

U.S. Department of Transportation Federal Aviation Administration

Aviation Environmental Design Tool (AEDT)

Version 3f Release

Installation Manual

December 2023

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1 Installation Introduction

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

- 1. Install Microsoft SQL Server 2017 or SQL Server 2022
- 2. Install AEDT 3f



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

2 Technical Assistance

The AEDT Support website, <u>https://aedt.faa.gov/</u>, 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: <u>aedt-support@dot.gov</u>
- 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

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System specifications for computers capable of hosting the AEDT 3f 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.

		AEDT 3f System Specificat	ions
	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 or Version 2022	Standard/Enterprise Edition, Version 2017 or Version 2022	Standard/Enterprise Edition, Version 2017 or Version 2022, running on the SSD ³
Other Software	Adobe Acrobat Reader	Adobe Acrobat Reader	Adobe Acrobat Reader

Table 3-1 AEDT 3f System Requirements

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Starting with AEDT 3f, Microsoft SQL Server 2022 is officially supported.

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.



The minimum screen resolution is 1280 x 720, and recommended screen resolution is 1920 x 1080.



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.



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It is recommended 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 5-11 SQL Server 2022 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.

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ettings		
命 Home	Region & language	
Find a setting	Country or region Windows and apps might use your country or region to give you local content United States	Related settings Additional date, time, & regional settings Administrative language settings Advanced keyboard settings
a [≇] Region & language		Advanced Reyboard Settings
D Speech	Languages Windows display language	Make Windows better Give us feedback
	Windows display language Windows features like Settings and File Explorer will appear in this language.	Give us recuback
	English (United States) \checkmark	
	Preferred languages Apps and websites will appear in the first language in the list that they support.	

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.

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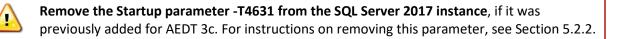
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Settings		- 0
வ் Home	Region & language	
Find a setting	Country or region Windows and apps might use your country or region to give you	Related settings Additional date, time, & regional settings
🛱 Date & time	local content	1 Administrative language settings
	United States V	Advanced keyboard settings
₄≉ Region & language	🔗 Region 🛛 🕹	
Speech	Formats Location Administrative Welcome screen and new user accounts View and copy your international settings to the welcome screen, system accounts and new user accounts. Copy settings Language for non-Unicode programs This setting (system locale) controls the language used when displaying text in programs that do not support Unicode. Current language for non-Unicode programs:	Make Windows better Give us feedback
🔗 Region Settings	Current language for non-Unicode programs: 2	
	le) to use when displaying text in programs etting affects all user accounts on the	
English (United States)	v	
Beta: Use Unicode UTF-8 for wor	Idwide language support	
	OK Cancel OK Cancel Apply	

Figure 3-2 Windows Region Settings – System Locale

4 Installation Package Contents

4.1 Microsoft SQL Server Software



4.1.1 Microsoft SQL Server Express Edition

The SQL Server *Express* Edition is a free edition of SQL Server. As specified in Table 3-1 AEDT 3f 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: <u>https://www.microsoft.com/en-us/download/details.aspx?id=55994</u>

The **Microsoft SQL Server 2022** Express Edition can be downloaded from this link: <u>https://www.microsoft.com/en-us/download/details.aspx?id=104781</u>



- 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 Cumulative Updates

The latest updates and version history of SQL Server is listed here: <u>https://learn.microsoft.com/en-us/troubleshoot/sql/releases/download-and-install-latest-updates</u>

In particular, the SQL Server 2017 Cumulative Update builds can be downloaded from this link: <u>https://support.microsoft.com/en-us/help/4047329/sql-server-2017-build-versions</u>

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



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 3f.exe Installer for AEDT 3f application
- Install AEDT 3f Distributed Processing.exe Installer for AEDT 3f 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 connects to a remote database server where AEDT databases are installed.



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

5.1.2.1 Installation Instructions for the Client – Server Configuration

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

Step 1: On the remote database server, install Microsoft SQL Server. See Section 5.2.



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

Step 2: On the remote SQL Server, run the AEDT installer.

- 1) Select the *Custom* setup type.
- 2) Only check the "AEDT 3f System Databases" and the "AEDT 3f Sample Databases". Uncheck the other options.
- 3) Proceed with the installation.
- 4) 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\AEDT3f\DatabaseBackups)
- 5) Start SQL Server Management Studio, and confirm that the AEDT system and sample databases are listed.

Step 3: On a client machine, run the AEDT installer.

- 1) Select the *Custom* setup type.
- 2) Check all the options except for the "AEDT 3f System Databases" and the "AEDT 3f Sample Databases".
- 3) Proceed with the installation.
- 4) After the installation is complete, open the **ConnectionStrings.config** file under the AEDT application directory (e.g., C:\Program Files\FAA\AEDT3f)
- 5) For all connection strings, change the "Data Source" property to point to the remote SQL Server instance name, then save the file.
- 6) Start AEDT.
- 7) In the *Open Study* dialog, enter the instance name of the remote SQL Server database server.



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

5.1.2.2 Basic Tests After Installation

- 1. On the client machine, start AEDT.
 - a. In the *Open Study* dialog, make sure that the database server is pointing to the remote SQL Server instance.
- 2. Open an existing study (e.g. STUDY_INM).
 - a. Run a metric result to completion.
 - b. Add an existing (new) airport to the study and generate an airport layout map layer.
- 3. Create a new study.
 - a. Add an existing airport to the study and generate an airport layout map layer.
 - b. Create a new aircraft operation.

- 4. If there are older studies on the remote SQL Server instance, in the *Open Study* dialog, click the "Show all versions" checkbox to view older studies on the SQL Server instance. Select an older study to upgrade, then click the *Open* button.
 - a. Confirm that the study is upgraded to the current version.
- 5. If any of these tests fail, then proceed to the next section on MSDTC Configuration.

5.1.2.3 Microsoft Data Transaction Coordinator (MSDTC) Configuration

Any transaction-level SQL between two networked computers requires the use of the Microsoft Data Transaction Coordinator (MSDTC). This section contains configuration and troubleshooting instructions for the MSDTC. It is possible that not all of the instructions need to be followed in order for the MSDTC to work.

5.1.2.3.1 Change an AEDT Study Preference Setting

When an existing airport to a study can't be added to the study, try changing the following Database Preferences option in AEDT.

To change the Study Preference setting ("Disable MSDTC for Airport Layout Insertion"):

- 1. Go to Study tab, Preferences, Database screen.
- 2. Check the "Disable MSDTC for Airport Layout Insertion".
- 3. Click the *Save* button at the top, right-hand corner.
- 4. Go to *Airports* tab, then add an existing airport.

5.1.2.3.2 Enable MSDTC on Both Client Machine and Remote Server

MSDTC needs to be turned on and needs to be running as a Service on **BOTH** the client machine(s) and the remote database server.

- 1. On BOTH the client and on the remote server, open the Windows Component Services.
- 2. Expand Component Services, Computers, My Computer, Distributed Transaction Coordinator, Local DTC.

_	
less Component Services	
💩 File Action View Window Help	
🔶 🔶 🗾 📰 🗟 🖬	
📄 Console Root	Name
🗸 💩 Component Services	Transaction List
✓ ² Computers	Transaction Statistics
🗸 💽 My Computer	
> COM+ Applications	
> COM Config	
> Contraction Running Processes	
🗸 🚞 Distributed Transaction Coordinator	
> 💽 Local DTC	
> 🛃 Event Viewer (Local)	
> 🔍 Services (Local)	

3. Right-click on *Local DTC*, then click *Properties*. Enable all the options as shown in the figure below.

Local DTC Properties		?	×
Tracing Logging Security			
Security Settings Network DTC Access Client and Administration			
Allow Remote Clients Allow F	Remote Adminis	stration	
Transaction Manager Communication	Outbound		
 Incoming Caller Authentication Required No Authentication Required 			
	SNA LU 6.2 T	Transactions	
DTC Logon Account Account: NT AUTHORITY\NetworkSen	vice	Browse	
Password:			
Confirm password:			
Learn more about <u>setting these properties</u> .			
ОК	Cance	App	oly

4. Open the Windows Services dialog, and confirm that following services are running:

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- Distributed Transaction Coordinator
- Remote Procedure Call (RPC)

5.1.2.3.3 Firewall Settings for MSDTC

The ports used by MSDTC need to be opened for cross-network communication. This may not be necessary for computers within an established company domain with both the client computers and remote server inside a firewall. On both client computers and remote server:

- 1. Open the Windows Firewall with Advanced Security.
- 2. Create an Inbound Rule for MSDTC RPC and make sure that it is Enabled.
- 3. Open up TCP ports 135 and 5000-5020 as shown in the figure below.

P Windows Firewall with Advanced Security										
File Action	View Help									
🗢 🔿 🖄										
	Firewall with Advance	Inbound Rul	es							
Inbour		Name		Group	^	Profile	Enabled	Action		
	und Rules ction Security Rules	CMP Allo	ow incoming V4 echo request			All	Yes	Allow		
> 🔍 Monite	*	S MSDTC R	PC Port Configuration			All	Yes	Allow		
	oning	WA Alllouis D	outor (TCD In)	Allloup P	•µter	Domai	Yes	Allow		
	MSDTC RPC Port Co	nfiguration Pro	perties	\times	uter	Domai	Yes	Allow		
	Court	0	10 J		he - Content Retr	All	No	Allow		
	General Protocols and Ports	Programs and Services Remote Com Scope Advanced Local Principals Ren		ote Users	he - Hosted Cach	All	No	Allow		
	r rococola di la roca	Scope A	Scope Advanced Local Principals Remote Osers		he - Peer Discove	All	No	Allow		
	Protocols and por	ts			vice functionality	Private	Yes	Allow		
	Protocol	type:	TCP ~		vice functionality	Private	Yes	Allow		
			6.0		vice functionality	Public	Yes	Allow		
	100000	number.				Public	Yes	Allow		
			1	- I	vice functionality	Private	Yes	Allow		
	Local po	art:	Specific Ports ~		vice functionality	Domain	Yes	Allow		
			135, 5000-5020		vice functionality	Domain	Yes	Allow		
	_		Example: 80, 443, 5000-5010	-	vice functionality	Public	Yes	Allow		
	Remote	port:	All Ports 🗸		vice functionality	Private	Yes	Allow		
					vice functionality	Private	Yes	Allow		
			Example: 80, 443, 5000-5010		vice functionality	Public Domain	Yes Yes	Allow		
					vice functionality	Public	Yes	Allow		
	Internet (ICMP) s	Control Message	e Protocol Customize		vice functionality work Access	All	No	Allow		
	(CMP)	iouriya.			note Administrati	All	No	Allow		

5.2 Install Microsoft SQL Server

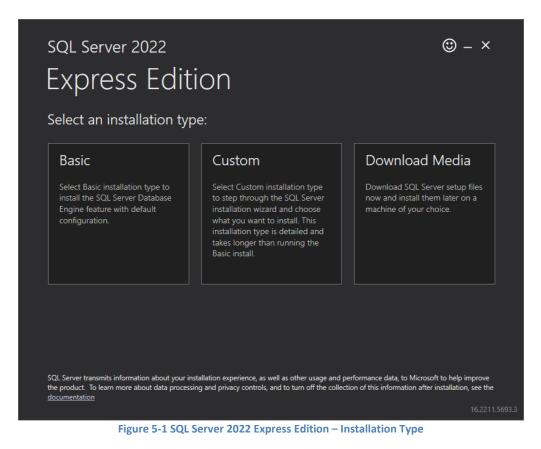
Microsoft SQL Server (version 2017 or version 2022) must be installed prior to installing AEDT 3f. See Section 3 for AEDT system requirements. The download links for the Microsoft SQL Server Express Edition installer are provided in Section 4.1.1.

5.2.1 Instructions for Installing the SQL Server 2022 Express Edition

Instructions on installing the SQL Server 2022 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 2022 Express Edition:

- 1. Double-click the SQL2022-SSEI-Expr.exe.
- 2. The SQL Server 2022 Express Edition window will automatically launch.



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.

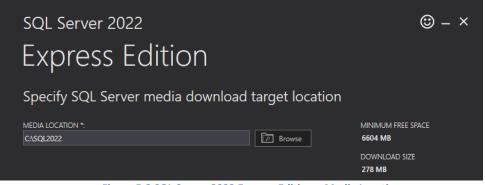


Figure 5-2 SQL Server 2022 Express Edition – Media Location

5. In the *SQL Server Installation Center* window, click the *Installation* link on the left side of the window. Click the *New SQL Server stand-alone installation or add features to an existing installation* option unless upgrading from an older version.

🚼 SQL Server Installation Center	- D >	<
Planning Installation	New SQL Server standalone installation or add features to an existing installation Launch a wizard to install SQL Server 2022 in a non-clustered environment or to add features to an existing SQL Server 2022 instance.	
Maintenance Tools Resources	Install SQL Server Reporting Services Launch a download page that provides a link to install SQL Server Reporting Services. An internet connection is required to install SSRS.	
Options	 Install SQL Server Management Tools Launch a download page that provides a link to install SQL Server Management Studio, SQL Server command-line utilities (SQLCMD and BCP), SQL Server PowerShell provider, SQL Server Profiler and Database Tuning Advisor. An internet connection is required to install these tools. 	
	Install SQL Server Data Tools Launch a download page that provides a link to install SQL Server Data Tools (SSDT). SSDT provides Visual Studio integration including project system support for Microsoft Azure SQL Database, the SQL Server Database Engine, Reporting Services, Analysis Services and Integration Services. An internet connection is required to install SSDT.	
	Upgrade from a previous version of SQL Server Launch a wizard to upgrade a previous version of SQL Server to SQL Server 2022. Click here to first view Upgrade Documentation	
Microsoft SQL Server 2022		

Figure 5-3 SQL Server Installation Center – Installation Menu

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

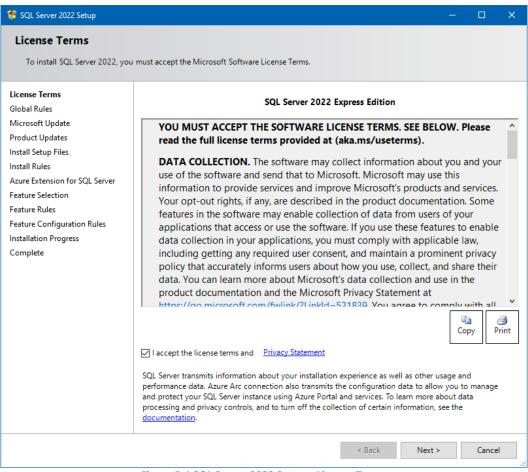
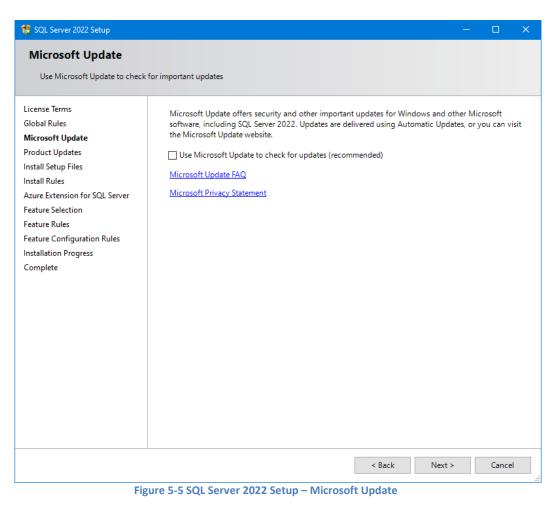


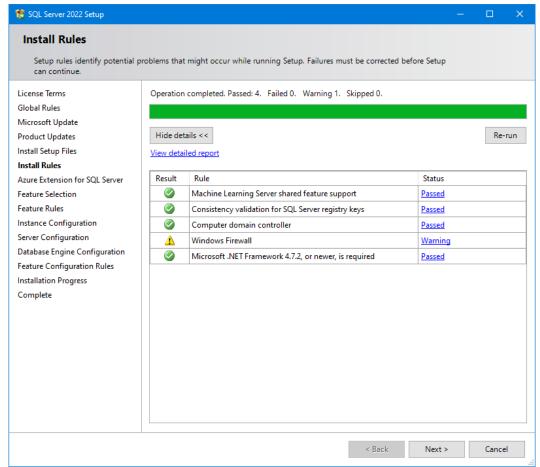
Figure 5-4 SQL Server 2022 Setup – License Terms

7. *Global Rules*: Setup Global Rules will identify problems that might occur when you install SQL Server. If there are no issues, it will automatically move onto the next step.

8. *Microsoft Update*: If desired, select the *Use Microsoft Update to check for updates* option. Click *Next*.



- 9. Product Updates and Install Setup Files steps will automatically run.
- 10. *Install Rules:* Setup rules will identify potential problems that might occur while running Setup. Click *Next.*





11. Azure Extension for SQL Server: Uncheck the Azure Extension for SQL Server. Click Next.

🎲 SQL Server 2022 Setup		– 🗆 X								
	Azure Extension for SQL Server									
Azure Extension for sign server is required to enable microsoft Delender of Globa, Purview, and Azure Active Difectory.										
		< Back Next > Cancel								

Figure 5-7 SQL Server 2022 Setup – Azure Extension for SQL Server

12. *Feature Selection:* The list of features will be different depending on the SQL Server Edition. Select the *Database Engine Services*. Additional features are optional. Click *Next*.

🍀 SQL Server 2022 Setup			– 🗆 X
Feature Selection Select the Express features to in	istall.		
License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Azure Extension for SQL Server Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Instance Features Database Engine Services SQL Server Replication Machine Learning Services and Language Ext Full-Text and Semantic Extractions for Search PolyBase Query Service for External Data Shared Features LocalDB Redistributable Features		Feature description: Includes the Database Engine, the core service of storing, processing and securing data. The Database Engine provides controlled access
	Select All Unselect All Instance root directory: Shared feature directory: Shared feature directory (x86):	C:\Program Files\Mic C:\Program Files\Mic C:\Program Files (x86	
			< Back Next > Cancel

Figure 5-8 SQL Server 2022 Setup – Feature Selection

13. *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*.

🎲 SQL Server 2022 Setup					—		×			
Instance Configuration										
Specify the name and instance I	D for the instance of SQL S	erver. Instance ID becor	nes part of the insta	llation path.						
License Terms Global Rules	O Default instance									
Microsoft Update	Named instance: * S(QLExpress								
Product Updates Install Setup Files Install Rules	Instance ID: S	QLEXPRESS								
Azure Extension for SQL Server Feature Selection	SQL Server directory: C:	\Program Files\Microso	ft SQL Server\MSSQI	16.SQLEXPRESS						
Feature Rules Instance Configuration	Installed instances:									
Server Configuration	Instance Name	Instance ID	Features	Edition	Ver	sion				
Database Engine Configuration	MSSQLSERVER	MSSQL14.MSSQLSE	SQLEngine,SQLE	Developer	14.0	.3192.2				
Feature Configuration Rules	SQL2017	MSSQL14.SQL2017	SQLEngine	Developer		.3192.2				
Installation Progress	<shared components=""></shared>		Conn, BC, SDK			.1000.169				
Complete	<shared components=""></shared>		DQC, IS, MDS			.3192.2				
	<shared components=""></shared>		SSMS, Adv_SSM		11.3	.6020.0				
			< Back	Next >		Cancel				

Figure 5-9 SQL Server 2022 Setup – Instance Configuration



The SQL Server instance created in this step should be selected when installing AEDT (see Figure 5-27).

14. Server Configuration:

- a. In the *Service Account* tab, the default settings work in most cases. Change the settings if necessary.
- b. Click the *Collation* tab and confirm that "SQL_Latin1_General_CP1_CI_AS" is selected.
- c. Click Next.

Τ

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.

簧 SQL Server 2022 Setup				- () X
Server Configuration Specify the service accounts and	d collation configuration.				
License Terms Global Rules Microsoft Update	Service Accounts Collation	•			
Product Updates	Service	Account Name	Password	Startup T	
Install Setup Files	SQL Server Database Engine SQL Server Browser	NT Service\MSSQL\$EXP		Automati	-
Install Rules Azure Extension for SOL Server	SQL Server Browser	NT AUTHORITY\LOCALS		Automati	
Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress Complete		file initialization by avoiding zero		es. This may I	ead
		< Back	c Next	:> (ancel

Figure 5-10 SQL Server 2022 Setup – Server Configuration, Service Accounts Tab

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🎲 SQL Server 2022 Setup	-	- 🗆	×
Server Configuration Specify the service accounts and	d collation configuration.		
License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Azure Extension for SQL Server Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Service Accounts Collation Database Engine: SQL_Latin1_General_CP1_CLAS Latin1-General, case-insensitive, accent-sensitive, kanatype-insensitive, width- insensitive for Unicode Data, SQL Server Sort Order 52 on Code Page 1252 for non- Unicode Data	Customize	
	< Back Next >	Cance	I .:

Figure 5-11 SQL Server 2022 Setup – Server Configuration, Collation tab

- 15. *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.

1

🏀 SQL Server 2022 Setup	- 🗆 X
Database Engine Confi	guration
Specify Database Engine auther parallelism, Memory limits, and	ntication security mode, administrators, data directories, TempDB, Max degree of Filestream settings.
License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Azure Extension for SQL Server Feature Selection Feature Rules Instance Configuration Server Configuration	Server Configuration Data Directories TempDB Memory User Instances FILESTREAM Specify the authentication mode and administrators for the Database Engine. Authentication Mode Image: Configuration
Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Specify SQL Server administrators SQL Server administrators have unrestricted access to the Database Engine. Add Current User Add
	< Back Next > Cancel

Figure 5-12 SQL Server 2022 Setup – Database Engine Configuration

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

🍀 SQL Server 2022 Setup		-		×
Installation Progress				
License Terms Global Rules Microsoft Update Product Updates Install Setup Files Install Rules Azure Extension for SQL Server Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Installation Progress Complete	Running package: sql_xevent_loc : Registering Product			
	Ne	ext >	Cance	

Figure 5-13 SQL Server 2022 Setup – Installation Progress

- 17. Complete: The final screen will confirm that the installation was successful.
- 18. Click *Close* to close the *SQL Server 2022 Setup* window.

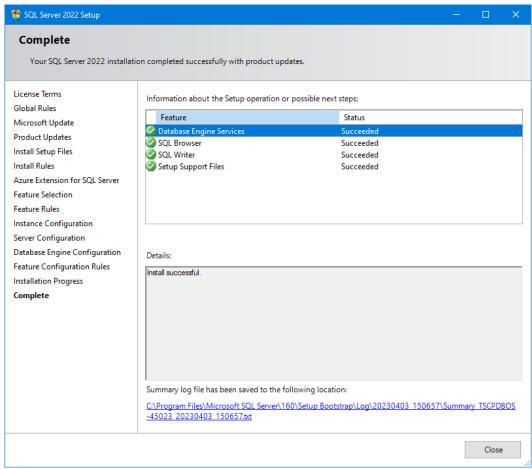


Figure 5-14 SQL Server 2022 Setup – Complete

19. 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 3f.

1. Start the *SQL Server 2017 Configuration Manager*.

- a) Click the Windows Start button at the bottom, left-hand corner of Windows desktop.
- b) Enter "SQLServerManager14.msc"
- c) Click *Run as administrator*.

All Apps Documents Web More	• 🕶	
Best match		
SQLServerManager14.msc Microsoft Common Console Document		
Search the web		SQLServerManager14.msc
SQLServerManager14.msc - See web results	>	Microsoft Common Console Document
𝒫 sqlservermanager14.msc missing	>	
\mathcal{P} sqlservermanager14.msc for sql	>	Location <u>C:\WINDOWS\system32</u>
server 2017	-	⊂″ Open
Sqlservermanager14.msc para sql server 2017	>	Run as administrator
𝒫 sqlservermanager14.msc for sql		Den file location
server 2018	>	🖒 Unpin from taskbar
✓ SQLServerManager14.msc		

- 2. The "Sql Server Configuration Manager" window opens, see Figure 5-15.
- 3. From the left-pane, select the *SQL Server Services*.
- 4. From the right-pane, select the SQL Server 2017 instance. The instance name will be different depending on your installation
- 5. Right-click on the SQL Server 2017 instance and choose *Properties*.

Sql Server Configuration Manager							
ile Action View Help							
• 🔷 🖄 🗟 📓 🕑 🔍 💌 🥑							
SQL Server Configuration Manager (Local)	Name			State	Start Mode	Log On As	Process ID
SQL Server Services	🔂 sqi	L Server (SQL2 0 17)		Running	Automatic	NT Service\MSSQL\$SQL2017	2204
SQL Server Network Configuration (32bit)	SQI	L Server (SQLEXPRESS)		Running	Automatic	NT Service\MSSQL\$SQLEXPRE	7292
SQL Native Client 11.0 Configuration (32bit)	Б	Start		Running	Automatic	NT Service\MSSQL\$TEST1	2876
SQL Server Network Configuration	Б.	Stop		Running	Automatic	NT Service\MSSQL\$TEST2	2848
	Б.	Pause		Running	Automatic	NT Service\MSSQLSERVER	2856
				Stopped	Other (Boot, Syste	NT AUTHORITY\NETWORKSE	0
		Resume	ESS)	Stopped	Other (Boot, Syste	NT AUTHORITY\NETWORKSE	0
	6	Restart		Stopped	Manual	NT Service\SQLAgent\$TEST1	0
	B	Properties		Stopped	Manual	NT Service\SQLAgent\$TEST2	0
	1		-	Running	Automatic	NT AUTHORITY\LOCALSERVICE	1192
	6	Help	RVER)	Stopped	Manual	NT Service\SQLSERVERAGENT	0

Figure 5-15 SQL Server 2017 Configuration Manager

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

SQL Server (SQL2017) P	ropertie	5		?	×
Log On		Service	E	ILESTREAM	
AlwaysOn High Availa	bility	Startup Par	rameters	Advan	ced
Specify a startup parar	neter:				
				Add	
, Existing parameters:					
-dC:\Program Files\Mid					
-eC:\Program Files\Mic -IC:\Program Files\Mic					
-T4631					
				Remove	
			_		
<			>		
OK	:	Cancel	Apply	He	elp

Figure 5-16 SQL Server Properties – Startup Parameters

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



Figure 5-17 SQL Server Service Warning

- 10. Click OK to close the SQL Server Properties dialog.
- 11. 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=sqlserver-ver15

5.2.4 SQL Server – sysadmin Server Role

As explained in the SQL Server installation instructions (see **Error! Reference source not found.**), 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.

Server Properties	
Select a page	🔄 Script 🔻 📑 Help
🚰 General	
Memory	
Processors	Server memory options
Security	
Connections	
Patabase Settings	
Advanced	
Permissions	Minimum server memory (in MB):
	0
	Maximum server memory (in MB):
	8000 🚖

Figure 5-18 SQL Server Properties – Maximum Server Memory

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

Installation Manual: 3f

5.3 Install AEDT 3f

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 3f

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

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

Option 1: Remove the older AEDT installation

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

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

- Create a separate SQL Server 2017 or SQL Server 2022 instance before installing AEDT 3f!
- Select the "install side by side with other versions" option during the AEDT 3f installation.



What is side-by-side installation?

AEDT 3f can be installed side by side with an older AEDT release (e.g., AEDT 2d/3b/3c/3d/3e). 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.

5.3.1.1 How to Upgrade a Study that Contains Equipment that have been Removed

1

In some 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, Table 5-2, and Table 5-3 have been removed from the AEDT 3d/3e/3f Fleet Databases.

These equipment records must be removed or reassigned from study databases built prior to AEDT 3f 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 <u>prior to</u> upgrading your study to AEDT 3f.

Prior to upgrading, it is recommended to review the study for equipment that has been removed. It is also recommended to review the AEDT release notes for any other updates that may be relevant to the study (e.g., GSE emission factors) and confirm or update parameters as needed.

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

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

3e	Зе	3e 3e		
Equip ID	Airframe Model	Engine Model	Engine ID	Reason not remapped
4141	MC-21-300	CFM56-5B2/3	2127	Certification Delayed or Cancelled
4142	MC-21-300	CFM56-5B4/3	2129	Certification Delayed or Cancelled
4244	MC-21-200	CFM56-5B4/3	2129	Certification Delayed or Cancelled
4245	MC-21-200	CFM56-5B2/3	2127	Certification Delayed or Cancelled
4522	SMR80	CFM56-3C-1 (Rerated)	1211	Equipment used for testing
4523	SMR80	CFM56-3C-1	1212	Equipment used for testing
4524	SMR80	CFM56-7B18	1387	Equipment used for testing
4525	SMR80	CFM56-7B20	1388	Equipment used for testing
4526	SMR80	CFM56-7B22	1389	Equipment used for testing
4527	SMR80	CFM56-7B24	1390	Equipment used for testing
4529	SMR80	CFM56-7B27	1392	Equipment used for testing
4530	SMR80	CFM56-7B20/2	1444	Equipment used for testing
4531	SMR80	CFM56-7B22/2	1445	Equipment used for testing
4532	SMR80	CFM56-7B24/2	1446	Equipment used for testing
4533	SMR80	CFM56-7B26/2	1447	Equipment used for testing
4534	SMR80	CFM56-7B27/2	1448	Equipment used for testing
4535	SMR80	CFM56-7B27/3	1796	Equipment used for testing
4537	SMR80	CFM56-7B26/3	1797	Equipment used for testing
4539	SMR80	CFM56-7B24/3	1798	Equipment used for testing
4541	SMR80	CFM56-7B22/3	1799	Equipment used for testing
4543	SMR80	CFM56-7B20/3	1800	Equipment used for testing
4545	SMR80	CFM56-7B26	1811	Equipment used for testing
4546	SMR80	CFM56-7B22E	2136	Equipment used for testing
4547	SMR80	CFM56-7B22E/B1	2137	Equipment used for testing
4548	SMR80	CFM56-7B24E	2138	Equipment used for testing
4549	SMR100	CFM56-3C-1 (Rerated)	1211	Equipment used for testing
4550	SMR100	CFM56-3C-1	1212	Equipment used for testing
4551	SMR100	CFM56-7B18	1387	Equipment used for testing
4552	SMR100	CFM56-7B20	1388	Equipment used for testing
4553	SMR100	CFM56-7B22	1389	Equipment used for testing
4554	SMR100	CFM56-7B24	1390	Equipment used for testing
4557	SMR100	CFM56-7B27	1392	Equipment used for testing
4560	SMR100	CFM56-7B20/2	1444	Equipment used for testing
4561	SMR100	CFM56-7B22/2	1445	Equipment used for testing
4562	SMR100	CFM56-7B24/2	1446	Equipment used for testing

Table 5-3 AEDT 3e Equipment Removed from AEDT 3f (Fleet 3.55.1) without Reassignments

Aviation Environmental Design Tool

Installation Manual: 3f

3e Equip ID	3e Airframe Model	3e Engine Model	3e Engine ID	Reason not remapped
4563	SMR100	CFM56-7B26/2	1447	Equipment used for testing
4565	SMR100	CFM56-7B27/2	1448	Equipment used for testing
4567	SMR100	CFM56-7B27/3	1796	Equipment used for testing
4572	SMR100	CFM56-7B26/3	1797	Equipment used for testing
4576	SMR100	CFM56-7B24/3	1798	Equipment used for testing
4580	SMR100	CFM56-7B22/3	1799	Equipment used for testing
4581	SMR100	CFM56-7B26	1811	Equipment used for testing
4582	SMR100	CFM56-7B22E	2136	Equipment used for testing
4583	SMR100	CFM56-7B24E	2138	Equipment used for testing
4584	SMR100	CFM56-7B26E	2141	Equipment used for testing
4585	SMR100	CFM56-7B27E	2147	Equipment used for testing
4586	SMR100	CFM56-7B27E/B1	2148	Equipment used for testing
4587	SMR100	CFM56-7B27E/B3	2150	Equipment used for testing
5349	Cessna Citation Hemisphere	BIZMEDIUMJET_F	1849	Removing Equipment in AEDT that use representative engines
5443	United Aircraft Corporation (Irkut) MC-21 -300	PS-90A	1956	Certification Delayed or Cancelled
6478	MC-21-300	PW1130G-JM	2194	Certification Delayed or Cancelled
6480	MC-21-200	PW1130G-JM	2194	Certification Delayed or Cancelled
6482	United Aircraft Corporation (Irkut) MC-21 -300	PW1519G	2214	Certification Delayed or Cancelled

Changes to aircraft operations may be made to an existing study in a previous version of AEDT or by using SQL scripts.

How to Delete or Edit Aircraft Operations in AEDT:

- 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
(4136,4146,4251,5302,5343,5425,5342,4128,6402,6403,4141,4142,4244,4245,4522,4523,4
524,4525,4526,4527,4529,4530,4531,4532,4533,4534,4535,4537,4539,4541,4543,4545,454
6,4547,4548,4549,4550,4551,4552,4553,4554,4557,4560,4561,4562,4563,4565,4567,4572,
4576,4580,4581,4582,4583,4584,4585,4586,4587,5349,5443,6478,6480,6482)))

DELETE FROM [dbo].[AIR_OPERATION] WHERE AIRCRAFT_ID in (select distinct
[AIRCRAFT_ID] from [dbo].[AIR_OPERATION_AIRCRAFT]
where EQUIPMENT_ID in
(4136,4146,4251,5302,5343,5425,5342,4128,6402,6403,4141,4142,4244,4245,4522,4523,4
524,4525,4526,4527,4529,4530,4531,4532,4533,4534,4535,4537,4539,4541,4543,4545,454
6,4547,4548,4549,4550,4551,4552,4553,4554,4557,4560,4561,4562,4563,4565,4567,4572,
4576,4580,4581,4582,4583,4584,4585,4586,4587,5349,5443,6478,6480,6482))

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 (4136,4146,4251,5302,5343,5425,5342,4128,6402,6403,4141,4142,4244,4245,4522,4523,4 524,4525,4526,4527,4529,4530,4531,4532,4533,4534,4535,4537,4539,4541,4543,4545,454 6,4547,4548,4549,4550,4551,4552,4553,4554,4557,4560,4561,4562,4563,4565,4567,4572, 4576,4580,4581,4582,4583,4584,4585,4586,4587,5349,5443,6478,6480,6482)))

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
(4136,4146,4251,5302,5343,5425,5342,4128,6402,6403,4141,4142,4244,4245,4522,4523,4
524,4525,4526,4527,4529,4530,4531,4532,4533,4534,4535,4537,4539,4541,4543,4545,454
6,4547,4548,4549,4550,4551,4552,4553,4554,4557,4560,4561,4562,4563,4565,4567,4572,
4576,4580,4581,4582,4583,4584,4585,4586,4587,5349,5443,6478,6480,6482)
```

 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 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 3f 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 3f



For the standalone installation (see Section 5.1.1), Microsoft SQL Server 2017 or SQL Server 2022 must be installed prior to installing AEDT 3f.



Can AEDT databases be installed to an existing SQL Server 2022 or 2017 instance?

- Yes, AEDT databases can be installed on a new SQL Server instance *or* on an existing SQL Server instance.
- Before installing AEDT databases on an existing SQL Server instance, ensure that AEDT system databases and AEDT sample databases have been removed.
- Databases can be manually deleted from SQL Server Management Studio.

To install AEDT application and databases:

- 1. To start the installer, double-click the *Install AEDT 3f.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 4.8
 - 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*.

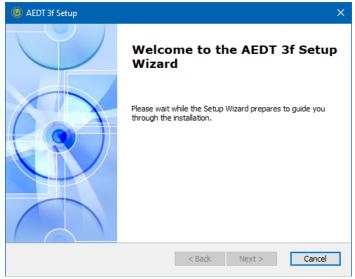


Figure 5-19 AEDT Setup Wizard – Welcome

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



6. If an older AEDT version is already installed, the following screen will be displayed (Figure 5-21).

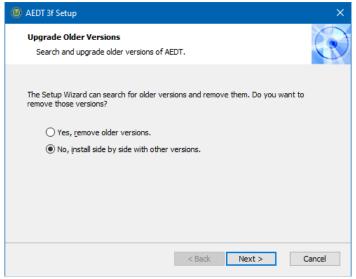
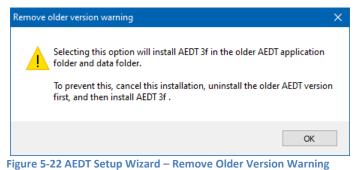


Figure 5-21 AEDT Setup Wizard – Upgrade Older Versions



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

• Click Yes to remove the older AEDT version and install AEDT 3f. Clicking Yes will display the following warning.



• Click *No* to install AEDT 3f alongside with older AEDT version.

Click Next to continue.

7. Select the *Custom* setup type.

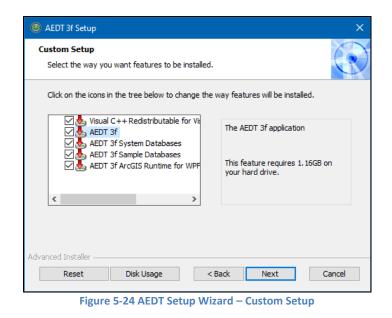
The *Custom* setup is recommended and described in this section since the locations of the AEDT installation folder and the data folder can be viewed and modified through this path in the installer.

- *Complete*: installs all the AEDT components to default locations
 - The following default installation locations are used:
 - AEDT installation folder C:\Program Files\FAA\AEDT3f
 - AEDT data folder C:\AEDT3f
- *Custom*: allows users to customize which AEDT component(s) to install and change the locations where the software is installed

🙆 AEDT 3f Setup		×			
Choose Setup Type Choose the setup ty	pe that best suits your needs				
M M M	Complete Install the full version of the AEDT 3f application.				
	Custom Select and install specific components of the AEDT 3f application.				
Advanced Installer	< Back Install	Cancel			

Figure 5-23 AEDT Setup Wizard – Setup Type

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



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

🙆 AEDT 3f Setup			×
Select Installation Folder This is the folder where AEDT 3f will be installed.		(I
To install in this folder, dick "Next". To install to a different folder, ente "Browse".	er it belo	ow or click	
Folder:			
C:\Program Files\FAA\AEDT3f\		Browse	
Advanced Installer			
Advanced installer		Can	cel

Figure 5-25 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 3f). Spaces in the Data Folder path may cause problems with contour generation.

Ø AEDT 3f Setup	×
Select the Data Folder This is the folder where the data files will be installed.	C
To install in this folder, click "Next". To install to a different folder, ente "Browse".	r it below or click
Folder: C:\AEDT3f\	Province
C. WEDTSI (Browse
Advanced Installer	
< Back Next	Cancel
Figure 5-26 AEDT Setup Wizard – Installation	on 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.



Select a SQL Server 2017 instance or a SQL Server 2022 instance in this step.

🙆 AEDT 3f Setup		×
	er instance where AEDT 3f databases will be installed. ver instances are not listed below, enter the instance name.	
SQL Server name:	[t]ocal) V	
Connect using:		
Windows auth	entication	
O SQL Server au	thentication	
User name:		
Password:		
Advanced Installer ——	< Back Next Cancel	
Advanced Installer ——	< Back Next Cancel	

Figure 5-27 AEDT Setup Wizard – SQL Database

Aviation Environmental Design Tool

Installation Manual: 3f

1

The following error message (Figure 5-28) 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.



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

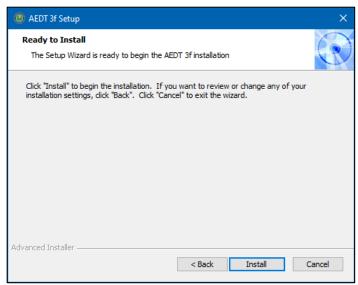


Figure 5-29 AEDT Setup Wizard – Ready to Install

13. Click *Finish* when installation is complete.

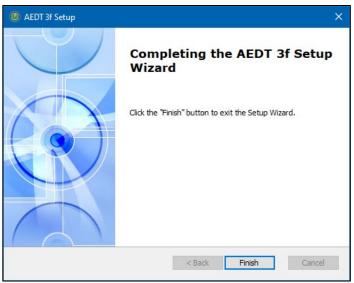


Figure 5-30 AEDT Setup Wizard – Installation Complete

- 14. A shortcut is created on the Desktop with the name: AEDT 3f.
- 15. AEDT 3f 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.

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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 3f, create a backup file of the study database then restore it on a SQL Server 2017 instance or a SQL Server 2022 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 3f 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 3f:

- 1. Restore the study backup file on the SQL Server instance where the AEDT 3f 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 noise 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.



What types of modeling does AEDT Distributed Processing Service support? Distributed Processing is designed to support running large noise analysis using a fixed grid (receptor set). It does not support running noise metric results with a dynamic grid.

Is there a recommended way to design an AEDT study for distributed processing? It is recommended to group aircraft operations into "medium" sized operation groups (cases).

For example, with four remote computers, a medium sized case would contain roughly 1,000 to 10,000 events (not aircraft operations). By designing studies this way, the risk that comes with encountering errors during a large operation group may be minimized while also avoiding the computational resource inefficiencies that result from making operation groups that are too small.

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 5-31 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 5-32, 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.

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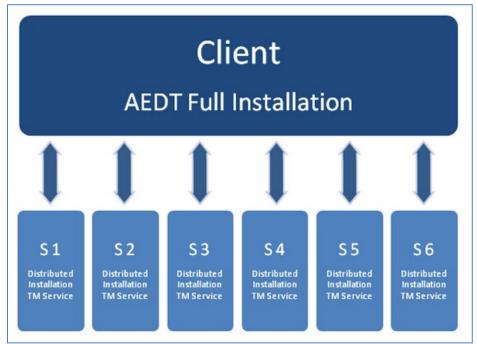


Figure 5-31 Distributed Processing

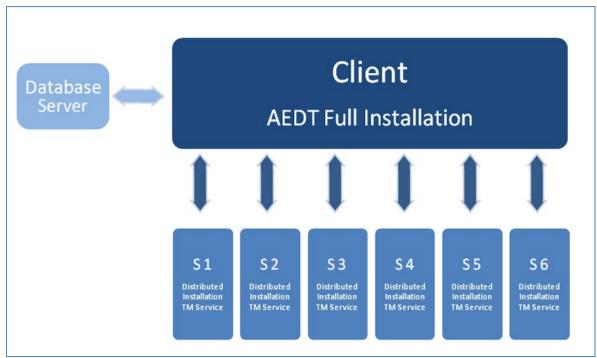


Figure 5-32 Distributed Processing with Separate Database Server

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 3f Distributed Processing.exe* file.
- 2. The Setup Wizard for AEDT will open. Click Next.

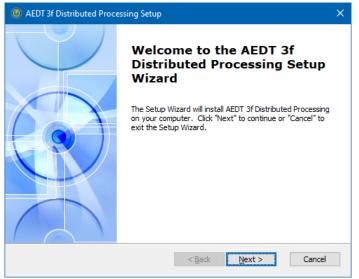
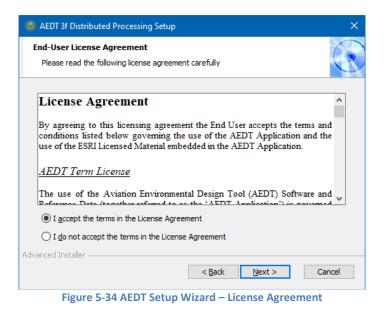


Figure 5-33 AEDT Setup Wizard – Welcome

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



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.

Ø AEDT 3f Distributed Processing Setup	×
Distributed Processing Service Specify existing or new user account to start the Distributed Processing service	C
Use an existing user account to start the Distributed Processing service or create a new user account?	
Existing User Account	
O New User Account	
Advanced Installer	Cancel

Figure 5-35 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.

DT 3f Distributed Processing Setup	×
n Information ecify the existing user account used to start the Distributed Processing service.	C
User Name:	
Domain:	
Password:	
d Installer	ancel
	n Information existing user account used to start the Distributed Processing service. User Name: Domain: Password: Installer

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

@ AEDT 3f Distributed Processing Setup	×
Create New User Create the local user account used to start the Distributed Processing service	
User Name: Password:]
Password:]
Advanced Installer < Back Next >	Cancel

Figure 5-37 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.

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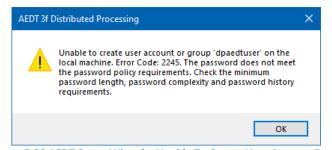


Figure 5-38 AEDT Setup Wizard – Unable To Create User Account Error

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

AEDT 3f Distributed Processing Setup	×
Ready to Install The Setup Wizard is ready to begin the installation	C
Click "Install" to begin the installation. If you want to review or change any of your installation settings, click "Back". Click "Cancel" to exit the wizard.	
Advanced Installer < Back Install Ca	incel

Figure 5-39 AEDT Setup Wizard – Ready to Install

8. Click *Finish* when installation is complete.

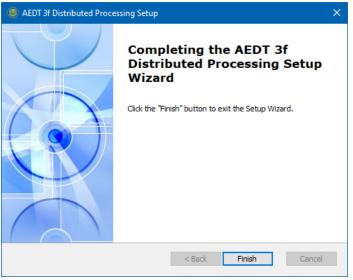


Figure 5-40 AEDT Setup Wizard – Installation Complete

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 3f Distributed Processing



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

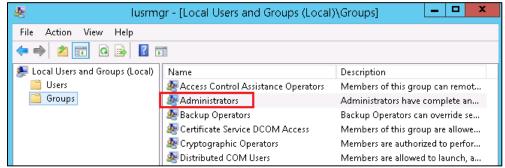


Figure 5-41 Local Users and Groups dialog

- 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 3f Distributed Processing Service".

🔕 Services						—
File Action View	Help					
	à 🗟 🛛 🖬 🕨 🔲 II 🕪					
🤍 Services (Local)	🔍 Services (Local)					
AEDT 3f Distributed Processing Service		Name	Description	Status	Startup Type	Log On As
		AEDT 3f Distributed Processing Service	The remote	Running	Automatic	.\aedt_user
	Stop the service Restart the service					
	Description: The remote computational service that supports AEDT Distributed Processing					

Figure 5-42 Services Dialog

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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.

🚽 Connect to Server		×
	SQL Server	
Server type:	Database Engine	\sim
Server name:	(local)\SQLEXPRESS	~
Authentication:	Windows Authentication	~
User name:		\sim
Password:		
	Remember password	
	Connect Cancel Help	Options >>

Figure 5-43 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\AEDT3f\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 5-44).
- 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.

Back Up Database - STUDY	_PVD				×
Select a page	🖵 Script 🔻 😯 Help				
🔎 General	Scipt · · · · · · · · · ·				
🔑 Media Options					
🔑 Backup Options	Source				
	Database:	STUDY_PVD			\sim
	Recovery model:	SIMPLE			
	Backup type:	Full			\sim
	Copy-only backup				
	Backup component:				
	 Database 				
	O Files and filegroups:				
	Destination				
	Back up to:	Disk			\sim
Connection				Add	
Server:				Remov	/e
Connection:				-	_
				Conten	ts
View connection properties					
Progress					
Ready					
~4 p*					
		Г	ОК	Can	ncel
		Management Studie - Pack Un Database Diale			

Figure 5-44 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\AEDT3f\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 5-45).
- 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.

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Restore Database - STUDY_DI (i) Ready	ULLES						- 🗆 X
•							
Select a page Ø General	🗊 Script 👻 😮 Help						
🔑 Files	Source						
Options	O Database:						\sim
	Device:	C:\Program File	s\FAAV	\EDT3e\DatabaseBac	kups\STUDY_DULL	.ES.bak	
	Database:	STUDY_DULL	ES				~
	Destination						
	Database:	STUDY_DULL	ES				~
	Restore to:	The last backu	p taken ((Tuesday, April 12, 202	2 7:43:14 AM)		Timeline
	Restore plan						
	Backup sets to restore:	-	_		-	-	
	Restore Name	Component ES Database	Type Full	Server	Database STUDY_DULLES	Position 1	First LSN 14130000000006
Connection							
ү¥ localhost							
View connection properties							
Progress							
Oone Done	<					V	> erify Backup Media
					ОК	Cance	el Help

Figure 5-45 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

When restoring a backup file (.bak) that has more than 32 backups in the timeline, Microsoft SQL Server Management Studio (SSMS) may not restore the latest backup version. Please follow the steps below to avoid this known issue that affects restoring the Fleet.bak file in SSMS.

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\AEDT3f\DatabaseBackups* folder.
- 2. Click the *Timeline* button (Figure 5-46).
- 3. Click the "Specific date and time" radio button, then click OK (Figure 5-47).
- 4. Click OK.

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🔎 Restore Database - FLEET					-		×
🕕 Ready							
Select a page	🗊 Script 👻 😯 Help						
Select a page General Files Options	Script ▼ Pelp Source ○ Database: ● Device: Database: Destination Database: Restore to: Restore plan Backup sets to restore: Restore Name ✓ FLEET_3.55.1	FLEET	A\AEDT3f\Database en (Tuesday, Novem Server		n) First LSN 4327000001:	[La:
Connection Y localhost [ADDOT\sunje.hwang.ctr] View connection properties Progress ↓ Done	<			ОК	Verify	Backup Me	

Figure 5-46 Microsoft SQL Server Management Studio – Restore Database Dialog Box, Timeline Button

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🕒 Backup Timeli	ine: FLEET			×
🕦 Ready				
Restore to				
🔘 Last backup ta	aken			
Specific date a	and time			
Date:	11/28/2023			
Time:	12:44:54 PM			
Timeline Interval:	Day	~		
				>>
12:00	18:00	0:00	6:00	12:00
Legend				
	Full Database Backup	Tran	isaction Log Backup	
, ∇	Differential Database Backup	Tail-t	Log	
			OK Cancel	Help
	E. E. (2001.0			

Figure 5-47 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 5-48).
- 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.

Select a page	🗊 Script 👻 😯 Help						
👂 General	• • • • • •						
	Object to be deleted						
	Object Name	Object Type		Status	Message		
	STUDY_DULLES	Database	AED				
Connection							
Server: (local)\SQLEXPRESS							
Connection:	2						
View connection properties							
	2						
Progress							
Ready	Delete backup and re		on for databas	es			
					OK	Can	

Figure 5-48 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:\AEDT3f) and from the study output directories – C:\AEDT3f\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 3f from the program list and click Uninstall.
- 3. The Setup Wizard will open. Click Next to continue.



Figure 5-49 AEDT Setup Wizard

4. Click the *Remove* button to continue.

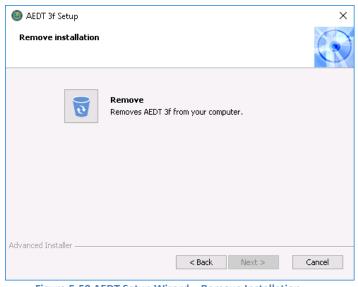


Figure 5-50 AEDT Setup Wizard – Remove Installation

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

AEDT 3f Setup AEDT	×
Remove AEDT 3f	6
You have chosen to remove the program from your computer.	C
Click "Remove" to remove AEDT 3f from your computer. If you want to review change any of your installation settings, click "Back". Click "Cancel" to exit the	v or • wizard.
Advanced Installer	
< Back Remove	Cancel

Figure 5-51 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:\AEDT3f\demographics_module\source_data\Census_2020).
 - Click *Yes* to remove the Census data folder.
 - Click *No* to preserve the Census data folder.

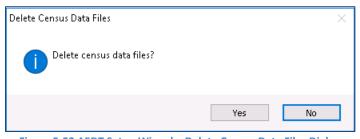


Figure 5-52 AEDT Setup Wizard – Delete Census Data Files Dialog

- 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.

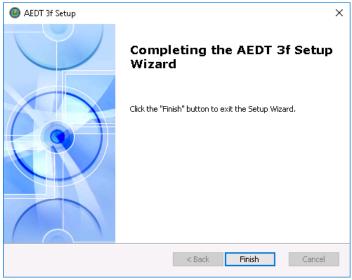


Figure 5-53 AEDT Setup Wizard – Finish

- 9. Check the following folders and manually delete them as necessary.
 - AEDT installation folder e.g., C:\Program Files\FAA\AEDT3f
 - AEDT data folder e.g., C:\AEDT3f
- 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.