U.S. Department of Transportation
Federal Aviation Administration

Aviation Environmental Design Tool (AEDT)

Version 4a

Supplemental Manual

Quick Start Tutorial

January 2026

Purpose

The Federal Aviation Administration Office of Environment and Energy (FAA-AEE) recognizes that the environmental consequences stemming from the operation of commercial aviation – primarily noise, emissions, and fuel consumption – are highly interdependent and occur simultaneously throughout all phases of flight. The Aviation Environmental Design Tool (AEDT) is a software system that is designed to model aviation related operations in space and time to compute noise, emissions, and fuel consumption.

This Quick Start Tutorial was created to be used in conjunction with the *AEDT User Manual*, providing detailed instructions on building simple noise and emissions studies in AEDT and importing studies.

This document consists of the following sections:

Section 1. Introduction

Section 2. Getting Started

This section describes starting the AEDT application and the AEDT user interface organization.

Section 3. Quick Start Tutorial

The purpose of this section is to introduce the basic features required to run the AEDT application to generate noise and emissions results. AEDT has many additional features and settings that support a wide variety of analyses which are covered in detail in the *AEDT User Manual*.

This section covers the following:

- Creating a new study
- Adding an existing airport
- Viewing an airport layout
- Creating flight tracks
- Viewing the airport weather data
- Adding receptors and receptor sets
- Adding aircraft operations
- Creating annualizations
- Defining and running metric results
- Viewing noise, emissions and fuel burn output

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1 Introduction

1.1 Overview

This Quick Start Tutorial was created as an extension of the *AEDT User Manual* for the purpose of providing detailed instructions on creating a simple noise and emissions studies in AEDT.

This document references portions of the *AEDT User Manual*, available on the AEDT Support website. This document does not contain guidance or policy for regulatory analyses. Guidance information can be found on the FAA Office of Environment and Energy (AEE) website (https://www.faa.gov/about/office_org/headquarters_offices/apl/aee).

The following symbols will appear throughout the document to highlight important information:

Observe warnings to avoid errors in execution and ensure that the intended execution occurs.

Notes contain helpful information and tips regarding the functionality of the tool.

1.2 Technical Assistance

The AEDT Support website, https://aedt.faa.gov/, is the technical support hub for AEDT. Support requests, feedback on issues or bugs, and feature requests should be submitted through this website or by email at aedt-support@dot.gov. The latest AEDT installers and support resources such as documentation and frequently asked questions (FAQ) are also available on the AEDT Support website. Register on the website to purchase products, request support, or submit feedback on AEDT.

Please include the AEDT Administrative File when requesting technical support. Please refer to Section 4.10.2 of the *AEDT User Manual* for instructions on generating the Administrative File.

2 Getting Started

2.1 What is an AEDT Study?

An AEDT study is a collection of user inputs, system data, user settings and computed results. This data is contained in a single SQL Server database with a user specified name.

The study database contains all of the tables required by AEDT. FLEET and AIRPORT system data are added to the study database when the study is created. A study database does not contain external files such as terrain or high-fidelity weather data files.

2.2 Installing AEDT

If AEDT is not already installed, follow the instructions provided with the *AEDT Installation Manual* to install the application and Microsoft SQL Server software, before proceeding. AEDT installer is available for download on the AEDT Support website (Section 1.2).

Administrative privileges are required to install AEDT.

2.3 Starting the AEDT Application

1. From the Desktop, double-click on the AEDT shortcut.

   AEDT can also be accessed by navigating to the AEDT application folder (e.g., C:\Program Files\FAA\AEDT) and right-clicking on the executable named *AEDT.exe* and selecting *Run as administrator*.

2. If accelerated display is unavailable on the host platform where AEDT is launched, the following warning message will be displayed (Figure 1).
   - Check the *Do not show this message again* checkbox to disable this warning message.
   - Click *Close* to close the dialog.

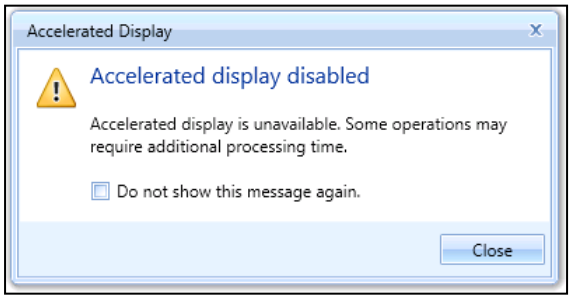


Figure 1. Accelerated Display Warning

When the accelerated display is disabled, rendering map layers (e.g. receptor set layers) may require additional processing time. In some cases, map features may not be highlighted when selected on the map using the Identify tool or through the layer attributes pane.

2.4 AEDT User Interface Organization

The AEDT User Interface is described below (Figure 2):

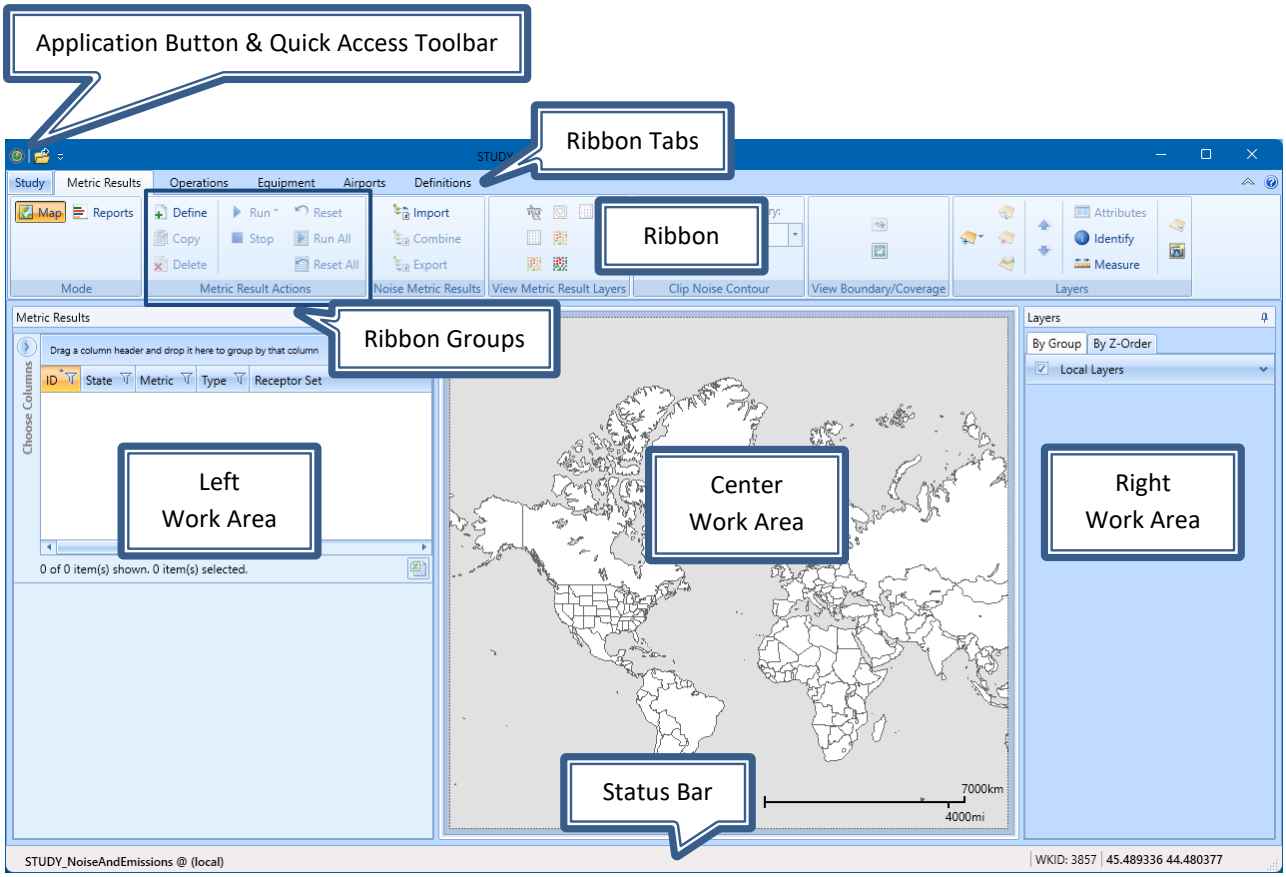


Figure 2. AEDT User Interface Overview

2.4.1 AEDT User Interface – Work Areas

The work areas in the AEDT interface are divided into three sections. While the divisions are consistent between tabs, the content changes as appropriate for each tab.

1. Left Work Area

The left work area contains a list of data available for use in the currently selected tab.

2. Center Work Area

The center work area contains map, details, or report content, depending on the selected tab and view.

3. Right Work Area

The right work area provides appropriate tools to manage the content in the center work area.

2.4.2 AEDT User Interface – Tabs

AEDT features are organized by tabs as follows:

1. Study tab

The *Study* tab includes the following menu options:

- *Open*: opens the *Open Study* dialog.
- *Recent:* lists recently opened studies.
- *Import*: opens the *Import Study* dialog.
- *Partial Import*: opens the *Import Partial ASIF* dialog.
- *New*: opens the *Create New Study* dialog.
- *Delete*: opens the *Delete Study* dialog.
- *Close*: closes the currently open study.
- *Tasks:* displays active and completed tasks.
- *Log:* displays AEDT log messages.
- *Maintenance:* contains study maintenance options.
- *Preferences:* contains system and study settings.
- *Help:* displays AEDT version and support information.
- *Exit:* exits the AEDT application.

2. *Metric Results tab*

The *Metric Results* tab supports construction and processing of metric results, generation of reports, and generating and viewing result layers.

3. *Operations tab*

The *Operations* tab supports managing aircraft operations, non-aircraft operations, runup operations, helitaxi operations, and annualizations.

4. *Equipment tab*

The *Equipment* tab supports managing aircraft equipment, non-aircraft equipment, and equipment groups.

5. *Airports tab*

The *Airports* tab supports adding airports, viewing airport layouts and editing layout components, adding new components in the Airport Layout Designer, and creating operating configurations.

6. *Definitions tab*

The *Definitions* tab supports setting up study data elements including metrics, receptors, receptor sets, operational profiles, weather, and terrain settings. It also supports integration of emissions results from the EPA's Motor Vehicle Emission Simulator (MOVES).

3 Quick Start Tutorial

The goal of this quick tutorial is to lead you through each step required to generate and view noise and emissions output in AEDT for a single aircraft through a simple example. This example is not intended to represent a real analysis.

3.1 Create a New Study

Begin by creating a new AEDT study:

1. Click on the *Study* tab then click *New* to display the *Create New Study* dialog.
2. Enter the name "STUDY_NoiseAndEmissions".
3. Enter the description "A simple noise and emissions study". Note that the study description is optional.
4. Confirm or enter the name of the desired SQL Server instance in the *Database server* field.
5. Either check the *Trust server certificate* or uncheck the *Encrypt connection* checkbox as appropriate and click *Connect.*
   - AEDT will remember the connection settings for the SQL Server instance.
6. Click the *Create* button to create a new study.

To change the SQL Server login credentials (if needed):

1. Click the *Credentials* arrow button.
2. Select the desired authentication mode from the Authentication drop-down menu options:
   - *Windows Authentication:* The User name is pre-populated.
   - *SQL Server Authentication*: Enter the User name and Password.

Study name must be at least five characters long and must not contain periods (.) or spaces.

When running AEDT locally, choosing to trust the server certificate or encrypt connection is typically inconsequential. This setting provides increased security when connecting to a remote SQL Server. For more information, see the *AEDT User Manual*.

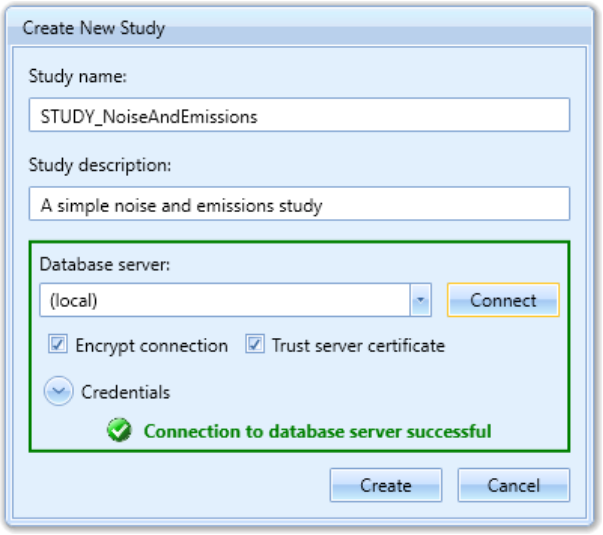


Figure 3. Create New Study Dialog

AEDT will automatically create a new database named "STUDY_NoiseAndEmissions" on the specified SQL Server instance. This new study database contains all the necessary tables used by AEDT.

- Fleet data tables (those tables with the prefix "FLT_") in the new study database are automatically populated with data from the FLEET system database.
- Airport data tables (those tables with the prefix "APT_" or "AIRPORT_") in the new study database are not initially populated. The airport related tables are populated when an airport is added from the AEDT *Airports* tab.

Upon creating the new study, the *Metric Results* tab will display the *Map* view (Figure 4).

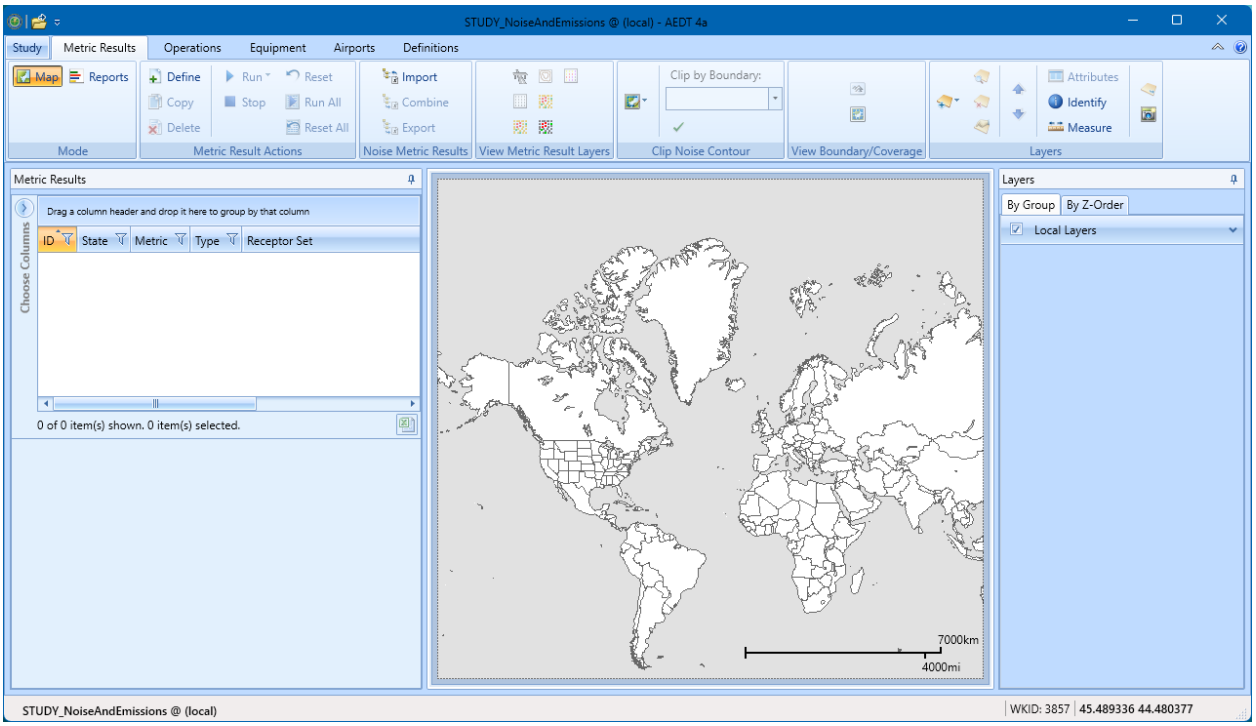
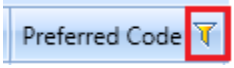


Figure 4. Metric Results Tab

3.2 Add an Airport

1. Click on the *Airports* tab.
2. Click *Add*, then click *Existing Airport*.
3. In the *Add Existing Airport* dialog (Figure 5):
    a. Filter the airports clicking on the filter icon next to the "Preferred Code" column.



    b. Type in "KSFO" under the first "Contains" dropdown list.
    c. Click the *Filter* button.
    d. Close the *Filter* dialog.
4. Select the KSFO airport.
5. Click *Add* to add the selected airport to the study.
6. "*All selected airports were successfully added to the study*" confirmation message will be displayed. Click OK.
7. Once you click OK, you will be returned to the *Map* view under the *Airports* tab.

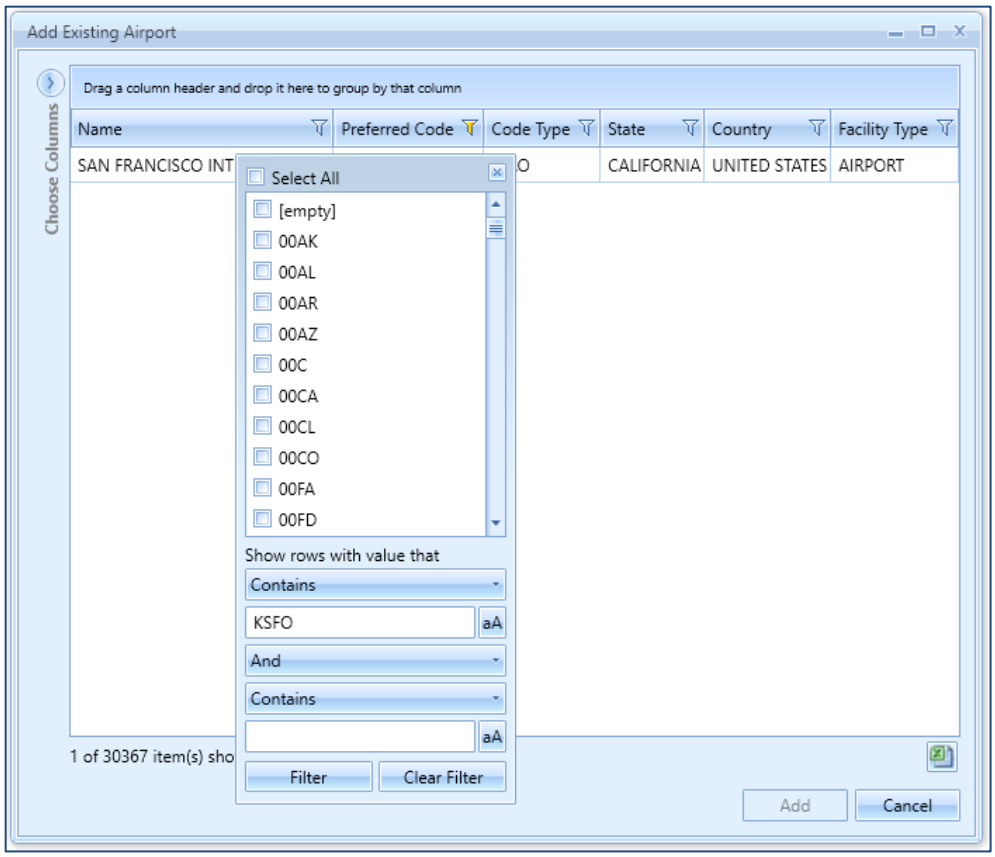


Figure 5. Add Existing Airport Dialog

3.3 View the Airport Layout

Airport layouts

Once the existing airport has been added, default *Airport Layout(s)* will be listed under the airport (Figure 6). An airport layout represents the runway configurations of the airport at a specific point in time. If the airport had runway changes in the past, multiple airport layouts will be listed under the airport.

In a typical noise and emissions study, an airport layout contains runways and tracks. In an emissions dispersion study, other airport layout ground elements may also be needed such as gates, taxiways, and taxipaths. In AEDT, runways are loaded for many airports. The default straight-in, straight-out vector tracks are automatically added to the study when users create aircraft operations using the *Create Aircraft Operations* wizard. For additional information on creating tracks or other ground elements, see the *AEDT User Manual* section on the Airport Designer.

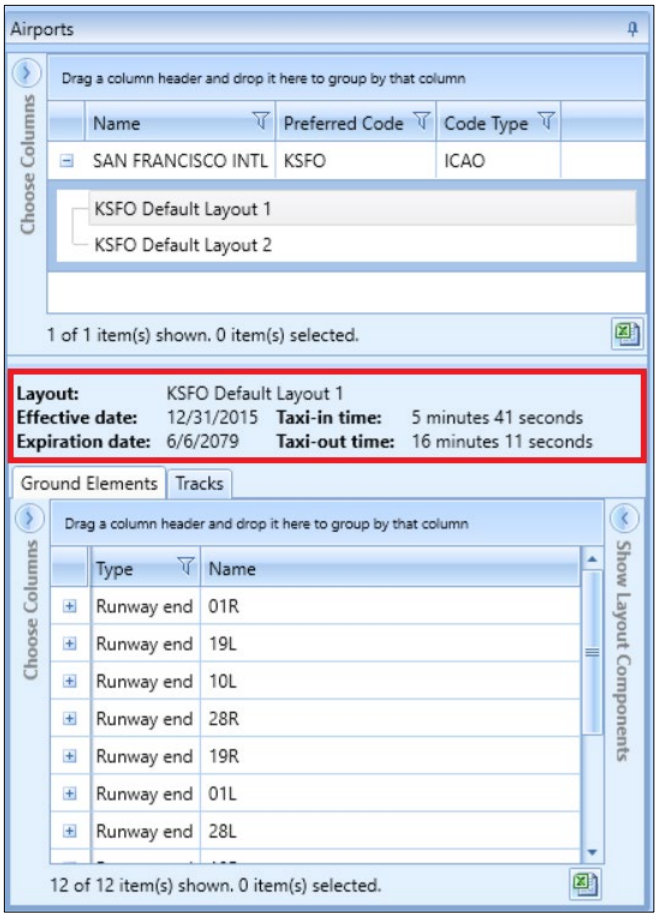


Figure 6. Airport Layout Details Pane

Note that multiple airport layouts are defined for the KSFO airport (Figure 6). This indicates that the airport had runway changes over the years (i.e. runways 01L – 19R and 10R – 28L were extended). The "Default Layout 1" has the most current runway configurations.

- Select the *KSFO Default Layout 1* and note the effective and expiration dates. Then view the runway details in the bottom pane.
- Select the *KSFO Default Layout 2* and note the effective and expiration dates. Then view the runway details in the bottom pane.

In this tutorial, we will only use the "KSFO Default Layout 1".

If your analysis does not need the history of airport layouts and just needs the most current runway information, delete the older airport layouts. Right-click on the airport layout name and click *Delete*.

View the airport layout on the map

Right-click on the *KSFO Default Layout 1* from *Airports* pane and click *View Layout - Full* and click *Yes* when prompted to confirm. The selected airport layout (i.e. runways) will be visible on the map (Figure 7).

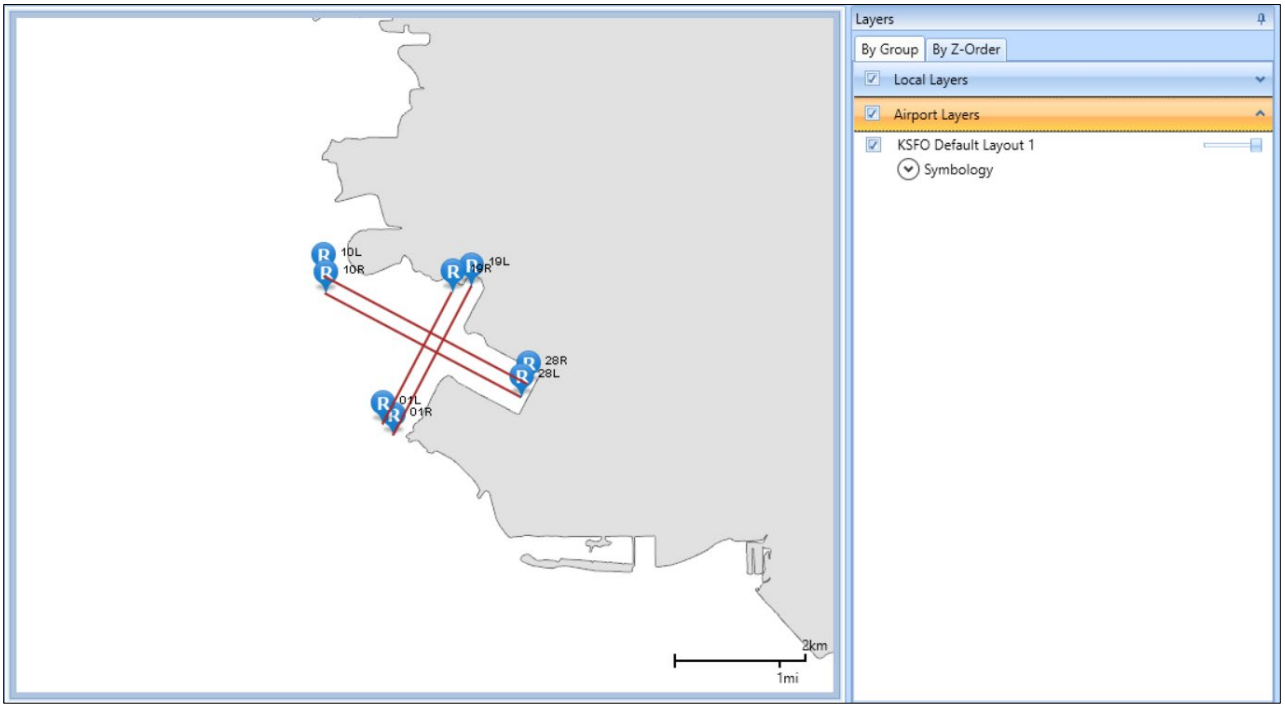


Figure 7. Airport Layout Map View

3.4 Create Flight Tracks

Flight tracks trace the path of the flight trajectory on the horizontal plane. Flight tracks are defined as either as vector-type tracks (consisting of one or more straight or curved segments), or point-type tracks (consisting of an array of latitude and longitude points). We will be creating a departure vector track and an arrival point-type track. AEDT automatically extends departure and arrival tracks during flight performance processing, so that the entirety of the vertical profile can be computed. Refer to the *AEDT User Manual*, Section 8.3.5.3, for more information.

Create a vector-type departure track

In this step, you will create a vector-type departure track with three segments that starts from the runway end **01L**.

1. Click on the *Designer* tab (Figure 8). AEDT will load all of the airport layout features.

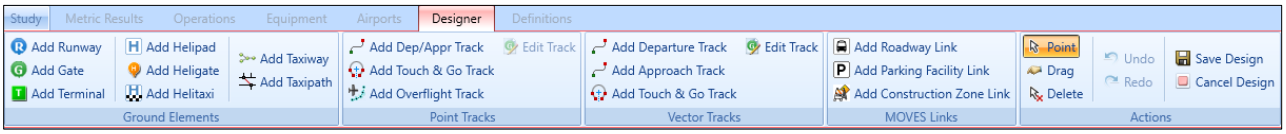


Figure 8. Airports Designer Tab

2. In the *Vector Tracks* ribbon group, click *Add Departure Track* button.
3. The *Create Vector Track* pane will show in the lower right-hand corner. Note that the fields marked with a red (*) are required (Figure 9).

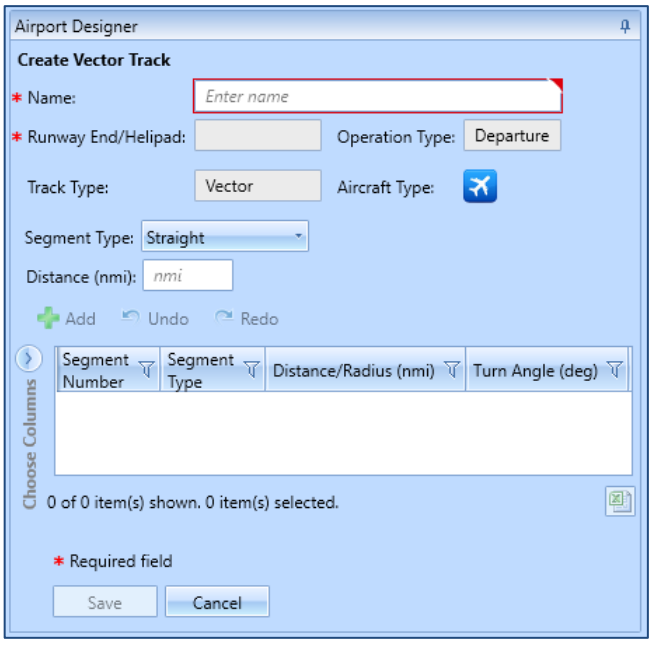


Figure 9. Create Vector Track Pane

4. Enter the name “DepVector_01L”.
5. On the Map display, click on the runway end “01L”. AEDT will automatically populate the Runway End/Helipad in the *Create Vector Track* pane.
6. From the *Segment Type* dropdown list, select *Straight*, then enter 2 nautical miles for distance. Click *Add* to create the first track segment (segment number 0).
    - The straight track segment is displayed on the map.

- As new segments are added, the map displays them.

7. For the second segment, select *Turn* from the *Segment Type* dropdown list. Enter 2 nmi for *Radius*, "90" degrees for *Angle*. Click *Add* to create segment number 1.
8. For the thrid segment, select *Straight* vector track segment. Enter 2 nautical miles. Click *Add* to create segment number 2.
9. Click *Save*.
10. AEDT will add this new track to the list of Airport Layout components in the lower left-corner (Figure 10).
11. From the *Actions* ribbon group, click *Save Design.*

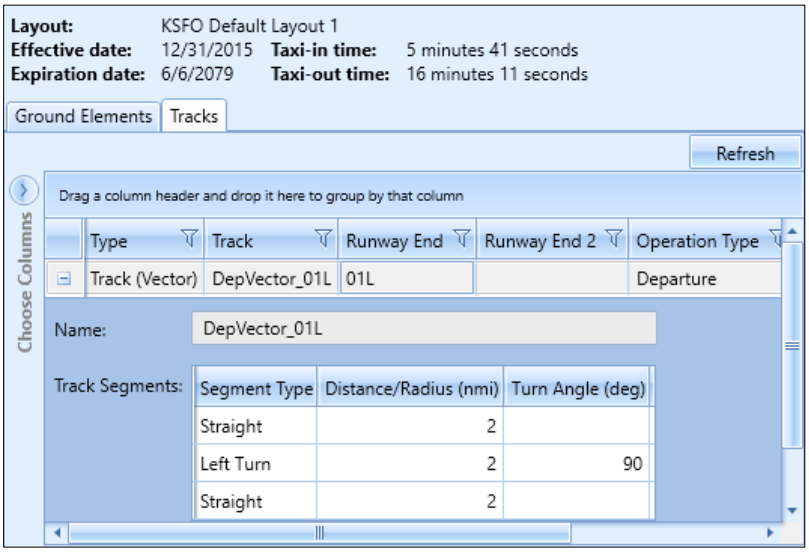


Figure 10. Vector Track Details

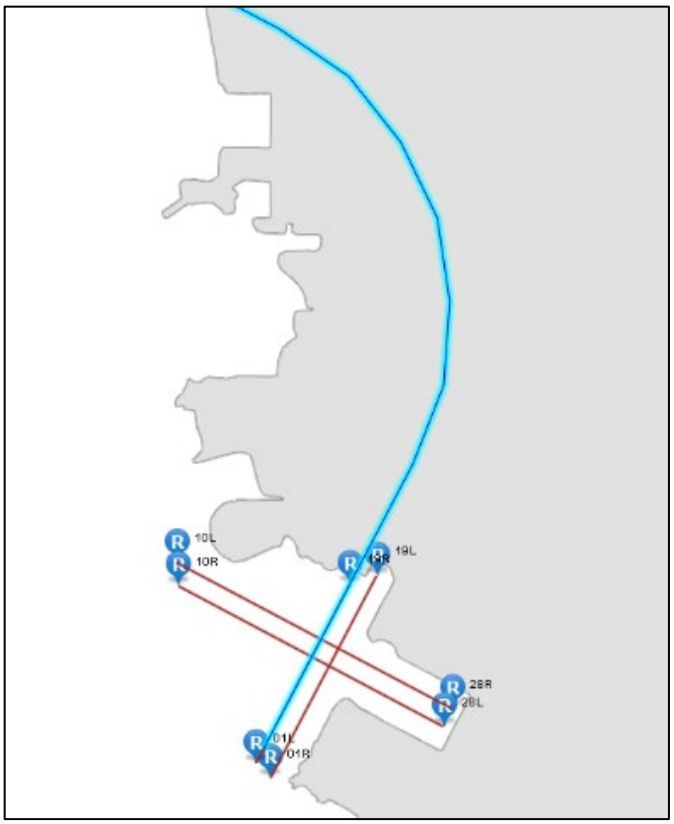


Figure 11. Finished Departure Vector Track

Create a point-type arrival track

In this step, you will create a point-type arrival track that starts out in the airspace and ends in the runway end **19L**.

Note that you may need to zoom in using your mouse in order to end the track at the target runway end (Figure 12).

1. Click on the *Designer* tab.
2. In the *Point Tracks* ribbon group, click *Add Dep/Appr Track* (Figure 8). A pencil icon replaces the mouse cursor.
3. On the *Map*, click on a point away from the target runway end (19L) to set the beginning of your arrival track.
4. Click on desired points between your starting point and the target runway end in order to create a track node.
5. When you are finished defining the track, double-click on the runway end 19L.
6. If you make a mistake, click the *Undo* button in the *Actions* ribbon group.

7. Click *Save Design*.
8. The new Arrival point track has been saved to the layout and added to the list of Tracks. Notice that the track is defined by the latitude and longitude of the points (Figure 13).

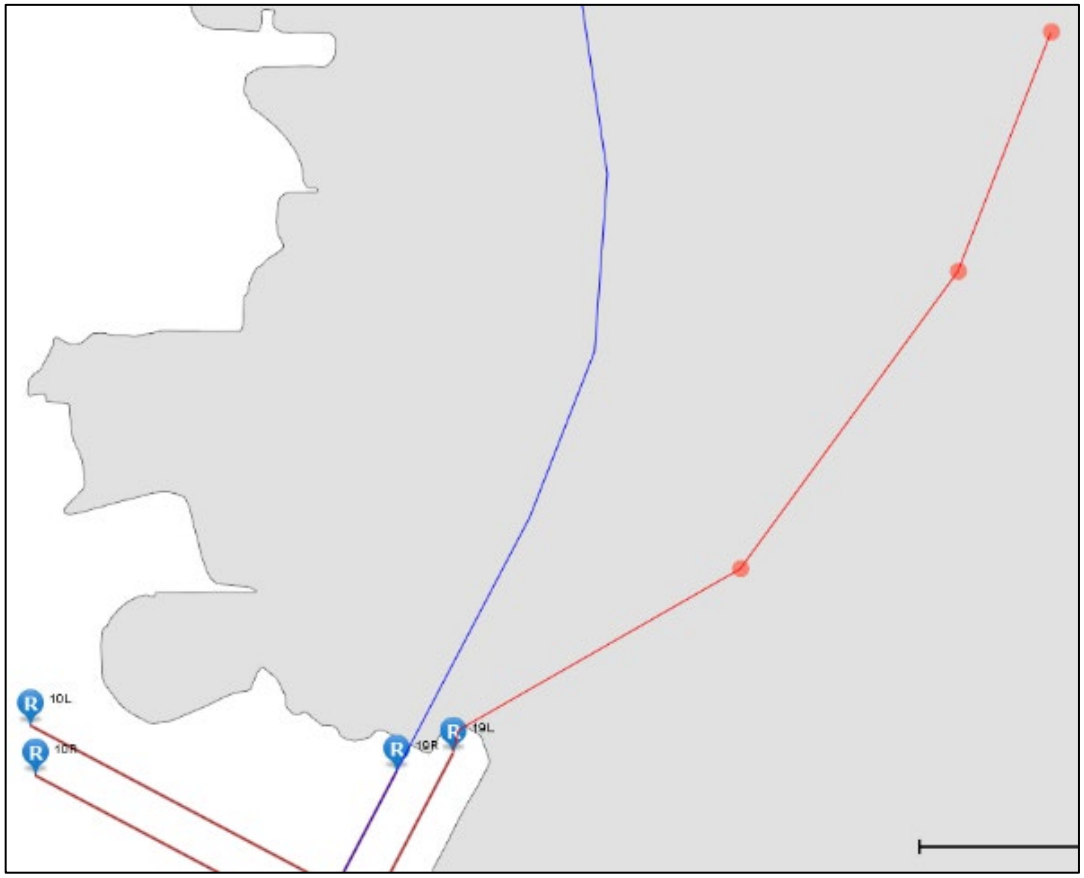


Figure 12. Map of Runway End

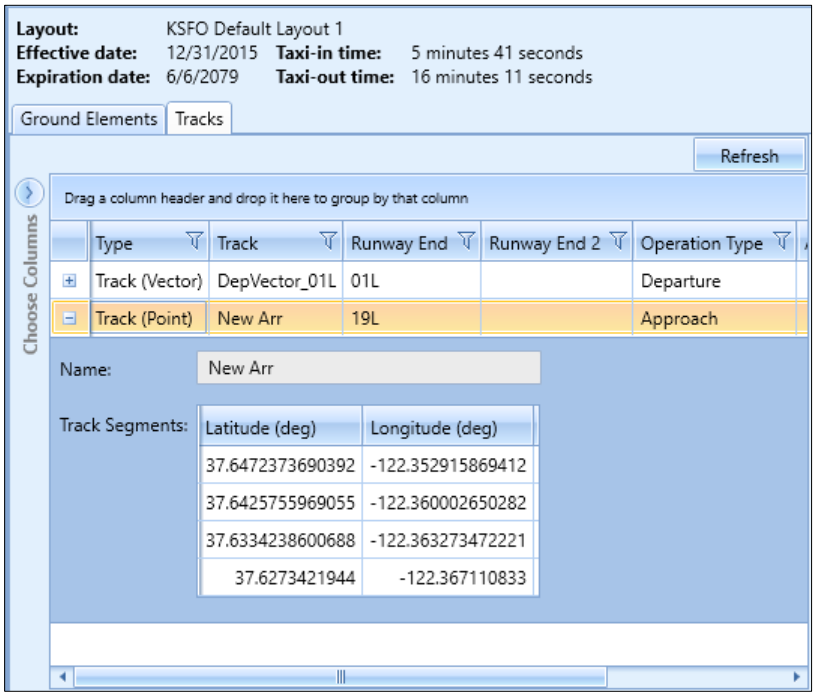


Figure 13. Arrival Point Track

3.5 View Airport Weather

After adding an existing airport, verify the airport weather data in *Definitions* tab (Figure 14).

1. From the *Definitions* tab, *Display* ribbon group, select *Weather*.
2. From the left-pane, click *Airport weather*.
3. Select the desired airport from the *Airport* dropdown list.
4. Select the desired year from the *Select year* dropdown list.
5. View the airport weather data.

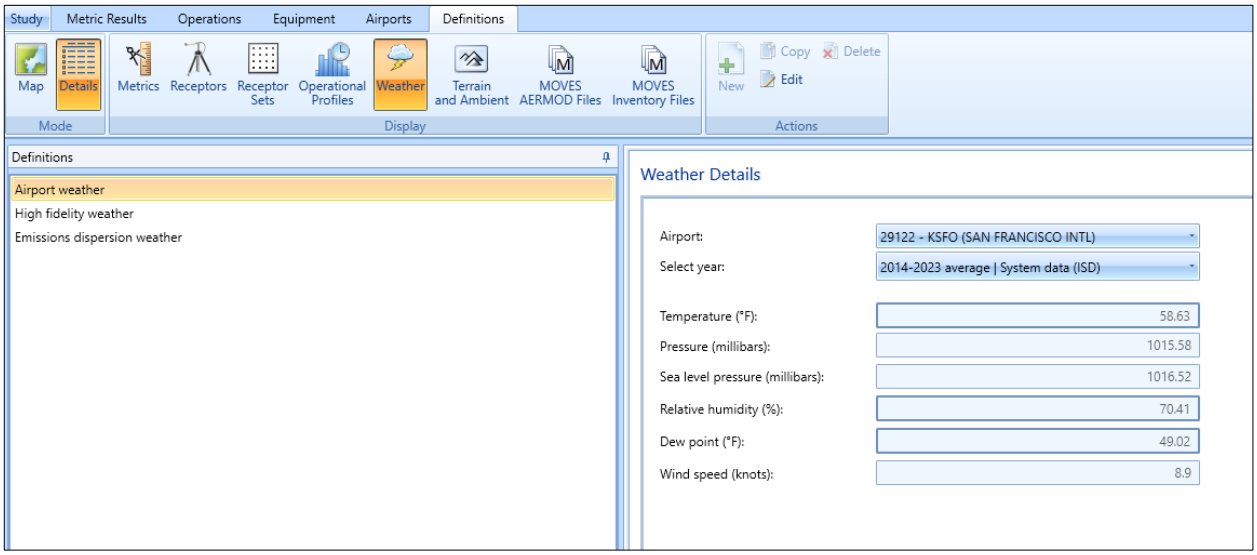


Figure 14. Definitions Tab – Airport Weather

3.6 Add Receptors & Receptor Sets

Receptors define locations where noise or pollutant concentration levels are calculated. A receptor set is a container for one or more receptors. *Receptor(s)* must be added to a *Receptor Set* in order to be used when defining a metric result.

Receptors and Receptor Sets are *not required* for flight performance, fuel burn or emissions specific metric results. They are required for noise or pollutant concentration metric results.

There are two receptor types in AEDT – *Point* and *Grid*. We will create both a Point and a Grid receptor in this section.

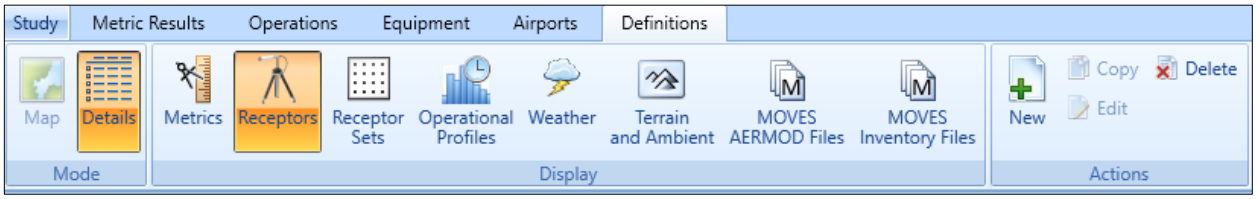


Figure 15. Definitions Tab – Receptors

Create a grid receptor

To create a *grid receptor*:

1. From the *Definitions* tab, *Display* ribbon group, select *Receptors* (Figure 15).

2. Click the *New* button in the *Actions* ribbon group. The *Receptor Details* window will appear (Figure 16).
3. Enter the *Name* "ContourGrid".
4. The grid type is set to *Point* by default. Select *Grid* from the *Type* dropdown list.

   In AEDT, the location of a grid type receptor is specified by the lower left (southwest) corner of the grid, which can be defined by specifying the latitude and longitude of the point or as an offset from a location (typically the airport origin).

5. Enter the "33" for the *X* and *Y* counts. This represents the number of receptor points in the regular grid.
6. Enter "0.5" for the *X* and *Y* spacing. These values represent the spacing between receptor points. Both numbers must be equal in order to generate contours in AEDT.
7. Click "*Match Grid Center to Projection Origin*" button. This will automatically set the *X* and *Y* offset to be "-8". These values indicate the nautical mile offset from the *Grid* origin.
8. The default values in the *Location Info* section are set to the airport origin.
9. By default, the *Restrict by Boundary* is unchecked (not used).
10. Click *Save*.
11. AEDT will display the new receptor in the left hand pane.

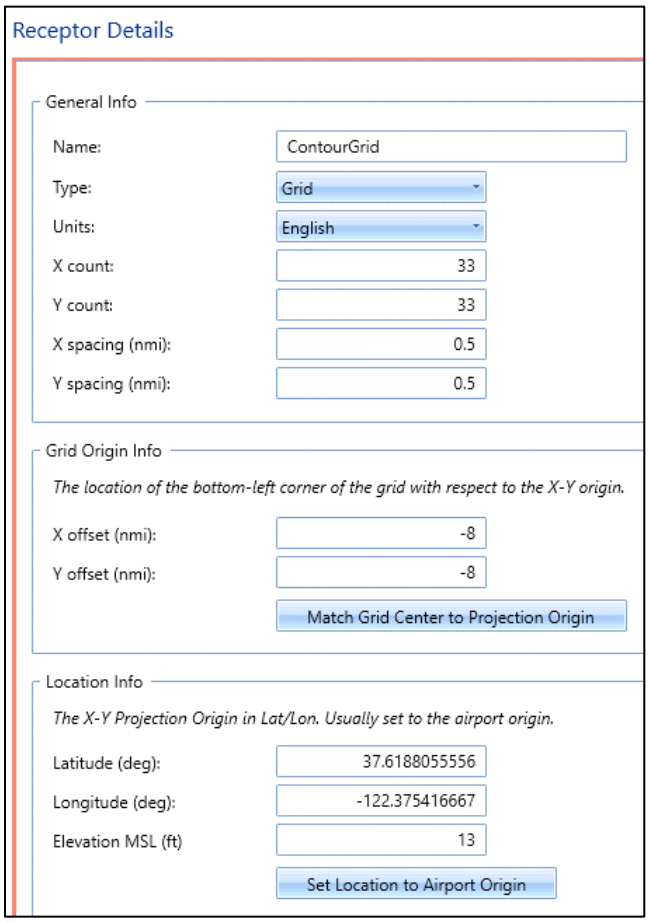


Figure 16. Receptor Details – Grid

For more information about the *Restrict by Boundary* functionality, see Section 9.3.2.1 of the *AEDT User Manual*.

Create a point receptor

You will create a single receptor point that can be used in noise and emissions concentrations modeling. You may want to utilize this functionality when analyzing noise at locations points such as schools or hospitals.

To create a *Point Receptor* (Figure 17):

1. Click the *New* button in the *Actions* ribbon group. The *Receptor Details* window will appear.
2. Enter the *Name* "PointReceptor".
3. The grid type is set to *Point* by default.

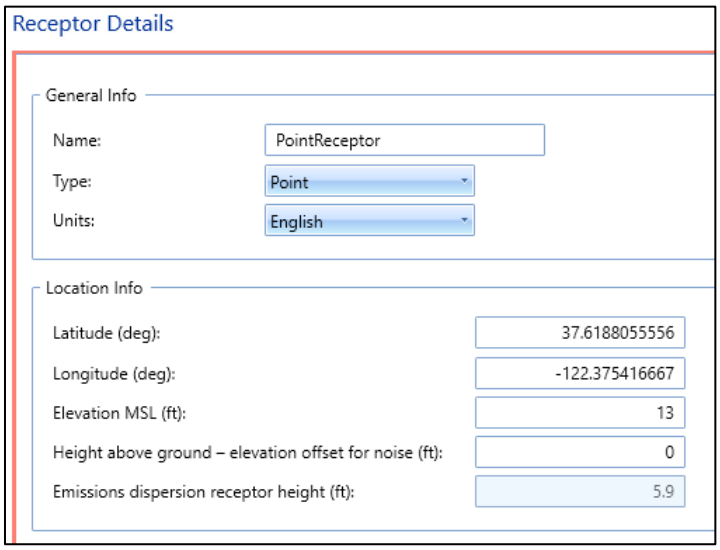


Figure 17. Receptor Details – Point

4. Select "*English*" as units.
5. Leave the Location Info to the default airport origin.
6. Leave the "Height above ground – elevation offset for noise" set to zero.
7. Click *Save*.

Create a receptor set

To create a *Receptor Set* (Figure 18):

1. From the *Display* ribbon group, select *Receptor Sets*.
2. From the *Actions* ribbon group, select *New.*
3. Enter "ContourReceptorSet" for the *Receptor Set* name.
4. Enter "Receptor Set with a Grid Receptor" for the description.
5. From *Available receptors*, select the "ContourGrid" receptor and click on the right arrow button to move it to the *Assigned receptors* list.
6. Click *Save*.

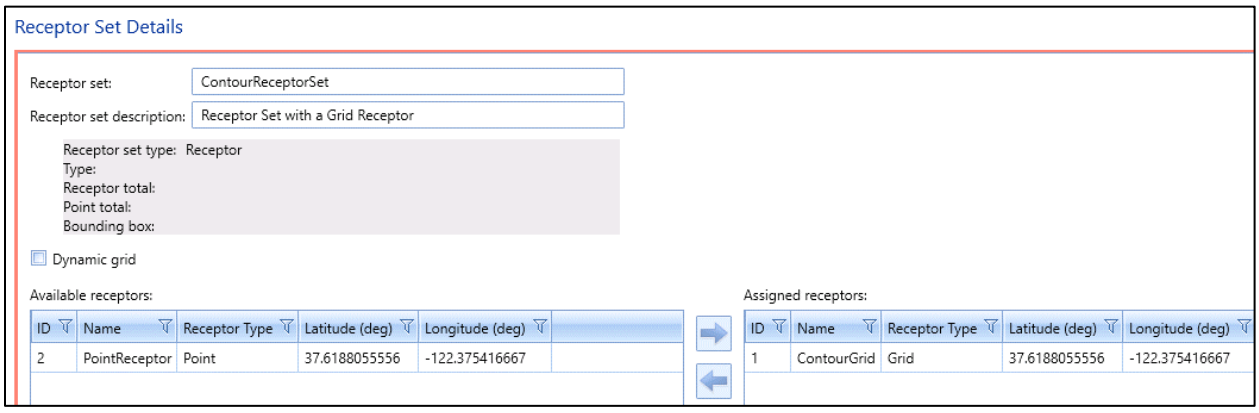


Figure 18. Receptor Set Details

For more information about the *Dynamic Grid* functionality, see Section 9.4.1 of the *AEDT User Manual*.

View receptor set on map

Once the Receptor Set is created, it can be viewed by clicking *Map* from the *Mode* ribbon group, selecting the receptor set from the left pane, and then clicking *Receptor Set* from the *View Boundary/Coverage* ribbon group (Figure 19).

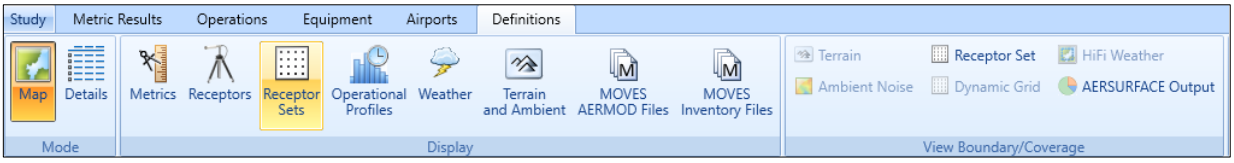


Figure 19. Map View of Receptor Set

3.7 Set the Default Operation Time

Before adding aircraft operations, set the default operation date/time in the Study Preferences screen. This setting is used to set the default operation time in the *Create Aircraft/Non-Aircraft/Runup/Helitaxi Operations* wizard

1. Click on the *Study* tab, then select *Preferences*, *Study*.
2. In the *Default operation time*, select "8/20/2018 11:00 AM".
3. Click *Save* to apply changes.

Figure 20. Default Operation Time in Study Preferences

3.8 Add Aircraft Operations

AEDT can model several types of Aircraft and Non-Aircraft operations. For our study, we will be creating a single airplane arrival operation and a single airplane departure operation. For additional information on other types of operations, please refer to Section 6 of the *AEDT User Manual*.

Add an arrival operation

To add an arrival aircraft operation (Figure 21):

1. Click on the *Operations* tab and then select *Aircraft* in the *Display* ribbon group.
2. Click *New* in the *Aircraft Actions* ribbon group to open the *Create Aircraft Operations* wizard.
3. Leave the *Operation type* as *Arrival.*
4. Select the "KSFO Default Layout 1" from the airport layout list.
5. Leave the *Operation count* as 1. This represents a single, day time arrival operation of the aircraft, flight profile, and track combination.
6. Click *Next.*

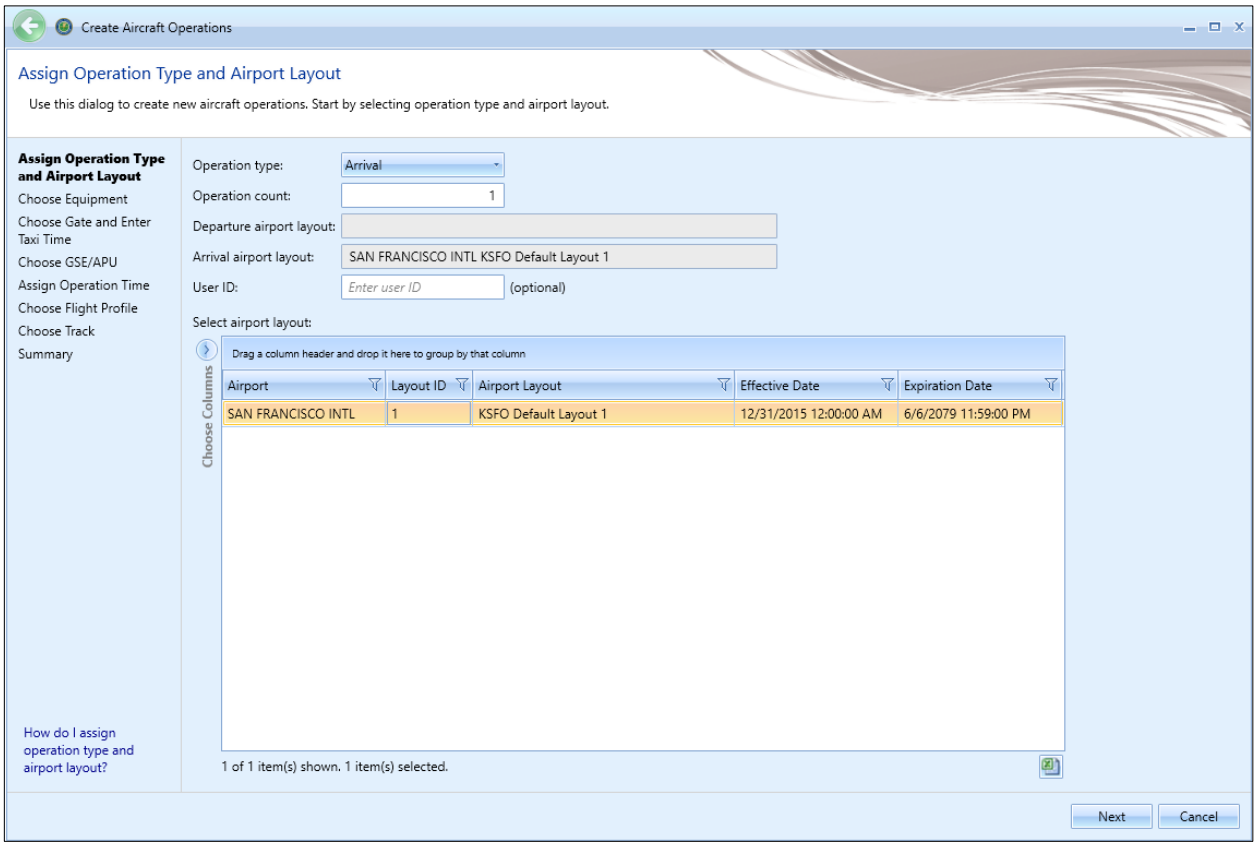


Figure 21. Create Aircraft Operations

7. In the *Choose Equipment* step, click on the filter icon of the first ID column (ANP ID), and enter "737700".
8. Click on the filter icon of the Code column (Engine Code), and enter "3CM030".
9. Of the filtered rows, select the record where the Airframe Model is "Boeing 737-700 Series".
10. Click *Next* (Figure 22).

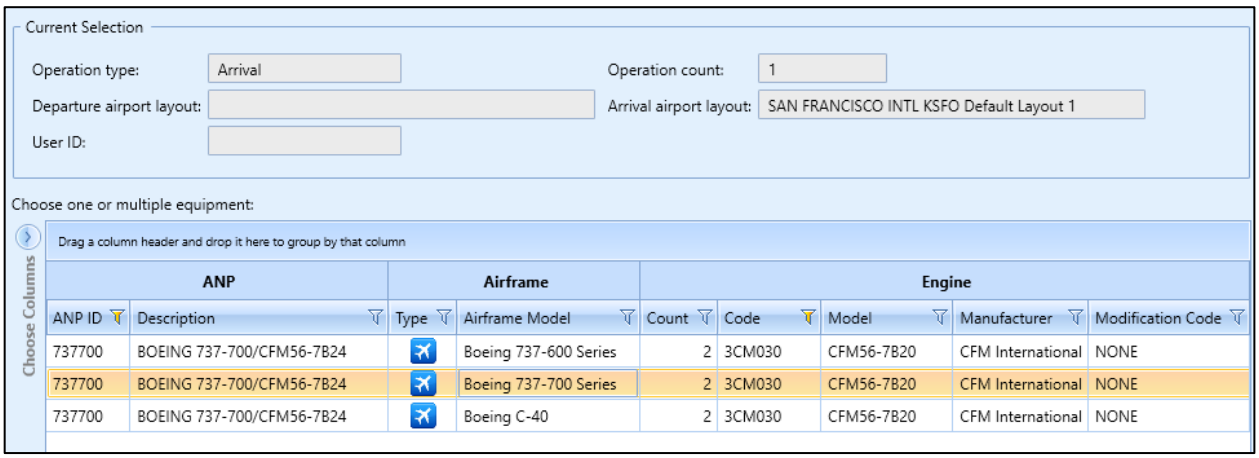


Figure 22. Create Aircraft Operations – Choose Equipment

11. In the *Choose Gate and Enter Taxi Time* step, click *Next* to skip this step (you are not assiging a gate in this example). For more information on how to define Gates, see Section 6.2.1.3 of the *AEDT User Manual*.
12. In the *Choose GSE/APU* step, click *Next* to skip this step (you are not assiging GSE/APU in this example). For more information on how to define GSE or APU's, see Section 6.2.1.4 of the *AEDT User Manual*.

13. In the *Assign Operation Time* step, the operation time is set to "8/20/2018 11:00 AM" which matches the assigned date which was specified in Section 3.7 (Figure 23). Click *Next.*

The effective and expiration date range of the selected airport layout is displayed. The operation time must fall between this date range.

Operation time is critical for noise metrics and annualization. For example, DNL noise applies a 10 decibel penalty for night time operations.

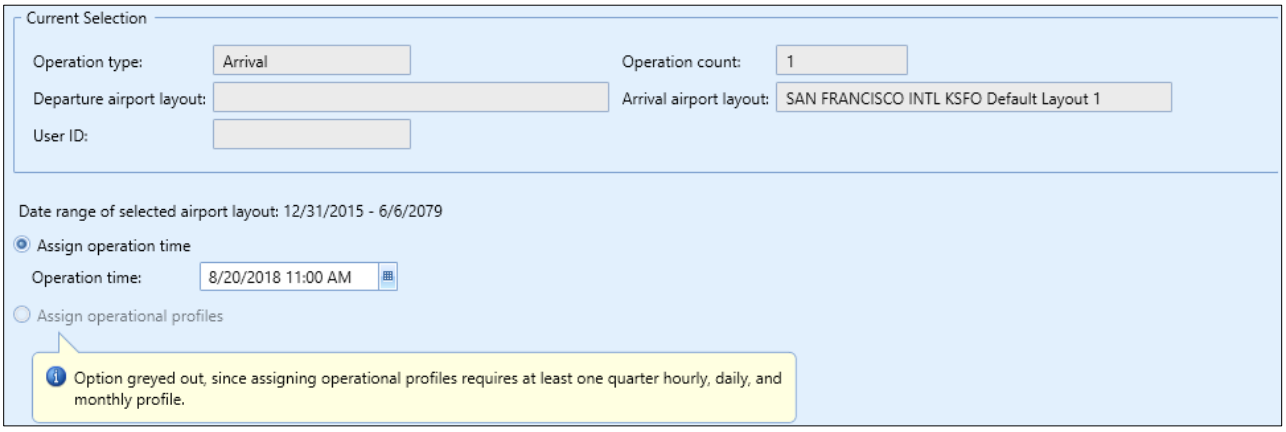


Figure 23. Create Aircraft Operations – Assign Operation Time

14. In the *Choose Flight Profile* step, select the STANDARD arrival profile for the 737700 (there is only one) and click *Next.*

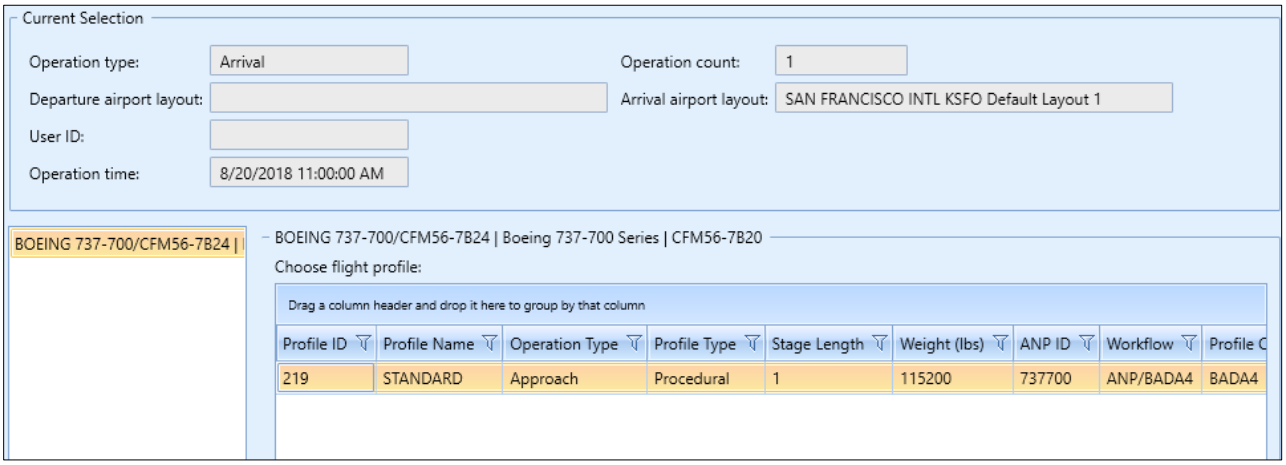


Figure 24. Create Aircraft Operations – Choose Flight Profile

15. In the *Choose Track* step, select the track named "New Arr" and click *Next*.

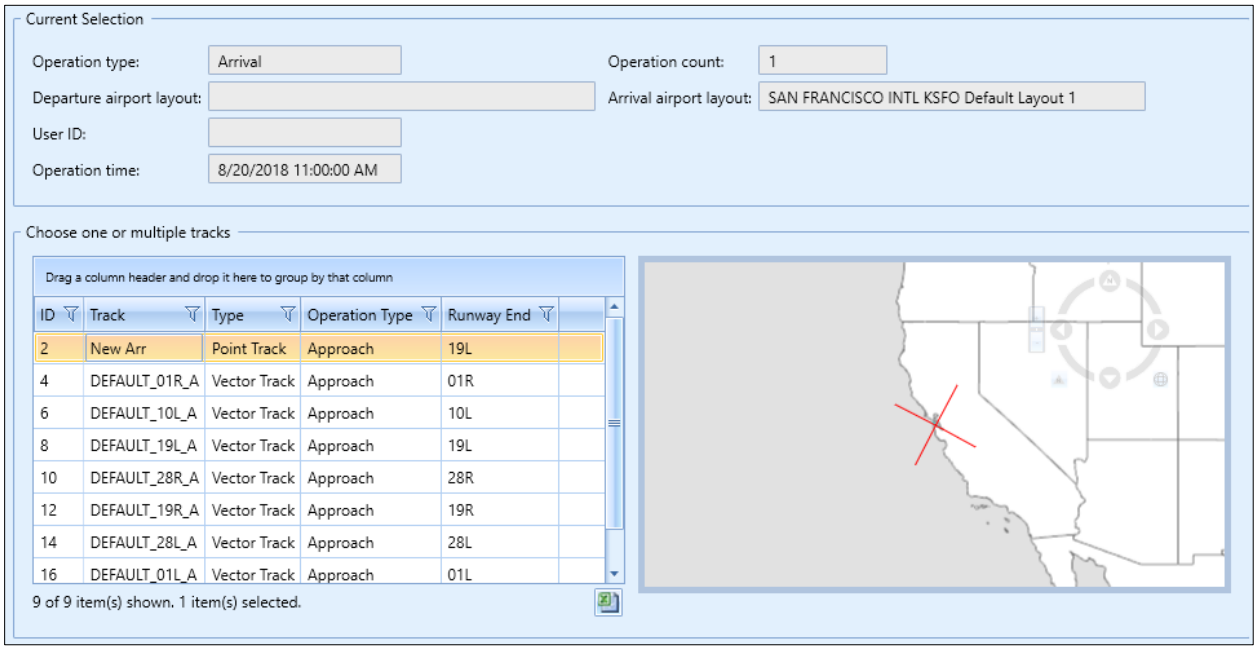


Figure 25. Create Aircraft Operations – Choose Track

16. In the *Summary* step, a summary of the inputs will appear at the top of the window (Figure 26). Click *Create*. Click *Yes* when prompted for confirmation.

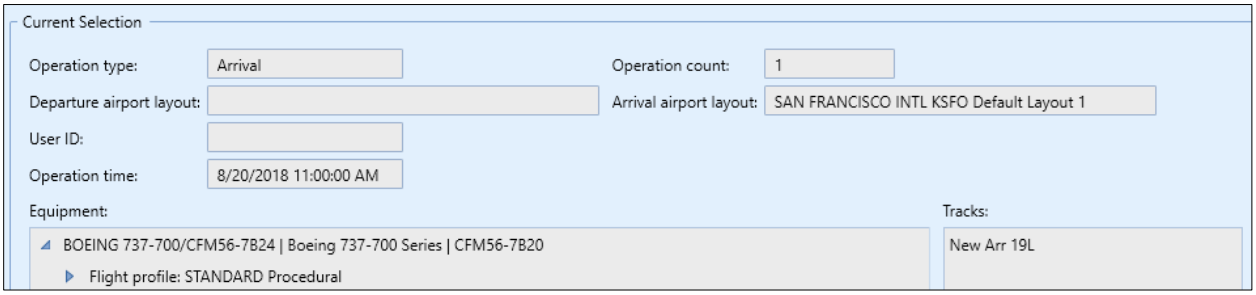


Figure 26. Create Aircraft Operations – Summary

Add a departure operation

Create a departure operation by copying the arrival operation that you just created. The *Create Aircraft Operations* wizard will filter available flight profiles, tracks and other data that are specific to the specified operation type.

1. Right-click on the new arrival operation and click *Copy* to open the *Create Aircraft Operations* wizard.
2. In the first step, change the operation type to *Departure*. For the airport layout, select the "KSFO Default Layout 1". Then click *Next*.

3. In the *Choose Equipment* step, click *Next* since the aircraft 737700 is already selected.
4. In the *Choose Gate* step, click *Next* to skip this step.
5. In the *Choose GSE/APU* step, click *Next* to skip this step.
6. In the *Assign Operation Time* step, accept the default operation time and click *Next.*
7. In the *Choose Flight Profile* step, select the *STANDARD* departure profile where the stage length is 1 and click *Next.*
8. In the *Choose Track* step, select the track named "DepVector_01L" and click *Next*.
9. In the *Summary* step, click *Create*. Click *Yes* when prompted for confirmation.

3.9 Create Annualizations

In AEDT, an annualization is a hierarchical grouping of operations associated with the following parameters:

- Time period to be analyzed
- Operations included in the time period
- Weighted groupings of the included operations
- Modeling options for the included operations

Annualization provides a convenient way to adjust contributions of individual operation groups by scaling operations up or down using weightings and to model alternative scenarios from a baseline scenario.

Create a "Baseline" annualization

To create an annualization:

1. Click on the *Operations* tab, then select *Annualizations* in the *Display* ribbon group.
2. Click *New* in the *Annualization Actions* ribbon group to open the *Create Annualizations* wizard.
3. In the first step, check *Add new aircraft operation group(s)*, then click *Next* (Figure 27).

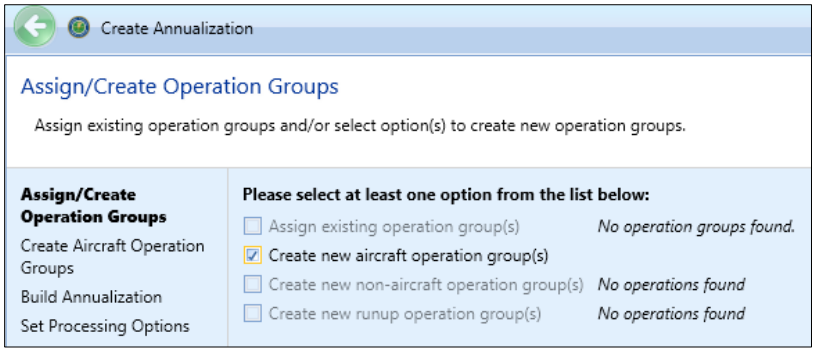


Figure 27. Create Annualization Wizard – First Step

The *Create Aircraft Operation Groups* step is where you can include the aircraft operations you previously created that you would like to model. You can create several annualizations by creating new groups and including only the aircraft operations of interest within the specified time period.

4. In the *Add new operation group* text box, enter "737700" and click *Add* (Figure 28).

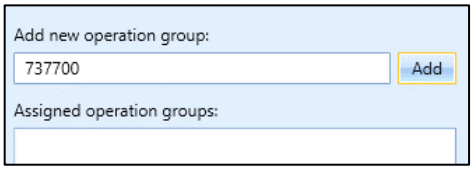


Figure 28. Create Annualization Wizard – Add New Operation Group Text Box

5. Select the two operations under the *Available Operations* (left-pane); then drag them to the right-pane and drop them under the **737700** operation group.

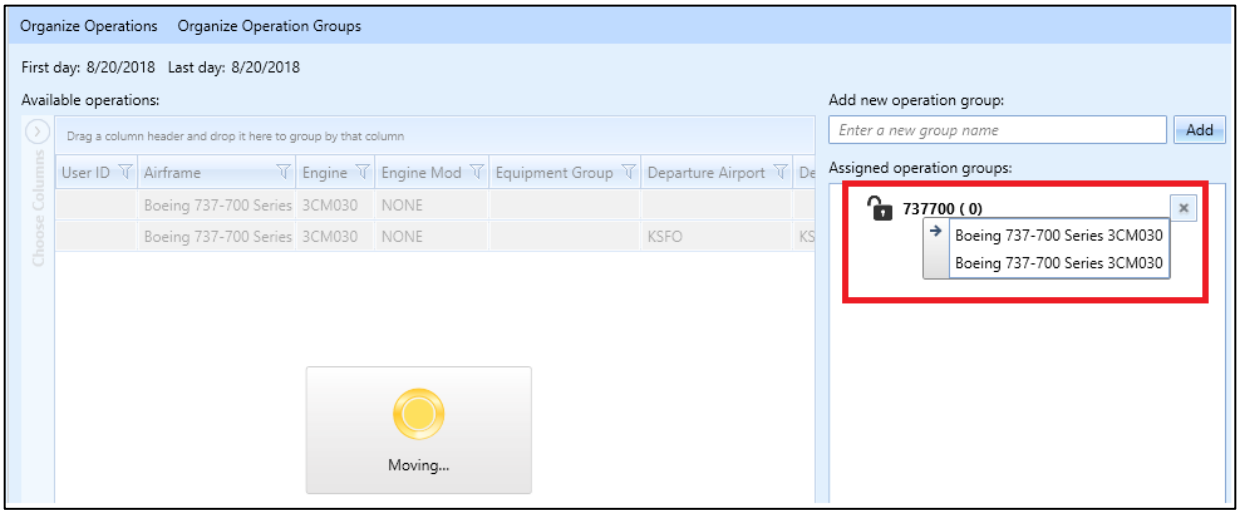


Figure 29. Create Annualization Wizard – Create Aircraft Operation Groups, Drag & Drop

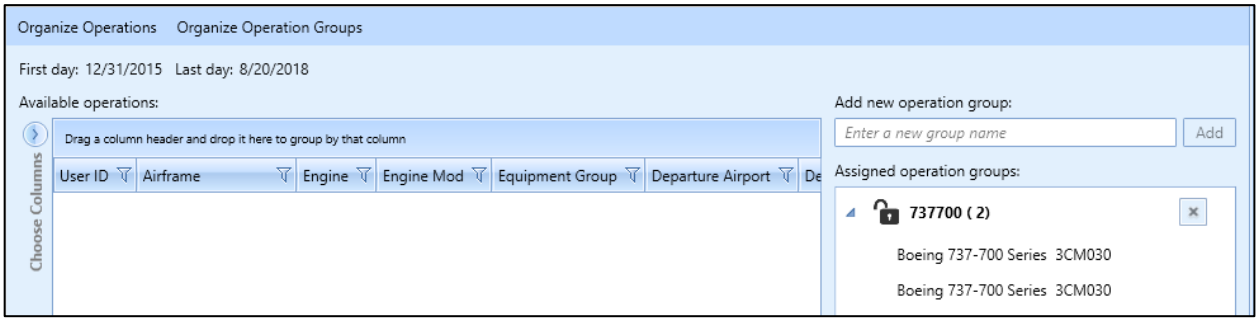


Figure 30. Create Annualization Wizard – Create Aircraft Operation Groups

6. Click *Next*.
7. In the *Build Annualization* step, drag the "737700" group from *Defined operation groups* to the right-pane and drop it under the *Root*.
8. Double-click on the word "Root" to edit and type in "Baseline".
9. Leave the annualization weights to 1.
10. Make sure that the First day and Last day are both set to the default operation date, and that the *Duration* is 24 hours (Figure 31). If the two dates are different, it means that the operation time of one of the aircraft oprerations was not assigned correctly.

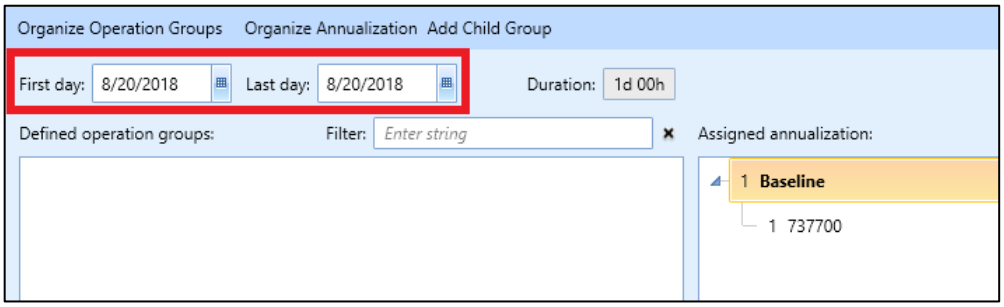


Figure 31. Create Annualization Wizard – Build Annualization

11. Click *Next*.
12. In the *Set Processing Options* step, click *Create*.

Create an "Alternative" annualization

Create a second annualization – this time adjusting the annualization weights in order to see the changes in noise results.

1. Click *New* in the *Annualization Actions* ribbon group to open the *Create Annualizations* wizard.
2. In the first step, check *Assign existing operation group(s)*.
3. Select the "737700" group and click on the right arrow to move to the *Assigned operation groups*. Click *Next*.
4. In the *Build Annualization* step, drag the "737700" group from *Defined operation groups* to *Assigned Annualization*.
5. Double-click on the word "Root" to edit and type in "Alternative".
6. Click on the "1" next to the word "Alternative" to edit. Enter number "2" (Figure 32).

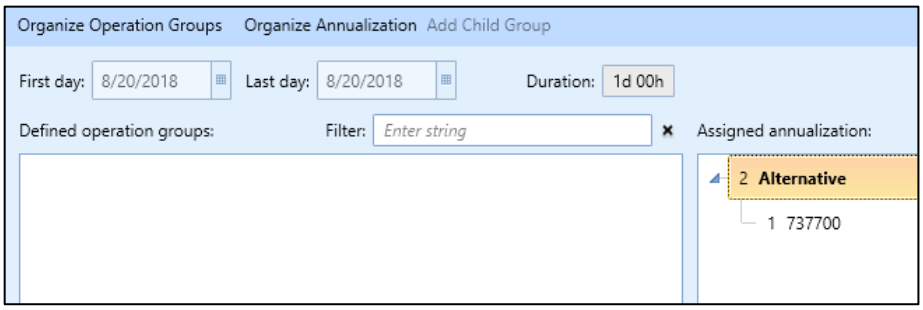


Figure 32. Create Annualization Wizard – Build Annualization

7. Click *Next*, then click *Create*.

This will create an annualization that has the effect of doubling the operation counts that were specified when the operations were created.

Annualization Example

Assume you have grouped all of your airport operations into an arrival group and a departure group. These groups are part of your baseline scenario, which is utilized 75% of the year. Suppose you would like to compare your baseline operating configuration against an alternative. The alternative operating configuration contains the same operation groups as the baseline and is utilized 25% of the year. However, the alternative scenario allows for twice as many arrivals as the baseline.

For this example, you would:

1. Create two operation groups: one for all arrivals and one for all departures.
2. Add both operation groups to an annualization named “Baseline”.
3. Set the “Baseline” weighting to 0.75.
4. Create a second annualization named “Alternative”.
5. Add both operation groups to the annualization. Set the weighting of the arrival group to “2”.
6. Set the “Alternative” weighting to 0.25.
7. Define two identical metric results, one for each annualization.
8. Run metric results and compare noise results.

Please see Section 6.7 of the *AEDT User Manual* for more information on Annualization.

3.10 Define Metric Results

An AEDT Metric Result contains all of the information required for an analyst to generate results in AEDT. Examples of metric result input include: aircraft operations data, flight performance modeling options, result storage options and noise and emissions metric selections.

Create a "Baseline" metric result

To create a metric result for a simple noise and emissions analysis:

1. Click on the *Metric Results* tab.
2. Click *Define* from the *Metric Result Actions* ribbon group to open the *Define Metric Results* wizard.
3. Select the *DNL* noise metric from the *Available Metrics* list and move it to the *Selected Metrics* list by clicking on the right arrow button. Click *Next*.
4. Select the "ContourReceptorSet" from the *Available receptor sets* list, then click on the right arrow button to move it to the *Selected* list. Click *Next*.
5. Select the "Baseline" annualization. Click *Next*.
6. The *Set Processing Options* step is where you specify data storage options and many types of modeling options such as performance modeling details, weather usage, and terrain usage. Additional information on these options can be found in the AEDT User Manual.
    - Under *Result Storage Options*, *Emissions*, select *Segment*. Selecting *Segment* will save segment-level emissions results to the study database and allow you to view these in the Emissions Report.
    - Under *Emissions/Performance Modeling Options*, under *Weather Fidelity*, select "Use airport weather" and "2015-2024". When this option is selected, average annual airport weather (specified in the *Definitions* tab, *Weather*, *Airport weather*) is used.
    - Under the *Metric Result Options*, under *Name*, enter "DNL Baseline".
    - Leave other options as is (Figure 33).

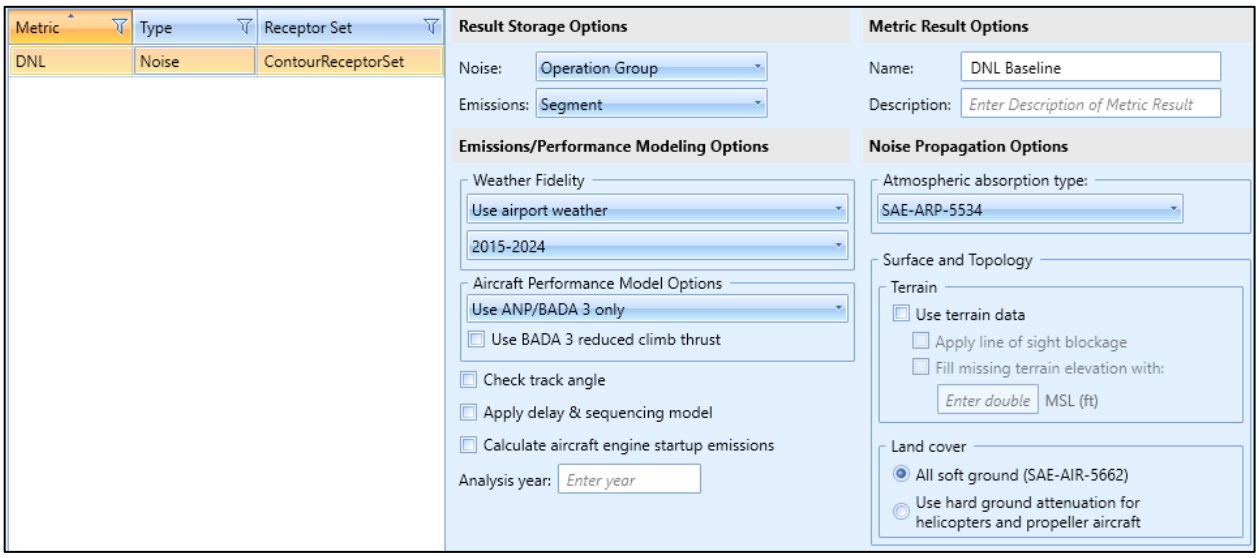


Figure 33. Define Metric Results Wizard – Set Processing Options

7. Click *Next.*

8. In the *Summary* step, click *Create*.

Create an "Alternative" metric result

To create an Alternative metric result:

1. Click on the Baseline metric result, and click *Copy* from the *Metric Results Actions* ribbon group (Figure 34).

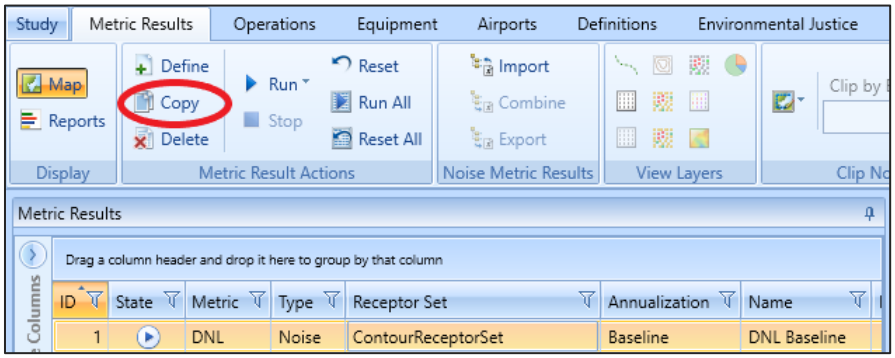


Figure 34. Copy Metric Result

2. In the *Choose Metrics* step, click *Next* since the DNL metric is already selected.
3. In the *Choose Receptor Sets* step, click *Next* since we will use the same receptor set.
4. In the *Select Annualization step,* select the "**Alternative**" annualization. Click *Next*.
5. Under the *Metric Result Options*, under *Name*, enter "**DNL Alternative**".
6. Click *Next* and then click *Create*.

Two metric results should be visible in the upper left *Metric Results* Pane. The lower left *Details* tab provides a summary of the chosen metric result options (Figure 35). The *Aircraft Operations* tab displays the aircraft operations included in the metric result. The *Tracks* tab displays all of the tracks used by the operations in the metric result.

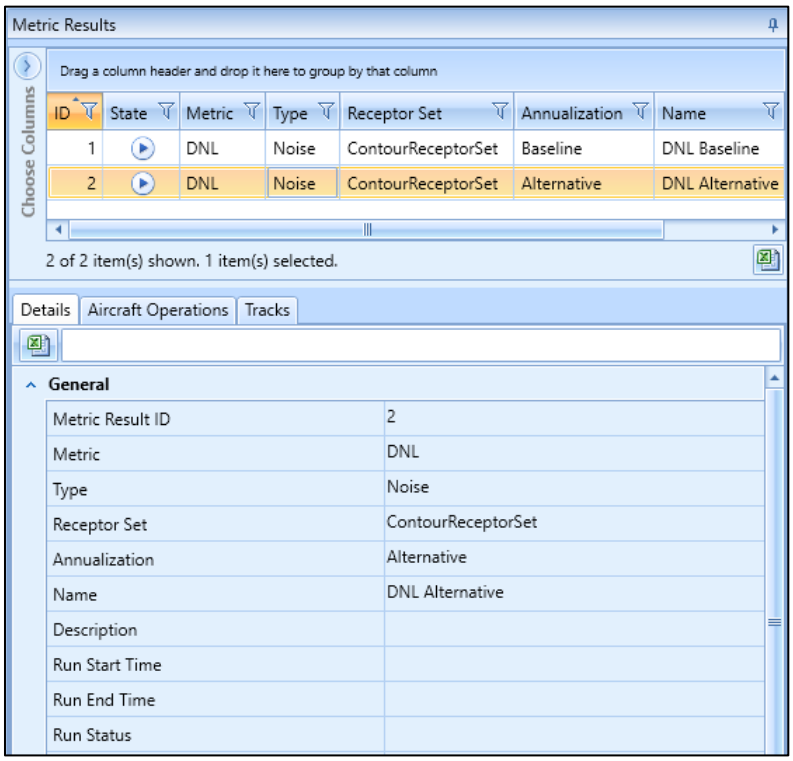


Figure 35. Metric Results Pane and Details Pane

3.11 Run Metric Results

AEDT allows you to select and run more than one metric result at a time. To do this, select *Run All* under the *Metric Result Actions* ribbon group.

As your metric results are being computed, you will see the percent completed under the *State* column. Once the metric results are completed, the *State* column will display a green check (Figure 36). Additionally, you will see a "Task Completed" pop-up message in the lower right corner (Figure 37).

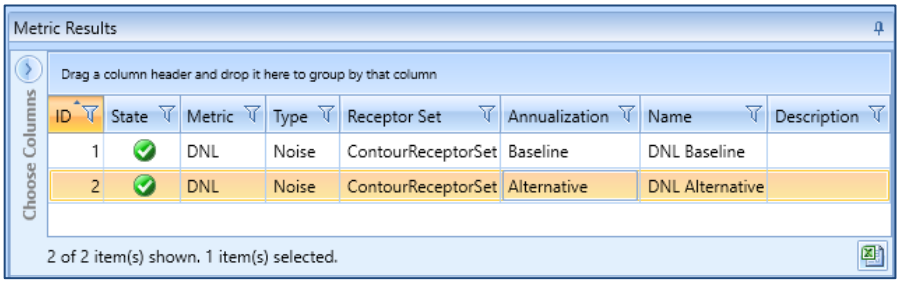


Figure 36. Metric Results Pane

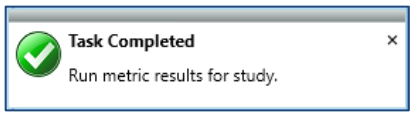


Figure 37. Task Completed Message

3.12 View Output

Noise Contour Layer

To view noise contour layers:

1. Select the Baseline metric result from the *Metric Results* pane.
2. Right-click and select *View Contours*. The *Contour Settings* dialog will be displayed.
3. Set the contour minimum to "50". Click *OK*.
4. Repeat steps 1-3 for the Alternative metric result.

Two noise contour layers are displayed in the *Layers* manger under the *Noise Contour Layers* group as well as on the *Map* view (Figure 38). View the differences between the contours for the two annualizations by toggling the layers on and off (check or uncheck the individual layers).

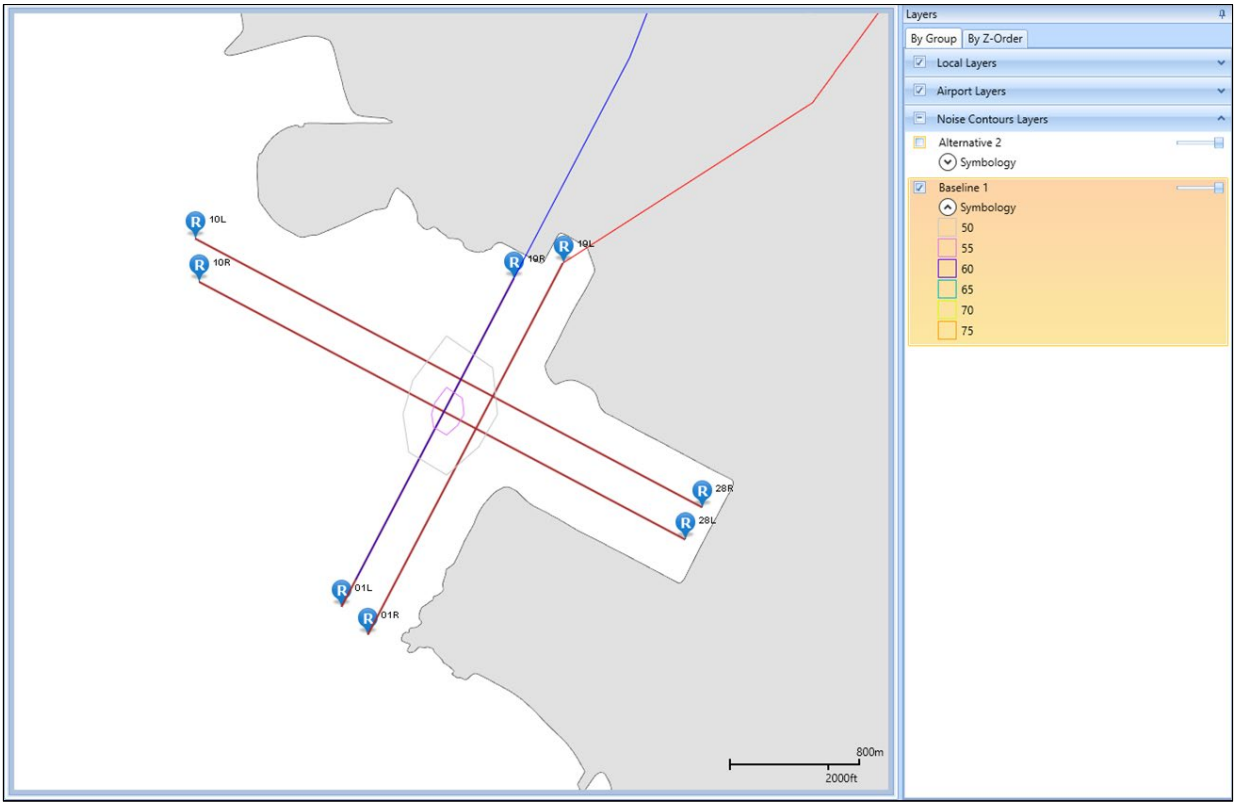


Figure 38. Contour Layers on Map

Each map layer contains a set of *Attributes* that can be accessed by right-clicking on a layer in the *Layers* manager. The *Attributes* display additional information about the layer (Figure 39).

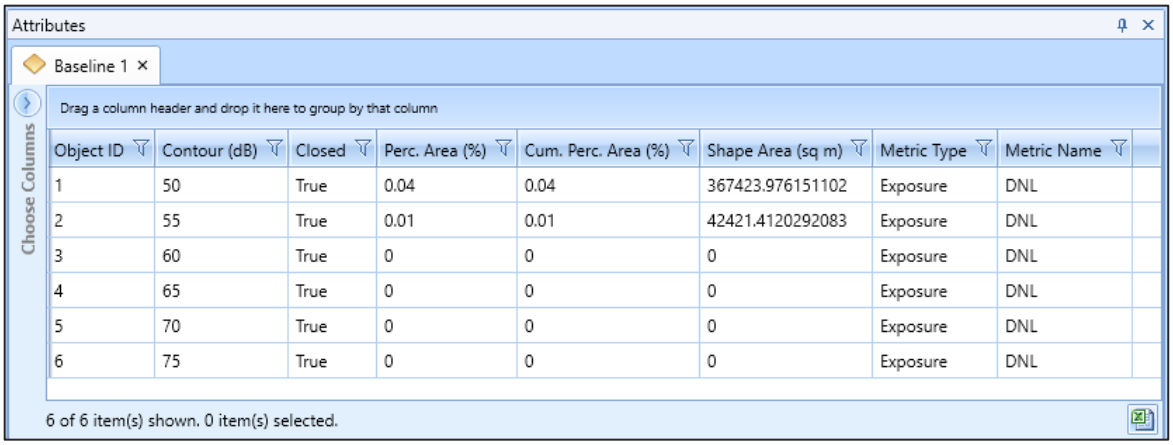


Figure 39. Noise Contour Layer Attributes

Reports

Output reports contain analysis results such as emissions and fuel burn, flight performance, noise at receptor points, population exposure, noise impact, emissions concentrations, and VALE analysis. AEDT reports are in tabular format and can be exported as a comma delimited CSV file for additional post-processing outside of AEDT.

To access reports, click *Reports* in the *Display* ribbon group under the *Metric Results* tab (Figure 40):

Figure 40. Metric Results Tab – Reports

Noise Report

The AEDT Noise report displays noise values at individual receptor points.

To view the Baseline Noise report:

1. Select the Baseline metric result.
2. Select *Noise* from the *View Reports* ribbon group.
3. The noise report for the baseline metric result is displayed in the center work area.

Emissions and Fuel Burn Report

The AEDT Emissions and Fuel Burn report displays emissions and fuel burn for all of the operations included in the metric result. Depending on the storage type, results can be summed in different ways. Because the "Baseline" and "Alternative" metric results were stored at the *Segment* level, you can view segment-level emissions and fuel burn details.

To view the Emissions Report (Figure 41):

1. Select the Baseline metric result.
2. Click *Emissions and Fuel* from the *View Reports* ribbon group.
3. Select *Annualized Operations Detail* under *Group By.*
4. Select *Kilograms* under *Units.*
5. Click *Generate Report.*

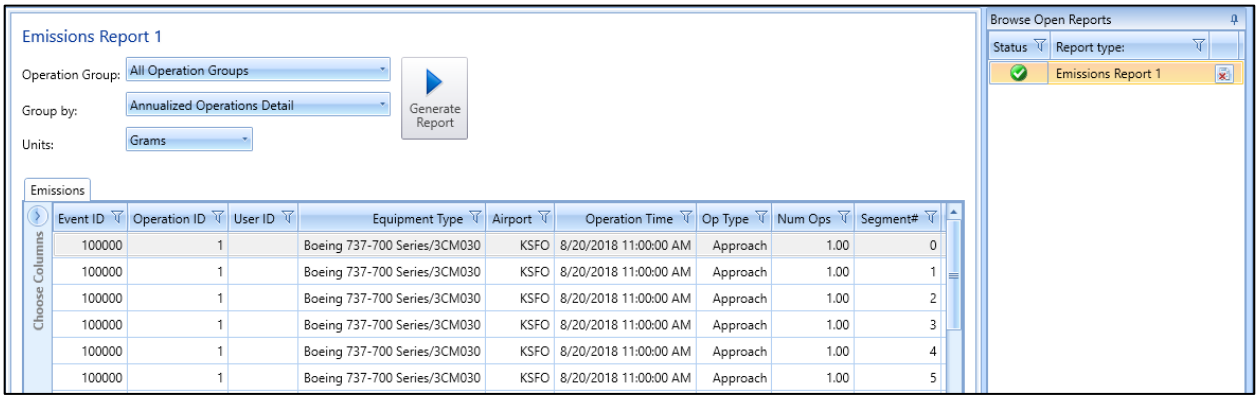


Figure 41. Emissions Report (Segment)

Congratulations! You have now successfully:

- Created a study
- Added an existing airport
- Created flight tracks to an airport layout
- Defined receptors and receptor sets used for noise calculations
- Created aircraft operations
- Defined and ran metric results
- Viewed noise contours
- Generated noise report and emissions report.

For information on how to create other types of studies or exercise modeling options not covered in this document, please refer to the *AEDT User Manual*.