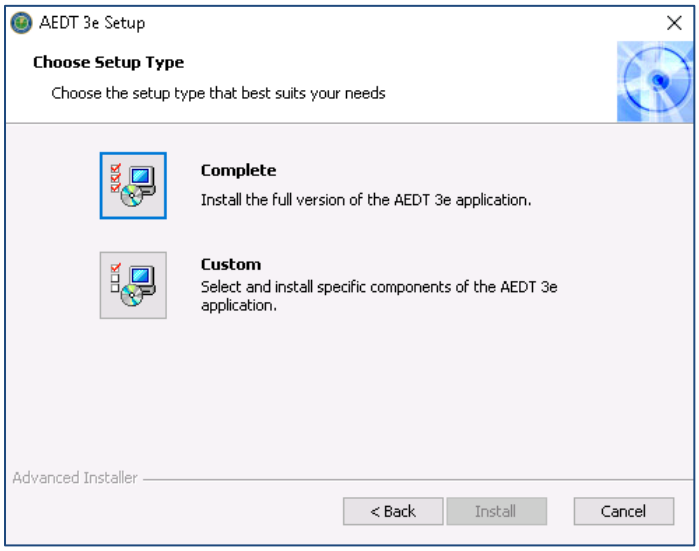

Figure 5-21 AEDT Setup Wizard – Setup Type

8. All the features are selected by default. Click *Next*.

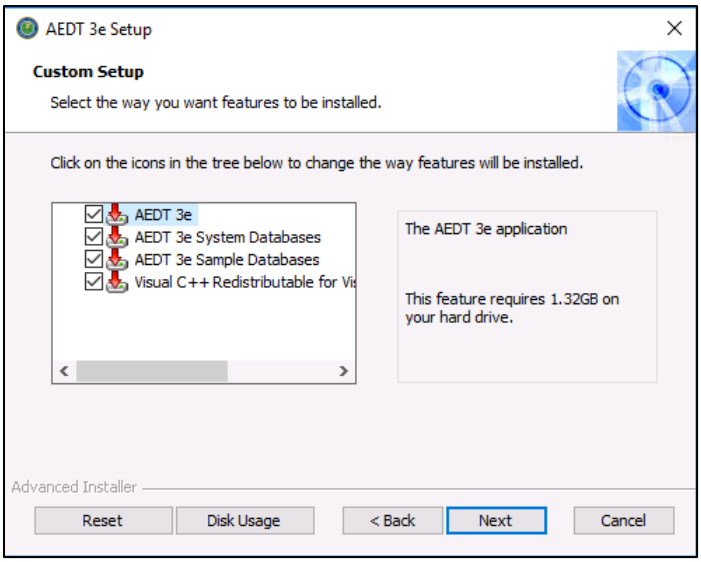

Figure 5-22 AEDT Setup Wizard – Custom Setup

9. Select the Installation folder. Accept the default location or specify a different folder. Click *Next*.

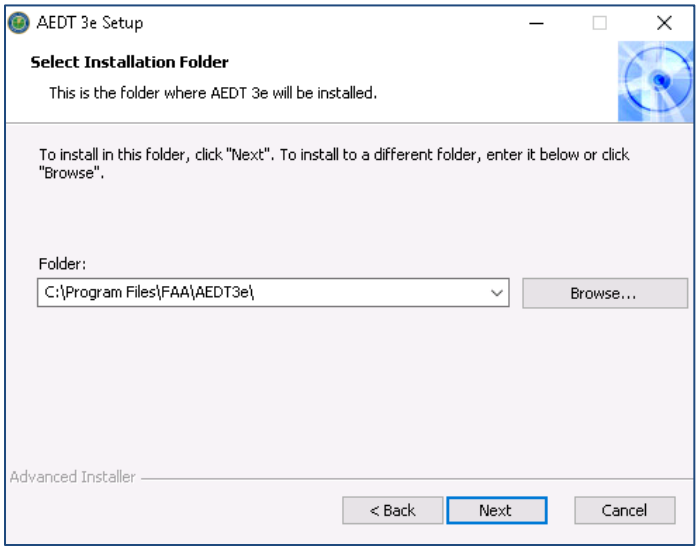

Figure 5-23 AEDT Setup Wizard – Installation Folder

10. Select the Data folder. Accept the default location or specify a different folder. Click *Next*.

Do not include any spaces in the Data Folder path (e.g. C:\AEDT 3e). Spaces in the Data Folder path may cause problems with contour generation.

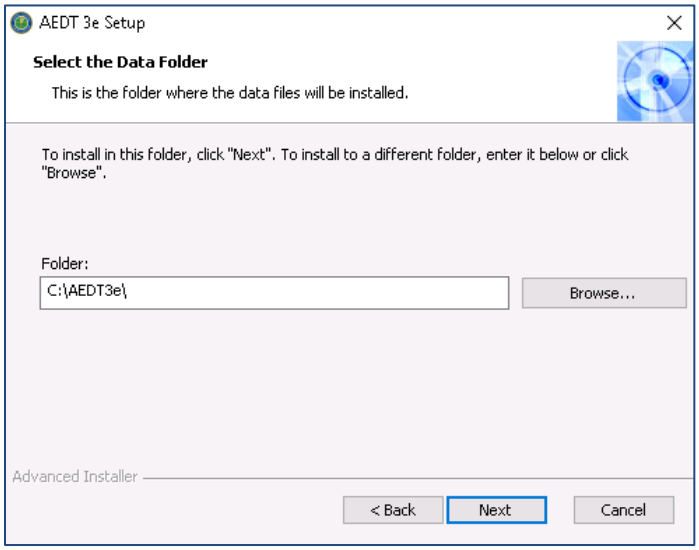

Figure 5-24 AEDT Setup Wizard – Installation Folder

11. 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.

Please make sure to select a SQL Server 2017 instance in this step.

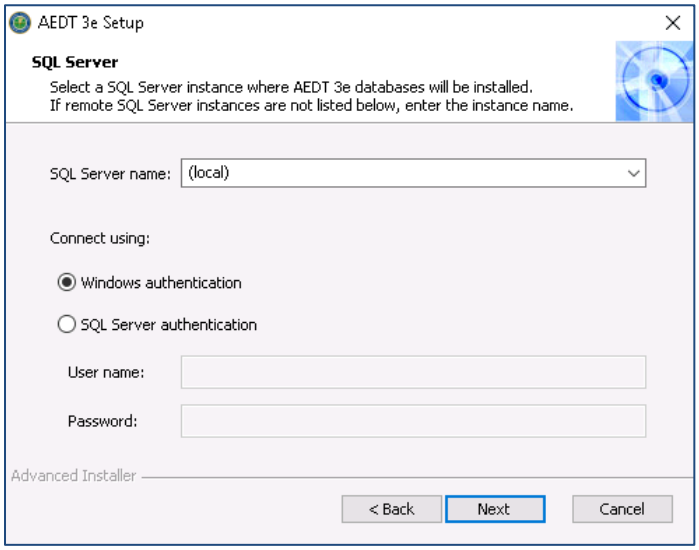

Figure 5-25 AEDT Setup Wizard – SQL Database

The following error message (Figure 5-26) is displayed under the following circumstances:

- The selected SQL Server instance already has AEDT system databases and sample databases (see Section 5.5 for the list). In this case, manually delete the AEDT system and sample databases and continue with the installation.
  or
- Side-by-side installation was selected and the same SQL Server instance that is already in use by older version of AEDT was selected. In this case, select a different SQL Server instance.

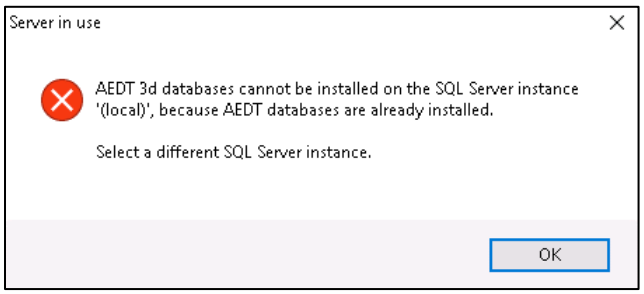

Figure 5-26 AEDT Setup Wizard – Server in Use Error

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

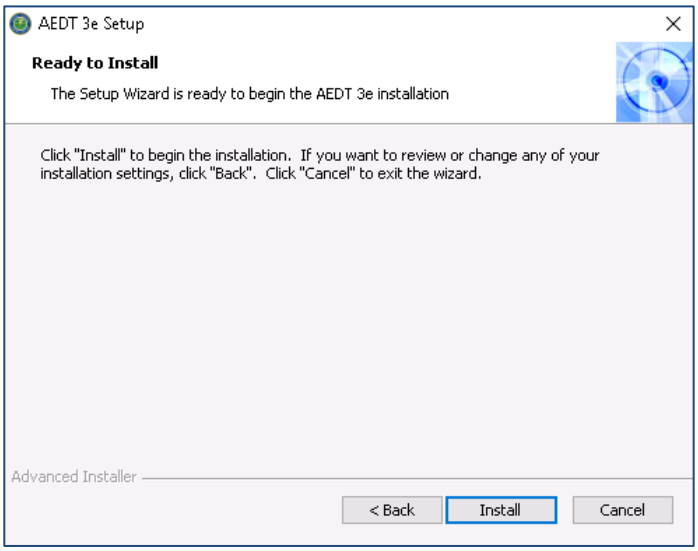

Figure 5-27 AEDT Setup Wizard – Ready to Install

13. Click *Finish* when installation is complete.

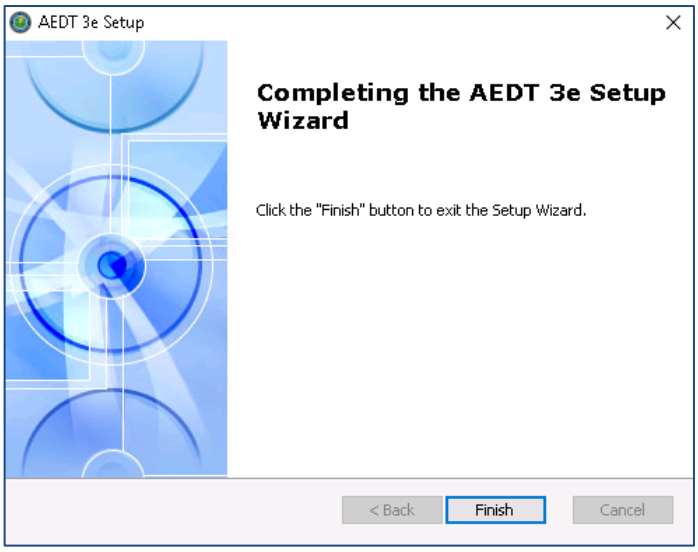

Figure 5-28 AEDT Setup Wizard – Installation Complete

14. A shortcut is created on the Desktop with the name: *AEDT 3e*.

15. AEDT 3e is ready for use.

Distributed Transaction Coordinator Service

AEDT Installer will automatically start the 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.

5.3.3 User-Defined AEDT Study Databases on a SQL Server 2012 Instance

If there are any user-defined AEDT study databases on a SQL Server 2012 instance that you want to use in AEDT 3e, create a backup file of the study database then restore it on a SQL Server 2017 instance.

For instructions on how to backup and restore a SQL Server database, please refer to the following sections:

- Section 5.5.3 Backup SQL Server Database
- Section 5.5.4 Restore SQL Server Database

5.3.4 Upgrade User-Defined AEDT Study Databases

AEDT 3e supports upgrading studies from study database version 1.43.1 up through and including one version prior to the current version.

In order to upgrade an older AEDT study in AEDT 3e:

1. Restore the study backup file on the SQL Server 2017 instance where the AEDT 3e system databases are installed.
2. Follow the instructions in the AEDT User Manual to update the older AEDT study database to the latest version.

5.4 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 5-29 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 5-30, 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.

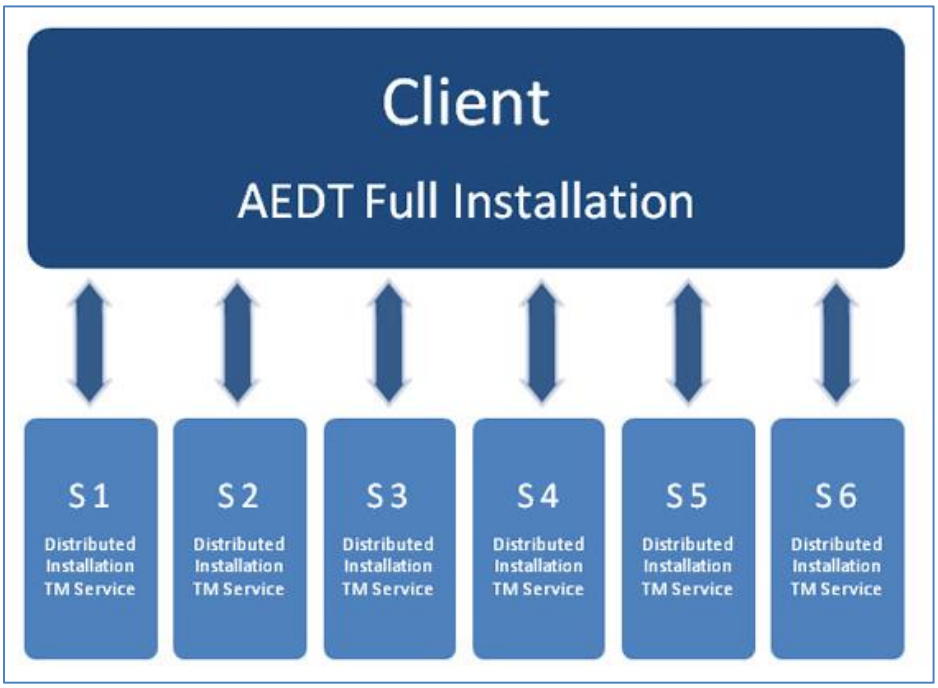

Figure 5-29 Distributed Processing

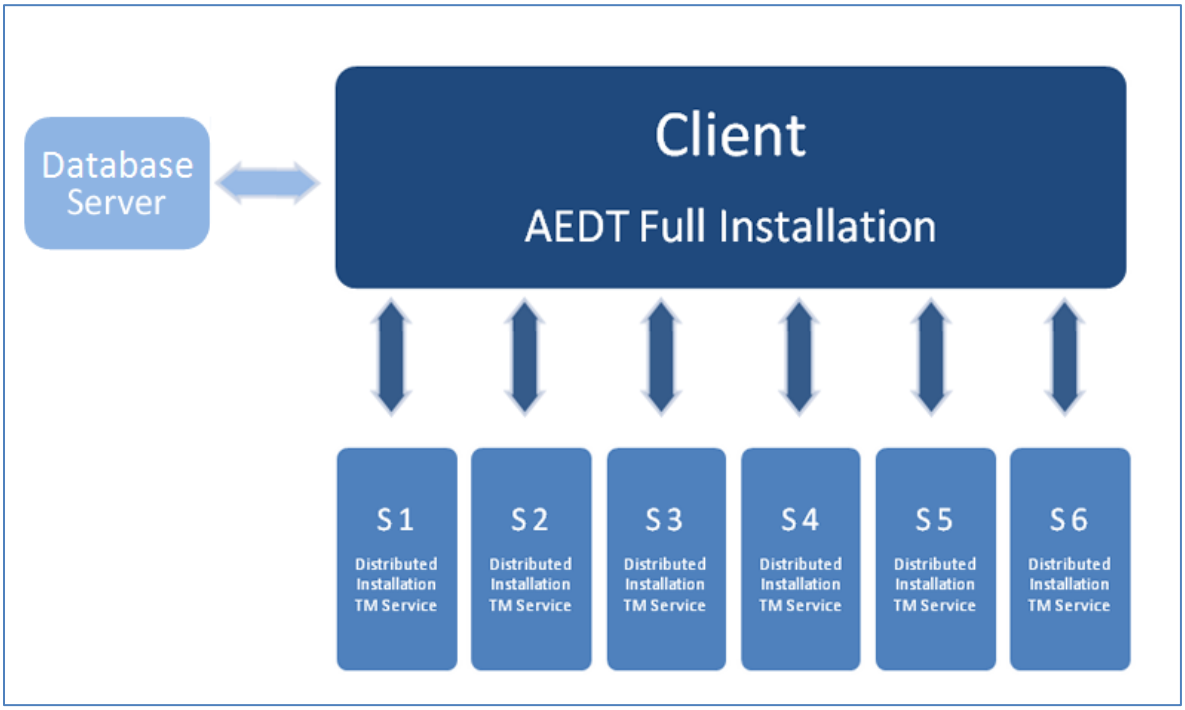

Figure 5-30 Distributed Processing with Separate Database Server

5.4.1 Setup AEDT Client

1. Install the entire AEDT system on the AEDT client, including Microsoft SQL Server, AEDT application, and AEDT databases. See sections 5.2 and 5.3.

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.

5.4.2 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 3e Distributed Processing.exe*** file.

2. The Setup Wizard for AEDT will open. Click *Next*.

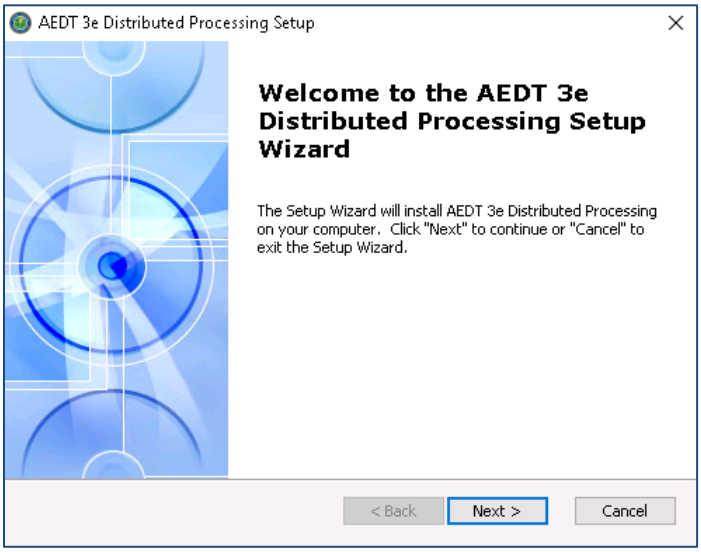

Figure 5-31 AEDT Setup Wizard – Welcome

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

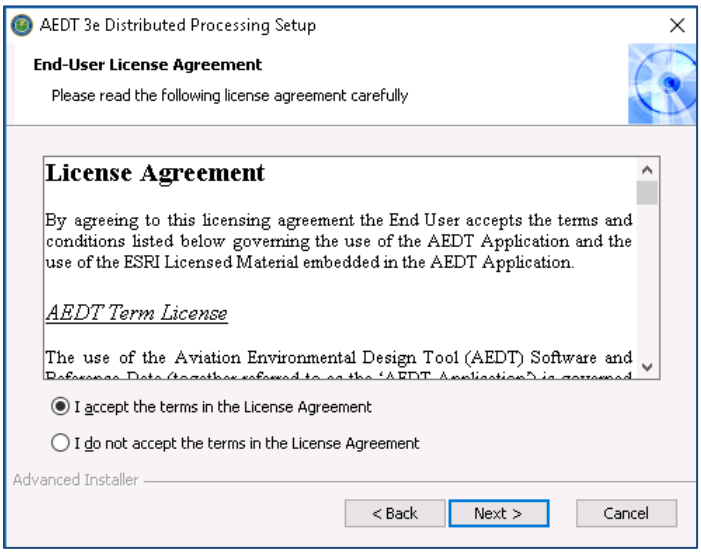

Figure 5-32 AEDT Setup Wizard – License Agreement

4. Specify the user account that will be used to start the AEDT distributed processing service. You can use an existing user account or create a new user account. Click *Next*.

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

The user account for the AEDT Distributed Processing Service must be added to the local *Administrators* group. Please see Step 10 below.

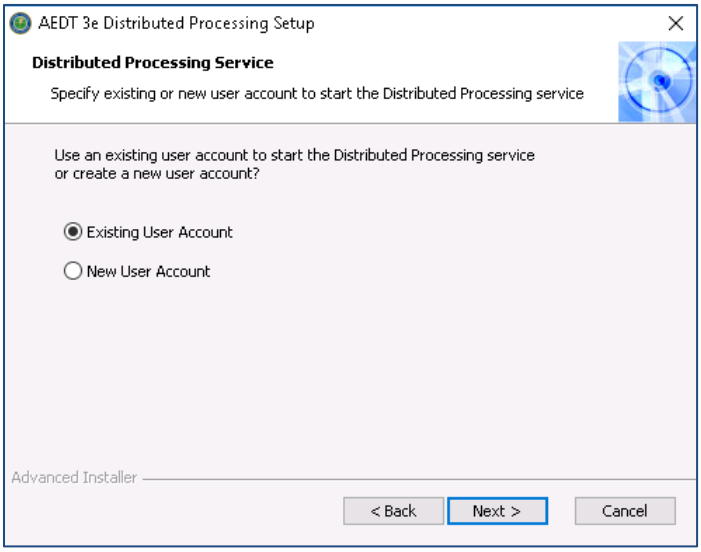

Figure 5-33 AEDT Setup Wizard – Specify Existing or New User Account

5. **Existing User Account:** Enter user name, domain, and password of an existing user account. The user must belong to the local *Administrators* group. Click *Next*. Verifying the account information may take a while.

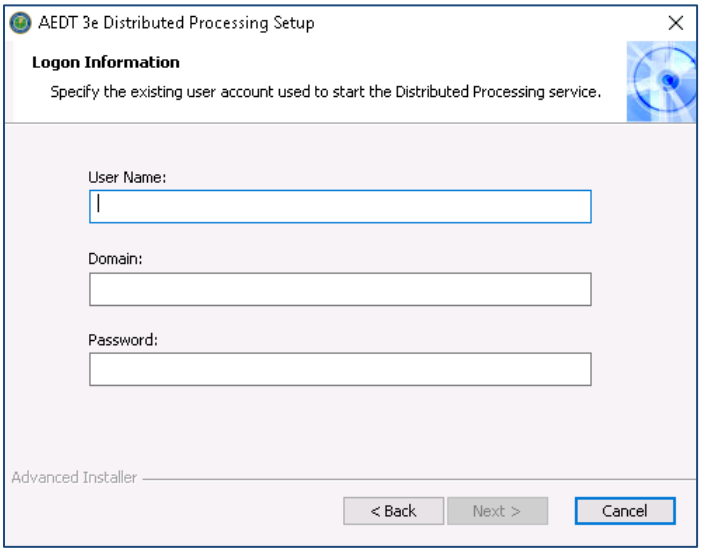

Figure 5-34 AEDT Setup Wizard – Specify Existing User Account

6. **Create New User:** Enter user name and password for a new local user account. Click *Next*.

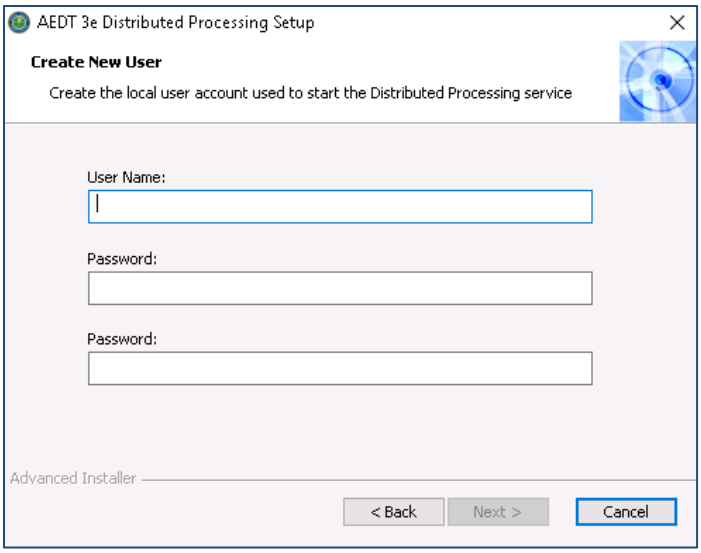

Figure 5-35 AEDT Setup Wizard – Create New User

The password for the local user account must meet the password policy requirements on the local machine. Otherwise, the distributed processing service installation will fail; and you will need to re-start the installation.

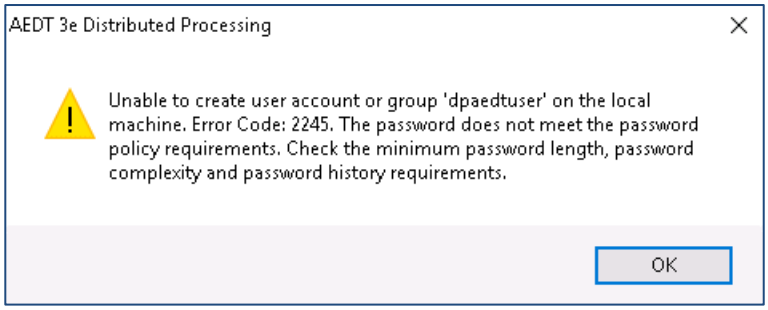

Figure 5-36 AEDT Setup Wizard – Unable To Create User Account Error

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

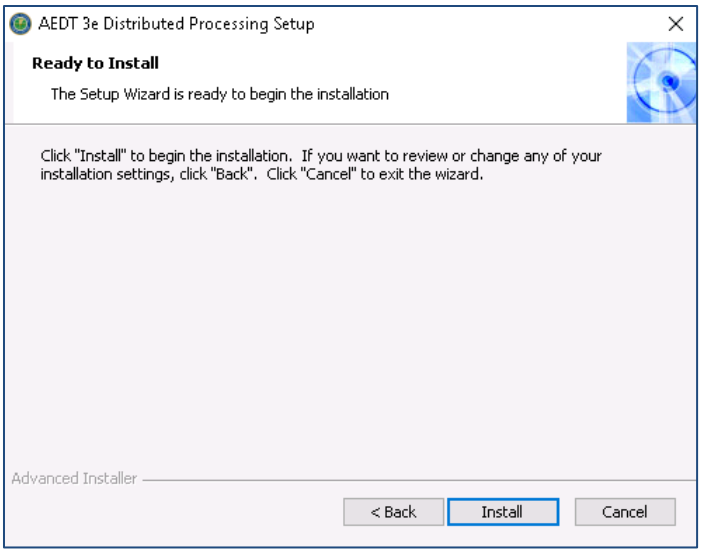

Figure 5-37 AEDT Setup Wizard – Ready to Install

8. Click *Finish* when installation is complete.

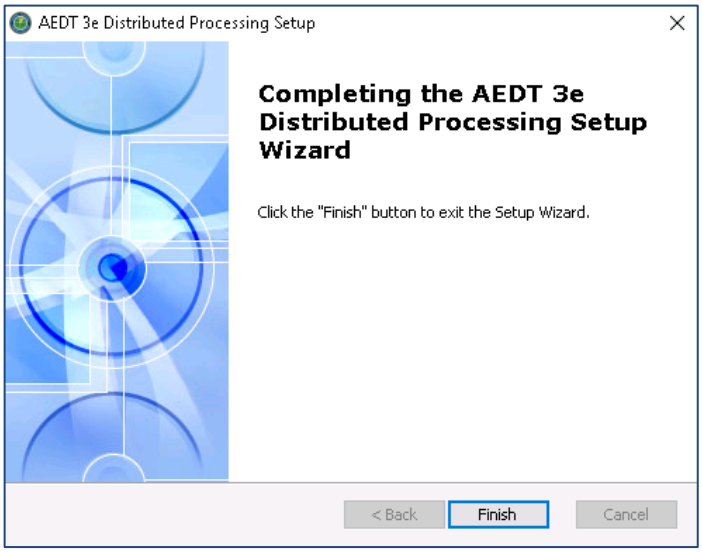

Figure 5-38 AEDT Setup Wizard – Installation Complete

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 3e Distributed Processing*

The Distributed Processing Service logs are written to the **aedt_TmService.log** under C:\AEDT3e\Logs folder.

10. Add the user account for the AEDT Distributed Processing Service to the local *Administrators* group. Otherwise, using distributed processing to run metric results with terrain will not work.
    a. Click the *Windows Start* button, and enter "*lusrmgr.msc*".
    b. The *Local Users and Groups* dialog opens.
    c. Click the *Groups* on the left pane.
    d. Double-click on the *Administrator* group to open it.
    e. Add the user account for the AEDT Distributed Processing Service to the *Administrator* group.
    f. Click OK to save your changes.

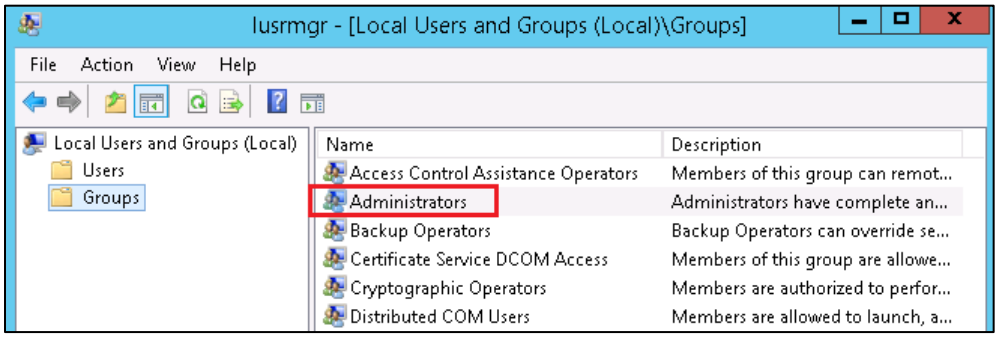

Figure 5-39 Local Users and Groups dialog

11. To view the AEDT Distributed Processing Service:
    a. Click the *Windows Start* button, and enter "*services.msc*".
    b. The *Services* dialog opens.
    c. Find the "AEDT 3e Distributed Processing Service".

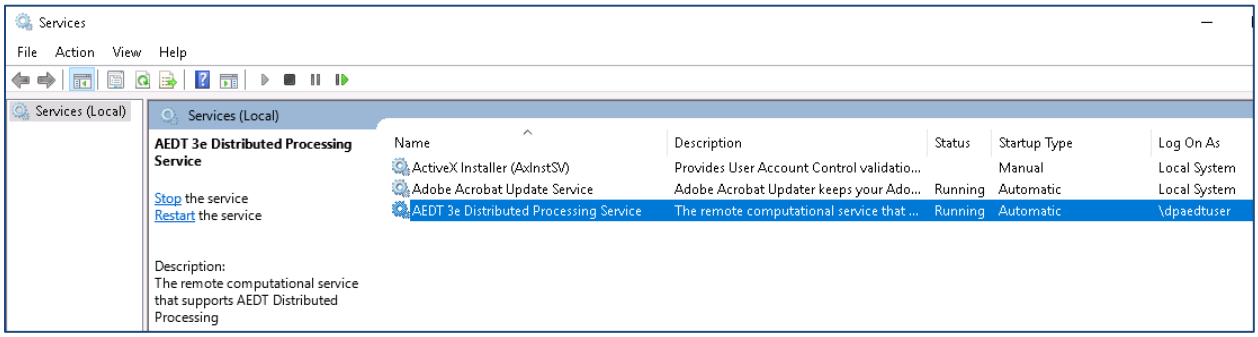

Figure 5-40 Services Dialog

5.5 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 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

5.5.1 Connect to SQL Server Instance in SQL Server Management Studio

1. Open SQL Server Management Studio.
2. In the *Connect to Server* dialog box, enter or select the SQL Server instance name where AEDT databases are installed.
3. Select the appropriate Authentication method.
4. Click the *Connect* button.

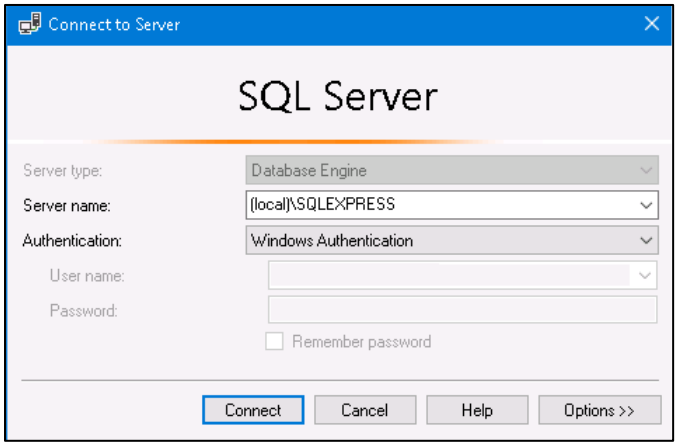

Figure 5-41 Microsoft SQL Server Management Studio – Connect to Server Dialog Box

5.5.2 Verify AEDT System Database Versions

1. Open SQL Server Management Studio and connect to the SQL Server instance where AEDT databases are installed.
2. From the *File* menu, select *Open, File.*
3. Navigate to *C:\Program Files\FAA\AEDT3e\Script Files\InstallCheckDBversions.sql* and select *Open*.
4. Click the *Execute* button located on the toolbar.
5. Check the database versions displayed in the *Results* tab.

5.5.3 Backup SQL Server Database

1. Open SQL Server Management Studio and connect to the SQL Server instance where AEDT databases are installed.
2. In the *Object Explorer*, select the study database of interest.
3. Right-click on the database, and select *Tasks*, *Back Up…* to open the *Back Up Database* dialog box (Figure 5-42).
4. Verify that the *Backup type* is set to *Full*.
5. If an entry has already been added to the *Destination* field, select the entry and click the *Remove* button.
6. Click the *Add* button to open the *Select Backup Destination* dialog box.
7. Click the … button and browse to the desired location for storing the backup file.
8. Enter the desired file name in the *File Name* field, including the .bak extension. Click *OK*.
9. Click *OK* to close the *Select Backup Destination* dialog box.
10. Click *OK* to back up the database. A confirmation message will be displayed if the backup was successful.

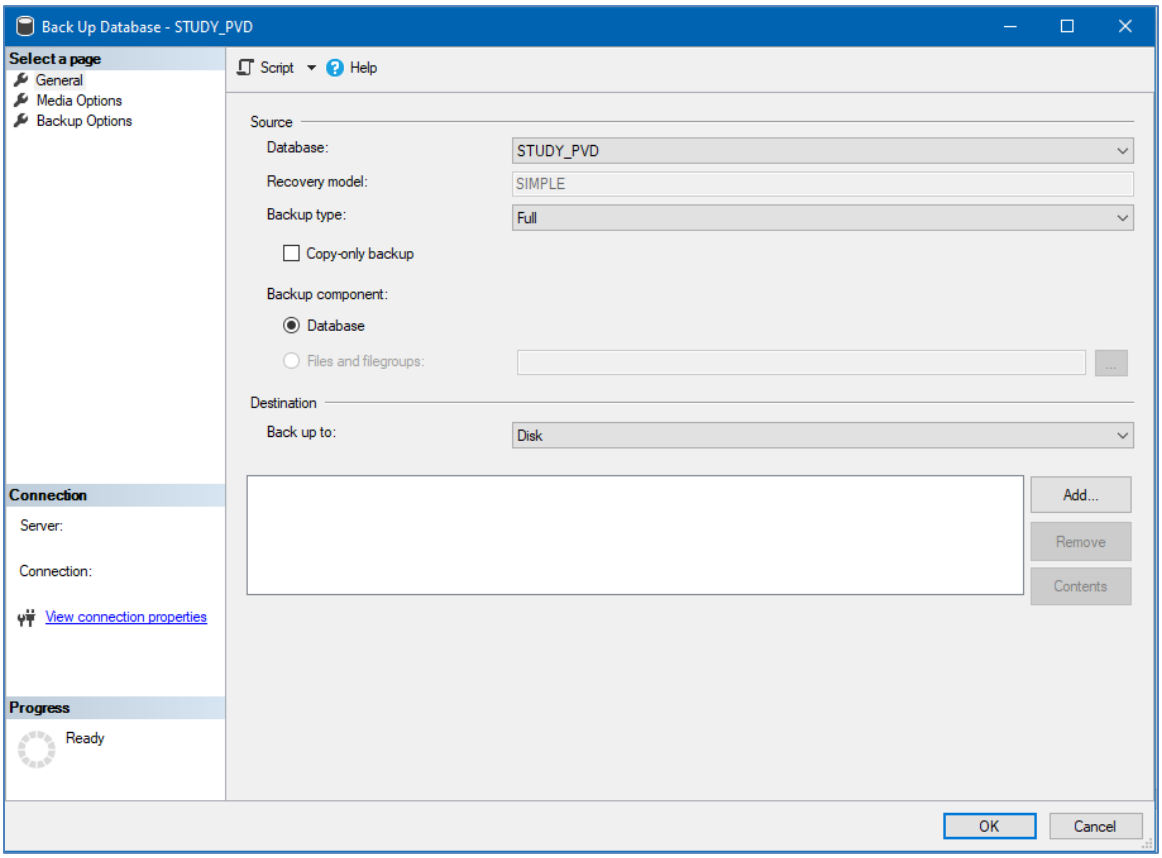

Figure 5-42 Microsoft SQL Server Management Studio – Back Up Database Dialog Box

5.5.4 Restore SQL Server Database

The SQL Server backup files (.bak) of the AEDT system databases are located in *C:\Program Files\FAA\AEDT3e\DatabaseBackups*.

1. Open SQL Server Management Studio and connect to the SQL Server instance where AEDT databases are installed.
2. Right-click on the Databases folder, and select *Tasks, Restore*, *Database*… to open the *Restore Database* dialog box (Figure 5-43).
3. Select the *Device* radio button, then click the … button to open the *Specify backup* devices dialog box.
4. Click the *Add* button. Browse to the location of the previously stored backup file, and click *OK*.
5. Click *OK* to close the *Specify backup* devices dialog box.
6. Select the *Restore* checkbox for the backup file.
7. Select the *Options* page from the left side of the *Restore Database* dialog box.
8. Check the *Overwrite the existing database (WITH REPLACE)* option.
9. Click *OK* to restore the database. A confirmation message will be displayed if the restore was successful.

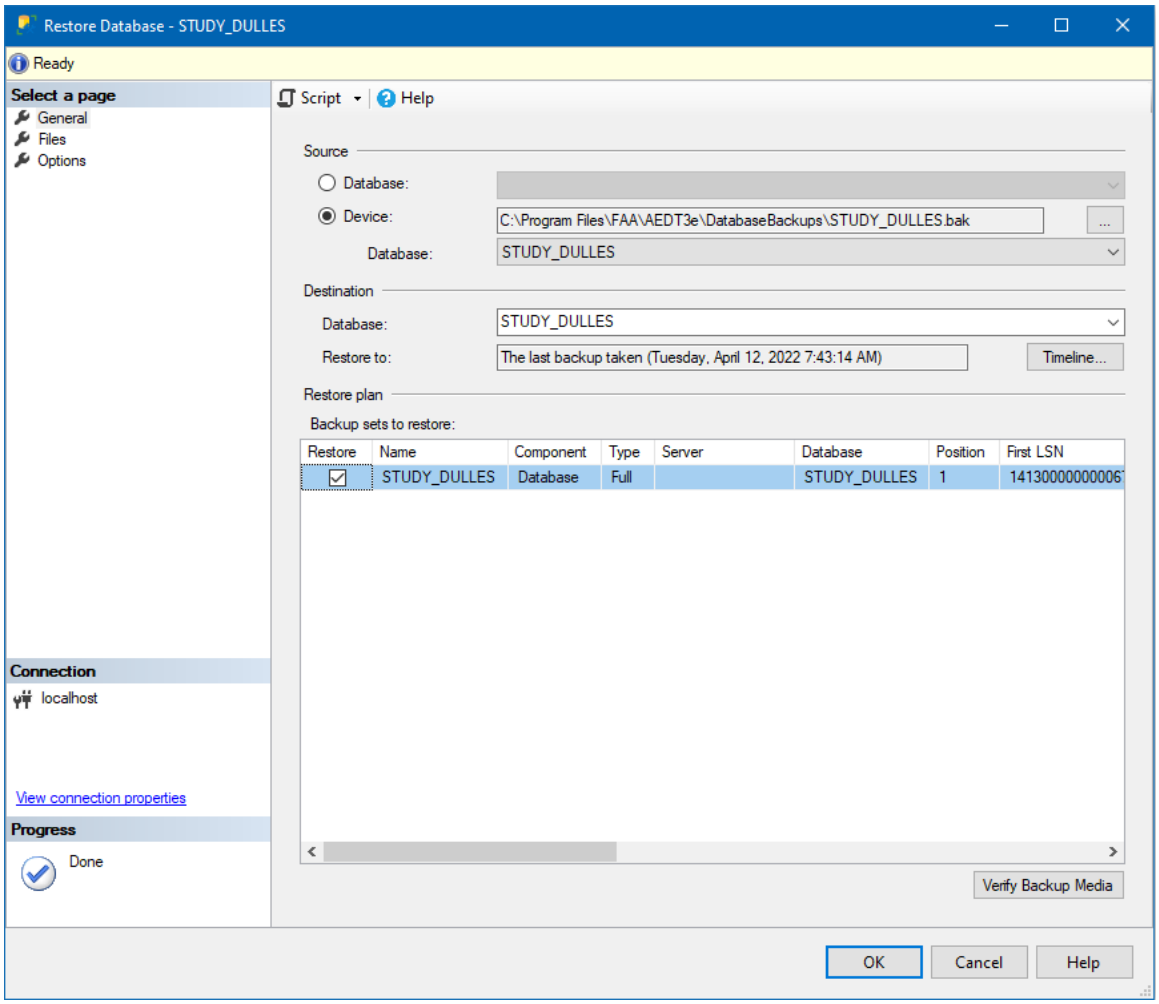

Figure 5-43 Microsoft SQL Server Management Studio – Restore Database Dialog Box

5.5.4.1 Known Issue with Restoring Fleet.bak File in SQL Server Management Studio

Microsoft SQL Server Management Studio (SSMS) has the following known issue which affects restoring the Fleet.bak file in SSMS.

When restoring a backup file (.bak) that has more than 32 backups in the timeline, SSMS does not restore the latest backup version. For example, when you restore the AEDT 3e Fleet.bak in SSMS, it will restore the Fleet version 3.36.1, instead of restoring the **Fleet version 3.45.4**.

To restore the Fleet.bak file to the latest backup version:

1. In the SSMS *Restore Database* dialog, click the *Device* radio button, then select the Fleet.bak backup file from *C:\Program Files\FAA\AEDT3e\DatabaseBackups* folder.
2. Click the *Timeline* button (Figure 5-44).
3. Click the "Specific date and time" radio button, then click *OK* (Figure 5-45).
4. Click *OK*.

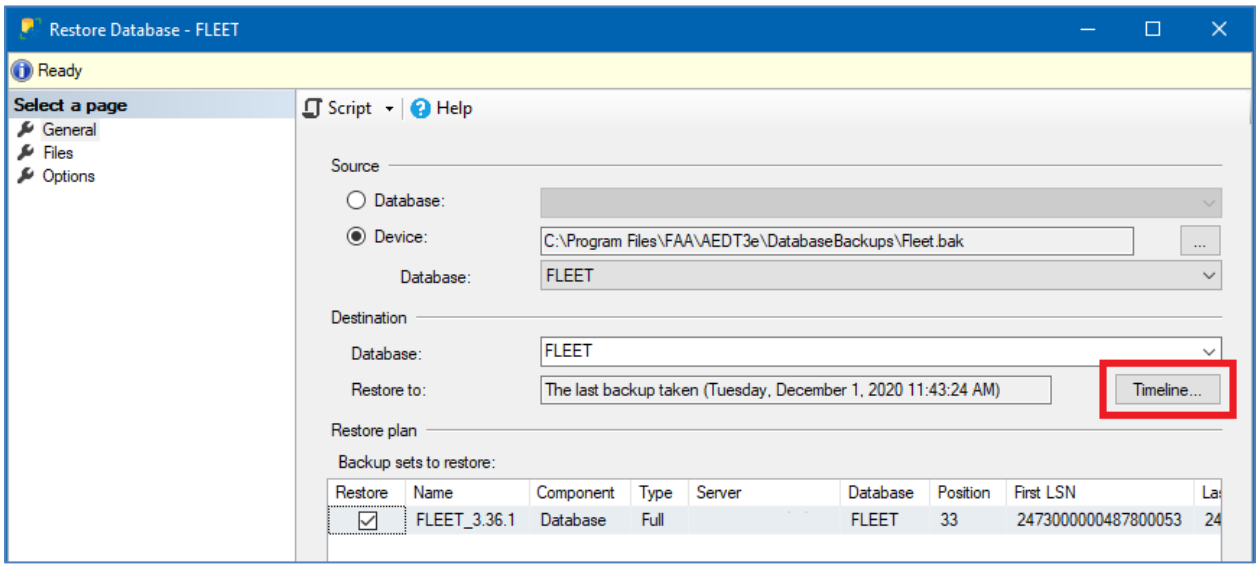

Figure 5-44 Microsoft SQL Server Management Studio – Restore Database Dialog Box, Timeline button

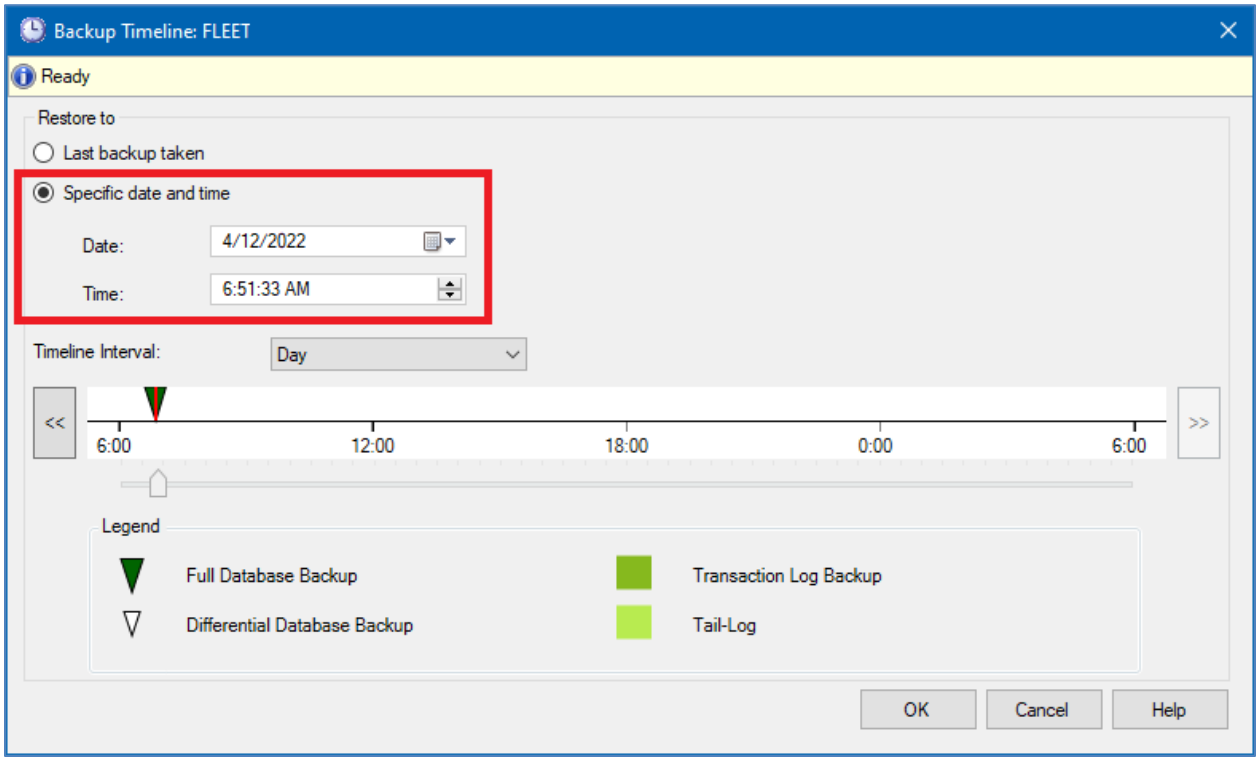

Figure 5-45 Microsoft SQL Server Management Studio – Backup Timeline Dialog Box

5.5.5 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 and connect to the SQL Server instance where AEDT databases are installed.
2. In the *Object Explorer*, select the database of interest.
3. Right-click on the database, and select *Delete* to open the *Delete Object* dialog box (Figure 5-46).
4. The "Delete backup and restore history information for databases" checkbox is selected by default. Change this setting as desired.
5. Select the "*Close existing connections*" checkbox.
6. Click *OK* to delete the database and close the dialog box.

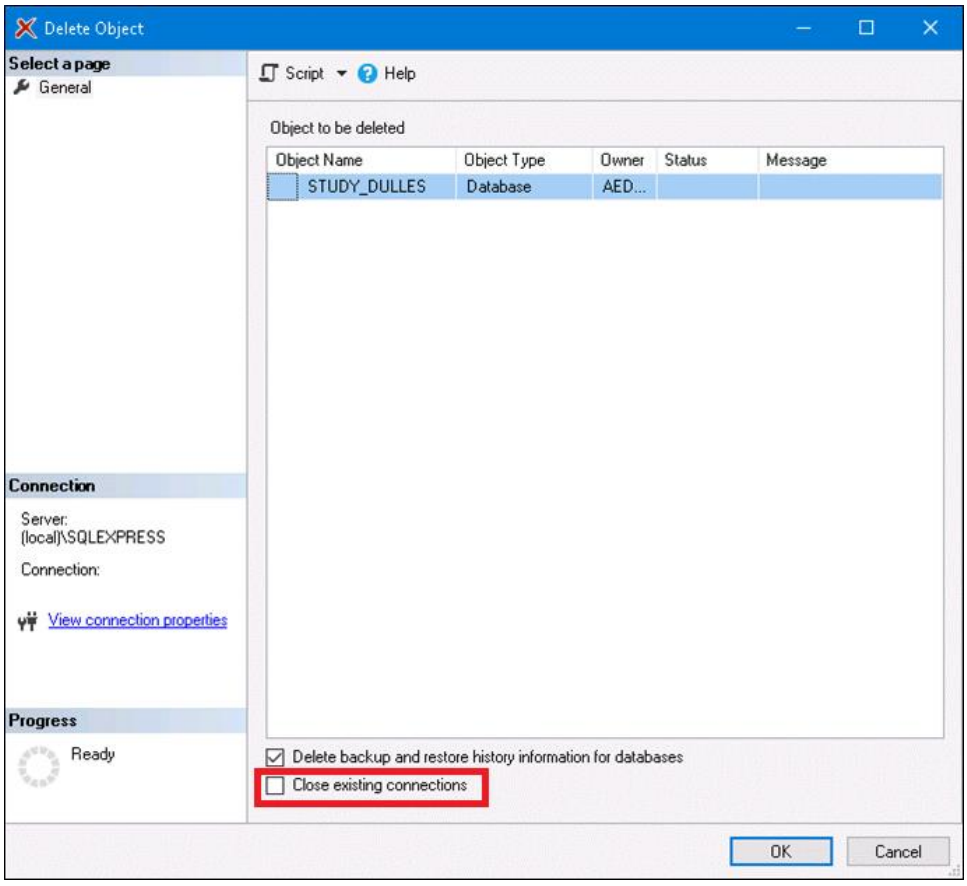

Figure 5-46 Microsoft SQL Server Management Studio – Delete Object Dialog Box

5.6 Steps to Uninstall AEDT

Uninstalling AEDT will also remove the system databases and sample study databases listed below. If you want to preserve any changes you made to the sample studies, create a backup of the database before uninstalling AEDT.

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

Before uninstalling AEDT, save desired files from the AEDT data folder (e.g., *C:\AEDT3e*) and from the study output directories – *C:\AEDT3e\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 3e* from the program list and click *Uninstall*.
3. The Setup Wizard will open. Click *Next* to continue.

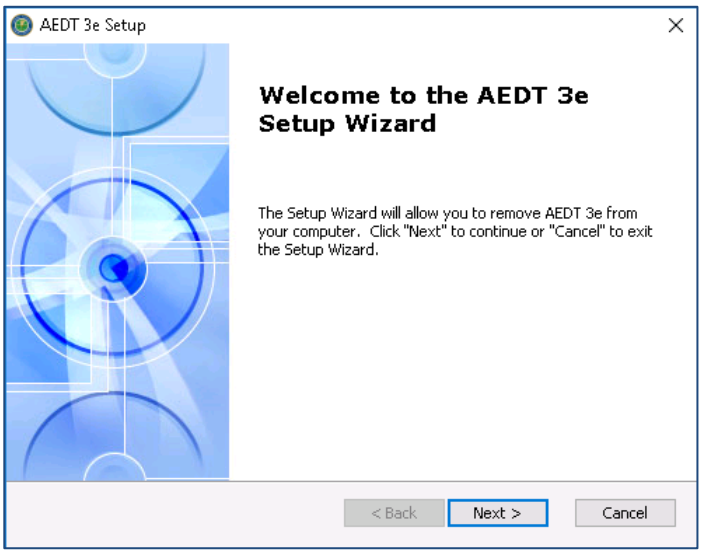

Figure 5-47 AEDT Setup Wizard

4. Click the *Remove* button to continue.

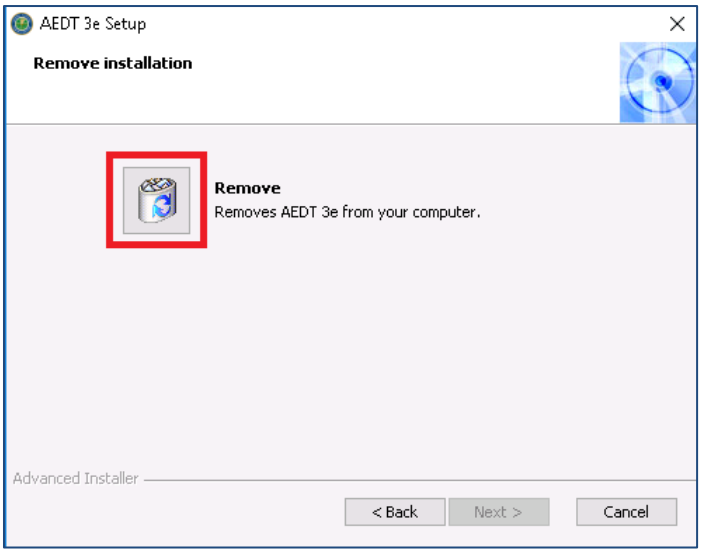

Figure 5-48 AEDT Setup Wizard – Remove Installation

5. Click the *Remove* button to uninstall AEDT from the computer.

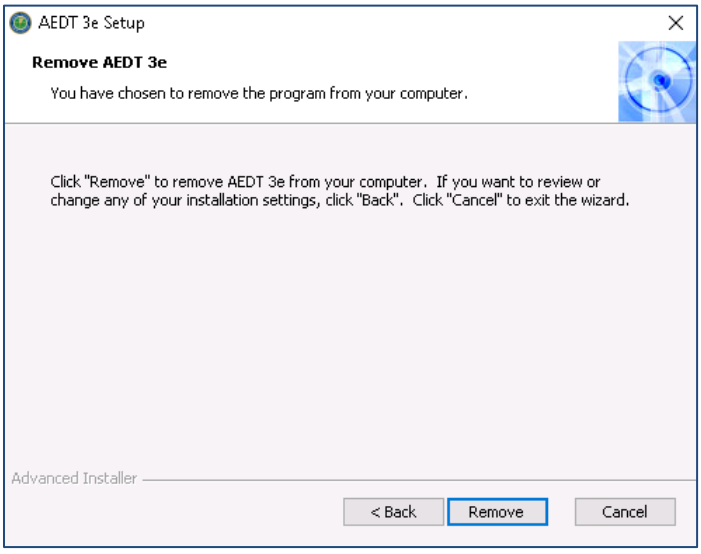

Figure 5-49 AEDT Setup Wizard – Remove

6. The installer will prompt to delete the Census data files. This refers to the Census data folder used for the Population Exposure Report (default location is C:\AEDT3e\demographics_module), and not the ACS data folder used for the Environmental Justice (default location is C:\AEDT3e\environmentaljustice_module).
   - Click *Yes* to remove the Census data folder.
   - Click *No* to preserve the Census data folder.

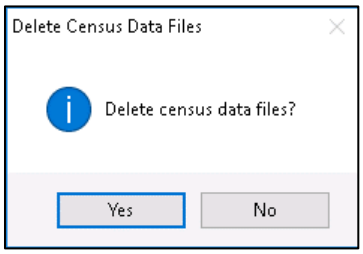

Figure 5-50 AEDT Setup Wizard – Delete Census Data Files Dialog

7. The status bar will display an estimated time to finish removing the program.

8. When the uninstallation is complete, click the *Finish* button to exit the Setup Wizard.

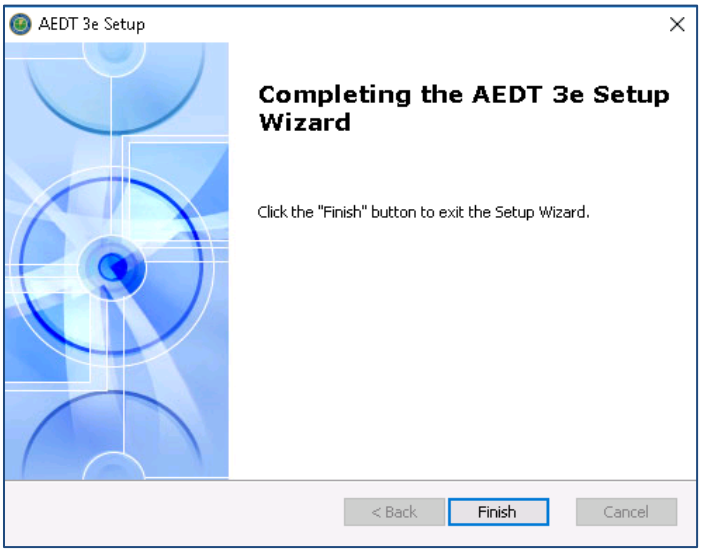

Figure 5-51 AEDT Setup Wizard – Finish

9. Check the following folders and manually delete them as necessary.
   - AEDT installation folder – e.g., C:\Program Files\FAA\AEDT3e
   - AEDT data folder – e.g., C:\AEDT3e

10. Check the SQL Server instance and verify that the AEDT system and sample databases were removed.
    a. Open SQL Server Management Studio and connect to the SQL Server instance where AEDT databases were installed.
    b. In the *Object Explorer*, expand the Databases folder and confirm that the AEDT system and sample databases are no longer listed. If the AEDT system databases remain, delete them.

When another application is connected to AEDT databases, uninstalling AEDT will not remove any connected databases on the server. If this happens, delete the databases manually in Microsoft SQL Server Management Studio.